

# CURRENT

# Pulse



# MONTHLY MAGAZINE

APRIL 01/2026 TO

# Jan Vishwas Bill, 2026

The Jan Vishwas (Amendment of Provisions) Bill, 2026 was recently passed in Lok Sabha to foster trust-based governance.



## Key provisions

- **Decriminalization:** replaces imprisonment with civil penalties for over **1,000 offences** minor offences.
  - E.g. up to Rs. 1 cr penalty for making national highway impassable instead of imprisonment.
- **Adjudication Mechanism:** to resolve penalties outside the court system.
- **Graduated response:** warnings/advisories before fines for first or second time lapses.
  - **Dynamic Monetary penalties:** 10% increment every 3 years to create deterrence.
- Several **outdated colonial-era laws** and offences are omitted.

# Registered Unrecognised Political Parties

The Election Commission of India (ECI) has relaxed the criteria for Registered Unrecognised Political Parties (RUPPs) to retain their common election symbols under the Election Symbols (Reservation and Allotment) (Amendment) Order, 2026.



- Parties now only need to **secure a 1% vote share in either of the last two elections** (Lok Sabha or Assembly) to retain their symbol, whereas previously they had to achieve this mark in both elections.

## About RUPP:

- Either **newly registered parties** or those which have **not secured enough percentage of votes** in the assembly or general elections to become a state party,
  - Or, those which have **never contested elections** since being registered are considered **unrecognised parties**.
- Such parties **don't enjoy all the benefits extended to the recognised parties**, such as free broadcast time, exclusive right to a reserved symbol, etc.

# Article 161

**Madras HC held that the Governor must follow Cabinet advice while exercising powers under Article 161 of the Constitution.**



## About Article-161

- Grants Governor power to grant **pardons, reprieves, respites** or **remissions** of punishment or to **suspend, remit or commute** the sentence of any convicted person.
- **Scope:** Applies to offences under the **State's executive jurisdiction**.

# NCERT

**Government declared NCERT as a deemed to be university.**

- Institutions that are '**deemed-to-be-university**' enjoy **academic status and privileges of a university**.
- Can be declared by Central Government on **advice of UGC**.

## About NCERT (Hq: New Delhi)

- **Genesis:** Autonomous organisation set up in **1961**.
- **Ministry:** Ministry of Education
- As per National Education Policy 2020, it is **nodal agency** to develop **National Curriculum Frameworks (NCFs)** for **Early Childhood Care and Education (ECCE)**, **School Education**, and **Adult Education**.



# Chief Election Commissioner

**Rajya Sabha Chairman & Lok Sabha Speaker have rejected the notice of impeachment motion against CEC.**

## About CEC

- **Article 324** of the Constitution provides that CEC shall not be removed from his/her office except in **like manner and like grounds as a judge of the Supreme Court**.
  - A removal motion stating ground of removal can be **introduced in either House of Parliament**.
  - **Speaker/Chairman may admit or refuse the motion** and if admitted, a three-member committee is formed to investigate charges.
  - If committee finds the **CEC guilty of proved misbehaviour or incapacity**, then both the Houses must pass the resolution with a special majority.
  - After passage of removal motion, the **President issues the removal order**.



# UCC

Gujarat Assembly passes the Gujarat Uniform Civil Code (UCC), 2026 Bill With the passage of the bill, Gujarat becomes the second state in the country, after Uttarakhand, to adopt the UCC.



## About Bill

- **Objective:** Establish Common legal framework to govern marriage, divorce, succession, equal inheritance rights and live-in relationships, **irrespective of religion**.
- **Exemption:** Not applicable to Scheduled Tribes and certain groups whose customary rights are protected under the Constitution.
- **Key Provisions:**
  - Bigamy prohibited, individual cannot enter into a second marriage while their spouse is still alive.
  - Mandatory registration is required for **Live-in Relationships**.

## Uniform Civil Code (UCC)

- **Article 44** of the Constitution, under the **Directive Principles of State Policy (DPSP)**, directs the state to strive for a UCC for all citizens across India.
- In Goa, a form of **common civil code** is in practice under the **Portuguese Civil Code of 1867**.
- **Need in India:**
- **Equality before the Law:** Uniform laws replace community-based personal laws. E.g., Hindu Marriage Act, Muslim Personal Law (Sharia), etc.
- **Ensures Gender Justice:** E.g., Women's rights vary vastly depending on their religion, and customary laws are often patriarchal, depriving women of equal inheritance, property rights, etc.
  - Supreme Court (SC) in various cases (such as **Shah Bano Case (1985)**, **Sarla Mudgal Case (1995)**, etc.) highlighted **need** of implementing UCC to deal with such issues.
- **National Integration:** Separates religion from personal laws, promoting social harmony.
- **Challenges in implementing UCC:** Threatens diversity and religious freedom, lack of consensus among communities, etc.

# Custodial Deaths and Accountability



**Death penalty imposed on Policemen for Custodial Death in Tamil Nadu Imposed by Additional District and Sessions Court in Madurai after death of two persons in 2020 in custody.**

## About Custodial Deaths

- It refers to death of a person in **custody due to torture and inhuman treatment**.
- In 2024, **National Human Rights Commission (NHRC) reported 2,739 custodial deaths**.

## Key Issues with Custodial Deaths

- **Against Constitutional Values:** Custodial torture represent a **reprehensible abuse of power** given vulnerability of detainees and unequal power dynamics.
- **Challenges To Accountability:** Due lack of **independent investigation** as investigation of custodial deaths is conducted by same police department where incident occurred.
- **Breach of Human Rights and Dignity:** Torture is a **grave violation of human rights**. E.g. 1972 rape case, involving a tribal woman raped in Police custody in Maharashtra.
- **Erosion of Police as an Institution:** Use of torture has been linked to **perpetuation of a culture of violence** within the police force.

## Safeguards Related to Custodial Torture

- **Constitutional**
  - **Article 20:** Grants protection **against arbitrary and excessive punishment**.
  - **Article 21:** No person to deprived of his life or personal liberty except according to **procedure established by law**.
  - **Article 22:** Provides protection for individuals against arrest and detention in certain cases.
- **NHRC's Guidelines on Custodial deaths (1993):** Reporting of custodial death or rape within 24 hours.
- **Previous Supreme Court (SC) Judgements:**
  - **D.K. Basu v. State of West Bengal (1996):** SC laid down detailed guidelines governing arrest and detention.
  - **Paramvir Singh Saini v. Baljit Singh (2020):** SC directed installation of CCTV in all police stations.
- **Global: Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (UNCAT):** India is a signatory but has not ratified it.

# Telangana Gig Workers Bill

Telangana Legislative Assembly passed the Telangana Platform-Based Gig Workers Telangana Gig Workers Bill seeks to regulate gig and platform work, and is similar to those passed by four other states: Karnataka, Rajasthan, Jharkhand, and Bihar.



- Telangana Bill provides for constitution of a special welfare board, government levy on aggregators, unique ID for gig workers and penalties for non-compliance.

## About Gig Workers

- Defined by Code on Social Security 2020, Gig worker is a person who performs work or participates in a work arrangement and earns from such activities **outside of traditional employer-employee relationship**.
- **Scale:** Gig workers increased from 77 lakh workers in FY21 to **120 lakh workers in FY25**, representing over 2% of India's total workforce.
- **Challenges:** Income and job volatility, challenging in accessing credit, financial inclusion, algorithmic biases, lack of social security, safety concerns etc.
- **Code on Social Security 2020:** It provides a **formal recognition to Gig workers and Platform workers**.
  - Aggregators are required to contribute **1-2% of their annual turnover** (capped at 5% of payments made or payable to gig/platform workers) to a **Social Security Fund**.
    - The fund finances a range of welfare schemes for these workers.
  - Each worker will receive a **unique Aadhaar-linked ID generated through registration on e-Shram**, allowing their social security benefits to be **portable across platforms**.

# New Income Tax Act 2025 comes into effect



**Income Tax Act, 2025 replaces the six-decades-old Income Tax Act, 1961 with objective to enhance predictability, transparency, reduce compliance burden, and offer taxpayers a streamlined and simplified tax filing process.**

## Key provisions of the Act

- **Simpler language and Framework:** Act has been condensed from 819 to 536 Sections, and 390 to 190 Forms.
  - Provisions of **Minimum Alternate Tax (MAT)** and **Alternate Minimum Tax (AMT)** have been separated into two sub-sections.
    - **MAT** bring into the tax net "zero tax companies" which in spite of having earned substantial book profits and having paid handsome dividends, do not pay any tax due to various tax concessions and incentives provided under the Income-tax Law.
    - **AMT** has similar provisions as MAT which is applicable to non-corporate tax payers.
    - The provisions of MAT are applicable to a corporate taxpayer only.
- **"Tax Year" Concept:** The traditionally separate concepts of Financial Year (FY) and Assessment Year (AY) have been merged into a single, unified term: "Tax Year".
- **Stability in Core Tax Elements**
  - Tax rates and regimes for **individuals and corporations remain unchanged.**
  - There are no changes in offences and penalties.
  - Most definitions have also been retained.
  - Faceless collection of information and assessment of tax cases.
- **Undisclosed Income:** The definition of undisclosed income for assessing search cases, which previously included money, bullion, jewellery, or other valuable articles, is expanded to include **virtual digital assets.**
- **Virtual Digital Space Access:** Income tax authorities are now allowed to gain access to a virtual digital space during search and seizure proceedings.
  - A "virtual digital space" is **defined broadly to include email servers, social media accounts, online investment and trading accounts, and websites for storing details of asset ownership.**

# Census-2027

The first phase of Census-2027 begins on 1st April, 2026.

## About Census-2027

- It is the **16<sup>th</sup> Census** in the series and the **8<sup>th</sup> since Independence**.
  - The last Census was conducted in **2011**.
- It is the **world's largest and first digitally conducted Census** with the option of **Self-Enumeration**.
  - **Self-Enumeration** is a secure web-based facility for entering information online in 16 languages before the door-to-door survey.
- To be conducted in **two phases**, House Listing (HLO) and Population Enumeration (PE).
- It will include the **first nationwide caste enumeration in independent India** (last done in 1931) for all communities (beyond Scheduled Castes and Scheduled Tribes).
- **Conducted by:** Office of the Registrar General and Census Commissioner, Ministry of Home Affairs (decennially)
- **Legal Backing:** Census Act, 1948 and Census Rules, 1990.



# RBI's Two-factor Authentication

Based on RBI's rules, from 1 April, all digital transactions must be verified using at least Two-factor Authentication with at least one factor being dynamic.



## About RBI's Two-factor Authentication(2FA)

- **Aim:** To plug gaps in PIN- and OTP-based systems, reducing vulnerabilities and strengthening safeguards in digital payments.
  - Current OTP-only approach is vulnerable to **phishing and SIM-swap attacks**.
- It applies across payment modes, including **cards, UPI and wallets**.
- **Independent authentication factors** include personal identification number (PIN), a one-time password (OTP), biometric or device-based authentication.

# Special Economic Zones



The Central Board of Indirect Taxes and Customs has introduced a one-time relief measure allowing eligible manufacturing units in SEZs to sell goods in the Domestic Tariff Area (Indian markets domestically) at concessional customs duty rates.

- The relief will be effective from April 1, 2026, to March 31, 2027 to help SEZ manufacturers cope with global trade disruptions.

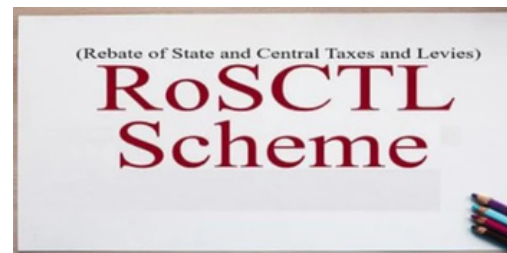
## About SEZs:

- **Overview:** They are specifically delineated, duty-free enclaves treated as foreign territory for trade operations and customs duties.
- **Current Status:** India has **368 notified SEZs** (Feb 2026).
- **Legal Provisions:** SEZs are governed by the **SEZ Act of 2005** and **SEZ Rules of 2006**, which provide a simplified regulatory framework.

## Significance of SEZs

- **Export Growth:** Generating **₹11.70 lakh crore** by December 2025.
- **Investment Hubs:** Attracted **₹7.86 lakh crore** in combined domestic and foreign investments as of December 2025.
- **Job Creation:** Over **31.73 lakh jobs** by December 2025.
- **Infrastructure Development:** Including Mundra Port, Kandla Port, Sri City, and GIFT City.
- **Tech & Innovation:** Accelerated high-value manufacturing, research, and technological adoption, particularly in the electronics and semiconductor sectors.
- **Global Competitiveness:** Established India as a stable and reliable destination for international trade and investment.

# Rebate of State and Central Taxes and Levies Scheme

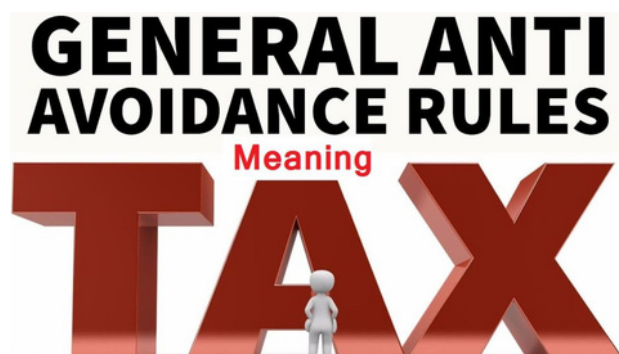


Government notifies extension of RoSCTL Scheme up to 30th September 2026.

## About the scheme

- **Launched:** In 2019 by the Ministry of Textiles.
- **Aim:** to zero-rate textile exports by rebating all embedded State and Central taxes and levies, not covered under any other scheme.
- **Mechanism:** Rebates are issued as **Duty Credit Scrips** which can be sold or used to pay custom duty.
- **Benefits:** Flexibility, enhanced export competitiveness, cost reduction etc.

# General anti-avoidance rules (GAAR).



Recently, India amended Income Tax Rules, 2026, under Income Tax Act, 2025, to exclude investments made before 1 April 2017, from GAAR

- This removed ambiguity around grandfathering.
  - **Grandfathering** lets investments made before a specified date enjoy old tax rules despite later changes.

## About GAAR (effective from April 2017)

- Introduced via **Finance Act 2012**.
- Aim to **address aggressive tax avoidance**.
- Recommended by Parthasarathi Shome Committee.
- **Implementation:** Tax authorities can trigger GAAR if an arrangement
  - Lacks Commercial Substance
  - Shows Abuse of Law
  - Transactions between related parties doesn't reflect market prices.
  - creates rights that wouldn't normally exist
- **GAAR applies only if annual tax benefit exceeds ₹3 crore.**

# Purchasing Managers' Index



HSBC India Manufacturing PMI fell to 53.9 in March 2026, near a 4-year low due to the West Asia crisis.

- The report noted that **new orders and output** for manufacturing firms rose at their slowest rates since mid-2022.

## About Purchasing Managers' Index (PMI)

- It is a **survey-based indicator** measuring business conditions using data on orders, output, employment etc.
- PMI above **50 shows expansion** and **below 50 indicates contraction**.
- **Types:** Manufacturing PMI and Service PMI.
- **Significance:** Reflects vulnerability of manufacturing to global shocks.

# Non Deliverable Derivatives (NDD)



Reserve Bank of India (RBI) has directed to bar banks from NDD contracts in rupee.

## About NDD

- **Derivative contract** where two parties agree on future exchange rate for rupee, but settle the difference in **cash**, usually in US dollars.
- These trades **take place offshore, outside the control** of RBI.
- They were developed in **response to restrictions that constrained access to onshore markets** and are widely used by foreign investors, hedge funds and global banks who cannot freely access the Indian rupee market.

# India's Defence Exports

India's Defence Exports Reached an All-time High of Rs. 38,424 crore in FY 2025-26: Ministry of Defence



## Key Achievements

- **Export growth:** 62.66% increase over previous fiscal year.
  - Exports have **steadily increased** from 2021-22 to 2025-26
- **Sectoral Contribution:**
  - **Defence Public Sector Undertakings (DPSUs):** 54.84%
  - **Private Sector:** 45.16%.
- **Global Reach:** India's defence exports have expanded to 80+ countries as of FY 2025-26.

## Significance

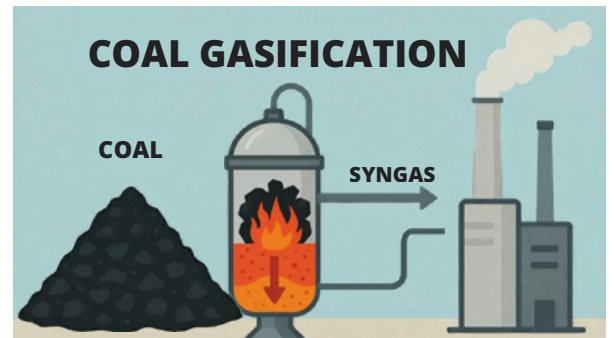
- **Strategic:** Positions India as a **global manufacturing hub for defence equipment**.
- **Diplomatic:** Defence exports build trust, interoperability and long-term partnerships.
- **Promote Indigenization:** India's indigenous defence production hit a record high in FY 2023-24.
- **Realising Atmanirbhar goal:** India targets ₹3 lakh crore defence production and ₹50,000 crore exports by 2029.
- **Others:** Employment Generation, Increasing private sector participation etc.

**Persisting Challenges:** High import dependence, global disruption vulnerabilities, Competition from global players, regulatory delays etc.

## Key Initiatives to Promote Defence Exports

- **Innovations for Defence Excellence (iDEX) Framework:** Promotion of innovation through startups and MSMEs.
- **FDI Liberalisation:** 74% FDI under automatic route for technology inflow.
- **Defence Acquisition Procedure 2020:** Increased indigenous content in defence procurement.
- **Defence Industrial Corridors (DICs):** Industrial ecosystems in Uttar Pradesh and Tamil Nadu.
- **Research, Development and Innovation (RDI) Scheme:** For fostering collaboration among DPSUs, private companies, MSMEs, and startups

# Coal Gasification Incentive Scheme



Union Minister unveils India's roadmap to reduce dependency on imported petroleum, ammonia, and fertilizers, highlighting the coal gasification incentive scheme.

## Coal Gasification Incentive Scheme

- **Approved:** in 2024 with an outlay of ₹8,500 crore to promote coal and lignite gasification projects in public and private sectors.
- **Objective:** To reduce dependence on imported petroleum, ammonia and fertilisers by promoting production of syngas and value-added products from coal.
- **Categories:**
  - **Category I:** PSU-led projects
  - **Category II:** Private and PSU projects
  - **Category III:** Demonstration and small-scale projects

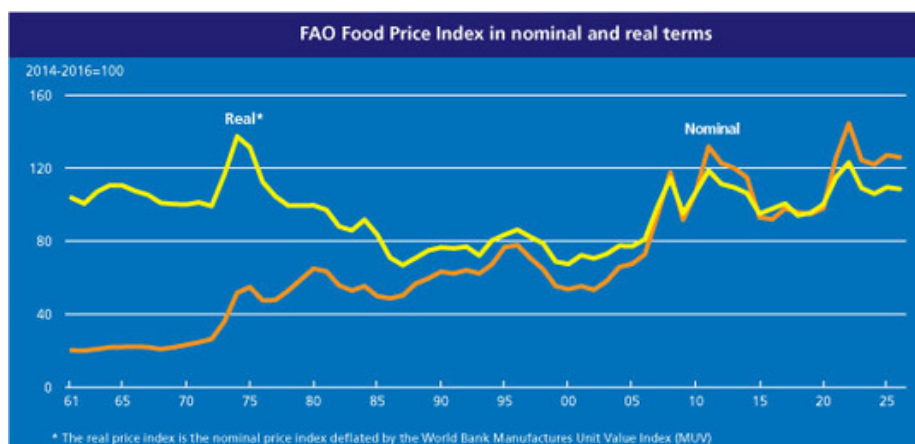
# FAO Food Price Index



Food and Agriculture Organization (FAO) Food Price Index rose to 128.5 points in March 2026, driven by higher energy costs amid Middle East tensions.

## FAO Food Price Index

- A measure published by the Food and Agriculture Organisation (FAO) tracking monthly changes in international prices of a basket of food commodities.
- **Base year:** 2014–16.
- **Composition:** Includes five major commodity groups—cereals, vegetable oils, dairy, meat and sugar.



# Labour Migration



**Rising Fuel Costs Strain Migrant Workers, Raising Risk of Reverse Migration** Industry associations warn of rising stress in MSMEs and potential migrant labour exodus due to issues linked to the West Asia conflict.

## Migrant labourers in India

- **Total number of Inter-State migrant workers:** 4.14 Crore (Census 2011)
- **Migration rate:** 28.9%, with 26.5% from rural areas (2020-21 Migration report)

## Problems Faced by Migrant Labourers

- **Informalisation:** About 90% of workers are informal leading to low wages, irregular payments, etc. during crises like **COVID-19 pandemic**.
- **Lack of Affordable Housing:** Migrants as the largest group requiring housing in cities (Ministry of Housing and Urban Affairs).
- **Risk of Exclusion from Welfare:** E.g., Public Distribution System excludes individuals without Aadhaar linkage.
- **Others:** Limited access to Health and Education, Discrimination, lack of political representation etc.

## Way Forward

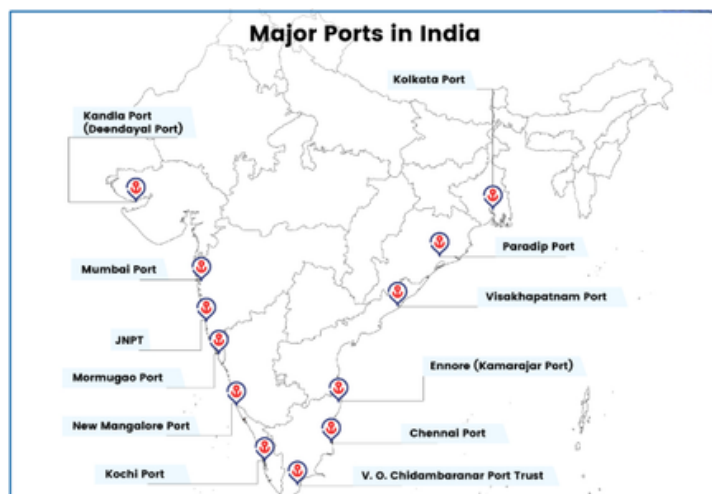
- **Immediate Food Support for Migrants:** E.g., **Community kitchens and temporary canteens** in MSME clusters.
- **Direct Benefit Transfer based subsidy delivery:** Enables better **targeting to protect vulnerable groups**.
- **Establish an inter-ministerial coordination system:** With **industry participation** for **real-time monitoring and faster policy response**.
- **Credit & Interest Relief:** To ease financial stress on enterprises employing migrant labour.

## Government Initiatives

- **eShram Portal:** Launched in 2021 to create a **National Database of Unorganised Workers**.
- **One Nation One Ration Card:** To ensure **food security for all** including **internal migrants**.
- **Affordable Rental Housing Complexes for Urban Migrants/ Poor:** A sub-scheme of **Pradhan Mantri Awas Yojana – Urban** providing affordable rental housing to urban migrants.
- **Welfare Schemes:** PM Street Vendor's AtmaNirbhar Nidhi, Pradhan Mantri Shram Yogi Maan-Dhan Yojana, Pradhan Mantri Garib Kalyan Yojana etc.

# Major Ports demonstrated remarkable progress

India's Major Ports demonstrated remarkable progress in FY 2025–26. Progress has been primarily driven by sustained capacity expansion, modernization of port infrastructure, and improved turnaround efficiency.



## Key Progress

- **Cargo handling:** Major ports handled **915.17 million tonnes** in FY 2025–26, surpassing target of 904 MT with **7.06% growth**.
- **Top performers:** Deendayal (160.11 MT) followed by Paradip and Jawaharlal Nehru Port Authority (JNPA)

## Which initiatives have played a pivotal role in this progress?

- **Legislative measures:** Major Port Authorities Act, 2021 provides greater autonomy and promotes PPP participation, while the Indian Ports Act, 2025 (replaced Indian Ports Act of 1908) aims to modernise port regulation.
  - Government promotes private participation with **100% FDI under automatic route** in port and harbour development and maintenance.
- **Sagarmala Programme:** Flagship initiative launched in 2015 for port modernization, connectivity enhancement, new port development and coastal community development.
- **Maritime India Vision 2030:** Outlines 150 initiatives for propelling India to global maritime leadership. It includes spheres such as port infrastructure development, enhancing logistics efficiency, etc.
- **Others:** National Logistics Portal (Marine)- SAGAR-SETU; Real-time performance Monitoring Dashboard, Sagar Manthan, etc.

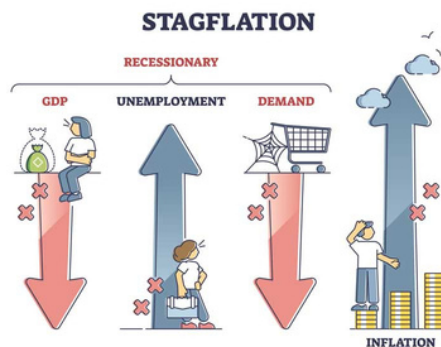
The progress reinforces the vision of **port-led development** envisaged under **Maritime Amrit Kaal Vision 2047**.

## Ports in India

- India has **14 major ports (12 operational)** and around **200 non-major** (minor) ports.
- **Non-operational major ports:** Vadhvan Port (Maharashtra) and Galathea Bay Port (Great Nicobar, Andaman & Nicobar Islands).
- **Administration:** Major ports are under Ministry of Ports, Shipping and Waterways, while non-major ports are under State Maritime Boards/State Governments.

# Stagflation

The energy supply and price shock from the ongoing Iran war can lead to Stagflation.



## About Stagflation

- It is an economic condition characterized by **slowing economic growth**, **recession** or **high unemployment**, and **rising prices** (inflation) simultaneously.
- It is challenging for central banks to control through monetary policy.
  - E.g., if central banks raise interest rates to combat high inflation, stagflation could risk further increasing unemployment.
- **Other types of inflation:**
  - **Skewflation:** Uneven inflation across sectors, with some goods or services rising much faster than others.
  - **Hyperinflation:** Extremely high and accelerating inflation, often exceeding 50% per month.
  - **Creeping Inflation:** Occurs when prices rise slowly over time.
  - **Galloping Inflation:** Happens when inflation accelerates rapidly, with prices increasing 20% or more in a year.

# Annual Survey of Incorporated Services Sector Enterprises

National Statistics Office (NSO), Ministry of Statistics and Programme Implementation (MoSPI), launched Annual Survey of Incorporated Services Sector Enterprises (ASISSE).



## About ASISSE

- **First** annual survey covering **incorporated service enterprises** across all States/UTs (FY 2024-25 reference).
- **Coverage:** Incorporated service sector enterprises registered under the Companies Act, 1956, or Companies Act, 2013, or Limited Liability Partnership Act, 2008.
  - Covers sectors like **trade, transport, IT, health, education, hospitality**.
- **Aim:** To build a **reliable database** for policymaking and economic analysis.
- Uses Goods and Services Tax Network (**GSTN**) database; ~1.21 lakh enterprises surveyed.
- Complements **ASI (Annual Survey of Industries)** and **ASUSE (Annual Survey of Unincorporated Sector Enterprises)** for holistic non-agricultural economy data.

# Record Wind Energy Addition



India achieves Highest-ever Annual Wind Energy Addition of 6.05 GW in 2025–26 The milestone reflects a 46% year-on-year growth, strengthening India's position as a leading global wind energy market.

- It is a step towards achieving the national target of **500 GW of non-fossil fuel-based energy capacity by 2030.**

## Status of Wind Energy

- **Global Status: 4th in Wind Power capacity (IRENA RE Statistics 2025)**
- **Installed Capacity:** Increased from 21.04 GW (2014) to over **56 GW (2026)**
- **Role in Energy Mix:** Second largest renewable source after solar in India.
- **Leading States:** Gujarat, Karnataka, and Maharashtra are key contributors to capacity addition.

## Government Initiatives

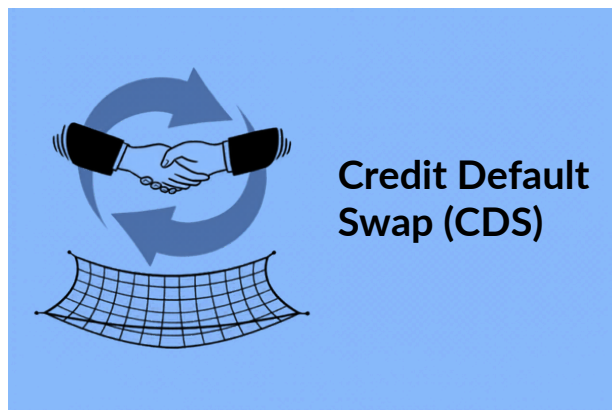
- **Centralized Data Collection and Coordination (CCDC) Wind Initiative:** It aims to improve wind resource assessment through accurate data collection and research.
- **National Wind-Solar Hybrid Policy 2018:** To provide a framework for promotion of large grid connected wind-solar photovoltaic hybrid systems for optimal and efficient utilization.
- **Viability Gap Funding (VGF) scheme for offshore wind energy projects:** In line with the National Offshore Wind Energy Policy, 2015.
- **Other:** Green Energy Open Access Rules (2022), Renewable Energy Purchase Obligation (RPO), concessional customs duty on wind turbine components, waiver of Inter-State Transmission System (ISTS) charges until 2028, etc.

## Issues

- **Infrastructure Constraints:** Limited grid capacity, weak transmission networks, and approval delays hinder integration and timely evacuation of wind power.
- **Economic Challenges:** High capital costs, large project size requirements, and policy uncertainty increase financial risks and limit participation.
- **Others:** Technical issues (logistics, complex installation), Land Acquisition Issues etc.

# Credit Default Swaps (CDS)

The Reserve Bank of India notified limits for investment in debt and sale of Credit Default Swaps by Foreign Portfolio Investors (FPIs) for FY 2026-27.



- The limits for FPI investment in Government Securities (G-Secs), State Government Securities (SGSs) and corporate bonds remain unchanged.

## About Credit Default Swaps

- **Definition:** It is a **financial derivative** instrument that allows an investor to **swap or offset their credit risk** with that of another investor.
- **Working Mechanism:** It works like an **insurance** on bonds, where the buyer pays regular premiums and the seller pays if a default or restructuring occurs.
- **Uses:** Used for **hedging, speculation, and arbitrage**, credit risk management.
- **Risks:** Counterparty risk, complexity.

# Business Correspondent

RBI proposed revised Banking Correspondent (BC) classification, based on three types of delivery points — bank branches, Business Correspondent-Banking Outlet (BC-BO) and Business Correspondent-Banking Touchpoint (BC-BT).



- **BC-BO:** It is a fixed-point service delivery unit, operated by a BC / BC sub-agent,
- **BC-BT:** It is a service delivery point working **exclusively for one bank**, offering limited services, and having flexible hours of operations.

## About Business Correspondents

- BC means as an **entity (juridical person) or individual** (other than its own employee) who has been **engaged by a bank** to provide banking and other **financial services, on behalf of the bank**.
- **Role:** Assigned in **remote areas** to perform **retail banking operations**, expanding the reach of banks and helping in **financial inclusion**.

# Food Processing Industry in India

Sales of PLISFPI products increased by 10.58%: Joint Secretary of MoFPI The Production Linked Incentive Scheme for Food Processing Industry (PLISFPI), implemented in 2021-22 by Ministry of Food Processing Industries (MoFPI), has shown strong performance.



## About PLISFPI

- **Type:** Central Sector Scheme
- **Ministry:** MOFPI
- **Total outlay:** ₹10,900 crore
- **Duration:** 6 years (2021-22 to 2026-27)
- **Objectives:** Create global food manufacturing champions, Promote Indian food brands internationally, Generate off-farm employment, Ensure better prices to farmers & higher income.

## About Food Processing Sector In India

- It involves the transformation of raw agricultural products into consumable food items through various physical, chemical, and mechanical processes.
- This sector plays a crucial role in enhancing the shelf life, safety, and quality of food, thus meeting the demands of a growing global population.
- According to Annual Survey of Industries (ASI) report,
  - Gross Value Added (GVA) increased from ₹1.61 lakh crore (2015-16) to ₹1.92 lakh crore (2022-23).
  - The sector recorded an Average Annual Growth Rate (AAGR) of ~5.35% over the last 8 years.
  - Employment rose from 17.73 lakh (2014-15) to 20.68 lakh (2021-22).
- **Other Key Government initiatives:** PM Kisan SAMPADA Yojana (PMKSY), Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME), Mega Food Parks Scheme, etc.

# Indian Council of Agricultural Research



**ICAR Constitutes Special Task Force to Strategize  
Agricultural Resilience Amid Global Geopolitical Shifts**

**About ICAR (HQ: New Delhi)**

- **Origin: Established** registered society under Societies Registration Act, 1860 as Imperial Council of Agricultural Research
  - based Royal Commission on Agriculture report ( under Lord Linlithgow )
- **Ministry:** under **Ministry of Agriculture and Farmers Welfare**
  - **Ex-officio President :** Union Minister of Agriculture
- **Role:** Apex body for coordinating and guiding agricultural research and education (including horticulture, fisheries, animal sciences).
  - Eg. research related to Green revolution technologies
- **Key initiatives**
  - **Krishi Vigyan Kendras** linking agricultural research and farmers at district level
  - **National Innovations in Climate Resilient Agriculture(NICRA)** to enhance the resilience of Indian agriculture to climate change

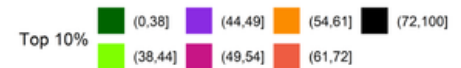
# Report on Land Inequality in India



World Inequality Lab Released Report on Land Inequality in India Report titled "Land inequality in India: Nature, history, and markets," encompasses data from ten major Indian states (~ 75% of rural population).

## Key Findings of the Report

- **Extreme Wealth Concentration:** Top 10% of rural households own 44% of the total land area.
- **Widespread Landlessness:** Nearly 46% of rural Indian households are entirely landless.
- **Village-level Land Gini Coefficients:** extremely high at 71.1.
- **Dominant Landlords:** In an average village, the single largest landholder controls roughly 12.4% of the land.
- **Regional Disparities:**
  - **Highest Inequality:** Kerala (Land Gini coefficient at 90).
  - **Lowest Inequality:** Karnataka and Rajasthan (Land Gini coefficients below 65).
  - **Rates of Landlessness:** Punjab highest at 73%.



## Key Drivers of Land Inequality in India

- **Nature:** High productivity facilitates the expansion of large landholdings and drives up landlessness.
- **History:**
  - **Colonial Tenure:** Regions formerly under the British zamindari (landlord) system exhibit higher inequality, vis-à-vis "princely states".
  - **Social Stratification:** Villages with a higher proportion of Scheduled Caste (SC) populations face higher inequality, due to historical landlessness.
- **Markets (Economic Integration):** Proximity to economic hubs, such as towns, major highways, railways, banks, and agricultural markets (mandis) is associated with higher land inequality.
  - Economic integration alters the profitability of farming relative to non-agricultural activities, incentivizing smallholders to sell their non-viable plots to larger landowners.

## Steps taken to reduce land inequality in India

- **Land Reforms Post Independence:** Abolition of Intermediaries (Zamindari System), introduction of Land Ceiling Acts, Tenancy Reforms (ownership rights to actual cultivators), etc.
- **Bhoodan and Gramdan Movements:** Led by Vinoba Bhave in 1951, sought voluntary donation of land from landowners.
- **Digital India Land Records Modernization Programme (DILRMP):** Modernizing land records, such as the Bhoomi Project in Karnataka.
- **Forest Rights Act, 2006:** Recognized the land rights of forest-dwelling communities and tribal populations.
- **Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act, 2013:** Established fairer practices for acquiring.

# Global Chokepoints

**Significance and Vulnerability of Global Chokepoints amidst the West Asia War** According to a report, over two-thirds of seaborne energy trade depends on a few key chokepoints. E.g. Strait of Hormuz, Strait of Malacca etc.

- These chokepoints are **shaping conflict escalation, energy prices and global financial stability** outside the battlefield.

## What are Chokepoints?

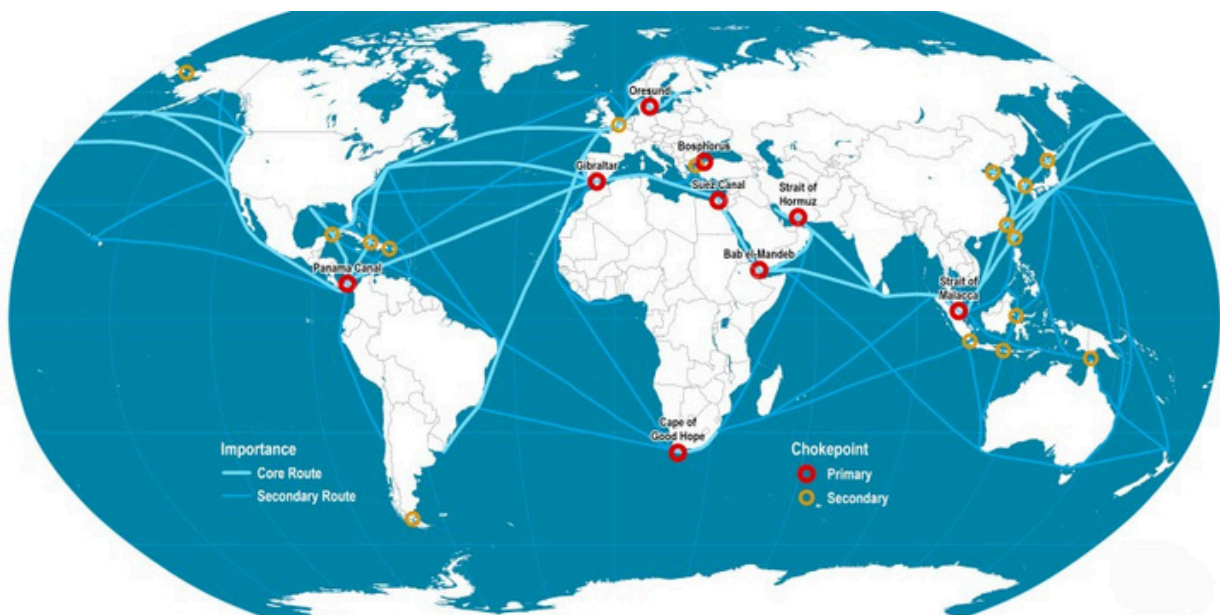
- Chokepoints are narrow, strategically important maritime passages crucial for global trade.

## Significance of chokepoints

- **Trade and Energy Arteries:** Chokepoints are critical for international maritime trade of oil and gas and other commodities (e.g. fertilizers), acting as potential bottlenecks for **global supply chains**.
- **Economic Impact:** Disruptions at chokepoints **inflate freight costs, extend transit times, and raise insurance premiums**, directly fueling global **inflation** and disrupting **import-dependent economies**.
- **Geopolitical Flashpoints:** Strategic significance makes them vulnerable to **military blockades, regional conflicts, and piracy**, influencing diplomacy and naval strategies worldwide.
- **Climate Change Risks:** Environmental shifts are creating new bottlenecks. E.g. **Drought in Panama Canal** disrupting global supply chains.
- **Industrial and Digital risks:** **Chokepoints now include concentrated industrial and digital systems.**
  - E.g. **rare mineral** processing chains rely on concentrated refining capacity of **China**
  - E.g. More than **90%** of Europe-Asia **subsea cable** capacity runs through the **Red Sea cable corridor**, making it a chokepoint for digital services.

## Potential Solutions for India

- **Diversifying energy sources and supply chains, scaling up renewable energy, exploring alternative transportation routes.** E.g. India-Middle East–Europe Economic Corridor (IMEC)
- Strengthening **military capabilities** to ensure freedom and openness of Sea Lines of Communication (SLOC) in line with India's **MAHASAGAR vision**.



# Four years to India–Australia ECTA

Signed in 2022, Agreement played a pivotal role in enhancing trade flows, fostering industry linkages, and creating new opportunities for businesses, entrepreneurs, and employment.



## Key Benefits accrued from the ECTA

- **India's Exports to Australia Doubled:** From USD 4 billion in FY 2020–21 to **USD 8.5 billion in FY 2024–25**.
  - In FY 2025–26 (up to February), India's **total trade with Australia stood at USD 19.3 billion**.
- **Preferential Market Access:** India granted preferential market access on 70.3% of its tariff lines while Australia granted the same **on 100% of its tariff lines**, corresponding to 100% of imports from India.
  - From 1 January 2026, all Indian exports are **eligible for zero-duty market access into Australia**.
- **Broad Based Sectoral Gains:** Notable growth witnessed in exports across textiles, pharmaceuticals, chemicals, and agricultural products.
- **Signing of Mutual Recognition Arrangement (MRA) in organic sector:** Strengthening Organic Trade.

## Significance of Australia for India

- **Strategic Alignment towards Indo-Pacific:** Both share commitment to **transparent, open, secure, inclusive, and rules based** order in Indo-Pacific, as seen in:
  - Australia is a key partner in **Quadrilateral Security Dialogue (QUAD)**, alongside **United States and Japan**.
  - **Australia-India Indo-Pacific Oceans Initiative Partnership (AIPOIP)**.
  - **2+2 dialogue framework between defence and foreign ministers** launched in 2019.
- **Defence Engagement:** Regular joint naval exercise (**AUSINDEX**); signed **Mutual Logistics Support Agreement in 2021** for closer defence cooperation.
- **Energy and Resources:** Development of New supply chains under **India-Australia Critical Minerals Investment Partnership**; cooperation in Renewable Energy including Green Hydrogen, etc.

# Arab League

Arab League held an emergency session in Cairo over Al-Aqsa closure and prisoner execution law.



## About Arab League (League of Arab States)

- An Intergovernmental organisation encompassing **all Arab states in Middle East and North Africa.**
- **Mandate:** strengthening relations between its member states, coordination of their policies and co-operation while safeguarding independence and sovereignty of each member.
- **Established:** March 22, 1945, following adoption of **Alexandria Protocol in 1944.**
- **Members:** 22.
- **Founding Members:** Egypt, Iraq, Lebanon, Saudi Arabia, Syria, Jordan, Yemen.
- **Headquarters:** Cairo, Egypt.

# United Nations Development Partnership Fund

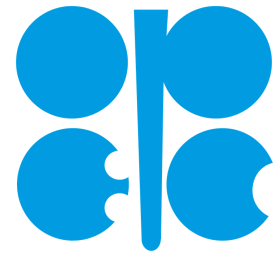


India and United Nations conducted review of UN Development Partnership Fund operations.

## About UNDPF

- **Overview:** Launched in 2017 with **\$150 million**, led by Government of India.
- **Objective:** Supports **Global South** in achieving **Sustainable Development Goals** and shared prosperity.
- **Approach:** supports Southern-owned and led, demand-driven and country-led sustainable development projects.
- **Focus Areas:** Least Developed Countries (LDCs) and Small Island Developing States (SIDS).
- **Implementation:** managed by the **United Nations Office for South-South Cooperation (UNOSSC)** and executed by UN agencies with partner governments.

# OPEC+



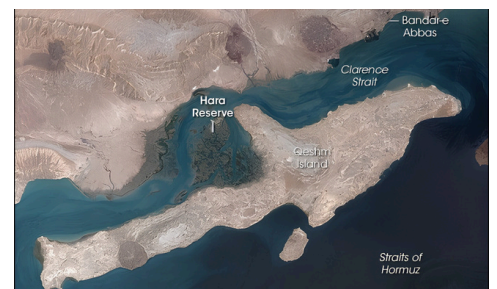
**OPEC+ has raised production quotas amid the US-Iran-Israel Conflict.**

## About Organization of the Petroleum Exporting Countries (OPEC) and OPEC+

- In 1960, five countries namely- **Iraq, Iran, Kuwait, Saudi Arabia, and Venezuela** established OPEC as a permanent intergovernmental organization.
  - It aims to coordinate and unify the petroleum policies of its Member Countries and ensure the stabilization of oil markets.
  - Other members of OPEC include: **Algeria, Congo, Equatorial Guinea, Gabon, Libya, Nigeria, and United Arab Emirates.**
- In **2016**, the OPEC joined with **10 other producers** to form OPEC+.
  - Other than OPEC countries it has **Russia, Azerbaijan, Bahrain, Brunei, Kazakhstan, Mexico, Malaysia, Oman, South Sudan, and Sudan.**
- OPEC+ represents approximately 60% of world supply.

# Qeshm Island

**Iran's Qeshm Island desalination plant out of service since early March strike.**



## Qeshm Island (Iran)

- **Location:** Lies near Bandar Abbas, separated by Khuran (Clarence) Strait.
  - **Largest island in the Persian Gulf.**
- **Strategic Importance:** Close to Strait of Hormuz, critical global oil shipping route, provides Iran **strategic leverage over maritime traffic.**
- **Terrain:** Rocky coastline with sandy bays & mudflats

# US- Iran ceasefire

**Recently US and Iran announced a 2 week ceasefire.**



- As part of the deal Iran agreed to temporarily reopen the strait of Hormuz
- Iran has finalised a 10 point plan for acceptance of war's conclusion
  - Eg. continued Iranian control on Strait of Hormuz, US withdrawal from middle east etc.

## About strait of Hormuz

- **Connects** Persian Gulf with Gulf of Oman and Arabian Sea.
- **Energy transit hub:** 20% of the world's oil passes through it.
  - About 40% of India's crude oil imports, over 50% of its LNG imports, and 90% of its LPG imports transit through the strait

# Jojari-Luni-Bandi River System

Supreme Court appointed high level committee highlighted that industrial pollution has turned the Jojari-Luni-Bandi River system into a toxic mix of sludge, untreated effluents and municipal waste.

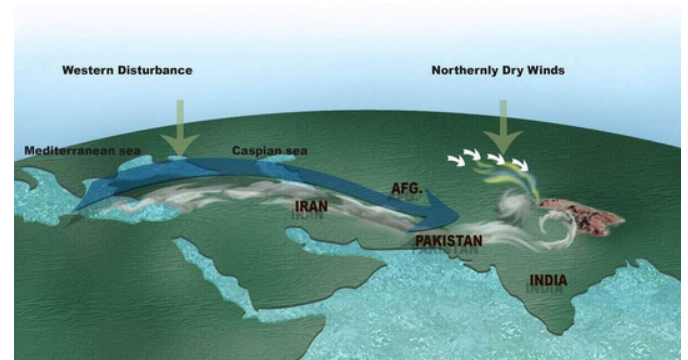


## About Jojari-Luni-Bandi River System

- Luni River originates from **western slopes of the Aravalli ranges** near Ajmer.
- Traversing a course of 511 km in Rajasthan, it finally **flows into Rann of Kachchh**.
- Its **Tributaries** include Jojari, Bandi, Mithri, Lilari, Sukri, Jawai etc.

# Western Disturbances

Two successive western disturbances are likely to affect northwest India.



## About Western Disturbances (WDs)

- **Origin and Formation:** WDs forms over the Mediterranean Sea region due to interactions between contrasting air masses.
- WDs are embedded within the mid-latitude **Subtropical Westerly Jet (SWJ)**, which guides their eastward movement.
- **Season and Area of Impact:** **Boreal winter** (December to March), impacting western Himalaya, as well as to surrounding areas of north India, Pakistan, and the Tibetan Plateau.
- **Significance for India:** Crucial for Rabi crops (e.g., wheat, mustard), replenishing glaciers in the Himalayan region, etc.
- **Associated Weather hazards:** Heavy snowfall, hailstorms, fog, cloudbursts, avalanches, frost, and cold waves.

# Supernova

Scientists find evidence for pair instability supernovas which leave nothing behind after exploding.



- A supernova — the **explosive death of a star** — is always violent, blasting material into space while typically **leaving behind a compact stellar remnant like a neutron star or black hole**.
  - They are incredibly energetic and can **outshine their entire host galaxies**, making them visible across the universe.
- But some supernovas involving the largest stars may be so immensely powerful they **leave absolutely nothing behind**.

# Lakes of Jammu and Kashmir



Comptroller and Auditor General of India highlighted severe ecological decline in lakes of Jammu and Kashmir over past decade.

- Out of total 697 lakes, 315 have disappeared, **203 lakes have shrunk**, and total **518 lakes degraded**.

## Lakes of Jammu and Kashmir

- **Dal Lake:** Urban lake in Srinagar, having floating gardens called Raad.
- **Wular Lake:** Second largest freshwater lake of Asia with Jhelum River as its main source. Situated on foothills of Haramuk Mountain.
- **Hokersar Lake:** Known as Queen of Wetlands, it is a sanctuary for migratory birds.
- **Manasbal Lake:** Mughal Garden called the Jaroka, built by Nur Jahan overlooks the lake.

# Plastic Waste Management

**Plastic Waste Management (Amendment) Rules, 2026 notified by the Government These rules amend the Plastic Waste Management Rules, 2016, notified under the Environment (Protection) Act, 1986.**



## Key Changes in 2026 Amendment Rules

- **Mandatory Recycled Content: Producers, importers, and brand owners** must use **progressively higher amounts of recycled plastic in their packaging** (e.g., Category I targets scale from 30% in 2025-26 to 60% from 2028-29 onwards).
  - Exemptions apply if **statutory bodies (like FSSAI or CDSCO) prohibit recycled plastic** for specific uses.
  - Unfulfilled 2025-26 targets for **food contact applications** can be **carried forward for up to three years**.
- **Clearer Definitions:** The amendment explicitly defines terms like "**end of life disposal**," "**reuse**," and "**Plastic Waste Processors**" to remove regulatory ambiguities.
- **Reuse obligations:** Minimum reuse targets for Category I rigid plastic packaging (e.g., large drinking water containers up to 85%).
- **Strict Standards:** Recycled packaging must conform to the **Indian Standard IS 14534:2023** and bear **specific labels** indicating recycled content.
- **Governance & enforcement: Decentralised enforcement by Urban Local Bodies (ULBs)** with monitoring through State committee; digital tracking and audit by Registered Environment Auditor.

## Significance of Plastic Waste Management Rules

- **Circular economy:** Promotes recycling and reuse, reducing dependence on virgin plastic and enhancing resource efficiency.
- **Environmental protection:** Reduces plastic pollution in terrestrial and marine ecosystems.
- **Public health:** Minimises risks from plastic waste, microplastics and toxic exposure.
- **Governance improvement:** Strengthens EPR, compliance and accountability in plastic waste management.

## Plastic Waste Management Rules, 2016

- **Objective:** To minimise plastic waste generation, promote recycling and ensure environmentally sound disposal.
- **Key Features**
  - **Extended Producer Responsibility (EPR):** Producers, Importers and Brand Owners responsible for collection, recycling and disposal of plastic waste.
  - **Ban on single-use plastics (2022 Amendment):** Prohibition of identified **single-use plastic** items to reduce plastic pollution.
    - **Plastic thickness norm: minimum thickness of 120 microns** to promote reuse and reduce littering.
  - **Traceability (2025 Amendment):** From July 1, 2025, all plastic **packaging must carry a barcode or QR code** to enable digital tracking from production to disposal.
  - **Role of local bodies:** Urban Local Bodies and Gram Panchayats responsible for collection, segregation and processing of plastic waste.

# Bharat Stage (BS) Emission Standards

Under Delhi Air Pollution Mitigation Action Plan, 2026, entry of non-BS-VI, non-CNG and non-electric goods vehicles will be restricted from November 1 to curb vehicular pollution.



## About Bharat Stage Emission Standards

- Norms set by to regulate air pollutants from **internal combustion engines**, including motor vehicles, based on **European regulations (Euro norms)**, first introduced in 2000.
- **Implementation:** Standards and timelines are set by the **Central Pollution Control Board (CPCB)** under the Ministry of Environment, Forest and Climate Change.
- **BSVI:** Implemented nationwide from **April 2020** to significantly curb vehicular pollution.
  - India moved from **BS-IV to BS-VI**, skipping BS-V to adopt stricter norms directly.
  - Sulphur content reduced from **50 ppm (BS-IV) to 10 ppm**
  - Significant reduction in **PM and NOx emissions**
  - Introduction of advanced technologies like **DPF (Diesel Particulate Filter)**

# Sundarbans

New study shows that Sundarbans is undergoing “critical slowing down” process due to cyclones, climate change and human pressures.



- **Critical slowing down** is a phenomenon where ecosystems take longer to recover and become more unstable over time.

## About Sundarbans

- It is **world's largest area of mangrove** forests.
- **Location:** lies on the delta of the Ganges, Brahmaputra and Meghna rivers on the **Bay of Bengal** spanning India (40%) and Bangladesh (60%).
- **Protection:** **UNESCO World Heritage Site**, **Biosphere reserve** under UNESCO man and biosphere program, and **Ramsar site**.
- **Rivers:** Muriganga, Raimangal, Harinbhanga, Saptamukhi, Thakuran, Matla etc.
- **Fauna:** Supports single largest population of tigers globally (adapted to amphibious life).
- **Flora:** Salt-tolerant plants like Sundari.

# Mahi Banswara Nuclear Power Project



Approval of excavation for the construction of the Mahi Banswara Rajasthan Atomic Nuclear Power Project (MBRAPP) units one and two was given by The Atomic Energy Regulatory Board (AERB).

## About Mahi Banswara Rajasthan Atomic Nuclear Power Project (MBRAPP)

- **Location:** Banswara, Rajasthan near the Mahi Dam on River Mahi.
- **Capacity:** 4 x 700 MWe PHWR (4 nuclear power units of Indigenous PHWRs (Pressurized Heavy Water Reactors)).
  - PHWRs use **natural uranium as fuel and heavy water** (deuterium oxide) as coolant and moderator.
- **Development:** By **Anushakti Vidhyut Nigam (ASHVINI)**, a joint venture between Nuclear Power Corporation India Limited (NPCIL) and National Thermal Power Corporation Limited (NTPC).
- The project is part of India's "**fleet mode**" initiative.
  - **Under this Initiative**, ten identical 700 MW reactors are being built across India under uniform design and procurement plans.

## Steps taken to boost nuclear energy production in India

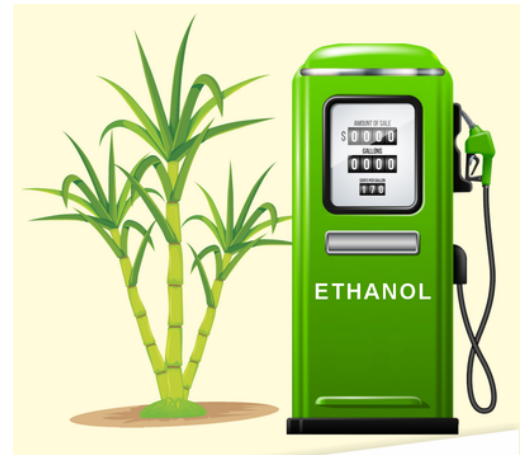
- **Nuclear Energy Mission:** Announced in Union Budget 2025–26 focused on research and development (R&D) of Small Modular Reactors (SMRs) aiming to develop at least five indigenously designed and operational SMRs by 2033.
- **Nuclear Energy Target:** 100 GW nuclear power capacity by 2047.
- **SHANTI Act, 2025:** Consolidating and modernising India's nuclear legal framework.

## Nuclear Power Capacity in India

- India currently has **24 reactors across 7 power plants** with installed nuclear energy capacity of 8,780 MW comprising 24 nuclear power plants (excluding RAPS-1 – 100 MW). (March 2026)
- The government plans to increase this to **22,480 MW by 2031-32**.
- Nuclear power accounts for **around 3.1 % of India's total electricity generation** in, making it the fifth-largest Non-fossil fuel source of electricity. (2024–25)

# E20 (Ethanol Blended Petrol)

Directive from the Ministry of Petroleum and Natural Gas force (1st April 2026), requiring to dispense E20 fuel with a minimum 95 RON octane rating in country.



- **RON (Research Octane Number)** serves as an indicator of fuel stability and indicates the level of pressure generated during fuel combustion within a vehicle's engine.

## About E20 Fuel

- It is an **80:20 mix of petrol and ethanol**.
- **The National Policy on Biofuels, 2018(amended in 2022):** Advanced the target of 20% blending of ethanol in petrol to Ethanol Supply Year (ESY) 2025-26 from 2030.
- **Benefits:** Improves fuel performance, Strengthens energy security etc.
- **Concerns:** Reduced fuel efficiency in some vehicles, corrosion or damage to older vehicles, etc.

# Ammonium Nitrate

Recently, Bharat Coal Gasification and Chemicals Ltd. and Mahanadi Coalfields Ltd. signed an agreement for coal to Ammonium Nitrate Project.

## About Ammonium Nitrate

- **Appearance:** white, crystalline, water-soluble solid.
- **Not found in nature:** made by reacting ammonia with nitric acid.
- **Explosive:** it is deemed explosive under explosive act due to its use in IEDs (if more than 45%)
  - It is an actually an Oxidizer that supplies oxygen to accelerate combustion.
  - Fire by it is difficult to put out as it provides its own oxygen.
- **Hazardous Chemicals Rules, 1989:** list it as hazardous chemicals
- **Import:** Requires prior permission for specific grades
- **Regulated by:** Petroleum & Explosives Safety Organization under DPIIT
- **Hygroscopic Nature:** absorbs moisture from the air, turning into "hard rock".
- **Thermal Decomposition:** Under High Heat it can explode releasing Nitrogen Dioxide (orange plume)
- **Applications :** fertilizers, cold packs because its dissolution in water is endothermic, medical and industrial uses, etc.



# Key Naval Warships



Indian Navy received key Naval warships, a milestone for indigenous defence manufacturing.

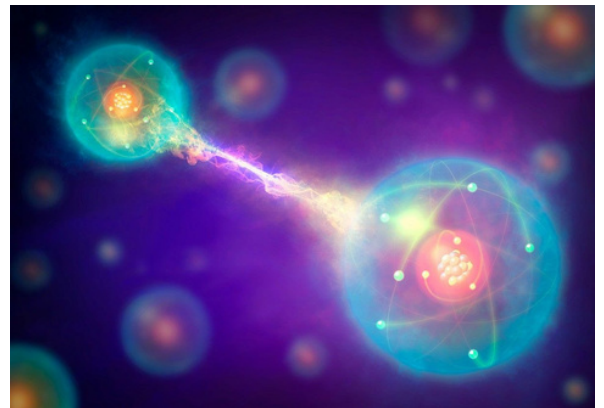
Indian Navy received key Naval warships, a milestone for indigenous defence manufacturing.

## Key Naval Warships Received

- **Malwan:** The second **Anti-Submarine Warfare Shallow Water Craft (ASW SWC)**, indigenously designed and constructed by **Cochin Shipyard Limited** at Kochi.
  - Named after the historic **coastal town of Malwan**, reflecting the rich maritime legacy associated with **Chhatrapati Shivaji Maharaj**.
  - **Capabilities:** underwater surveillance and anti-submarine and mine warfare.
- **Three frontline Naval platforms** built by **Garden Reach Shipbuilders & Engineers Ltd. (GRSE), Kolkata:**
  - **Indigenous Stealth Frigate Dunagiri:** Fifth ship of **Nilgiri Class (Project 17A)**, it is capable of striking designated targets with missiles.
  - **Fourth Survey Vessel (Large) Sanshodhak:** Carry out **coastal and deep-water Hydrographic surveys**
  - **Agray:** The fourth of **eight ASW SWC**, designed to destroy enemy submarines.

# Quantum Entanglement

Scientists from Australia and the U.S. have shown that helium atoms can be entangled through their movement like quantum entanglement seen in lighter particles like electrons.



## About Quantum Entanglement

- In quantum theory one of the phenomenon is **Quantum Entanglement** where particles of the same origin, which were once connected, always stay connected.
  - **Quantum** is the study of atoms and subatomic particles, and how they interact with each other.
- **Quantum entanglement** occurs when two particles become so deeply linked that they share a single existence.
- In entanglement, one atom **does not disappear and reappear** elsewhere. Instead, **teleportation involves quantum information:** when a measurement defines the first atom's state, that information effectively dictates the state of the second atom across the void.

# Artemis-II Mission Launched

**Artemis-II Mission Launched Astronauts into the Outer Space** This historic 10-day mission is the first crewed flight to the vicinity of the Moon in over 50 years after the Apollo Mission (1969-72).



## About Artemis Mission

- ARTEMIS is NASA's flagship human space exploration program, aimed at returning humans to the Moon.
  - In 2020, Artemis Accords were launched which are a set of international agreements (signed by over 60 nations, including India in 2023) to ensure peaceful and transparent cooperation in space exploration.
- Series of Artemis Missions:
  - Artemis I (2022): Uncrewed mission that successfully tested SLS (Space Launch System) rocket and Orion spacecraft around the Moon.
  - Artemis II (2026): First crewed mission on a lunar flyby without landing.
  - Future Phases:
    - Artemis III (2027): demonstration mission in low Earth orbit to test commercial landers.
    - Artemis IV (2028): to target the first Artemis lunar landing.
    - Artemis V (2028): scientific research and beginning Moon base construction with second lunar landing.

## Why is there renewed global interest in Moon exploration?

- Scientific & Technological Advancement: Understand the origin and evolution of Earth and the solar system.
- Economic Opportunities: Promote space economy and resource utilization (water ice and potential Helium-3 for fuel and energy).
- Gateway to Deep Space: Test long-duration missions for future Mars and other exploration.
- Strategic Importance: Enhance national prestige and space dominance.

## Major initiatives for moon exploration by various countries

- India (Chandrayaan series): Discovered water molecules on the Moon; Successfully achieved soft landing near the Moon's south pole, making India the first to do so in that region.
- China: Chang'e 6, a robotic lunar sample-return mission.
- Japan: Smart Lander for Investigating Moon (SLIM) mission achieved the first high-precision, pinpoint lunar landing.

# ISRO's (SSR)



Indian Space Research Organisation (ISRO) has developed numerous space-based applications to benefit all sections of society, thus contributing to SSR.

- SSR is analogous to Corporate Social Responsibility (CSR). It refers to the moral and ethical obligation of the scientific community in educating the public and society, besides working to generate new knowledge.

## ISRO contribution to Scientific Social Responsibility

- **Tribals:** 75 "Space Labs" in Eklavya Model Residential Schools (EMRS) across 19 states to promote STEM (space science, technology, engineering, and maths).
- **Farmers:**
  - **Potential Fishing Zone (PFZ) Advisories** to help fishermen identify productive fishing areas.
  - **Crop Insurance Support:** Assists in monitoring crops and calculating insurance claims.
- **Students:** YUVIKA, Young Scientist Programme, two-week residential program for Class 9 students, tele-education services (PM e-VIDYA), etc.
- **Common citizens:** Geospatial Support aiding in **planning and monitoring flagship schemes**, access to essential services like **tele-medicine**, early disaster warning, etc.
- **Women:** The test flight for the Gaganyaan mission features a **female humanoid robot** named 'Vyommitra'.
- **Open Data Access:** ISRO makes its scientific data from missions like **AstroSat** and **Chandrayaan-2** freely available to the global scientific community and students through the **Indian Space Science Data Center (ISSDC)**.
- **Training & Outreach:** Programs like UNNATI (Unispace Nanosatellite Assembly & Training by ISRO) and various IIRS outreach programmes build technical skills among students and professionals.

# F-15 Fighter Jet



A U.S. F-15E Strike Eagle was shot down over Iran during an ongoing conflict.

- F-15E Strike Eagle is a dual-role fighter capable of both air-to-air and air-to-ground missions.
  - Unlike the **fifth-generation F-35**, the F-15E entirely lacks stealth technology,
- Other aircraft/helicopter used includes the US's **A-10 Warthog**, **F-18**, and **F-22 fighters**, **Blackhawk helicopters**, as well as **Iran's Yak-130**, among others.
- Key drones used include Iran's **Shahed-136** and the U.S.'s **LUCAS drone**, etc.

# Qdenga Vaccine

Qdenga vaccine received clearance from the Drugs Controller General of India (DCGI) for use among individuals aged 4 to 60 years against Dengue.



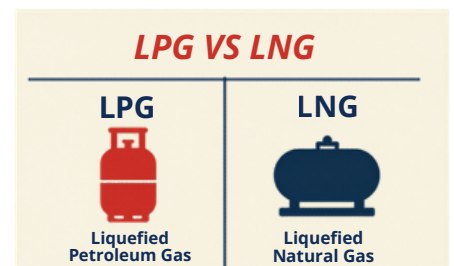
- Dengue is a **viral infection**, transmitted by **Aedes mosquitoes**.
- Dengue is caused by **four closely related but distinct viruses**, known as **serotypes (DENV-1 to DENV-4)**.

## About Qdenga Vaccine

- It is a **live-attenuated tetravalent dengue vaccine** that **protects against all four dengue strains (DENV-1, 2, 3, 4)**.
- **Benefits:** It does not require pre-vaccination screening to determine prior dengue infection.

# LPG vs. LNG

The Strait of Hormuz closure has hit a large chunk of India's energy supply including both LNG and LPG.



## About LNG

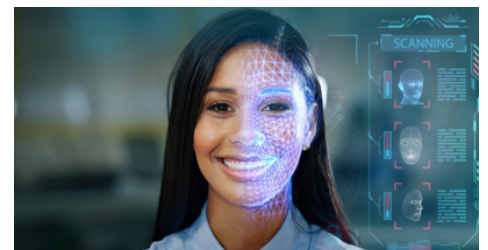
- **LNG (Liquefied Natural Gas)** is primarily a **natural gas (mainly methane)**.
- It is **cooled to below -160 degrees Celsius** and cryogenically turned into a liquid for storage or ease of transportation.
- It is regasified into natural gas and used as **PNG (piped natural gas)** for households or **CNG (compressed natural gas)** for vehicles; also used in power generation & machinery operations.
- **LNG (Natural Gas) is lighter than air:** generally considered safer in open areas.

## About LPG

- **LPG (Liquefied Petroleum Gas)** primarily comprises **propane and butane**, a byproduct of the crude oil refining process.
- Under relatively **low temperatures or moderate pressure**, **LPG becomes a liquid**, allowing it to be bottled in cylinders.
- **LPG is heavier than air:** If it leaks, it settles on the ground, creating a high fire risk.

# Digital Human

China issues draft rules to regulate digital humans.



- Rules mandate clear labelling and banning services that could **mislead children** or **fuel addiction**.

## About Digital Human

- Digital Humans are **AI-powered virtual avatars** that simulate human conversation using voice, facial expressions, and body language.
- **Use Cases:** Client services, education, healthcare, and advisory roles.

# India inducts 3rd Nuclear-Powered Submarine



Part of India's Arihant-class submarines, INS Aridaman is a more advanced ballistic missile submarine (SSBN) than its predecessors INS Arihant (2016) and INS Arighaat (2024).

## About India's Nuclear Powered Submarine Programme

- The **Advanced Technology Vessel (ATV) programme** was initiated more than three decades ago, involving both **private firms and the Defence Research & Development Organisation**, with help from **Russia**.
- It primarily focused on developing the **ballistic missile submarines (SSBNs)**, which are **nuclear propelled**, and can carry multiple sets of submarine-launched ballistic missiles (SLBMs), tipped with single or multiple nuclear warheads.

## Significance of Nuclear Powered Submarines for India

- **Nuclear Triad Completion:** The submarine cements India's position in the select group of nations (alongside the US, Russia, China, and France) capable of launching nuclear weapons **from land, air, and sea**.
- **Strategic Deterrence:** Carries nuclear ballistic missiles, strengthening India's deterrence against regional adversaries **China and Pakistan**.
- **Stealth & Endurance:** Nuclear propulsion allows long underwater missions, making it highly survivable and hard to detect.
- **Extension of Nuclear doctrine:** Showcases guarantee of **India's second-strike capability** with No-first Use policy.

# Satellite Internet in India



Meghalaya Government Signs MOU with Starlink India to Boost Satellite Internet Meghalaya becomes the third Indian state after Maharashtra and Gujarat to partner with Starlink formally.

- Starlink was launched in 2019 by **SpaceX** and plans to have 42,000 satellites in **Low Earth Orbit (LEO)**.

## About Satellite Internet

- **Definition:** **Satellite internet** refers to the **internet service provided through satellites** placed in **Geostationary Orbits (GSO)** or **Non-Geostationary Orbits (NGSO)**.
  - LEO and MEO (Medium Earth Orbit) are NGSO.
- Unlike **land-based internet services** such as fiber, cable, etc., it **doesn't rely on wires to transmit data**, improving accessibility, deployment speed, and long-distance transmission.
- **Infrastructure:** It generally includes three segments:
  - **Space Segment:** Includes network of several communication satellites.
  - **Ground segment:** Includes satellite measurement and control networks, gateway stations, etc.
  - **User segment:** Includes communication terminals used by users.

## Advantages over existing land-based internet services:

- **Global reach:** Connects remote and underserved regions lacking fiber or cellular infrastructure.
- **Rapid deployment:** Requires **only power** and **clear sky**, avoiding costly and time-consuming civil works.
- **Disaster resilience:** Restores communication quickly and acts as **backup** when terrestrial networks fail.

## Regulatory Landscape for Satellite Internet Services

- **Department of Telecommunications** grants licences and regulates under the Unified Licence Regime.
- **Telecom Regulatory Authority of India** recommends spectrum assignment terms for satellite services.
- **Indian National Space Promotion & Authorisation Centre** promotes, authorizes, and supervises private space activities.

# Mission MITRA

ISRO launched Mission MITRA to test Gaganyaan crew for mental, physical and crew operability strengths



About Mission MITRA (Mapping of Interoperable Traits and Response Assessment)

- It is a behavioural study by ISRO for human spaceflight missions, conducted in partnership with **Indian Air Force's (IAF) Institute of Aerospace Medicine (IAM)**.
- **Objective:** To assess physiological, psychological and operational performance of Gaganyaan crew under stress.
  - It was conducted at Leh, Ladakh simulating extreme conditions such as **hypoxia, low temperature and isolation**

# Tar-balls Management Rules, 2026.

The Centre notified the draft Tar-balls Management Rules, 2026, to combat marine pollution caused by toxic oil leak residue.



## Key Provisions

- **Covers Lifecycle:** generation, collection, storage, transport, treatment and disposal.
- **'Polluter pays' principle:** Fixes responsibility on oil operators, environmental compensation provision.
- **States Stakeholder Responsibilities:** E.g. CPCB, Coast Guard etc.
- Mandates monitoring, reporting and declaration of **'State disaster'** for severe cases.

## About Tar balls

- Sticky lumps created due to **weathering of oil** following leaks, spills, and marine accidents.
- They form through various **physical, chemical, and biological** processes when oil mixes with water and other contaminants.
- Classified as **hazardous waste** requiring safe handling and disposal.

# Fast Breeder Reactor

Indigenously developed Prototype Fast Breeder Reactor (PFBR) at Kalpakkam attains Criticality. This marks a significant progress in the second stage of India's Nuclear programme.



This marks a significant progress in the **second stage** of India's Nuclear programme.

- **Criticality** refers to a situation when each fission event releases a **sufficient number of neutron** to sustain an ongoing series of reactions, in other words, it is point when nuclear reactor achieves a **self-sustaining chain reaction**.

## About Fast Breeder Reactor (FBR)

- **Meaning:** Nuclear reactor that uses fast neutrons to **generate more nuclear fuels** than they consume while generating power.
- **India's FBR**
  - **Location:** Kalpakkam, Tamil Nadu
  - **Operated by:** **Bharatiya Nabhikiya Vidyut Nigam Ltd (BHAVINI)**
  - **Power Capacity:** 500 Megawatt.
    - Once fully operational, India will become the **second country after Russia** to have a commercial fast breeder reactor
  - **Features:** Uses indigenously produced **Uranium-Plutonium Mixed Oxide (MOX) fuel** and utilizes **liquid sodium as a coolant**.
    - **Uranium-238 "blanket"** surrounding fuel core will undergo nuclear transmutation to **produce more fuel**, hence name '**Breeder**'.

## Significance of FBR

- **Stepping stone for third stage:** Paving way for eventual utilization of India's abundant **thorium reserves**.
- **Inherent Passive Safety Features:** Ensuring a prompt and **safe shut down** during emergency.
- **Reduction of nuclear waste:** As it uses spent fuel from the first stage.

## India's Three Stage Nuclear Programme

- **Genesis:** It was presented in **1954** by **Dr. Homi J. Bhabha**.

## Regulatory Landscape for Satellite Internet Services

- **Department of Telecommunications** grants licences and regulates under the Unified Licence Regime.
- **Telecom Regulatory Authority of India** recommends spectrum assignment terms for satellite services.
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# Non-Communicable Diseases



**2026 Partnership for Healthy Cities (PHC) Summit** renew commitment to accelerate life-saving action in cities Held in Rio de Janeiro, PHC Summit brought together health officials, urban planners and global experts from 55 cities.

- PHC is a **global network of 74 cities** committed to **prevent Non-Communicable Diseases (NCDs)** and injuries.
  - Indian cities of **Mumbai, Ahmedabad and Bengaluru** are part of the PHC network.
- As part of their work with the Partnership, each city selects **one of 15 interventions** proven to prevent NCDs and injuries.

## About NCDs

- **NCDs (chronic diseases)** are long-term conditions not directly transmissible between people.
- **Risk Factors:**
  - **Behavioural** – Tobacco use, unhealthy diets including excess salt, sugar and fats, harmful use of alcohol and insufficient physical activity
  - **Metabolic** – hypertension, overweight/obesity, diabetes, high cholesterol
  - **Environmental** – Air pollution, chemical exposure, noise pollution.
- Over 80% (over 47 million) of all deaths worldwide are attributed to NCDs and injuries.
  - **Four main NCDs** responsible for the majority of these deaths are cardiovascular diseases (heart attacks/stroke), cancers, chronic respiratory diseases, and diabetes.
- Over 80% of premature NCD deaths now occur in low- and middle-income countries.

## India's Initiatives to tackle NCDs

- **National Program for Prevention and Control of NCDs:** Strengthens healthcare infrastructure, trains personnel, ensures early diagnosis, and spreads awareness.
- **Sugar Boards:** Mandated by CBSE in all schools to recommended daily sugar intake, display sugar content in commonly consumed foods.
- **Lifestyle Promotion:** Campaigns like Eat Right India, Fit India Movement, and Yoga initiatives encourage citizens to adopt healthier routines.
- **Strengthening of Tertiary Cancer Care Centres Facilities Scheme:** Financial assistance is provided as a one-time grant of up to ₹120 crore for State Cancer Institutes (SCIs) and up to ₹45 crore for Tertiary Cancer Care Centres (TCCCs)

# Post-Quantum Cryptography

Department of Science & Technology has released a national roadmap for Post-Quantum Cryptography (PQC) Migration. It aims to develop cryptography techniques that are secured against attacks from advanced quantum computers for ensuring future cryptographic security and digital sovereignty.



- It was necessitated as **advancements in quantum computing have potential to break existing cryptography algorithms** which form the backbone of today's IT systems, online communications, financial transactions, and other sensitive digital information.
  - These algorithms include benchmark **RSA (Rivest–Shamir–Adleman)** and **ECC (Elliptic Curve Cryptography)** public-key encryption.

## Risks of Quantum Computing to Cybersecurity

- **Breaking of Existing Encryption:** Quantum computers can break **public-key cryptography**, compromising banking, emails, and government communications.
- **Harvest Now, Decrypt Later:** Encrypted data collected today can be **decrypted in the future**, exposing long-term sensitive information.
- **Systemic Risk:** Breaking cryptography can disrupt **critical sectors like power, telecom, finance, and governance**.
- **Threat to National Security:** Exposure of **defence and intelligence data** can weaken national security and create strategic risks.

## India's Efforts for Developing Secure Quantum Computing

- **National Quantum mission:** Aims to develop comprehensive indigenous quantum technology ecosystem with establishment of four thematic hubs.
- **DST's Quantum-Enabled Science and Technology (QuEST) program:** To groom young researchers in quantum technology.
- **State-Level Initiatives:** Amaravati Quantum Valley (AQV) Initiative (Andhra Pradesh), Quantum Mission (Karnataka), Telangana Quantum Strategy etc.

# National Quantum Mission



**National Quantum Mission achieves 1,000-km secure communication** The milestone represents one of the longest Quantum key distribution (QKD) deployments globally, a landmark advancement in secure quantum communication.

- The development is expected to strengthen India's **secure communication capabilities** across **defence, financial systems and critical infrastructure**.

## What is Quantum Communication?

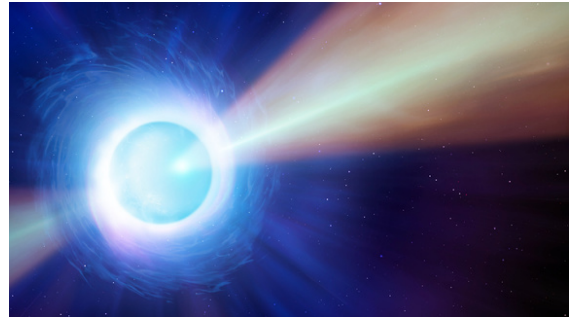
- **Definition:** Quantum communication is the **study of encoding and transmitting information** between distant quantum systems.
- **Physical Basis:** It takes advantage of peculiar quantum properties such as **Quantum key distribution (QKD)**.
  - QKD is a method for creating and sharing **secret encryption keys** using the principles of quantum mechanics.
    - It relies on **quantum states that change when observed**, allowing any interception attempt to be detected.
- **Medium:** similar to classical communication, quantum communication **primarily uses light (single photons)** to encode information, enabling fast and low-error transmission.

## About National Quantum Mission

- **Launched:** For a period from **2023-24 to 2030-31** by **Department of Science and Technology (DST)**.
- **Key Objectives:**
  - Develop intermediate-scale **quantum computers**.
  - Establish **2000 km satellite-based quantum-secure communication**.
  - Design highly sensitive **quantum devices** including magnetometers, gravity sensors and atomic clocks.
  - Develop and synthesize **next-generation quantum materials** such as superconductors, novel semiconductor structures and topological materials.

<b>Difference between Quantum Communication and Classical Communication</b>	
<b>Classical Communication</b>	<b>Quantum Communication</b>
Information is carried by <b>classical bits</b> , which exist in definite values of either 0 or 1 (e.g., a high or low electrical voltage).	Information is carried by quantum bits, or qubits which can exist in a state of superposition (simultaneous combination of 0 and 1).
It can be read and copied endlessly without being destroyed.	It is governed by the <b>no cloning theorem</b> , which forbids copying an unknown quantum state; hence, quantum signals cannot be amplified using traditional repeaters.
Observing the system does not change the information.	The act of measuring a qubit permanently alters its state.

# Pulsars



## Indian scientists find new way to measure distances in deep space

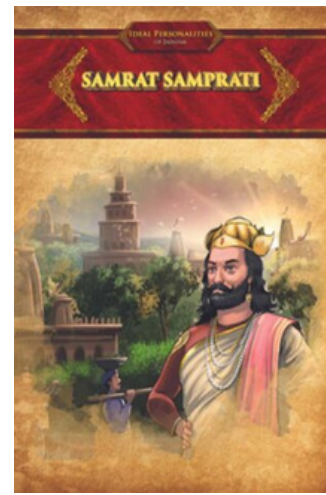
- They developed a new method **combining dispersion measure** (earlier method) and **scatter broadening of pulsar signals** to improve the accuracy of **distance measurement in space**.
  - **Dispersion Measure:** Estimates distance by measuring the **delay in pulsar signals** caused by free electrons in space.
  - **Scatter Broadening:** Measures how pulsar signals **spread and distort** due to turbulence in interstellar plasma.
- The technique overcomes **limitations of existing models** and enables more reliable estimation of cosmic distances.

### About Pulsars

- Pulsars are highly magnetized, **rapidly rotating neutron stars formed** after **supernova explosions** that emit narrow beams of electromagnetic radiation from their magnetic poles.
- Due to their **highly stable rotation**, they act as **cosmic clocks** and are used in astrophysical measurements.

# Samrat Samprati

The PM inaugurated the Samrat Samprati Museum in Koba, Gandhinagar, Gujarat on Mahavir Jayanti.



## About Samrat Samprati

- A Mauryan emperor and the grandson of Emperor Ashok, born to father Kunal and mother Kanchanmala.
- Known as **Indrapalit**, **Sangat** and **Vigatashok**; his life is described in Jain scripture like ‘Sampratikatha’, ‘Parishistaparva’, and ‘Prabhavakcharita’.
- Pivotal role in **spreading Jainism** (also referred to as ‘Jain Ashoka’) and the principle of **ahimsa (non-violence)** across the subcontinent.
- He is known to have **built and repaired many Jain temples**.

# Amaravati and its cultural significance

Lok Sabha clears Bill to make Amaravati sole capital of Andhra Pradesh.



## About Amaravati and its Cultural Relevance:

- **Ancient Capital:** It served as the capital of the Satavahana dynasty (3rd century BCE).
- **Major Buddhist Pilgrimage Site:**
  - It is believed to be the **place where Gautam Buddha first taught the concept and teachings of “Kalachakra.”**(Vajrayana Buddhism)
  - The **Amaravati Stupa** built in the 2nd century BCE is **one of the oldest and most well-preserved Buddhist monuments** with intricate carvings and sculptures depicting scenes from Buddha's life.
- **Amaraeswara Temple:** Built around the 5th century, this ancient Hindu temple is dedicated to Lord Shiva
- **Traditional Crafts:** The local culture is celebrated through traditional handicrafts like the vibrant, wooden Kondapalli toys and exquisite Kalamkari textiles (hand-painted or block-printed fabrics).

# Kalachuri Dynasty



Archaeological Survey of India excavation finds a sophisticated stepped reservoir on the Elephanta Islands.

- During the excavation several copper coins have been identified as belonging to ruler **Krishnaraja of the Kalachuri dynasty** of the sixth century CE.

## Kalachuri Dynasty

- **Origin:** They were a Kshatriya tribe mentioned in Brahmanical epics and the Puranas.
- **Major Branches and Rulers**
  - **Early Kalachuris/Kalachuries of Mahishmati (550–620 CE):** Ruled over parts of present-day Gujarat, Madhya Pradesh, and Maharashtra
    - **Important Rulers:** Krishnaraja, Shankaragana , Buddharaja
  - **Kalachuris of Chedi (or Tripuri):** Ruled from their capital at Tripuri around 9th century AD (near modern Jabalpur, Madhya Pradesh)
    - **Important Rulers:** Kokalla I, Gangeyadeva , Vijayasimha
  - **Kalachuris of Kalyani (1156–1181 CE):** Short-lived but significant branch was founded by Bijjala II in parts of Karnataka and Maharashtra
    - The **Virashaiva (or Lingayat)** movement was founded by **Basavanna**, a minister in Bijjala's court
- **Religion and Society**
  - **Kalachuris of Chedi** strongly patronized the Brahmanical religion, showing particular devotion to Shaivism and Vishnu worship.
  - **Shakti worship and the Yogini cult** were highly prevalent, leading to the construction of 64-Yogini temples in places like Khajuraho, Bheraghat and Shahdol.
- **Art and Architecture:** They made notable contributions to rock-cut architecture, excavating Caves 6 and 7 at Aurangabad and patronizing parts of Elephanta, Ellora (Cave 29), and Jogeshwari.

## Elephanta Islands

- **Location:** Traditionally known as **Gharapuri**, it is located off the coast of Mumbai
- The island has been under the control of numerous powers, including the Mauryas, Chalukyas, Rashtrakutas, Yadavas, the Portuguese, the Marathas, and the British
- **Elephanta Caves:** Located on Elephanta Islands, is a UNESCO World Heritage Site
  - The cave is famous for the exquisite and vibrant sculptures dedicated to Lord Shiva (including iconic three-headed Shiva, or Trimurti)

# Internet Shutdowns

Internet Shutdowns in 2025 report by Access Now NGO released for Keepiton Coalition Keepiton coalition (by Access Now) is a global civil society alliance working to end internet shutdowns.



## Key Highlights

- **Global Snapshot:** 2025 saw a **record** 313 internet shutdowns ( across 52 countries, continuing the rise from 2023)
- **India:** recorded **65 shutdowns** ( lowest since 2017 but highest in any democracy, 2<sup>nd</sup> highest overall).
  - **India Exception highlighted :** Orders are legally published, but still it deems shutdowns incompatible with democracy.

## Concerns related to internet shutdown

- **Human rights abuses :** International Criminal Court linked internet shutdowns to crimes against humanity, noting they help perpetrators evade accountability.
- **Governance & Welfare:** eg. Disruption of Direct Benefit Transfers (DBT)
- **Economic Impact:** India lost ~\$323 mn due to internet shut down in 2024
- **Impacts Fundamental Rights:** access to the internet is under right to education and privacy under **Article 21 (Faheema Shirin v. State of Kerala (2019))**
  - Freedom to trade and commerce via internet falls under Article 19 (Anuradha Bhasin v UoI)
- **Democratic Deficit:** Hinders press freedom, the right to information, and civil society mobilization.

## Legal Provisions for Internet Shutdown in India:

- **Legal Basis:** Governed by Telecommunications (Temporary Suspension of Services) Rules, 2024 under **Telecommunications Act, 2023.**
  - **Authority:** issued by Union Home Secretary or state home secretary
  - **Emergency: order by joint secretary or above** ( to be confirmed within 24 hours by competent authority)
  - **Mandating publication:** including detailed justifications, **geographical scope**, and affected services.
  - Suspension duration cannot exceed **15 days.**
- **Section 163 of the Bharatiya Nagarik Suraksha Sanhita** empowers magistrates to issue orders to maintain public order.