

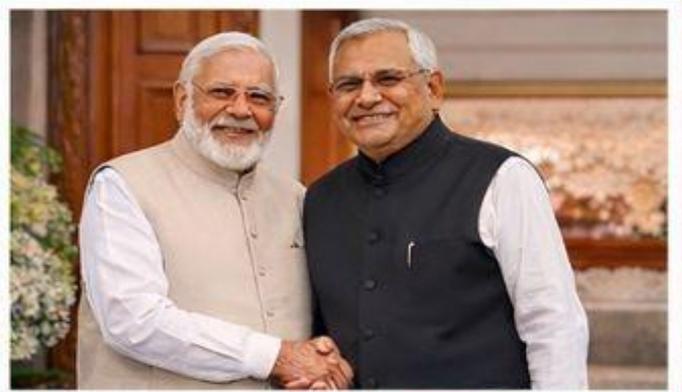


UPSC  
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# MONTHLY CURRENT AFFAIRS MAGAZINE

*(With special focus on BIHAR)*

**DECEMBER 2025**



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### **Ditwah Typhoon / Cyclonic Storm**

- ❖ The cyclonic storm was named by **Yemen**, referring to the **Ditwah Lagoon** on **Socotra Island**.
- ❖ It formed over the **southeastern sea coast of Sri Lanka**. The storm crossed Sri Lanka, entered the **Bay of Bengal on 29 November**, and moved northward. It later made landfall in **Tamil Nadu, India**.
- ❖ Ditwah was the **14th tropical depression** and the **fourth cyclonic storm** of the **2025 North Indian Ocean cyclone season**. Other cyclones of this season were **Shakti, Montha, Senyar, and Ditwah**.
- ❖ Due to Cyclone Ditwah, around **400 people died in Sri Lanka**.
- ❖ It is considered one of the **most dangerous cyclones of the century in Sri Lanka**.
- ❖ The **intensity of cyclones is increasing** day by day.
- ❖ **Tropical cyclones are slowing down**, which results in **increased rainfall** over affected regions.
- ❖ The **increase in sea and ocean water temperature** provides more energy to cyclones, making them more powerful.
- ❖ The **speed of cyclones has increased by about 30 km per hour** due to **human-induced warming of sea temperatures between 2019 and 2023**.
- ❖ A **hotter atmosphere holds more moisture**, which causes **heavy rainfall**. Climate change has increased the **possibility of extreme rainfall nearly threefold**.
- ❖ **UN assistance to deal with the crisis:** The **United Nations provided Sri Lanka with a grant of USD 450 million** from its **Central Emergency Response Fund (CERF)**.

### **India's Self-Reliance in REE Production**

- ❖ The **Union Cabinet** has approved a **₹7,280 crore scheme** to manufacture **rare earth permanent magnets** domestically.
- ❖ The scheme aims to facilitate the establishment of **integrated Rare Earth Permanent Magnet (REPM) manufacturing facilities** in India.
- ❖ **Rare Earth Permanent Magnet (REPM) manufacturing facilities involve:**
  - Conversion of **rare earth oxides into metals**,
  - Conversion of **metals into alloys**, and
  - Conversion of **alloys into finished REPMs**.
- ❖ **Rare Earth Elements (REEs)** are a group of **17 minerals** that are crucial due to their **high density, high melting point, and excellent conductivity**.
  - They are **moderately abundant**, but difficult to extract **economically and sustainably**.
  - **China has built global supremacy** in this sector.
  - It controls about **90% of global REE processing** and nearly **70% of global production**, despite holding only **30% of the world's REE reserves**.

### India's Status in REEs

- ❖ India's focus on REEs is driven by its ambitions in **electric mobility, renewable energy, electronics manufacturing, and defence**. These sectors rely heavily on **rare earth magnets and components**.
- ❖ India imported **over 53,000 metric tonnes of REE magnets in FY 2024–25**, despite possessing nearly **8% of the world's REE reserves**, mainly found in **monazite sands** across **Andhra Pradesh, Odisha, Tamil Nadu, and Kerala**.
- ❖ Despite this potential, **India contributes less than 1% of global REE output**.

### India's Efforts in REEs

- ❖ To address this gap, the government launched the **₹16,300 crore National Critical Mineral Mission** in January, with a **total outlay of ₹34,300 crore over seven years**, to achieve **self-reliance** in critical minerals.
- ❖ The mission focuses on **exploration, processing, and recycling** of minerals such as **lithium, cobalt, and rare earth elements**.
- ❖ To boost domestic production, the government has **auctioned new mining blocks** and is encouraging **private sector participation** in exploration and processing activities.
- ❖ India's **monazite sands** contain several **light rare earth elements**, including **Neodymium**, which is widely used in permanent magnets.
- ❖ **Rare Earth Permanent Magnets (REPMs)** are used in:
  - Electric vehicle motors
  - Wind turbine generators
  - Consumer and industrial electronics
  - Aerospace and defence systems
  - Precision sensors and actuators

### Steps for Development of Critical Minerals in India

- ❖ The Union Cabinet's new **Rs.7,280 crore rare earth magnet scheme** acknowledges a simple reality: **mining without processing merely exports prosperity** instead of creating domestic value.
- ❖ The new **G20 framework on critical minerals** also places **value creation through refining and manufacturing** at its core. For India, which has reformed its mining laws but still lacks **large-scale processing capacity**, this serves as a timely reminder.
- ❖ Every **solar panel, electric vehicle, and wind turbine** begins not on an assembly line but in a **refinery**, where ores are converted into **battery-grade graphite, magnet-ready rare earths, or ultra-pure polysilicon**. However, most of this processing occurs **outside India**, increasing the vulnerability of domestic supply chains. This exposure has intensified due to **U.S.–China trade frictions**, which have triggered new tariffs and export restrictions.
- ❖ In recent years, the **Mines and Minerals (Development and Regulation) Act** has been amended to support domestic mining through **exploration licences, national**

**auctions, mining-associated minerals, and a national mineral exchange.** While these reforms help India mine minerals, they do not strengthen refining capacity. India imports **almost all of its lithium, nickel, and cobalt.** The stakes extend beyond clean energy, as **high-purity materials** are critical for **semiconductors, telecommunications, automobiles, pharmaceuticals, and defence systems.**

- ❖ The **midstream segment** of the critical minerals value chain — **processing and refining** — remains a **global chokepoint.** China continues to control **over 90% of global rare earth and graphite refining.**
- ❖ The recently approved **₹1,500 crore critical minerals recycling scheme** is a positive step forward. A study by the **Council on Energy, Environment and Water (CEEW)** shows that India already mines and processes **seven critical minerals** — **copper, graphite, silicon, tin, titanium, rare earths, and zirconium.** However, in each case, India's refining capacity lags behind in **scale or quality.**
- ❖ India can adopt **five key steps** to develop critical mineral processing capacity :
  - **First, transform Centres of Excellence into innovation engines.**  
The nine Centres of Excellence under the **National Critical Mineral Mission (NCMM)** must drive **applied research,** particularly for producing **high-purity compounds and materials** aligned with industry needs. In the short term, their focus should be on developing **processing technologies that can be commercialised.** Academic institutions such as **IITs, NITs,** industry bodies, and think tanks should collaborate on **lifecycle modelling and cost-benefit analysis** to accelerate adoption. The priority is to move innovations **from laboratories to commercial scale.**
  - **Second, unlock secondary resources to recover critical minerals.**  
India generates more than **250 million tonnes of coal fly ash annually,** which contains both **light and heavy rare earth elements.** **Red mud** from aluminium plants contains **gallium, zinc residues hold cobalt,** and **steel slag** contains **vanadium.** Pilot projects at **CSIR and IITs** demonstrate that recovery from fly ash and red mud is feasible. Integrating such recovery units into proposed **Critical Minerals Processing Parks** would enable large-scale operations.
  - **Third, train and upskill a new generation of process metallurgists and technicians.** Critical mineral processing requires specialised **hydrometallurgical and advanced refining techniques.** The **₹100 crore allocation under NCMM** for skill development should support **train-the-trainer programmes,** diploma-level courses, and new curricula in academic institutions and CSIR laboratories. Building such a workforce can create **thousands of skilled jobs.**
  - **Fourth, de-risk investment through demand assurance and financing mechanisms.** The **U.S. Department of Defence's agreement with MP Materials,** combining government offtake commitments and price guarantees, provides a useful model. India could adapt this by using its proposed **critical mineral stockpiling system** as an active market-making tool—purchasing from domestic producers during downturns and releasing stocks during demand surges. Key sectors such as **defence, pharmaceuticals, and electronics** should be

mandated to source a portion of inputs domestically, while processors are encouraged to meet **stringent quality standards**.

➤ **Fifth, link mineral diplomacy with processing capacity.**

India's recent overseas acquisitions focus largely on securing access to **raw ores**. If India demonstrates consistent **high-purity refining capability** across the seven minerals it already handles, partnerships can shift from **buyer-seller relationships to co-investment alliances**. **Critical Mineral Parks** could serve as collaboration hubs where foreign firms co-invest and co-process. As China tightens mineral and technology exports, the central challenge is not access to mines, but the ability to **convert ores into high-value materials**. Processing is the missing link that will determine whether India remains a supplier of raw resources or becomes a builder of **resilient and clean industries**.

### **Bioterrorism: A Serious Threat**

- ❖ A conference on the **Biological Weapons Convention (BWC)** was organised in **New Delhi on 1 December 2025**, marking **50 years of the BWC**.
- ❖ It was highlighted that **non-state actors can use biological agents**. Such threats cannot be addressed in isolation, and there is a need to keep the **Global South at the centre of strategies** to tackle bioterrorism.
- ❖ The world is **not yet adequately prepared** to deal with the threat of **bioterrorism**.
- ❖ The **Biological Weapons Convention (BWC)** still lacks **basic institutional structures**.
- ❖ **Modernisation of the BWC** is therefore required to address emerging biological threats.
- ❖ India has proposed a **National Implementation Framework** covering **high-risk agents, oversight of dual-use research, domestic reporting, and incident management**.
- ❖ India has reiterated its **commitment to the non-proliferation of sensitive and dual-use goods and technologies**, supported by a **strong legal and regulatory system**.
- ❖ **Role of the Global South:** The **Global South is the most vulnerable** to biological threats and has the **most to gain from stronger biosecurity frameworks**.

### **Sanchar Saathi**

- ❖ The government's mandate on **1 December 2025** requiring smartphone manufacturers to **pre-install the Sanchar Saathi app** triggered backlash from the **Opposition and digital rights activists**.
- ❖ Critics described the move as a **unilateral directive**, arguing that pre-loading the app **without consulting stakeholders and citizens** is akin to **authoritarian decision-making**.
- ❖ **Sanchar Saathi** is an application launched by the **Department of Telecommunications (DoT)**, initially introduced as a **website in 2023**, to enable users to **report fraudulent phone calls**.

- ❖ The app integrates other tools developed by the DoT, including features to **verify the genuineness of an IMEI number** and to **block stolen phones** by preventing telecom operators from servicing **blacklisted IMEI numbers**.
- ❖ Concerns were raised about the possibility that a **pre-installed app** could be misused as a **carrier for malware or spyware**.
- ❖ It is a matter of concern because once a **government app has root-level access to the operating system**, an **over-the-air update** can grant it **additional permissions** without user consent. **Root access** refers to privileged system access, which pre-installed apps usually possess.
- ❖ The DoT also directed **WhatsApp and similar platforms** to restrict users to **devices containing the SIM card** used during registration.
- ❖ The order further required **WhatsApp Web and other secondary access mechanisms** to be **logged out every six hours**. These directions were issued under the **Telecom Cyber Security Rules, 2024**, amended in November to expand the DoT's authority beyond telecom operators to other platforms that use **mobile numbers for user identification**.
- ❖ This order/directive was withdrawn on December 3, 2025, after Apple refused to comply with it and faced widespread opposition. The new order cites the downloading of the Sanchar Saathi app by 14 million citizens and its growing acceptance as the reason for its withdrawal.

### **Causes of Rising Pollution in Delhi**

- ❖ The Supreme Court has stated that apart from **stubble burning**, there are **several other reasons** contributing to the rise in pollution levels in Delhi.
- ❖ During the COVID-19 period, even when stubble burning was minimal, the **sky over Delhi did not appear clear**, indicating the presence of other pollution sources.
- ❖ While hearing the matter before the **Commission for Air Quality Management (CAQM)**, the Chief Justice of India (CJI) stated that the issue **should not be turned into a matter of politics or ego**.
- ❖ An advocate pointed out that despite a significant reduction in stubble burning cases—from **88,000 to 5,500**—the pollution level in Delhi **has not decreased proportionately**.
- ❖ There is a need to make **farmers more sensitive and aware** regarding this issue. Crop stubble can be transformed from a **burden into an asset** through proper management and reuse.

### **Mizoram Reports the Highest Number of New HIV Cases**

- ❖ According to **The India HIV Estimates 2025 – Technical Report**, at the national level, the number of HIV-infected adults per 1,000 population is **0.05**, whereas in **Mizoram it is 0.90**, the highest in the country.
- ❖ At the national level, a **48.7% decline** in annual new HIV cases was observed between **2010 and 2024**. However, **Arunachal Pradesh and Tripura** recorded an alarming **400% increase** during the same period.

- ❖ As per the report, the **AIDS-related mortality rate** stands at **2.32 per one lakh population**.

### **Economic Indicators**

- ❖ In **October 2025**, the growth rate of the **Index of Industrial Production (IIP)** was **0.4%**, marking the **lowest level in the last 14 months**.
- ❖ According to **GDP data for the July–September quarter**, the **manufacturing sector** recorded a growth of **9.1%**. However, the IIP data shows that in **October**, the sector fell to a **14-month low**.
- ❖ Due to the **50% reciprocal tariff imposed by the United States**, India's **exports declined by 12%** in October.
- ❖ Purchasing Managers index (PMI) also show a decline (9 month low) to 56.6 in November from 59.2 in October 2025.

### **PMI in November**

- ❖ According to the **seasonally adjusted HSBC India Manufacturing Purchasing Managers' Index (PMI)**, the index **declined to 56.6 in November 2025**, down from **59.2 in October 2025**.
- ❖ A **PMI value above 50** indicates **expansion (growth)** in the manufacturing sector, while a **PMI value below 50** indicates **contraction (decline)**.

### **SMRs to India from Russia**

- ❖ Following the Government of India's decision to **allow private sector participation in nuclear power generation**, Russia has agreed to **supply Small Modular Reactors (SMRs) to India**.
- ❖ It is likely that a formal agreement on this issue may be reached during the **visit of the Russian President to India on 4–5 December**.
- ❖ During this visit, decisions may also be taken regarding the **S-400 air defence system** and the **stealth fighter aircraft Sukhoi-57**.

### **Change in the Names of Raj Bhavans**

- ❖ In light of the **Central Government's decision to rename all Raj Bhavans in the country as "Lok Bhavan"**, official instructions have been issued by the **Principal Secretary to the Governors**.
- ❖ Accordingly, the **Raj Bhavan of Bihar has now been renamed "Lok Bhavan."**

### **New Name for the Prime Minister's Office and Residential Complex**

- ❖ The **new name of the Prime Minister's Office and Residential Complex** has been announced as **"Seva Tirtha."**
- ❖ Prior to 2016, the Prime Minister's official residence was known as **7, Race Course Road** (based on bungalow number and road name).
- ❖ In **September 2016**, its name was changed to **7, Lok Kalyan Marg**.

- ❖ The **first Prime Minister to reside there** was **Shri Rajiv Gandhi**.
- ❖ The government has now officially announced that the **new Prime Minister's Office and Residential Complex** will be called **"Seva Tirtha."**

### **India's SSBNs and SSNs**

- ❖ The **Indian Navy** operates two types of nuclear submarines:
  - **SSBNs** (Nuclear-powered Ballistic Missile Submarines)
  - **SSNs** (Nuclear-powered Attack Submarines)

### **India's SSBN Fleet**

- ❖ At present, India has two operational SSBNs:
  - **INS Arihant**
  - **INS Arighaat**
- ❖ The **third SSBN, INS Aridhaman**, which is **larger than the first two submarines** and capable of carrying a **greater number of long-range nuclear-tipped missiles**, is expected to be **commissioned into the Indian Navy by early next year**.
- ❖ A **fourth SSBN (codenamed S-4\*)**, with a displacement of **7,000 tonnes**, similar to INS Aridhaman, is likely to be **commissioned by 2027**.
- ❖ **INS Arihant and INS Arighaat** have a displacement capacity of **6,000 tonnes** and became **fully operational in 2018 and 2024 respectively**.
- ❖ On the SSBN front, **INS Aridhaman** will be capable of carrying **twice the number of K-4 ballistic missiles** (with a strike range of **3,500 km**) compared to **INS Arighaat**.
- ❖ **INS Arihant** is armed with **K-15 missiles** having a range of **750 km**.  
In addition, **K-5 and K-6 missiles**, with strike ranges of **5,000 to 6,000 km**, are under development.
- ❖ Although India possesses operational SSBNs, their **size is approximately half** of those operated by **China, the United States, and Russia**.
- ❖ India's long-term plan includes the development of **larger SSBNs with a displacement of 13,500 tonnes**, equipped with more powerful **190 MW pressurized light water reactors**, replacing the current **83 MW reactors**.

### **India's SSN Programme**

- ❖ Apart from SSBNs, India is also acquiring **SSNs**, which are **nuclear-powered attack submarines** armed with **conventional (non-nuclear) weapons** for long-range hunter-killer missions.
- ❖ India will lease an **Akula-class SSN from Russia for 10 years**, expected to be inducted by **2027–28**.
  - This submarine will be commissioned as **INS Chakra-3**.
- ❖ A **\$3 billion agreement** was signed with Russia for this submarine.  
Although it was scheduled for delivery in **March 2019**, the induction was delayed due to the **Ukraine war**.

- ❖ India has also approved a project worth **₹40,000 crore** to build **two indigenous SSNs**, which has received clearance from the **Prime Minister-chaired Cabinet Committee on Security (CCS)**.
- ❖ Each of these SSNs will be powered by a **190 MW pressurized light water reactor**.
- ❖ The **first SSN** is expected to be ready by **2036–37**, followed by the second a few years later.

### **India's Nuclear Delivery Capability**

- ❖ India possesses **Agni-series ballistic missiles** for nuclear delivery.
- ❖ The country also has aircraft capable of delivering **nuclear gravity bombs**, including:
  - **Sukhoi-30 MKI**
  - **Mirage-2000**
  - **Jaguar**
  - **Rafale**

### **Resignation of the Prasar Bharati Chairman**

- ❖ The Chairman of **Prasar Bharati**, **Mr. Navneet Kumar Sehgal**, resigned from his post on **3 December 2025**.
- ❖ The resignation was **accepted by the Ministry of Information and Broadcasting (I&B Ministry)**, which subsequently issued an order **relieving him of his duties with immediate effect**.

### **International Day of Banks**

- ❖ **International Day of Banks** is observed on **4 December**.
- ❖ It is celebrated on the basis of a **resolution adopted by the United Nations General Assembly (UNGA) on 19 December 2019**.

### **Visit of the Russian President to India**

- ❖ During the visit, **15 agreements** were signed between the two countries. The major agreements include:
  1. Cooperation in **healthcare**, including **medical research** and **exchange of medical experts**.
  2. **Training for shipping operations in polar waters**.
  3. Cooperation in **exploration of minerals in deep-sea areas**.
  4. An **academic agreement** between **Mumbai University** and **Lomonosov Moscow State University**.
  5. Simplification of procedures for **Indian workers travelling to Russia**, aimed at preventing **illegal migration**.
  6. An agreement between the **customs agencies of both countries** for the **exchange of information**.
  7. An agreement between **India's food safety and standards authorities** and **Russian agencies** to enhance **consumer protection**.

8. An agreement between the **postal agencies of both countries** for the **exchange of mail and remittances**.
9. An agreement between Indian public sector enterprises and Russian agencies for **urea production**.
  - 9.1. Urea will be produced in India through a joint venture.
  - 9.2. A Russian company will establish a urea plant in India at a cost of Rs **10,000 crore**.
10. A **research agreement** between the **Defence Institute of Advanced Technology (DIAT), Pune**, and Russian defence institutions.
11. A target to increase **bilateral trade to USD 100 billion**.
12. **Five agreements** were signed between **Prasar Bharati** and **Russian media organisations**.

### **Alaknanda Galaxy**

- ❖ Researchers at the **National Centre for Radio Astrophysics (NCRA)** and the **Tata Institute of Fundamental Research (TIFR)** have discovered a **spiral galaxy**, which has been named **Alaknanda Galaxy**.

### **2026 ICC T20 World Cup**

- ❖ The **2026 ICC T20 World Cup** will be **jointly hosted by India and Sri Lanka**.

### **Death Anniversary of Dr. B. R. Ambedkar**

- ❖ **6 December 1956** marks the **death anniversary of Dr. B. R. Ambedkar**.

### **National Handicrafts Week**

- ❖ **National Handicrafts Week** is observed from **8 to 14 December**.

### **Two New Warships in 2026**

- ❖ **Taragiri** : A Nilgiri-class stealth guided missile frigate.
- ❖ **Anjadip**: An anti-submarine warfare shallow water craft.

### **Fifth Harimau Shakti Exercise**

- ❖ **Harimau Shakti** is a **joint military exercise** between **India and Malaysia**.
- ❖ The **fifth edition** of the exercise was held in **Rajasthan**.
- ❖ The exercise took place from **5 to 18 December 2025**.

### **DHRUVA Digital Address System**

- ❖ The **Department of Posts** has released a **draft proposal** to introduce **DHRUVA**, a **UPI-like digital addressing system** using identifiers such as **name@entity**.

- ❖ DHRUVA will function as a **National Digital Address Digital Public Infrastructure (DPI)**, which will **digitize and virtualize physical addresses** with **secure, consent-based data sharing**.

### **Global Energy Leaders Summit 2025**

- ❖ The **Global Energy Leaders Summit 2025** was held from **5–7 December 2025** in **Puri, Odisha**.
- ❖ **Theme:** *“Powering India: Sufficiency, Balance, Innovation”*
- ❖ Union Minister for **New and Renewable Energy, Mr. Prahlad Joshi**, stated that in **FY 2025–26**, India has added **31.25 GW** of renewable energy capacity, including **24.28 GW of solar power**.
- ❖ Over the last **11 years**, India’s solar power capacity has increased from **2.8 GW to 130 GW**, registering a growth of nearly **4,500%**.
- ❖ Between **2022 and 2024**, India contributed **46 GW** to global solar power additions, becoming the **third-largest contributor worldwide**.
- ❖ **Solar module manufacturing capacity**, which stood at **2 GW in 2014**, has now expanded to **120 GW**.

### **Third Bowler to Take 600 T20 Wickets**

- ❖ **Sunil Narine** became the **third bowler** to take **600 wickets in T20 cricket**.
- ❖ The other two bowlers to achieve this milestone are:
- ❖ **Dwayne Bravo**
- ❖ **Rashid Khan**

### **Increase in Excise Duty**

- ❖ **Sun-dried tobacco leaves:** Increased from **64% to 70%**
- ❖ **Chewing tobacco:** Increased from **25% to 100%**
- ❖ **Hookah:** Increased from **25% to 40%**

### **RELOS Agreement**

- ❖ **RELOS (Reciprocal Exchange of Logistics Agreement)** was signed between **India and Russia** on **18 February 2025**.
- ❖ The agreement was **approved by the Russian Parliament** just before the **visit of President Vladimir Putin to India**.

### **LEMOA**

- ❖ **LEMOA (Logistics Exchange Memorandum of Agreement)**
- ❖ It is a **logistics-sharing agreement between India and the United States**, enabling mutual access to military logistics facilities.

### COMCASA

- ❖ **COMCASA (Communications Compatibility and Security Agreement)**
- ❖ It is a **foundational defence agreement** between **India and the United States**, enabling secure and interoperable military communications.

### BECA

- ❖ **BECA (Basic Exchange and Cooperation Agreement)**
- ❖ It is a **foundational defence agreement** between **India and the United States**, facilitating the **sharing of geospatial and satellite data**.

### RBI's Safest Banks (D-SIBs)

- ❖ The **Reserve Bank of India (RBI)** has identified the following banks as **Domestic Systemically Important Banks (D-SIBs)**:
  - **State Bank of India (SBI)**
  - **HDFC Bank**
  - **ICICI Bank**
- ❖ These banks are considered **"too big to fail"** and are subject to **additional regulatory oversight**.

### Indian Judge to Head a UN Commission

- ❖ **Justice Srinivasan Murlidhar**, former **Chief Justice of the Orissa High Court**, has been appointed to head a **United Nations Commission** to investigate **human rights violations in the occupied Palestinian territories**.
- ❖ The commission is a **three-member Independent International Commission**.
- ❖ It was **constituted on 27 May 2021**.
- ❖ On **16 September 2025**, the commission concluded that **Israel is committing genocide against Palestinians in Gaza**.

### Fire in a Goa Nightclub

- ❖ A fire broke out at a nightclub located in **Birch by Romeo Lane, Baga, Goa**, on **7 December**, resulting in the **death of at least 25 people**.
- ❖ On the following day, **8 December**, the owners of the nightclub, **Saurabh and Gaurav Luthra**, allegedly fled to **Phuket, Thailand**.

### Discussion on Vande Mataram in Parliament

- ❖ On the completion of **150 years of the national song Vande Mataram**, a **10-hour discussion** was held in **Parliament on 8 December**.
- ❖ *Vande Mataram* was composed by **Bankim Chandra Chatterjee** and was first published on **7 November 1875** in the literary magazine **"Bangadarshan"**.
- ❖ In **1882**, the song became a part of Bankim Chandra Chatterjee's novel **"Anandamath"**.

- ❖ The discussion began in the **Lok Sabha** with an address by the **Prime Minister**.
- ❖ In the **Rajya Sabha**, the discussion was initiated by the **Union Home Minister** on **9 December**.
- ❖ On **11 December**, while concluding the debate in the Rajya Sabha, it was stated that the **discussion on Vande Mataram was held only to set the record straight**.
- ❖ The **Prevention of Insults to National Honour Act, 1971**, does **not prescribe any penalty** for disrespecting or refusing to sing *Vande Mataram*.

### **18 Types of Traffic Challans for Rule Violations**

- ❖ There are **18 types of challans** prescribed for **violations of traffic rules**.
- ❖ About **65% of challans** are issued for **not wearing seat belts and helmets**.
- ❖ The **highest fine of ₹25,000** is imposed when a **minor violates traffic rules**.
- ❖ A fine of **₹10,000** is imposed for:
  - Dangerous driving
  - Disobeying traffic police instructions
  - Driving with an unauthorized driver
  - Drunk driving
  - Not giving way to emergency vehicles and ambulances
- ❖ A fine of **₹5,000** is imposed for **racing on public roads**.

### **Loan Waiver by PSBs**

- ❖ **Public Sector Banks (PSBs)** have written off loans worth **₹6.15 lakh crore** over the last **5.5 years**.

### **India Post's DHRUVA Digital Addressing System**

- ❖ The **Government of India** has introduced a **draft amendment to the Post Office Act, 2023**, with the objective of establishing a **Digital Addressing System** named **DHRUVA**.
- ❖ The **Digital Addressing System** will enable the **standardisation and sharing of physical addresses** by converting them into **digital addresses**.
- ❖ Under this system, a physical address will be identified using an **email-like label**, such as **vijay@dhruva**.
- ❖ The related proposal was first presented by **India Post in May 2025**.
- ❖ **DHRUVA** stands for **Digital Hub for Reference and Unique Virtual Address**.
- ❖ Each physical address will be mapped to a **10-digit alphanumeric PIN**, called **DIGIPIN**.
- ❖ The **DIGIPIN system** will be launched only after the proposed amendment is approved.
- ❖ DHRUVA is being proposed as a **Digital Public Infrastructure (DPI)**, similar to **Aadhaar and UPI**.

### Key Features and Benefits of DHRUVA

- ❖ The system will allow multiple entities—ranging from **logistics companies like India Post to e-commerce and gig platforms such as Amazon and Uber**—to obtain a **digital address label**.
- ❖ Users will **no longer need to repeatedly enter physical addresses**. Instead, the **final user will authorise the sharing** of their address label.
- ❖ Once authorised, the concerned platform will receive both:
  - A **descriptive physical address**, and
  - A **geo-coded DIGIPIN**.
- ❖ **DIGIPIN** is an **open-source location-based PIN system**, developed by **India Post**.
- ❖ In India, **every 12 square metre grid block** will have a **unique DIGIPIN**.
- ❖ India Post expects this system to be especially useful in **rural areas**, where **precise descriptive addresses are often unavailable**.
- ❖ DIGIPIN will assist **postal delivery personnel** by providing a **precise location alternative**, in addition to the traditional **PIN code system**.

### Crypto Transactions in India

- ❖ According to data shared in **Parliament (Rajya Sabha)**, the value of **cryptocurrency transactions in India** stood at **₹51,180 crore in 2024–25**, registering a **41% increase** over the previous year.
- ❖ The **Government of India** collected **₹511.8 crore as Tax Deducted at Source (TDS)** on cryptocurrency transactions during **2024–25**.
- ❖ The **Income Tax Act** mandates a **1% TDS deduction on any transfer of Virtual Digital Assets (VDAs)**, including cryptocurrencies.

### Armed Forces Flag Day

- ❖ **Armed Forces Flag Day** is observed on **7 December**.
- ❖ It is dedicated to **honouring the servicemen and veterans of India's Armed Forces**.
- ❖ The observance was **instituted in 1949**.

### 11th India International Science Festival (IISF)

- ❖ The **11th India International Science Festival (IISF)** was held from **6 to 9 December 2025**.
- ❖ **Venue: Panchkula, Haryana**.

### 95% Conviction Rate in PMLA Cases

- ❖ The **Minister of State for Finance, Mr. Pankaj Chaudhary**, informed Parliament on **8 December** that the **Enforcement Directorate (ED)** has achieved a **95% conviction rate** in cases under the **Prevention of Money Laundering Act (PMLA)**.
- ❖ The **special court convicted 122 persons in 53 out of 56 cases**.

- ❖ According to the minister, from **2014–15 to November 2025**, the ED has registered **6,444 Enforcement Case Information Reports (ECIRs)** under PMLA.

### **Operation Desert Knight**

- ❖ **Operation Desert Knight** is a **tri-nation air exercise** involving **India, France, and the United Arab Emirates (UAE)**.
- ❖ The exercise was conducted in the **Arabian Sea region**.

### **Russia Joins the International Big Cat Alliance (IBCA)**

- ❖ **Russia** has become the **19th member** of the **India-led International Big Cat Alliance (IBCA)**.
- ❖ During **President Vladimir Putin's visit to India on 4–5 December 2025**, Russia decided to **adopt the framework agreement** to formally join the alliance.

### **India Hosts UNESCO's 20th ICH Session**

- ❖ **India** hosted the **20th session** of the **UNESCO Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage (ICH)** from **8 to 13 December 2025** in **New Delhi**.

### **Indian Elements on UNESCO's Intangible Cultural Heritage List**

*(As of December 2025)*

- ❖ By December 2025, **15 Indian elements** had been inscribed on UNESCO's **Representative List of the Intangible Cultural Heritage of Humanity**:
  1. **Tradition of Vedic Chanting** (2008)
  2. **Ramlila** (2008)
  3. **Kutiyattam**, Sanskrit theatre of Kerala (2008)
  4. **Ramman**, religious festival and ritual theatre of the Garhwal Himalayas (2009)
  5. **Mudiyettu**, ritual dance drama of Kerala (2010)
  6. **Kalbelia** folk songs and dances of Rajasthan (2010)
  7. **Chhau Dance** of Jharkhand and adjoining regions (2010)
  8. **Buddhist Chanting of Ladakh** (2012)
  9. **Sankirtana**, ritual singing, drumming and dancing of Manipur (2013)
  10. **Traditional Brass and Copper Craft of Utensil Making**, Punjab (2014)
  11. **Yoga** (2016)
  12. **Nowruz** (2016)
  13. **Kumbh Mela** (2017)
  14. **Durga Puja** (2021)
  15. **Garba** (2023)

### **Diwali Added to UNESCO ICH List**

- ❖ On **10 December 2025**, **Diwali** was included as the **16th Indian traditional element** on UNESCO's **Intangible Cultural Heritage list**.

### **PETA India Person of the Year 2025**

- ❖ **Raveena Tandon** has been selected as the **PETA India Person of the Year, 2025**.

### **Right to Disconnect Bill**

- ❖ The **Right to Disconnect Bill** was introduced in the **Lok Sabha** by **Ms. Supriya Sule**.
- ❖ It is a **Private Member's Bill**.
- ❖ **France** has had the **Right to Disconnect** as a law since **2017**.

### **Microsoft's Investment in India**

- ❖ Following a meeting between **Microsoft CEO Satya Nadella** and the **Prime Minister of India**, Microsoft announced an investment of **₹1.58 lakh crore** in India, which will be its **largest investment in Asia**.
- ❖ The investment will be made during the period **2026 to 2029**.
- ❖ This investment is **in addition to the USD 3 billion commitment** announced in **January 2025**.

### **Market Share of Aviation Companies in India**

- ❖ **IndiGo** – **56%**
- ❖ **Air India** – **28%**
- ❖ **SpiceJet** – **6%**
- ❖ **Akasa Air** – **4.4%**

### **Trump's Threat of Higher Tariffs on Indian Rice**

- ❖ The **United States**, under former President **Donald Trump**, threatened to impose **higher tariffs on Indian rice**.
- ❖ A **10% tariff** was imposed before **August 2025**, followed by an additional **40% increase**, taking the **total tariff to 50%**.
- ❖ In **2024–25**, India exported **274.213 metric tonnes of basmati rice** to the United States, valued at **USD 337.10 million**.

### **Impeachment of a Madras High Court Judge**

- ❖ Members of Parliament from the **INDIA bloc** submitted a motion to the **Lok Sabha Speaker** on **8 December** seeking the **impeachment of Madras High Court Judge Justice G. R. Swaminathan**.
- ❖ The motion has been moved under **Article 217**, read with **Article 124** of the **Constitution of India**.
- ❖ The motion has been signed by **107 Members of Parliament**.
- ❖ **Charge**: Allegedly deciding cases **on the basis of political ideology**.

### **Elderly Population in India by 2036**

- ❖ According to a reply given by the **Union Home Minister** in the **Lok Sabha**, the number of people aged **60 years and above** in India is projected to reach **22.74 crore** by 2036.
- ❖ This will constitute **14.9% of India's estimated population** in 2036.
- ❖ In **2011**, the proportion of elderly people (60+ years) was **8.4%** of the total population.

### **Cyber Frauds Blocked via I4C**

- ❖ The **Indian Cyber Crime Coordination Centre (I4C)** helped block **suspected cyber fraud transactions worth ₹8,031.56 crore**.
- ❖ The **suspect registry database** has identified over **18 lakh suspicious individuals**.

### **SURYAKIRAN–XIX**

- ❖ **SURYAKIRAN–XIX** is a **joint military exercise between India and Nepal**.
- ❖ The exercise concluded on **9 December** in **Pithoragarh, Uttarakhand**.

### **11th India International Science Festival (IISF) 2025**

- ❖ The **11th India International Science Festival (IISF)** was held in **Panchkula, Haryana**, from **5–9 December 2025**.
- ❖ IISF was **started in 2015**.
- ❖ **Theme:** “*Vigyan se Samriddhi: for Atmanirbhar Bharat*”

### **Transparency International – Corruption Perceptions Index (CPI) 2024**

- ❖ The **top-performing countries** in the **2024 Corruption Perceptions Index** include:
  - **Denmark**
  - **Finland**
  - **Singapore**
  - **New Zealand**
  - **Luxembourg**

### **India: 2nd WHO Global Summit on Traditional Medicines**

- ❖ India hosted the **2nd WHO Global Summit on Traditional Medicines**.
- ❖ **Date:** **17–19 December 2025**
- ❖ **Venue:** **New Delhi**

### **India's GDP Growth – FY 2025–26 (Q2)**

- ❖ In the **second quarter (Q2)** of **FY 2025–26**, India's **GDP growth rate** stood at **8.2%**.
- ❖ **Sector-wise Growth**
  - **Manufacturing: 9.1%**

- **Services: 9.2%**
  - **Financial Services: 10.2%**
- ❖ The **services sector contributes around 60%** to India's GDP.
- ❖ This growth rate is the **highest since Q1 of FY 2024–25**.

### Quarterly GDP Growth Overview

- ❖ **FY 2024–25**
  - Q1: **6.5%**
  - Q2: **5.6%**
  - Q3: **6.4%**
  - Q4: **7.4%**
- ❖ **FY 2025–26**
  - Q1: **7.8%**
  - Q2: **8.2%**
- ❖ A **higher growth rate than this (8.4%)** was last recorded in **Q4 of FY 2023–24**.
- ❖ **Nominal GDP** reached **Rs 85.25 lakh crore**, growing at a rate of **8.7%**.
- ❖ **Private Final Consumption Expenditure (PFCE)** grew by **7.9%**, indicating **higher household spending**.
- ❖ **Nominal Gross Value Added (GVA)** increased to **₹89.41 lakh crore** from **₹82.88 lakh crore**.
- ❖ This indicates that **real value addition is taking place in agriculture, industry, and services**, and the growth is **not merely due to price inflation**.
- ❖ In the **first half (H1) of FY 2025–26**, the **economic growth rate** stood at **8.0%**.
- ❖ After remaining high for several years, **inflation declined below the target level from the end of FY 2024–25**.
- ❖ **Banks have increased credit growth**, supporting investment and consumption.
- ❖ **Strong GST and direct tax collections** have also contributed to higher economic growth.

### External Sector & Government Spending

- ❖ The **Government of India's expenditure mix** has been of **relatively high quality**.
- ❖ The **Current Account Deficit (CAD)** remained low.
- ❖ **Growth in services exports** strengthened the external sector.
- ❖ **Adequate foreign exchange reserves** helped India withstand **global economic instability**, ensuring **external sector stability**.
- ❖ Despite economic slowdown in most parts of the world, **India recorded satisfactory economic growth**.

### IMF 'C' Rating on India's National Accounts Data

- ❖ ❖ Just before the release of these data, the **International Monetary Fund (IMF)** assigned **Grade 'C'** to India's **National Income Accounting data**.

### Reasons for IMF's 'C' Rating

- Use of an **outdated base year (2011–12)**

- Use of **Wholesale Price Index (WPI)** as deflators due to the absence of **Producer Price Index (PPI)**
- **Excessive reliance on single deflation**, which may introduce cyclical bias
- **Large discrepancies** between the **production and expenditure approaches**, indicating gaps in expenditure data and informal sector coverage
- Lack of **seasonally adjusted data** and scope for improvement in statistical techniques used in quarterly national accounts
- **Absence of consolidated data** on States and local bodies after **2019**

### Concerns Regarding India's Growth Performance

- ❖ Some important factors that raise doubts about the growth performance:
  - **Unusually long monsoon season** affected **mining output**
  - **Lower-than-normal winter temperatures** reduced electricity demand for heating and peak load, leading to **slower electricity production**
  - These factors **weaken the industrial base effect** for the year
  - Quarterly data show:
    - **Electricity and other utilities** grew by only **4.4%**
    - **Mining sector growth** was **negligible at 0.04%**

### **Investment under PLI (Production Linked Incentive) Scheme**

- ❖ **Rs 1.8 lakh crore** investment has been made under the **PLI schemes** up to **June 2025**.
- ❖ **PLI-linked investments** have resulted in:
  - **Incremental production and sales** exceeding **Rs 17 lakh crore**
  - **Employment generation of over 12.3 lakh**, including **direct and indirect jobs**
- ❖ **Exports under PLI schemes** have crossed **Rs 7.5 lakh crore**.
- ❖ The **Department for Promotion of Industry and Internal Trade (DPIIT)** has recognized **2,01,335 start-ups** under the **Startup India Scheme**.
- ❖ These start-ups have collectively generated **more than 21 lakh jobs**.

### **Aviation Crisis**

- ❖ From **2 December**, reports of **flight cancellations and chaos at airports** began surfacing through news, videos, and images.
- ❖ Initially, it appeared to be a **temporary managerial or technical issue** that would be resolved quickly.
- ❖ On **3 December**, it was revealed that:
  - **Around 200 flights** had been cancelled
  - Reports of **sharp airfare hikes** began to emerge
- ❖ The situation worsened rapidly:
  - **4 December**: Flight cancellations rose to **550**
  - **5 December**: Cancellations surged to **around 1,600**
- ❖ By **5 December**, it became evident that this was a **serious systemic crisis**, not a routine disruption.

- ❖ Such large-scale problems generally have **deep-rooted causes** rather than arising suddenly.

### Key Issues Covered in the Analysis of the Crisis

- **Background:** What were the **origin and root causes** of the crisis?
- **Crisis Management:** How was the situation **handled and controlled**?
- **Role of Stakeholders:** Responsibilities of the **airline companies and the government**
- **Important Takeaways:** Key lessons from the crisis
- **“Between-the-lines” Analysis:** Hidden or less-discussed aspects of the issue

### Background: Aviation Crisis and FDTL Rules

- ❖ The root of the issue dates back to **8 January 2024**, when the **Directorate General of Civil Aviation (DGCA)** issued a **new notification on Flight Duty Time Limitations (FDTL)**.
- ❖ The objective of the notification was to **improve working conditions of aviation crew members**, especially pilots, by aligning Indian norms with **global aviation safety standards**.
- ❖ Under the **Indian Aircraft Act, 2024** and **The Aircraft Rules, 1937**, the DGCA issues FDTL norms as part of **Civil Aviation Requirements (CARs)**.

### Historical Context

- ❖ As early as **2012**, several **pilot associations** demanded the implementation of **international fatigue management standards** to enhance flight safety.
- ❖ The **Indian Pilots’ Guild (IPG)** went on a **58-day strike**, citing safety concerns related to pilot fatigue.
- ❖ In **2016**, **seven pilots were dismissed**, with airlines claiming losses of around **₹600 crore** due to the strike.
- ❖ In **2019**, DGCA introduced **FDTL rules**, but **airlines challenged them legally**, delaying implementation.
- ❖ Due to prolonged litigation and lack of enforcement, **revised FDTL rules were reissued in 2024**.

### Key Changes Introduced in FDTL Rules, 2024

- Weekly Rest Period**
  - Increased from **36 hours to 48 continuous hours**
  - Must include **two full nights at the pilot’s home base**
- Redefinition of Night Duty**
  - Earlier: **12:00 AM – 5:00 AM**
  - Revised to: **12:00 AM – 6:00 AM**
- Restrictions on Night Flight Operations (Window of Circadian Low)**
  - **Maximum flight duty period** for night operations reduced to **10 hours**
  - **Flying time capped at 8 hours**
  - **Weekly limit:** 35 hours
  - **28-day limit:** 100 hours
  - **Annual limit:** 1000 hours
  - **Number of night landings reduced from 6 to 2**

- ❖ These rules were originally scheduled to be implemented from **1 June 2024**.
- ❖ Airlines again **challenged the FDTL rules in court**, delaying implementation.
- ❖ On **7 April 2025**, Justice Tara Vitasta Ganju of the **Delhi High Court** ordered that:
  - **22 improvements** in FDTL rules be implemented in **two phases**
    - **17 provisions from 1 July 2025**
    - **Remaining 7 provisions from 1 November 2025**
- ❖ This decision aligned with the **DGCA's affidavit**, after which the **case was closed**.

#### Onset of the Aviation Crisis (December 2025)

- ❖ Despite the legal clarity, operational disruptions began in early December:

Date	Operational Performance
2 December	35% performance
3 December	19% performance; ~200 flights cancelled
4 December	~550 flights cancelled
5 December	~1,600 flights cancelled
6 December	~800 flights cancelled
7 December	~650 flights cancelled

- ❖ The sharp decline highlighted **severe operational stress within airlines**, especially crew availability issues.

#### IndiGo's Passenger Compensation Measures

- ❖ During the crisis, IndiGo Airlines announced relief for affected passengers:
  - Rs10,000 travel voucher, valid for 12 months
  - Rs10,000 monetary compensation

### **Mexico Imposes Up to 50% Tariff on India**

- ❖ Mexico has imposed tariffs of up to 50% on certain selective imported products from India, as well as other Asian countries including China and South Korea.
- ❖ The tariff hike will come into effect from 2026.
- ❖ Products exported from India to Mexico that may be impacted include:
  - Auto parts
  - Passenger vehicles (excluding small vehicles)
  - Ready-made garments
  - Footwear
  - Leather goods
  - Steel
  - Aluminium
  - Plastics
  - Chemicals

### India–Mexico Trade Profile

- ❖ In **2025**, India accounted for **1.38% of Mexico's total imports**.
- ❖ Mexico's exports to India constituted only **0.3% of its total exports**, indicating a **trade imbalance**.
- ❖ In **FY 2024–25**, India exported goods worth **USD 5.7 billion** to Mexico, accounting for **1.3% of India's total exports**.

### Composition of India's Exports to Mexico

- ❖ **Motor cars and auto parts:**
  - **USD 1.4 billion**, accounting for **25%** of India's exports to Mexico
- ❖ **Motorcycles and related exports:**
  - Constitute approximately **75%** of India's exports to Mexico
- ❖ **Mexico's share in India's exports:**
  - About **10%** of India's total **auto and auto-parts exports**
  - About **12%** of India's **motorcycle exports**
- ❖ **Mexico does not have a Free Trade Agreement (FTA) with India**, which limits preferential tariff benefits.

### India's Electricity Generation: Coal Still Dominant

- ❖ India has achieved its target of **50%** of total installed electricity capacity (approx. 486 GW) from non-fossil fuel sources.
- ❖ However, in terms of actual electricity supplied, clean energy contributes less than **30%**.
- ❖ Consequently, around **70%** of electricity generation in India still comes from coal and other fossil fuels.

### Farmers' Suicides in Maharashtra

- ❖ **766 farmers** died by suicide in Maharashtra during the three-month period of:
  - September
  - October
  - November

### Supreme Court on Involuntary Narco Test

- ❖ The **Supreme Court of India**, through its judgment, **set aside a Patna High Court order** that had permitted an **involuntary narco test** in *Amlash Kumar v. State of Bihar (2025)*.
- ❖ The Apex Court held that the High Court's order was **in violation of the guidelines laid down in Selvi v. State of Karnataka (2010)**, commonly referred to as the **Selvi Guidelines**.

### What is a Narco Test?

- ❖ A **narco test** is an investigative technique in which it is expected that the accused, while under sedation, may reveal concealed facts.
- ❖ During the test, the subject is administered a class of sedative substances, such as **barbiturates (e.g., Sodium Pentothal)**, which lower inhibitions and reduce the ability to reason.
- ❖ It is considered a **non-violent investigative method**, similar to techniques like **polygraph tests** or **brain mapping**.

### Why Are Narco Tests Constitutionally Problematic?

- ❖ **Involuntary narco tests have been declared unconstitutional** in light of **Article 20(3) of the Indian Constitution**, which provides protection against **self-incrimination**.
- ❖ Article 20(3) states that **no person accused of an offence shall be compelled to be a witness against himself**.
- ❖ As per the **Selvi Guidelines**, without **free and informed consent**, any narco test is unconstitutional, and **any information obtained through such a test is inadmissible as evidence**.

### Article 20: Constitutional Safeguards in Criminal Law

- ❖ All three clauses of **Article 20** together form the **constitutional foundation of India's criminal justice system**:
  - **Clause (1): Protection against ex post facto laws**  
No person can be convicted for an act that was not an offence at the time it was committed.
  - **Clause (2): Protection against double jeopardy**  
No person shall be prosecuted or punished more than once for the same offence.
  - **Clause (3): Protection against self-incrimination**  
An accused cannot be compelled to testify against himself.

### Article 21, Privacy, and the Golden Triangle

- ❖ **Balancing the rights of the victim and the accused** is a core principle of a democratic criminal justice system.
- ❖ Any violation of the **right against self-incrimination** raises serious concerns regarding **democratic values and constitutional morality**.
- ❖ **Article 21**, which guarantees the **Right to Life and Personal Liberty**, also encompasses the **Right to Privacy**.
- ❖ Conducting a narco test **without express consent** violates this fundamental right.
- ❖ **Articles 14, 19, and 21 together constitute the "Golden Triangle" of the Constitution**, as established by the Supreme Court in *Maneka Gandhi v. Union of India (1978)*.
- ❖ A violation of privacy, therefore, results in a violation of **personal liberty** and disrupts the **Golden Triangle** framework.

### What if a Narco Test Affirms Evidence?

- ❖ Two important judgments are relevant in this context:
  - ➤ *Manoj Kumar Saini v. State of Madhya Pradesh (2023)*
  - ➤ *Vinobhai v. State of Kerala (2025)*
- ❖ The courts held that **narco test results do not establish guilt.**
- ❖ Information obtained through such tests may assist investigation but **must be corroborated with independent evidence.**
- ❖ The Supreme Court has mandated that:
  - Consent must be **voluntary and informed**
  - Consent must be **recorded before a Judicial Magistrate**
  - Tests must be conducted with **medical, legal, and procedural safeguards**

### Ethical Dimension

- ❖ Philosopher **Immanuel Kant** argued that an act is ethical only when performed with **free consent.**
- ❖ In this context, **forced or involuntary narco tests violate ethical principles,** as well as **core human and natural rights.**

## **Supreme Court on Passive Euthanasia**

- ❖ A Supreme Court bench comprising Justices **J.B. Pardiwala** and **K.V. Viswanathan** considered the case of **Harish Rana**, a **31-year-old man living in a permanent vegetative state with 100% disability for the past 13 years.**
- ❖ Observing the **negligible chance of recovery,** the Court decided to **initiate the next procedural stage for passive euthanasia,** in accordance with its established guidelines.

### Background of the Case

- ❖ The plea was filed by **Harish's father, Mr. Ashok Rana,** seeking permission for **withdrawal of life support.**
- ❖ Harish had suffered a **severe head injury after falling from the fourth floor of his paying guest accommodation on 20 August 2013,** while pursuing a **B.Tech degree at Punjab University.**
- ❖ Despite treatment at multiple hospitals over the years, **his medical condition showed no improvement,** and he remained in a permanent vegetative state

### Medical Assessment

- ❖ The Court examined the report of the **Primary Medical Board constituted by Noida District Hospital,** which concluded that **there was no hope of recovery.**
- ❖ The bench noted that:
  - Harish was **bedridden**
  - He required a **tracheostomy tube for respiration**
  - He was being fed through **gastrostomy**
  - He had developed **severe bed sores**

- ❖ The medical team unanimously opined that **the chances of recovery were negligible**, given the prolonged duration of his condition.

#### Directions of the Supreme Court

- ❖ The Supreme Court directed the **Director of AIIMS, New Delhi**, to constitute a **Secondary Medical Board**, which is the **second mandatory step** in deciding a plea for passive euthanasia.
- ❖ This procedure follows the **two-tier medical board system** laid down by the Supreme Court:
  - First Tier: Primary Medical Board
  - Second Tier: Secondary Medical Board (at a higher institution)

#### Legal Position on Passive Euthanasia

- ❖ In **2018**, the Supreme Court **legalised passive euthanasia**, permitting the **withdrawal of life support** for terminally ill patients or those in a permanent vegetative state.
- ❖ The Court held that the **“Right to die with dignity” is an intrinsic part of the Right to Life under Article 21** of the Constitution.
- ❖ In **2023**, the Court **simplified the procedural requirements**, including:
  - Establishment of a **two-tier medical board system**
  - Allowing the **patient’s family to approach the High Court** in case the request for passive euthanasia is denied

#### Challenge to Delhi High Court Order

- ❖ Prior to approaching the Supreme Court, **Harish’s father had moved the Delhi High Court**, which **refused to refer the case to a primary medical board**.
- ❖ Challenging the High Court’s decision, the petitioner argued that:
  - Harish’s continued existence in the present condition **violated his fundamental right to dignity**
  - The High Court **failed to adhere to Supreme Court guidelines on passive euthanasia**

#### Constitutional Significance

- ❖ The case reaffirms that:
  - **Human dignity is central to Article 21**
  - Prolonged artificial life support without hope of recovery raises serious **ethical and constitutional concerns**
  - Judicial oversight ensures that **medical decisions respect both life and dignity**

### **Tangail Saree in UNESCO Intangible Cultural Heritage (ICH) List**

- ❖ **Tangail Saree** is a **handwoven cotton and silk saree**.
- ❖ It is traditionally made in the **Tangail district of Bangladesh**.
- ❖ It has been included in the **UNESCO Intangible Cultural Heritage (ICH) List**.

### **Boreendo**

- ❖ **Boreendo** is an **ancient folk musical instrument** of the **Sindh province, Pakistan**.
- ❖ It is about **5,000 years old**.
- ❖ The instrument is:
  - Hollow and spherical in shape,
  - Has sound holes,
  - Made of clay,
  - Sun-dried and kiln-fired.

### **National Handicrafts Award (India)**

- ❖ The **National Handicrafts Award** is a **Government of India award** given to **outstanding craftspeople**.
- ❖ It is **presented by the President of India**.
- ❖ The awards were **introduced in 1965**.
- ❖ For the years **2023 and 2024**, the awards were presented on **9 December 2025**.
- ❖ A total of **48 awards** were given:
  - **Shilp Guru Awards – 12**
  - **Sant Kabir Awards – 36**

### **Ginger Capital of India**

- ❖ **NITI Aayog** has declared **Mizoram** as the **Ginger Capital of India**.

### **Candidates Tournament (Chess)**

- ❖ The **Candidates Tournament** is a chess tournament organized by **FIDE**.
- ❖ It determines the **challenger for the World Chess Championship**.
- ❖ **R. Praggnanandhaa** became the **first Indian** to qualify for the **Candidates Tournament 2026**.

### **Shivraj Patil: Political Career Overview**

- ❖ Shivraj Patil passed away on **12 December**. He was born in **1935** and began his political career in **1972** as a member of the **Maharashtra Legislative Assembly**. He remained active in public life until **January 2015**, holding several important constitutional and administrative positions.
- ❖ During his long political career, he served as:
  - Speaker of the Maharashtra Legislative Assembly
  - Speaker of the Lok Sabha
  - Union Minister on multiple occasions
  - Governor of Punjab

### **Cabinet Approval for Census 2027**

- ❖ The Union Cabinet approved **Census 2027** on **12 December 2025**.  
For this purpose, a budget allocation of **₹11,718 crore** has been sanctioned.
- ❖ The census in India was first introduced by the **British government** in **1872** and was conducted regularly until **1931**.

### **Inflation Rate in November**

- ❖ In **November 2025**, the inflation rate was recorded at **0.71%**.  
The related data was released on **12 December 2025**.
- This figure is **0.25% higher** than October 2025.
- In **November 2024**, inflation stood at **9.04%**.
- Inflation has slowed in **7 of the first 8 months of FY 2025–26**.

### **India's Foreign Exchange Reserves**

- ❖ For the week ending **5 December**, India's foreign exchange reserves declined by **USD 1.88 billion**, reaching a total of **USD 686.23 billion**.

### **WTO's Observations on India's Free Trade Agreements**

- ❖ World Trade Organization stated that India has not gained significant benefits from the nearly **22 Free Trade Agreements (FTAs)** it has signed so far.  
According to the WTO, partner countries are benefiting more from these agreements than India.
- ❖ As per data from India's Ministry of Commerce:
  - India's trade deficit with **ASEAN** was **USD 10 billion in 2017**
  - This deficit increased sharply to **USD 44 billion by 2023**

### **Charaichung Royal Bird Sanctuary**

- ❖ Charaichung Royal Bird Sanctuary is **Asia's first protected bird sanctuary**.  
It is located in **Majuli**, the **world's largest river island**, in the state of Assam, India.

### **Chief Information Commissioner of India**

- ❖ **Raj Kumar Goyal**, a **1990-batch IAS officer**, has been appointed as the **Chief Information Commissioner of India**.  
The **President of India** administered the **oath of office and secrecy** on **15 December**.
- ❖ In addition, **eight Information Commissioners** have also been appointed to the Central Information Commission:
  - **Jaya Verma Sinha** – Former Chairperson, Railway Board
  - **Swagat Das** – Former IPS officer
  - **Sanjeev Kumar Jindal** – Central Secretariat Service
  - **Surendra Singh Meena** – Former IAS officer

- **Khushwant Singh Sethi** – Former IFS officer
- **P. R. Ramesh**
- **Ashutosh Chaturvedi**
- **Sudha Rani Relangi**

### **BJP's Acting President**

- ❖ **Nitin Naveen** has been appointed as the **Acting President of the Bharatiya Janata Party (BJP)**.

### **India Launches US "BlueBird-6" Satellite**

- ❖ India successfully launched the **United States' "BlueBird-6" satellite** on **24 December 2025** using the **LVM-3 M-6 launch vehicle** (also known as **Bahubali**).
- The launch took place at **8:55 AM** from the **Satish Dhawan Space Centre, Sriharikota**.
- The launch was originally scheduled for **8:54 AM**, but was delayed by **90 seconds** after ISRO's radar system detected a **small piece of space debris** along the rocket's flight path, posing a collision risk.
- ❖ At **9:10 AM**, the satellite successfully separated from the launch vehicle. It was placed into a **circular orbit at an altitude of 518.5 km**, instead of the planned **520 km**.
- ❖ ISRO described the mission as a **"textbook launch"**, achieving an orbital accuracy of **less than 1.5 km**.

### **About the BlueBird-6 Satellite**

- ❖ The satellite was developed in collaboration with the US-based company **AST SpaceMobile**.
- ❖ Its objective is to provide **direct-to-mobile 4G and 5G broadband connectivity** in remote and underserved regions of the world where internet access is currently unavailable.
- ❖ The launch was conducted under an agreement between **NSIL (NewSpace India Limited)** and **AST SpaceMobile**.
- This mission marked **ISRO's 434th satellite deployment** for **34 countries over 45 years**.
- The **BlueBird-6 satellite weighs approximately 6.5 tonnes** (around **6,100–6,500 kg**), making it the **heaviest satellite ever launched by ISRO**.

### **India's Gems and Jewellery Exports**

- ❖ During the period **April–November 2025**, India's **gems and jewellery exports** stood at **USD 18.86 billion**.
- ❖ In **November 2025 alone**, exports were valued at **USD 2.5 billion**, registering a **year-on-year growth of 19.64%**.

## **SHANTI Bill, 2025**

- ❖ The **SHANTI Bill, 2025** is a legislation related to **atomic energy**. Its official name is “**Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI)**”.
- ❖ If enacted, the bill is expected to bring **far-reaching reforms in India’s nuclear sector** and significantly transform the country’s **nuclear power generation capacity**.
- ❖ The bill grants **statutory status** to the **Nuclear Energy Regulatory Board**, strengthening regulatory oversight.
- ❖ It was **passed by the Rajya Sabha on 18 December 2025**.
- ❖ The bill received **Presidential assent on 21 December 2025**, thereby becoming law.
- ❖ The bill aims to increase India’s **nuclear power capacity** from the current **8.8 GW** (around **1.5% of total installed capacity**) to **100 GW by 2047** (approximately **3% of total installed capacity**).
- ❖ About **54% of the additional nuclear capacity** will be generated by **government-owned enterprises**, while the remaining capacity will be developed by **private companies**.
- ❖ India’s **targeted total electricity generation capacity by 2047** is **2,100 GW**.
- ❖ The bill provides for the creation of a **Nuclear Liability Fund**.
- ❖ Major nuclear disasters such as:
  - **Three Mile Island (1979)**
  - **Chernobyl (1986)**
  - **Fukushima Daiichi (2011)**
 have led to **stricter safety norms and operational safeguards** for nuclear power plants worldwide.
- ❖ The prevailing **global consensus** holds that in the event of a nuclear accident:
  - The **plant operator must compensate victims** proportionate to the damage caused.
  - Compensation should be provided **immediately**, without waiting to determine the exact cause of the accident or identify those responsible.
- ❖ Subsequently, if the plant operator proves that the accident was **not due to management failure**, but caused by **defective equipment supplied by a vendor**, the operator may seek **legal recourse against the supplier**.
- ❖ The bill establishes a **tiered liability structure**, with compensation limits ranging from **Rs 100 crore to Rs 3,000 crore**.
- ❖ The SHANTI Act repeals two existing legislations:
  - **The Atomic Energy Act, 1962**
  - **The Civil Liability for Nuclear Damage (CLND) Act, 2010**

### **Supplier Liability under Nuclear Law**

- ❖ Under the erstwhile **Civil Liability for Nuclear Damage (CLND) Act**, nuclear plant operators were allowed to seek **recourse from equipment suppliers** under three specific circumstances:
  1. **If there was an explicit agreement** between the supplier and the operator.
  2. **If the nuclear incident was proven to be caused by the supplier or defective equipment supplied by them.**

3. **If the nuclear incident resulted from deliberate intent** to cause nuclear damage.
  - ❖ Under the **SHANTI framework, Clause (b)**—which allowed recourse based on supplier fault—**has been removed.**
  - ❖ Despite the **India–US Civil Nuclear Agreement of 2008**, US and French reactor manufacturers remained hesitant to enter the Indian market.
  - ❖ **Background of the India–US Nuclear Deal**
  - ❖ Based on the **joint statement of 18 July 2005** by US President **George W. Bush** and Indian Prime Minister **Dr. Manmohan Singh.**
  - ❖ Also known as the **“123 Agreement.”**
  - ❖ On **1 August 2008**, the **IAEA approved safeguards** for India.
  - ❖ On **6 September 2008**, the **48-nation Nuclear Suppliers Group (NSG)** granted India a waiver, allowing access to **civilian nuclear fuel and technology**, despite India being a **non-signatory to the NPT.**
    - However, reactor suppliers feared that, as **“suppliers”**, they could be held **theoretically liable for damages running into billions of dollars.** By removing **Clause (b)** and even deleting the term **“supplier”**, the SHANTI framework effectively **eliminates this concern**, making India a more attractive destination for foreign nuclear investment.
  - ❖ Under previous laws:
    - Victims of a nuclear accident could claim **up to Rs 1,500 crore** from the **plant operator.**
    - If damage exceeded this amount, the **Central Government** could contribute **up to Rs 4,000 crore** through an insurance pool.

#### **Tiered Liability Structure under SHANTI**

- ❖ The SHANTI framework introduces a **graded (tiered) liability system** based on the capacity of nuclear plants:
  - **Above 3,600 MW:** Operator liability up to **Rs 3,000 crore**
  - **1,500 MW – 3,600 MW:** **Rs 1,500 crore**
  - **750 MW – 1,500 MW:** **Rs 750 crore**
  - **150 MW – 750 MW:** **Rs 300 crore**
  - **Below 150 MW:** **Rs 100 crore**
- ❖ At present, **all nuclear power plants in India have capacities of 3,000 MW or less.**
- ❖ While presenting the bill in Parliament, **Union Minister of Science and Technology Jitendra Singh** stated that this **phased liability structure** was designed to **avoid discouraging potential private-sector participation.**
- ❖ During parliamentary debates, it was highlighted that **actual compensation costs in nuclear disasters often run into billions of dollars**, far exceeding the prescribed liability limits.
- ❖ India’s nuclear energy programme was conceptualised by **Dr. Homi J. Bhabha**, with two core objectives:
  - Ensuring **India’s long-term energy security** through nuclear power.
  - Overcoming **uranium scarcity** by utilising **abundant thorium reserves.**

### India's Three-Stage Nuclear Power Programme

1. **Stage One**
    - Construction of **Pressurised Heavy Water Reactors (PHWRs)**
    - Use of **natural uranium (U-238)** to generate energy and produce **plutonium**
  2. **Stage Two**
    - Use of **Fast Breeder Reactors (FBRs)**
    - Production of more plutonium and **Uranium-233**, along with electricity
  3. **Stage Three**
    - Use of **U-233 mixed with thorium**
    - Establishment of a **self-sustaining thorium-based nuclear power system**
- ❖ India has **not yet reached Stage Two** of the programme.
  - ❖ It currently has **only one prototype Fast Breeder Reactor (PFBR)**.
  - ❖ After a delay of nearly **20 years**, the reactor was expected to be operational in **2025**, but commissioning has now been postponed to **September 2026 or later**.

### Role of Small Modular Reactors (SMRs)

- ❖ To meet its nuclear energy targets, India is increasingly considering **Small Modular Reactors (SMRs)**.
- SMRs are **smaller versions of existing reactors** used in the **United States and France**.
- They require **enriched Uranium-235**, which **India does not currently possess in sufficient quantities**.
- SMRs also generate **radioactive by-products** such as **plutonium and strontium**, similar to those produced in **Stage One reactors**.
- ❖ Just as **modern aircraft or smartphones** are manufactured **component by component across different countries** and then **centrally assembled**, **Small Modular Reactors (SMRs)** are designed to be built in a **modular manner** and assembled at a central site.
- ❖ However, despite their smaller size, **SMRs generate less electricity per unit** compared to large nuclear reactors.  
They also **do not resolve the nuclear waste challenge more effectively** than large reactors, although some SMR designs incorporate **advanced safety features** that can **automatically shut down the reactor in emergency situations**.
- ❖ While SMRs may contribute to **electricity generation**, they **do not support India's long-term objective of using thorium as a nuclear fuel**.

### Nuclear Energy: Arguments For and Against

- ❖ **Advantages of Nuclear Energy**
  1. **Low operating cost** source of energy
  2. **Zero carbon emissions** during power generation
  3. **High energy density**, requiring relatively small fuel quantities
- ❖ **Disadvantages of Nuclear Energy**
  1. **High water consumption**
  2. **Risk of accidents involving radioactivity**
  3. **Challenges of nuclear waste management**

- ❖ Even after shutting down its **last nuclear power plant in 2023**, **Germany** is still searching for a **permanent storage solution** for nearly **27,000 cubic metres of radioactive waste**.

Germany has created a **€23.6 billion fund** for this purpose—an approach that is **not financially feasible** for countries like **India**.

#### **Nuclear Power in India: Institutional Framework**

- ❖ All **commercial nuclear power plants in India** are operated by the **Nuclear Power Corporation of India Limited (NPCIL)**.
- At present, **22 nuclear reactors** are operational in India.

#### **Why Did Germany Move Away from Nuclear Power?**

- ❖ A key question is why a country like **Germany** decided to phase out nuclear energy.
- ❖ According to **Germany's Energy Minister Steffi Lemke**, in **March 2025**, the **risks associated with nuclear energy eventually become uncontrollable**.  
Phasing out nuclear power, she stated, makes the country **safer** and helps it **avoid the long-term burden of nuclear waste**.

#### **Global Nuclear Power Scenario**

- ❖ **Nuclear power plants operate in 31 countries worldwide**.
- ❖ The **United States** has **94 nuclear power reactors**.
- Nuclear energy accounts for **18%** of US electricity generation.
- **Natural gas** contributes **over 40%**
- **Renewable energy** accounts for **23%**
- **Coal** contributes **16%**

#### **India's Power Generation Capacity**

- ❖ India's **total installed electricity generation capacity** has reached **510 GW**.

### **Apache AH-64 Attack Helicopter**

- ❖ In **February 2020**, India and the United States signed an agreement worth **₹5,691 crore** for the supply of **six heavy-duty Apache AH-64 attack helicopters** to the **Indian Army**.
- **Three helicopters** were delivered in **July 2025**.
- The **remaining three** are scheduled for **delivery in the coming days**.
- ❖ The **Apache AH-64 gunships** are often referred to as **“tanks in the air”** because:
  - They are equipped with **Stinger air-to-air missiles**.
  - They carry **Hellfire Longbow air-to-ground missiles**, along with **guns and rockets**.
- ❖ Separately, under another agreement worth **₹13,952 crore**, **22 Apache AH-64 helicopters** were inducted into the **Indian Air Force**.
- ❖ India's **three armed forces** will require nearly **1,000 new helicopters** over the next **10–15 years**, as the ageing **Cheetah** and **Chetak** helicopters are being phased out. From **2028 onwards**, the **indigenously developed “Prachand” Light Combat Helicopter (LCH)** will be deployed.

### Detection of Nitrofurantoin in Eggs

- ❖ Following the confirmation of **Nitrofurantoin** presence in eggs sold under the brand **Eggoz**, the **Food Safety and Standards Authority of India (FSSAI)** has directed **nationwide testing of eggs**.
- **Nitrofurantoin** is a chemical compound with the formula  $C_4H_3NO_3$ .
- It is an **antibiotic**.
- ❖ Under the **Food Safety and Standards Act, 2006**, the use of certain **veterinary drugs in food-producing animals is completely prohibited**. These include:
  - Nitrofurantoin
  - Chloramphenicol
  - Colistin
  - Malachite green, among others
- ❖ The law also prescribes **strict safety limits**, known as the **External Maximum Residue Limit (EMRL)**.
  - For **Nitrofurantoin**, the EMRL is **1 microgram per kilogram**.
  - Testing found **0.73 microgram per kilogram** of Nitrofurantoin in Eggoz eggs, which is **below the prescribed limit**.
- ❖ However, since the company markets its products as “**antibiotic-free and pesticide-free**”, even this trace presence has **raised concerns about product credibility**.

### RBI Report and Life Expectancy

- ❖ The **Reserve Bank of India (RBI)** released the **10th edition** of its publication titled “**Handbook of Statistics on the Indian Economy, 2024–25**”.
- ❖ The report is based on data from **2019–2023** and covers:
  - Socio-demographics
  - Health
  - State Domestic Product
  - Agriculture and environment
  - Industry and infrastructure
  - Banking, fiscal, and external sector indicators
- ❖ In **Delhi**, average life expectancy has **declined by 1.7%** compared to **2015–2019**, falling to **74.2 years**.
- ❖ In **Bihar**, life expectancy increased marginally from **69.2 years (2015–2019)** to **69.3 years (2019–2023)**.

### Indian Prime Minister’s Visit to Three Countries

- ❖ The **Prime Minister of India** began a **three-nation tour on 15 December**, visiting **Jordan, Oman, and Ethiopia** (also known as the “**Roof of Africa**”).
- ❖ These countries are **strategically important from the perspective of India’s Global South policy**.

### Visit to Jordan

- ❖ In the **first leg of the tour**, the Prime Minister arrived in **Amman**, the capital of **Jordan**, on **15 December**.
- The **King of Jordan** is **Abdullah II ibn Al Hussein**.
- The **Prime Minister of Jordan** is **Jaafar Hassan**.

#### India–Jordan Relations

- ❖ **Bilateral trade** between India and Jordan stands at **USD 2.87 billion**.
- ❖ **India's exports to Jordan** amount to **USD 1.46 billion**.
- ❖ **Indian investments in Jordan** are estimated at **around USD 1.5 billion**.
- This was the **first visit by an Indian Prime Minister to Jordan in the last 37 years**.

#### Strategic Importance of Jordan

- ❖ Jordan is located in the **heart of West Asia** and shares borders with **five Arab countries and Israel**.
- ❖ Through the **Port of Aqaba**, Jordan has direct access to the **Red Sea**.
- Jordan is also important to India for the following reasons:
  1. It is a **major supplier of phosphate**, a key input for fertiliser production.
  2. A large number of **Indian tourists visit Jordan every year**.
  3. From a **naval and strategic cooperation** perspective, Jordan's presence near the **Red Sea** is significant for India.

### Visit to Ethiopia

- ❖ In the **next phase of the tour**, the Prime Minister visited **Ethiopia**, where he was conferred the country's highest civilian honour, "**The Great Honour (Nishan) of Ethiopia**."
- ❖ **India–Ethiopia Relations**
  - During the **1950s and 1960s**, educational ties between the two countries were particularly strong, as Ethiopia was a **preferred destination for Indian teachers**.
- ❖ **Strategic Importance of the Red Sea Region**
  - Nearly **50% of India's exports** and **30% of its imports** pass through the **Red Sea**.
  - The combined value of this trade is approximately **USD 200 billion**.
  - Therefore, maintaining **favourable conditions in the Red Sea region** is crucial for India.
- ❖ Ethiopia is part of the **Horn of Africa**, a strategically vital region providing access to the **Red Sea, the Gulf of Aden, and the Indian Ocean**.  
The **Horn of Africa** includes **Sudan, Eritrea, Djibouti, Somalia, and Ethiopia**.
- ❖ The **Red Sea** serves as a **critical maritime link between Asia and Europe**.
- ❖ Ethiopia also maintains **close relations with Somalia and the United Arab Emirates**, both of which are important partners for India.

Since the UAE lacks sufficient **naval capacity**, these three countries together could potentially form a **strategic trilateral grouping**.

### Visit to Oman

- ❖ India shares a **5,000-year-old historical relationship with Oman**, which is located near the **Strait of Hormuz**—one of the world’s most critical **global energy and trade chokepoints**.
- A large portion of **oil and natural gas imports to Asian countries** passes through the Strait of Hormuz.
- Major Omani ports such as **Salalah, Muscat, Duqm, and Sohar** are located along the **Indian Ocean**.
- ❖ These ports can significantly support India’s “**SAGAR**” (**Security and Growth for All in the Region**) policy and strengthen **naval cooperation** in the Indian Ocean region.

### India–Oman Free Trade Agreement (CEPA)

- ❖ India and Oman signed a **Comprehensive Economic Partnership Agreement (CEPA)** on **18 December** in Muscat.  
The agreement was signed by **India’s Minister of Commerce and Industry, Piyush Goyal**, and **Oman’s Minister of Commerce, Industry and Investment Promotion, Qais bin Mohammad Al Yousef**, in the presence of the **Prime Minister of India and Sultan of Oman, Haitham bin Tarik**.
  - ❖ Under the agreement, **Oman will provide duty-free access to 98.08% of its tariff lines** for India.
  - These tariff lines cover **99.38% of India’s exports to Oman**.
  - ❖ In return, **India will grant duty-free access on 77.79% of its total tariff lines**, covering **94.81% of goods imported from Oman** into India.
  - ❖ This is the **first bilateral trade agreement signed by Oman with any country since 2006**, when it signed an agreement with the **United States**.
  - ❖ It is also **India’s second trade agreement with a Gulf Cooperation Council (GCC) country**, the first being with the **United Arab Emirates (UAE) in February 2022**.
- #### Major Goods in Bilateral Trade
- ❖ Trade between India and Oman is dominated by:
    - Petroleum products and crude oil
    - Fertilisers
    - Select mineral products

### Honouring the Indian Prime Minister

- ❖ During the visit, the **Sultan of Oman** conferred upon the **Prime Minister of India** the country’s **highest civilian honour**, the “**Order of Oman**.”

### Trade Statistics (2024–25)

- ❖ **India's Exports to Oman**
  - India exported goods worth **USD 4.06 billion** to Oman.
  - This accounted for **0.93% of India's total exports** in 2024–25.
  - Composition of exports:
    - **Petroleum products: 35.1%**
    - **Processed minerals: 9.2%**
- ❖ **India's Imports from Oman**
  - Imports from Oman constituted **0.91% of India's total imports** in 2024–25.
  - Composition of imports:
    - **Crude oil and petroleum gases: 38%**
    - **Mineral and chemical fertilisers: 16.3%**
    - **Acyclic alcohols: 6.6%**
    - **Ammonia: 5.8%**
- ❖ Together, these major categories account for slightly more than two-thirds of India's total imports from Oman.

### Trade in Services

- ❖ In the **services sector**, Oman currently imports services worth **USD 12.52 billion** from the world.
- **India's share** in Oman's services imports stands at **5.31%**, highlighting growing opportunities for Indian service providers.

### Unemployment Rate in India

- ❖ In **November 2025**, India's **unemployment rate declined to 4.7%**, compared to **5.2% in October 2025**.  
This marked the **lowest unemployment level in the last eight months**.
- ❖ **Rural unemployment** stood at **3.9% in November 2025**, the lowest since **April 2025**.
- ❖ **Urban unemployment** was recorded at **6.5% in November 2025**.
- ❖ The **female labour force participation rate** reached **35.1% in November 2025**, showing a **continuous upward trend since June 2025**.

### The National Herald Case

- ❖ The **National Herald case** relates to alleged financial irregularities involving **Associated Journals Limited (AJL)**, the company that owns the **National Herald newspaper**.
- ❖ The **Enforcement Directorate (ED)** filed a **chargesheet on 9 April 2025** in connection with the case.
- ❖ The complaint was filed under **Sections 44 and 45 of the Prevention of Money Laundering Act (PMLA)**.
- ❖ The accused named in the case include:

1. **Sonia Gandhi**
  2. **Rahul Gandhi**
  3. **Sam Pitroda**
  4. **Suman Dubey**, among others.
- ❖ The ED investigation began in **2021**, following a **June 2014 order of a Delhi-based Metropolitan Court**, which acted on a **private complaint filed by Subramanian Swamy**.
  - ❖ As of **15 April 2025**, the ED had **attached assets worth ₹751.9 crore**.
  - Of this, **Rs 661.69 crore** worth of property is linked to **Associated Journals Limited (AJL)**.
  - **Rs 90.21 crore** worth of property is linked to **Young Indian Private Limited**.
  - ❖ The government had allotted land to **AJL at concessional rates**.
  - ❖ Although **AJL ceased publication in 2008**, its properties allegedly began to be used for **commercial purposes**.
  - ❖ The ED alleges that:
    - The **Indian National Congress** waived a loan of **Rs 90.21 crore** given to **AJL**.
    - **AJL** was effectively transferred to **Young Indian Private Limited** for only **Rs 50 lakh**.
  - ❖ Subsequently, **ownership of Young Indian** was transferred to:
    - Members of the **Gandhi family** and their close associates.
  - ❖ As a result, **control over AJL's properties allegedly shifted to the Gandhi family**.

#### Shareholding Structure

- ❖ **Sonia Gandhi** holds **38% shares** in **Young Indian**.
- ❖ **Rahul Gandhi** also holds **38% shares** in **Young Indian**.
- ❖ Through this structure, it is alleged that **AJL properties worth nearly ₹2,000 crore** came under the control of the **Gandhi family**.

#### Background of Associated Journals Limited (AJL)

- ❖ **National Herald** was founded in **1938** by **Jawaharlal Nehru**.
- ❖ The newspaper was published by **Associated Journals Limited (AJL)**.
- ❖ **AJL** was **not the personal property of Jawaharlal Nehru**.
- ❖ The company was established with the support of **over 5,000 freedom fighters**, who became its shareholders.
- ❖ **AJL** is an **unlisted public company limited by shares**, incorporated on **20 November 1937**.
- ❖ **Registered Office:**  
*Herald House, 5-A Bahadur Shah Zafar Marg, New Delhi.*
- ❖ Total capital: **Rs 5 lakh**, divided into:
  - **2,000 preferential shares** of **Rs 100** each, and
  - **30,000 ordinary shares** of **Rs 10** each.
- ❖ The **Memorandum of Understanding (MoU)** was signed by prominent leaders such as:
  - **Purushottam Das Tandon**
  - **Acharya Narendra Dev**

- Kailash Nath Katju
- Rafi Ahmad Kidwai
- Govind Ballabh Pant
- ❖ AJL had **no business other than publishing newspapers.**
- ❖ According to **annual returns filed with the Registrar of Companies**, as of **29 September 2010**, AJL had **1,057 shareholders.**
- ❖ **Motilal Vora** served as **Chairman and Managing Director** from **22 March 2002.**
- ❖ Until **2008**, AJL published three newspapers:
  1. **National Herald** (English)
  2. **Qaumi Awaz** (Urdu)
  3. **Navjeevan** (Hindi)

#### Real Estate Holdings

- ❖ AJL owns real estate properties in:
  - **New Delhi**
  - **Lucknow**
  - **Bhopal**
  - **Mumbai**
  - **Indore**
  - **Patna**
  - **Panchkula**
- ❖ The estimated value of these properties is around **₹50 billion (₹5,000 crore)** approximately **USD 580 million.**
- ❖ **Herald House**, a **six-storey building**, is also part of AJL's assets.

#### Loan and Formation of Young Indian

- ❖ In **2010**, AJL took an **interest-free loan of ₹90.25 crore** from the Congress party to clear liabilities and restart publication.
- ❖ The loan was **not repaid.**
- ❖ **Young Indian Private Limited** was incorporated in **2010** with a **paid-up capital of ₹5 lakh.**
- ❖ This company **acquired AJL's entire shareholding and assets**, including properties reportedly worth around **₹5,000 crore.**
- ❖ On **21 January 2016**, at an **AJL meeting in Lucknow**, a decision was taken to **relaunch all three newspapers.**

#### Young Indian Private Limited

- ❖ **Young Indian Private Limited** was incorporated on **23 November 2010.**
- ❖ **Key Details**
  - **Nature:** Private company limited by guarantee
  - **Paid-up Capital:** ₹5 lakh
  - **Registered Office:**  
*5A, Herald House, Bahadur Shah Zafar Marg, New Delhi*

#### Board and Management

- ❖ On **13 December 2010**, **Rahul Gandhi** was appointed as a **Director** of the company.
- ❖ On **22 January 2011**, **Sonia Gandhi** was also inducted into the **Board of Directors.**

### Shareholding Pattern

- **Rahul Gandhi** – 38%
- **Sonia Gandhi** – 38%
- **Motilal Vora** – 12%
- **Oscar Fernandes** – 12%
- ❖ Young Indian has been described as a “Not-for-Profit” company.

### Allegations in the Case

❖ On 1 November 2012, Subramanian Swamy made the following allegations:

#### 1. Acquisition of AJL Assets

Sonia Gandhi and Rahul Gandhi, through **Young Indian**, allegedly acquired land belonging to **Associated Journals Limited (AJL)** worth **₹16 billion (₹1,600 crore / USD 190 million)**.

#### 2. Control over Publication Rights

Through this arrangement, they allegedly gained control over the **publication rights of National Herald and Qaumi Awaz in Delhi and Uttar Pradesh**.

#### 3. Commercial Use of Properties

The properties acquired were originally allotted **solely for newspaper publication**, but were allegedly **rented out for commercial purposes**, generating rental income.

#### 4. Illegality of Loan Transfer

- On 26 February 2011, AJL transferred:
  - an **interest-free loan of ₹90 crore** taken from the **Indian National Congress**, and
  - **all 9 crore shares of AJL** to **Young Indian**.
  - This transfer is alleged to be **illegal**.

❖ Under:

- **Section 29A of the Representation of the People Act, 1951**, and
- **Section 13A of the Income Tax Act, 1961**,  
a political party is prohibited from providing loans for commercial purposes.

### Congress Party's Stand

- ❖ The **Indian National Congress** has maintained that:
  - The **interest-free loan** was provided **solely for reviving newspaper publication**,
  - and **not for any commercial or profit-oriented activity**.

### Enforcement Directorate (ED) Action

- ❖ In 2023, the ED attached properties worth **₹752 crore** linked to **AJL and Young Indian**.
- ❖ On 11 April 2025, the ED further attached **immovable properties worth ₹661 crore**.

### Developments in December 2025

- ❖ On 16 December 2025, the **Rouse Avenue Court, Delhi**, presided over by **Judge Vishal Gogne**, **refused to take cognizance** of the ED's chargesheet in the **National Herald money laundering case against Sonia Gandhi, Rahul Gandhi, and others**.

### Court's Observation

- ❖ The court held that the ED's chargesheet was **not based on a scheduled (predicate) offence FIR**,
- ❖ but instead originated from a **private complaint filed by Subramanian Swamy**.
- ❖ For a money laundering case, the **existence of a registered predicate offence is mandatory**.

### **“Sabka Bima, Sabki Raksha” Bill, 2025**

- ❖ The “Sabka Bima, Sabki Raksha” Bill, 2025 aims to liberalise foreign investment in the insurance sector.
- ❖ **Key Provisions**
  - The Bill proposes to **increase the Foreign Direct Investment (FDI) limit in the insurance sector from 74% to 100%**.

### **Legislative Progress**

- ❖ The Bill was passed by the **Lok Sabha on 16 December 2025** by voice vote.
- ❖ It was subsequently passed by the **Rajya Sabha on 17 December 2025**.

### **Ekatha Exercise**

- ❖ **Ekatha** is an **annual bilateral maritime exercise** conducted between **India and the Maldives**.
- ❖ The exercise was **instituted in 2017**.
- ❖ In **2025**, Ekatha was held in the **Maldives from 15–17 December 2025**.

### **DESERT CYCLONE 2025**

- ❖ **DESERT CYCLONE 2025** is a **joint military exercise** between **India and the United Arab Emirates (UAE)**.
- ❖ The exercise was conducted **from 18 to 30 December 2025**.
- ❖ Venue: **Abu Dhabi, UAE**.

### **HAMMER Weapon**

- ❖ **HAMMER** stands for **Highly Agile Modular Munition Extended Range**, also known as **AASM (Armement Air-Sol Modulaire)**.
- ❖ It is a **precision-guided air-to-ground weapon system**.
- ❖ Companies involved:
  - **Safran Electronics & Defence (France)**
  - **Bharat Electronics Limited (BEL), India**

### **DHRUV 64 Microprocessor**

- ❖ **DHRUV 64** is India's first indigenously developed 1.0 GHz, 64-bit, dual-core microprocessor.
- ❖ It has been developed by **C-DAC (Centre for Development of Advanced Computing)**.

### **India's First Wildlife-Safe Highway**

- ❖ India's **first wildlife-safe highway** has been constructed on the **Bhopal–Jabalpur Highway**.
- ❖ **Length:** 12 km
- ❖ It features **red tabletop road markings** designed to reduce vehicle speed.
- ❖ The highway passes through ecologically sensitive areas:
  - **Nauradehi Wildlife Sanctuary**
  - **Rani (Veerangana) Durgavati Tiger Reserve**

### **Global Investment Risk and Resilience Index 2025**

- ❖ The **Global Investment Risk and Resilience Index 2025** is published by **Henley & Partners** in collaboration with **AlphaGeo**.
- ❖ **Top Rankings:**
  - **1st:** Switzerland (Score: 88.42; Risk: 9.1; Resilience: 85.94)
  - **2nd:** Denmark
  - **3rd:** Norway
  - **5th:** Sweden
- ❖ **Only Asian country in top 10: Singapore (4th rank)**
- ❖ **Other Rankings:**
  - **United States:** 24th
  - **China:** 37th
  - **India:** 104th
- ❖ **Bottom-ranked countries:**
  - **Lebanon:** 150th
  - **Haiti:** 149th
  - **Pakistan:** 148<sup>th</sup>

### **18 December: Important Observances**

- ❖ **International Migrants Day**
  - **Theme (2025):** "My Great Story: Cultures and Development since 2000"
- ❖ **Minority Rights Day (India)**

### **NCAER Director General**

- ❖ **Suresh Goyal** has been appointed as the **Director General (DG)** of **NCAER**.
- ❖ **NCAER** stands for **National Council of Applied Economic Research**.
- ❖ It was **established in 1956**.

### **India's Rank in Global AI Competitiveness Rankings**

- ❖ The **Global AI Competitiveness Rankings** are also known as the **2025 Global AI Vibrancy Tool**.
- ❖ It is published by **Stanford University's Human-Centered Artificial Intelligence (HAI) Institute**.
- ❖ **India ranks 3rd globally** in AI competitiveness with an **AI Vibrancy Score of 2.59**.
- ❖ **Top Rankings:**
  - **1st:** United States (AI Vibrancy Score: 78.60)
  - **2nd:** China (AI Vibrancy Score: 36.95)
  - **3rd:** India
- ❖ The index evaluates countries on parameters such as **research, development, innovation, talent, and adoption of AI technologies**.

### **Vijay Diwas**

- ❖ **Vijay Diwas** is observed on **16 December** every year.
- ❖ On **16 December 1971**, India decisively defeated Pakistan in the Indo-Pak war.
- ❖ This victory led to the **liberation of Bangladesh** and the creation of an independent nation.

### **Death Anniversary of Sardar Vallabhbhai Patel**

- ❖ **Sardar Vallabhbhai Patel**, India's first Deputy Prime Minister and Home Minister, passed away on **15 December 1950**.
- ❖ He is remembered as the **"Iron Man of India"** for his role in the political integration of princely states.

### **ISRO's Upcoming Launch Missions**

- ❖ The **Indian Space Research Organisation (ISRO)** has planned the following major upcoming missions:
  1. **Commercial LVM3 Mission**
    - India's **heaviest rocket (LVM3)** will launch the **BlueBird-6 communication satellite**.
    - Client: **AST SpaceMobile (USA)**
    - The mission will be executed under a **commercial agreement with New Space India Limited (NSIL)**.
  2. **Uncrewed Gaganyaan Mission (G1)**
    - Will carry **Vyomitra**, India's humanoid robot.
    - Objective: Testing human spaceflight systems before crewed missions.

3. **Second Uncrewed Gaganyaan Mission**
  - Further validation of life-support and mission safety systems.
4. **Industry-Built PSLV – Oceansat Mission**
  - Includes:
    - **Oceansat satellite**
    - **Indo-Mauritius joint satellite**
    - **LEAP-2 satellite by Dhruva Space**
5. **PSLV Mission – EOS-N1**
  - Launch of an **Earth Observation Satellite** for a strategic user.
  - Also carries **18 small satellites**.
6. **GSLV Mk-II Mission-5 / GISAT-1A**
  - Replacement mission for **GISAT-1**, which failed in **2021**.
7. **PSLV-C63 Mission – TDS-01**
  - **Technology Demonstration Satellite** mission.
  - Focus areas:
    - Electric propulsion
    - Quantum key distribution
    - Travelling Wave Tube Amplifier (TWTA)

### Squash World Cup

- ❖ **India won its first-ever Squash World Cup title** by defeating **Hong Kong** in the final held on **14 December** in **Chennai**.
- ❖ In the **previous edition (2023)**, India had won the **bronze medal**.
- ❖ The Squash World Cup is a **mixed team tournament**, comprising both **men and women players**.
- ❖ **Indian Team Members:**
  - Joshna Chinappa (World Ranking: 79)
  - Velavan Senthilkumar
  - Anahat Singh
  - Abhay Singh
- ❖ The **first edition** of the Squash World Cup was held in **1996**.
- ❖ Earlier, the tournament was hosted in **India in 2011**, where **Egypt won the final**.

### Indians in the Russian Army

- ❖ Since **2022**, a total of **202 Indian nationals** have served in the **Russian Army**.
- ❖ Of these:
  - **26 Indians have died**
  - **7 are missing**
  - **119 have been discharged**
- ❖ This information was provided by **Minister of State for External Affairs, Kirti Vardhan Singh**, in the **Rajya Sabha**.

### Missing Girls in Madhya Pradesh

- ❖ According to reports published in **The Indian Express** and other newspapers:
  - Around **23,000 girls** have gone missing in **Madhya Pradesh** over the **last 1.5 years**.
- ❖ Between **2019 and 2021**, a total of **13,13,078 girls** were reported missing.
- ❖ On average:
  - **Three women go missing every two hours**
  - **Approximately 43 women go missing every day**

### Ponduru Khadi

- ❖ **Ponduru Khadi** has been granted a **Geographical Indication (GI) tag**.
- ❖ It is a **hand-spun and hand-woven cotton fabric**.
- ❖ Origin:
  - **Ponduru village**, located about **20 km** from **Srikakulam district**, **Andhra Pradesh**.
- ❖ It is known for its **fine texture and traditional spinning technique**.

### Operation Vijay (1961)

- ❖ **Operation Vijay** was a military operation conducted by the **Indian Armed Forces** in **1961** to liberate **Goa from Portuguese rule**.
- ❖ Duration:
  - A **36-hour operation**
  - Started on **18 December 1961**
  - Ended on **19 December 1961**
- ❖ The operation concluded when **Portuguese Governor-General Vassalo de Silva signed the surrender document**.
- ❖ It was **India's first joint military operation** involving:
  - **Indian Army**
  - **Indian Navy**
  - **Indian Air Force**
- ❖ **Indian Air Force** bombed the Portuguese airbase at **Dabolim**.
- ❖ **Indian Army** entered Goa from the **north and east**, liberating it from Portuguese control.
- ❖ **Indian Navy** secured:
  - **Mormugao Harbour**
  - **Anjadip Island** near the **Karwar coast**
- ❖ Goa was made a **Union Territory** named **Goa, Daman and Diu**.
- ❖ In **1967**, a **plebiscite** was held to decide whether Goa should merge with Maharashtra.
  - The people **rejected the merger**.
- ❖ In **1987**, Goa became **India's 25th state**.

## India Tops Global Doping Violations for the Third Consecutive Year

- ❖ India has topped the global list of doping violations for the third straight year, according to the latest report published by the **World Anti-Doping Agency (WADA)**.
- ❖ As per **2024 data released by WADA**, India recorded **260 Adverse Analytical Findings (AAFs)** out of **7,113 tests**, resulting in a **positivity rate of 3.6%**.
  - **France** ranked second with **91 violations**.
  - **Italy** ranked third with **85 violations**.
- ❖ In terms of the **total number of tests conducted**, India ranked **seventh globally**, far behind **China**, which conducted **24,214 tests**.
- ❖ The **National Anti-Doping Agency (NADA)** of India has taken a relatively optimistic view of the data, arguing that the **higher positivity rate is a consequence of increased testing**.
- ❖ **2022:**
  - Tests conducted: **3,865**
  - AAFs: **125**
  - Positivity rate: **3.2%**
- ❖ **2023:**
  - Tests conducted: **5,606**
  - AAFs: **213**
  - Positivity rate: **3.8%**
- ❖ According to NADA, **up to 16 December 2025**, India conducted **7,068 tests**, out of which **110 cases tested positive**, bringing the **positivity rate down to 1.5%**.

## Policy and Legislative Measures

- ❖ India has passed the **National Anti-Doping (Amendment) Bill, 2025**, aimed at **strengthening the country's anti-doping framework** and aligning it more closely with international standards.

## Implications for India's Global Sporting Aspirations

- ❖ India is scheduled to host:
  - **2029 World Police and Fire Games**
  - **2030 Centenary Commonwealth Games (Ahmedabad)**
- ❖ However, the **combination of poor sporting performance and high doping incidence** could negatively impact India's ambition to **bid for the 2036 Olympic Games**.

## **Winter Session of Parliament (1–19 December 2025)**

- ❖ The **Winter Session of the Indian Parliament** for the year 2025 was held from **1 December to 19 December**, comprising **15 sittings**.
- ❖ The session was **adjourned sine die on 19 December**.
- ❖ This was the **6th session of the 18th Lok Sabha** and the **269th session of the Rajya Sabha**.
- ❖ **Productivity:**
  - Lok Sabha: **111%**
  - Rajya Sabha: **121%**
- ❖ During the session, **10 bills were introduced** in the Lok Sabha, out of which **8 bills were passed**. Rajya Sabha passed **8 bills**.

### **Main Bills Passed During the Session**

- ❖ The key legislations passed by both Houses include:
  1. **Manipur Goods and Services Tax (Second Amendment) Bill, 2025**
  2. **Central Excise (Amendment) Bill, 2025**
  3. **Health Security & National Security Cess Bill, 2025**
  4. **Repealing and Amending Bill, 2025**
  5. **Viksit Bharat Shiksha Adhishthan Bill, 2025**
  6. **Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India Bill, 2025 (SHANTI Bill / Nuclear Bill)**
  7. **Appropriation (No.4) Bill, 2025**
  8. **Sabka Bima Sabki Raksha (Amendment of Insurance Laws) Bill, 2025**
  9. **Viksit Bharat – Guarantee for Rozgar and Aajeevika Mission (Gramin): VB-G RAM G Bill, 2025**
  10. **Securities Markets Code Bill, 2025**

### **Bills Referred to Committees**

- ❖ **Joint Committee of Both Houses:**
  - Viksit Bharat Shiksha Adhishthan Bill, 2025
- ❖ **Departmental Standing Committee of Lok Sabha:**
  - Securities Markets Code Bill, 2025

### **Bills Passed by Lok Sabha**

1. **Manipur Goods and Services Tax (Second Amendment) Bill, 2025**
2. **Central Excise (Amendment) Bill, 2025**
3. **Health Security & National Security Cess Bill, 2025**
4. **Appropriation (No.4) Bill, 2025**
5. **Repealing and Amending Bill, 2025**
6. **Sabka Bima Sabki Raksha (Amendment of Insurance Laws) Bill, 2025**
7. **Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India Bill, 2025**
8. **VB-G RAM G Bill, 2025**

### **Bills Passed by Rajya Sabha**

1. **Manipur Goods and Services Tax (Second Amendment) Bill, 2025**
2. **Central Excise (Amendment) Bill, 2025**

3. Health Security & National Security Cess Bill, 2025
4. Appropriation (No.4) Bill, 2025
5. Repealing and Amending Bill, 2025
6. Sabka Bima Sabki Raksha (Amendment of Insurance Laws) Bill, 2025
7. Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India Bill, 2025
8. VB-G RAM G Bill, 2025

**Bills Passed by Both Houses of Parliament**

1. Manipur Goods and Services Tax (Second Amendment) Bill, 2025
2. Central Excise (Amendment) Bill, 2025
3. Health Security & National Security Cess Bill, 2025
4. Appropriation (No.4) Bill, 2025
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6. Sabka Bima Sabki Raksha (Amendment of Insurance Laws) Bill, 2025
7. Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India Bill, 2025
8. VB-G RAM G Bill, 2025

**Impact on Tamil Nadu & Gujarat After SIR**

- ❖ As a result of the ongoing Special Intensive Revision (SIR) of electoral rolls, over 15% of electors in Tamil Nadu and 14.5% in Gujarat have been deleted from the voter lists.
- ❖ In Chennai alone, more than 35% of voters' names have been deleted.
  - 14.2 lakh electors were removed in Chennai.
  - This accounts for 35.6% of the electors enumerated before SIR, making Chennai the district with the highest share of deletions in Tamil Nadu.
  - The district had 40 lakh electors before SIR, but only 25.7 lakh remain in the draft roll.
- ❖ According to the draft electoral rolls of Tamil Nadu and Gujarat, published on 19 December after the SIR enumeration period:
  - More than 97.3 lakh electors have been removed from Tamil Nadu's draft rolls, among the highest deletions in the country.
- ❖ On 27 October, when the Election Commission (EC) froze the electoral rolls in Tamil Nadu, the State had 6.41 crore electors.
  - As per the draft rolls, the total number of electors now stands at 5.43 crore.
- ❖ Of the electors removed in Tamil Nadu:
  - 26.9 lakh were deceased
  - 66.4 lakh had shifted or were absent
  - lakh were duplicate entries
- ❖ In Gujarat, more than 73.7 lakh electors have been removed from the electoral rolls.

## **VB-GRAMG vs. MGNREGA**

- ❖ **VB-GRAMG** stands for **Viksit Bharat – Guarantee for Rozgar and Ajeevika Mission (Gramin) Bill, 2025.**
- ❖ It has been visualised as part of “**Viksit Bharat @ 2047.**”
- ❖ The Bill was:
  - Introduced in the **Lok Sabha** on **16 December 2025** by **Shivraj Singh Chauhan**
  - Passed in the **Lok Sabha** on **18 December 2025**
  - Passed in the **Rajya Sabha** on **19 December 2025**
- ❖ The Bill **replaces** the **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), 2005.**
- ❖ It aims to:
  - Align **rural employment guarantees** with **contemporary development priorities**
  - Integrate **employment generation** with **infrastructure creation** and **livelihood enhancement**
- ❖ The stated objectives are structured around **four pillars**:
  1. **Empowerment of rural households** through enhanced employment security
  2. **Growth** through the creation of durable rural assets
  3. **Convergence** of multiple rural development schemes at the village level
  4. **Saturation coverage** of eligible households and infrastructure needs
- ❖ The Bill seeks to **balance rural wage employment** with **agricultural labour requirements during peak farming seasons.**

### **Constitutional Basis of MGNREGA**

- ❖ MGNREGA was linked to the following Articles of the Constitution of India:
- ❖ **Article 16 — Equality of Opportunity in Public Employment**
  - Guarantees equality of opportunity in matters of public employment.
  - Prohibits discrimination by the State on the grounds of:
    - Religion
    - Race
    - Caste
    - Sex
    - Descent
    - Place of birth
    - Place of residence
- ❖ **Article 21 — Right to Life with Dignity**
  - Guarantees the **right to life with dignity** to every citizen of India.
  - MGNREGA imparted dignity to rural people by ensuring **livelihood security.**

### **Constitutional Provisions Related to Rural Employment Laws**

- ❖ **Article 40** mandates the State to organise village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of **self-government.**

- ❖ The law providing a ‘**Right to Work**’ is consistent with **Article 41**, which directs the State to secure to all citizens the **right to work**, education, and public assistance.
- ❖ **Article 46** requires the State to promote the interests and economic upliftment of the **Scheduled Castes and Scheduled Tribes** and protect them from discrimination and exploitation.
- ❖ The statute also seeks to protect the environment through rural works, which is consistent with **Article 48A**, directing the State to **protect and improve the environment**.

#### **VB-GRAMG Act, 2025 – Presidential Assent**

- ❖ The **VB-GRAMG Bill** received the **President’s assent on 21 December 2025**.
- ❖ It has now become an **Act** and has come into force with **immediate effect**.

#### **Key Features of the VB-GRAMG Act**

- ❖ **Linking with National Vision**
  - Rural employment has been linked with “**Vikasit Bharat @ 2047.**”
- ❖ **Enhanced Employment Guarantee**
  - The employment guarantee has been increased from **100 days to 125 days** per household per year.
- ❖ **‘No Work Period’ During Agricultural Season**
  - To ensure the availability of agricultural labour during sowing and harvesting seasons, a provision of **60 days ‘No Work Period’** has been introduced.
- ❖ The scheme is linked with the following **four priority areas**:
  1. **Water Security**
  2. **Rural Infrastructure**
  3. **Livelihood-linked Infrastructure**
  4. **Climate-Resilient Works**
- ❖ Strong monitoring and accountability mechanisms have been introduced:
  - All works carried out under the scheme will be recorded on a **National Digital Platform**.
  - Planning will be done through **Developed Gram Panchayat Plans**.
  - The **administrative cost limit** has been increased from **6% to 9%**.
  - Provisions for:
    - Better staffing
    - Training and technical capacity building
- ❖ The **Centre–State funding pattern** has been changed to **60:40** (earlier 75:25).
- ❖ Wages must be paid **weekly or within a maximum of 15 days**.
- ❖ In case of delay, a provision for **compensation** has been made.

### Supreme Court Quote

- ❖ “Those who have nothing to hide should not fear surveillance.”

### Coal Production in India

- ❖ In the year 2024–25, India’s coal production crossed **one billion tonnes**.

### Aravalli Hills – Background and Supreme Court Intervention

#### ❖ Background

- While serious discussions were ongoing about developing India’s **own air quality index and parameters**, an unexpected environmental emergency emerged — the need to **create artificial hills**.
- One proposal was to excavate the **garbage mountain in Delhi**, and if excavation was not possible, to promote **afforestation and forestry on it** by motivating industrialists.
- During this discussion, attention shifted naturally towards the **Aravalli Hills**, whose ecological importance and vulnerability came into focus.
- ❖ The controversy began with a **Supreme Court decision** which stated that only those **landforms having a minimum height of 100 metres** would be considered as **Aravalli Hills**.
- ❖ According to the **Forest Survey of India**, out of **12,081 hill formations** spread across Delhi, Gujarat, Rajasthan and Haryana, only **1,048 hills (8.7%)** would qualify as Aravalli Hills under this criterion.
- ❖ The remaining hill formations would gradually disappear in the name of **mining and development**.

#### Ecological Importance of the Aravalli Range

- ❖ The **Aravalli Range prevents the expansion of the Thar Desert towards Delhi and eastern India**.
- ❖ Because of the Aravallis, Delhi and surrounding regions have not turned into desert landscapes.

#### Key Supreme Court Cases on Aravalli

- ❖ Two major cases related to Aravalli Hills have been pending before the Supreme Court for a long time:
  1. **M.C. Mehta v. Union of India (W.P. (C) No. 4677 of 1985)**
  2. **T.N. Godavarman Thirumulpad v. Union of India (W.P. (C) No. 202 of 1995)**

#### M.C. Mehta Case

- ❖ In this case, the Supreme Court monitored **mining activities in the Aravalli region of Haryana**.
- ❖ **M.C. Mehta**, a renowned environmental lawyer, has secured several landmark judgments for environmental protection.

- ❖ He has been awarded:
  - **Goldman Environmental Prize**
  - **Ramon Magsaysay Award (1997)**
  - **Padma Shri (2016)** by the Government of India

### **Richard Murphy Classification**

- ❖ On **16 February 2010**, the Rajasthan Government submitted a definition of Aravalli Hills based on the **Richard Murphy classification**.
- ❖ The Supreme Court **rejected this definition on 19 February 2010**.
- ❖ Under Richard Murphy classification, three independent variables are used:
  - **Structural geology**
  - **Topographic variables (Morphometry)**
  - **Erosional and depositional processes**
- ❖ Under topographic variables:
  - **Mountains** – more than 300 metres of local relief
  - **Hills** – 90 to 300 metres of local relief
  - **Plains** – less than 90 metres of relief with gentle slopes

### **T.N. Godavarman Case**

- ❖ This case focused on monitoring **mining activities in the Aravalli region of Rajasthan**.

### **Formation of a Uniform Definition**

- ❖ In **January 2024**, the Supreme Court identified the problem of lack of a **uniform definition of Aravalli Hills** and stressed the need for a common definition.
- ❖ On **9 May 2024**, the Supreme Court constituted a **multi-agency committee** consisting of:
  - Ministry of Environment, Forest and Climate Change (MoEF&CC)
  - State Forest Departments
  - Forest Survey of India
  - Central Empowered Committee
  - Geological Survey of India (GSI)

### **Committee Recommendation (October 2025)**

- ❖ The committee defined:
  - Landforms with **minimum height of 100 metres** as **Aravalli Hills**
  - Areas where the distance between two hills is **within 500 metres** as part of the **hill range**

### **Final Hearing and Judgment**

- ❖ A Supreme Court bench headed by **Chief Justice B. R. Gavai**, along with Justices **K. V. Chandran** and **N. V. Anjaria**, heard the matter.
- ❖ The judgment was:
  - **Reserved on 12 November 2025**
  - **Delivered on 20 November 2025**
- ❖ Chief Justice B. R. Gavai was scheduled to retire on **23 November 2025**.
- ❖ Supreme Court Ruling on Definition and Protection of the Aravalli Range

### Final Definition Accepted by the Court

- ❖ The Supreme Court held that:
  - Only those landforms **rising at least 100 metres above the local relief** shall qualify as **Aravalli Hills**.
  - **Clusters of such hills located within 500 metres of each other** shall constitute an “**Aravalli Range**.”
  - The **Forest Survey of India (FSI)** reported that out of **12,081 hills** mapped across multiple States, only **1,048 hills (8.7%)** satisfy the 100-metre height criterion.
- ❖ According to this definition:
  - Any landform rising **100 metres or more above the surrounding terrain** will be treated as an Aravalli hill.
  - Groups of hills lying within a **500-metre inter-distance** will together form an Aravalli mountain range.
- ❖ The Court accepted the **uniform definition proposed by the expert committee** for the entire Aravalli region.
- ❖ Based on this definition, the Court ordered a **complete prohibition on all forms of mining** in the Aravalli Hills.
- ❖ The Aravalli Range is an **extremely ancient mountain system (about 2.5 billion years old)**.
- ❖ A significant portion of the range lies **below the surface**.
- ❖ Since only landforms rising above **100 metres** are protected, **sub-surface Aravalli formations may still be mined**, even though they are geologically part of the range.
- ❖ This could result in the **gradual disappearance of the Aravalli Range from the surface**, making it effectively invisible.

### Directions Issued by the Supreme Court

- ❖ The Court directed the preparation of a **Management Plan for Sustainable Mining (MPSM)** covering the entire Aravalli range. The plan must:
  - Clearly demarcate **areas where mining is absolutely prohibited**.
  - Identify zones where **limited and highly regulated mining** may be permitted.
  - Map **sensitive habitats and wildlife corridors**.
  - Assess **cumulative ecological impacts**.
  - Determine the **ecological carrying capacity** of the region.
  - Define **restoration and rehabilitation measures** in detail.

### Forest Survey of India (FSI) Criteria (2010)

- ❖ In 2010, the Forest Survey of India defined Aravalli hills and ranges using the following parameters:
  - **Slope greater than 3 degrees**
  - **Foothill buffer zone of 100 metres**
  - **Inter-hill distance or valley width of 500 metres**
  - The area enclosed by such hills from all sides
- ❖ Such landforms were considered part of the **Aravalli Hills and Ranges**.

### Divergent Legal Opinions

#### **Opinion of the Amicus Curiae**

- ❖ **Amicus Curiae K. Parameshwar** opposed the adoption of the 100-metre uniform definition.
- ❖ He warned that this threshold would:
  - Exclude **smaller hill formations**,
  - Break the **continuity of the mountain chain**, and
  - Potentially open **new areas for mining**.

#### Government's Stand

- ❖ **Additional Solicitor General Aishwarya Bhati** supported the committee's 100-metre definition and described it as **more inclusive and practical**.

#### Earlier Mining Restrictions and CEC Recommendations

- ❖ In **2009**, the Supreme Court imposed a **complete ban on mining** in the districts of **Faridabad, Gurugram, and Mewat (Haryana)**.
- ❖ In **May 2024**, the Court:
  - Prohibited granting or renewing mining leases in the region,
  - Directed the **Central Empowered Committee (CEC)** to conduct a detailed investigation.

#### CEC Recommendations (March 2024)

- ❖ The CEC proposed a comprehensive framework including:
  - **Scientific mapping of the entire Aravalli region**
  - Identification of the full geographical extent across States
  - Detailed **environmental impact assessment of mining activities**
  - Strict bans in:
    - Protected habitats
    - Water bodies
    - Tiger corridors
    - Major groundwater recharge zones
    - Ecologically sensitive areas in the National Capital Region
- ❖ Strict regulation of **stone-crushing units**
- ❖ No approval of new mining leases or renewals until:
  - Proper mapping, and
  - Impact assessments are completed
- ❖ The Supreme Court **accepted these recommendations in full**.

#### Evidence of Ecological Damage

- ❖ A study conducted in **218** by a **Supreme Court-appointed committee** found that:
  - In Rajasthan alone, **31 out of 128 hills disappeared** over 50 years due to illegal mining.
  - The Aravalli range developed **10–12 major geological fractures**.

#### Aravalli Green Wall Project (2025)

- ❖ In **June 2025**, the Central Government launched the **Aravalli Green Wall Project**.
- ❖ The project aims to expand green cover in a **5-kilometre buffer zone** around the Aravalli range across **29 districts** in Gujarat, Rajasthan, Haryana and Delhi.
- ❖ The initiative is expected to help restore **26 million hectares of degraded land by 2030**.

### Geographical and Geological Profile of the Aravalli Range

- ❖ The word “**Aravalli**” is derived from:
  - “**Ara**” meaning forests and mountains
  - “**Valli**” meaning a continuous line
 → Together meaning a **continuous line of forests and mountains**

### **Key Features**

- ❖ **Age / Formation:** Formed during the **Proterozoic Eon (Precambrian Era)** about **2–2.5 billion years ago**
- ❖ **Type:** One of the **oldest fold mountain ranges in the world**
- ❖ **States Covered:** Gujarat, Rajasthan, Haryana and Delhi
- ❖ **Districts Covered:** About **39 districts**
- ❖ **Major Minerals:** Copper, Zinc
- ❖ Since the rocks are extremely old, their **quality and commercial value are very high**, leading to heavy mining pressure.

### Environmental Importance of the Aravalli Range

- ❖ Acts as a **natural barrier preventing the eastward spread of the Thar Desert**.
- ❖ Regulates:
  - Regional climate
  - Groundwater recharge
  - Biodiversity corridors
- ❖ Protects **Delhi, Haryana and surrounding regions** from desertification and ecological collapse.

### **45th Indian Scientific Winter Expedition to Antarctica**

- ❖ The expedition team consists of **52 members**.
- ❖ For the **first time, a woman scientist** has been included in the winter expedition.
- ❖ She is **Aarti Gupta from Bihar Sharif, Bihar**.

### **Challenges Between India and Bangladesh**

- ❖ **Major Challenges:**
  1. **Insecurity and illegal infiltration** along the nearly **4,000 km long border**.
  2. Threat of **anti-India forces establishing bases** near the border.
  3. Bangladesh’s increasing inclination towards the **Pakistan–China alliance**, allowing Islamabad and Beijing to widen the gap between **Dhaka and New Delhi** and take advantage of it.
- ❖ **Steps India Should Emphasize to Improve Relations:**
  1. India should limit its policy and conduct to only **core and primary issues** and ignore unnecessary matters. Instead of breaking ties issue by issue, more emphasis should be placed on **strengthening formal contact points** between the two countries in the present situation.
  2. If handing over **Sheikh Hasina** directly to Bangladesh for the death penalty does not seem possible, at least she should be allowed to **leave India**.

3. Under the promotion of **democratic values**, India should insist on lifting the ban on the **Awami League** in the upcoming elections scheduled for **12 February**, which would also be in India's interest.
4. India–Bangladesh relations should be conducted from a **diplomatic perspective rather than a purely political one**.
5. Greater importance should be given to the **geopolitical context**.

### **Changes in the Calculation of the Indian Economy**

- ❖ According to the **Ministry of Statistics and Programme Implementation (MoSPI)**:
  - New base-year data related to **Consumer Price Index (CPI)** inflation and **National Accounts** will be released from **27 February 2026**.
  - The new series of the **Index of Industrial Production (IIP)** will be released from **28 May 2026**.
- ❖ **New Base Years:**
  - **Retail Inflation (CPI):** Base year **2024** (to be released from **12 February**)
  - **National Accounts:** Base year **2022–23** (from **27 February 2026**)
  - **Index of Industrial Production (IIP):** Base year **2022–23** (from **28 May 2026**)

### **Growth in Core Industries**

- ❖ In **November 2025**, the growth rate of the **eight core industries** was recorded at **1.8%**.
- ❖ In comparison, in **November 2024**, the growth rate was **5.8%**.

### **India – New Zealand Free Trade Agreement (FTA)**

- ❖ On **22 December 2025**, India and New Zealand announced an agreement on a **Free Trade Agreement (FTA)**.
- ❖ This is the **seventh FTA signed by the NDA government**. Earlier FTAs were signed with **UAE, Australia, Britain, the European Union, Mauritius and Oman**.
- ❖ Under this agreement, **New Zealand will remove import duties on 100% of products coming from India**. (Earlier, New Zealand imposed an import duty of **10%**.)
- ❖ In **2024**, the bilateral trade between the two countries was worth **\$2.4 billion**.
- ❖ Under this agreement, some items are kept in the **exclusion list**, such as:
  - Agricultural products
  - Dairy products
  - Coffee
  - Spices
  - Pulses
  - Animal products (except sheep meat)
  - Some vegetables

### **National Science Awards 2025**

- ❖ On **23 December 2025**, the President of India presented the **National Science Awards** to **24 scientists** at a **समारोह** held in the **Rashtrapati Bhavan**.
- ❖ The **2025 awards** were the **second edition** of the “National Science Awards”.

#### **Categories of National Science Awards:**

- ❖ **Vigyan Ratna**
- ❖ **Vigyan Shri**
- ❖ **Vigyan Yuva**
- ❖ **Vigyan Team**
- ❖ These awards are given for **outstanding and inspiring contributions** in the fields of **science, technology and innovation**.

#### **Major Awardees:**

- ❖ **Vigyan Ratna: Jayant Narlikar** (Astrophysicist)
- ❖ **Young Shanti Swarup Bhatnagar Award: Prof. Anil Kumar Agrawal**

### **Anti-Terror Conference**

- ❖ The **National Investigation Agency (NIA)** will organise an **Anti-Terror Conference** in **New Delhi** on **26 and 27 December**.

### **India's \$45 Million Assistance to Sri Lanka**

- ❖ India announced a **\$45 million reconstruction package** for **Sri Lanka** to help in recovery after the devastating impact of **Cyclone Ditwah**.

### **26th All India Police Band Competition**

- ❖ **First place (Men's category): Railway Protection Force (RPF)**
- ❖ **First place (Women's category): Central Industrial Security Force (CISF)**

### **Kisan Diwas**

- ❖ **Kisan Diwas** is observed on **23 December** on the birth anniversary of the **5th Prime Minister of India, Chaudhary Charan Singh**.

### **INS Sindhughosh**

- ❖ **INS Sindhughosh** has been **decommissioned** from the Indian Navy.
- ❖ It was originally **commissioned in 1985**.

### **NASA's "Most Inspirational" Award**

- ❖ A **six-member engineering student team** from **Chennai** won NASA's "**Most Inspirational Award**" for their project called "**Photonics Odyssey**" (also known as "**Akash Net**").
- ❖ The objective of this project is to provide **internet services through an indigenous satellite**.

- ❖ This award was selected as the **best among 18,000 projects worldwide**.
- ❖ The award was given under **NASA's International Space Apps Challenge 2005**.

### **Samudra Pratap – Indigenous Pollution Control Vessel**

- ❖ **Samudra Pratap** is India's first indigenously designed and built **Pollution Control Vessel** of the **Indian Coast Guard (ICG)**.
- ❖ It is **114.5 metres long** and **16.5 metres wide**, with a **displacement of 4,170 tonnes**.
- ❖ It is the **largest ship of the Indian Coast Guard**.
- ❖ Any product that uses **more than 50% indigenous content** is considered "indigenous".
- ❖ **Samudra Pratap** contains **84% indigenous content**, making it a highly self-reliant vessel.

### **Bharat Taxi**

- ❖ **Bharat Taxi** is India's first cooperative taxi service, designed on the model of **Ola and Uber**.
- ❖ It has been developed by the **Union Ministry of Cooperation** and the **National e-Governance Division (NeGD)**.
- ❖ The official launch date is **yet to be announced (TBD)**.

### **NATGRID (National Intelligence Grid)**

- ❖ **NATGRID** stands for **National Intelligence Grid**.
- ❖ It is a **secure platform** that allows the police and other investigation agencies to **access government and private databases in real time**.
- ❖ It has now been linked to the **National Population Register (NPR)**, which contains **family-wise details of about 119 crore residents** of India.

### **Foreign Direct Investment (FDI) in India**

- ❖ India's FDI remained **negative during August–September 2025**, meaning **more foreign investment was withdrawn than invested**.
- ❖ During **April–July 2025**, net FDI amounted to **\$10.7 billion**, which was **more than three times** the amount in the same period of the previous year.
- ❖ In **August 2025**, investors withdrew **\$622 million** more than they invested.
- ❖ In **September 2025**, the outflow increased to **\$1.7 billion**, and in **October 2025**, it was **\$1.5 billion**.

### **Conference of the Chairpersons of Public Service Commissions (PSCs)**

- ❖ The conference was held on **19–20 December 2025**.
- ❖ The host state was **Telangana**.
- ❖ The **Union Public Service Commission (UPSC)** was established in **1926**.
- ❖ The **first State Public Service Commission** in India was established in **Madras**.

### India Flags Attacks on Minorities in Bangladesh

- ❖ On **26 December 2025**, the **Indian Government** officially raised concerns about attacks on minorities in Bangladesh.
- ❖ Around **2,900 violent incidents** against minorities were reported during the rule of the **Muhammad Yunus-led government** in Bangladesh.

### Impact of SIR (Special Intensive Revision) in Uttar Pradesh

- ❖ Due to the **Special Intensive Revision (SIR)** in Uttar Pradesh, out of **15.44 crore registered voters**, about **2.89 crore voters will be deleted** from the electoral rolls.
- ❖ The deleted voters include:
  - **1.026 crore** voters shifted to other places,
  - **46 lakh** deceased voters,
  - **23.70 lakh** duplicate entries,
  - **83.73 lakh** absent voters, and
  - **9.57 lakh** voters belonging to other invalid categories.

### 5th National Conference of Chief Secretaries

- ❖ The **5th National Conference of Chief Secretaries** was held in **New Delhi** on **27–28 December 2025**.
- ❖ It was **chaired by the Prime Minister of India**.
- ❖ The overarching theme was **“Human Capital for Viksit Bharat”**.
- ❖ Five critical focus areas of the conference were:
  1. Early Childhood Education
  2. Schooling
  3. Skilling
  4. Higher Education
  5. Sports and Extracurricular Activities

### 10 Major Points Related to the Indian Economy in 2025

1. **Union Budget 2025 (1 February 2025)** extended the **income tax exemption limit to ₹12 lakh**.
2. The USA imposed a **25% tariff plus 25% penalty (total 50%)** on certain Indian exports.
3. **GST reforms** were announced by the Prime Minister on **15 August 2025**.
4. High GDP growth figures were reported in the **first and third quarters**.
5. Although India was claimed to have become the **world’s fourth largest economy**, it was later clarified that this was only based on an **estimate**.
6. The **IMF gave a Grade C** to India’s National Accounting Data.
7. Due to this, **foreign investors began withdrawing capital** from India.
8. The **Indian Rupee depreciated** significantly.
9. Announcement related to the **8th Pay Commission**.

10. Important policy initiatives included the **SHANTI Act**, **VB Gram G**, and implementation of **Labour Codes**.

### India's Economic Growth in 2025

- ❖ India's economic growth rate in **2024–25** was **6.5%**.
- ❖ **Quarterly Growth Rates:**
  - **Q2 (2023–24)** : 9.3%
  - **Q3 (2023–24)** : 9.5%
  - **Q4 (2023–24)** : 8.4%
  - **Q1 (2024–25)** : 6.5%
  - **Q2 (2024–25)** : 5.6%
  - **Q3 (2024–25)** : 6.4%
  - **Q4 (2024–25)** : 7.4%
  - **Q1 (2025–26)** : 7.8%
  - **Q2 (2025–26)** : 8.2%

### How India Countered the USA's Tariff and Penalty

- ❖ **Retail inflation declined to 0.3% in September 2025**, the lowest in eight years, providing relief from price rise.
- ❖ The **RBI reduced the repo rate from 6.50% to 5.25%**, making loans cheaper.
- ❖ **High returns from gold** encouraged domestic investment.
- ❖ As a result, **domestic demand increased**, which helped counter the impact of the US tariffs.
- ❖ India signed **FTAs with Britain, Oman, and New Zealand in 2025**.
- ❖ Negotiations are ongoing with **50 countries**, including Australia, the EU, and Canada.
- ❖ Growth in **urban development increased employment opportunities**.
- ❖ Expansion in **PIL, mining, and infrastructure** sectors supported growth.
- ❖ The **service sector grew by 6.2%**, especially in the **digital and education** sectors.

### India's Foreign Exchange Reserves

- ❖ In **December 2025**, India's forex reserves stood at **\$688.95 billion**.
- ❖ The **highest level in 2025** was **\$704.89 billion**, which is also the **all-time highest level**, recorded in **September 2024**.
- ❖ In the week ending **19 December 2025**, forex reserves increased by **\$4.368 billion** to reach **\$693.318 billion**.

### New Standards for Agarbatti Quality

- ❖ The **Bureau of Indian Standards (BIS)** has introduced new standards to improve **air quality and agarbatti quality** in India.
- ❖ This move will benefit the **₹8,000 crore agarbatti industry**.
- ❖ BIS has created a new exclusive standard for agarbattis named **"IS 19412 : 2025"**.

**Prohibited Substances under the New Standard:**

- ❖ Pesticides such as:
  - Allethrin
  - Permethrin
  - Cypermethrin
  - Deltamethrin
  - Fipronil
- ❖ Harmful chemicals such as:
  - Benzyl cyanide
  - Ethyl acrylate
  - Diphenylamine
- ❖ These substances are now **completely banned** in agarbattis.

**Export and Industry Importance:**

- ❖ India exports agarbattis worth about **₹1,200 crore** every year.
- ❖ Major export destinations include:
  - USA, Malaysia, Nigeria, Brazil, Mexico, and around **150 countries** worldwide.
- ❖ The agarbatti industry is an **important contributor to the MSME sector**.

**Prerna Sthal, Lucknow**

- ❖ The **Prime Minister inaugurated “Prerna Sthal” in Lucknow on 25 December 2025.**
- ❖ It includes statues of:
  - **Atal Bihari Vajpayee**
  - **Deen Dayal Upadhyay**
  - **Syama Prasad Mukherjee**

**Loan to Small Industries**

- ❖ According to the **CRIF High Mark–SIDBI Report**, total credit to small industries has reached **₹46 lakh crore**.

**“Three Children, at Least” – Andhra Pradesh CM**

- ❖ Andhra Pradesh Chief Minister **N. Chandrababu Naidu** advised that **each family should have at least three children**.
- ❖ The objective is to continue benefiting from India’s **demographic dividend**.

**PM Rashtriya Bal Puraskar 2025**

- ❖ The **President of India conferred the PM Rashtriya Bal Puraskar 2025 to 20 children** (including two posthumously) on **26 December 2025 in New Delhi**.

**Some Awardees:**

**Sports Category:**

- ❖ Vaibhav Suryavanshi – Cricket
- ❖ Vaka Lakshmi Pragnika – World Chess Champion (Under-7 Girls)
- ❖ Anushka – Jharkhand
- ❖ Jyoti – Haryana

### **Science Category:**

- ❖ Arnav Maharshi – Artificial Intelligence
- ❖ Children **above 5 years and below 18 years** are eligible for this award.

### **359th Birth Anniversary of Guru Gobind Singh**

- ❖ In **2025**, according to the **Nanakshahi Calendar**, the birth anniversary was observed on **27 December**.
- ❖ Guru Gobind Singh was born on **22 December 1666 in Patna**.
- ❖ In **1669**, he founded the **Khalsa** with the concept of “**Sant-Sipahi**” (Saint-Soldier).

### **Deportation of Indians in 2025**

- ❖ In **2025**, more than **24,600 Indians** were deported from **81 countries**.

### **Major Countries and Deportees:**

- ❖ **Saudi Arabia** – more than 11,000
- ❖ **USA** – 3,800
- ❖ **Myanmar** – 1,591
- ❖ **Malaysia** – 1,485
- ❖ **UAE** – 1,469

### **Mobile Manufacturing**

- ❖ **India ranks second in the world after China** in mobile phone manufacturing.

### **RCEP, FTA and India**

- ❖ India had **refused to join RCEP in 2019**.
- ❖ By **2025**, after concluding the **India–New Zealand Free Trade Agreement on 22 December 2025**, India claimed that it could still benefit from RCEP.
- ❖ India now has **FTAs with 14 out of the 15 RCEP countries**, except **China**.

### **Timeline of Major FTAs:**

- ❖ **ASEAN–India FTA and India–South Korea FTA** – by early 2010
- ❖ **India–Japan FTA** – August 2011
- ❖ **India–Australia FTA** – December 2022
- ❖ **India–New Zealand FTA** – 22 December 2025

## Crude Oil Imports and India

- ❖ India is the world's **third largest consumer of crude oil**, after the **United States and China**.
- ❖ According to the committee headed by **B. Panda**, India imports about **89% of its domestic crude oil requirement**.

### Changing Sources of Crude Oil Imports:

- ❖ **Before 2005**, more than **70%** of India's crude oil came from:
  - Saudi Arabia
  - Iraq
  - Iran
  - Kuwait
  - United Arab Emirates
- ❖ **Between 2005 and 2015**, India diversified its crude oil sources and started importing from:
  - Nigeria and Angola (Africa)
  - Venezuela (South America)

### Impact of Sanctions on Iran:

- ❖ In **June 2010**, the **UN Security Council imposed sanctions on Iran** to prevent it from acquiring weapons.
- ❖ In **May 2011**, India reduced its crude oil imports from Iran.
- ❖ Iran's share in India's crude oil imports fell to **6.2% in 2015–16**.
- ❖ Sanctions on Iran were lifted in **2016**, but later Iran's share remained only **slightly above 10%**.

### Rise of Russian Oil Imports:

- ❖ In **2022**, Russia faced multiple sanctions from the **United States and the European Union** due to its military operations in Ukraine.
- ❖ Despite sanctions, **India and China continued to buy Russian oil** because it was available at a **discounted price**.
- ❖ Russia's share in India's crude oil imports:
  - **2021–22**: Less than 2%
  - **2022–23**: 21.6%
  - **2023–24**: 35.9%
  - **2024–25**: 35.8%
- ❖ At present, **Russian oil accounts for nearly one-third of India's total crude oil imports**, although this share has **started declining in 2025**.

## Signals from the Indian Economy – 2025

### Positive Economic Signals:

- ❖ In **February 2025**, Prime Minister **Narendra Modi** and U.S. President **Donald Trump** announced that India and the U.S. would work towards a **Bilateral Trade Agreement** by the fall of 2025.

- ❖ In the same month, Finance Minister **Nirmala Sitharaman presented Budget 2025**, introducing changes in **income tax slabs and rates** to reduce the tax burden on most taxpayers and increase **disposable income**.
- ❖ In **September 2025**, the **GST Council abolished the 12% and 28% GST slabs**:
  - Most items from the 12% slab were shifted to **5%**.
  - Most items from the 28% slab were shifted to **18%**.
- ❖ In **November 2025**, the government announced the **implementation of the four Labour Codes**, aimed at improving workers' welfare and providing social security benefits.
- ❖ Trade talks between **India and the United States on social security and labour benefits resumed**, though no final agreement has yet been announced.

### **Trade Agreements in 2025**

#### **Major Agreements Signed / Implemented:**

- ❖ **India–United Kingdom Comprehensive Economic and Trade Agreement**
  - Signed in **July 2025**
- ❖ **India–EFTA Trade and Economic Partnership Agreement**
  - Signed in **March 2024**
  - Came into force on **1 October 2025**
  - EFTA countries (Switzerland, Norway, Iceland, Liechtenstein) agreed to invest **\$100 billion in India over 15 years**
- ❖ **India–Oman Comprehensive Economic Partnership Agreement (CEPA)**
  - Signed in **December 2025**
- ❖ **India–New Zealand Free Trade Agreement**
  - Negotiations concluded in **December 2025**
  - India will get **duty-free access for 100% of its exports to New Zealand**
  - New Zealand committed to invest **\$20 billion in India over 15 years**
- ❖ Negotiations between **India and the European Union** for a trade agreement are in their **final stage**.

### **Adani Group's Investment in the Defence Sector**

- ❖ The **Adani Group** has announced a plan to invest **₹1.8 lakh crore** in **defence manufacturing**.
- ❖ This investment aims to strengthen **India's indigenous defence production** and support the '**Make in India**' and '**Atmanirbhar Bharat**' initiatives.

### **President's Ride on INS Vaghsheer**

- ❖ On **28 December 2025**, the **President of India** took a ride on the submarine **INS Vaghsheer** at the **Karwar Naval Harbour**.

#### **About INS Vaghsheer:**

- ❖ INS Vaghsheer is the **sixth submarine** of the first batch of six **Kalvari-class submarines** of the Indian Navy.
- ❖ It was **commissioned on 15 January 2025**.

- ❖ It is an **indigenously built submarine** under the **Project-75** programme.
- ❖ **Motto:** “*Veerta Varchasva Vijaya*” (Courage, Supremacy, Victory)
- ❖ The name ‘**Vaghsheer**’ refers to a type of **sandfish found in the Indian Ocean**.

### **Feral Dogs Threaten Wildlife in Ladakh**

- ❖ According to the **Wildlife Conservation and Birds Club of Ladakh (WCBCL)**, feral dogs have become a serious threat to **Ladakh’s rare high-altitude wildlife**.

#### **Causes:**

- ❖ Increase in **tourism**,
- ❖ Expansion of **military deployment**, and
- ❖ **Unmanaged waste disposal** in Ladakh’s cold desert region.

#### **Threatened Species:**

- ❖ Predators threatened:
  - Snow leopard
  - Wolf
  - Fox
- ❖ Rare prey species affected:
  - Pallas’s cat
  - Eurasian lynx
  - Tibetan gazelle
  - Blue sheep
  - Ibex
  - Himalayan marmot
- ❖ Ground-nesting birds affected:
  - **Black-necked crane** (State bird of Ladakh)
  - **Ruddy shelduck**
- ❖ The killing of a **Pallas’s cat** by feral dogs in **Anley** last year alarmed conservationists.
- ❖ Feral dogs frequently **raid nests**, eat eggs and chicks, and chase birds during migration to water bodies.

#### **Population Control:**

- ❖ Between **2015 and 2024, 32,887 dogs were sterilised** in Leh district.
- ❖ Despite this, the dog population remains **dangerously high**.
- ❖ Conservationists explain that due to **rapid urbanisation**, dogs lost their traditional roles (hunting, guarding, shepherding), leading to uncontrolled population growth.

### **Gold and Silver Price Growth (Since 2000)**

#### **Gold:**

- ❖ Price in 2000: **₹4,400 per 10 grams**
- ❖ Price in 2025: **₹1,40,000 per 10 grams**
- ❖ **Compound Annual Growth Rate (CAGR): 14.3%**

#### **Silver:**

- ❖ Price in 2000: ₹8,100 per kg
- ❖ Price in 2025: ₹2.5 lakh per kg
- ❖ CAGR: 14.1%

### **Index of Industrial Production (IIP) – November 2025**

- ❖ IIP growth rate in November 2025: 6.7%
- ❖ IIP growth rate in October 2025: 0.4%
- ❖ This shows a sharp improvement in industrial activity.

### **Foundation Days of Political Parties**

- ❖ **Indian National Congress (INC)**
  - Founded on **28 December 1885**
  - Place: **Bombay (Mumbai)**
- ❖ **Communist Party of India (CPI)**
  - Founded on **26 December 1925**
  - Place: **Cawnpore (Kanpur)**
  - Originally formed in **1920 in Tashkent**

### **Kuldeep Singh Sengar and the Law (Unnao Rape Case)**

- ❖ A First Information Report (FIR) was registered under Sections 363 and 366 of the Indian Penal Code (IPC) on 20 June 2017 against Shubham Singh and Awdhesh Tiwari.
- ❖ According to the victim, she was lured by a woman named Shashi Singh, her son Shubham Singh, and her daughter Nidhi Singh, to move to Kanpur with the promise of employment.
- ❖ On the night of 11 June 2017, she went with Shubham Singh and was allegedly raped multiple times by him and his driver, Awdhesh Tiwari.
- ❖ She was later assaulted by unknown individuals and allegedly sold to Brajesh Yadav for ₹60,000.
- ❖ Later, she revealed that she was raped on 4 June 2017 at 8:00 p.m. at the house of Kuldeep Singh Sengar, an MLA from Unnao constituency and a member of the BJP.
- ❖ On 20 June 2017, Uttar Pradesh Police located the victim in a village in Auraiya and sent her for a medical examination.
- ❖ On 22 June 2017, her statement was recorded by the police, but she was not allowed to name her main assailant.
- ❖ A second FIR was later registered under the Protection of Children from Sexual Offences Act (POCSO), and the accused were subsequently detained.
- ❖ On 17 August 2017, the victim wrote an open letter to the Chief Minister of Uttar Pradesh.

#### **Harassment and Further Events**

- ❖ On 5 April 2018, the victim's father was arrested and placed in judicial custody, allegedly after being assaulted by supporters of Sengar.
- ❖ Medical examination confirmed injuries consistent with assault.
- ❖ The victim's father stated that Sengar's brother, Atul Sengar, had led the assault, but no action was taken initially.
- ❖ On 8 April 2018, the victim attempted self-immolation outside the residence of Chief Minister Yogi Adityanath, alleging police inaction.
- ❖ On 9 April 2018, her father died in hospital due to his injuries.
- ❖ These events led to widespread public outrage.

#### Action Against Kuldeep Sengar

- ❖ An FIR was registered against Kuldeep Sengar.
- ❖ Atul Sengar was arrested and six police officers were suspended/arrested.
- ❖ The case was transferred to the Central Bureau of Investigation (CBI) and later shifted to the Allahabad High Court.
- ❖ On 13 April 2018, the Allahabad High Court ordered the immediate arrest of Kuldeep Sengar.
- ❖ On the same day, he was questioned by the CBI and later arrested and sent to judicial custody.
- ❖ New FIRs were registered against him.

#### Later Developments

- ❖ On 21 November 2018, the victim's uncle, who had been campaigning for justice, was arrested in an 18-year-old gun-firing case.
- ❖ On 28 July 2019, the rape survivor and her lawyer were seriously injured, and two family members were killed when a truck hit their car.
- ❖ The truck had blackened number plates.
- ❖ Police security was absent.
- ❖ This incident raised strong suspicion of a conspiracy to eliminate the victim and her family.
- ❖ On 1 August 2019, the Supreme Court transferred all five related cases from Lucknow to Delhi and ordered a daily trial to be completed within 45 days.

#### Conviction and Legal Principles

- ❖ On 16 December 2019, the Delhi trial court convicted Kuldeep Sengar.
- ❖ On 20 December 2019, he was sentenced to imprisonment for the remainder of his natural life.
- ❖ The conviction was based on Section 5(c) and punishment under Section 6 of the POCSO Act, dealing with aggravated sexual assault by a public servant on a child.
- ❖ Since POCSO does not define "public servant", the court applied the definition from Section 2(viii) of the Prevention of Corruption Act, 1988, which includes any person holding an office to perform a public duty.

#### After Conviction

- ❖ After trial, an accused is either:
  - Acquitted, or
  - Convicted

- ❖ A conviction:
  - Removes the presumption of innocence, and
  - Makes the sentence immediately enforceable.
- ❖ Under Section 389 of the CrPC, 1973 (now Section 430 of BNSS, 2023), a convicted person has the right to:
  - Appeal against the conviction
  - Seek suspension of the sentence
  - Apply for bail during the appeal
- ❖ Suspension of sentence only pauses the punishment and **does not suspend the conviction.**

## INTERNATIONAL

### Oxford Word of the Year (2025)

- ❖ The **Oxford Word of the Year** for 2025 is “**rage bait.**”
- ❖ *Rage bait* refers to **online content deliberately created to provoke anger, outrage, or frustration**, primarily to attract **attention, comments, shares, and internet traffic.**

### SIPRI Top 100 Global Arms-Producing Companies 2024

- ❖ The **Stockholm International Peace Research Institute (SIPRI)** — an independent global think tank founded in **1966 in Stockholm, Sweden** — released the **Top 100 arms-producing and military services companies list for 2024.**
- ❖ According to the report, **combined revenues from weapons and military services by the world’s 100 largest arms companies reached a record USD 679 billion in 2024**, marking a **5.9% increase** over the previous year.
- ❖ **Indian defence firms included in the Top 100:**
  - **Hindustan Aeronautics Limited (HAL)** — ranked **44th**
  - **Bharat Electronics Limited (BEL)** — ranked **58th**
  - **Mazagon Dock Shipbuilders Limited (MDL)** — ranked **91st**
- ❖ **Top three global arms producers in 2024:**
  1. **Lockheed Martin Corporation (USA)**
  2. **RTX (Raytheon Technologies, USA)**
  3. **Northrop Grumman (USA)**
- ❖ The report notes that **US companies alone accounted for around USD 334 billion of the total arms revenues**, continuing American dominance in the global arms industry.

### Cartel of the Suns Designated as Foreign Terrorist Organization

- ❖ The **United States Department of State** designated the **Cartel of the Suns** as a **Foreign Terrorist Organization (FTO)**, effective **24 November 2025.**

- ❖ The Cartel of the Suns — a term associated with alleged Venezuelan military and political networks linked to \*\*drug trafficking and corruption — was also previously designated as a **Specially Designated Global Terrorist (SDGT) entity** by the US Treasury earlier in 2025.
- ❖ US authorities contend that the organisation is responsible for **trafficking drugs and violence across the hemisphere**, and allege connections to **Nicolás Maduro’s regime**.
- ❖ Following the US designation, several Latin American governments — including **Argentina, the Dominican Republic, Ecuador, Paraguay, and Peru** — have taken similar steps, though some leaders have contested the allegations.

### **China’s Trade Surplus (2025)**

- ❖ In **November 2025**, China’s **trade surplus continued its upward trajectory**, crossing a **record level in the first 11 months of the calendar year**, surpassing **USD 1 trillion** for the first time in history.
- ❖ This significant surplus was driven by strong export performance, particularly to **Southeast Asia, Africa, Europe, and Latin America**, even as exports to the US declined.
- ❖ According to Chinese customs data, China exported approximately **USD 3.6 trillion worth of goods** and imported **USD 2.6 trillion** over the same period, resulting in a massive surplus.

### **Income Inequality and Population Studies**

*(Interpretation based on provided summary)*

- ❖ According to research on “**Global Sustainability and Development Indicators**,” about **half of the world’s population lives in regions with relatively low income inequality**.
- ❖ Additionally, around one-fourth of the world’s population resides in areas where **both income and inequality are increasing** simultaneously (indicating uneven distribution of growth).

### **International Civil Aviation Day**

- ❖ **International Civil Aviation Day** is observed annually on **7 December** to raise awareness about the importance of international civil aviation and the role it plays in **global social and economic development**. It also highlights the leadership of the **International Civil Aviation Organization (ICAO)** in fostering safe, secure, and environmentally responsible air transport worldwide.
- ❖ The day was first celebrated by ICAO in **1994** as part of its 50th anniversary activities, and in **1996** the **United Nations General Assembly officially recognized 7 December** as International Civil Aviation Day.

- ❖ The **theme for 2025** is “**Safe Skies & Sustainable Future for All**”, emphasizing safety, sustainability, and inclusive global aviation — aligned with ICAO’s long-term strategic vision for **net-zero carbon emissions by 2050** and advancing aviation for all communities.

### **Refugee and Asylum Statistics in the United States (2024)**

- ❖ According to official U.S. government immigration statistics, **about 100,060 refugees** were admitted to the United States in **2024**, a figure that outpaced the combined totals of the previous two years.
- ❖ Asylum decisions in the U.S. continue to reflect global displacement trends, with thousands seeking safety from persecution. While comprehensive nationality-wise asylum grant figures for 2024 are not consolidated here, significant asylum case activity — including affirmative and defensive asylum applications — has been reported by U.S. immigration authorities.

### **FIFA’s First Peace Prize (2025)**

- ❖ For the first time, **FIFA awarded a Peace Prize in 2025**, diverging from its historical focus solely on sport.
- ❖ The **inaugural FIFA Peace Prize** was presented to **former U.S. President Donald Trump** during the **2026 World Cup draw ceremony in Washington, D.C.**
- ❖ FIFA President **Gianni Infantino** presented the prize, citing Trump’s contributions to promoting unity and peace globally — although the decision and its political undertones drew mixed reactions and debate internationally.

### **Formula One World Championship 2025**

- ❖ **Lando Norris**, the British racing driver for McLaren, **won the 2025 Formula One World Championship**, marking a major milestone in his career. (*Note: Some sources discuss individual Grand Prix wins and season highlights; consensus points to this overall achievement.*)

### **International Anti-Corruption Day**

- ❖ **International Anti-Corruption Day** is observed on **9 December** each year as part of the **United Nations Convention against Corruption** framework.
- ❖ The Convention, adopted by the **UN General Assembly**, designates this day to **raise awareness about the damaging effects of corruption** and highlight global efforts to **combat, prevent, and raise integrity** within societies and institutions.

### **Sudanese Civil War (2023– Present)**

- ❖ The **Sudanese civil war** began on **15 April 2023** between the **Sudanese Armed Forces (SAF)**, commanded by **General Abdel Fattah al-Burhan**, and the paramilitary **Rapid Support Forces (RSF)**, led by **General Mohamed Hamdan Dagalo (Hemedti)**.

- ❖ The war erupted from a **power struggle** over integration of the RSF into the national army following political shifts in Sudan.
- ❖ The conflict has resulted in a **major humanitarian crisis**:
  - Massive displacement, with millions forced from their homes.
  - Fatality estimates are uncertain, but some reports suggest **over 150,000 deaths** by late 2025 from violence, starvation, and conflict-related impacts.

### **IMF Provides Funding to Pakistan**

- ❖ In 2025, the **International Monetary Fund (IMF)** committed approximately **\$1.2 billion** to Pakistan under its **Climate-Focused Resilience and Sustainability Facility**, intended to bolster climate resilience, sustainable development, and economic stability. *(Specific program name may vary based on IMF country financing arrangements reports.)*

### **Austria Bans Headscarf in Schools for Girls Under 14**

- ❖ Austria's national legislature passed a law in 2025 that **prohibits wearing the Islamic headscarf (hijab) in schools for girls under the age of 14**.
- ❖ The law is part of broader policy debates in several European countries about secularism, integration, and cultural norms in public education.

### **U.S. Announces F-16 Aircraft Sale to Pakistan**

- ❖ In 2025, amidst complex U.S.–India strategic relations and regional security dynamics, **the United States announced plans to supply Pakistan with F-16 fighter aircraft valued at approximately \$686 million**. The deal reflects shifting defense priorities and geopolitics in South Asia.

### **US “Gold Card” Citizenship Scheme**

- ❖ On **10 December 2025**, former US President **Donald Trump** launched a new **“Gold Card” scheme**.
- ❖ Under this scheme, **foreign nationals can acquire US citizenship by paying a fee of USD 1 million**.
- ❖ The initiative is aimed at attracting **high-net-worth individuals** and boosting foreign investment in the United States.

### **International Mountain Day**

- ❖ **International Mountain Day** is observed every year on **11 December**.
- ❖ It has been celebrated since **2003** under the aegis of the **Food and Agriculture Organization (FAO)** of the United Nations.
- ❖ **FAO Details**:
  - Established: **16 October 1945**
  - Headquarters: **Rome, Italy**

- Director-General: **Dr. Qu Dongyu (China)**
- ❖ **Theme for 2025:**  
“Glaciers Matter for Water, Food and Livelihoods in Mountains Beyond”
- ❖ The theme highlights the importance of **glaciers**, which store nearly **70% of the world’s fresh water**, and their role in sustaining mountain ecosystems and human livelihoods.

### **UNICEF Day**

- ❖ **UNICEF Day** is observed on **11 December**, marking the establishment of UNICEF.
- ❖ UNICEF was founded in **1946** as the **United Nations International Children’s Emergency Fund**.
- ❖ In **1953**, it became a permanent UN body and was renamed the **United Nations Children’s Fund (UNICEF)**.
- ❖ **Headquarters:** New York, USA
- ❖ **Executive Director:** **Catherine M. Russell (USA)**

### **New Prime Minister of the Czech Republic**

- ❖ **Mr. Andrej Babiš** has been elected as the **Prime Minister of the Czech Republic**.
- ❖ **Capital:** Prague
- ❖ He belongs to the political party **ANO 2011**, a right-wing populist party founded by him.
- ❖ He had earlier served as Prime Minister from **6 December 2017 to 17 December 2021**.

### **TIME Magazine – CEO of the Year 2025**

- ❖ **Neal Mohan**, CEO of **YouTube**, has been selected as **TIME Magazine’s CEO of the Year 2025**.
- ❖ He was recognised for leadership in digital media innovation, platform governance, and global content strategy.

### **TIME Athlete of the Year 2025**

- ❖ **A’ja Wilson**, an American women’s basketball player, has been awarded **TIME Athlete of the Year 2025**.
- ❖ She was honoured for her exceptional performance, leadership, and influence on women’s sports.

### **7th United Nations Environment Assembly (UNEA-7)**

- ❖ The **7th UN Environment Assembly (UNEA-7)** was held in **Nairobi, Kenya**.
- ❖ **Duration:** **8–12 December 2025**
- ❖ UNEA is the **world’s highest-level decision-making body on environmental matters**, setting global environmental priorities.

### TIME Magazine – Person of the Year 2025

- ❖ TIME Magazine named “The Architects of Artificial Intelligence” as **Person of the Year 2025**.
- ❖ This is **not a single individual**, but a collective recognition of leaders shaping the AI revolution.
- ❖ The magazine released **two covers**:
  - One artistic depiction of “AI” surrounded by workers.
  - Another featuring **eight influential AI leaders**.

#### The Eight AI Leaders Recognised

1. **Jensen Huang** – CEO, Nvidia
  2. **Mark Zuckerberg** – CEO, Meta
  3. **Elon Musk** – Owner, X (formerly Twitter)
  4. **Fei-Fei Li** – AI researcher, known as the “Godmother of AI”
  5. **Sam Altman** – CEO, OpenAI
  6. **Lisa Su** – CEO, AMD
  7. **Dario Amodei** – CEO, Anthropic
  8. **Sir Demis Hassabis** – Head, Google DeepMind
- ❖ **TIME Editor-in-Chief Sam Jacobs** stated that no other group had a greater impact in 2025 than those who “imagined, designed, and built AI”.
  - ❖ He emphasised that **humanity will determine the future path of artificial intelligence**.
  - ❖ **1982** – The Computer
  - ❖ **2002** – Whistleblowers
  - ❖ **2006** – “You” (Internet users)
  - ❖ **2014** – Ebola Fighters

### Sydney’s Bondi Beach Shooting

- ❖ On **14 December 2025**, an **indiscriminate firing incident** occurred at **Bondi Beach, Sydney**, at around **6:30 PM**.
- ❖ Nearly **1,000 members of the Hindu community** had gathered at the beach to celebrate a **Hindu festival**.
- ❖ The attack resulted in the **death of around 12 people**, while approximately **30 individuals were injured**.
- ❖ The incident has raised serious concerns regarding **public safety and communal security** in Australia.

### COP-30: Key Focus Areas

- ❖ COP-30 discussions include:
  - ❖ **Global Implementation Tracker**
  - ❖ **The Belém Mission to limit global warming to 1.5°C**
  - ❖ **Voluntary indicators for the Global Goal on Adaptation**
  - ❖ The conference aims to strengthen **climate action accountability and implementation mechanisms** at the global level.

## **European Union Fines X Platform USD 140 Million**

- ❖ The **European Commission** imposed a fine of **USD 140 million (EUR 120 million)** on **X (formerly Twitter)**.
- ❖ The penalty was imposed under the **Digital Services Act (DSA)** for violating **transparency obligations**.
- ❖ The core issue relates to X's **controversial Blue Checkmark (verification) system**.

### Reasons for the Fine

- ❖ According to the European Commission, X violated the DSA by:
  - **Misleading users** through its Blue Checkmark system,
  - **Lack of transparency in advertisements**, and
  - **Restricting access for independent researchers**.

### Background

- ❖ Before **Elon Musk acquired Twitter in 2022**, Blue Checkmarks were issued only after **verification of identity and credentials**, primarily to:
  - Government officials,
  - Journalists,
  - Public figures.
- ❖ After the acquisition, **paid Blue Checkmarks** were introduced.
- ❖ This led to a sharp rise in **impersonation and misinformation**, as malicious actors, including **crypto scammers**, purchased verification to appear credible.
- ❖ At one point, even **members linked to the Taliban** reportedly held Blue Checkmarks.

### Multiple Verification Badges

- ❖ To reduce confusion, X introduced different badges:
  - **Blue, Gold, Grey, and Company-logo based** checkmarks.
- ❖ However, these categories were often **visually similar**, further increasing user confusion.
- ❖ The European Commission stated that the **Blue Checkmark system actively deceives users** by creating a false impression of credibility.

### Political Reactions

- ❖ **US President Donald Trump** criticised the EU's decision, calling it "cheap" and stating that **Europe is heading in the wrong direction**.
- ❖ He warned that caution would be exercised but clarified that **Elon Musk had not requested his intervention**.
- ❖ Senior US officials, including **Secretary of State Marco Rubio** and **Vice President J.D. Vance**, also criticised the move.
- ❖ The US Ambassador to the EU, **Andrew Puzder**, condemned what he called the **overreach of EU regulations targeting American innovation**, and stated that the Trump administration would challenge **burdensome foreign regulations** against US companies.

### Elon Musk's Response

- ❖ On **6 December 2025**, Elon Musk used his platform to openly call for the **dissolution of the European Union**.

- ❖ He stated that sovereignty should be **returned to individual nations** so governments could better represent their citizens.

### **12th Under-19 Asia Cup (Cricket)**

- ❖ The **12th U-19 Asia Cup** was held from **12–21 December 2025** in **Dubai, UAE**.
- ❖ **Participating Teams:**
  - India, Pakistan, Sri Lanka, Bangladesh, Afghanistan
  - Plus qualifiers: **Malaysia, Nepal, UAE**
- ❖ The tournament is administered by the **Asia Cricket Council (ACC)**.
- ❖ In the **final held on 14 December 2025**, **India defeated Pakistan** to win the championship.

### **Nobel Peace Prize Laureate Machado Escorted to Oslo**

- ❖ The United States safely escorted Venezuelan opposition leader **Machado**, the recipient of the **2025 Nobel Peace Prize**, to Oslo for the award ceremony. This operation was carried out under a mission named **“Operation Dynamite.”**

### **UN Alliance of Civilisations (UNAOC)**

- ❖ The **11th UN Alliance of Civilisations (UNAOC)** was held in **Riyadh, Saudi Arabia**.
- ❖ The organisation was **founded in 2005**.
- ❖ It is **co-sponsored by Türkiye and Spain**.

### **FIFA Best Football Awards 2025**

- ❖ **The Best FIFA Men’s Player:** *Ousmane Dembélé*
- ❖ **The Best FIFA Women’s Player:** *Aitana Bonmatí*

### **Italian Cuisine Recognised by UNESCO**

- ❖ **Italy** has become the **first country in the world** whose **entire national cuisine** has been recognised by **UNESCO** as **Intangible Cultural Heritage**.
- ❖ Italian foods such as **Pizza, Spaghetti and Lasagna** were included.
- ❖ This recognition was granted during **UNESCO’s 20th session held in New Delhi**.

### **Appointment of NASA Chief**

- ❖ **Jared Isaacman** has been appointed as the **Administrator of NASA** (National Aeronautics and Space Administration).
- ❖ He will also be responsible for shaping **United States space policy**.
- ❖ He is known to be a **friend and supporter of Elon Musk**.

### Annatto

- ❖ **Annatto** is a **condiment and natural food colouring**.
- ❖ It is derived from the **seeds of the Achiote tree (*Bixa orellana*)**.

### Violent Protests in Bangladesh (December 2025)

- ❖ Bangladesh witnessed a **fresh surge of violence, arson, and protests** from **17–18 December 2025** onwards.

#### 1. Murder of Sharif Usman Hadi

- Sharif Usman Hadi, a prominent leader of the **2024 movement**, was **shot dead on 12 December 2025** during the election campaign.
- He later **died during treatment in a hospital in Singapore**.
- His death significantly escalated violence across the country.

#### 2. Killing of Deepu Chandra Das

- A **25-year-old factory worker** from Mymensingh, Deepu Chandra Das, was **lynched to death** on allegations of **blasphemy**.
- Reports of **inhuman treatment of his body** further inflamed tensions.
- As a result, **Hindu communities also turned aggressive** in response.
- ❖ Some groups alleged that **Sheikh Hasina**, who is currently living in exile in India, was behind the killing of Hadi.
- ❖ It was also claimed that the attackers **fled to India after the incident**, leading to **anti-India sentiments** among certain sections in Bangladesh.
- ❖ Rumours regarding blasphemy accusations against Deepu Chandra Das further aggravated religious tensions.
- ❖ Hadi played a **significant role in the July–August 2024 anti-Hasina movement**.
- ❖ Details about his leadership came to light in **October 2024**, when exiled journalist **Mahmudur Rahman** returned to Bangladesh and delivered an emotional speech at **Hazrat Shahjalal International Airport, Dhaka**.
- ❖ Student leaders opposing Sheikh Hasina formed **three major political streams**:

##### 1. First Group

- Led by **Asif Mahmud Sajib Bhuiyan, Mahfuz Alam, and Nahid Islam**
- Joined the **interim government led by Muhammad Yunus**

##### 2. Second Group

- Included **Hasnat Abdullah and Sarjis Alam**
- Formed the **National Citizen Party (NCP)**

##### 3. Third Group

- Associated with **Sharif Usman Hadi**
- Neither joined the government nor the NCP
- Played a crucial role in strengthening the anti-Hasina movement and activating civil society organisations
- ❖ Hadi, along with **Ziaul Hasan, Rafe Salman Rifat, and Afroza Tuli**, founded:
  - **Inqilab Cultural Centre**
  - **Inqilab Manch**

- ❖ He believed that Bangladesh had been under a form of “**cultural fascism**” for the **past 16 years**, allegedly supported by India during Sheikh Hasina’s rule.
- ❖ On **22 December 2025**, supporters of Sheikh Hasina allegedly shot dead **Mohammad Gotaleb Sikdar**, a student leader opposing her.
- ❖ On **25 December 2025**, **Tariq Rahman**, son of **Khaleda Zia** and acting President of the **Bangladesh Nationalist Party (BNP)**, arrived in Bangladesh.

### **Release of 68 Images from Epstein Files in the United States**

- ❖ On **18 December 2025**, **Democrats in the U.S. House of Representatives** released **68 photographs** linked to the **Jeffrey Epstein files**.
- ❖ There is a **possibility of more images being released** in the future.

### **US Economic Growth Rate**

- ❖ The **United States economy** grew by **4.3%** during the **third quarter (July–September)** of the current financial year.

### **Venezuela and the United States**

- ❖ **U.S. President Donald Trump** announced a “**total and complete blockade**” of all **sanctioned oil tankers** entering or leaving **Venezuela**.

### **New President of Honduras**

- ❖ **Nasry Asfura**, a **Trump-backed candidate** from the **National Party of Honduras (PNH)**, won the **Presidential election held in December 2025**.
- ❖ He secured **40.27% of the votes**, defeating **Salvador Nasralla** of the **Liberal Party**, who obtained **39.53%**, by a margin of approximately **28,000 votes**.

#### **Political Significance**

- ❖ Following the victory of far-right politician **José Antonio** in **Chile** a week earlier, this marked the **second far-right electoral victory in Latin America within a month**.
- ❖ These developments suggest that **Latin America is witnessing a rightward political shift**.

#### **Key Facts about Honduras**

- ❖ **Capital:** Tegucigalpa
- ❖ **Official Language:** Spanish
- ❖ **Currency:** Lempira

#### **Role of the United States**

- ❖ President **Donald Trump** openly supported **Nasry Asfura**.
- ❖ Trump reportedly **threatened to cut U.S. aid** if any candidate other than Asfura won the election.
- ❖ Opposition leaders were labelled as “**narcocommunists**” by Trump.

#### **Meaning of “Narcocommunists”**

- ❖ The term referred mainly to **Xiomara Castro**, wife of former President **José Manuel Zelaya** (deposed in 2009).
- ❖ Her government:

- Strengthened ties with **Cuba and Venezuela**
- Ended **Honduras' diplomatic recognition of Taiwan**
- Sought closer relations with **China**
- ❖ **Salvador Nasralla**, although a former ally of Castro, contested the election on a **right-wing platform** against Asfura.
  - **Controversial Pardon by Donald Trump**
- ❖ Trump **pardoned Orlando Hernández**, a former Honduran President and member of Asfura's PNH.
- ❖ Hernández had been **convicted in U.S. courts** and was serving a **45-year prison sentence** for accepting **millions of dollars in bribes** to protect cocaine shipments.
- ❖ This created a **political contradiction**, as:
  - Trump imposed a **naval blockade on Venezuela**, accusing President **Nicolás Maduro** of leading a narcotics network (without evidence),
  - While simultaneously **releasing a convicted drug trafficker**.

#### **Politics Behind Asfura's Victory**

- ❖ Both **Asfura and Nasralla** belong to the **Honduran oligarchic class**, consisting of wealthy elites from influential families of **Syrian and Palestinian descent** who migrated in the 20th century.
- ❖ In **2009**, this elite class supported a **coup that overthrew democratically elected President José Manuel Zelaya**.
- ❖ Then U.S. Secretary of State **Hillary Clinton** backed the **coup-installed interim government**, refusing to label the military action as a coup—thus preventing the suspension of U.S. aid.
- ❖ Asfura's victory represents a **major resurgence of this elite class**.

#### **Background of President Nasry Asfura**

- ❖ **Nasry Asfura** is a **construction magnate** and former **Mayor of Tegucigalpa**.
- ❖ During his tenure as Mayor:
  - He was **indicted in 2020** on charges of:
    - Embezzlement of public funds
    - Money laundering
    - Fraud
    - Abuse of authority
  - He was named in the **2021 Pandora Papers** for operating **offshore companies** while holding public office.
- ❖ These cases were **controversially dismissed by the Supreme Court on 15 December 2025**, just **nine days before his official election victory** was declared.

#### **Honduras and the Background of Juan Orlando Hernández**

- ❖ **Juan Orlando Hernández** served as the **President of Honduras from 2014 to 2022**.
- ❖ During his presidency, **Honduras was effectively transformed into a "narco-state"**, marked by a close nexus between:
  - The **public sector**,
  - The **oligarchic elite**, and

- **Drug trafficking networks**, allegedly mediated by the President himself.
- ❖ Under Hernández's administration:
  - **Corruption and political assassinations** became widespread.
  - **Poverty increased**, and severe **economic mismanagement** forced **thousands of Hondurans to flee the country**.
- ❖ Nearly **two-thirds of Honduras' population lives in poverty**, and around **40% live in extreme poverty**.
- ❖ The electoral victory of **Nasry Asfura** is widely viewed as a **return of right-wing rule in Honduras**.
- ❖ Many analysts describe this development as part of a broader "**Angry Tide**" of right-wing resurgence observed in several regions.

### **U.S. Strikes on Islamic State (IS) Centres in Nigeria**

- ❖ On **25 December**, the **United States** carried out **airstrikes** on suspected **Islamic State (IS) sites** in the **north-western Nigerian state of Sokoto**, in cooperation with the **Nigerian government**.
- ❖ However:
  - No concrete evidence regarding the **exact targets or sites hit** has been released.
  - It has also not been disclosed **which of Nigeria's numerous armed groups** were targeted.
- ❖ In the weeks preceding the strikes, the **U.S. President had strongly criticised Nigeria** over:
  - Killings, and
  - The alleged persecution of **Christians**.
- ❖ Reports suggest that **President Trump deliberately delayed the strikes** to emphasize the **symbolism of launching the operation on Christmas Day**.

### **Israel and the Recognition of Somaliland**

- ❖ On **26 December 2025**, **Israel** became the **first United Nations member state** to **officially recognize Somaliland**.
- ❖ **Capital of Somaliland: Hargeisa**.

### **Thailand–Cambodia Conflict (December 2025)**

- ❖ In **December 2025**, **hostilities resumed** between **Thailand and Cambodia**, marking a fresh escalation after clashes earlier in **July 2025**.
- ❖ On **7 December**, **Thailand** launched **air strikes against Cambodia**, triggering renewed fighting between the two countries.
  - The clashes resulted in the deaths of **one Thai soldier and four Cambodian soldiers**.
- ❖ According to sources, **Thai forces carried out attacks** in the border provinces of **Preah Vihear and Oddar Meanchey**.
- ❖ Fighting continued on **9 December**, during which:

- Seven civilians were killed, and
- Twenty civilians were injured.

### **Ceasefire Agreement**

- ❖ On **27 December**, a **ceasefire agreement** was signed at a border checkpoint by:
  - **Cambodian Defence Minister Tea Seiha**, and
  - **Thai Defence Minister Nattaphon Narkphanit**.
- ❖ The ceasefire:
  - Took effect at **12:00 noon (0500 GMT)**.
  - Called for a **halt to military movements** and **cessation of airspace violations for military purposes**.
- ❖ The agreement also stipulated that:
  - After the ceasefire holds for **72 hours**, **Thailand will repatriate 18 Cambodian soldiers** captured during fighting in July.
  - The release of these soldiers had been a **key demand of Cambodia**.

### Casualties and Humanitarian Impact

- ❖ According to Thai officials:
  - **26 Thai soldiers and one civilian** were killed directly due to combat since **7 December**.
  - Thailand also reported **44 civilian deaths**.
- ❖ Cambodia has not released official figures for military casualties but reported:
  - **30 civilians killed**, and
  - **90 civilians injured**.
- ❖ On **28 December**, diplomatic talks were held in **Yunnan province, China**, involving:
  - Thai Foreign Minister **Sihesak Phuangketkeow**,
  - Cambodian Foreign Minister **Prak Sokhonn**,
  - Mediated by Chinese Foreign Minister **Wang Yi**.
- ❖ **China hosted and mediated the dialogue**, positioning itself as a key diplomatic intermediary, alongside the **United States and Malaysia**.
- ❖ China also announced **20 million yuan (approximately \$2.8 million)** in **emergency humanitarian aid** for **Cambodia** to support displaced civilians.

### **Oil Economy: The Case of Venezuela**

#### Global Oil Reserves

- ❖ **Venezuela possesses the largest proven crude oil reserves in the world**, estimated at **303 billion barrels (2023)**.
- ❖ **Top countries by proven oil reserves (in billion barrels):**
  1. **Venezuela – 303**
  2. **Saudi Arabia – 267**
  3. **Iran – 209**
- ❖ Despite holding the world's largest reserves, **Venezuela ranks much lower in oil production and refining capacity**.

- ❖ A major reason is that **most of Venezuela's reserves consist of extra-heavy crude oil**, which:
  - Is difficult to extract
  - Requires **specialised technology**
  - Needs **advanced refineries** for processing

### Crude Oil Production

#### ❖ **Global Oil Production Rankings (2024)**

*(in thousand barrels per day)*

Rank	Country	Production
1	United States	13,208
2	Russia	9,193
3	Saudi Arabia	8,955
16	Venezuela	921

- ❖ In **2024**, Venezuela produced approximately **921,000 barrels per day**, which is:
  - **Over 56% lower** than its production levels during the **1980s**.

### Refining Capacity

#### **Global Refinery Throughput Rankings**

*(in thousand barrels per day)*

Rank	Country	Refinery Throughput
1	United States	16,623
2	China	14,250
3	Russia	5,347
35	Venezuela	335

- ❖ Venezuela's **refining capacity is extremely limited**, despite its vast oil reserves.

### Structural and Institutional Challenges

- ❖ **Internal problems and international sanctions** have deprived Venezuela of the **capital and technology** needed to maintain and expand its oil sector.
- ❖ The state-owned oil company **Petróleos de Venezuela S.A. (PDVSA)**:
  - Owns and operates **five refineries** in Venezuela
  - Suffers from **chronic underinvestment, mismanagement**, and a **shortage of technical expertise**
- ❖ After:
  - A **failed coup attempt in April 2002**, and
  - A **general strike and oil lockout (December 2002 – February 2003)**, then-President **Hugo Chávez** replaced PDVSA's management.
- ❖ Critics argue that this led to:
  - **Excessive bureaucratisation**, and
  - A decline in **professional autonomy and efficiency** within PDVSA.

### Historical Context and Economic Decline

- ❖ During the **1970s**, Venezuela benefited significantly from the **oil price boom** following the **Yom Kippur War**.

- ❖ At that time:
  - Venezuela achieved the **highest per capita income in Latin America**.
  - However, income inequality remained high.
- ❖ Since **2014**, Venezuela's economic position has deteriorated sharply due to:
  - **International sanctions**, and
  - A prolonged **global oil price downturn**.
- ❖ Venezuela's **GDP per capita today is nearly the same as it was three decades ago**.
  - **No other country has experienced such a steep decline in GDP per capita over this period**.

### Venezuela and OPEC

- ❖ Venezuela is a **founding member of the Organisation of the Petroleum Exporting Countries (OPEC)**.
- ❖ Despite this, it currently has:
  - The **highest general government gross debt** among OPEC members.
- ❖ While other oil-exporting nations have managed to recover from global oil price crashes, **Venezuela continues to face severe economic distress**.
- ❖ This indicates that **Venezuela's crisis cannot be explained by global crude price fluctuations alone**, but is deeply rooted in **domestic policy and governance failures**.

### Collapse in Global Export Share

- ❖ In the **1990s**, Venezuela accounted for **over 4% of global oil exports**, second only to Saudi Arabia.
- ❖ By **2023**, this share had collapsed to **approximately 0.35%**.

### Role of U.S. Sanctions

- ❖ **U.S. sanctions have played a decisive role** in constraining Venezuela's petroleum sector.
- ❖ Key developments include:
  - **August 2017**: The first Trump administration barred Venezuela from accessing **U.S. financial markets**.
  - **2019**: Sanctions were imposed directly on **PDVSA**, preventing:
    - Payments for oil exports to the U.S.
    - Access to PDVSA's U.S.-based assets
    - Import of **diluents**, essential for processing extra-heavy crude
  - **2023**: Partial easing of sanctions under the **Joe Biden administration**
  - Later, sanctions were **reinstated**, followed by a **naval blockade** imposed under the **second Trump administration**.

### **Blue Line**

- ❖ The **Blue Line** is the **United Nations-demarcated boundary** established in **2000** between **Lebanon and Israel**.

### Begum Khaleda Zia

- ❖ **Begum Khaleda Zia** was the **first female Prime Minister of Bangladesh**.
- ❖ She was born on **15 August 1945** and passed away on **30 December 2025**.
- ❖ She served as the **Prime Minister of Bangladesh twice**:
  - **First term: 20 March 1991 – 30 March 1996**
    - She served as the **7th Prime Minister** of Bangladesh.
  - **Second term: 10 October 2001 – 29 October 2006**
    - She served as the **9th Prime Minister** of Bangladesh.
- ❖ Begum Khaleda Zia was a senior leader of the **Bangladesh Nationalist Party (BNP)**.
- ❖ She was married to **Zia-ur-Rahman**, the **6th President of Bangladesh**.
  - Zia-ur-Rahman is also remembered as the “**Announcer of Bangladesh’s Liberation**” (*Mukti Juddher Ghoshok*).

### Sakhir Declaration

- ❖ The **Sakhir Declaration** is related to a **Gulf Cooperation Council (GCC) Summit**.
- ❖ It refers to the **outcome declaration adopted during the GCC meeting held at Sakhir**.

## SCIENCE & TECHNOLOGY

### Neurotechnology

- ❖ **Neurotechnology** refers to a broad category of technologies that enable a deeper understanding of the **brain and nervous system**, or directly **influence their functioning**.
  - It involves the use of **mechanical and digital tools** that interact directly with the brain.
  - Neurotechnology is an **umbrella term** covering technologies that can:
    - read information from the nervous system, and/or
    - stimulate or modulate neural activity.
- ❖ These systems can **record, monitor, or influence brain activity**, opening new pathways to understand how the human mind functions and how neurological conditions may be treated, repaired, or enhanced.
- ❖ At the core of modern neurotechnology lies the **Brain–Computer Interface (BCI)**.
- ❖ A BCI combines **neuroscience and computing** to translate brain signals into external actions.
- ❖ BCIs can convert neural signals into **digital commands** that control:
  - a computer cursor,
  - a wheelchair,

- or robotic and prosthetic limbs.
- ❖ In essence, a BCI:
  - listens to brain activity,
  - decodes neural signals, and
  - converts them into executable instructions.
- ❖ Some neurotechnological devices are **diagnostic**, helping researchers study:
  - brain disorders,
  - neural degeneration, and
  - cognitive functions.
- ❖ Advanced applications allow:
  - paralysed patients to control prosthetic limbs,
  - stimulation of specific brain regions to treat conditions such as **depression** and **Parkinson's disease**.
- ❖ Experimental research has even demonstrated **brain-to-brain communication** in animals, such as transmitting simple information between two mice.
- ❖ However, **human applications remain largely therapeutic**, focusing on:
  - rehabilitation,
  - neuroprosthetics,
  - and mental health treatment.
- ❖ The use of neurotechnology for **human enhancement or military purposes** is technically plausible, but it raises serious **ethical, legal, and social concerns** that require extensive debate before any large-scale deployment.

#### **Why Is Neurotechnology Important for India?**

- ❖ India faces a **high burden of neurological disorders**, including:
  - stroke,
  - spinal cord injuries,
  - Parkinson's disease,
  - and mental health disorders such as depression.
- ❖ Between **1990 and 2019**, the share of **non-communicable and injury-related neurological disorders** in India's overall disease burden increased steadily.
  - **Stroke** emerged as the single largest contributor.
- ❖ For individuals living with paralysis, **neuroprosthetics** offer the possibility of restoring:
  - mobility,
  - communication,
  - and functional independence.
- ❖ In mental healthcare, **targeted neural stimulation** may reduce long-term dependence on medication and improve treatment outcomes.
- ❖ Beyond healthcare, neurotechnology lies at the intersection of:
  - biotechnology,
  - engineering,

- and artificial intelligence, areas in which **India is rapidly developing global capabilities**.
- ❖ Strategic investment in neurotechnology can therefore strengthen India's:
  - healthcare systems,
  - scientific innovation,
  - and technological sovereignty.

### Global Efforts in Neurotechnology

#### **United States**

- ❖ The **United States** is the global leader in the development and deployment of neurotechnologies.
- ❖ The **BRAIN Initiative** (Brain Research Through Advancing Innovative Neurotechnologies®), led by the **National Institutes of Health (NIH)**, is a collaborative programme involving both federal and non-federal partners.
- ❖ The initiative aims to **accelerate the development of innovative tools** to map, monitor, and modulate brain activity.
- ❖ In **May 2024**, **Neuralink** received approval from the **U.S. Food and Drug Administration (FDA)** to begin **human trials** of its Brain–Computer Interface (BCI).
- ❖ Neuralink has already demonstrated the potential of BCIs to **restore limited motor functions** in paralysed patients through prosthetic-enabled neural control.

#### **India**

- ❖ Researchers at **IIT Kanpur** have developed a **BCI-based robotic hand**, designed to assist **stroke patients** in regaining motor functionality.
- ❖ Major research institutions in neuroscience include:
  - the **National Brain Research Centre (NBRC)**, **Manesar**, and
  - the **Centre for Brain Research at the Indian Institute of Science (IISc)**, **Bengaluru**.
- ❖ An Indian startup, **Dagnosis**, is applying neurotechnology to **animal neuroscience**.
  - It studies brain signals in dogs to identify neural patterns activated when dogs detect the **scent of cancer** in human breath samples.
  - Though conducted on animals, this research holds significant promise for **early cancer screening in humans**.

#### **China**

- ❖ China's **China Brain Project (2016–2030)** focuses on:
  - understanding human cognition,
  - developing **brain-inspired artificial intelligence**, and
  - advancing treatments for neurological disorders.
- ❖ The project reflects China's strategic emphasis on neuroscience as a driver of future technological leadership.

#### **Other Regions**

- ❖ The **European Union** and **Chile** are at the forefront of developing **legal frameworks** related to:

- Brain–Computer Interfaces, and
- **neurorights**, which seek to protect mental privacy, identity, and autonomy in the age of neurotechnology.

### Conclusion

- ❖ Neurotechnologies constitute a **rapidly emerging set of technologies** with applications extending beyond healthcare into areas such as:
  - rehabilitation,
  - gaming,
  - human–machine interaction,
  - and recreation.
- ❖ For India, neurotechnology is significant not only from a **mental health and public health perspective**, but also as a major **economic and innovation opportunity**.
- ❖ Although the field is still in its early stages, India’s strengths—such as:
  - vast genomic and neurological diversity,
  - a growing pool of scientific and engineering expertise,
  - and increasing awareness of brain research—
 position the country as a potential **global hub for neurotechnology development**.

### Regulatory and Ethical Considerations

- ❖ In the absence of **robust regulatory frameworks**, the development and adoption of BCIs could be hindered.
- ❖ A **public engagement strategy** is essential to:
  - educate citizens,
  - address ethical concerns,
  - and understand public perception of neurotechnologies.
- ❖ Instead of adopting a **single, uniform policy** for all BCIs, India should develop **tailored regulatory pathways** based on:
  - the specific risks,
  - benefits,
  - and intended applications of different BCI systems.
- ❖ A comprehensive regulatory framework must evaluate BCIs on both:
  - **technical parameters**, and
  - **ethical principles**, including:
    - data privacy,
    - informed consent,
    - user autonomy,
    - and protection against misuse.

### Gannon’s Storm and Aditya-L1 Mission

- ❖ **Aditya-L1**, India’s first solar observatory, along with six U.S. space missions—**WIND, ACE, THEMIS-C, STEREO-A, MMS**, and the **NASA–NOAA joint**

**mission DSCOVR**—studied the unusual behaviour of the **May 2024 solar storm**, known as **Gannon’s Storm**.

- ❖ The study revealed that the storm’s unexpected intensity was caused by the **collision of two Coronal Mass Ejections (CMEs)** in interplanetary space.
- ❖ After the collision, the two CMEs compressed each other so intensely that the **magnetic field lines inside one CME snapped and reconnected in new configurations**, a phenomenon known as **magnetic reconnection**.
- ❖ This sudden rearrangement of magnetic fields significantly **amplified the storm’s impact**, making it far stronger than initially predicted.
- ❖ Using **precise magnetic field measurements** from Aditya-L1, scientists were able to **map the reconnection region** in detail.
- ❖ The observations showed that the reconnection zone—where the CME’s magnetic field broke and rejoined—was **exceptionally large**, measuring about **1.3 million kilometres across**, nearly **100 times the diameter of Earth**.
- ❖ This marked the **first-ever observation of such a giant magnetic breakup and rejoining process inside a CME**.
- ❖ The discovery is expected to significantly improve scientific understanding of **how solar storms evolve as they propagate from the Sun towards Earth**, enhancing space-weather prediction capabilities.

### Quantum Echoes

- ❖ **Google** has announced that its new algorithm, called **Quantum Echoes**, has outperformed the world’s fastest classical supercomputers, operating **13,000 times faster** on its **Willow quantum chip**.
- ❖ Using a **65-qubit Willow superconducting processor**, Google researchers studied how **quantum information spreads and refocuses** within an entangled quantum system.
- ❖ This breakthrough has been termed **Quantum Echoes** because it captures subtle quantum “echoes” that reveal the dynamics of information flow in complex quantum networks.
- ❖ This is the **first time a quantum computer has successfully executed a verifiable algorithm that clearly surpasses classical supercomputers**.
- ❖ Unlike a simple speed test, **Quantum Echoes was designed as a test of understanding**, not just performance.
- ❖ Scientists measured **out-of-time-order correlators (OTOCs)**—tiny quantum echoes that indicate how disturbances propagate through a network of qubits.
- ❖ This experiment differs fundamentally from Google’s **2019 Sycamore experiment**, which claimed “quantum supremacy” by completing a random task faster than classical machines.
- ❖ Quantum Echoes instead models a **real physical process**, testing both **computational complexity and measurement precision**.
- ❖ The algorithm’s success was made possible by the **advanced architecture of the Willow quantum chip**.

- ❖ Earlier, Willow demonstrated its capability through a test called **Random Circuit Sampling**, which measures the complexity of quantum systems.
- ❖ Quantum Echoes goes further by being **quantum-verifiable**, meaning that another quantum computer can independently verify the results.
- ❖ Quantum computing holds immense potential for studying **atomic and subatomic interactions**, molecular structures, and quantum materials.
- ❖ This breakthrough could revolutionise:
  - **drug discovery**,
  - **battery technology**,
  - **clean energy materials**, and
  - the design of **next-generation quantum devices**.
- ❖ Scientists describe this development as a step towards a “**quantum-scope**”, analogous to how telescopes and microscopes opened new frontiers in science.
  - Such a tool could allow researchers to observe **natural phenomena previously impossible to measure**.

### **Spectrum Competition in Outer Space**

- ❖ The term **spectrum** is generally used in a **scientific and technical context**, where it refers to different **energy levels or frequency ranges**.
- ❖ The number of **communication satellites in outer space is increasing rapidly**, and the demand for satellite-based services is growing even faster.
- ❖ As a result, a **global race has emerged among space-related companies and organisations** to capture **radio frequencies and orbital slots**.
- ❖ These companies are no longer launching individual satellites; instead, they are deploying **large fleets of satellites**, known as **satellite megaconstellations**.
- ❖ Satellites communicate with **ground-based stations on Earth** using **radio frequencies** to transmit signals and data.
- ❖ These radio frequencies fall within specific ranges known collectively as the **electromagnetic spectrum**.
- ❖ Just as **oxygen is essential for human life**, access to spectrum is **vital for satellites** to remain operational and maintain communication with Earth-based stations.

#### **Allocation of Spectrum**

- ❖ The **electromagnetic spectrum bands** used for satellite communication are **allocated by the International Telecommunication Union (ITU)**.
- ❖ The most in-demand frequency bands include:
  - **Ku Band (12–18 GHz)** – Used for high-speed satellite internet
  - **Ka Band (26–40 GHz)** – Used for very high-capacity broadband services
  - **L Band (1–2 GHz)** – Used for GPS and navigation services
- ❖ The ITU allocates spectrum **only to satellites that occupy a specific physical orbital position in space**.
- ❖ This ensures that the signals broadcast by a satellite can **accurately reach the antennae of designated ground stations** without harmful interference.

### Role of Low Earth Orbit (LEO) Satellites

- ❖ **Low Earth Orbit (LEO) satellites**, positioned at altitudes of **150–2,000 km** above sea level, provide:
  - **Lower latency**
  - **Higher bandwidth**
 compared to traditional **geostationary satellites**, which orbit at **35,786 km** above Earth.
- ❖ LEO satellites typically offer a **latency of 20–24 milliseconds**, whereas geostationary satellites have latencies exceeding **600 milliseconds**.
- ❖ This low latency makes **real-time applications** such as:
  - telemedicine,
  - online education, and
  - digital governance
 more feasible in **remote and underserved regions**, especially where ground-based infrastructure is absent.

### Rapid Growth of Megaconstellations

- ❖ In the near future, the number of **satellite megaconstellations** is expected to grow significantly.
- ❖ **SpaceX** currently operates around **8,000 satellites**, with plans to expand to nearly **42,000 satellites**.
- ❖ Other major players such as **OneWeb**, **Amazon (Project Kuiper)**, and **China's Guo Wang** constellation are also rapidly increasing their satellite deployments.
- ❖ Consequently, the global **satellite megaconstellation market** is projected to grow from **USD 4.27 billion in 2024** to **USD 27.31 billion by 2032**.

### Impacts of the Spectrum Rush

- ❖ The intense competition for spectrum and orbital slots has several implications:
  - **Digital divide**, due to unequal access to satellite services
  - Rising **space debris**, increasing collision risks
  - Increased **regulatory burden on the ITU**, which must coordinate spectrum allocation and prevent interference

### **Sources of Greenhouse Gas (GHG) Emissions**

- ❖ According to the **UNEP Emissions Gap Report 2025**, the major global sources of greenhouse gas emissions are:
  - **Power sector** – 15.6%
  - **Transport** – 8.4%
  - **Industry** – 6.5%
  - **Fuel production** – 5.7%
  - **Buildings and others** – 3.6%
  - **Agriculture** – 6.3%
  - **Industrial processes** – 5.1%
  - **Land use and forestry** – 4.45%

- **Waste sector** – 2%

### **Human-Rated Launch Vehicles**

- ❖ **Human-rating** refers to the rigorous **engineering, testing, and certification process** that ensures a space system—such as a **launch vehicle or crew module**—can safely carry humans into space.
- ❖ A human-rated system is designed to maintain an **acceptable level of risk** for crewed missions.
- ❖ According to **NASA standards**, human-rated launch systems must limit the probability of a **catastrophic failure resulting in loss of crew to 0.2% (1 in 500)** during the **ascent and descent phases** of flight.
- ❖ As part of the human-rating process, engineers incorporate:
  - **Redundant critical systems**, such as triple or quadruple-redundant flight computers
  - **Robust abort capabilities** throughout ascent, including a **Crew Escape System**
  - **Fault tolerance** to withstand at least one critical system failure
  - **Reliable Environmental Control and Life Support Systems (ECLSS)** for the crew cabin
- ❖ Human-rated systems undergo **far more exhaustive testing, verification, and documentation** compared to expendable cargo launch vehicles, all aimed at achieving the prescribed crew-safety thresholds.

#### **Challenges of Human-Rating**

- ❖ Escaping **Earth's gravity** is far more extreme and unforgiving than atmospheric flight.
- ❖ During launch, rockets must:
  - Accelerate to approximately **28,000 km/h** within **8–10 minutes**
  - Endure **intense vibrations**
  - Withstand **extreme structural loads**, particularly at **maximum dynamic pressure (Max-Q)**
  - Transition rapidly from atmospheric flight into the **vacuum of space**
- ❖ In contrast, **commercial passenger aircraft**:
  - Cruise smoothly for hours at speeds below **1,000 km/h**
  - Operate with **large safety margins**
  - Can tolerate engine failures without catastrophe
  - Can glide or divert to alternative airports during emergencies
- ❖ Consequently, even the most reliable **orbital launch vehicles** achieve success rates of around **98–99.5%**, whereas **commercial aviation** has safety records approaching **one fatal accident per 10–20 million flights**.

#### **Currently Operational Human-Rated Launch Vehicles**

- ❖ As of today, the **fully operational human-rated launch vehicles** capable of transporting crew to Earth orbit are:
  - **Russia: Soyuz-2**

- **China:** *Long March-2F*
- **United States:** *SpaceX Falcon 9*
- ❖ In the United States:
  - **United Launch Alliance's Atlas V** completed a crewed test flight in **2024** using Boeing's **Starliner** crew capsule.
  - However, it is still awaiting **certification for routine operational crew-rotation missions**, pending post-flight technical reviews.
- ❖ **NASA's Space Launch System (SLS)** is also human-rated but has so far flown only one **uncrewed mission (Artemis I)** and is currently preparing for its **first crewed flight**.

#### **Russia's Soyuz Programme**

- ❖ Russia's **Soyuz spacecraft programme** is one of the most experienced and reliable human spaceflight systems in history.
- ❖ Since **1967**, it has completed **over 150 crewed missions** with an overall success rate of approximately **98%**.
- ❖ The programme suffered two early fatal accidents:
  - **Soyuz 1 (1967)**
  - **Soyuz 11 (1971)**
- ❖ However, in the modern era, Soyuz has been **nearly flawless** in delivering crews safely to orbit.
- ❖ The **Soyuz crew escape system** has successfully saved astronauts' lives in at least **three non-fatal launch failures**—in **1975, 1983, and 2018**.
- ❖ Since the **1971 incident**, the **crew safety success rate of the Soyuz programme has been 100%**, making it a benchmark in human spaceflight reliability.

#### **U.S. Space Shuttle Programme**

- ❖ The **U.S. Space Shuttle Programme** conducted **135 human spaceflight missions** between **1981 and 2011**.
- ❖ Out of these, **133 missions were successful**, giving the programme an overall **success rate of 98.5%**.
- ❖ The programme suffered **two catastrophic failures**:
  - **Challenger disaster (1986)**
  - **Columbia disaster (2003)**
- ❖ These two incidents resulted in the **only losses of vehicle and crew** during the programme's three-decade operational life.
- ❖ All other missions successfully achieved their **primary mission objectives**, including satellite deployment, space station construction, and scientific research.

#### **SpaceX Falcon 9 with Crew Dragon**

- ❖ The **SpaceX Falcon 9 rocket**, paired with the **Crew Dragon spacecraft**, has achieved a **100% success rate** across **20 orbital human spaceflights** to date.
- ❖ These missions include:
  - **NASA Commercial Crew Program rotations** to the International Space Station (ISS)
  - **Private crewed missions**, including the **Axiom-4 mission**

- ❖ The **Axiom-4 mission** was piloted by **Indian astronaut Subhanshu Shukla**, marking an important milestone for India's participation in private human spaceflight.
- ❖ The Falcon 9–Crew Dragon system is widely regarded as one of the **most reliable human-rated launch systems currently in operation**.

### **China's Shenzhou Human Spaceflight Programme**

- ❖ China's **Shenzhou human spaceflight programme**, operated by the **China Manned Space Agency (CMSA)**, uses the **Long March 2F** launch vehicle.
- ❖ Since its **first crewed mission in 2003**, the programme has completed **16 crewed orbital missions**.
- ❖ Until recently, the programme maintained a **perfect success record**.
- ❖ However, in **November 2025**, the **Shenzhou-20 mission** experienced damage due to **space debris**.
- ❖ Although the **crew returned safely aboard the Shenzhou-21 capsule**, the damaged **Shenzhou-20 capsule was left docked** at China's **Tiangong space station**.
- ❖ This incident highlighted the **growing threat of space debris** to human spaceflight operations.

### **Human-Rated Launch Vehicle for Gaganyaan**

- ❖ India's **first human spaceflight programme, Gaganyaan**, will use **ISRO's LVM3 rocket**, which has been upgraded to meet **human-rating standards**.
- ❖ Once certified, the rocket will be officially designated as **HLVM3 (Human-rated LVM3)**.
- ❖ To achieve human-rating, ISRO has:
  - Added **multiple backup and redundant systems**
  - Improved the **reliability of critical systems and subsystems**
  - **Strengthened engines** and conducted extensive qualification testing
  - Developed a **high-speed Crew Escape System (CES)** capable of rapidly pulling the crew module away in case of a launch emergency
- ❖ The HLVM3 features **fully indigenous propulsion systems**, including:
  - **Two Vikas liquid engines**
  - **C25 cryogenic engine**
  - **S200 solid rocket boosters**
- ❖ This indigenisation aligns with India's strategic objective of **self-reliance in human spaceflight**, under the **Atmanirbhar Bharat initiative**.

### **Agentic AI**

- ❖ **Agentic AI** refers to advanced artificial intelligence systems that can **act autonomously, set goals, and plan and execute complex tasks** with minimal human intervention.
- ❖ Unlike traditional AI systems that operate primarily on predefined instructions, Agentic AI:
  - Integrates **planning, reasoning, and action**
  - Can **adapt and learn** from changing environments

- Is capable of working **independently or collaboratively** to achieve defined objectives
- ❖ Agentic AI represents a shift from **reactive intelligence** to **goal-directed autonomous systems**, with potential applications across governance, defence, healthcare, and industry.

### **Methane Gas Emissions and India**

- ❖ **Methane** is a potent greenhouse gas that plays a significant role in **global temperature rise**.
- ❖ In the **first 20 years** after entering the atmosphere, methane produces approximately **84 times more warming** than an equivalent amount of carbon dioxide (CO<sub>2</sub>). However, unlike CO<sub>2</sub>, which has a long-term effect, methane's impact is relatively short-lived.
- ❖ Today, **around 30% of the observed increase in global temperatures** is attributed to methane emissions from human activities.
- ❖ For many years, climate change discussions largely **ignored methane**, but scientists and policymakers now acknowledge that **reducing methane emissions is crucial**.
- ❖ Slowing down the current rate of global warming can **mitigate crop losses, forest fires, extreme weather events, and rising sea levels**, all of which are among the most severe climate risks.

#### **Rising Methane Levels**

- ❖ The **concentration of methane in the atmosphere** has been increasing **faster than at any time since the 1980s**.
- ❖ This indicates that **urgent action to reduce methane emissions is needed**.
- ❖ Reducing methane emissions can deliver **immediate climate benefits**, which cannot be achieved by cutting CO<sub>2</sub> alone.

#### **Methane Emissions in India**

- ❖ Approximately **15% of India's methane emissions** arise from **waste mismanagement**.
- ❖ Unlike agriculture or energy sectors, these emissions **require complex and long-term interventions**.
- ❖ Targeted action, however, can provide **immediate benefits**, and the **national infrastructure and incentives**, such as the **Swachh Bharat Mission**, already support mitigation efforts.
- ❖ While methane is an **excellent fuel** for cooking, CNG vehicles, and electricity generation, its **uncontrolled release contributes significantly to global warming**.

#### **Identifying Emission Sources**

- ❖ Effective mitigation requires knowing **where the main sources of pollution are**, but methane is **invisible and hard to detect**.
- ❖ Traditionally, models **estimate emissions based on projected waste generation and baseline assumptions**.
  - However, these models rely on **accurate, regularly updated data**, which is often **lacking in developing countries**.

- Data collected at regional or national levels may not accurately identify **individual sources**.
- ❖ Another approach is **physical monitoring**, which is **expensive and logistically challenging**, requiring continuous observation and maintenance.

### Satellite Technology for Methane Monitoring

- ❖ Advances in technology have enabled **satellite-based monitoring** of methane emissions, overcoming many limitations of ground-based methods.
- ❖ Satellite data typically fall into **two categories**:
  1. **Regional measurements**: Cover a few kilometers, useful for **national trends** and repeated monitoring.
  2. **High-resolution detection**: Can identify **hotspots within a few meters**, crucial for **targeted interventions**.
- ❖ India has already taken **significant steps in this direction**.
  - In 2023, ISRO scientists used **satellite data** to determine **methane emissions across the country**.
  - Based on these measurements, **key hotspots** were identified:
    - Pirana (Ahmedabad)
    - Deonar and Kanjurmarg (Mumbai)
- ❖ A **committee was formed under the National Green Tribunal** to **verify these results through on-ground inspections** and ensure proper mitigation measures.

### **CarbonMapper Tanager**

- ❖ **CarbonMapper Tanager** is a climate-related project developed by **CarbonMapper**, an NGO, in collaboration with NASA's **Jet Propulsion Laboratory (JPL)**, **Planet Labs**, **California State University**, and several other organizations.
- ❖ The project uses a **satellite constellation named Tanager** to detect, measure, and monitor **methane and carbon dioxide emissions** worldwide.
- ❖ Through this system, "**super-emitters**" of greenhouse gases, such as **oil and gas facilities, landfills, and coal plants**, can be identified, and their emissions quantified.
- ❖ CarbonMapper employs **hyperspectral imaging technology**, capturing data in the **400–2500 nm wavelength range**, enabling **precise identification of methane and CO<sub>2</sub> sources**.
- ❖ All data collected by CarbonMapper is made **publicly available** for transparency and research.

### **Global Satellite Monitoring Platforms**

- ❖ In addition to CarbonMapper Tanager, several **new satellite missions** have emerged under international space research organizations (SROAs).

- ❖ These satellites provide **publicly accessible data** on major landfills and waste management sites across cities such as **Gazipur and Okhla (Delhi), Jawaharnagar (Hyderabad), and Dhapa (Kolkata)**.
- ❖ Platforms like **ClimateTrace** and **WasteMap** collect this data and integrate it with other baseline datasets to improve modeling accuracy.
- ❖ By combining **real-time satellite observations** with **landfill-specific emission estimates**, traditional calculation methods are refined to more accurately reflect actual emissions.

### **The Accuracy Problem**

- ❖ According to 2018 emission estimates, **India's entire solid waste sector** emitted approximately **1.07 million tonnes of CO<sub>2</sub> equivalent per year**.
- ❖ Recent satellite observations reveal that just **Gazipur and Bhalswa** contribute **0.85–0.96 million tonnes**, almost matching the theoretical national estimate for the entire sector.
- ❖ In **Mumbai**, calculations suggested that the Kanjurmarg landfill accounted for **11% of city waste emissions**, which aligned with engineering expectations. However, satellite data shows **1.05 million tonnes**, roughly **10 times higher than model estimates** and nearly **50% of Maharashtra's total solid waste emissions**.
- ❖ Similar discrepancies exist in **Ahmedabad**, where satellite data for the Pirana landfill estimates **0.60–0.81 million tonnes**, compared to the **state-level modeled estimate of 0.73 million tonnes**.

#### **Targeted Intervention Through Satellites**

- ❖ When satellites detect **methane hotspots**, ground teams can **investigate immediately**, whether the cause is **poor waste management, gas collection failure, or illegal dumping**.
- ❖ This creates a **powerful feedback loop**:
  - **Satellite detection** guides **targeted ground interventions**.
  - **Ground verification** improves the **accuracy of satellite monitoring**.
- ❖ Integrating other data sources further enhances the **efficiency of this loop**.
- ❖ At **open landfill sites** like Gazipur, recording disposal and recycling practices provides critical insights into **how human activities impact methane production**.
- ❖ At controlled landfills such as Jawaharnagar and Kanjurmarg, infrastructure and gas collection system data help **identify inefficiencies and unmonitored emission hotspots**.
- ❖ Cities like **Bengaluru**, with advanced waste management systems, are well-positioned to **integrate satellite data for enhanced transparency and accountability**.

#### **Coordinated Action for Effective Methane Management**

- ❖ To tackle this issue, action is needed on **three critical fronts**:
  1. **Expand satellite monitoring** to cover all major waste sites.
  2. **Establish on-ground verification systems** in metropolitan areas.

3. **Develop standardized data-sharing protocols** between urban local bodies and monitoring agencies.
  - Currently, many **urban local bodies operate independently**, which **hinders coordinated methane reduction efforts**.
  - However, the **revised municipal solid waste guidelines** provide a framework for a **centralized data portal** to manage wet waste, the **primary source of methane**, and link it to a **nationwide dataset for emissions monitoring**.
  - Regional authorities, such as **Commissions for Air Quality Management (CAQM)**, can oversee this monitoring, while programs like **Swachh Bharat Mission** can integrate methane targets with other central initiatives.

#### **Benefits and Strategic Potential**

- ❖ This **integrated approach** offers multiple **co-benefits**, attracting further investment.
- ❖ Methane's **energy potential** is already recognized, exemplified by **bio-CNG plants**, such as the one recently implemented in **Indore** using municipal waste.
- ❖ This strategy creates a **robust circular system**:
  - Satellites identify hotspots.
  - Ground teams verify and remediate emissions.
  - Centralized data sharing ensures that **decision-makers receive timely information**.
- ❖ By linking this approach to **waste management policies**, India can transform **one of its greatest environmental challenges** into a **smart climate solution**.

#### **Tesla's First Charging Station in India**

- ❖ **Location:** Gurgaon, India
- ❖ Features **V4 Superchargers** capable of delivering peak charging speeds of up to **250 kilowatts**, enabling **rapid vehicle recharges**.

#### **World's Largest Nuclear Reactor**

- ❖ The **Kashiwazaki-Kariwa Nuclear Reactor** in Japan holds the title of the **largest nuclear reactor in the world by installed capacity** at **7,965 MW**.
- ❖ Following the **Fukushima disaster**, it was **shut down**, along with all **54 nuclear reactors in Japan**.
- ❖ The Japanese government is **considering restarting operations from 2026**.

#### **India's Renewable Energy Ecosystem**

##### **Current Challenges**

- ❖ India's renewable energy sector currently faces several critical challenges:
  1. **Intermittency:** Renewable sources like solar and wind are not always consistent.
  2. **Dispatchability:** Difficulty in delivering renewable power in a **reliable and controllable manner**.

##### **Solutions**

- ❖ **Energy Storage:** Hybrid projects and battery-backed systems have already proven capable of providing **four or more hours of reliable electricity**, critical for industrial and commercial demand.
- ❖ **Green Hydrogen:**
  - Green hydrogen can play a **transformative role** in decarbonizing hard-to-abate sectors such as **steel, cement, fertilizers, and heavy transport**.
  - Combined with adequate storage, green hydrogen can **shift renewables from variable sources to base-load alternatives**, enabling **round-the-clock clean power**.
- ❖ **National Green Hydrogen Mission:** Targets **5 million tonnes of production by 2030**, which will significantly improve **grid stability, energy security**, and India's **global competitiveness** in clean energy manufacturing and exports.

### Investment Needs

- ❖ India's goal of **500 GW of non-fossil energy capacity by 2030** will require approximately **₹30 lakh crore**.
- ❖ Funding can be mobilized through **green bonds, blended finance structures, multilateral participation**, and growing interest from **global investors seeking stable long-term returns**.
- ❖ **Grid Integration:** Critical investments include:
  - Green energy corridors
  - Transmission network upgrades
  - Battery storage systems

## BIHAR

### Bihar November-December 2025

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ACHIEVERS' IAS ACADEMY, PATNA

## Economic Development of Bihar

❖ The economic development of a state is assessed on the basis of the following **four core dimensions**:

1. **Economic condition of the population**
2. **Health status**
3. **Education**
4. **Life expectancy**

### Key Indicators Used for Assessment

❖ Economic development is commonly measured using **three major indicators**:

1. **Human Development Index (HDI)**
2. **Social Progress Index (SPI)**
3. **Multidimensional Poverty Index (MPI)**

### Components of the Human Development Index (HDI)

❖ The Human Development Index is based on three indicators:

1. **Per Capita Income**
2. **Level of Education**
3. **Average Life Expectancy**
  - **Per capita income** reflects economic well-being.
  - **Life expectancy** represents health outcomes.
  - **Education level** indicates skill, efficiency, and human capability.

### Per Capita Income: Bihar vs India

- Bihar's **per capita income** (at constant 2011–12 prices) was **₹19,623** in **2004–05**, while the national average was **₹34,642**, indicating an income gap of **1.8 times**.
- In **2024–25**, Bihar's per capita income increased to **₹36,342**, whereas the national average rose to **₹1,87,970**.
- As a result, the income gap has widened to **more than five times**.

### Inter-District Income Disparity in Bihar

Significant income inequality exists not only between Bihar and India, but also **among districts within Bihar**:

- **Patna**: approximately **₹1,14,000** per capita income
- **Sheohar**: approximately **₹19,000** per capita income
- Only **three other districts**—**Begusarai, Munger, and Bhagalpur**—report per capita income above Rs **40,000**.

### Income Distribution: Caste-Based Survey 2023

According to the **Bihar Caste-Based Survey (2023)**:

- **63.73%** of households have a **monthly income below ₹10,000**.
- Income below ₹10,000 per month is observed among:
  - **62%** of Other Backward Classes (OBC)
  - **66%** of Extremely Backward Classes (EBC)
  - **72%** of Scheduled Caste (SC) households

### Poverty Status

- As per NITI Aayog's **Multidimensional Poverty Index (MPI)** report, **Bihar ranks as the poorest state in India**, with the highest proportion of multidimensionally poor population.

### Education Sector

- Public expenditure on education increased from **₹5,788 crore in 2007–08 to ₹42,810 crore in 2022–23**.
- Despite higher spending, only **22.8% of the population has completed primary education**, highlighting challenges in learning outcomes and retention.

### Health Indicators

According to **NFHS-4 and NFHS-5** data:

- Percentage of **anaemic children** increased from **63.5% (2015–16) to 69.4% (2019–20)**.
- Percentage of **anaemic women** rose from **58.3% (2015–16) to 63.4% (2019–20)**.
- Hospital bed availability** in Bihar stands at **1 bed per 5,500 people**, compared to the national average of **1 bed per 769 people**.

### Migration from Bihar (Census-Based)

- According to the **2011 Census**, approximately **74.54 lakh migrants from Bihar** were residing in other parts of India.
- Migration is primarily driven by **employment opportunities, income disparities, and limited industrial growth** within the state.

### Analysis of Sugar Mills in Bihar

#### Historical Background

- The **first sugar mill in Bihar** was established in **1904** at **Marhanda (Marhaura)** in **Saran district**.
  - It was the **second sugar mill in India**.
- By **1940**, Bihar had **more than 28 sugar mills**, making it one of the leading sugar-producing regions of the country.

#### Decline of the Sugar Industry (1960–1970)

- Between **1960 and 1970**, the condition of sugar mills in Bihar deteriorated significantly.
- During this period, **18 sugar mills were shut down**.
  - Out of these:
    - 15 mills** were under the **Bihar State Sugar Corporation Limited (BSSCL), Patna**.
    - 3 mills** belonged to the **BIC Group (Bihar India Corporation)**, a Government of India enterprise.

### Riga Sugar Mill

- The **Riga Sugar Mill** was established in **1932** at **Sitamarhi**.
- The mill was **closed in 2021**.
- It was **revived and restarted in 2024** by the **Chief Minister of Bihar**, marking an important step toward industrial revival.

### Sugar Production in Bihar

Year	Sugar Production
2017–18	71.54 lakh quintals
2018–19	84.02 lakh quintals
2019–20	72.29 lakh quintals
2020–21	46.22 lakh quintals
2021–22	45.60 lakh quintals
2022–23	62.74 lakh quintals
2023–24	68.77 lakh quintals

- Production declined sharply during **2020–22**, largely due to operational and economic challenges, but has shown **recovery since 2022–23**.

### Government Initiatives for Sugarcane Farmers

The Bihar government has undertaken several initiatives to support **sugarcane farmers**:

1. Under the **Chief Minister Sugarcane Development Programme**, an expenditure of **₹26 crore** was made in **2024–25** as part of the **Agricultural Road Map**.
2. A financial incentive of **₹2.5 lakh per hectare** is provided for **breeder seed production**, supported by **scientific institutions**, to improve cane productivity and quality.

### Present Status of Sugar Mills in Bihar

- Currently, **10 sugar mills** are operational in Bihar:
  - **8 mills in the private sector**
  - **2 mills in the public sector** (Government of India enterprises)

### Revival of Closed Sugar Mills

- To revive the **15 closed sugar mills** of the **Bihar State Sugar Corporation** and **two distilleries**, the state government has appointed **SBI CAPS (SBI Capital Markets)** as a **financial advisor**.
- The objective is to:
  - Modernize old infrastructure
  - Improve operational efficiency
  - Promote ethanol and allied by-products
  - Enhance farmers' income and employment opportunities

### **Bihar Council of Ministers Decision: Opening of New Sugar Mills**

- In the **Council of Ministers meeting held on 25 November 2025**, a decision was taken to:

- **Open 25 new sugar mills** in Bihar, and
- **Revive and restart 9 previously closed sugar mills** in different districts of the state.
- This decision aims to:
  - Boost the **sugar industry**
  - Support **sugarcane farmers**
  - Generate **employment**
  - Strengthen **rural and agro-based industrial development**

### **Bihar's Longest Bridge: Approved by the Central Government**

- The **Central Government** approved the financial sanction on **23 November 2025** for the **road-cum-bridge project** connecting **Bettiah (Manua Pul)** in Bihar with **Gorakhpur (Tiwari Patti, Kushinagar)** in Uttar Pradesh.
- The proposal has now been forwarded to the **Union Cabinet** for final approval.
- The **total length of the bridge** will be **12.036 km**, while the **total project length including approach roads** will be **29 km**.
- The bridge will be constructed over the **Gandak River**.
- The project will be executed under the **HAM (Hybrid Annuity Mode)**.
  - **60% of the project cost** will be borne by the **selected private agency**.
  - The remaining **40% will be funded by the Central Government**.
- After recovering the cost through **toll collection**, the selected agency will **hand over the bridge to the government**.
- This bridge will **reduce the distance between Bihar and Uttar Pradesh by about 35 km**.
- **Land acquisition for the project has been completed**.
- The **targeted completion period** of the project is **4 years**.

### **Industries and Land Bank in Bihar**

- As part of efforts to promote **industrial development**, the Bihar Government has initiated the process of acquiring **19,800 acres of land** through the **Bihar Land Development Bank**.
- For this purpose, the government has provided **₹2,000 crore** to the **Infrastructure Development Authority**.
- A **land bank of 15,000 acres** has already been prepared by the state government.
- During the **Bihar Business Connect 2025**, investment proposals worth **₹1.80 lakh crore** were received, reflecting growing industrial interest in the state.

### **Protem Speaker of Bihar**

- **Mr. Narendra Narayan Yadav (JDU)** took oath as the **Protem Speaker of the 18th Bihar Legislative Assembly**.
- The oath was administered by the **Governor of Bihar**.
- He is an **eight-time consecutive MLA** from **Alamnagar (Madhepura)** since **1995**.

## **New Age Economy in Bihar**

- On **25 November 2025**, during a meeting of the **Bihar Cabinet**, a target was set to build a **New Age Economy** in the state.
- To accelerate Bihar's changing development trajectory, the government has decided to promote a **technology- and service-driven innovation-based economy**, referred to as the **New Age Economy**.
- Bihar will be developed as a **global banking destination** and a **global workplace**.
- The state will be positioned as a **new technology hub of Eastern India**.

### **Key Initiatives under the New Age Economy**

- Establishment of the following infrastructure and ecosystems in Bihar:
  - **Defence Corridor**
  - **Semiconductor Manufacturing Park**
  - **Global Capability Centres (GCCs)**
  - **Mega Tech City**
  - **Fintech City**
- A decision has also been taken to establish the **Bihar Artificial Intelligence (AI) Mission Institute**.
- To prepare a detailed **action plan** for all the above initiatives, a **high-level committee** has been constituted under the **chairmanship of the Chief Secretary**.

## **Mukhyamantri Mahila Rozgar Yojana**

(Chief Minister Women Employment Scheme)

- **Till 29 November 2025**, an amount of **₹14,600 crore** has been transferred directly into the bank accounts of **1.56 crore beneficiaries** under this scheme.
- Prior to the elections, **1.46 crore women beneficiaries** received **₹10,000 each** in their bank accounts.
- Recently, **₹1.46 crore** has been transferred into the accounts of **10,000 women beneficiaries** under the scheme.

## **First Session of the 18th Bihar Legislature**

- The **winter session of the Bihar Legislature** will be held from **1 December to 5 December 2025**.

## **First Session of the 18th Bihar Vidhan Sabha**

- It was the **first session of the 18th Bihar Vidhan Sabha**.
- The newly constituted Assembly met after the general elections.

### **Deputy Speaker of Bihar Vidhan Sabha**

- **Narendra Narayan Yadav**, MLA from **Alamnagar (Madhepura)** representing the **Janata Dal (United)**, was elected as the **19th Deputy Speaker of the Bihar Vidhan Sabha**.
- **Abdul Bari** was the **first Deputy Speaker** of the Bihar Legislative Assembly during **1937–1939**.
- **Dev Sharan Singh** was the **first Deputy Speaker after Independence**, serving from **1946–1952**.
- The office of the **Deputy Speaker of the State Legislative Assembly** is provided under **Article 178 of the Constitution of India**.

### **Governor's Address to the Bihar Vidhan Sabha**

- As per the provisions of **Article 176 of the Constitution of India**, the **Governor of Bihar** addressed the first session of the newly constituted **18th Bihar Vidhan Sabha**.
- The Governor delivered this address on **3 December 2025**, after the general elections.

### **Supplementary Budget Presented in Bihar Vidhan Sabha**

- During the **first session of the Bihar Vidhan Sabha**, after the Governor's address, the **Finance Minister of Bihar** presented a **supplementary budget**.
- The supplementary budget amounted to **₹91,717.1135 crore**.
- Provision for a supplementary budget is made under **Article 205 of the Constitution of India**.
- Earlier, the state government had presented a budget of **₹3,16,825 crore** for the **financial year 2025–26**.
- Due to the launch of several new welfare schemes, additional financial allocation was required.

### **Major Allocations under the Supplementary Budget**

- **Mukhyamantri Mahila Rozgar Yojana**: Rs 21,000 crore
- **125 units of free electricity to consumers**: Rs 6,462 crore
- **Old Age Pension Scheme**: Rs 1,886 crore
- **Student Credit Card Scheme**: Rs 800 crore
- The supplementary budget was approved on **5 December 2025**.

### **Egg and Fish Production in Bihar**

- Compared to **2023–24**, the production of **eggs and fish** increased by **nearly 10% in 2024–25**.
- **Egg Production**:
  - 2023–24: **34,400 eggs per lakh population**
  - 2024–25: **37,838 eggs per lakh population (estimated)**

- In 2023–24, the **national annual growth rate of egg production** was **4.44%**, whereas **Bihar recorded a higher growth rate of 9.99%**.
- **Fish Production:**
  - 2023–24: **8.73 lakh tonnes**
  - 2024–25: **9.59 lakh tonnes**
  - Growth rate (2024–25): **9.85%**
- **Per capita fish availability in Bihar** increased from **8.73 kg to 9.50 kg**.

#### **Per Capita Availability of Livestock Products in Bihar**

Product	2023–24	2024–25
Milk	277 g/day	285 g/day
Eggs	27 per year	29 per year
Meat	3.19 kg/year	3.27 kg/year

#### **Bihar's National Contribution**

- **Milk production:** 5.41% (9th in India)
- **Meat production:** 4% (10th in India)
- **Egg production:** 2.5% (11th in India)
- **Fish production:** Bihar has become **self-reliant** (9th in India)

#### **Nitish Kumar's Name in the Guinness Book of World Records**

- The **Guinness World Records (London)** congratulated **Chief Minister Nitish Kumar** for becoming the **first person to take oath as Chief Minister for the 10th time since 1947**.
- His name will be officially recorded in the **Guinness World Records**, and a **certificate** will be issued.

#### **Patna Book Fair**

- The **Patna Book Fair** was organised from **5 December to 16 December 2025**.

#### **Patna Book Fair**

- Held from **5 to 16 December 2025**.

#### **Three New Departments in Bihar**

- The Bihar Government approved the establishment of **three new departments, one directorate, and one corporation**.

#### **New Departments:**

1. Youth, Employment and Skill Development Department
  2. Higher Education Department
  3. Civil Aviation Department
- Total departments increased from **45 to 48**.

#### **Renaming of Departments (Approved on 9 December):**

- Animal & Fisheries Resources → **Dairy, Fisheries and Animal Resources**

- Labour Resources → **Labour Resources & Migrant Welfare**
- Art, Culture & Youth → **Art & Culture**
- **New Directorates:**
- Mining Directorate (with sub-directorates: Mining & Safety)
- Exploration Directorate
- **New Corporation:**
- **Bihar Marketing Promotion Corporation**

### **Civil Defence Districts:**

- Existing: 28
- Newly added: **Gaya and Munger**
- Purpose: Disaster management and crowd control during major events.

### **Investment Plan of Rs 50 Lakh Crore in Bihar**

- Investor summits will be organized across major commercial centers worldwide.
- Focus on **Ease of Doing Business**.
- Establishment of:
  - 5 Mega Food Parks
  - 10 Industrial Parks
  - 100 MSME Parks
- Under **Mukhyamantri Udyami Yojana**, **44,073 entrepreneurs** received incentives.
- Integrated Manufacturing Cluster (IMC) over **1,700 acres** at **Dobhi (Gaya)** is under progress.
- IMCs will be developed in **29 more districts**, including **31 new industrial parks**.
- **₹26,000 crore** to be spent on rapid industrial development.

### **Development of Bihar in Recent Years**

- Industrial areas increased from **46 (2005)** to **94 (2025)**.
- Industrial units increased from **1,674 (2005)** to **3,500 (2025)**.
- Exports increased from **₹25 crore (2005)** to **₹6,000 crore (2025)**.
- MSME units increased from **72,000 (2005)** to **35 lakh (2025)**.
- Contribution of industries to GSDP increased from **5.4%** to **over 21%**.
- A **high-level committee** has been formed to monitor:
  - Defence Corridor
  - Semiconductor Park
  - Global Capability Centres
  - Mega Tech City
  - Fintech City
- Bihar is being developed as a **Global Banking & Workplace Hub**.

### **Bihar Industrial Security Force (BISF)**

- On the pattern of the **Central Industrial Security Force (CISF)**, a new force named **Bihar Industrial Security Force (BISF)** will be constituted.
- The formation of this force is part of the Bihar Government's recent initiatives to promote **industrialization** in the state.
- Bihar has taken major steps such as:
  - Development of **Special Economic Zones (SEZs)**
  - Establishment of **Industrial Parks**
  - Setting a target of **₹50 lakh crore investment**
- BISF will be responsible for providing security to **industrial areas and key economic installations**.

### **Establishment of 100 Fast Track Courts in Bihar**

- To create **fear of law among criminals**, ensure **speedy punishment**, and provide **quick justice to victims**, the Bihar Government has decided to establish **100 Fast Track Courts**.
- Out of these:
  - **79 Fast Track Courts** will deal specifically with cases related to the **Arms Act**.

### **Chief Minister's Inspection of Buxar Industrial Hub**

- On **8 December**, the **Chief Minister of Bihar** inspected several industrial units located in **Nawanagar Industrial Area, Buxar**.
- **Nawanagar Industrial Area:**
  - Total area: **439 acres**
  - Allotted land: **337 acres**
  - Vacant land: **45 acres**

#### **Major Industrial Units:**

- Varun Beverages' **PepsiCo Bottling Plant**
- **Bharat Plus Ethanol Pvt. Ltd.**
- **Coca-Cola and Water Bottling Plant** of SLMG Beverages
- The Chief Minister also inspected the **proposed SEZ**, spread across **125 acres**.

### **Abhaya Police Brigade**

- **Abhaya Police Brigade** has been constituted in **Bihar** to enhance women's safety.
- The brigade will be deployed in **every police station**.
- Composition of the brigade:
  - **4 police officers per police station**
  - Led by a **Woman Sub-Inspector**
  - Includes:
    - **1 Woman Constable**
    - **2 Male Constables**

### **Funds Received by Bihar under the 15th Finance Commission**

- **2022–23:** Rs 4,109 crore
- **2023–24:** Rs 3,842 crore
- **2024–25:** Rs 3,855 crore
- **2025–26 (till date):** Rs 11,806 crore

### **AIDS Patients in Bihar**

- According to **A.K. Gupta**, Additional Project Director, **Bihar AIDS Control Society**:
  - **Patna:** 1,200 AIDS patients
  - **East Champaran:** 400 patients
  - **West Champaran:** 340 patients

### **Civil Services Incentive Amount (Bihar Government)**

- Female candidates who **qualify for the first time** in the **Preliminary Examination** of the **BPSC Combined Competitive Examination** are provided financial assistance for **Main Examination preparation**.
- An incentive amount of **₹50,000** is given through the **Bihar State Women Development Corporation**.
- This benefit has been provided **from the 67th BPSC examination onwards**.
- Up to the **70th BPSC examination**, a total of **3,462 female candidates** have received this incentive.

### **ISO Certification to Bihar Board**

- The **Bihar School Examination Board (BSEB)** has become **India's first education board** to receive **ISO certification**.
- The certification has been granted under **three categories**:
  - 1. Quality Management System**  
**ISO 9001:2015**
    - The process of granting recognition to **Matric and Intermediate level schools** has become **reliable and standardized**.
    - **No delay in result declaration** has been ensured.
  - 2. Information Security Management System**  
**ISO/IEC 27001:2022**
    - Excellence in **secure and timely result declaration**.
    - **Online Facilitation System for Students (OFS)** has been implemented for **Class 11 admissions**.
  - 3. Records Management System**  
**ISO 15489-1:2016**
    - Academic and administrative data from **1983 to 2025** has been **digitized and made available online**.

### **Formation of Committees of the Bihar Legislative Assembly**

- After the completion of the term of the **17th Bihar Legislative Assembly on 19 November**, and following the formation of the **18th Legislative Assembly**, the **Speaker of the Assembly** constituted **19 Legislative Committees**.

### **Committees Chaired by the Speaker**

1. Rules Committee
  2. General Purposes Committee
  3. Business Advisory Committee
  4. Privileges Committee
- The **Deputy Chief Ministers, Parliamentary Affairs Minister Vijay Kumar Chaudhary**, and **Energy Minister Bijendra Yadav** have been appointed as members.
  - The **Chief Minister** is also a member of the **Business Advisory Committee**.

### **Other Important Committees and Chairpersons**

5. Public Accounts Committee (PAC): **Bhai Virendra (RJD)**
6. Estimates Committee: **Nitish Mishra**
7. Committee on Public Undertakings: **Hari Narayan Singh**
8. Petition Committee: **Janki Singh**
9. Committee on Government Assurances: **Damodar Rawat**
10. Questions & Call Attention Committee: **Amrendra Kumar Pandey**
11. District Council & Panchayati Raj Committee: **Shailesh Kumar (Bulo Mandal)**
12. SC & ST Welfare Committee: **Santosh Kumar Nirala**
13. Requests Committee: **Siddharth Gaurav**
14. Women & Child Development Committee: **Ashwamedh Devi**
15. Ethics Committee: **Sanjeev Chaurasia**
16. Environment Protection & Pollution Control Committee: **Avdhesh Singh**
17. Minority Welfare Committee: **Akhtarul Iman**
18. Tourism Industry Committee: **Manoranjan Singh**
19. Bihar Heritage Development Committee: **Renu Devi**
- Prison Reform Committee: **Nisha Singh**

### **Committees Yet to Be Constituted**

20. Library Committee – NA
21. Delegated Legislation Committee – NA
22. Internal Resources & Central Assistance Committee – NA
23. Housing Committee – NA
24. Private Bills & Resolutions Committee – NA
25. Agriculture & Agro-Industry Development Committee – NA
26. Zero Hour Committee – NA

### Butterfly Park, Patna

- **Butterfly Park** is a **proposed ecological park** located **opposite Sabhyata Dwar**, Patna.
- It will be a part of the **7 km long Samagra Udyan Project**.
  - **First phase estimated cost: ₹387 crore**

#### Key Features:

- Designed as an **8-hectare ecological zone**.
- Plantation of **host plants** to attract **diverse butterfly species**.
- Will provide **educational and interactive experiences** for:
  - Children
  - Nature lovers
- Aims to promote **biodiversity conservation**.

#### Unique Theme:

- Inspired by **traditional Indian astronomy** and the **27 constellations (Nakshatras)**.
- Integrates **cultural heritage with environmental awareness**.

### Social Security Pension in Bihar

- The **Social Security Pension amount in Bihar** has been increased from **Rs 400 to Rs 1,100 per month**.
- As a result, approximately **1 crore 13 lakh pension beneficiaries** in the state have benefited from this decision.

#### Pension Schemes: Beneficiaries and Expenditure

Pension Scheme	Beneficiaries (Rs in lakh)	Amount (Rs crore)
Indira Gandhi National Old Age Pension Scheme	35.38	389.31
Chief Minister Old Age Pension Scheme	51.98	585.87
Indira Gandhi National Widow Pension Scheme	6.36	70.32
Laxmibai Social Security Pension Scheme	8.82	97.98
Indira Gandhi National Disability Pension Scheme	1.10	12.14
Bihar Disability Pension Scheme	9.78	108.33
<b>Total</b>	<b>113.42</b>	<b>1,263.95</b>

### Resignation of Nitin Naveen from Ministerial Post in Bihar

- Nitin Naveen resigned from his post as **Minister for Road Construction and Urban Development & Housing** in Bihar.
- The resignation followed his appointment as **Working President of the BJP**.
- After his resignation:
  - **Deputy Chief Minister Vijay Kumar Sinha** was given charge of the **Urban Development Ministry**.
  - **Dilip Jaiswal** was assigned the **Road Construction Ministry**.

### Saat Nischay – 03

- The **Saat Nischay – 03 Scheme** for the period **2025–2030** was approved by the **Bihar Cabinet on 16 December 2025**.
- Duration of earlier schemes:
  - **Saat Nischay – 01:** 2015–2020
  - **Saat Nischay – 02:** 2020–2025

#### Seven Pillars of Saat Nischay – 03

1. Double Employment – Double Income
  2. Prosperous Industry – Empowered Bihar
  3. Progress in Agriculture – National Prosperity
  4. Quality Education – Bright Future
  5. Accessible Healthcare – Secure Life
  6. Strong Infrastructure – Modern Expansion
  7. Dignity for All – Livelihood Support
- The first two phases focused on **basic infrastructure**, such as **electricity to every household**.
  - The third phase aims to transform **Bihar into a developed state**.

### India's Widest Bridge on the Aunta–Simaria River

- The bridge was **inaugurated on 22 August 2022**.
- **Width:** 34 meters  
(*The usual width of bridges is about 29.5 meters.*)
- It is a **modern engineering marvel** featuring:
  - **Extradosed cable-stayed design**
  - **Smart bridge technology** (CCTV cameras and LED lighting)
- The bridge is supported by **18 piers**.
- It has **three lanes on each side**.

### Chief Justice of Patna High Court in 2025

- **Justice Sangam Kumar Sahu**, Judge of the **Odisha High Court**, was recommended by the **Supreme Court Collegium** for appointment as **Chief Justice of the Patna High Court**.
- After the retirement of **Justice P. B. Bajanthri** on **22 October 2025**:
  - **Justice Sudhir Singh**, the senior-most judge, was appointed **Acting Chief Justice** on **23 October 2025**.
- In 2025, multiple appointments of **Chief Justices and Acting Chief Justices** took place in the Patna High Court.
- **Justice Ashutosh Kumar** was also appointed as **Acting Chief Justice**.
- The position became vacant after **Justice Krishna Vinod Chandran** was elevated to the **Supreme Court of India** (he served as Chief Justice until **15 January 2025**).
- On **21 July 2025**, **Justice Vipul Manubhai Pancholi** was appointed Chief Justice and served until **28 August 2025**.
- With effect from **29 August 2025**, **Justice P. B. Bajanthri** was appointed as **Chief Justice of the Patna High Court**.

### Wetlands in Bihar

- **Kanwar (Kabar) Lake**, located at **Jai Manglagarh in Begusarai district**, was declared a **Bird Sanctuary** through a notification issued on **24 June 1989**.
- The **area of the sanctuary** is **420.48 hectares**.
- Under **Rule 4(2) of the Wetlands (Conservation and Management) Rules, 2017**, **no construction activity is permitted without prior approval** in wetlands and bird sanctuaries.

### Solid Waste Management in Patna

- For **solid waste management in Patna**, an amount of **₹243 crore** has been allocated for the year **2025–26**.
- This allocation has been made under the **15th Finance Commission recommendations**, specifically under the “**Million Plus Cities**” scheme.

### Land Bank and Special Economic Zones (SEZs) in Bihar

- To promote **industrial development**, a **Land Bank of 15,000 acres** has been prepared in Bihar during the current year.
- In addition, **two Special Economic Zones (SEZs)** are being developed in Bihar:
  - **Buxar**
  - **Bettiah**
- Each SEZ will cover an area of **250 acres**.

## **Mukhyamantri Mahila Rozgar Yojana (Chief Minister Women Employment Scheme)**

- Under this scheme, **Rs10,000 each** has been transferred to **1 crore 56 lakh women beneficiaries** so far.
- Applications have been invited till **31 December** from **Jeevika-associated women** for the remaining **2.10 lakh beneficiaries**.

## **First Turmeric Corridor of Bihar**

- Bihar's **first Turmeric Corridor** will be established on **1,000 acres of land** at **Sakra (Sakara)** in **Muzaffarpur district**.
- The corridor will focus on the cultivation of '**Lakadong**' turmeric, regarded as **one of the world's finest and most expensive turmeric varieties**.
- **Seeds will be sourced from the Jaintia Hills of Meghalaya**.
- Lakadong turmeric is especially valued for **pharmaceutical and nutraceutical uses** due to its:
  - Anti-inflammatory properties
  - Anti-oxidant qualities
  - Benefits for respiratory health and immunity enhancement
- It contains **high curcumin content (around 12%)**, compared to **2–5% in common turmeric varieties**.
- **M-CAD (Modernisation of Command Area Development)** irrigation methods will be adopted, including:
  - Pressurised pipeline systems
  - Sprinkler irrigation
  - Modern water-management facilities

### **Rajendra Sonia Turmeric (Bihar)**

- The '**Rajendra Sonia**' turmeric variety from **Samastipur district** is likely to stake a claim for a **Geographical Indication (GI) tag**.
- It contains **7–8% curcumin** (reported up to **8.4% by the Indian Institute of Spices Research**).

### **National and Global Context of Turmeric**

- To address issues related to turmeric, the **National Turmeric Board (NTB)** was officially established and notified on **4 October 2023** under the **Ministry of Commerce and Industry**.
  - **Headquarters:** Nizamabad, Telangana (known as the *Turmeric Capital*).
- **India is the world's largest producer and exporter of turmeric**.
  - Production in **2024–25: 11.6 lakh tonnes**
  - Exports in **2024: 1.17 lakh tonnes**
  - India contributes **over 70% of the global turmeric supply**.
- India has set a target to **double turmeric production to 20 lakh tonnes within five years**.

- **Six Indian turmeric varieties** have already received **GI tags**, each with distinct characteristics.
- **Curcumin content** is the primary determinant of turmeric's global market value.
  - International buyers prefer varieties with **more than 5% curcumin**, with premium prices for higher concentrations.

#### **Turmeric Cultivation Potential of Bihar**

- Bihar has a **warm, humid climate and fertile loamy soil**, making it suitable for turmeric cultivation.
- Despite this, the state currently contributes **less than 1%** to India's total turmeric production.
- Recognising this untapped potential:
  - **Samastipur district** has been selected under the **"One District One Product (ODOP)"** initiative for turmeric promotion.
- The **Rajendra Sonia variety** offers:
  - High yield
  - Short crop duration
  - High curcumin content
- However, **Bihar has not yet fully capitalised on its turmeric potential.**

#### **Supercomputers in Bihar**

- The functioning of the newly established supercomputer **"Rudra"** began on **26 December 2025** at the **IIT Patna campus.**
- **Computing Capacity:**
  - **838 teraflops**
  - Equipped with **180 high-performance computing nodes**, including **GPU nodes** and **high-memory nodes**
- It also includes a **petabyte-scale high-speed storage facility.**
- More than **50%** of its components are **indigenous**, making it largely **Made in India.**
- Its **software stack has been developed by C-DAC (Centre for Development of Advanced Computing).**
- The supercomputer is part of the **National Supercomputing Mission (NSM).**
  - Under this mission, **37 supercomputers** have been installed across India with a **combined capacity of 39 petaflops.**
- Bihar also hosts another supercomputer, **"Param Buddha"**, installed at **C-DAC, Patna.**
  - **Cost:** Rs 4.50 crore

#### **Medical Colleges in Bihar**

- Bihar currently has **11 medical colleges.**
- From **January 2025**, the number will increase to **13** with the inauguration of:
  1. **Medical College and Hospital, Mahua** (Vaishali district)
  2. **Veer Kunwar Singh Medical College and Hospital, Ara** (Bhojpur district)
- Each of these new institutions will have:

- **100 MBBS seats**
- **500-bed hospital capacity**
- The **13 medical colleges and hospitals** are spread across **11 districts**, out of which:
  - **Three are located in Patna**

### **Thermal Power Plant at Barauni**

- At **Barauni**, two **110 MW units** were operating after **modernisation and renovation**.
- In addition, **two units of 250 MW each** were established earlier.
- On **15 December 2018**, the **Bihar government handed over the responsibility of these units to NTPC**.
- Since the operational life (**25 years**) of both **110 MW units** was completed, they were **shut down on 31 March 2024**.
- The government has now decided to establish an **800 MW ultra-supercritical thermal power unit** at the same site.
  - Subject to land availability, this capacity may be increased to **1,000 MW**.
- During the current year, Bihar recorded its **highest electricity demand of 8,752 MW**.

### **Bioremediation: New Plastic-Degrading Bacterium Discovered by a Bihar Scientist**

- ❖ **Plastic pollution** has emerged as a major **global environmental and climate challenge**.
- ❖ **Bioremediation** is considered a **promising approach** for plastic degradation and pollution management.
- ❖ A research study published in the international journal "**Frontiers in Microbiology**" (Impact Factor: **4.5**), based in Switzerland, reports a significant discovery.
- ❖ **Rajkumar Sardar**, a researcher from the **Department of Environmental Science, Central University of South Bihar (CUSB)**, has discovered a **new bacterium capable of degrading medium-weight plastic**.
- ❖ The newly identified bacterium is named *Metabacillus neibensis*.
  - It belongs to the category of **extremophilic bacteria**.
- ❖ The bacterium was identified from among **approximately 300 marine isolates**, which were evaluated for plastic-degrading capacity.
- ❖ Identification was confirmed using:
  - **Cellular fatty acid profiling**
  - **RNA gene sequence homology**
- ❖ According to the study:
  - The bacterium achieved a **plastic degradation rate of 3.3% within 30 days**.
  - Previously known naturally occurring plastic-degrading bacteria had shown a maximum degradation rate of only **1.5%**.
- ❖ Earlier, the same researcher had discovered another bacterium, *Micrococcus flavus*, which could degrade plastic at a rate of **1.82%**.

- ❖ These bacteria undergo **internal metabolic remodeling**, leading to the production of **enzymes that break down plastic polymers**.
  - Plastic is degraded into smaller fragments
  - These fragments are used by bacteria as a **source of carbon and energy**
  - As a result:
    - The **molecular weight of plastic decreases**
    - The **biomass of the bacteria increases**
- ❖ India generates approximately **94 million tonnes of plastic waste annually**, making it the **largest plastic polluter in the world**.

### **Expressways in India and Bihar**

- ❖ There are a total of **9 expressways in India**.
- ❖ **Uttar Pradesh has the highest number of expressways**.
- ❖ Among these, **one expressway is in Bihar — the Patna–Purnia Expressway**.
- ❖ All these are **National Expressways**.
- ❖ In addition to national expressways, **State Expressways** are also developed by state governments.
- ❖ Apart from the **Patna–Purnia Expressway**, Bihar has plans to develop **four more expressways**:
  1. **Gorakhpur–Siliguri Expressway**
  2. **Raxaul–Haldia Expressway**
  3. **Buxar–Bhagalpur Expressway**
  4. **Varanasi–Kolkata Expressway**
- These expressways will be developed under the “**Saat Nishchay–03**” (Seven Resolves Phase-3) scheme.

### **Solid Waste Management in Patna**

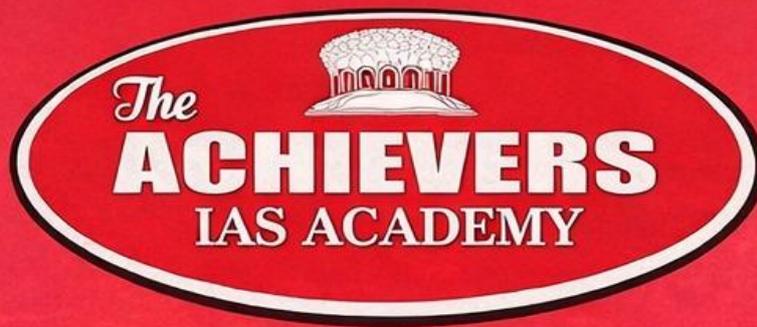
- ❖ For **solid waste management in Patna**, an allocation of **₹243 crore** has been made for the year **2025–26**.
- ❖ This allocation has been provided under the “**Million Plus Cities**” scheme based on the recommendations of the **15th Finance Commission**.

### **Land Bank and Special Economic Zones (SEZs) in Bihar**

- ❖ To promote industrial development in Bihar, a **land bank of 15,000 acres** has been prepared during the current year.
- ❖ In addition, **two Special Economic Zones (SEZs)** are being developed in Bihar:
  - **Buxar**
  - **Bettiah**
- ❖ Each SEZ covers an area of **250 acres**.
  - Financial Burden Due to Change in VB–GRAMG Cost Sharing Pattern

- ❖ Due to the change in **Centre–State cost sharing pattern** under **VB–GRAMG**, from **75:25 to 60:40**, Bihar will face an **additional financial burden of Rs 2,800 crore per year**.
- ❖ In the financial year **2023–24**, the total expenditure under **MGNREGA** was Rs **8,390 crore**, out of which:
  - Rs **540 crore** was contributed by the **Bihar government**
- ❖ If expenditure is calculated under the revised sharing pattern, Bihar's contribution would rise to Rs **3,355 crore**.
- ❖ This would mean an **additional burden of Rs 2,815 crore** on the state government.

ACHIEVERS' IAS ACADEMY, PATNA



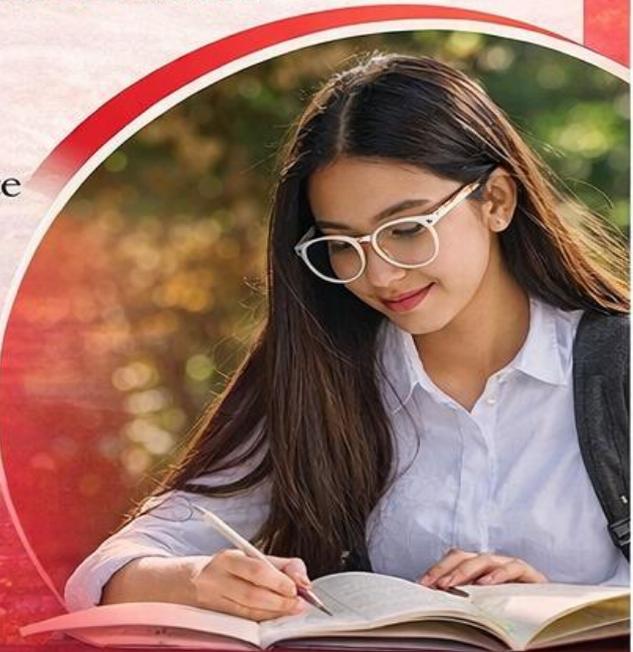
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