



CURRENT AFFAIRS MONTHLY MAGAZINE

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POLITY & GOVERNANCE

1.1. PRESIDENT'S RULE: ARTICLE 356 AND CONSTITUTIONAL MACHINERY

Context:

Recently, the Union Government issued a notification **revoking President's Rule in Manipur** on February 4, 2026, following nearly a year of direct central administration. This move comes after the election of **Yumnam Khemchand Singh** as the leader of the ruling party, paving the way for the restoration of a popular elected government in the state.



1. Constitutional Provisions

- **Article 355:** Imposes a duty on the Union to protect every state against external aggression and internal disturbance and to ensure that the government of every state is carried on in accordance with the provisions of the Constitution.
- **Article 356:** Empowers the President to issue a proclamation if they are satisfied (based on a report from the Governor or “otherwise”) that a situation has arisen where the state government cannot be carried on in accordance with the Constitution.
- **Article 365:** Provides that whenever a state fails to comply with or give effect to any direction from the Centre, it shall be lawful for the President to hold that a situation has arisen in which the government of the state cannot be carried on in accordance with the Constitution.

2. Parliamentary Approval and Duration

- **Approval Timeline:** A proclamation must be approved by both Houses of Parliament within **two months** from the date of its issue.
- **Majority Required:** It must be approved by a **Simple Majority** (majority of the members of that House present and voting).
- **Initial Period:** Once approved, it continues for **six months**. It can be extended for a maximum period of **three years** with repeated parliamentary approval every six months.
- **44th Amendment Act (1978) Restraint:** Extension beyond one year is only possible if:
 - A Proclamation of **National Emergency** is in operation in the whole of India or the state.
 - The **Election Commission** certifies that the holding of general elections to the legislative assembly is difficult.

3. Consequences of President's Rule

- **Executive Power:** The President dismisses the state council of ministers headed by the chief minister. The **Governor**, on behalf of the President, carries on the state administration with the help of the chief secretary or advisors appointed by the President.
- **Legislative Power:** The state legislative assembly is either **suspended or dissolved**. The Parliament passes the state legislative bills and the state budget.

- **Judicial Power:** The President **cannot** assume the powers vested in the High Court or suspend the operation of any constitutional provisions relating to High Courts.

4. Judicial Review: S.R. Bommai Case (1994)

The Supreme Court laid down several guidelines to prevent the misuse of Article 356:

- The proclamation is subject to **judicial review**.
- The satisfaction of the President must be based on **relevant material**.
- The burden of proof lies on the Centre to justify the imposition.
- If the court finds the proclamation unconstitutional, it has the power to **revive the dismissed state government** and restore the dissolved assembly.
- The state assembly should be dissolved **only after** Parliament has approved the proclamation.

5. Comparison between National Emergency and President Rule

Feature	National Emergency (Article 352)	President’s Rule (Article 356)
Grounds of Imposition	War, External Aggression, or Armed Rebellion .	Failure of Constitutional Machinery in the state (Art. 356) or failure to comply with Union directions (Art. 365).
Scope	Can be applied to the entire country or a part of it.	Applied only to a specific state .
Parliamentary Approval	Must be approved within one month .	Must be approved within two months .
Majority Required	Special Majority (50% of total + 2/3rd of members present & voting).	Simple Majority (Majority of members present and voting).
Maximum Duration	Indefinite (with 6-monthly approval).	Maximum 3 years (with 6-monthly approval).
State Government	State executive and legislature continue to function , but the Centre gets concurrent power.	State Executive is dismissed ; State Legislature is suspended or dissolved .
Fundamental Rights	Affects Fundamental Rights (Art. 358 & 359). Art. 20 & 21 can never be suspended.	No effect on Fundamental Rights of citizens.
Law-making Power	Parliament can make laws on State List; power cannot be delegated to others.	Parliament can make laws on State List and can delegate this power to the President.
Revocation	Can be revoked by the President or by Lok Sabha passing a resolution for disapproval.	Can be revoked by the President alone . No specific provision for Lok Sabha to force revocation.

1.2. REMOVAL PROCESS OF THE CHIEF ELECTION COMMISSIONER (CEC)

Context:

Recently, the political discourse in India has intensified following a series of public confrontations between the Election Commission and opposition parties over the **Special Intensive Revision (SIR)** of electoral rolls. West Bengal Chief Minister Mamata Banerjee has publicly suggested her party would support an **impeachment motion** against the current Chief Election Commissioner, Gyanesh Kumar, alleging bias and “insulting” behavior during meetings.



1. Constitutional Basis (Article 324)

The Constitution of India ensures the independence of the Election Commission through specific tenure protections.

- **Article 324(5):** This article explicitly states that the Chief Election Commissioner shall not be removed from office except in **like manner and on the like grounds** as a Judge of the Supreme Court.
- **Grounds for Removal:** The only two grounds for removal are “**Proved Misbehaviour**” or “**Incapacity**.”

2. The Parliamentary Procedure

While the term “impeachment” is colloquially used, the technical process is a **Removal Motion** governed by the **Judges (Inquiry) Act, 1968**:

- **Initiation:** The motion must be signed by at least **100 members** in the Lok Sabha or **50 members** in the Rajya Sabha.
- **Investigation:** The presiding officer (Speaker or Chairman) may admit or refuse the motion. If admitted, a **three-member committee** (comprising a Supreme Court judge, a Chief Justice of a High Court, and a distinguished jurist) investigates the charges.
- **Voting (Special Majority):** If the committee finds the CEC guilty, the motion must be passed by **each House** of Parliament with a **Special Majority**:
 - A majority of the **total membership** of that House.
 - A majority of not less than **two-thirds of the members** of that House **present and voting**.
- **Presidential Order:** Once passed by both Houses in the same session, an address is presented to the President, who then issues an order for removal.

3. CEC vs. Other Election Commissioners

There is a significant constitutional asymmetry in the removal process:

- **The CEC:** Enjoys the “Supreme Court Judge” level of protection described above.
- **Other ECs:** Can be removed by the President simply on the **recommendation of the Chief Election Commissioner**. They do not require a parliamentary motion or a special majority.

4. Recent Legislative Framework

The **Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023**, retains these removal protections. It further equates the salary, allowances, and service conditions of the CEC and ECs to that of a **Supreme Court Judge** (previously equated to a Cabinet Secretary in the initial draft of the Bill).

1.3. REMOVAL OF JUDGES

Context: In December 2025, 107 Lok Sabha MPs submitted a notice seeking removal of **Justice G.R. Swaminathan, Madras High Court**, citing **13 charges**, including: Alleged violation of **secular constitutional principles** & Alleged bias favouring a particular community

Constitutional Provisions of Removal

- **The Term 'Impeachment':** Strictly speaking, the Constitution uses the word "Impeachment" **only for the President** (Article 61). For judges, the Constitution uses the term **"Removal."**
- **Articles Involved:**
 - **Supreme Court Judges:** Articles 124(4) and 124(5).
 - **High Court Judges:** Articles 217(1)(b) and 218 (which states the procedure for SC judges applies to HC judges).
- **Legislative Framework:** Under Article 124(5), Parliament enacted the **Judges (Inquiry) Act, 1968** and the **Judges Inquiry Rules** to regulate the procedure for investigation and proof of misbehaviour.



Grounds for Removal of Judges

A judge can be removed only on two grounds:

1. **Proved Misbehaviour:** Not defined in the Constitution but interpreted by the SC as conduct bringing dishonour to the judiciary, corruption, or lack of integrity.
2. **Incapacity:** Physical or mental inability to perform duties.

Judicial Interpretations of "Misbehaviour":

- **K. Veeraswami vs. Union of India (1991):** Standard of judicial behavior is absolute; deviation is a betrayal of public trust.
- **M. Krishna Swami vs. Union of India (1992):** Every error of judgment is not misbehaviour. It requires mens rea (guilty mind), wilful misconduct, or moral turpitude.

The Removal Process of Judges of the Supreme Court:

1. Initiation (The Notice):

- A motion signed by at least **100 members (Lok Sabha)** or **50 members (Rajya Sabha)** is submitted to the Presiding Officer (Speaker/Chairman).

2. Admission Stage (The "Threshold" Power):

- The Speaker/Chairman has the discretion to **admit or refuse** the motion.
- Note: In this capacity, the Speaker acts as a **statutory authority**, not just a presiding officer. This decision can be challenged in court.

3. Investigation (Three-Member Committee):

- If admitted, the Speaker/Chairman appoints a committee:
 - A Supreme Court Judge.
 - A Chief Justice of a High Court.
 - A Distinguished Jurist.

4. Parliamentary Vote (The "Address"):

- If the committee finds the judge guilty, the House takes up the motion.
- **Required Majority (Special Majority):**
 - Majority of the **Total Membership** of each House, AND
 - The majority of **not less than 2/3rds** of members **present and vote**.

5. Presidential Order:

- Once passed by both Houses in the same session, the address is sent to the President, who passes an order for removal.

Challenges regarding judicial removal

1. The "Gatekeeper" Bottleneck

- **Absolute Discretion:** The Speaker/Chairman can reject a motion at the threshold even if it has the required 100/50 signatures.

2. Political Shielding

- **Executive-Legislative Nexus:** Since the Speaker/Chairman usually represents the ruling party, a judge perceived as "pro-establishment" can be shielded from investigation.
- **Numbers Game:** The requirement for a **Special Majority** (2/3rds present and voting) turns a legal inquiry into a political consensus-building exercise, which is rarely achieved in a polarized Parliament.

3. Definitional Vagueness

- **Undefined "Misbehaviour":** The Constitution leaves "misbehaviour" undefined. This lack of a clear legal yardstick allows for subjective interpretation by both the political class and the inquiry committee.

4. Procedural Rigidity

- **Lapsing Motions:** If the Lok Sabha dissolves before the process is completed, the motion lapses, allowing a judge under a cloud of suspicion to continue in office.

Way Forward

1. Institutionalize Graduated Sanctions: Move away from the "all-or-nothing" approach.

- Implement a mechanism for **minor punishments** (censure, suspension from judicial work) for lapses that do not warrant full removal but damage the court's dignity.

2. Reform the Admission Stage: Amend the **Judges (Inquiry) Act, 1968** to mandate that the Speaker/Chairman must issue a "**Reasoned Order**" when rejecting a motion.

- This ensures the decision is objective and subject to **Judicial Review**, preventing political shielding.

3. Statutory Code of Conduct: Formally codify the "**Restatement of Values of Judicial Life**" (1997) into law.

- Clear statutory definitions for "**misbehaviour**" and "**incapacity**" would reduce subjectivity during investigations.

1.4. MOTION OF THANKS ON THE PRESIDENT'S ADDRESS

Context: Recently, the Lok Sabha passed the **Motion of Thanks** on the President's Address through a voice vote amidst significant procedural drama. For the first time since 2004, the motion was adopted in the Lower House without the customary reply by the Prime Minister, as Speaker Om Birla advised the PM to avoid the House due to intelligence regarding planned disruptions by the Opposition.



While the Lok Sabha passed the motion amid slogans and rejected all Opposition amendments, the Prime Minister successfully concluded his reply to the debate in the Rajya Sabha on the same day.

1. Constitutional Provisions

- **Article 87(1):** It mandates the President to deliver a “**Special Address**” to both Houses of Parliament assembled together at the commencement of:
 - The first session after each general election to the Lok Sabha.
 - The first session of each year (usually the Budget Session).
- **Article 86(1):** This article gives the President the right to address either House or both Houses at any time, but unlike Article 87, this is not a mandatory “special address.”
- **Article 87(2):** It requires that the rules of the House provide time for the discussion of the matters referred to in such an address.

2. Nature of the President's Address

- The address is prepared by the **Council of Ministers** and approved by the Cabinet; hence, it is a statement of the government's policy and programs.
- It reviews the government's activities/achievements of the previous year and outlines the legislative and policy agenda for the upcoming year.
- No other business is transacted by the Parliament until the President has delivered this address.

3. The Motion and Debate

- The address is followed by a discussion in both Houses on a motion termed the “**Motion of Thanks**.”
- **Proposer and Seconder:** The motion is moved by a member and seconded by another, both of whom are selected by the Prime Minister.
- **Scope of Debate:** The discussion is very broad. Members can criticize the government's policies or mention issues that were omitted from the address.
- **PM's Reply:** At the end of the discussion, the Prime Minister (or any other Minister) replies to the points raised.
- **Voting:** After the reply, amendments are put to vote, followed by the main motion. It must be passed by a **simple majority** (majority of members present and voting).

4. Significance and Impact

- **Accountability:** It is a vital tool for the Parliament to examine and criticize the executive's performance.

- **Defeat of Government:** If the Motion of Thanks is defeated in the Lok Sabha, it is viewed as a **lack of confidence** in the government and leads to the **resignation of the Council of Ministers**.
- **Amendments in Rajya Sabha:** Unlike the Lok Sabha, the Rajya Sabha has adopted the Motion of Thanks with amendments on rare occasions (e.g., 1980, 1989, 2001, 2015, and 2016). This does not lead to the government's resignation but signifies a moral or political setback.

1.5. DGP APPOINTMENT PROCESS

Context: Recently, the Supreme Court of India expressed strong disapproval of the growing trend among State Governments to appoint “Acting DGPs” instead of regular police chiefs. The Bench, led by Chief Justice Surya Kant, authorized the Union Public Service Commission (UPSC) to issue formal reminders to States for timely proposals and directed the Commission to initiate contempt proceedings in the *Prakash Singh* case if States continue to default on these constitutional and judicial mandates.



1. The Landmark Prakash Singh Case (2006)

The appointment process is governed by the directives issued by the Supreme Court in *Prakash Singh vs. Union of India*. The court aimed to insulate the police from political interference and ensure a merit-based selection.

- **Empanelment:** The State Government must select the DGP from a panel of the three senior-most officers of the department who have been empanelled for promotion by the UPSC.
- **Tenure Security:** Once selected, the DGP should have a minimum tenure of **at least two years**, irrespective of their date of superannuation (retirement).
- **No “Acting” DGPs:** The Supreme Court has repeatedly clarified that there is no concept of an “Acting DGP.” States must appoint a permanent DGP to ensure stability in the police hierarchy.

2. The Appointment Procedure

The process involves a collaboration between the State Government and the Union:

1. **Proposal Submission:** The State Government must send a proposal containing a list of eligible IPS officers to the UPSC **three months** before the incumbent DGP is due to retire.
2. **Empanelment Committee:** The UPSC convenes a committee to shortlist names. This committee typically includes:
 - Chairman or Member of the UPSC (Chairperson).
 - Union Home Secretary.
 - State Chief Secretary.
 - State DGP (Incumbent).
 - A Chief of a Central Armed Police Force (CAPF) nominated by the Center.
3. **Shortlisting:** The committee selects a panel of **three officers** based on seniority, service record, and range of experience.

4. **Final Selection:** The State Government is then mandate to “immediately” appoint one of the three persons from the UPSC-recommended panel.

3. Eligibility Criteria (As per UPSC 2023 Guidelines)

The UPSC has refined the eligibility rules to ensure only the most experienced and capable officers reach the top:

- **Length of Service:** In 2023, the UPSC reduced the minimum service requirement from 30 years to **25 years** to expand the pool of eligible candidates.
- **Residual Tenure:** To avoid “token” appointments, only officers who have at least **six months of service remaining** before retirement are considered for the panel.
- **Experience:** Preference is given to officers with at least 10 years of experience in critical areas such as Law and Order, Intelligence, or the Crime Branch.
- **Willingness:** An officer is not included in the panel unless they express their willingness to be considered for the post.

4. Key Constitutional and Statutory Points

- **State Subject:** “Police” and “Public Order” are subjects under the **State List (List II)** of the Seventh Schedule.
- **All India Services:** While the police force is a state subject, the DGP is an **IPS officer**, belonging to an All India Service, which is why the UPSC (a central body) plays a role in the selection.
- **Single Window System:** The Government of India has introduced a “Single Window System” for States to submit proposals to the UPSC to expedite the empanelment process and reduce delays.

1.6. UIDAI & AADHAAR: INSTITUTIONAL FRAMEWORK AND STRATEGIC PROFILE

Context: The Unique Identification Authority of India (UIDAI) has announced a significant revamp in its operational framework, focusing on expanding accessibility for adult enrolment while simultaneously tightening verification protocols to ensure data integrity and national security.

Institutional Status:

- **Legal Nature:** A Statutory Authority established under the provisions of the **Aadhaar Act, 2016**.
- **Nodal Ministry:** Operates under the jurisdiction of the **Ministry of Electronics & Information Technology (MeitY)**.
- **Core Vision:** To empower residents with a unique identity and a digital platform for “anytime, anywhere” authentication.

Administrative Composition:

- **Leadership:** The Authority consists of a **Chairperson**.
- **Members:** Includes two **part-time Members**.
- **Executive Head:** A **Chief Executive Officer (CEO)**, who also serves as the Member-Secretary of the Authority.



Functional Mandate:

- **Issuance:** Responsible for issuing the **Unique Identification Number**, commonly known as the ‘Aadhaar number’, to all Indian residents.
- **Lifecycle Management:** Manages all stages of the Aadhaar lifecycle, from enrollment to authentication.
- **System Integrity:** Ensures the security and operation of the database and authentication systems.

The Aadhaar Architecture:

- **Format:** A **12-digit** individual identification number issued after a rigorous verification process.
- **Data Collection:**
 - **Demographic:** Name, Date of Birth/Age, Gender, Address, Mobile Number, and E-mail ID (optional).
 - **Biometric:** Fingerprints, Iris Scans, and Facial Photograph.
- **Validity:** The number is **unique** to every individual and remains valid for a **lifetime**.

Strategic Utility:

- **Verification:** Serves as a robust proof of **identity** and **address** for residents.
- **Service Delivery:** Facilitates seamless access to banking, mobile connections, and various Government (DBT) and Non-Government services.

1.7. REMOVAL PROCESS OF THE LOK SABHA SPEAKER**Context:**

Recently, opposition parties in the Lok Sabha submitted a formal notice of a resolution to remove the Speaker, Shri Om Birla, from his office. This move followed days of parliamentary deadlock and was initiated after the Opposition alleged that the Speaker had acted in a partisan manner by disallowing the Leader of the Opposition from speaking and making unsubstantiated allegations against woman MPs.

**1. Constitutional Provisions**

- **Article 94:** This article specifies that a Speaker may be removed from office by a resolution of the House of the People (Lok Sabha) passed by a **majority of all the then members of the House**.
- **Article 96:** This article deals with the Speaker's right to participate in proceedings but prohibits them from presiding while a resolution for their removal is under consideration.

2. Procedural Requirements

The removal process is governed by both the Constitution and the **Rules of Procedure and Conduct of Business in Lok Sabha**:

- **14-Day Advance Notice:** A resolution for removal can only be moved after giving at least **14 days’ notice** of the intention to move the resolution.
- **Support of 50 Members:** Under the Lok Sabha rules, the motion for leave to move the resolution must be supported by at least **50 members** before it can be listed for discussion.

- **Specific Charges:** The resolution must be specific and based on definite charges. It should not contain arguments, inferences, or defamatory statements.

3. Voting and Majority Required

- **Effective Majority:** The resolution must be passed by a majority of all the **then members** of the House. This is technically known as an **Effective Majority** (Total strength of the House minus vacancies).
- **Not Simple Majority:** It is important to note that a simple majority (majority of members present and voting) is insufficient for the removal of the Speaker.

4. Rights of the Speaker During Removal

- **Right to Speak:** The Speaker has the right to speak in and otherwise take part in the proceedings of the House while the removal resolution is being considered.
- **Right to Vote:** The Speaker can vote in the **first instance** on such a resolution.
- **No Casting Vote:** Unlike regular proceedings where the Speaker only votes to break a tie (casting vote), during a removal resolution, the Speaker **cannot exercise a casting vote** in the case of an equality of votes.
- **Restriction on Presiding:** The Speaker cannot preside over the sitting of the House while the resolution for their removal is under consideration, even if they are present in the House.

5. Summary Table: Speaker's Status During Removal Motion

Feature	Status
Presiding Power	Cannot preside over the House.
Presence in House	Can be present and participate in discussions.
First Instance Vote	Allowed (can vote as a regular member).
Casting Vote	Not allowed (cannot vote to break a tie).
Presiding Authority	Usually, the Deputy Speaker or a member from the Panel of Chairpersons.

1.8. BONDED LABOUR SYSTEM (ABOLITION) ACT, 1976

Context:

Recently, India observed **Bonded Labour Abolition Day, marking 50 years** of the **Bonded Labour System (Abolition) Act, 1976**. While states like West Bengal and Tamil Nadu held awareness drives, reports revealed that modern debt bondage still persists, highlighted by the rescue of a family from a brick kiln in Nadia trapped in second-generation bondage for 17 years, pointing to serious gaps in identification and rehabilitation.



About Bonded Labour System (Abolition) Act, 1976

The Bonded Labour System (Abolition) Act, 1976, was enacted to give effect to **Article 23** of the Constitution, which prohibits "begar" and other similar forms of forced labour.

1. Constitutional Basis

- **Article 23:** Explicitly prohibits traffic in human beings, *begar* (forced labour without payment), and other similar forms of forced labour.
- **Article 21:** The Supreme Court has interpreted the **right to life** to include the right to live with human dignity, which is fundamentally violated by bondage.
- **Directive Principles: Article 42** (humane conditions of work) and **Article 46** (protection of SCs/STs from exploitation) provide the guiding philosophy for this Act.

2. Key Definitions and Features

- **Bonded Labour System:** A system of forced or partly forced labour where a debtor enters into an agreement with the creditor in consideration of an advance, a customary obligation, or an obligation devolving by succession.
- **Automatic Discharge of Debt:** On the commencement of the Act, every bonded labourer stands freed and discharged from any obligation to render bonded labour, and all bonded debts are deemed extinguished.
- **Restoration of Property:** Any property of the bonded labourer taken by the creditor as security must be restored to the labourer.
- **Punishment:** The Act provides for imprisonment for a term which **may extend to three years** and a fine for anyone who compels a person to render bonded labour or advances a bonded debt.

3. Institutional Mechanism

- **Vigilance Committees:** The Act mandates the constitution of Vigilance Committees at the **District and Sub-Divisional** levels.
 - These committees consist of the District/Sub-Divisional Magistrate, persons belonging to SC/ST, social workers, and representatives of financial institutions.
 - Their role is to advise the Magistrate on implementation and provide for the economic and social rehabilitation of freed labourers.
- **Executive Powers:** The **District Magistrate (DM) is the primary authority** responsible for the identification, release, and rehabilitation of bonded labourers.

4. Rehabilitation Framework

- **Central Sector Scheme:** This scheme provides financial assistance for rehabilitation.
 - **Adult Males:** Eligible for ₹1 lakh.
 - **Special Categories:** Women, children, and transgenders are eligible for higher assistance (up to ₹3 lakh).
- **Release Certificate:** This document, issued by the DM, is the legal proof required for the victim to claim statutory benefits and protection from creditors.

1.9. IT AMENDMENT RULES, 2026

Context: Recently, the Ministry of Electronics and Information Technology (MeitY) notified the **IT (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2026**. These rules mandate the clear labeling of **photorealistic AI-generated content** (deepfakes) to prevent the spread of synthetic misinformation and enhance digital accountability.



Key Highlights of the IT Amendment Rules, 2026

1. Definition of Synthetically Generated Information (SGI)

- **Scope:** Covers audio, visual, or audio-visual data created or modified using AI/algorithms.
- **Criterion:** Information that appears **authentic/real** to a reasonable person, making it indistinguishable from actual events or persons.

2. Mandatory Labeling & Metadata

- **Prominent Labels:** Platforms must ensure AI-generated content is clearly marked as "Synthetic" or "AI-generated."
- **Provenance:** Permanent **metadata** or digital watermarks must be embedded to track the origin and prevent the removal of identifiers.

3. Intermediary Obligations

- **User Declaration:** Platforms must provide a mechanism for users to self-disclose if their content is AI-generated.
- **Verification:** Intermediaries must use **automated tools** to detect and verify synthetic content that users fail to declare.

4. Tightened Compliance Timelines

Content Type	Previous Timeline	New 2026 Timeline
Illegal/Unlawful Content	36 Hours	3 Hours
Deepfakes/NCII	24 Hours	2 Hours
Grievance Redressal	15 Days	7 Days

5. Safe Harbour & Legal Liability

- Platforms retain **Safe Harbour** (Section 79, IT Act) only if they comply with these due diligence rules.
- Failure to label or remove content within the window leads to **loss of immunity**, making the platform legally liable for user-posted content.

6. Critical Exemptions

- **Routine Editing:** Automatic smartphone post-processing (e.g., color balance, noise reduction).
- **Accessibility:** Automated translations or search-optimization tags.
- **Good-Faith Use:** Academic research and hypothetical drafts that do not misrepresent reality.

1.10. NEW SEATS OF GOVERNANCE MEANT TO MEET PEOPLE'S ASPIRATIONS

Context: Prime Minister Narendra Modi recently inaugurated the new Prime Minister's Office (PMO), named '**Seva Teerth**', and two buildings of the Central Secretariat, named '**Kartavya Bhavan**'.

These structures are part of the broader effort to **replace colonial-era architecture** (like the South and North Blocks) with buildings that reflect the aspirations of independent India and a "Viksit Bharat".



1. Architectural Elements (Art & Culture Focus)

The buildings incorporate traditional Indian architectural motifs, making them a significant topic for cultural heritage questions:

- **Materiality:** The structures are clad in **white and red sandstone**, referencing material traditions found in historic Indian civic and institutional architecture.
- **Stupa Influence:** The metal-clad domes are inspired by the **Buddha Stupa**, introduced as contemporary accent elements.
- **Temple Architecture (Entrance Portal):** The entrance portal draws inspiration from the **stone screen-work of Chalukyan temples** dating back to the 11th and 13th centuries.
- **Temple Architecture (Plinth):** The carved stone plinth band is inspired by the base mouldings of the **12th-century Chennakeshava Temple**.

2. Governance and Policy Milestones

On the occasion of the inauguration, several key administrative decisions and commemorative items were released:

- **PM RAHAT Scheme:** The Prime Minister signed files for this scheme, which provides **cashless treatment up to ₹1.5 lakh** for accident victims.
- **Lakshpati Didis:** The target for the Lakshpati Didi scheme (empowering women in Self-Help Groups) was doubled to **six crore**.
- **Agriculture Infrastructure Fund:** The target for this fund was doubled to **₹2 lakh crore**.
- **Commemorative Items:** A special **postage stamp and coin** were released to mark the occasion.

Key Facts About Chennakeshava Temple

Commissioned by: King **Vishnuvardhana** of the Hoysala Dynasty.

Year: Construction began in **1117 CE** to commemorate his victory over the Cholas in the Battle of Talakad.

Location: Situated on the banks of the **Yagachi River** in Belur, Hassan district, Karnataka.

Deity: Lord Vishnu (Chennakeshava literally means "Handsome Keshava").

Architectural Style: The temple is a masterpiece of the **Vesara style** (a hybrid of Nagara and Dravidian styles), characterized by:

- **Material:** Built using **Soapstone (Chloritic Schist)**, which is soft when quarried but hardens over time, allowing for extremely intricate carvings.
- **Stellate Plan:** The main shrine is built on a **star-shaped (stellate)** raised platform called a **Jagati**.
- **Shikara:** Interestingly, the original tower (Shikara) is now missing, giving the temple a flat-topped appearance today.

UNESCO Status

- In **2023**, it was declared a **UNESCO World Heritage Site** as part of the "**Sacred Ensembles of the Hoysalas**," which also includes:

1. **Hoysaleswara Temple** (Halebidu)
2. **Keshava Temple** (Somanathapura)

1.11. 16TH FINANCE COMMISSION

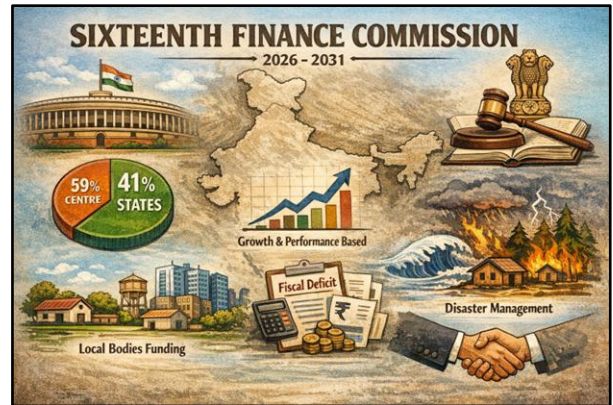
Context:

The 16th Finance Commission (FC) has submitted its report to the President on **November 17, 2025**, marking a pivotal moment in India's fiscal federalism for the award period of **2026–31**.

About the Finance Commission (FC)

The FC is a **Constitutional Body** acting as the "balancing wheel" of fiscal federalism in India.

- **Article 280:** Mandates the President to constitute an FC every five years.
- **Composition: Chairman:** Dr. Arvind Panagariya.
 - **Full-time Members:** Shri Ajay Narayan Jha, Smt. Annie George Mathew, and Dr. Manoj Panda.
 - **Part-time Member:** Dr. Soumya Kanti Ghosh.
- **Key Functions:**
 - **Vertical Devolution:** Distribution of net proceeds of taxes between the Union and States.
 - **Horizontal Devolution:** Allocation of these proceeds among the States.
 - **Grants-in-aid:** Principles governing grants to States from the Consolidated Fund of India (Article 275).
 - **Local Bodies:** Measures to augment the State Consolidated Fund for Panchayats and Municipalities.



Key Recommendations of the 16th FC (2026–31)

1. Vertical Devolution (Union to States)

- Despite strong demands from several states (especially from the South) to increase the share to 45–50%, the 16th FC has maintained the status quo.
- **Share Retained at 41%:** The states' share in the "net proceeds" (divisible pool) of Union taxes remains at 41%.
- **The "Cess" Concern:** The Commission flagged the shrinking divisible pool due to the Centre's increased reliance on **cesses and surcharges** (which are not shared), though it did not recommend their inclusion in the pool.

2. Horizontal Devolution (Inter-state Allocation)

- The formula to divide the 41% among the 28 states has been redesigned to reward economic output and ecological preservation.

Criterion	Weight (%)	Significance
Income Distance	42.5%	Ensures equity for lower-income states.
Population (2011)	17.5%	Reflects the scale of service delivery requirements.
Demographic Performance	10.0%	Redefined to measure population growth between 1971–2011.
Area	10.0%	Accounts for higher costs in geographically large / sparse states.

Forest & Ecology	10.0%	Now includes " Open Forests " to reward ecological maintenance.
Contribution to GDP	10.0%	New Criterion. Replaces "Tax Effort" to reward economic efficiency.

3. Grants-in-Aid (₹9.47 Lakh Crore Total)

- A major shift in the 16th FC is the **discontinuation of Revenue Deficit Grants**, Sector-specific grants, and State-specific grants. Funding is now concentrated on two pillars:

A. Local Body Grants (₹7.91 Lakh Crore)

- **Rural-Urban Split:** Allocated in a **60:40 ratio** between Rural (RLBs) and Urban Local Bodies (ULBs).
- **Performance Linkage:** 80% as Basic Grants and 20% as Performance-based.
- **Conditions:** Grants are **only** released if states:
 - Timely constitute **State Finance Commissions (SFCs)**.
 - Publicly disclose **audited accounts** of local bodies.
- **Urbanization Premium:** A one-time grant of **₹10,000 crore** to states that successfully merge peri-urban villages into larger cities.

B. Disaster Management (₹2.04 Lakh Crore)

- **SDRF & SD MF:** Funds split between Response (SDRF) and Mitigation (SDMF) to prioritize prevention.
- **Cost Sharing:** Maintained at **75:25** for general states and **90:10** for North-Eastern and Himalayan states.

4. Fiscal Roadmap and Reforms

- The Commission has set strict targets to ensure long-term debt sustainability.
- **Fiscal Deficit Targets:**
 - **Centre:** Reduce to **3.5% of GDP** by 2030–31.
 - **States:** Cap at **3% of GSDP**.
- **Off-Budget Borrowing:** Recommended a **total ban** on off-budget borrowings; all liabilities must be transparently included in the budget.
- **Power Sector:** States are "cautiously nudged" to **privatize DISCOMs** to reduce the massive debt burden on state exchequers.
- **Subsidy Rationalization:** Advised states to review "unconditional cash transfers" and implement strict exclusion criteria for welfare schemes.

5. Public Sector Enterprise (PSE) Reforms

- **Exit Strategy:** Recommended the **closure of 308 inactive State PSEs**.
- **Performance Review:** State PSEs incurring losses for 3 out of 4 consecutive years must be reviewed by the State Cabinet for privatization or closure.

Criteria for Horizontal Devolution

The formula determines how the 41% share is divided among the 28 states. The 16th FC has introduced a landmark "Contribution to GDP" criterion.

Criterion	Weight (%)	Description
Income Distance	42.5%	Distance of a state's per capita income from the state with the highest income.

Population (2011)	17.5%	Shifted weight slightly higher to account for current service delivery needs.
Demographic Performance	10.0%	Rewards states with lower fertility rates (population control).
Area	10.0%	Accounts for the higher cost of service delivery in larger states.
Forest & Ecology	10.0%	Based on share of dense and open forest (new inclusion).
Contribution to GDP	10.0%	New Criterion. Replaces "Tax Effort." Rewards states contributing more to national economic output.

Note: The "Tax and Fiscal Effort" criterion used by the 15th FC has been subsumed/replaced by the **Contribution to GDP** metric.

Concerns Regarding the 16th FC

1. **Cesses and Surcharges:** The "Divisible Pool" is shrinking. The Centre collects nearly 18-20% of its gross revenue through cesses/surcharges, which are **not shared** with states. This reduces the effective devolution to ~31-32%.
2. **Southern State Paradox:** States like Tamil Nadu and Kerala argue that the "Income Distance" and "Population" criteria penalize them for being economically successful and controlling population growth.
3. **Conditional Grants:** Increasing the "Performance-linked" component (20% for local bodies) is seen by some as an infringement on the fiscal autonomy of states.
4. **Discontinuation of Revenue Deficit Grants:** The 16th FC has phased out many specific grants, forcing states to rely strictly on their own tax efforts and the devolution formula.

6. Suggested Measures & Way Forward

- **Cap on Cesses:** There is a growing demand to amend the Constitution or set a ceiling on cesses and surcharges to protect the divisible pool.
- **State Finance Commissions (SFCs):** States must ensure regular constitution of SFCs. The 16th FC recommended that Central grants be linked to the timely submission of SFC reports.
- **Accrual-based Accounting:** Moving toward better transparency in state finances to accurately reflect debt levels.
- **Incentivizing Urbanization:** The Commission introduced an "**Urbanization Premium**" (₹10,000 cr) to encourage the merger of peri-urban villages into larger cities for better planning.

Conclusion

The 16th Finance Commission marks a shift from "Equity-only" to "**Equity + Efficiency.**" While it addresses the needs of poorer states through high weightage on Income Distance, the introduction of the **GDP Contribution** criterion signals a new era where economic performance and fiscal discipline are rewarded. However, the true success of these recommendations will depend on how the Centre addresses the "Cess and Surcharge" loophole that continues to strain Centre-State relations.

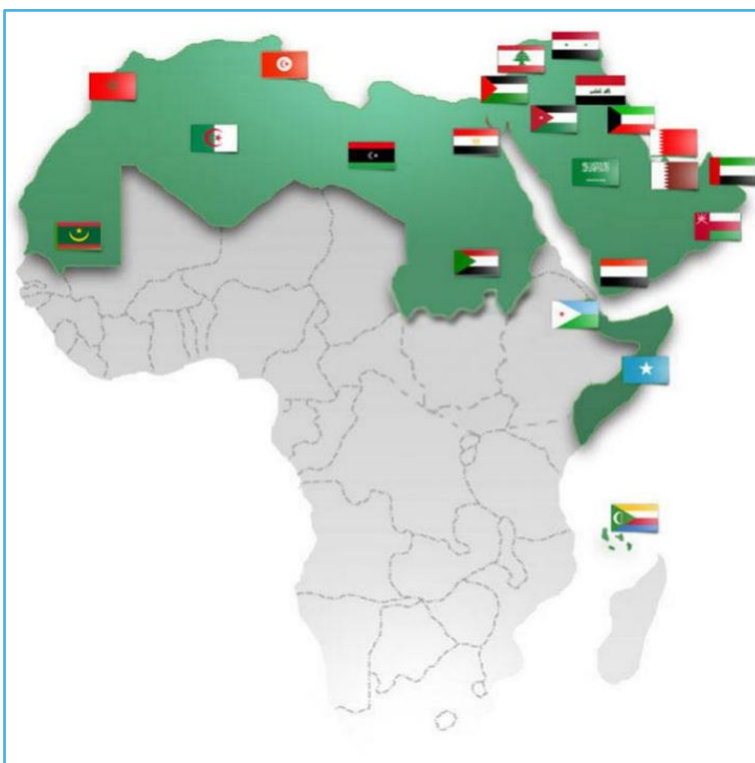
INTERNATIONAL RELATIONS

2.1. LEAGUE OF ARAB STATES (LAS)

Context: Recently, the **League of Arab States (LAS)** and India successfully concluded the second **India-Arab Foreign Ministers' Meeting** in New Delhi, resulting in the adoption of the **“New Delhi Declaration.”**

1. Overview of the League of Arab States (LAS)

- **Establishment:** The League was founded on **March 22, 1945**, in Cairo, Egypt, following the signing of the **Alexandria Protocol (1944)**.
- **Headquarters:** It is permanently headquartered in **Cairo, Egypt**.
- **Nature of Organization:** It is a voluntary intergovernmental association of Arabic-speaking nations designed to strengthen ties,



coordinate political activities, and safeguard the sovereignty of member states.

- **Charter:** The **Pact of the League of Arab States** serves as the founding treaty, stipulating that only independent Arab states may join.

2. Membership and Geography

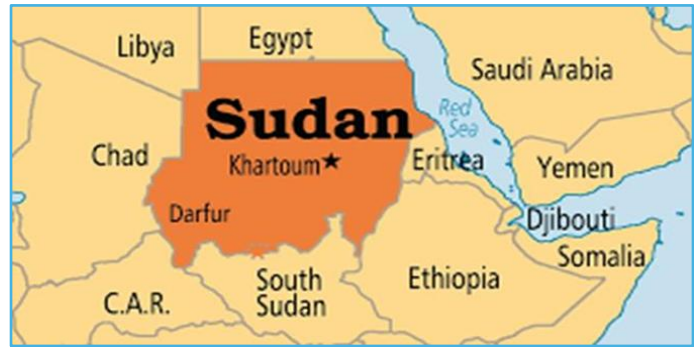
- **Current Members:** There are **22 member states** spanning North Africa, the Horn of Africa, and West Asia.
- **Founding Members:** Egypt, Iraq, Jordan, Lebanon, Saudi Arabia, Syria, and Yemen (North Yemen at the time).
- **Geographic Reach:** The region extends from the **Atlantic Ocean** in the west to the **Arabian Sea** in the east, and from the **Mediterranean Sea** in the north to the **Indian Ocean** in the southeast.
- **Observation Status:** India is one of the five official **Observer States**, a status it has held since 2002 to facilitate closer diplomatic and economic coordination.

3. India and the League of Arab States

- **Institutional Framework:** Engagement is primarily conducted through the **Arab-Indian Cooperation Forum (AICF)**, established in 2008.
- **Strategic Ties:** India views the LAS as a critical partner for energy security (sourcing over 50% of its crude oil) and as a destination for its **9 million-strong diaspora**.
- **New Delhi Declaration (2026):** The latest summit emphasized a **“Zero Tolerance”** policy toward terrorism and sought a just solution for the Palestinian people based on the **1967 borders**.
- **Economic Corridors:** The League is a central stakeholder in the proposed **India-Middle East-Europe Economic Corridor (IMEC)**, aimed at enhancing global supply chain resilience.

2.2. MAPPING SUDAN: STRATEGIC GEOGRAPHY AND CRITICAL CITIES

Context: Recently, Sudan has witnessed a major strategic shift in its ongoing civil war between the **Sudanese Armed Forces (SAF)** and the **Rapid Support Forces (RSF)**. The Sudanese military recently claimed to have regained control over significant portions of the capital, **Khartoum**, and the strategic city of **Wad Medani**, signaling a potential turning point in the conflict.



Concurrently, the international community has raised alarms over the humanitarian blockade in **El Fasher**, the last major stronghold in the Darfur region not fully controlled by paramilitary forces, making the geographical understanding of these urban centers vital for global security analysis.

1. Geographical Location and Borders

Sudan is located in **Northeast Africa** and is the **third-largest country** on the African continent (after Algeria and the Democratic Republic of the Congo). It is **not landlocked**; it possesses a strategic coastline of approximately 853 km along the **Red Sea**.

Neighboring Countries (Clockwise from North):

- **Egypt** (North)
- **Eritrea** (Southeast)
- **Ethiopia** (Southeast)
- **South Sudan** (South) — *Seceded in 2011*
- **Central African Republic** (Southwest)
- **Chad** (West)
- **Libya** (Northwest)

2. Key Physical Features

- **The Nile River System:** The **White Nile** (flowing from Lake Victoria) and the **Blue Nile** (flowing from Lake Tana, Ethiopia) meet in the heart of **Khartoum** to form the main Nile River, which then flows north into Egypt.
- **Red Sea Hills:** A range of mountains running parallel to the Red Sea in the east.
- **Marrah Mountains (Jebel Marra):** Located in the Darfur region of the west, containing the **Deriba Caldera**, the highest point in Sudan.
- **Nubian Desert:** Covers the northeastern part of the country, situated between the Nile and the Red Sea.
- **Gezira Plain:** The fertile “peninsula” between the Blue and White Niles, south of Khartoum, known for the Gezira Scheme (one of the world’s largest irrigation projects).

3. Important Cities and Their Strategic Significance

City	Significance
Khartoum	The capital city located at the confluence (<i>Al-Mugran</i>) of the Blue and White Niles.
Omdurman	Located on the west bank of the Nile, it is the country’s most populous city and a major cultural hub.

Port Sudan	The primary seaport on the Red Sea. It has become the de-facto administrative capital during the current conflict.
El Fasher	The capital of North Darfur; a critical humanitarian hub and a major site of ongoing battles.
Wad Medani	Capital of the Gezira state; a strategic agricultural and transit hub between Khartoum and Port Sudan.
Wadi Halfa	A key border town in the north near Lake Nubia, serving as a primary transit point for trade with Egypt.

2.3. GULF COOPERATION COUNCIL (GCC)

Context: Recently, India and the six-nation **Gulf Cooperation Council (GCC)** officially signed the **Terms of Reference (ToR)** to launch formal negotiations for a long-pending **Free Trade Agreement (FTA)**. This significant diplomatic step, announced during a high-level meeting in New Delhi, aims to revitalize trade talks that have been stalled for nearly two decades. The move is particularly timely as the GCC has emerged as India's largest merchandise trading partner, with bilateral trade reaching approximately **\$178.5 billion** in the 2024-25 fiscal year.



1. About the GCC

- **Establishment:** The GCC is a political and economic alliance of six Middle Eastern nations established on **May 25, 1981**, in Riyadh, Saudi Arabia.
- **Member States:** It comprises **United Arab Emirates (UAE), Saudi Arabia, Qatar, Oman, Kuwait, and Bahrain.**
- **Headquarters:** The Secretariat-General is located in **Riyadh**, Saudi Arabia.
- **Objectives:** Its primary goal is to achieve coordination, integration, and interconnection between its members in all fields, including economy, finance, trade, and customs.
- **Structure:**
 - **Supreme Council:** The highest authority, composed of the Heads of State; the presidency rotates annually.
 - **Ministerial Council:** Composed of Foreign Ministers who meet every three months to implement policies.
 - **Secretariat General:** The administrative arm responsible for policy monitoring.

2. India-GCC Economic Relations

- **Largest Trade Partner:** The GCC as a bloc is India's largest trading partner. In 2024-25, trade with the GCC surpassed that with the USA (\$132.1 billion) and the European Union (\$136.5 billion).

- **Trade Deficit:** India currently faces a significant trade deficit with the region (approx. \$64.8 billion) due to heavy imports of **crude oil, LNG, and petrochemicals**.
- **Key Exports:** India primarily exports engineering goods, rice, textiles, machinery, and gems and jewelry to the Gulf nations.
- **Remittances:** The region is home to nearly **10 million Indian expatriates**, who contribute significantly to India's foreign exchange through remittances.

3. Energy and Strategic Security

- **Energy Anchor:** The GCC countries contribute significantly to India's energy security, accounting for roughly **35% of oil imports** and **70% of gas imports**.
- **Strategic Petroleum Reserves (SPR):** India is engaging GCC nations like Saudi Arabia and the UAE to participate in the second phase of its SPR program.
- **Strategic Partnerships:** While India maintains close ties with all six members, it has formal "Strategic Partnership" agreements with **Saudi Arabia, UAE, and Oman**.

4. Recent Initiatives

- **FTA Negotiations (2026):** The signing of the Terms of Reference (ToR) in February 2026 sets the framework for scope, objectives, and procedures for the final trade pact.
- **Unified Tourist Visa:** The GCC is working toward a "Schengen-style" unified tourist visa (expected pilot in late 2026) to allow seamless travel across all six member states.

2.4. INDIA'S STRATEGIC AUTONOMY

Context: India's "strategic autonomy" is under intense scrutiny following **unilateral U.S. actions**, including a proposed **500% tariff** on countries purchasing **Russian oil/uranium** and a **25% tariff** on those trading with **Iran**. Amidst this, India has begun winding down operations at the **Chabahar Port**—transferring **\$120 million** to liquidate its commitments—while preparing to join the U.S.-led '**Pax Silica**' high-tech partnership.



Evolution of India's Foreign Policy: From Non-Alignment to Multi-Alignment

India's foreign policy has transitioned through distinct phases, reflecting its shifting national interests and the changing global order:

1. **Era of Optimistic Non-Alignment (1947–1962):** Guided by **Jawaharlal Nehru**, India sought to avoid the bipolar rivalry of the Cold War. The focus was on **decolonization**, Afro-Asian unity, and the **Panchsheel principles (Five Principles of Peaceful Coexistence)**.
2. **Decade of Realism and Recovery (1962–1971):** Following the **1962 conflict with China**, India adopted a more pragmatic approach to security. This period saw the 1964 defense agreement with the U.S. and a subsequent tilt toward the **USSR** due to pressures on the Kashmir issue.
3. **Regional Assertion and Hard Power (1971–1991):** The 1971 liberation of Bangladesh and the 1974 **Pokhran-I** nuclear test signaled India's emergence as a regional power, despite facing Western sanctions and the U.S.-China-Pakistan axis.

4. **Safeguarding Strategic Autonomy (1991–2014):** Post-Cold War, India moved toward a unipolar world by engaging the U.S., Israel, and ASEAN. The **Pokhran-II (1998)** tests and the **India-U.S. Civil Nuclear Deal (2008)** redefined its status as a "balancing power."
5. **Multi-Alignment and Strategic Convergence (2014–Present):** India now practices "**Multi-alignment**," engaging with rival blocs (**Quad vs. BRICS/SCO**) simultaneously. It prioritizes national interest over ideological positioning, seeking to become a "**Leading Power**" and a voice for the **Global South**.

Dimensions of India's Strategic Autonomy

1. **Political–Diplomatic Dimension:** Strategic autonomy enables India to take **independent foreign policy positions** without external coercion and to engage simultaneously with multiple power centres without aligning exclusively with any bloc.
 - **For instance**, India has maintained a **measured and non-aligned stance** on U.S. actions in Venezuela and Iran while continuing active engagement with **BRICS+, SCO, G20, the U.S., and QUAD**.
2. **Economic Dimension:** Economic autonomy allows India to safeguard **trade, energy security, and economic policymaking** from sanctions and coercive trade measures by diversifying markets and supply sources.
 - The economic costs incurred after halting **Iranian and Venezuelan oil imports in 2019** and India's continued investment in **Chabahar Port** to access **Afghanistan** and **Central Asia** illustrate this dimension.
3. **Military and Defence Dimension:** Defence autonomy ensures that national security is protected without dependence on any single foreign supplier, thereby strengthening deterrence and operational readiness.
 - India's continued use of **Russian defence systems**, alongside expanding defence cooperation with the **U.S. and France** and a focus on **indigenous defence production under Atmanirbhar Bharat**, reflects this approach.
4. **Technological Dimension:** Technological autonomy helps India avoid strategic dependence in critical and emerging sectors while enhancing national security and competitiveness.
 - India's push for **indigenous semiconductor manufacturing, digital public infrastructure, and selective participation** in initiatives like '**Pax Silica**' demonstrates this balance.
5. **Energy Security Dimension:** Energy autonomy enables India to secure **affordable and reliable energy supplies** from diverse sources, insulating the economy from geopolitical shocks.
 - Continued imports of **Russian crude oil** and sustained interest in **Iranian energy resources and transit routes**, including Chabahar, exemplify this dimension.
6. **Multilateral and Normative Dimension:** Strategic autonomy allows India to shape global governance norms based on **sovereignty, international law, and multipolarity**, enhancing its leadership role in the Global South.
7. **Cultural and Civilisational Dimension:** Cultural autonomy leverages India's **civilisational values and soft power** to build long-term goodwill and strategic trust without coercion.
 - India's use of **yoga and cultural diplomacy**, strong historical ties with **Iran and West Asia**, and the global projection of **Vasudhaiva Kutumbakam** highlight this dimension.

Significance of India's Strategic Autonomy

1. **Political: Global Leadership & Sovereign Space**

- **Strategic Elbow Room:** Prevents India from being a "junior partner" in any bloc, allowing it to negotiate with the US, Russia, and China simultaneously.
- **Vishwa Mitra (Global Friend):** Enhances India's role as a "**Consensus Builder**" and a neutral arbiter in a polarized world (e.g., **mediating on food and fertilizer security during the Ukraine crisis**).

2. Economic: Risk Mitigation & Resource Security

- **Insulation from External Shocks:** By diversifying suppliers (e.g., buying Russian oil and American gas), India protects its domestic economy from global price volatility and "energy blackmail."
- **Atmanirbharta (Self-Reliance):** Drives the indigenous manufacturing of semiconductors and defense equipment, reducing the **Current Account Deficit (CAD)** and generating high-tech employment.

3. Social: Civilizational Identity & Soft Power

- **Strategic Depth via Diaspora:** A neutral, autonomous India ensures that the **32 million-strong diaspora** remains a bridge of cooperation rather than being caught in a crossfire of "Cold War" loyalties.
- **De-hyphenation:** Significance lies in India being viewed on its own merits, rather than always being "**hyphenated**" with Pakistan or seen through the lens of a "China-Containment" tool.

4. Technological: Future-Proofing the State

- **Data Sovereignty:** Prevents "Digital Colonialism" by maintaining control over Indian citizen data through indigenous **Digital Public Infrastructure (DPI)**.
- **Defense Deterrence:** By co-producing critical tech (like GE-414 jet engines), India ensures its military is not vulnerable to "spare parts diplomacy" or "end-user monitoring" restrictions during a conflict.

Key Challenges to India's Strategic Autonomy

1. **Great Power Coercion:** Increasing use of **sanctions, tariffs, and secondary sanctions** by major powers constrains India's independent choices, e.g., **U.S. pressure to stop Iranian and Venezuelan oil imports (2019)** and threats of tariffs over **Russian energy trade**.
2. **Economic and Trade Vulnerabilities:** High exposure to **global supply chains, energy imports, and dollar-denominated trade** limits policy space, illustrated by disruptions from **sanctions on Iran affecting Chabahar Port investments**.
3. **Defence Dependence and Technology Denial:** Continued reliance on **foreign defence platforms and critical technologies** creates risks of **supply disruption**, e.g., concerns over **CAATSA** in relation to **Russian defence procurements**.
4. **Geopolitical Polarisation:** Intensifying **bloc politics** (U.S.–China rivalry) narrows room for **multi-alignment**, forcing difficult choices in forums like **QUAD, BRICS+, and SCO** simultaneously.

The Way Forward: Reinforcing India's Strategic Autonomy

1. Geopolitical: Proactive Multi-Alignment

- **"Non-West, not Anti-West":** India must continue to leverage its unique position as a bridge between the G7 and the Global South.
- **Minilateralism over Multilateralism:** Given the paralysis of the UN and WTO, India should lead "issue-based coalitions" like **I2U2, QUAD, and the India-Middle East-Europe Economic Corridor (IMEC)** to create localized security and trade webs.

- **Neighborhood First 2.0:** Investing in physical and digital connectivity (e.g., UPI in Nepal/Sri Lanka) to provide an alternative to China's debt-trap diplomacy.

2. Economic: "Transactional Realism"

- **Managing "Trump 2.0" Tariffs:** Use "**Staged Trade Deals**"—conceding on specific sectors (e.g., IT services or agriculture) to secure lower tariffs on Indian exports.
- **Energy Decoupling:** Shift from crude oil dependency (which exposes India to US sanctions on Russia/Iran) to the **National Green Hydrogen Mission** and **Nuclear expansion** (10 new reactors).
- **Supply Chain Resilience:** Actively participate in the **Minerals Security Partnership (MSP)** to secure the 30 critical minerals (Lithium, Cobalt) required for the green transition, reducing reliance on China.

3. Technological: Atmanirbharta (Self-Reliance)

- **Defence Indigenisation:** Shift from "Buy Global" to "**Co-develop and Co-produce.**" Projects like the GE-414 jet engine and the MQ-9B drone assembly must be scaled to create a domestic defence-industrial ecosystem.
- **Digital Sovereignty:** Promote the "**India Stack**" as a global standard to prevent "Digital Colonialism" by Western Big Tech or Chinese state-backed firms.
- **Semiconductor Mission:** Ensuring the success of the 6 planned "Fabs" (under the \$10B incentive) is critical to prevent the weaponization of chip supplies in future conflicts.

4. Strategic Infrastructure: "Operation Sindoor" Lessons

- **Border Infrastructure:** Accelerating the "**Vibrant Villages**" program and BRO projects along the LAC to ensure that India's autonomous foreign policy is backed by **credible military deterrence**.
- **Maritime Dominance:** Utilizing the **Andaman & Nicobar Islands** as a "strategic springboard" to monitor the **Malacca Strait**, giving India leverage in Indo-Pacific negotiations.

2.5. INDIA-GERMANY RELATIONS

Context: The bilateral relationship between India and Germany is currently at a historic peak. Following the landmark visit of **German Chancellor Friedrich Merz** to India (January 12–13, 2026), the ties have transitioned from a primarily trade-centric engagement to a deep **Strategic and Technological Partnership**. This visit marks the **75th anniversary of diplomatic relations** and **25 years of the Strategic Partnership**.



Evolution & Framework of the India-Germany Relations

The relationship has evolved from a Cold War-era "**economic assistance**" model to a 21st-century "**Equal Strategic Partnership.**"

- **Phase I: Formative Years (1951–1990):** India was among the first to recognize the Federal Republic of Germany (1951). Cooperation was primarily developmental (e.g., establishing **IIT Madras** in 1956 and the **Rourkela Steel Plant**).
- **Phase II: Post-Cold War Expansion (1991–2000):** Economic liberalization in India and German reunification led to a surge in engineering and manufacturing ties.

- **Phase III: Strategic Maturation (2000–2020):** Formal **Strategic Partnership** launched in 2000. Institutionalization began with the **Inter-Governmental Consultations (IGC)** in 2011.
- **Phase IV: The "Zeitenwende" Pivot (2021–Present):** Driven by global shifts, the partnership moved into high-security and high-tech domains (Submarines, Green Hydrogen, and Semiconductors).

Present Status: India–Germany Relations

The current relationship is anchored by the **Inter-Governmental Consultations (IGC)**—a unique cabinet-level dialogue mechanism.

1. Political & Diplomatic Maturity: Twin Anniversaries: 2026 marks 75 years of diplomatic ties and 25 years of Strategic Partnership.

- **The "Merz Momentum":** Chancellor Friedrich Merz's visit (**his first to Asia**) signaled Germany's **"Focus on India"** strategy—de-risking from China and re-anchoring in India.

2. Strategic & Defense Shift: "Zeitenwende" (Turning Point): A significant policy shift where Germany now views India as a primary security partner in the Indo-Pacific.

- **Institutionalization:** Launched a **Track 1.5 Foreign Policy and Security Dialogue** and a new **Indo-Pacific Consultation Mechanism** to coordinate maritime security.

3. Economic & Tech Depth: Trade Record: Bilateral trade sustained at >\$50 billion (making up 25% of India-EU trade).

- **Critical Domains:** Expansion into **Semiconductors** (Infineon's GCC in **GIFT City**), **Critical Minerals**, and **AI** via the 2026-27 Digital Dialogue Work Plan.

4. The Green Anchor: GSDP Mid-term Review: 2026 is the half-way mark for the €10 billion Green and Sustainable Development Partnership.

Significance of Deeper India–Germany Relations

1. Strategic & Geopolitical Significance

- **Indo-Pacific "Anchor":** Germany's 2024–2026 **"Focus on India"** strategy marks a pivot away from a **China-centric Asia policy**. India is now Germany's primary partner for maintaining a **Rules-Based Order** and maritime security.
- **G4 Solidarity:** Both nations collaborate closely to reform the **UN Security Council**, advocating for permanent seats to reflect 21st-century realities.
- **Strategic Autonomy:** Partnering with Germany provides India with an alternative to Russian and US dependencies, particularly in high-end technology and defense.

2. Economic & Industrial Significance

- **Manufacturing Engine (Make in India):** Germany's "Mittelstand" (SMEs) are the backbone of global engineering. Their integration into India's supply chains accelerates **Industry 4.0** and high-tech manufacturing.
- **De-risking Supply Chains:** Following the **"China+1"** model, German investments in **Semiconductors** and **Critical Minerals** help India build resilient and trusted electronics ecosystems.
- **Largest EU Partner:** Germany acts as India's gateway to the European market, accounting for over **25% of India-EU trade**.

3. Technological & Environmental Significance

- **Defence "Co-Development":** The shift from "Buyer-Seller" to "Co-Producer" (e.g., Project 75I submarines) grants India access to sensitive **AIP (Air Independent Propulsion)** and aero-engine technologies.

- **Green Energy Leadership:** Through the **Green and Sustainable Development Partnership (GSDP)**, Germany's technology (electrolyzers) combined with India's low-cost renewables makes India a potential **global hub for Green Hydrogen exports**.
- **Demographic Dividend & Skill Mapping:** Germany's labor shortage (400,000+ vacancies) and India's young workforce create a "Win-Win" for **Legal Mobility**, benefiting sectors like Healthcare and STEM.

Key Challenges of India–Germany Relations

1. Geopolitical Divergences

- **Strategic Autonomy vs. Alliances:** Germany (a NATO pillar) seeks a firmer Indian stance against Russia. India maintains its **Strategic Autonomy**, balancing ties with both the West and its traditional partner, Russia.

2. Trade & Regulatory Hurdles

- **The "Carbon Tax" (CBAM):** Effective **January 1, 2026**, the EU's Carbon Border Adjustment Mechanism penalizes Indian steel and aluminum. India views this as a **non-tariff barrier** that hurts its **"Make in India"** competitiveness.
- **FTA Stagnation:** Despite high-level optimism, disagreements over **labor standards, dairy protection, and government procurement** have historically delayed the India-EU Free Trade Agreement.

3. Defense Collaboration Asymmetry

- **Export Restrictions:** German domestic laws on arms exports remain among the world's strictest. This often clashes with India's demand for **unrestricted Technology Transfer (ToT)** and co-production rights.
- **Delayed Deals:** Landmark projects, such as the **Project-75I submarines**, face long lead times and high cost-thresholds compared to competitors.

4. Social & Consular Irritants

- **Migration Friction:** While mobility is increasing, **recognition of degrees and language barriers** hinder the full integration of the Indian workforce into Germany's labor market.
- **Consular Cases:** Individual legal disputes (like the **Ariha Shah case**) act as persistent emotional triggers that occasionally cloud high-level diplomatic optics.

Recent Government Initiatives

1. **Defence Industrial Roadmap:** A milestone agreement to move from "buyer-seller" to **co-development and co-production**. It fast-tracks projects like the **Project-75I submarines** and provides India access to German **AIP (Air Independent Propulsion)** technology.
2. **Indo-Pacific Consultation Mechanism:** India launched a new dialogue with Germany to coordinate maritime security, signaling Germany's increased strategic presence in the Indian Ocean.
3. **Semiconductor & Critical Minerals Partnership:** Signed MoUs to build secure, trusted supply chains, including **Infineon's** major tech expansion in India and joint exploration of critical raw materials.
4. **Visa-Free Airport Transit:** Announced for Indian passport holders to facilitate easier travel through German hubs, a significant move to boost **People-to-People ties**.
5. **Green Hydrogen Offtake:** Signed one of the world's largest agreements (AM Green & Uniper) for India to export **Green Ammonia** to Germany, utilizing the €10 billion GSDP fund.

Way Forward

As the relationship enters its "**Silver Jubilee**" of Strategic Partnership (2025–26), the following steps are essential to sustain the current momentum:

1. **Finalizing the FTA Bridge:** Both nations must prioritize the early conclusion of the **India-EU Free Trade Agreement**. This would provide the necessary "regulatory bridge" to **reduce non-tariff barriers** and offer investment protection for the German **Mittelstand**.
2. **Navigating the Carbon Gap:** India and Germany should engage in high-level technical dialogues to align India's **Carbon Credit Trading Scheme (CCTS)** with the EU's **CBAM**. This ensures that carbon prices paid in India are recognized in Europe, protecting Indian exporters.
3. **Operationalizing Defense Co-production:** Shift from dialogue to delivery by finalizing the **Project-75I Submarine deal** and the **Eurodrone collaboration**. Success here will cement Germany as a "trusted partner" for India's defense indigenization (**Atmanirbhar Bharat**).
4. **Scaling the Green Corridor:** Rapidly implement the **Green Ammonia offtake agreements** to establish a commercial "**Green Corridor**." This transforms the GSDP from a government-funded initiative into a private-sector-led energy security pillar.
5. **Global South Synergy:** Expand **Triangular Cooperation** where India's project execution skills and Germany's capital/technology combine to develop sustainable infrastructure in Africa and the Indo-Pacific, offering a transparent alternative to the BRI.

2.6. SMALL TABLES, BIG DIVIDENDS: THE SHIFT TOWARD MINILATERALISM

Context: Why Diplomatic Strategies Are Changing

The global order is currently witnessing a transition where traditional "**Large Tables**" (**large multilateral institutions like the UN, WTO, and WHO**) are increasingly becoming dysfunctional or paralyzed by "veto-culture" and geopolitical polarization (e.g., **US-China rivalry, Russia-Ukraine-NATO tensions**).

- **Defining White Spaces:** These are identified as areas where coordination is required for global problems, yet no single major power holds credible charge.



About Minilateralism

Minilateralism (or "Small Tables") is a diplomatic strategy where a small group of nations (usually 3 to 10) collaborate on a **narrowly defined, issue-specific agenda** rather than seeking broad, universal consensus.

- **Distinctive Features of Minilateralism**
 - **Voluntary & Informal:** Unlike the UN or WTO, these groups often lack a permanent secretariat or a formal legal charter. They rely on "Soft Law" (MoUs, joint statements, and shared goals) rather than binding treaties.
 - **Functional Focus:** They are "task-oriented" rather than "ideology-oriented." For example, the **SCRI (Supply Chain Resilience Initiative)** focuses specifically on trade logistics, not general political alignment.
 - **Agility & Speed:** Because the "table" is small, decision-making is rapid. Akbaruddin notes that while the UN took decades to address certain digital norms, minilateral groups can set standards in months.

- **The "Veto-Free" Zone:** By excluding countries with fundamentally opposing interests, these groups bypass the "veto paralysis" seen in the UN Security Council.

Why Minilateralism is Rising?

- **Institutional Gridlock:** Large bodies like the UN Security Council (UNSC) are paralyzed by the **Veto power**, failing to resolve recent crises (Ukraine, Gaza).
- **Reform Stagnation:** Developing nations (Global South) feel sidelined as 20th-century institutions (IMF, World Bank) refuse to update their power structures to reflect 21st-century realities.
- **Consensus Crisis:** Achieving consensus among 193 nations is nearly impossible in a polarized world.
- **US-China Rivalry:** Strategic competition has broken the "Global Village" concept. Countries now prefer "Small Tables" with **like-minded partners** to ensure security and technology standards.
- **Rise of Middle Powers:** Countries like **India, UAE, and Japan** are no longer bystanders. They are initiating their own groupings (e.g., I2U2) to assert their **Strategic Autonomy**.
- **Agility & Flexibility:** Small groups lack bulky bureaucracies. Decisions are made at "the speed of business" rather than "the speed of diplomacy."
- **Issue-Specific Focus:** Instead of talking about "Peace" in general, minilaterals focus on **tangible goals** like:
 - **Supply Chain Resilience** (e.g., SCRI)
 - **Technology Standards** (e.g., 6G or AI)
 - **Maritime Security** (e.g., Quad)
- **COVID-19 Lessons:** The pandemic proved that while the WHO struggled with global politics, smaller groups (like the **Quad Vaccine Partnership**) could deliver results faster.
- **Climate Urgency:** While **COP** summits struggle with finance, smaller alliances like the **International Solar Alliance (ISA)** or **Global Biofuels Alliance** provide actionable, niche solutions.

Major 'Small Tables' in India's Orbit

1. The Security & Geopolitical Tables

- **QUAD (India, US, Japan, Australia):** The primary vehicle for a "Free and Open Indo-Pacific." It focuses on maritime domain awareness, space cooperation, and countering non-traditional threats (cyber, climate).
- **Net Security Provider:** Through initiatives like **Maritime Domain Awareness (MDA)** and **Operation Sagar Bandhu (post-Cyclone Ditwah)**, India demonstrates its capacity as a first responder.
- **India–France–UAE Trilateral:** Focuses on the **Western Indian Ocean**. A key highlight in 2025-26 is the "**Rafale Forum**"—operationalizing interoperability between the three air forces that all fly Rafale jets.
- **India–France–Australia Trilateral:** Enhancing maritime security and protecting sea lanes of communication (**SLOCs**) without being seen as a formal military alliance.

2. The Geo-Economic & Connectivity Tables

- **I2U2 (India, Israel, UAE, USA):** Known as the "**West Asian Quad**," it focuses on **six sectors: Water, Energy, Transportation, Space, Health, and Food Security**.
 - **Recent Outcome:** UAE's **\$2 billion investment** in integrated food parks in India using Israeli/US tech.

- **IMEC (India–Middle East–Europe Corridor):** A multi-modal rail-and-shipping corridor. It serves as a strategic alternative to China's BRI, linking Indian ports directly to Europe via the Gulf.

3. The Technology & Innovation Tables

- **iCET (India-US Initiative on Critical and Emerging Technology):** Deep collaboration in AI, semiconductors, and space. It has led to the co-production of **GE F414 jet engines** in India.
- **Mineral Security Partnership (MSP):** A 14-nation (plus EU) group ensuring India's access to **Critical Minerals** (Lithium, Cobalt) necessary for the green energy transition (including DAC technology).

4. The Global South & Reformist Tables

- **BRICS+ (Expanded):** While larger now, India uses its **2026 BRICS Presidency** as a "small table" within the group to push for "**Reformed Multilateralism**" and the use of local currencies in trade.
- **BIMSTEC (Bay of Bengal Initiative):** India's primary alternative to the paralyzed SAARC, focusing on regional connectivity with **South East Asia (Act East Policy)**.
- **Institutional Delivery via NDB:** India aims to utilize the **New Development Bank (NDB)** for tangible public goods—guarantees for green energy and infrastructure—rather than mere declaratory politics.

Why Minilateralism Suits India

1. **Preserves Strategic Autonomy:** Unlike formal alliances (like NATO), "**Small Tables**" are issue-based. India can sit with the **US** in the **Quad** for security, while simultaneously sitting with **Russia and China** in **BRICS** for economic cooperation.
 - **Freedom of Choice:** It allows India to maintain its "**Non-West** but not Anti-West" identity.
2. **Counterbalances Regional Hegemony (China):** India alone may face challenges in balancing China's massive economic/military weight. Joining groups like **Quad or the India-France-UAE trilateral** allows India to aggregate the power of like-minded partners to ensure a "Free and Open Indo-Pacific."
 - **Bypasses Veto Paralysis:** At "Large Tables" (UNSC), China can block India's interests (e.g., terror listings). At "Small Tables," China is often not present, allowing India to set the agenda.
3. **Strategic "Friend-Shoring" & Tech Security:** Minilaterals like the **iCET (India-US Initiative on Critical and Emerging Technology)** or the **Mineral Security Partnership** provide India access to high-end tech (semiconductors, jet engines) that large multilateral bodies cannot facilitate.
 - **Supply Chain Resilience:** Small groups like the **SCRI (Supply Chain Resilience Initiative)** help India reduce its import dependence on "hostile" geographies.
4. **The Venn Diagram of Diplomacy:** India thrives in the overlap. It uses different tables for different needs.
 - **I2U2:** For food and energy security.
 - **IMEC:** For physical connectivity to Europe.
 - **BIMSTEC:** For regional stability in the Bay of Bengal.

Challenges of Minilateralism

- "**Balkanization**" of Diplomacy: Proliferation of small groups leads to a fragmented world where there is no "**Grand Table**" for universal consensus.

- **Competing Standards:** Different "tables" may create conflicting rules (e.g., **US-led vs. China-led digital or trade standards**), making global coordination harder.
- **"Elitist Clubs":** By nature, "Small Tables" are exclusive. Smaller/weaker nations (Global South) are often left out, leading to a **Legitimacy Deficit** compared to the UN.
- **Voluntary Nature:** Most minilaterals rely on **"Soft Law" (non-binding MoUs)**. Without formal treaties or enforcement mechanisms, they can be easily ignored or derailed.
- **Forum Shopping:** Nations may "shop" for a forum that favors their interests, further weakening established institutions like the **WTO** or **WHO**.
- **Resource Drain:** Diplomatic bandwidth and financial resources are diverted from global institutions to these niche groups, accelerating the decay of the **post-WWII** order.

Way Forward

- **Multi-Alignment:** India must continue to leverage its "Goldilocks" position—sitting at the **Quad** (with the West) and **BRICS/SCO** (with Eurasia)—to ensure no single power bloc dictates global norms.
- **Strategic Selectivity:** Focus resources on minilaterals that provide high **tangible dividends** (e.g., iCET for Jet Engines, MSP for Critical Minerals) rather than purely symbolic groupings.
- **Standard Setting:** India should lead in creating "templates" for emerging tech (AI, Green Hydrogen, DAC). If a small group of 10 nations adopts India's **Digital Public Infrastructure (DPI)**, it becomes a de facto global standard before the UN even begins debating it.
- **From Informal to Semi-Formal:** Gradually build "secretariat-lite" structures for successful groups like **I2U2** to ensure project continuity beyond political leadership changes.
- **Voice of Global South:** Use "Small Tables" as **aggregators**. For example, India can take the concerns of the **120+ Voice of Global South Summit** nations and present them at the **G20** or **G7** as a "policy arbiter."
- **Hub-and-Spoke Model:** Use minilaterals as "test labs" for solutions (like the **International Solar Alliance**) that can eventually be scaled up to universal multilateral bodies (like **UNFCCC**).
- **Diplomatic Bandwidth:** To sit at many tables, India needs more "table-setters." This requires expanding the **Indian Foreign Service (IFS)** and engaging more with "Track 1.5" and "Track 2" (think tanks/academics) to provide technical depth in negotiations.
- **Economic Resilience:** "Small Tables" are only useful if India is an attractive partner. Success depends on the domestic **"Make in India 2.0"** and semiconductor missions.

2.7. PAX SILICA AND ITS STRATEGIC IMPLICATIONS FOR INDIA

Context: India is likely to be invited to join the U.S.-led Pax Silica initiative aimed at securing global semiconductor, AI, and critical mineral supply chains.

What is Pax Silica?

Pax Silica is a US-led strategic and economic coalition launched in December 2025. It aims to build a secure, resilient, and innovation-driven global ecosystem for **semiconductors** and **Artificial Intelligence (AI)**.

- **Concept:** 'Pax' in Latin means 'peace' and 'Silica' is a key compound used in chip manufacturing — taken together they suggest that the supply chain for new technologies should promote peace and prosperity.



- **Genesis:** Announced by the US State Department to counter "Pax Sinica" (Chinese technological dominance) and reduce coercive dependencies on a single country (China).
- **Founding Members (The "Initial 9"):** USA, Japan, South Korea, Singapore, Netherlands, UK, Israel, UAE, and Australia.
- **Observers:** Canada, European union, the Organisation for Economic Co-operation and Development (OECD), Taiwan.
- **Scope:** A "full-stack" approach covering critical minerals, energy inputs, chip design, fabrication (fabs), AI infrastructure (data centers), and global logistics.

Reasons for the Pax Silica

1. Geopolitical: Countering "Pax Sinica"

- **Breaking Monopoly:** Reducing global reliance on China, which controls over **60% of lithium/cobalt** and **80% of rare earth processing**.
- **Preventing Coercion:** Addressing "weaponization of trade" where adversaries use export controls on minerals or chips as diplomatic leverage.
- **Strategic Blocks:** Moving from "Open Globalism" to "**Friend-shoring**," creating a secure tech-corridor among trusted democracies.

2. Economic: Securing the "AI Stack"

- **Supply Chain Resilience:** Transitioning from "Efficiency-first" (just-in-time) to "**Resilience-first**" (just-in-case) models to avoid pandemic-style chip shortages.
- **Protecting IP:** Ensuring that sensitive Intellectual Property (IP) in chip design and AI remains within a "trusted ecosystem" to prevent theft or state-sponsored espionage.

3. National Security: The "Silicon Shield"

- **Infrastructure Security:** Protecting the physical foundations of the digital age—**subsea fiber-optic cables, data centers, and energy grids**.
- **Technological Frontier:** Ensuring that the most advanced AI models (e.g., 3nm/2nm chips) are developed by allies to maintain a military and economic "qualitative edge."

Significance of Pax Silica for India

1. Access to the "Frontier Technology" Stack

- **Lithography & Tools:** Membership provides preferential access to "chokepoint" technologies, such as the Netherlands' **EUV (Extreme Ultraviolet) lithography machines**, essential for sub-7nm chip manufacturing.
- **Preferred Status:** India moves from being a "technology consumer" to a "trusted partner," ensuring it isn't left behind by the "**18-month moving gap**" policy (where the US and its allies maintain a permanent lead over non-members).

2. De-risking & Supply Chain Security

- **Reduced Vulnerability:** Directly addresses the "**Silicon Dependency**" on China. It provides an alternative to the 90% reliance on Chinese rare earth imports.
- **Critical Mineral Hub:** Facilitates joint ventures for mineral processing (Lithium, Cobalt) with partners like Australia and the UAE, moving India beyond just mining to high-value **refining**.

3. Force Multiplier for Domestic Missions

- **ISM & IndiaAI:** Aligns with the **India Semiconductor Mission (\$10bn)** and **IndiaAI Mission (₹10,372 cr)**. It helps transform India's "design-only" strength (20% of global talent) into **Intellectual Property (IP)** and domestic fabrication.

- **Investment Magnet:** Acts as a "sovereign guarantee" for global giants like **Micron, Tata-PSMC, and NVIDIA** to establish deeper roots in India.

4. Strategic & Defense Integration

- **Dual-Use Dominance:** Secures the "brains" of modern warfare. Ensures a steady supply of high-end chips for India's **missile guidance, surveillance, and cyber-defense** systems without restrictive end-user conditions.
- **Geopolitical Leverage:** India becomes the first **developing nation** and the first **non-treaty ally** to join, cementing its role as the "bridge" between the Global South and the West.

5. Economic "Reverse Brain Drain"

- **High-Skilled Jobs:** Creates a "Trusted Talent Corridor." As US visa policies tighten for non-allies, Indian engineers at the frontier of AI and chip design will find a globally aligned ecosystem within India to build world-class products.

India's Relevant Initiatives

India has been building its "Silicon Shield" through:

- **India Semiconductor Mission (ISM):** A \$10 billion incentive scheme resulting in major fab projects in **Gujarat (Dholera)** and **Assam**.
- **IndiaAI Mission:** A ₹10,372 crore initiative focusing on sovereign AI, expanding GPU capacity to 34,000+, and developing indigenous LLMs.
- **National Critical Mineral Mission (NCMM):** Focusing on domestic exploration (e.g., J&K Lithium) and overseas acquisitions (KABIL's blocks in Argentina).
- **Minerals Security Partnership (MSP):** India's participation in this US-led mineral grouping complements the goals of Pax Silica.
- **Quad Critical Minerals Initiative 2025):** A strategic partnership between **India, USA, Japan, and Australia**.
- **Focus:** Shared R&D for "mineral substitution" (finding alternatives to rare earths) and establishing a "**Quad Recycling Index**" to track supply resilience.

Challenges for India

1. Capability & Entry Barriers

- **Late Entrant Disadvantage:** India joined Pax Silica (and MSP) after the "Initial 9" had already defined the standards and rules. This limits India's **agenda-setting power**.
- **Absence of "Edge" Technology:** Unlike the Netherlands (Lithography) or Japan (Specialized Chemicals), India currently lacks a "chokepoint" technology that would make it indispensable to the grouping.

2. Structural & Infrastructure Hurdles

- **Input Dependencies:** High reliance on imports for **semiconductor-grade chemicals**, ultra-pure water, and specialty gases.
- **Logistics & Utilities:** Fabs require 24/7 uninterrupted power and millions of gallons of water daily. Any fluctuation in the grid can lead to losses worth millions of dollars.
- **Geopolitical Balancing:** Deepening alignment with a US-led "Pax" increases the risk of **Chinese retaliation** (e.g., export bans on Gallium or Germanium, which India still imports).

Way Forward

- **Leveraging Pax Silica:** India must transition from merely being a member to actively shaping the coalition's norms on **data privacy, AI ethics, and export controls**.

- **Niche Specialization:** Instead of competing in the high-end smartphone chip market (dominated by Taiwan), India should focus on becoming a global hub for **Automotive, 5G, and Power Electronics** (28nm to 90nm "workhorse" nodes).
- **Frontier R&D:** Shift focus from "Assembly and Testing" (low value-add) to **Frontier Fabrication (Sub-7nm)** and **3D Glass Packaging** to secure a technological "chokepoint."
- **Intellectual Property (IP):** Encourage Indian startups to move from "Design Services" (designing for others) to owning the **Core Processor Architectures** (e.g., RISC-V based indigenous processors).
- **Component Localization:** Incentivize the production of motherboards, PCBs, and sensors locally so that "Made in India" chips have a ready domestic market.
- **Human Capital:** Scale the "Chips to Startup" (C2S) program to create a dedicated cadre of "Fab-ready" technicians, not just design engineers.
- **Reverse Brain Drain:** Create "Special Tech Zones" with global-standard infrastructure to attract the Indian diaspora working in Silicon Valley and TSMC.
- **Single Window 2.0:** Establish a "One-Stop-Shop" for semiconductor investors to fast-track land, water, and 24/7 "Gold-Standard" power clearances.

2.8. INDIA-GREECE DEFENCE RELATIONS

Context:

Recently, on February 9, 2026, the Union Defence Minister of India, Rajnath Singh, held a high-level bilateral meeting with the Greek Minister of National Defence, Nikos Dendias, at the Manekshaw Centre in New Delhi.



1. Evolution of Strategic Ties

- **1998 MoU:** Bilateral defense cooperation is rooted in a Memorandum of Understanding signed in 1998, which was notably established despite international sanctions against India following the Pokhran-II nuclear tests.
- **Strategic Partnership (2023):** During PM Narendra Modi's visit to Athens in August 2023, the relationship was elevated to a **Strategic Partnership**, prioritizing security and defense.
- **Gateway to Europe:** Greece is increasingly viewed as India's primary strategic anchor in the Mediterranean and a gateway for the **India-Middle East-Europe Economic Corridor (IMEC)**.

2. Joint Military Exercises and Interoperability

- **Air Force Cooperation:**
 - **Exercise INIOCHOS:** The Indian Air Force (IAF) has become a regular participant in this multinational exercise hosted by the Hellenic Air Force at Andravida Air Base.
 - **Exercise Tarang Shakti (2024):** Greece participated in India's largest multinational air exercise with F-16 fighter jets, marking a significant upgrade in tactical synergy.
- **Naval Cooperation:**
 - **Maiden Maritime Exercise (2025):** The Indian Navy (represented by **INS Trikand**) and the Hellenic Navy conducted their first bilateral exercise in the Mediterranean Sea near Salamis Naval Base.
 - **Port Calls:** Regular visits of Indian warships to the **Souda Bay** in Crete, a vital NATO naval base, underscore the depth of maritime logistics cooperation.
- **Army Cooperation:**
 - **Joint Services Staff Talks:** Institutionalized in early 2026 to coordinate long-term military-to-military engagement and training programs.

3. Defense-Industrial and Technology Collaboration

- **Joint Ventures:** Both nations are exploring collaboration in **drone technology, cybersecurity, and shipbuilding**.
- **Maintenance and Repair:** Discussions are underway for India to provide maintenance support for Greece's fleet, potentially leveraging the commonality in certain aerospace platforms.
- **Innovation:** The **MCP-2026** emphasizes cooperation in "Special Operations" and defense innovation hubs.

4. Strategic and Multilateral Alignment

- **Maritime Security:** Both nations advocate for a "Free and Open Indo-Pacific" and a rule-based order in the Mediterranean, adhering strictly to the **UNCLOS (United Nations Convention on the Law of the Sea)**.
- **Mutual Interests:** Greece consistently supports India on the **Kashmir issue** and its bid for a permanent seat in the **UNSC**, while India supports Greece on the **Cyprus issue**.
- **Counter-Terrorism:** Cooperation through intelligence sharing, specifically targeting transnational terror networks in the Mediterranean region.

5. Greece – Key Map Points

- Located in **Southeastern Europe** at the junction of **Europe–Asia–Africa**.
- Surrounded by **three seas**:
 - **Aegean Sea** (east)

- **Ionian Sea** (west)
- **Mediterranean Sea** (south)
- **Borders:**
 - **North** – Albania, North Macedonia, Bulgaria
 - **East** – Turkey
- **Important Straits:**
 - **Dardanelles** (connects Aegean Sea to Sea of Marmara)
 - **Bosporus** (connects Sea of Marmara to Black Sea)
(Together called the *Turkish Straits* – strategically vital)
- **Key Islands:**
 - **Crete** – largest island (southernmost)
 - **Rhodes** – near Turkey
 - **Cyclades & Dodecanese** groups (Aegean Sea)
- **Peninsulas:**
 - **Peloponnese** – separated by **Corinth Canal**
- **Strategic importance:**
 - Gateway between **Black Sea & Mediterranean trade routes**
 - NATO & EU member

2.9. INDIA-MALAYSIA RELATIONS

Context

Recently, Prime Minister Narendra Modi concluded a high-profile two-day official visit to Malaysia (February 7–8, 2026), marking his first foreign visit of the year. During this visit, India and Malaysia reaffirmed their **Comprehensive Strategic Partnership (CSP)**—originally elevated in August 2024—and signed 11 landmark agreements **spanning semiconductors, digital technologies, and defense**.

The visit was characterized by a "special" strategic alignment, with both nations agreeing to promote trade settlement in local currencies (**Indian Rupee and Malaysian Ringgit**) and formalizing a framework for semiconductor supply chain resilience.



1. Political and Strategic Framework

- **Comprehensive Strategic Partnership (CSP):** Elevated from a "Enhanced Strategic Partnership" in 2024, focusing on high-tech sectors and maritime security.
- **ASEAN Centrality:** Malaysia is a founding member of ASEAN and will hold the **ASEAN Chairmanship in 2025**, making it a vital partner for India's **Act East Policy**.
- **Global Platforms:** Both nations collaborate in the United Nations (UN), East Asia Summit (EAS), and the Indian Ocean Rim Association (IORA). Notably, Malaysia has expressed support for India's permanent membership in a reformed **UNSC**.

2. Economic and Trade Relations

- **Trade Volume:** Malaysia is India's **3rd largest trading partner within ASEAN**. Bilateral trade stood at approximately **\$19.86 billion** in 2024-25.

- **Trade Agreements:** Economic ties are governed by the **Malaysia-India Comprehensive Economic Cooperation Agreement (MICECA)** and the **ASEAN-India Trade in Goods Agreement (AITIGA)**, the latter currently being reviewed to reduce trade deficits.
- **Local Currency Settlement:** To reduce dependence on the US Dollar, both countries have operationalized mechanisms to settle trade in **INR and Ringgit**.
- **Palm Oil:** India remains the **world's largest importer of vegetable oils**, and Malaysia is its primary source of palm oil alongside Indonesia

3. Technology and Digital Cooperation

- **Semiconductors:** Malaysia is the world's **6th largest semiconductor exporter**. A new MoU focuses on R&D, assembly, and testing (OSAT), with major Indian firms like **Tata Electronics** exploring investment.
- **Digital Payments:** Integration between India's **UPI (via NIPL)** and Malaysia's **PayNet** was prioritized to facilitate low-cost cross-border remittances.
- **Energy:** Collaborative efforts in **Green Hydrogen** and **Green Ammonia** are being led by companies like PETRONAS and Gentari.

4. Defense and Security

- **Military Exercises:**
 - **Exercise Harimau Shakti:** A bilateral joint army exercise (5th edition held in Rajasthan, Dec 2025).
 - **Exercise Samudra Laksamana:** A bilateral naval exercise.
- **Strategic Platforms:** Cooperation via the **ADMM-Plus** (ASEAN Defence Ministers' Meeting Plus) and the co-chairing of the **Counter-Terrorism Working Group (2024-2027)**.
- **Defense Industry:** India has offered maintenance and life-extension programs for Malaysia's **Su-30 aircraft** fleet, given the commonality of the platform.

5. Cultural and Diaspora Links

- **The "Living Bridge":** Malaysia hosts the **second-largest Indian diaspora** (approx. 3 million people, largely of Tamil origin).
- **Institutional Links:** Establishment of the **Thiruvalluvar Chair** at the University of Malaya and the announcement of a new **Indian Consulate General in Sabah**.

6. Malaysia: Key Map Points

- Located in Southeast Asia, **near the Equator**.
- Divided into two parts: Peninsular Malaysia & East Malaysia (on Borneo Island), separated by the South China Sea.
- **Strait of Malacca lies on its west** → major global maritime chokepoint.
- Neighbours
 - Thailand (north, land)
 - Singapore (south, across strait/causeway)
 - Indonesia (maritime + Borneo land border)
 - Brunei (on Borneo, surrounded by Malaysia)
 - Philippines (maritime, northeast)
- **Seas around:** South China Sea, Sulu Sea, Celebes Sea
- Highest peak: Mount Kinabalu (Sabah, Borneo)

- States on Borneo: Sabah & Sarawak
- **Capital: Kuala Lumpur**
- Administrative capital: Putrajaya

2.10. US-BANGLADESH TRADE PACT (2026)

Context:

Recently, the United States and Bangladesh have finalized a landmark **Agreement on Reciprocal Trade** on February 9, 2026. This pact follows closely on the heels of a similar Indo-US trade framework, signaling a significant shift in Washington's trade policy toward South Asia by offering Bangladesh competitive tariff advantages that directly impact India's export landscape.



Key Highlights of the US-Bangladesh Trade Pact (2026)

1. Tariff Structure and Reciprocal Rates

- **General Reduction:** The US has lowered the reciprocal tariff on Bangladeshi goods to **19%** (down from the previous 20% and the original 37%).
- **Comparison with India:** While India secured a slightly lower general rate of **18%** in its recent deal, the Bangladesh pact includes specific "carve-outs" that may offer deeper advantages in certain sectors.

2. The "Zero-Tariff" Textile Clause

- **Input-Linked Benefit:** The US will provide **zero-duty access** for a specific volume of Bangladeshi ready-made garments (RMG), provided they are manufactured using **US-produced cotton** or man-made fibers.
- **Strategic Shift:** This move is designed to incentivize Bangladesh to shift its raw material sourcing from India (traditionally its largest supplier) to the United States.

3. Market Access for US Goods

- **Agricultural Commitment:** Bangladesh has pledged to purchase approximately **\$3.5 billion** worth of US agricultural products, including wheat, soy, corn, and notably, cotton.
- **Energy Security:** The pact includes an agreement for Bangladesh to procure **\$15 billion** worth of US energy products over the next 15 years.
- **Industrial Goods:** Bangladesh will grant preferential access to US chemicals, medical devices, machinery, and automobiles, while recognizing **US FDA standards** and motor vehicle safety emissions.

4. Regulatory and Labor Reforms

- **Labor Rights:** Bangladesh has committed to an **11-point agenda** to modernize labor laws, enhance freedom of association, and prohibit forced labor, aimed at eventually regaining **GSP (Generalized System of Preferences)** benefits.
- **Digital Trade:** The agreement ensures the free transfer of data across borders and supports a moratorium on customs duties for electronic transmissions.

5. Implications for India

- **Textile Competition:** Indian exporters of garments and textiles face a "structural disadvantage" as the tariff gap between Indian and Bangladeshi goods in the US market has effectively vanished or reversed in specific categories.
- **Cotton Exports:** India, which exported nearly **\$1.6 billion** in cotton yarn to Bangladesh in 2024, may see a decline in demand as Dhaka pivots to US cotton to avail of zero-duty benefits.
- **Geopolitical Balancing:** The deal highlights Bangladesh's effort to balance its economic ties between India, China, and the US, especially following the recent cooling of India-Bangladesh bilateral relations.

2.11. THE LOOMING CRISIS OF INVASIVE ALIEN PLANTS

Context:

- **Recently**, environmental scientists have sounded an alarm on a burgeoning **ecological crisis**: as the Arctic warms at nearly four times the global average—a phenomenon known as **Arctic Amplification**—it is becoming increasingly hospitable to **invasive plant species**.



Key Concepts

1. Arctic Amplification & The "Thermal Niche"

- **Definition:** The phenomenon where the Arctic warms at a significantly faster rate than the global average due to the **Albedo-Feedback Loop** (melting white ice exposes dark ocean/land, which absorbs more heat).
- **Thermal Niche Expansion:** Warmer temperatures allow temperate species (e.g., *Cow Parsnip*, *Sticky Ragwort*) to survive and reproduce in areas previously too hostile for their seeds to germinate.

2. Pathways of Invasion (The Human Vector)

- **Shipping:** The melting of sea ice has opened the **Northern Sea Route (NSR)** and the **Northwest Passage**. Ballast water and hull fouling are primary vectors for marine and coastal invasive species.
- **Tourism & Research:** Seeds "hitchhike" on the clothing, hiking boots, and equipment of visitors to Arctic "hotspots" like **Svalbard** (Norway) and **Western Alaska**.
- **Construction:** Infrastructure development for oil and gas extraction often uses imported soil or equipment contaminated with non-native seeds.

3. " Sleeper Species " Phenomenon

- These are alien species that have been present in the Arctic for years in small, dormant populations.
- **The Trigger:** Once a specific temperature threshold is crossed, these species "wake up," exhibiting rapid, aggressive growth that outcompetes native flora.

4. Ecological Feedbacks: The Invasive-Fire-Permafrost Link

- **Altered Fire Regimes:** Invasive grasses (e.g., *Smooth Brome*) create a more continuous and flammable fuel load than native tundra plants.

- **Permafrost Impact:** Frequent wildfires strip away the insulating organic layer of the soil. This exposes the **permafrost**, accelerating its thaw and releasing stored **Methane** and **Carbon Dioxide**.

International Governance & Frameworks

- **ARIAS (Arctic Invasive Alien Species) Strategy:** A specialized action plan by the **Arctic Council** (Working Groups: CAFF & PAME) to prevent, detect, and respond to biological invasions.
- **Kunming-Montreal Global Biodiversity Framework (Target 6):** Aims to reduce the rate of introduction and establishment of invasive alien species by at least **50% by 2030**.
- **India's Role:** As an **Observer** in the Arctic Council, India's **Arctic Policy (2022)** emphasizes "Environmental Protection" and monitoring climate-induced biological changes that impact global weather (including the Indian Monsoon).

2.12. INDIA AND MALAYSIA RELATIONS

Context:

India and Malaysia have recently elevated their relationship to a **Comprehensive Strategic Partnership**, reflecting a shared vision for a stable Indo-Pacific. This partnership is a cornerstone of **India's Act East Policy**.

Historical Background of the India and Malaysia Relations:

- **Ancient Ties:** Links date back to the 1st century AD through maritime trade, influenced by Buddhism, Hinduism, and later Islam.
- **Colonial Era:** Large-scale migration of Indians (mostly Tamils) occurred during British rule to work in rubber plantations.
- **Diplomatic Launch:** Relations were formally established in 1957 following Malaysia's independence.
- **The "Mahathir" Friction:** Relations faced a diplomatic chill under **PM Mahathir Mohamad (around 2019)** due to his comments on **Article 370** and the **Citizenship Amendment Act (CAA)**, leading to a brief boycott of Malaysian palm oil by Indian traders.



Areas of Cooperation of the India and Malaysia Relations:

1. Economic and Trade Cooperation

- **Trade Volume:** Bilateral trade has reached approximately **\$20 billion** in recent years. Malaysia is **India's 3rd largest trading partner in ASEAN**.
- **Currency Settlement:** In a move to "de-dollarize" bilateral trade, both nations have operationalized a mechanism to settle trade in **Indian Rupees (INR)** through Special Rupee Vostro Accounts (SRVA).
- **Key Commodities:**
 - **India's Imports:** Dominated by **Palm Oil** (India is the **largest buyer**), Mineral Oils, and Electrical machinery.
 - **India's Exports:** Primarily Mineral fuels, Aluminum, Meat products, and Organic chemicals.

- **Investment:** Major Malaysian investments in India include infrastructure (highways/airports) and telecommunications, while Indian IT giants (TCS, HCL, Infosys) have large hubs in Cyberjaya.

2. Defense and Security

- **Hardware & LCA Tejas:** Malaysia has emerged as a top prospective buyer for India's LCA Tejas fighter jets. India has also offered to set up a Maintenance, Repair, and Overhaul (MRO) facility in Malaysia.
- **Joint Exercises:**
 - **Harimau Shakti:** Annual military exercise focused on counter-insurgency and jungle warfare.
 - **Samudra Laksamana:** Naval exercise focused on maritime security in the Indo-Pacific.
- **Maritime Security:** Both nations collaborate on patrolling the **Strait of Malacca**, one of the world's most critical maritime "chokepoints."

3. Technology and Digital Economy

- **Semiconductors:** Malaysia is a global leader in **Assembly, Testing, and Packaging (ATP)** of chips. Under the new partnership, India seeks to link its "India Semiconductor Mission" with Malaysia's established ecosystem.
- **Fintech & UPI:** Following the success of UPI in India, both countries are working to integrate **UPI with Malaysia's PayNet** to allow seamless cross-border QR code payments.
- **Digital Public Infrastructure (DPI):** India is sharing its "India Stack" (Aadhar, UPI, DigiLocker) expertise to help Malaysia enhance its digital governance.

4. Energy and Sustainability

- **Green Hydrogen:** With Malaysia's Petronas investing heavily in Indian renewables, both countries are exploring a **Green Hydrogen corridor**.
- **Carbon Capture:** In line with global climate goals, there is emerging cooperation in **Direct Air Capture (DAC)** technology for carbon sequestration and synthetic fuel production.

5. Cultural and People-to-People Ties

- **The Diaspora:** Home to over **2.7 million** People of Indian Origin (PIOs), Malaysia hosts one of the largest Indian diasporas in the world.
- **Education:** Recognition of medical and engineering degrees is a key agenda item to facilitate the movement of professionals.
- **Tourism:** India is one of the top source markets for Malaysian tourism, aided by recent **visa-free entry** initiatives for Indian citizens.

Significance of the India and Malaysia Relations:

1. Strategic and Geopolitical Significance

Malaysia is the "central pillar" of India's **Act East Policy** and the **Indo-Pacific Vision**.

- **Chokepoint Control:** Malaysia sits astride the **Strait of Malacca**, through which nearly **60% of India's trade** to the East passes. Stability here is vital for India's energy and economic security.
- **ASEAN Centrality:** As a founding member of ASEAN, Malaysia's support is crucial for India to balance regional dynamics and ensure a "rules-based order" in the South China Sea.
- **Multipolarity:** Both nations share a vision of a multipolar Asia where no single power (referencing China) dominates the maritime or economic landscape.

2. Economic and Technological Synergy

The relationship is moving "from Palm Oil to Microchips."

- **Semiconductor Value Chain:** Malaysia is the **world's 6th largest semiconductor exporter**, excelling in **Packaging and Testing**. This is critical for the **India Semiconductor Mission** as Indian firms seek to bridge the gap between chip design and the final product.
- **Digital Public Infrastructure (DPI):** Malaysia is a key partner for the internationalization of India's **UPI** and digital governance models.
- **Local Currency Trade:** By settling trade in **INR and Malaysian Ringgit**, both nations are insulating their economies from global dollar fluctuations, a model for the "Global South."

3. The Diaspora: The "Living Bridge"

- **Demographic Weight:** With **2.9 million people of Indian origin** (the **3rd largest** Indian diaspora globally), the community holds significant political and economic power in Malaysia.
- **Strategic Capital:** The diaspora serves as a reservoir of soft power, facilitating trade, cultural exchange, and high-level political trust.
- **Welfare & Mobility:** Recent moves like the extension of **OCI cards to the 6th generation** and **visa-free travel** have solidified this human connection.

4. Defense and Regional Security

- **Net Security Provider:** India's offer of advanced military hardware (LCA Tejas, BrahMos) and maintenance (MRO) facilities positions India as a credible security partner for Malaysia, reducing its dependence on Western or Chinese arms.
- **Counter-Terrorism:** Joint efforts in deradicalization and intelligence sharing are vital for regional stability, especially given the history of extremist movement across the maritime borders.

Challenges in the India and Malaysia Relations:

- **Internal Matters:** Past tensions arose from Malaysia's vocal stance on India's internal policies, specifically the **Abrogation of Article 370 (Kashmir)** and the **Citizenship Amendment Act (CAA)**.
- **The Zakir Naik Issue:** A major point of contention is the extradition of fugitive preacher Zakir Naik. India continues to push for his return, while Malaysia has historically been hesitant, citing the need for "compelling evidence" and legal procedures.
- **Palm Oil Diplomacy:** Trade has often been used as a tool of "economic signaling." India's fluctuating import duties and past unofficial boycotts (due to political statements) create market volatility.
- **Trade Deficit:** India faces a persistent trade deficit with Malaysia. Efforts are ongoing to review the **MICECA** (India-Malaysia Comprehensive Economic Cooperation Agreement) and the **AITIGA** (ASEAN-India Trade in Goods Agreement) to create a more balanced trade environment.
- **South China Sea (SCS):** While both nations favor a "rules-based order" and **UNCLOS**, their approaches differ. Malaysia maintains a cautious, non-confrontational "bureaucratic" approach toward China's incursions, whereas India has become more vocal about maritime security in the Indo-Pacific.
- **ASEAN Centrality:** India's challenge is to align its "Act East Policy" with Malaysia's regional priorities without getting caught in the US-China rivalry.

- **Labor Welfare:** Issues regarding the social security of Indian workers and visa facilitation (like the **2026 Social Security Agreement**) require constant diplomatic management to avoid becoming domestic political flashpoints in either country.

Way Forward

1. Strengthening the "Tech-Bridge"

- **Semiconductor Integration:** India should leverage Malaysia's 50-year expertise in **Outsourced Semiconductor Assembly and Test (OSAT)** to complement its own "India Semiconductor Mission." Creating a joint supply chain corridor can reduce dependence on East Asian giants.
- **Digital Sovereignty:** Scaling up the integration of **UPI and PayNet** will facilitate seamless remittances for the 3-million-strong diaspora and boost small-business trade.

2. Institutionalizing Economic Ties

- **MICECA Review:** Expediting the review of the Malaysia-India Comprehensive Economic Cooperation Agreement is essential to address the trade deficit and include modern chapters on E-commerce and Labor mobility.
- **Local Currency Expansion:** Encouraging more banks to adopt the **INR-Ringgit** settlement mechanism will provide a cushion against global currency volatility.

3. Defense and Maritime Security

- **From Buyer to Partner:** Transitioning from "exercises" to "co-production." If Malaysia selects the **LCA Tejas**, India should establish the proposed MRO (Maintenance, Repair, and Overhaul) hub in Malaysia, serving the wider ASEAN region.
- **Strait of Malacca Cooperation:** Enhanced coordinated patrols and sharing of "White Shipping" (commercial) data under the **SAGAR** initiative to ensure the safety of global sea lanes.

4. Navigating Diplomatic Sensitivities

- **Silent Diplomacy:** Creating a dedicated high-level mechanism to handle sensitive issues like the extradition of **Zakir Naik** or domestic political statements, ensuring they do not derail the broader economic and strategic agenda.
- **ASEAN Leadership:** As Malaysia takes on a leading role in ASEAN, India should use this opportunity to synchronize its **Act East Policy** with Malaysia's regional vision for the South China Sea.

2.13. INDIA GREECE RELATION

Context:

The relationship between India and Greece has undergone a paradigm shift, evolving from a historical and cultural association into a **Strategic Partnership**. As both nations sit at the crossroads of critical maritime corridors, their synergy is vital for the emerging Indo-Pacific and Mediterranean security architecture.



Historical Timeline: India-Greece Relations

1. Ancient Origins (4th – 1st Century BCE)

- **The Alexander Catalyst (326 BCE):** Alexander the Great's arrival at the Beas River marked the first formal contact. The established **Satraps (Provinces)** created a permanent Greek presence in Northwest India.
- **Mauryan Diplomacy:** The defeat of Seleucus Nicator by Chandragupta Maurya led to the first known international matrimonial alliance and the appointment of **Megasthenes**, whose work **Indica** remains a foundational text for Indian history.
- **Indo-Greek Synthesis:** The reign of **Menander I (Milinda)** saw the birth of the **Milinda Panha**, a philosophical dialogue merging Greek logic with Buddhist tenets.

2. Cultural & Intellectual Fusion

- **Gandhara School of Art:** A unique Greco-Buddhist artistic style where Indian spiritual themes were rendered with Greek physical realism (e.g., **Buddha portrayed with curly hair and muscular features like Apollo**).
- **Science & Astronomy:** Exchange of knowledge was profound; Indian astronomy (**Gargi Samhita**) openly acknowledges Greek mastery in the field.
- **Philosophy:** Parallel developments in **Stoicism (Greece)** and **Upanishadic thought (India)** suggest deep intellectual cross-pollination.

3. Trade & The Colonial Gap

- **Maritime Silk Route:** During the Roman/Byzantine eras, Greeks acted as primary intermediaries for Indian spices and silk.
- **Merchant Communities:** In the 1770s, Greek traders established a presence in **Kolkata and Dhaka**. The Greek Orthodox Church in Kolkata (1780) stands as a legacy of this era.

4. Modern Era (1947 – Present)

- **Establishment of Ties (1950):** Formally entered diplomatic relations post-independence.
- **Strategic Reliability (1998):** Greece stood out by **refusing to condemn India's nuclear tests** (Pokhran-II), reinforcing trust during a period of global isolation.
- **Diplomatic Reciprocity: India:** A "**quid pro quo**" of diplomatic support has defined the modern era. India supports Greece on the **Cyprus issue**, while Greece consistently supports India's position on **Kashmir** and its claim for a permanent seat at the UNSC.

Area of Cooperation of the India Greece Relations

1. Defense and Security Cooperation

Defense is the strongest pillar of the upgraded **Strategic Partnership** (2023).

- **Joint Exercises:** Regular participation in high-stakes drills like **Exercise Iniochos** (Air Force) and **Exercise Tarang Shakti**.
- **Maritime Security:** Both nations advocate for **UNCLOS** (United Nations Convention on the Law of the Sea) and a "Free and Open Indo-Pacific." They collaborate on anti-piracy and security in the Mediterranean and Indian Ocean.
- **Defense Industry:** Moving from buyer-seller relationships to **joint production** of defense equipment and maintenance of hardware (especially aircraft).

2. Connectivity and Infrastructure (IMEC)

Greece is India's "**Gateway to Europe**" via the Mediterranean Sea.

- **IMEC Corridor:** The **India-Middle East-Europe Economic Corridor** is a game-changer. Greece's **Port of Piraeus** is a leading candidate to be the primary European entry point for Indian goods.
- **Civil Aviation:** Increased focus on direct flight connectivity to boost tourism and business exchange.

3. Economic and Trade Relations

- **Trade Target:** Both nations have committed to **doubling bilateral trade by 2030** (currently ~\$2 billion).
- **Key Sectors:**
 - **Shipping:** Utilizing Greek expertise in global shipping (Greece owns roughly 20% of the world's merchant fleet).
 - **Agriculture:** Joint ventures in food processing and cold storage.
 - **Infrastructure:** Indian firms (like GMR) are actively building major infrastructure in Greece, such as the **Kastelli Airport** in Crete.

4. Energy and Climate Change

- **International Solar Alliance (ISA):** Greece joined the ISA in 2021, marking a shift toward renewable energy collaboration.
- **Green Hydrogen:** Both nations are exploring the production of green fuels for shipping.

5. Migration and Mobility

- **MMPA:** A **Migration and Mobility Partnership Agreement** is being finalized to facilitate the movement of skilled professionals, students, and workers while curbing illegal migration.

6. Science and Technology

- **Space Cooperation:** Discussions between **ISRO** and the **Hellenic Space Center** for satellite tracking and maritime surveillance.
- **Digital Economy:** Cooperation in **UPI** (Unified Payments Interface) integration and FinTech to ease transactions for Indian tourists and businesses in Greece

Significance of the India-Greece Relationship

1. Geopolitical Significance: The "Counter-Axis" Strategy

- **The Turkey Factor:** Turkey's growing "Triple Axis" with **Pakistan and Azerbaijan** (supporting each other on Kashmir and Nagorno-Karabakh) has pushed India to seek reliable partners in the Eastern Mediterranean. Greece, having its own tensions with Turkey, is a natural strategic counterweight.
- **Support on Core Issues:** Greece is a consistent supporter of India's stance on **Kashmir**, while India reciprocates by supporting Greece on the **Cyprus dispute**. This "sovereignty-based" mutual support is a bedrock of their diplomacy.

2. Geo-economic Significance: The Gateway to Europe

- **IMEC Terminal:** With the **India-Middle East-Europe Economic Corridor (IMEC)**, India needs a stable entry point into the European Single Market. The Greek **Port of Piraeus** (one of the largest in the Mediterranean) serves as the most logical logistical terminus for Indian goods.
- **Alternative to BRI:** Strengthening ties with Greece helps India provide an alternative to China's "Belt and Road Initiative" (BRI), as China currently holds a significant stake in Piraeus.

3. Maritime & Security Significance

- **Mediterranean Footprint:** As India expands its naval reach, Greece provides a "home base" in the Mediterranean. Joint exercises in these waters allow the **Indian Navy and Air Force** to project power far beyond the Indian Ocean.
- **Adherence to UNCLOS:** Both nations are vocal proponents of the **United Nations Convention on the Law of the Sea (UNCLOS)**, countering unilateral territorial claims by aggressive neighbors (China in the South China Sea and Turkey in the Aegean Sea).

4. Energy & Sustainability Significance

- **Green Shipping:** Greece owns nearly **20% of the world's merchant fleet**. Collaboration in **Green Hydrogen** is significant for decarbonizing global shipping routes.
- **Energy Transit:** Greece is positioning itself as an energy hub for Europe (via the EastMed pipeline). Partnering with Greece gives India a seat at the table in Mediterranean energy politics.

5. Demographic & Labor Significance

- **Migration Management:** Greece faces a labor shortage in agriculture and construction, while India has a surplus of skilled and semi-skilled labor. The **Migration and Mobility Partnership** ensures a legal, regulated flow of people, benefiting both economies and reducing illegal migration.

Challenges of the India Greece Relation

1. The "China Factor" in Greece

- **Port of Piraeus:** A major challenge is that the **COSCO Shipping** (a Chinese state-owned enterprise) owns a majority stake (67%) in the Port of Piraeus.
- **Strategic Conflict:** Since Piraeus is the intended terminal for the **IMEC**, China's control over the infrastructure could pose security and operational risks for Indian trade interests.
- **Investment Competition:** China has been a primary investor in Greece during its debt crisis, making it difficult for Greece to completely decouple from Beijing's economic influence.

2. Regional Volatility and IMEC Implementation

- **The Middle East Crisis:** The IMEC corridor (India-UAE-Saudi Arabia-Jordan-Israel-Greece) relies heavily on stability in West Asia. Ongoing conflicts (like the Israel-Hamas-Hezbollah situation) threaten the viability of the rail and sea links required to reach Greek shores.
- **Logistical Gaps:** There is still a lack of seamless rail-to-ship connectivity between the various transit points of the corridor.

3. The Turkey-Pakistan-Azerbaijan Axis

- **Security Pressures:** Turkey's aggressive stance in the Eastern Mediterranean and its military-political alignment with Pakistan forces Greece and India into a defensive posture.
- **Balancing Act:** While this brings India and Greece closer, it also complicates India's broader relations in the Islamic world, as Turkey remains an influential regional player.

4. Economic and Trade Bottlenecks

- **Low Bilateral Trade:** Despite the potential, trade stands at roughly **\$2 billion**, which is significantly lower than India's trade with other European partners like France or Germany.
- **Regulatory Hurdles:** Indian exporters often face stringent **EU sanitary and phytosanitary (SPS) standards**, which act as non-tariff barriers for agricultural and pharmaceutical products.
- **Limited Direct Connectivity:** The lack of frequent direct flights and shipping lines currently increases the "cost of doing business."

5. Technological and Environmental Costs

- **High Cost of Green Transition:** While both nations are keen on **Direct Air Capture (DAC)** and Green Hydrogen, these technologies are currently expensive.
- **R&D Gap:** Scaling DAC from a niche experiment to a mainstream source for **synthetic low-carbon fuels** in the shipping industry requires massive capital investment that neither nation has fully committed yet.

Way Forward

- **Diversifying Infrastructure:** To mitigate the "China Factor" at Piraeus, India should invest in and utilize alternative Greek ports such as **Thessaloniki** or **Alexandroupolis**, ensuring multiple gateways into Europe.
- **Operationalizing IMEC:** India must lead diplomatic efforts to stabilize the "Middle-East segment" of the corridor while fast-tracking the digital and physical integration of customs and rail links.
- **Defense Industrial Integration:** Shift from joint exercises to **joint manufacturing**. Establishing "Maintenance, Repair, and Overhaul" (MRO) hubs in Greece for Indian-made platforms can serve the broader Mediterranean and European markets.
- **Green Technology Leadership:** Leverage the **International Solar Alliance** to scale **Direct Air Capture (DAC)** technology. This can transform the Greek shipping fleet into a leader in **synthetic low-carbon fuels**, fulfilling both nations' **net-zero commitments**.
- **Institutionalizing Mobility:** Early implementation of the **Migration and Mobility Partnership Agreement (MMPA)** to provide Greece with skilled labor in sectors like IT, nursing, and agriculture, while protecting the rights of Indian workers.
- **Soft Power Synergy:** Utilize the shared **Greco-Buddhist heritage** (Gandhara Art) and the International Day of Yoga to increase people-to-people ties and boost the tourism circuit between Athens and Buddhist sites in India.

Conclusion

The India-Greece partnership is a cornerstone for **Viksit Bharat @2047**, transforming the Mediterranean into a "maritime bridge" for Indian aspirations. By integrating the **IMEC** with Greek logistics and pioneering **Green Hydrogen** technologies, both nations can lead the global energy transition, securing India's role as a **Vishwa Mitra** and an economic powerhouse.

3.1. 16TH FINANCE COMMISSION

Context: Recently, the Union Finance Minister tabled the report of the **16th Finance Commission** in Parliament along with the Union Budget 2026-27. The government has accepted the Commission's recommendation to maintain the **vertical devolution** of central taxes to States at **41%** for the five-year period starting from April 1, 2026.



1. Constitutional and Statutory Framework

- **Article 280:** The Finance Commission (FC) is a **quasi-judicial, constitutional body** constituted by the President of India every five years or earlier.
- **Article 281:** It mandates the President to lay the recommendations of the FC, along with an **Action Taken Memorandum (ATM)**, before both Houses of Parliament.
- **Article 275:** Deals with **Grants-in-aid** from the Consolidated Fund of India to specific states in need of assistance.
- **Finance Commission Act, 1951:** Provides the legal framework for the qualifications of the Chairman and members.

2. Qualifications for Members of the 16th FC

The Chairman

The Chairman must be a person having “**experience in public affairs.**” * This is a broad qualification, allowing for the appointment of eminent economists (like Dr. Arvind Panagariya), seasoned bureaucrats, or distinguished politicians.

The Four Members

The four members are selected from among people who possess the following specific qualifications:

- **Judicial Expert:** A person who is, or has been, or is qualified to be appointed as a **Judge of a High Court.**
- **Financial Expert:** A person who has specialized knowledge of the **finances and accounts of the Government.**
- **Administrative Expert:** A person who has had wide experience in **financial matters and in administration.**
- **Economic Expert:** A person who has **specialized knowledge of economics.**

3. Key Recommendations (2026-2031)

A. Vertical Devolution

- The Commission recommended retaining the share of states in the net proceeds of central taxes at **41%**.
- The remaining **59%** stays with the Centre to fund national priorities, defense, and centrally sponsored schemes.

B. Horizontal Devolution (The Distribution Formula)

The 16th FC adjusted the weights for distributing funds among states to balance “Equity” (need-based) and “Efficiency” (performance-based).

Criterion	Weightage (16th FC)	Weightage (15th FC)
Income Distance	42.5%	45%
Population (2011 Census)	17.5%	15%
Area	10%	15%
Forest and Ecology	10%	10%
Demographic Performance	10%	12.5%
Contribution to GDP (New)	10%	–
Tax & Fiscal Efforts	Removed	2.5%

C. Grants and Local Bodies

- **Local Body Grants:** Recommended **₹7.91 trillion** for the award period, split **60:40** between rural and urban local bodies.
- **Urbanization Premium:** Introduced a **₹10,000 crore** incentive to support states in transitioning from rural to urban governance.
- **Wastewater Management:** Allocated **₹56,100 crore** specifically for revamping drainage systems in middle-level municipalities.

D. Fiscal Road Map

- **State Deficits:** Recommended capping states’ fiscal deficits at **3% of GSDP**.
- **Cesses and Surcharges:** The Commission suggested a “grand bargain” where the Union folds a portion of cesses/surcharges into the divisible pool in exchange for state-level fiscal reforms.

3.2. COCONUT PROMOTION SCHEME

Context:

- **Recently**, Union Finance Minister Nirmala Sitharaman, while presenting the **Union Budget 2026–27**, proposed a dedicated “**Coconut Promotion Scheme**” aimed at enhancing the competitiveness of India’s coconut sector.
- The scheme prioritizes increasing productivity through interventions such as replacing old, senile, and non-productive trees with high-yielding saplings in major coconut-growing states.
- This initiative is part of a broader shift toward supporting high-value plantation crops like coconut, cashew, and cocoa to diversify farm outputs and enhance farmers’ incomes.



Basic of Coconut

1. Production Status and Ranking

- **Global Position:** India is the **third-largest producer** of coconuts in the world, following Indonesia and the Philippines.

- **Livelihood:** Approximately **30 million people** and nearly **10 million farmers** in India depend on coconut cultivation for their livelihoods.
- **Major Producing States:** The four southern states—**Karnataka, Tamil Nadu, Kerala, and Andhra Pradesh**—collectively account for about **90%** of India's total coconut production.
- **Expansion:** Cultivation is expanding to non-traditional areas, including the North-Eastern states (Assam and Tripura) and coastal regions of Odisha and West Bengal.

2. Climatic and Geographical Requirements

- **Nature of Crop:** It is essentially a **tropical plant**, typically grown between **20°N and 20°S latitudes**.
- **Temperature:** It requires an ideal mean annual temperature of **22°C-32°C**. Reproductive growth is hindered if temperatures fall below **10°C**.
- **Rainfall:** A well-distributed annual rainfall of **1300 mm to 2300 mm** is preferred. In areas with uneven rainfall, irrigation is essential.
- **Sunlight:** The palm requires plenty of sunlight (roughly **2000 hours** of sunshine annually) and **does not thrive in heavily shaded or cloudy regions**.
- **Soil:** It can grow in diverse soil types including laterite, coastal sandy, alluvial, and saline soils. A pH range of **5.0 to 8.0** is tolerable, provided there is proper drainage.

3. Institutional and Regulatory Framework

- **Coconut Development Board (CDB):** It is a **statutory body** established in 1981 under the **Ministry of Agriculture and Farmers Welfare**. Its headquarters is located in **Kochi, Kerala**.
- **Mandate:** The CDB focuses on integrated development, productivity increase, product diversification, and providing technical advice to the coconut industry.
- **Minimum Support Price (MSP):** The government fixes the MSP for **Milling Copra** and **Ball Copra**.
 - **Nodal Agencies:** **NAFED** and **NCCF** act as the central nodal agencies for procurement under the **Price Support Scheme (PSS)**.

4. Key Highlights: Coconut Promotion Scheme

- **Primary Goal:** Transform India from the 3rd largest producer to a global leader in yield and quality.
- **Rejuvenation:** Financial support to replace **senile and non-productive palms** with high-yielding, early-bearing varieties.
- **Cluster Development:** Part of a **₹350 crore** allocation for high-value crops (Coconut, Cashew, Cocoa, Sandalwood).
- **Processing Hubs:** Establishing dedicated facilities for **Value Addition** (Virgin Coconut Oil, Coconut Water, Coir Pith).
- **Digital Integration:** Linking coconut farmers to the **Bharat-VISTAAR** (AI-Advisory) platform for real-time pest and nutrient management.
- **Export Branding:** Positioning Indian coconut as a premium global brand to compete with Indonesia and the Philippines

3.3. DE-DOLLARIZATION

Context: Recent geopolitical tensions, U.S. sanctions on countries like Russia, aggressive U.S. monetary tightening, and discussions within **BRICS** on local-currency trade have renewed global debates on **de-dollarisation**, prompting emerging economies, including India, to diversify trade settlements and foreign exchange reserves without fully abandoning the U.S. dollar.

What is De-dollarization?

De-dollarization is the process by which nations reduce their reliance on the U.S. dollar (USD) as the primary reserve currency, medium of international trade, and unit of account.

Main Drivers of De-dollarization:

1. Geopolitical Driver: "Weaponization" of Finance

- **Sanctions Overreach:** The 2022 freezing of \$300 billion in Russian assets served as a "wake-up call" for the Global South. Countries now fear that their sovereign reserves could be held hostage to U.S. foreign policy.
- **SWIFT Exclusion:** The removal of major banks from the SWIFT messaging system has forced nations like Russia, China, and Iran to build alternative rails (e.g., **CIPS** in China and **SPFS** in Russia).

2. Economic Driver: Monetary Policy Spillovers

- **The "Export of Inflation":** When the U.S. Federal Reserve raises interest rates to combat domestic inflation, it causes capital to fly out of emerging markets like India and Brazil, leading to sharp currency devaluations.
- **Fiscal Sustainability:** There is growing global skepticism about the \$34 **trillion+** **U.S. national debt**. Many central banks are reducing their holdings of U.S. Treasuries to avoid being the "last ones holding the bag" if the U.S. faces a debt crisis.
- **"Mar-a-Lago" Trade Volatility:** Aggressive U.S. tariff threats (up to \$100) on countries attempting to bypass the dollar have actually backfired, accelerating the desire for "monetary autonomy."

Challenges of the De-Dollarization:

1. The Liquidity and Network Effect

The dollar's primary strength is its **ubiquity**.

- **Depth of Markets:** The U.S. Treasury market remains the deepest and most liquid in the world, valued at over **\$27 trillion**. No other market (not even the Eurozone or China) offers enough "safe assets" for global central banks to park trillions in reserves without causing massive price distortions.
- **Network Effect:** Since most of the world already uses the dollar, it is cheaper and easier for a merchant in Brazil to trade with one in Vietnam using USD rather than trying to find a direct BRL/VND exchange rate.



2. The "Convertibility" Gap

- **Capital Controls:** Unlike the dollar, the **Chinese Yuan (RMB)** is subject to strict capital controls. Global investors are hesitant to hold large amounts of a currency they might not be able to move freely during a crisis.
- **The Rupee Challenge:** While India is pushing for INR internationalization, the Rupee is not yet **fully convertible** on the capital account. This limits its use as a "store of value" for foreign central banks.

Implications of De-Dollarisation for India and the Global Economy:

1. Implications for the Global Economy

- **Fragmentation of Trade:** The world is witnessing the rise of "currency blocs." Trade is increasingly settled in regional currencies (Euro, Yuan, Rupee), which can lead to higher transaction costs due to the loss of a single, universal benchmark.
- **Asset Reallocation:** Central banks are diversifying away from U.S. Treasuries. Foreign holdings of U.S. debt dropped to nearly **25%** in 2025, down from 34% a decade ago. This could lead to higher borrowing costs for the U.S. and upward pressure on global real yields.

2. Strategic Implications for India

India's impact is described as "**Cautiously Active.**" It seeks to protect itself without inviting a trade war with the U.S.

- **Monetary Autonomy:** By using local currency settlement (LCS) for oil (e.g., with UAE and Russia), India reduces the "spillover effect" of the U.S. Federal Reserve's interest rate hikes. This helps stabilize India's import bills and domestic inflation.
- **Strategic Autonomy vs. Pax Silica:** While India pushes for the "Rupee-fication" of trade, its exclusion from certain U.S.-led tech initiatives (like Pax Silica) indicates the diplomatic friction caused by pursuing an independent financial path.

Way Forward:

1. Strengthening the "Rupee-fication" Roadmap

- **Deepening Market Liquidity:** The RBI is expanding the use of **Special Rupee Vostro Accounts (SRVAs)**, allowing foreign banks to invest surplus Rupee balances into Indian government bonds and commercial papers.
- **Regional Hub for Trade:** India has permitted banks to lend in Rupees to non-residents in **Bhutan, Nepal, and Sri Lanka** for trade, effectively creating a "Rupee Zone" in South Asia.
- **Forex Benchmarking:** To reduce dependency on the USD as a middle-man for pricing, the RBI is establishing transparent **direct reference rates** for major partner currencies like the UAE Dirham (AED) and Indonesian Rupiah (IDR).

2. Digital Infrastructure: The "New SWIFT"

- **UPI-Global Integration:** Expanding UPI and RuPay to more nations (currently active in 10+ countries) provides a retail-level bypass of dollar-denominated card networks.
- **The mBridge & CBDC Launch:** India is actively participating in the **mBridge project**, which uses Central Bank Digital Currencies (CBDCs) for instant, low-cost cross-border settlements that do not require U.S.-based clearing banks.

3.4. COCOA CULTIVATION

Context: Recently, the Union Finance Minister announced a dedicated mission for cocoa and cashew in the Union Budget 2026-27 to make India self-reliant in production and processing by 2030. According to *The Hindu* and *The Indian Express*, cocoa has gained significant attention due to a 2025-26 global price surge- reaching record highs of over **USD 10,000 per tonne**-triggered by severe supply deficits in West Africa.



The “Cocoa Promotion Scheme” aims to boost domestic productivity through the replacement of old trees and integration with the “Link South” agri-policy, particularly in coastal and hilly regions of Southern India.

1. Geographical and Climatic Requirements

- **Origin:** The cocoa tree (*Theobroma cacao*) is native to the **Amazon rainforest of South America**.
- **The Cocoa Belt:** It thrives in a narrow band known as the “Cocoa Belt,” located within **20 degrees north and south of the Equator**.
- **Temperature:** It requires high temperatures ranging between **18°C and 32°C**. It is highly sensitive to frost and extreme heat above 35°C.
- **Rainfall:** Optimal growth occurs with well-distributed annual rainfall between **1500 mm and 2000 mm**.
- **Humidity:** A hot and humid atmosphere is essential, with relative humidity levels often reaching **100% during the day**.
- **Shade Requirement:** Cocoa is traditionally an **under-storey crop** (shade-loving) and requires about 40–50% shade, which is why it is often intercropped with coconut and arecanut.
- **Soil:** It prefers deep, well-drained, nutrient-rich soils with a pH between **6.5 and 7.0**.

2. Global Production Status (2025-26)

- **Leading Producers:** West Africa accounts for approximately 70% of global production. The top three producers are **Ivory Coast (Côte d’Ivoire), Ghana, and Indonesia**.
- **Rising Contenders:** **Ecuador** has recently emerged as a significant player, overtaking traditional rankings due to better productivity.
- **The 2026 Crisis:** Production in West Africa has been hit by the **Swollen Shoot Virus, Black Pod disease**, and extreme weather (El Niño), leading to a global supply shortage and record-high prices.

3. Cocoa in India

- **Major Producing States:** India is the 15th largest producer globally. Within India, **Andhra Pradesh** is the largest producer (accounting for over 40% of production), followed by **Kerala, Karnataka, and Tamil Nadu**.
- **Intercropping Model:** In India, cocoa is predominantly grown as an **intercrop** in coconut and arecanut plantations, providing farmers with an additional income stream.

- **Trade Position:** India is a **net importer** of cocoa. Domestic production meets only about 20–25% of the total industry demand of 50,000 MT per annum, with the remainder imported from West Africa and Southeast Asia.
- **Varieties:** The three main varieties cultivated are:
 - **Forastero:** Most common (90% of global production), hardy and high-yielding.
 - **Criollo:** Premium quality, delicate, and prone to disease.
 - **Trinitario:** A hybrid of the two.

3.5. TRANSFORMING WASTE-RIDDEN URBAN INDIA THROUGH CIRCULAR ECONOMY

Context:

- Recently, the **issue of waste management and urban pollution** has been brought to focus following discussions at the **30th Conference of the Parties (COP30)** to the **United Nations Framework Convention on Climate Change (UNFCCC)** held at **Belem, Brazil**.
- The concept of **Circularity** was identified as a **crucial pathway** to achieve **inclusive growth, cleaner air, and healthier populations**, aligning with **India’s Mission LiFE (Lifestyle for Environment)** that promotes deliberate utilisation over destructive consumption.



Background: Global Climate Context

- **COP30 and Recognition of Waste as Climate Issue:** At the **30th Conference of the Parties (COP30)** to the **UNFCCC**, hosted at **Belem**, waste management was recognised as a critical climate variable influencing emissions and urban sustainability.
 - Significant financial commitments were announced for the **global initiative “No Organic Waste (NOW)”**, which was designed to reduce **methane emissions** arising from unmanaged organic waste.
 - **Circularity** was formally endorsed as a development pathway that enables **inclusive growth, cleaner air, and healthier populations**.
- **India’s Contribution through Mission LiFE: Mission LiFE (Lifestyle for Environment)**, articulated by India at **COP26**, promoted the principle of **deliberate utilisation instead of mindless and destructive consumption**.
 - Mission LiFE was firmly anchored in **circular economy thinking**, emphasising **behavioural change** as **essential** for environmental sustainability.

Urban India and Escalating Waste Crisis

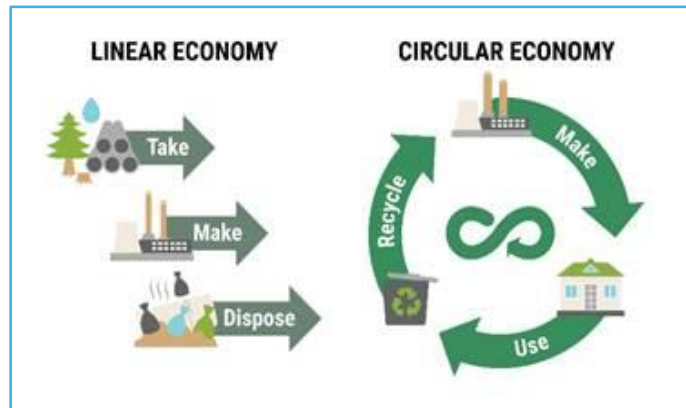
- **Urban Expansion and Environmental Stress:** Expansion of **cities and towns** was described as an **irreversible reality** accompanying India’s economic and demographic growth. **Urban development** was framed as a **clear choice between clean, liveable cities and waste-ridden, polluted urban spaces**. Several studies were cited to indicate that **Indian cities do not meet global standards in providing clean and healthy living environments**.
 - **Pollution and Governance:** The **National Capital Region (NCR)**, along with several other Indian cities, was identified among the **most polluted urban regions in the world**.
 - Governments, regulatory agencies, and even courts were stated to be actively intervening, yet **tangible outcomes remained limited**.

- **Citizen grievance** related to pollution and waste management was reported to be at its **highest level**.
- The **Swachh Bharat Mission (SBM)** was acknowledged for eliminating **open defecation**, while its continuing objective was identified as making **cities clean and garbage-free**.

Municipal Waste Composition and Management Pathways

- **Organic Waste and Energy Recovery:**

- More than **half of municipal waste** generated in Indian cities was identified as **organic in nature**.
- Organic waste was stated to be manageable through **household-level composting, community composting, and large bio-methanation plants**.



- Complete **combustion of organic waste** was also noted to facilitate **electricity generation**.

- **Dry Waste and Plastic Challenge:**

- Over **one-third of urban waste** was categorised as **dry waste**, which is not fully recyclable.
- **Plastic waste** was identified as the most problematic component due to its harmful impact on **ecosystems and human health**.
- Effective dry waste management was stated to depend heavily on **efficient segregation at household level**.
- **Material Recovery Facilities (MRFs)** were recognised as **critical infrastructure** requiring continuous expansion to match growing waste volumes.
- **Refuse Derived Fuel (RDF)** from **dry waste** was identified as **emerging energy source** for **cement and industrial sectors**, although this segment remained under consolidation.
- Significant **gaps** were noted in **entrepreneurship development and market linkages** necessary for dry waste circularity.

Structural Hurdles and Bottlenecks in Circularity

The path to achieving a waste-to-resource transition is complex, involving a shift from the traditional “**take-make-dispose**” mindset to a systemic “**loop**” of **resource recovery**.

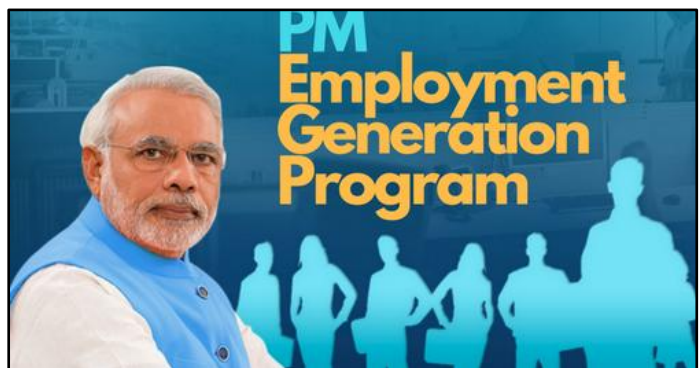
- **Logistical Complexity and Multiplicity of Actors:** The waste management ecosystem involves a fragmented chain consisting of households, informal waste pickers, urban local bodies (ULBs), and private contractors.
 - **Poor coordination** between these actors often leads to a breakdown in the collection and distribution logistics, preventing waste from reaching processing units in a timely and organized manner.
- **Persistent Source Segregation Challenges:** Despite the mandates under **SBM Urban 2.0**, the smooth functioning of **source segregation** remains far from ideal.
 - When **wet (organic), dry (recyclable), and hazardous waste** are mixed at the household level, the efficiency of downstream processing plants—such as **bio-methanation** and **plastic recycling units**—is severely compromised, leading to higher operational costs.

- **Market Vulnerability and Financial Unfeasibility:** Recycled products frequently face **quality concerns** and lack established market linkages, making it difficult for them to compete with cheaper, virgin raw materials.
 - Without a robust demand-side policy or price-preference for “**green**” products, circularity projects struggle to achieve **financial viability** and long-term sustainability.
- **Infrastructure and Monitoring Gaps:** There is a significant shortfall in the technical infrastructure required for **testing and monitoring** the quality of processed waste.
 - Many municipalities lack the equipment to ensure that recycled outputs meet industrial standards, and the current reach of **Extended Producer Responsibility (EPR)** remains limited, covering only a fraction of the total dry waste generated.

3.6. PM EMPLOYMENT GENERATION PROGRAMME (PMEGP)

Context:

Recently, the RBI amended the MSME lending directions, doubling the **collateral-free loan** limit from ₹10 lakh to ₹20 lakh for Micro and Small Enterprises (MSEs). Banks have been instructed not to demand collateral for such loans and to mandatorily extend this benefit to all units financed under the Prime Minister’s Employment Generation Programme (PMEGP), with the **objective** of improving **last-mile credit access** for entrepreneurs lacking tangible assets.



About PMEGP

The PMEGP is a flagship **Central Sector Scheme** aimed at generating self-employment opportunities through the establishment of micro-enterprises in the non-farm sector.

1. Origin and Administration

- **Genesis:** It was launched in **2008** by merging two erstwhile schemes: the **Prime Minister’s Rojgar Yojana (PMRY)** and the **Rural Employment Generation Programme (REGP)**.
- **Nodal Ministry:** It is administered by the **Ministry of Micro, Small and Medium Enterprises (MoMSME)**.

2. Implementation Framework

- **National Level:** The **Khadi and Village Industries Commission (KVIC)** serves as the single nodal agency for implementation across the country.
- **State Level:** Implementation is carried out through State KVIC Directorates, State **Khadi and Village Industries Boards (KVIBs)**, **District Industries Centres (DICs)**, and banks.
- **Recent Update:** All implementing agencies (KVIC, KVIB, DIC) are now permitted to receive and process applications for both rural and urban areas.

3. Eligibility Criteria

- **Age:** Any individual above **18 years** of age is eligible.
- **Educational Qualification:** For projects costing above **₹10 lakh** in the manufacturing sector and above **₹5 lakh** in the business/service sector, the beneficiary **must have** passed at least **Class VIII**.

- **Income Limit:** There is **no income ceiling** for setting up projects under PMEGP.
- **Entities:** Self-help Groups (SHGs), Institutions registered under the Societies Registration Act, 1860, Production Co-operative Societies, and Charitable Trusts are also eligible.
- **New Projects Only:** Assistance is provided only for setting up **new units**; existing units **are not eligible** for the first loan.

4. Financial Assistance and Subsidy (Margin Money)

The scheme is a **credit-linked subsidy** program. The government provides "Margin Money" (subsidy) which is routed through banks.

Category of Beneficiary	Beneficiary Contribution	Subsidy (Urban)	Subsidy (Rural)
General Category	10%	15%	25%
Special Category*	05%	25%	35%

Special Category Includes: SC/ST, OBC, Minorities, Women, Ex-servicemen, Differently-abled, NER (North Eastern Region), Hilly and Border areas.

5. Maximum Project Cost

- **Manufacturing Sector:** Up to **₹50 lakh**.
- **Service Sector:** Up to **₹20 lakh**.
- **Upgradation (2nd Loan):** For well-performing existing PMEGP/MUDRA units, a second loan of up to **₹1 crore** (Manufacturing) and **₹25 lakh** (Service) is available with a 15% subsidy (20% for NER/Hilly areas).

3.7. NRI INVESTMENT REFORMS (BUDGET 2026-27)

Context:

Recently, the Union Budget 2026–27 announced a significant liberalization of investment norms for Non-Resident Indians (NRIs) and Persons Resident Outside India (PROIs), yet data from the National Stock Exchange (NSE) reveals a stark contrast in actual participation.

While the finance minister doubled the individual NRI investment limit to **10%** and the aggregate cap to **24%** to "ease doing business," reports highlight that NRIs currently hold a mere **0.62%** of the total equity in NSE-listed firms.



NRI INVESTMENT

Key Highlights: NRI Investment Reforms (Budget 2026-27)

1. New Investment Thresholds

The government has substantially increased the "headroom" for the diaspora to participate in India Inc. through the Portfolio Investment Scheme (PIS):

- **Individual Limit:** Raised from **5% to 10%** of the total paid-up equity capital of a listed Indian company.
- **Aggregate Limit:** The total share that all NRIs/PROIs combined can hold in a single company has jumped from **10% to 24%**.

- **Approval Mechanism:** These increases are now permitted without the prior approval of the Reserve Bank of India (RBI), aiming to reduce bureaucratic friction.

2. The 0.6% Paradox

Despite these expansive limits, current data paints a picture of under-utilization:

- **Ownership Stagnation:** NRIs hold only **0.62%** of the shares of NSE-listed companies as of Q3 FY 2025–26.
- **Historical Trend:** This figure has remained below 1% for the past three fiscal years, fluctuating between 0.57% and 0.64% regardless of market performance.
- **Nifty 50 Absence:** None of the top 50 representative companies of corporate India (Nifty 50) are among the firms with the highest NRI shareholding.

3. FPI vs. NRI: Regulatory Distinction

- **FPI (Foreign Portfolio Investment):** Institutional entities (mutual funds, etc.) or individuals registered with SEBI. NRIs are generally **not** allowed to register as FPIs but can be part of an FPI "investor group" with specific caps (less than 25% individual or 50% aggregate contribution to the corpus).
- **NRI Route (PIS):** A direct route for non-resident individuals to buy/sell shares on stock exchanges through a designated bank branch.

4. Other Diaspora-Friendly Measures

- **Property Transactions:** Resident buyers purchasing property from NRIs no longer need a TAN (Tax Deduction Account Number); the buyer PAN is now sufficient for TDS compliance.
- **TCS Rationalization:** Tax Collected at Source (TCS) for overseas education and medical remittances has been slashed to **2%** (from 5%).
- **Foreign Asset Disclosure:** A one-time, six-month window was announced to allow NRIs and professionals to regularize undisclosed foreign assets with immunity from prosecution.

3.8. CONSUMER PRICE INDEX (CPI) BASE REVISION 2024

Context:

- **Recently,** the Ministry of Statistics and Programme Implementation (MoSPI) has initiated the process to revise the base year for the Consumer Price Index (CPI) from the current 2012 to a more contemporary period, likely 2024 or 2024-25.
- The revision is a critical structural reform aimed at accurately capturing inflation by updating the "market basket" of goods and services to reflect modern consumption habits, such as increased spending on processed foods, health, and durable goods.



Key Pillars of CPI Base Revision

1. The Institutional Framework

- **Organization:** The **National Statistical Office (NSO)**, under the Ministry of Statistics and Programme Implementation (MoSPI), is responsible for compiling and releasing CPI (Rural, Urban, Combined).
- **Frequency:** CPI is released on a **monthly basis**.

- **Current Status:** The current base year is **2012**.

2. Why Revise the Base Year?

- **Consumption Shift:** Over time, the proportion of income spent on food typically declines as a country develops (Engel's Law), while spending on services (education, internet, transport) increases.
- **HCES Linkage:** The revision is primarily based on the **Household Consumption Expenditure Survey (HCES)**. Since the 2017-18 survey was junked due to data quality issues, the 2022-23 survey provides the new baseline for weights.
- **Reducing Food Weightage:** Currently, the "Food and Beverages" group carries a weight of roughly **45.86%** in CPI-Combined. Experts suggest this may drop significantly in the new series, as HCES shows Indians are spending less of their total budget on cereals and more on eggs, meat, and processed foods.

3. Variants of CPI in India

- **CPI for Industrial Workers (IW):** Base Year 2016 (Compiled by **Labour Bureau**).
- **CPI for Agricultural Labourers (AL):** Base Year 1986-87 (Compiled by **Labour Bureau**).
- **CPI for Rural Labourers (RL):** Base Year 1986-87 (Compiled by **Labour Bureau**).
- **CPI (Rural/Urban/Combined):** Base Year 2012 (Compiled by **NSO**). *This is the headline inflation used by the RBI.*

4. Impact on Monetary Policy

- The **Reserve Bank of India (RBI)** uses CPI-Combined as its primary anchor for the **Flexible Inflation Targeting (FIT)** framework.
- A revised base year ensures that the "inflation" the RBI fights is the inflation actually felt by the modern consumer.

3.9. DECODING THE NEW CPI SERIES: FROM 2012 TO 2024

Context:

Recently, the Ministry of Statistics and Programme Implementation (MoSPI) released the first set of retail inflation data under the **new Consumer Price Index (CPI) series with 2024 as the base year**.

This major statistical overhaul, replaces the decade-old 2012 series to better reflect contemporary Indian consumption patterns, characterized by increased spending on services, digital products, and a relative decline in the share of food expenditure.

New CPI Series (Base 2024)

1. Shift in Base Year and Data Source

- **New Base Year:** The base year has been officially shifted from **2012 to 2024**.
- **Primary Data Source:** The weights for the new series are derived from the **Household Consumption Expenditure Survey (HCES) 2023-24**.



2. Adoption of International Framework (COICOP 2018)

- The new series moves away from the older structure of 6 broad groups to **12 Divisions** based on the UN’s **Classification of Individual Consumption According to Purpose (COICOP) 2018**.
- This alignment enhances the **global comparability** of India's inflation data.

3. Changes in the Consumption Basket

- **Expansion of Items:** The total number of items in the basket has increased from **299 to 358**.
- **New Additions:** Reflecting a modern lifestyle, the series now includes **Rural House Rent, Online Streaming Services, Babysitters, Exercise Equipment, Pen-drives, and Value-added Dairy Products**.
- **Exclusions:** Obsolete items like **VCR/VCD players, Radios, Tape recorders, and CDs/DVDs** have been removed.

4. Significant Weightage Revisions

The most critical change for economic policy is the redistribution of weights:

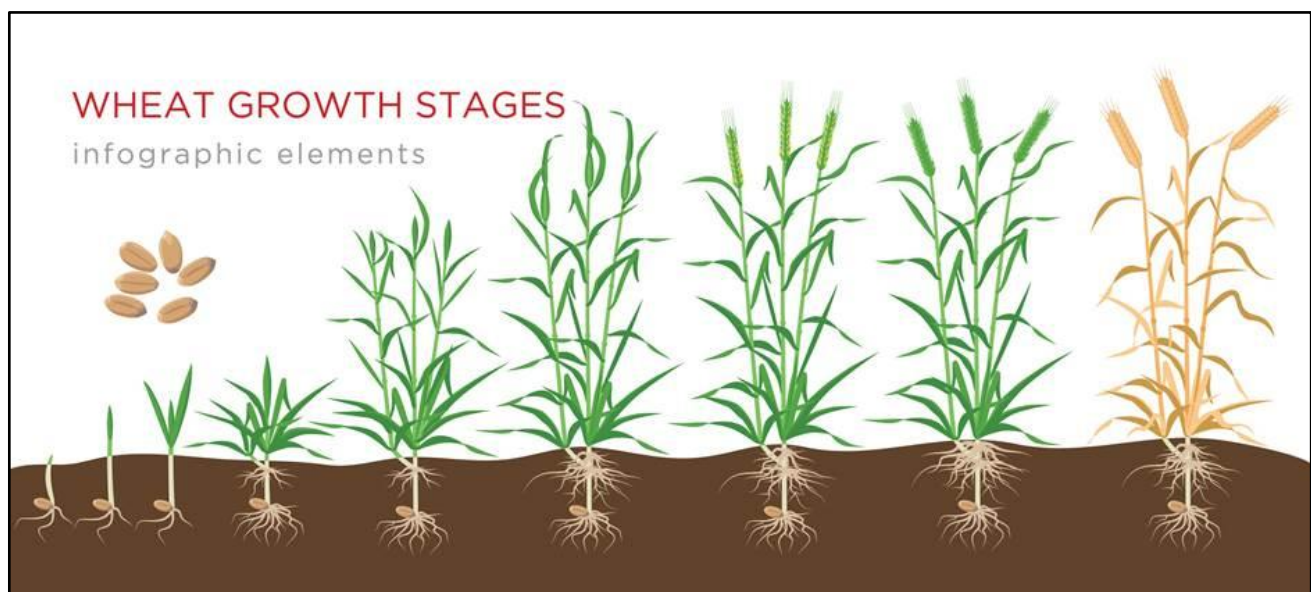
Category	Old Weight (2012 Base)	New Weight (2024 Base)
Food and Beverages	~45.86%	~36.75%
Housing & Utilities	~10.07%	~17.67%
Transport & Comm.	~8.59%	~12.41%

Note: The sharp reduction in food weight is expected to reduce the volatility of headline inflation, as food prices are highly seasonal and prone to supply shocks.

3.10. WHEAT: FROM SOIL REQUIREMENTS TO INDIA'S EXPORT STRATEGY

Context:

Recently, the Government of India announced a significant policy shift by approving the export of **25 lakh tonnes of wheat** and 5 lakh tonnes of wheat products for the early 2026 season. This decision, stems from a projected record harvest and robust central stocks of **182 LMT**, which far exceed the mandatory buffer requirements. The move marks the end of a long-standing export restriction and aims to help Indian farmers tap into global demand while stabilizing local wholesale prices.



1. Wheat Cultivation in India: Climate and Soil Requirements

- **Crop Category:** Wheat is the **second most important cereal crop** in India, following rice, and is the staple food for most of North and West India.
- **Season:** It is primarily a **Rabi crop**, sown in winter (October–December) and harvested in spring (February–May).
- **Ideal Temperature:** It requires a cool growing season (**10°C to 15°C** at sowing) and a warm, sunny ripening period (**21°C to 26°C** at harvest).
- **Rainfall Patterns:** The crop thrives with **50-75 cm** of annual rainfall. Winter drizzles caused by **Western Disturbances** are particularly beneficial for higher yields.
- **Soil Suitability:** Well-drained, fertile **loams and clayey loams** are preferred. The alluvial soils of the Indo-Gangetic plains and the black soils of the Deccan are primary cultivation zones.

2. India's Position as a Global Producer and Exporter

- **Production Ranking:** India is the **world's second-largest producer** of wheat, contributing nearly **14% of the total global output**, second only to **China**.
- **Top Producers Globally:** The top five producers are China, India, Russia, the United States, and France.
- **Export Dimension:** Although India is a top producer, it is often a "swing" exporter due to its massive domestic consumption requirements.
- **Global Export Leaders:** **Russia** remains the world's largest wheat exporter. India's re-entry into the market in 2026 targets key deficit regions in **West Asia, Southeast Asia (Indonesia, Philippines), and North Africa (Egypt)**.

3. Key Government Policies and Economic Support

- **MSP for 2026-27:** The government fixed the Minimum Support Price (MSP) for wheat at **₹2,585 per quintal**.
- **Farmer Profits:** This price ensures a return of **109%** over the estimated cost of production, providing the highest profit margin among all Rabi crops.
- **Stock Management:** The Food Corporation of India (FCI) manages the "Central Pool" to supply grains for the **National Food Security Act (NFSA)** and the **PM-GKAY** scheme.

4. Challenges: Climate Change and Biosecurity

- **Terminal Heat Stress:** Rising temperatures in March (during the grain-filling stage) are a major threat, potentially reducing yields by **6-25%** by 2100.
- **Wheat Blast:** This fungal disease (*Magnaporthe oryzae*) is an emerging threat to South Asian food security, causing sudden bleaching of the wheat heads.
- **Climate-Resilient Varieties:** Researchers have developed varieties like **HD-3385** (early sowing/heat tolerant) and **PBW RS1** (high amylose for health benefits) to combat these challenges.

3.11. LEAD BANK SCHEME

Context:

Recently, the Reserve Bank of India (RBI) released a comprehensive draft circular to overhaul the **Lead Bank Scheme (LBS)** to align it with the National Strategy for Financial Inclusion 2025–30.



1. Genesis and Evolution of Lead Bank Scheme

- **Introduction:** The Lead Bank Scheme was introduced by the Reserve Bank of India in **December 1969**.
- **Aim:** To coordinate banks and development agencies to increase bank credit flow to priority sectors and strengthen banks' role in rural development.
- **Gadgil Study Group (1969):** It recommended the "**Area Approach**" to evolve coordinated plans for banking and credit structure in rural areas.
- **Nariman Committee (1969):** A Committee of Bankers headed by **F.K.F. Nariman** endorsed this approach, suggesting that each district be allotted to a specific "Lead Bank" to act as a pace-setter.
- **Usha Thorat Committee (2009):** This panel recommended the revitalization of the scheme to focus on **100% financial inclusion** and strengthen the role of the Lead District Manager.

2. Core Mechanism: The Area Approach

- **District as a Unit:** Under the scheme, a district is the primary unit for planning and coordination of banking activities.
- **Consortium Leader:** One commercial bank (Public or Private) is designated as the **Lead Bank** for a specific district.
- **Non-Monopoly Role:** The Lead Bank does not have a monopoly over banking business in the district; rather, it acts as a **coordinator** for all financial institutions (Commercial Banks, RRBs, Co-operatives) and government agencies.

3. Institutional Architecture

The scheme operates through a hierarchy of committees to ensure coordination between banks and the government:

Level	Committee	Chairperson	Frequency
State Level	State Level Bankers' Committee (SLBC)	CMD/Executive Director of Convenor Bank	Quarterly
District Level	District Consultative Committee (DCC)	District Collector	Quarterly
District Level	District Level Review Committee (DLRC)	District Collector (includes MPs/MLAs)	Half-yearly
Block Level	Block Level Bankers' Committee (BLBC)	Lead District Manager (LDM)	Quarterly

Key Functionary: Lead District Manager (LDM)

- The Lead Bank appoints a senior officer as the **LDM** to oversee the implementation of the **District Credit Plan (DCP)**.
- The LDM acts as a liaison between the banking sector and the district administration to resolve operational bottlenecks.

4. Key Concepts for Prelims

- **Service Area Approach (SAA):** Introduced in 1989 as a part of LBS, it assigned a group of villages to a specific bank branch to ensure planned credit deployment.
- **District Credit Plan (DCP):** It is an annual plan prepared by the Lead Bank indicating the sector-wise and block-wise credit targets for the district.

- **Credit-Deposit (CD) Ratio:** It measures the credit disbursed by banks in a region relative to the deposits mobilized there. RBI monitors this to ensure that rural deposits are reinvested locally rather than being diverted to metropolitan areas.

3.12. FOOD SECURITY IN INDIA

Context:

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

- **Global Hunger Index (GHI) 2025-26:** India ranks **105th out of 127** countries, with a score of **27.3** (Serious category).
- **Economic Transition:** India has moved from being a food-aid recipient (PL-480 era) to the world's largest rice exporter (**20.2 million tonnes** in FY25).



The FAO defines food security through four pillars:

1. **Availability:** The "supply side" of food security. It refers to the **physical existence** of food in a country or area through:
 - Domestic agricultural production.
 - Commercial imports.
 - Food aid and national buffer stocks (e.g., FCI godowns in India).
2. **Accessibility:** The ability of individuals to actually **reach and acquire** food. It is not enough for food to be in the market; people must have:
 - **Economic Access:** Adequate income or purchasing power to buy food.
 - **Physical Access:** Adequate infrastructure (roads, PDS shops) to reach the food.
3. **Affordability / Utilization:** Often termed "utilization," this focuses on the **nutritional quality** and the body's ability to use it.
 - **Nutritional Value:** Access to clean water, sanitation, and healthcare to ensure the body absorbs nutrients.
 - **Food Safety:** Proper food preparation and dietary diversity to prevent "hidden hunger."
4. **Stability:** The **consistency** of the other three pillars over time. Food security must **not be threatened by:**
 - **Seasonal shocks** (e.g., crop failure or lean seasons).
 - **Economic shocks** (e.g., sudden price hikes or unemployment).
 - **Political/Climatic shocks** (e.g., wars, floods, or droughts).

Why India Needs Food Security?

1. High Malnutrition & "Hidden Hunger"

- Despite being a food-surplus nation, India faces a "**Nutrition Paradox.**"
- **Stunting & Wasting:** NFHS-5 data shows ~35% of children are stunted.
- **Anemia:** Over 50% of women and children suffer from iron deficiency. Food security ensures access to **fortified foods** to combat these micronutrient gaps.

2. Demographic Pressure

- With a population exceeding **1.4 billion**, India must ensure a consistent supply chain. Any disruption in food availability can lead to massive **social unrest** and inflation, as seen during global supply chain shocks in 2024-25.

3. Climate Vulnerability

- Indian agriculture is a "**gamble on the monsoons.**"
- **Extreme Weather:** Heatwaves and unseasonal rains threaten crop yields.
- **Resilience:** Food security systems (like buffer stocks) act as a shock absorber against climate-induced crop failures.

4. Economic Stability (Inflation Control)

- Food occupies a large weight in the **Consumer Price Index (CPI)**. Food price volatility directly impacts the disposable income of the poor.
- Securing the food supply prevents "Agflation" (Agricultural Inflation), which can destabilize the national economy.

5. Poverty-Hunger Trap

- Food security is a prerequisite for **Human Capital Development**. A hungry child cannot learn (impacts Education/SDG 4).
- A malnourished worker is less productive (impacts GDP/SDG 8).

6. Ethical & Constitutional Obligation

- **Article 21:** The Supreme Court has interpreted the "**Right to Life**" to include the **Right to Food**.
- **SDG 2:** India is committed to the Global Goal of "**Zero Hunger**" by 2030.

Government Initiatives

Pillar 1: Farm-Level Resilience & Storage

- **PM Dhan-Dhaanya Krishi Yojana (PM-DDKY):** Launched in Oct 2025, this 6-year scheme targets **100 low-productivity districts** to enhance yield through sustainable practices and crop diversification.
- **World's Largest Grain Storage Plan in Co-operative Sector:** Utilizing Primary Agricultural Credit Societies (PACS) to create decentralized storage, reducing post-harvest losses and preventing distress sales by farmers.
- **Digital Agriculture Mission:** Creating a "**Digital Public Infrastructure**" for farmers, including the **AgriStack** (identity/land records) to ensure subsidies like PM-KISAN reach the right hands without leakages.

Pillar 2: Nutritional Security (Hidden Hunger)

- **Mission Saksham Anganwadi and Poshan 2.0:** Focuses on maternal and child nutrition.
 - **Rice Fortification:** Mandatory supply of fortified rice (enriched with Iron, Folic Acid, and Vitamin B12) through PDS, Mid-Day Meals (PM-POSHAN), and ICDS.
 - **Saksham Anganwadis:** Upgrading 2 lakh centres with better infrastructure (audio-visual aids, clean water) to improve early childhood nutrition.
- **National Food Security and Nutrition Mission (NFSNM):** Renamed from NFSM in 2025-26, adding a dedicated sub-mission for **Nutri-Cereals (Shree Anna/Millet)**.

Pillar 3: Price & Stock Management

- **Wheat Stock Limits (2025-26):** Imposed on traders, wholesalers, and big chain retailers to prevent hoarding and unscrupulous speculation during the 2026 harvest season.
- **Mission for Aatmanirbharta in Pulses & Oilseeds:** Reducing import dependency to stabilize domestic prices of essential proteins and fats.

Pillar 4: Targeted Distribution & Subsidies

- **PM-Garib Kalyan Anna Yojana (PMGKAY):** Integrated with the National Food Security Act (NFSA), it provides **free foodgrains** to **81.35 crore** beneficiaries. In late 2025, it was extended for five years (until **December 2028**), with an outlay of **₹11.80 lakh crore**.
- **One Nation One Ration Card (ONORC):** Fully functional nationwide, allowing migrants to access their entitlements from any Fair Price Shop (FPS) using biometric authentication.
- **Open Market Sale Scheme (OMSS):** Used aggressively in early 2026 to offload wheat and rice stocks to curb retail inflation.

Global Initiatives

- **India-UAE Food Corridor:** Streamline supply chains and use India as a "**food bowl**" for **West Asia** while ensuring domestic price stability.
- **WFP Partnership:** India supplies **fortified rice** to global hunger hotspots, positioning itself as a "Solution Provider" rather than just a recipient.
- **International Year of Rangelands and Pastoralists (2026):** The UN has designated **2026** to highlight the role of **sustainable livestock and rangelands** in global food security, particularly for **indigenous communities and arid regions**.
- **G20 Global Alliance Against Hunger and Poverty (2025–2026):** Launched during Brazil's G20 Presidency. Aims to reach **500 million people** with cash transfers and empower **100 million smallholder farmers** by 2030.

Committees on Food Security in India

- **Shanta Kumar Committee (2015):** Recommended **restructuring FCI** to improve efficiency.
 - Suggested reducing NFSA coverage from 67% to 40%.
 - Advocated for **Direct Benefit Transfer (DBT)** in PDS.
- **Ashok Dalwai Committee:** Focused on **Doubling Farmers' Income**; emphasized that food security is impossible without "income security" for producers.
- **NITI Aayog Task Force (2025):** Proposed the "**Nutrition Basket**" approach—moving PDS beyond just wheat/rice to include millets, pulses, and oilseeds.

Challenges to Food Security in India

1. Structural & Supply Chain Issues

- **Leakages in PDS:** Despite massive digitalization, estimates in early 2026 suggest a **~20-28% leakage** in the Public Distribution System (PDS).
- **Infrastructure Deficit:** India lacks adequate **cold chain storage**, leading to a loss of approximately **40% of fresh produce** (fruits and vegetables) post-harvest.
- **Fragmented Landholdings:** Over 86% of Indian farmers are "small and marginal," making it difficult to achieve economies of scale and adopt modern, yield-boosting technologies.

2. The "Hidden Hunger" Challenge

- **Monoculture Focus:** The MSP-driven system incentivizes wheat and rice, discouraging the production of nutrient-dense **pulses and millets**.

- **Micronutrient Deficiency:** While people may have enough calories, they lack essential vitamins and minerals. **NFHS-5** and subsequent 2025 updates highlight that **over 50% of women** and children remain anemic.
- **Soil Health Decay:** Over-reliance on chemical fertilizers (Urea) has led to Zinc and Boron deficiencies in the soil, which translates directly into nutrient-deficient crops.

3. Climate & Environmental Risks

- **Extreme Weather Events:** The "2024-25 Heatwaves" and erratic 2026 monsoons have demonstrated that climate change can wipe out **10–15% of wheat yields** in a single season.
- **Groundwater Depletion:** Water-intensive crops like paddy in Punjab/Haryana are pushing water tables to "danger zones," making future production unsustainable.
- **Land Degradation:** FAO's 2025 reports indicate that nearly **30% of India's land** is undergoing degradation, threatening long-term food availability.

4. Economic & Global Pressures

- **Inflationary Pressures:** Global conflicts (e.g., in the Middle East or Eastern Europe) drive up **fertilizer and fuel prices**, directly increasing the "Economic Cost" of food for the government and consumers.
- **The Subsidy Burden:** The food subsidy bill (PMGKAY) now accounts for nearly **4-5% of the total budget**, limiting the fiscal space for long-term agricultural investments like irrigation.

5. Socio-Demographic Barriers

- **Exclusion Errors:** The 2011 Census is still the basis for NFSA coverage in 2026; missing a fresh census means nearly **10 crore needy people** remain outside the safety net.
- **Gender Bias:** Intra-household food distribution often favors men, leaving women and girls with lower nutritional intake even in food-secure households.

Way Forward

- **From Calories to Nutrition:** Shift PDS focus from a "Wheat-Rice" duopoly to a "**Nutrition Basket**" including pulses, oilseeds, and **Shree Anna (Millets)** to combat hidden hunger.
- **Update Beneficiary Data:** Fast-track the link between the **e-Shram portal** and NFSA to include nearly 10 crore citizens currently excluded due to the use of outdated 2011 Census data.
- **Digital Public Infrastructure (DPI):** Fully implement the "**AgriStack**" to provide farmers with end-to-end services, from soil testing to direct market access via **e-NAM**.
- **Reducing Post-Harvest Losses:** Execute the "**World's Largest Grain Storage Plan**" at the PACS (Primary Agricultural Credit Societies) level to create decentralized, modern silos and cold chains.
- **Precision Farming:** Use **AI-enabled monitoring** and drone technology for targeted fertilizer application (Nano-Urea) to restore soil health and optimize input costs.
- **Climate-Smart Agriculture:** Invest in **multi-stress tolerant crop varieties** (heat and flood-resistant) as a primary defense against the erratic weather patterns observed in early 2026.
- **Water Governance:** Expand "**Per Drop More Crop**" initiatives, specifically targeting "water-guilt" crops like sugarcane and paddy in arid regions through micro-irrigation.

ENVIRONMENT & GEOGRAPHY

4.1. TURTLE TRAILS

Context: Recently, the Union Finance Minister announced the development of “Turtle Trails” along the coastal areas of **Odisha, Karnataka, and Kerala** during the presentation of the Union Budget 2026-27.

Key Highlights of the Turtle Trail Initiative (2026)

1. Strategic Objectives

- **Sustainable Eco-Tourism:** The trails are designed to offer world-class, ecologically sensitive tourism experiences without disturbing the sensitive nesting habitats.
- **Habitat Protection:** By formalizing tourism “trails,” the government aims to regulate visitor movement, thereby reducing the impact of unregulated beach tourism on nesting sites.
- **Livelihood Generation:** The project includes training local youth as “Turtle Guardians” and professional tour guides through a pilot project in collaboration with the Indian Institutes of Management (IIMs).

2. Geographic Focus Areas

- **Odisha Coast:** Focuses on the world-renowned “Rookeries” at **Gahirmatha Marine Sanctuary, Rushikulya River mouth, and the Devi River mouth.**
- **Karnataka Coast:** Focuses on the districts of **Uttara Kannada and Dakshina Kannada**, where nesting frequency has significantly increased in recent years.
- **Kerala Coast:** Aims to preserve the sporadic nesting sites along the Malabar coast, integrating them into the larger maritime heritage circuit.

3. Technological Integration: Satellite Telemetry

- **Tracking Migration:** To support these trails with scientific data, India has intensified **satellite tagging**. Recent studies showed a turtle tagged in Odisha traveled as far as the **Sri Lankan shore.**
- **Bycatch Mitigation:** Data from these “trails” and tags help the Fisheries Department identify high-risk zones where fishing activity may be regulated to prevent accidental entanglement in trawl nets.



Olive Ridley Sea Turtles: Basic Details

Feature	Details
Scientific Name	<i>Lepidochelys olivacea</i>
IUCN Status	Vulnerable
Legal Protection	Schedule I of the Wildlife Protection Act, 1972 (Highest protection).
Unique Behavior	Arribada: Mass nesting where thousands of females come ashore simultaneously to lay eggs.

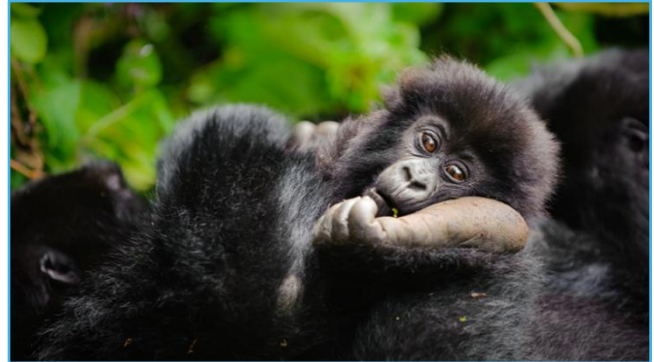
Diet	Carnivorous (jellyfish, snails, crabs, and shrimp).
Major Threats	Marine pollution, plastic ingestion, coastal lighting (disorients hatchlings), and trawling.

4.2. GORILLA

Context: Recently, the “**Gorilla Conservation Action Plan 2026-2030**” was discussed at a global wildlife summit, with reports highlighting the critical role of conservation leaders like **Gladys Kalema-Zikusoka** in protecting the world’s largest primates.

1. Classification and Distribution

Gorillas are the largest living primates and share approximately **98.3% of their DNA with humans**. They are divided into two distinct species, each with two recognized subspecies:



A. Western Gorilla (*Gorilla gorilla*)

- **Western Lowland Gorilla:** The most numerous subspecies; found in the rainforests of Cameroon, Gabon, and the Congo Basin.
- **Cross River Gorilla:** The rarest subspecies, limited to a small mountainous border region between Nigeria and Cameroon.

B. Eastern Gorilla (*Gorilla beringei*)

- **Mountain Gorilla:** Inhabits high-altitude montane forests in Rwanda, Uganda, and the DRC.
- **Eastern Lowland Gorilla (Grauer’s Gorilla):** Found only in the eastern Democratic Republic of the Congo.

2. Key Biological and Physical Features

- **Size and Weight:** Adult males can weigh up to **200 kg** and stand **1.7 meters** tall. They are roughly twice the size of females—a phenomenon known as **sexual dimorphism**.
- **The Silverback:** Mature males develop a saddle of **silver-grey hair** on their backs. They serve as the undisputed leaders and protectors of their social groups (troops).
- **Locomotion:** Gorillas are primarily terrestrial and move using “**knuckle-walking**,” where they support their weight on the third and fourth phalanges of their hands.
- **Diet:** They are predominantly **herbivorous**. Their diet consists of bamboo shoots, stems, fruits, and occasionally insects like ants.

3. Social Behavior and Intelligence

- **Troop Dynamics:** A typical troop consists of one dominant silverback, several females, and their offspring. Groups are cohesive and non-territorial, often with overlapping home ranges.
- **Nesting:** Every evening, gorillas construct **new sleeping nests** on the ground or in trees using foliage. This behavior is used by researchers to estimate population density.
- **Communication:** They utilize a wide range of vocalizations, facial expressions, and physical displays such as **chest-beating** to convey dominance or warn of threats.

- **Tool Use:** Gorillas have been observed using sticks to measure water depth and as “walking sticks” to support their weight while crossing swamps.

4. Conservation Status and Threats

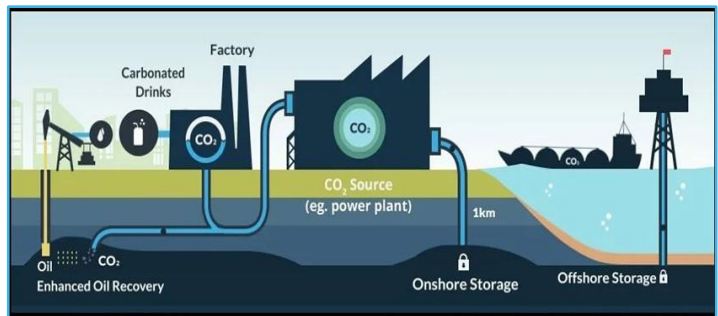
Species/Subspecies	IUCN Status	Primary Habitat
Western Lowland Gorilla	Critically Endangered	Lowland Swamps/Forests
Cross River Gorilla	Critically Endangered	Montane Forests
Eastern Lowland Gorilla	Critically Endangered	Tropical Rainforests
Mountain Gorilla	Endangered	High-altitude Cloud Forests

Major Threats:

- **Poaching:** For the illegal bushmeat trade and trophies.
- **Habitat Loss:** Due to mining (especially for **Coltan** used in electronics), agriculture, and logging.
- **Disease:** Their genetic similarity makes them highly susceptible to human diseases like **Ebola** and respiratory infections.

4.3. CARBON CAPTURE, UTILISATION, AND STORAGE (CCUS)

Context: Recently, while presenting the Union Budget 2026–27, Finance Minister Nirmala Sitharaman announced a significant financial outlay of ₹20,000 crore over the next five years to accelerate the development and deployment of Carbon Capture, Utilisation, and Storage (CCUS) technologies.



Details About CCUS

1. Fundamental Concept

- **Definition:** CCUS is a suite of technologies designed to capture carbon dioxide emissions from large point sources (like power plants or factories) or directly from the atmosphere, and either reuse it or store it permanently underground.
- **Objective:** To prevent CO₂ from entering the atmosphere and contributing to global warming, especially where switching to renewable energy is technically difficult.

2. The Three Stages of CCUS

- **Capture:** CO₂ is separated from other gases produced at industrial facilities.
 - **Post-combustion:** Capturing CO₂ from flue gases after burning fossil fuels (most common for existing plants).
 - **Pre-combustion:** Trapping CO₂ before the fuel is fully burned (used in coal gasification).
 - **Oxy-fuel combustion:** Burning fuel in nearly pure oxygen, resulting in a residue of almost pure CO₂ and water vapor.
- **Transport:** The captured CO₂ is compressed into a liquid-like state and moved via **pipelines, ships, or trucks** to a storage or utilization site.
- **Utilisation or Storage:**

- **Utilisation (CCU):** Converting CO₂ into value-added products like **Green Urea**, synthetic fuels (methanol), building materials (carbonated concrete), or for **Enhanced Oil Recovery (EOR)**.
- **Storage (CCS):** Injecting CO₂ into deep geological formations such as **depleted oil and gas fields, saline aquifers, or unmineable coal seams** for permanent sequestration.

3. Budget 2026 Highlights & India's Strategy

- **Outlay: ₹20,000 crore** allocated for the next five years (2026–2031).
- **Target Sectors:** Power, Steel, Cement, Refineries, and Chemicals.
- **Technology Readiness Levels (TRL):** The budget aims to move Indian innovations from **TRL 3/4** (laboratory/pilot) to **TRL 9** (commercial deployment).
- **Blue Hydrogen:** CCUS is the critical enabler for producing **Blue Hydrogen** (hydrogen produced from natural gas where the resulting CO₂ is captured).

4. Key Challenges for India

- **High Cost:** CCUS is currently capital-intensive; CO₂ capture alone can account for 70–80% of the total cost.
- **Energy Penalty:** Running a capture plant requires significant energy, which can reduce the net power output of a station.

4.4. KHEJRI TREE: THE LIFELINE OF THE DESERT

Context: Recently, the **Khejri tree** has come into the spotlight due to the escalating '**Khejri Bachao Andolan**' (Save Khejri Movement) in Rajasthan's Bikaner district. Environmental activists and members of the **Bishnoi community** have launched massive protests and hunger strikes against the large-scale felling of these trees by solar power companies.



1. Botanical Profile and Characteristics

- **Scientific Name:** *Prosopis cineraria*. It belongs to the **Fabaceae** (Pea) family.
- **Common Names:** Known as **Shami** in Sanskrit, **Jand** in Punjab, **Ghaf** in the Middle East (National tree of UAE), and **Jammi** in Telangana.
- **Physical Features:** It is a small, thorny, evergreen tree that typically grows to a height of 3–5 meters. It possesses a **bipinnate leaf** structure and deep taproots that can reach water tables at great depths.
- **Hardiness:** The tree is exceptionally drought-resistant and can survive in areas with as little as 15 cm of annual rainfall. It can withstand extreme temperatures ranging from below 0°C to 50°C.

2. Ecological Significance

- **Nitrogen Fixation:** Like other legumes, it has a symbiotic relationship with bacteria that fix atmospheric nitrogen, thereby **enhancing soil fertility**.

- **Soil Binder:** It acts as an effective stabilizing agent for sandy soils, preventing desertification and soil erosion.
- **Keystone Species:** It provides shade, shelter, and food for various desert wildlife, including the Blackbuck, Chinkara, and numerous bird species.

3. Socio-Cultural and Historical Importance

- **State Tree:** It was officially declared the **State Tree of Rajasthan** in 1983. It is also the state tree of **Telangana**.
- **The Khejarli Sacrifice (1730 AD):** Led by **Amrita Devi Bishnoi**, 363 members of the Bishnoi community sacrificed their lives to protect Khejri trees from being cut by the Maharaja of Jodhpur's men. This event served as the primary inspiration for the **Chipko Movement** of the 1970s.
- **Religious Significance:** Mentioned in the *Ramayana* and *Mahabharata*, the tree is worshipped during the **Dussehra** festival. It is also associated with Lord Krishna and worshipped on Janmashtami.

4. Economic Utility

- **Sangri:** The unripe pods, known as *Sangri*, are a staple in Rajasthani cuisine (e.g., *Ker Sangri*). Efforts are currently underway to secure a **Geographical Indication (GI) tag** for Sangri.
- **Loom/Fodder:** The leaves, locally called *Loom*, serve as highly nutritious fodder for camels, goats, and cattle.
- **Medicine:** Different parts of the tree are used in Ayurveda to treat ailments like skin disorders, asthma, and rheumatism.

4.5. THWAITES GLACIER

Context:

Recently, a major international scientific expedition led by the **British Antarctic Survey (BAS)** and South Korean researchers commenced a high-stakes drilling mission on the **Thwaites Glacier** to investigate its rapid melting from beneath.

1. Geographical Profile

- **Location:** It is an unusually broad and vast glacier located in **West Antarctica**.
- **Drainage:** It flows into **Pine Island Bay**, which is part of the **Amundsen Sea**.
- **Size:** The glacier is approximately **120 km wide** (the widest in the world) and covers an area of **1.9 lakh sq km**, roughly the size of Great Britain or the state of Florida.
- **Basin:** It is a key component of the **West Antarctic Ice**



Sheet (WAIS), acting as a "cork" that prevents interior ice from flowing rapidly into the ocean.

2. Why the "Doomsday" Label?

- **Sea Level Contribution:** Currently, Thwaites contributes about **4%** to the annual global sea-level rise.
- **Potential Rise:** If the glacier collapses entirely, it contains enough ice to raise global sea levels by approximately **65 cm (over 2 feet)**.
- **Chain Reaction:** Its collapse could destabilize neighboring glaciers (like Pine Island Glacier), potentially leading to a total sea-level rise of up to **3 meters (10 feet)**, which would submerge major coastal cities like Mumbai, New York, and Shanghai.

3. International Collaboration

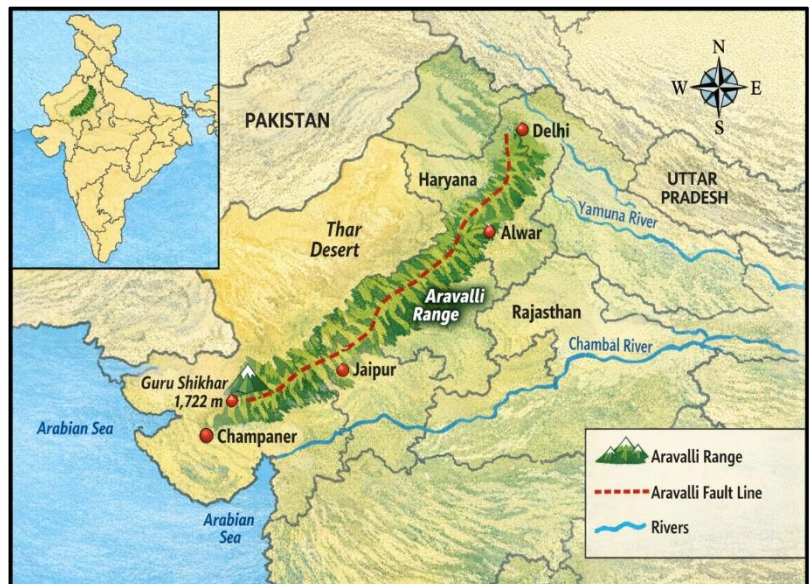
- **ITGC:** The **International Thwaites Glacier Collaboration** is a multi-year, multi-million dollar joint project between the US (National Science Foundation) and the UK (Natural Environment Research Council) to study the glacier's fate.

4.6. SUPREME COURT HALTS ARAVALLI SAFARI PROJECT

Context:

The Supreme Court of India has refused to allow the Haryana government to proceed with its proposed Aravalli **jungle safari project** until experts **clearly define** the official boundary ("range") of the Aravalli hills.

This safari project aims to set up big cat zones and house hundreds of species of birds, reptiles and butterflies in an area of 10,000 acres in the eco-fragile Aravalli range in Gurugram and Nuh districts.



Ongoing Debate

- The Supreme Court of India (Nov–Dec 2025) reviewed a **committee led by Ministry of Environment, Forest and Climate Change** to frame a **uniform definition** of the Aravalli range for mining regulation, stressing its role in preventing desertification, recharging groundwater, and conserving biodiversity.
- **Aravalli Hills Definition:** Any landform rising **100 metres** or more above the surrounding local terrain.
- **Aravalli Ranges Definition:** Clusters of two or more such hills located **within 500 metres** of each other.

What are the Criticisms Regarding the New Definition of Aravalli Hills?

- **Major Exclusion:** A 100-m threshold may exclude over 90% of the Aravalli landscape, raising ecological concerns.
- **Mining Risk:** Unprotected areas could face mining, construction, and urban expansion.

- **Ecological Break:** Peak-centric definition ignores foothills, valleys, and ridges.
- **Water Threat:** Damage to slopes may reduce groundwater recharge.
- **Desertification Risk:** Weakening the barrier could accelerate Thar Desert spread, affecting India's commitments under the UN Convention to Combat Desertification.

About the Aravalli Hills:

- The Aravalli Hills and Ranges are among **India's oldest geological formations**, stretching from Delhi through Haryana, Rajasthan, and into Gujarat.
- **Type:** An ancient **fold mountain chain**, now worn down into residual hills (300–900 m).
- **Highest Peak:** Guru Shikhar (1,722 m) on **Mount Abu**.
- **Hydrological Role:** The Aravalli range, located in a semi-arid region (500–700 mm rainfall), acts as a major watershed separating **the Ganga–Indus drainage divide** and river systems flowing toward the Bay of Bengal and the Arabian Sea.

Significance of the Aravalli Range

- **River Source:** Several rivers originate in the Aravallis, including **Luni, Banas, Sahibi and Sabarmati**.
- **Barrier Against Desertification:** Acts as a natural wall preventing the eastward spread of the Thar Desert.
 - **Aravalli Green Wall Initiative:** A project to develop a 1,400 km long, 5 km wide green buffer across 29 districts in Gujarat, Rajasthan, Haryana, and Delhi to curb desertification, reduce land degradation, and prevent the eastward spread of the Thar Desert.
- **Aquifer Recharge:** Fractured and weathered Aravalli rocks allow rainwater percolation, enabling recharge of underground aquifers.
- **Mineral Resources:** Rich in marble, granite, copper, zinc, and lead ores.
- **Cultural and Heritage Significance:** The Aravalli range houses **UNESCO World Heritage Sites** like **Chittorgarh and Kumbhalgarh forts**.

SCIENCE & TECHNOLOGY

5.1. SUBORBITAL TOURISM

Context: Recently, the global space tourism industry has gained renewed momentum following the successful completion of several high-profile civilian missions by private aerospace firms like **Blue Origin** and **Virgin Galactic**, alongside the Government of India's increased budgetary focus on **IN-SPACE** to regulate private space participation.



1. Defining Suborbital Flight

A suborbital flight is a spaceflight in which the spacecraft reaches **outer space** but its trajectory intersects the atmosphere or surface of the Earth, preventing it from completing one full orbital revolution.

- **Mechanism:** The vehicle is launched to a high altitude but does not reach the **orbital velocity** (approx. 28,000 km/h) required to stay in orbit around the Earth.
- **Trajectory:** It follows a **parabolic path**, looping up into space and then falling back down, similar to a high-toss ball.
- **Experience:** Passengers experience **3 to 5 minutes of weightlessness** (microgravity) and can view the curvature of the Earth against the blackness of space.

2. The Karman Line: The Boundary of Space

The **Karman Line** is an imaginary boundary located at an altitude of **100 km (62 miles)** above mean sea level.

- **Scientific Basis:** It represents the altitude where the atmosphere becomes too thin to support traditional aeronautical flight (wings can no longer provide lift).
- **Legal Significance:** It is widely accepted by the **Federation Aeronautique Internationale (FAI)** as the boundary separating Earth's atmosphere from outer space, used to distinguish between aircraft and spacecraft.
- **Varying Standards:** While the FAI uses 100 km, agencies like **NASA** and the **US Air Force** consider 80 km (50 miles) as the edge of space.

3. Comparison: Suborbital vs. Orbital

Feature	Suborbital Flight	Orbital Flight
Velocity	Lower than Orbital Velocity	Must reach ~28,000 km/h
Duration	10–15 minutes (Total)	Days to Months
Altitude	Reaches ~100 km (Edge of Space)	400 km+ (Low Earth Orbit/ISS)
Cost	Relatively lower (Lakhs to Crores)	Very High (Hundreds of Crores)

4. Major Players and Indian Perspective

- **Global Players:** **Blue Origin** (New Shepard) and **Virgin Galactic** (SpaceShipTwo) are the leaders in suborbital trips, while **SpaceX** focuses primarily on orbital missions.

- **Indian Ambition: ISRO** is reportedly working on its own space tourism module, aiming for a domestic capability by **2030**.
- **Commercial Arm: NewSpace India Limited (NSIL)** and the regulator **IN-SPACe** are facilitating private Indian startups to enter the suborbital launch segment.

5.2. INDIA’S AIRCRAFT FLEET

Context: Recently, in light of the official visit of French President Emmanuel Macron to India this February 2026, the Defence Acquisition Council (DAC) is set to convene to grant the final Acceptance of Necessity (AoN) for the mega-deal involving 114 Multi-Role Fighter Aircraft (MRFA). This follows the landmark Inter-Governmental Agreement signed in April 2025 for 26 Rafale-Marine (Rafale-M) jets for the Indian Navy.

1. Combat Aircraft (Fighters)

- **Sukhoi Su-30MKI: Type:** 4.5-Generation Multirole Air Superiority Fighter.
 - **Features:** Twin-engine, two-seater aircraft equipped with **Thrust Vectoring Control (TVC)** and canards for extreme maneuverability (e.g., Pugachev’s Cobra maneuver).
 - **Key Weapons:** BrahMos supersonic cruise missile, Astra BVRAAM, and R-77 missiles.
- **Dassault Rafale: Type:** 4.5-Generation “Omnirole” Fighter.
 - **Features:** Equipped with **AESA Radar (RBE2)**, SPECTRA electronic warfare suite, and “cold start” capability for high-altitude airbases.
 - **Key Weapons:** Meteor (Long-range air-to-air), **SCALP** (Deep-strike cruise missile), and **HAMMER** (Precision-guided munitions).
- **HAL Tejas (LCA): Type:** Indigenous Light Multirole Fighter.
 - **Features:** World’s smallest lightweight multi-role supersonic fighter; features a glass cockpit, **Fly-By-Wire (FBW)** system, and extensive use of composite materials (45% of airframe).
 - **Variants:** Mk1 (Initial), Mk1A (Advanced radar/jammer), and Trainer.
- **Mirage 2000: Type:** Single-engine Multirole Fighter.
 - **Features:** Known for its delta-wing design and high accuracy in bombing; played a pivotal role in the Kargil War and Balakot airstrikes.
- **MiG-29 (UPG): Type:** Twin-engine Air Superiority Fighter.



- **Features:** Highly agile; the UPG variant includes modern avionics, a refined radar, and mid-air refueling capabilities.

2. Transport Aircraft

- **C-17 Globemaster III: Role:** Strategic Heavy-lift Transport.
 - **Details:** Can carry 77 tonnes of cargo; capable of landing on short, unpaved runways (STOL) and transporting tanks like the T-90 or Arjun.
- **C-130J Super Hercules: Role:** Tactical Special Operations Transport.
 - **Details:** Ideal for landing on “Advanced Landing Grounds” (ALGs) in rough terrain like Daulat Beg Oldie (DBO).
- **C-295: Role:** Tactical Airlifter.
 - **Details:** Replacing the Avro-748; features a 9-tonne capacity and rear ramp for rapid loading. It is the first military aircraft project in India involving a private-sector final assembly line (Tata-Airbus).

3. Rotary Wing (Helicopters)

- **HAL Prachand (LCH): Role:** Indigenous Light Combat Helicopter.
 - **Details:** The only attack helicopter in the world capable of taking off and landing at an altitude of **5,000 meters** (Siachen Glacier) with a significant weapon load.
- **AH-64E Apache: Role:** Multi-role Attack Helicopter.
 - **Details:** Features “Longbow” Fire Control Radar; armed with **Hellfire** missiles and a 30mm chain gun slave-linked to the pilot’s helmet.
- **CH-47 Chinook: Role:** Heavy-lift Transport Helicopter.
 - **Details:** Recognizable by its tandem rotors; used for transporting heavy artillery (like M777 howitzers) and troops to high-altitude zones.

4. Special Mission Aircraft

- **Netra AEW&C: Details:** Indigenous system developed by DRDO on an Embraer-145 platform; provides 240-degree radar coverage to detect incoming threats.
- **Phalcon AWACS: Details:** Israeli radar mounted on Russian IL-76 aircraft; provides a **360-degree** “eye in the sky” coverage over a range of 400 km.
- **IL-78 MKI: Role:** Mid-air Refueller (Tanker).
 - **Details:** Extends the combat radius of fighter jets by providing fuel during flight.

5.3. REUSABLE LAUNCH VEHICLE (RLV)

Context: The Republic of India has been actively developing cost-effective and dependable space technology since 2010. Recently, the nation successfully demonstrated the autonomous landing capability of the Reusable Launch Vehicle (Reusable Launch Vehicle-Technology Demonstrator Hypersonic Flight Experiment-01), which serves as a two-stage-to-orbit launch system designed to propel payloads into orbit and is engineered for subsequent reuse.



What is a Reusable Launch Vehicle (RLV)?

An RLV is a space-plane or rocket system designed to return to Earth substantially intact, allowing for multiple launches. Unlike traditional "expendable" rockets (like the older PSLV/GSLV models) that burn up or crash into the ocean after a single use, RLVs are the space equivalent of a commercial aircraft.

Significance of Reusable Launch Vehicle (RLV) Technology

1. Economic: Slash "Cost-to-Orbit"

- **Massive Cost Savings:** Aims to reduce launch costs by nearly **80%**, bringing the price down from ~\$20,000/kg to approximately **\$2,000/kg**.
- **Protecting High-Value Assets:** Reuses the most expensive components—**engines and advanced avionics**—which traditionally account for 60–70% of a rocket's cost but are discarded in expendable models.

2. Strategic: Sovereignty and On-Demand Access

- **Launch Frequency:** Enables a faster "turnaround time" between missions, allowing India to launch satellites "on-demand" for national security or emergency communication.
- **Global Competitiveness:** Positions ISRO as a "Global Space Transporter," attracting high-value commercial contracts by offering the most competitive pricing in the global \$600 billion space economy.

3. Operational: Versatility in Space

- **Beyond Launches:** RLV technology is not just for putting satellites up; it enables **retrieving old satellites** for repair or **in-orbit refueling**, extending the life of India's space assets.
- **Support for Space Stations:** Acts as the primary logistics vehicle for the upcoming **Bhartiya Antariksh Station (BAS)**, ferrying cargo and potentially crew back and forth.

4. Environmental: Minimizing "Space Junk"

- **Sustainable Space:** Prevents rocket stages from becoming orbiting debris (Kessler Syndrome) by ensuring they return to Earth or burn up in a controlled manner.
- **Reduced Manufacturing Footprint:** Decreases the carbon and material footprint associated with manufacturing new rockets for every single mission.

5. Technological: Paving the Way for "Viksit Bharat @2047"

- **Dual-Use Capabilities:** The navigation (NGC) and thermal protection systems (TPS) developed for RLVs have direct applications in **Hypersonic Missiles** and advanced defense systems.
- **Human Spaceflight:** A reliable RLV is the safest and most efficient pathway for future long-term human missions to the **Moon and Mars**.

ISRO's Roadmap: The "Pushpak" Journey

I. HEX (Hypersonic Flight Experiment) | 2016 – Status: Success

- **Goal:** Survived extreme heat during atmospheric re-entry.
- **Outcome:** Validated autonomous navigation and Thermal Protection Systems (TPS).

II. LEX (Landing Experiment) | 2023–2024 – Status: Success

- **Mission:** Three consecutive tests (**LEX-01, 02, 03**) at Chitradurga.
- **Goal:** Autonomous "high-speed" runway landing (350 kmph).
- **Outcome:** Demonstrated "Pushpak's" ability to land precisely under severe wind and error conditions.

III. OREX (Orbital Return Flight Experiment) | Planned 2026

- **Goal:** Return "Pushpak" to Earth from an actual **orbital mission** (higher speeds than HEX).
- **Context:** Validating the integration of re-entry and runway landing in a single real-world mission.

IV. SPEX (Scramjet Propulsion Experiment) | Planned Post-2026

- **Goal:** Testing **Air-Breathing Scramjet Engines**.
- **Purpose:** Using atmospheric oxygen during ascent to reduce onboard fuel weight, paving the way for a fully reusable **Two-Stage-to-Orbit (TSTO)** vehicle.

Global Initiatives

- **SpaceX (USA):** The global leader with **Falcon 9** (partially reusable) and **Starship** (fully reusable). By Jan 2026, SpaceX has achieved "Mechazilla" catches of its Super Heavy boosters.
Starship V3: By January 2026, SpaceX is testing the "Version 3" architecture, featuring **Raptor 3 engines**. Preparations are currently underway for **Flight 12**, with a focus on successful ship splashdowns and refining the "chopstick" catch system.
- **Blue Origin (USA):** **New Glenn** rocket, which successfully recovered its first booster in late 2025.
- **China (CNSA):** Developing the **Long March 10** and **Tianlong-3** (Space Pioneer), aiming for reusable orbital flights by 2027.
- **ESA (Europe):** The **Themis** prototype, a reusable rocket stage being tested for hop-flights.

Challenges for India's RLV

- **Re-entry Heating:** The vehicle must survive friction-induced temperatures exceeding **1500°C** during atmospheric re-entry. This necessitates heavy and expensive **Thermal Protection Systems (TPS)** like carbon-carbon composites or ceramic tiles.
- **Structural Fatigue:** Repeated exposure to the high-stress environment of launch and re-entry leads to "metal fatigue," limiting the number of times a vehicle can safely fly before being decommissioned.
- **Reduced Payload:** To enable reusability, a rocket must carry **extra fuel** for landing maneuvers and heavy hardware like **landing gear, grid fins, and heat shields**.
- **Trade-off:** This additional "dead weight" significantly reduces the actual weight of the satellite (payload) the rocket can carry compared to an expendable version.
- **Cost vs. Savings:** If the cost of recovering, inspecting, and repairing a vehicle after it lands is too high, it negates the savings from not building a new rocket.
- **Certification Issues:** Recertifying a used engine for high-stakes missions (like human spaceflight or expensive national satellites) is a major regulatory and safety challenge.
- **Autonomous Landing:** Achieving a precise landing on a specific runway or sea-platform from orbital speeds requires hyper-accurate **Navigation, Guidance, and Control (NGC)** systems that can correct for unpredictable wind and atmospheric density in real-time.

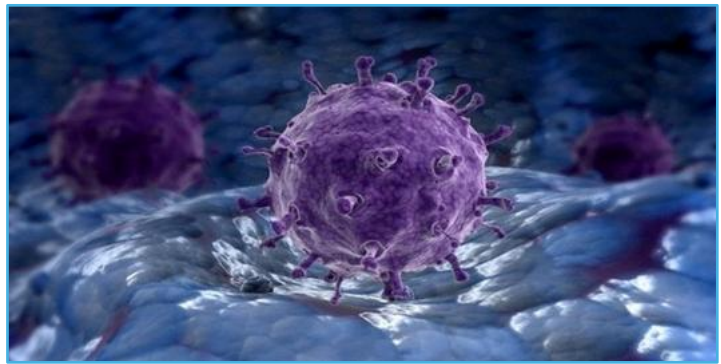
Way Forward for RLV Technology

- **Project "Soorya":** India must fast-track the development of the **Next-Gen Launch Vehicle (NGLV)**, which is designed as a heavy-lift, partially reusable rocket.
- **Payload Capacity:** Aim to increase the LEO (Low Earth Orbit) payload capacity to **30 tonnes**, ensuring India can compete with SpaceX's Falcon 9 for global commercial launches.
- **The "Weight" Solution:** Successful integration of **Scramjet propulsion (SPEX)** is vital. By using atmospheric oxygen as an oxidizer during the ascent, India can significantly reduce the onboard oxidizer weight, allowing for a higher "Payload-to-Weight" ratio.

- **Dedicated Spaceports:** Development of the **Kulasekarapattinam Spaceport** (Tamil Nadu) will provide a direct southward launch trajectory, saving fuel and simplifying the recovery of reusable stages.
- **Refurbishment Ecosystem:** Building specialized "Cleanroom Hangars" and robot-assisted inspection systems to reduce the time between a landing and the next launch (Target: < 30 days).
- **In-SPACe Empowerment:** Shift ISRO's role to R&D while transferring RLV technologies to the private sector (e.g., Skyroot, Agnikul) via **IN-SPACe**.
- **Venture Capital (VC) Support:** Utilize the recently announced **₹1,000 crore VC fund** for space startups to innovate in "Low-cost Reusable Materials" and "Autonomous Landing Software."
- **Debris-Free Missions:** Align RLV goals with India's **Debris-Free Space Missions (DFSMD) 2030** initiative. RLVs should be the primary tool for satellite de-orbiting and space junk removal.

5.4. H5N1 AVIAN INFLUENZA VIRUS

Context: Recently, the Union Ministry of Fisheries, Animal Husbandry and Dairying confirmed an outbreak of the **Highly Pathogenic Avian Influenza (HPAI) H5N1** in Chennai, Tamil Nadu, following the mass death of crows in the Adyar region. Laboratory tests conducted at the **ICAR-National Institute of High Security Animal Diseases (NIHSAD)** in Bhopal confirmed the presence of the virus, prompting the state government to issue a public health advisory and intensify surveillance in wet markets and poultry farms.



1. What is H5N1?

- **Definition:** Avian Influenza, commonly known as **Bird Flu**, is a highly contagious viral infection caused by **Influenza Type A** viruses.
- **Pathogenicity:** H5N1 is classified as "Highly Pathogenic" (HPAI) because it causes severe disease and high mortality rates (up to 90–100%) in domestic poultry.
- **Origin:** The current lineage (Goose/Guangdong) was first detected in **1996** in China.

2. Biological Structure

- **Subtyping:** Influenza A viruses are classified based on two surface proteins:
 - **Hemagglutinin (H):** Responsible for the virus's ability to **attach and enter** a host cell. There are 18 known H subtypes.
 - **Neuraminidase (N):** Facilitates the **release** of new viral particles from the host cell to spread the infection. There are 11 known N subtypes.
- **Combination:** H5N1 is just one of 198 possible combinations (e.g., H5N8, H1N1, H3N2).

3. Transmission Dynamics

- **Natural Reservoirs:** Wild aquatic birds (especially ducks and geese) are the natural hosts. They often carry the virus without showing symptoms but can spread it via saliva, nasal secretions, and feces.

- **Spillover to Mammals:** The virus has increasingly been detected in mammals such as foxes, bears, sea lions, and recently, **dairy cattle** and captive wildlife (tigers/leopards) in India.
- **Human Transmission:** Human infection is **rare** and usually occurs through direct contact with infected birds or contaminated environments. **Human-to-human transmission** remains extremely uncommon and inefficient.

4. Global and National Governance

- **WHO (Global Influenza Surveillance and Response System – GISRS):** Monitors circulating strains to provide risk assessments.
- **WOAH (World Organisation for Animal Health):** Coordinates international efforts to improve animal health.
- **India’s Response:** Governed by the **National Action Plan for Prevention, Control, and Containment of Avian Influenza (revised 2021)**.

5.5. SOLID FUEL DUCTED RAMJET (SFDR) TECHNOLOGY

Context: Recently, the Defence Research and Development Organisation (DRDO) has made significant strides in the flight testing and refinement of the **Solid Fuel Ducted Ramjet (SFDR)** propulsion system, with recent reports highlighting its integration into future long-range air-to-air missiles (LRAAM) to ensure air superiority.

1. What is SFDR?

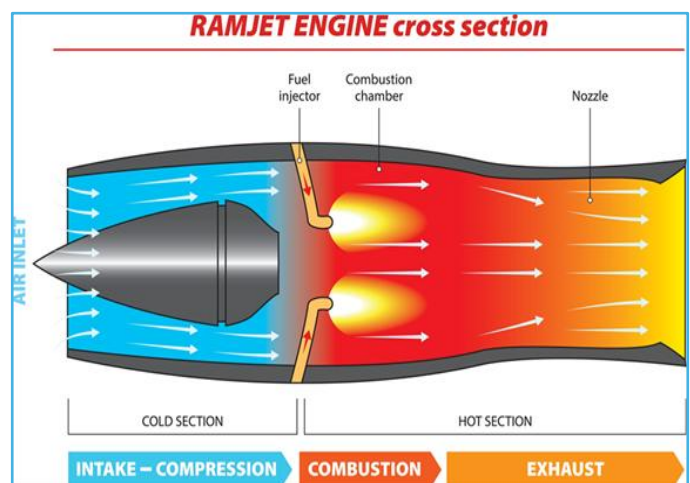
The SFDR is a missile propulsion system based on the **Ramjet** engine principle. Unlike standard rockets that carry both fuel and an oxidizer, the SFDR takes oxidizer (oxygen) from the atmosphere during flight. This significantly reduces the weight of the missile, allowing it to carry a larger payload or achieve a much longer range.

2. How it Works

- **Air-Breathing Mechanism:** The missile uses its forward motion to compress incoming air into the engine (the “ram” effect).
- **Solid Fuel Component:** It utilizes a solid fuel propellant that reacts with the compressed atmospheric oxygen to create thrust.
- **No Moving Parts:** Ramjets are unique because they have no rotating compressors or turbines, making them simpler yet highly efficient at supersonic speeds.
- **Boost-Sustain Phase:** The missile is initially launched using a conventional solid rocket motor to reach supersonic speeds, after which the SFDR takes over for the sustained long-range cruise.

3. Key Technical Features

- **Thrust Modulation:** SFDR technology allows the missile to throttle its thrust based on the altitude and speed requirements, which is difficult to achieve with standard solid motors.
- **Supersonic Speed:** It is designed to operate optimally at speeds between **Mach 2 and Mach 5**.



- **No-Escape Zone:** Because the engine can maintain high speeds for a longer duration, it significantly increases the “No-Escape Zone” for enemy aircraft, making the missile much harder to evade.

4. Comparison with Conventional Systems

Feature	Conventional Solid Rocket	SFDR (Ramjet)
Oxidizer	Carried on board	Taken from the atmosphere
Weight	Heavier (due to oxidizer)	Lighter and more efficient
Range	Limited	Significantly Extended
Speed	Decelerates after fuel burnout	Maintains high speed longer

5.6. DEMOCRATISING AI INFRASTRUCTURE IN INDIA

Context: The Government of India’s white paper “Democratising Access to AI Infrastructure” shifts the AI debate from **applications to infrastructure**, emphasising that control over **compute power, datasets, and AI platforms** will determine India’s **innovation capacity, inclusive growth, and digital sovereignty** in an AI-driven world.



Strategic Pillars of the White Paper

- **Infrastructure as a Utility:** Just like electricity or roads, AI "compute" (GPUs) and data are now essential for modern economic participation.
- **DPI for AI:** Leveraging the "India Stack" model (like UPI/Aadhaar) to create shared, interoperable "rails" for AI that lower entry barriers for startups and researchers.
- **Sovereign Competitiveness:** Transitioning from being a **consumer of foreign AI** to a **producer of sovereign AI** to protect strategic autonomy.
- **Sustainability:** Balancing massive infrastructure scaling (projected 9.2 GW by 2030) with green energy and energy-efficient cooling architectures.

Digital Public Infrastructure (DPI) Approach

India is applying its successful "DPI Model" (like UPI/Aadhaar) to AI:

- **Modular & Shared:** Rather than one monolithic platform, the government proposes modular enablers (e.g., **AI Kosh** for datasets).
- **Interoperability:** Standardized layers allow smaller players and startups to innovate without "privileging" Big Tech firms.
- **Sovereign AI Ecosystem:** Collaborations like **Sarvam AI** and **Gnani AI** are developing indigenous Foundation Models (e.g., 120B parameter models) optimized for Indian languages.

Significance of AI Infrastructure for India

- **Decoupling from Big Tech:** Currently, 20% of global data is generated in India, but only 3% of global compute capacity is hosted here. Domestic infrastructure (like **AIRAWAT** and **GPU clusters**) reduces reliance on foreign cloud providers.

- **Data Jurisdiction:** Ensures sensitive data (defense, health, governance) stays within Indian borders, mitigating risks of foreign surveillance and external supply chain disruptions (e.g., GPU export curbs).
- **Democratizing Compute:** Treating AI infrastructure as a **Digital Public Utility** (similar to UPI/Aadhaar) allows startups and researchers to access expensive GPUs at subsidized rates, preventing a "monopoly of intelligence."
- **Vernacular Growth:** Infrastructure supports models like **Bhashini** and **BharatGen**, which break linguistic barriers by enabling AI in 22+ Indian languages, ensuring that the "AI age" isn't limited to English speakers.
- **Viksit Bharat 2047:** AI is projected to add **\$1.7 trillion** to India's economy by 2035. Robust infrastructure is the "fuel" for this growth, powering sectors like precision agriculture, fintech, and advanced manufacturing.
- **Global Capability Centres (GCCs):** Strengthening local compute attracts high-value global R&D centers, turning India from a back-office hub into a global "AI factory."
- **Green AI:** Modern AI workloads are energy intensive. Sovereign infrastructure allows India to integrate **Energy-efficient architectures** and renewable energy directly into data center designs, aligning with **Net Zero 2070** goals.

Challenges For India and Global Issue

1. India-Specific Challenges: The "Hardware-Resource Gap"

- **Capacity Asymmetry:** India generates **20% of global data** but hosts only **3% of global data center capacity**, creating a heavy reliance on foreign compute.
- **The Cooling Paradox:** Over **50% of India's data centers** are in water-stressed regions like Bengaluru and Mumbai. High-performance GPUs generate immense heat, requiring billions of liters of water for cooling in an already water-scarce climate.
- **Infrastructure-Energy Strain:** AI data center capacity is projected to hit **9.2 GW by 2030**. Since India's base-load power remains coal-dependent, the "Green AI" goal faces a credibility gap when renewable supply fluctuates.
- **Obsolescence & E-waste:** AI hardware (GPUs) becomes obsolete in **2–3 years**. India lacks advanced "urban mining" facilities to recycle these specialized chips, leading to toxic e-waste.

2. Global Issues: The "Digital Iron Curtain"

- **Infrastructure Concentration:** Compute power and frontier models are concentrated in a handful of Global North firms (e.g., in the US). This creates a **"Digital Cold War"** where nations must choose between US-led or China-led "AI Stacks."
- **Weaponization of Compute:** High-performance chips have become "geopolitical chokepoints." Export controls and sanctions (like those seen in mid-2025) can cripple a nation's ability to train domestic AI models overnight.
- **The AI Divide:** Adoption in the Global North is growing **twice as fast** as in the Global South. This risks making the Global South "passive consumers" of AI rather than active innovators.
- **Regulatory Fragmentation:** Divergent laws (EU's AI Act vs. US's matrixed approach) create compliance hurdles for global expansion, making it harder for Indian startups to "scale globally" while staying "sovereign locally."

Government Policy: The "IndiaAI" Roadmap

1. The Three "Sutras" (Guiding Principles)

The 2026 framework anchors all AI initiatives on three Sanskrit-inspired pillars:

- **People:** Human-centric AI that preserves cultural/linguistic diversity (Inclusion).
- **Planet:** Sustainable "Green AI" with resource-efficient architectures (Sustainability).
- **Progress:** AI as a driver for economic growth and improved public service delivery.

2. The Seven "Chakras" (Action Pillars)

The **IndiaAI Mission** translates the "Sutras" into seven functional areas:

1. **Compute Pillar:** Establishing a national backbone with **10,000+ GPUs** (at subsidized rates of ~₹65/hour) to end "compute poverty."
2. **AIKosh (Datasets):** A centralized national platform hosting 3,000+ high-quality datasets across 20+ sectors for model training.
3. **Foundation Models:** Developing sovereign **Large Multimodal Models (LMMs)** trained on Indian data and languages (e.g., Sarvam AI, Gnani AI).
4. **Application Development:** Creating AI solutions for agriculture, healthcare, and governance (e.g., CyberGuard AI).
5. **FutureSkills:** Setting up 570+ **Data & AI Labs** in Tier 2/3 cities to train 13,000+ researchers and students.
6. **Startup Financing:** Direct funding and global exposure (e.g., IndiaAI Startups Global program).
7. **Safe & Trusted AI:** Establishing an **AI Safety Institute (AIS)** to develop frameworks for bias mitigation and algorithmic transparency.

3. Strategic Hardware Initiatives

- **NSM 2.0 (National Supercomputing Mission):** Targeting near-complete indigenization of supercomputing by 2030 (e.g., **PARAM Rudra** series).
- **GPU Clusters:** Building a secure cluster of **30,000+ next-gen GPUs** specifically for sovereign and strategic use-cases by February 2026.

Government Initiatives:

Scheme/Mission	Focus Area	Key Output/Target
IndiaAI Mission	Holistic AI Ecosystem	10,000+ GPUs; ₹10,372 Cr Outlay.
NSM 2.0	Supercomputing Hardware	PARAM Shankh (Exascale target).
Bhashini	Language Interface	Real-time translation in 22 languages.
AIKosh	Data Infrastructure	5,500+ datasets for AI training.
AIRAWAT	AI Cloud Computing	Ranked in Global Top 100 supercomputers.

Way Forward

- **Data Democratization:** Operationalize **AI Kosh** and **TGDEx** to ensure high-quality, non-personal data is accessible for training indigenous Large Language Models (LLMs).
- **Sustainable Data Centers:** Mandate the use of renewable energy for new data centers and incentivize **liquid cooling technologies** to reduce water and power footprints.
- **Energy-Efficient Models:** Focus R&D on **Small Language Models (SLMs)** that require less compute power but offer high accuracy for specific Indian use cases.
- **AI Sovereignty:** Build a "Sovereign AI Stack" to protect strategic autonomy and reduce dependency on foreign "black-box" algorithms.

- **Ethical Guardrails:** Establish the **AI Safety Institute** to create global standards for "Safe and Trusted AI," positioning India as a responsible global regulator.

5.7. INDIA’S ASTRONOMY & SPACE RESEARCH ECOSYSTEM

Context: Union Budget 2026–27 has earmarked ₹13,416.20 crore for the **Department of Space**, with a major thrust on **deep-space exploration, astrophysics and large telescope infrastructure**. This marks a strategic shift towards strengthening India’s frontier science capacity and reducing dependence on foreign observatories.



1. Key Budget Announcements & Infrastructure

Initiative	Location	Significance
30-m National Large Optical-Infrared Telescope (NLOT)	India (site under development)	Will place India among global leaders in optical astronomy
National Large Solar Telescope (NLST)	Near Pangong Lake, Ladakh	High-resolution solar studies, space weather monitoring
Himalayan Chandra Telescope (HCT)	Hanle, Ladakh	Control system upgrades
COSMOS-2 Planetarium	Amaravati, Andhra Pradesh	Public science outreach
Giant Metrewave Radio Telescope (GMRT)	Near Pune	World’s largest low-frequency radio telescope array

2. India’s Present Challenges

- **Underutilisation of funds:** Actual expenditure often falls below budget estimates, causing project delays.
- **Dependence on foreign facilities** for:
 - High-resolution optical astronomy
 - High-frequency radio observations
 - **Sub-millimetre astronomy** (India has **no telescope** in this range)
- **Restricted access** to international telescopes as nations prioritise domestic researchers.
- **Bureaucratic resistance** to innovative models like **buying fractional telescope time** abroad.
- **Brain drain** due to lack of comparable facilities within India.

3. Global Context

Only **USA, China, Japan, and the European Union** heavily prioritise astronomy and continuously upgrade **space-based and terrestrial telescopes**.

4. Strategic Vision

Astronomy & Astrophysics Mega Science Vision 2035

- Proposes:
 - **Sub-millimetre telescope** (proposal in pipeline)

- Next-generation observatories
- AI-driven data processing centres

5.8. KIMBERLEY PROCESS (KP)

Context:

Recently, **India formally assumed the Chairpersonship of the Kimberley Process (KP)** for the year 2026, following its selection by the KP Plenary. This marks the third time India has been entrusted with leading this global initiative (previously in 2008 and 2019).

About Kimberley Process (KP)

The Kimberley Process is a **multilateral trade regime** established to prevent the trade of 'conflict diamonds'.



1. Understanding Conflict Diamonds

- **Definition:** Conflict diamonds, also known as "**blood diamonds**," are rough diamonds used by rebel movements or their allies to finance armed conflicts aimed at undermining legitimate governments.
- **UN Connection:** This definition is strictly based on **United Nations Security Council (UNSC)** resolutions.
- **Scope Limitation:** Currently, the KP mandate does only cover diamonds used by *rebels* against *governments*; it does not officially cover diamonds linked to state-sponsored human rights abuses or environmental degradation (a point of ongoing international debate).

2. The Kimberley Process Certification Scheme (KPCS)

- **Launch:** It was established in **2003** following the Kimberley Process meeting in South Africa and the "Interlaken Declaration."
- **Mandate:** It is not an international organization but a **voluntary certification scheme** implemented through national legislations of participant countries.
- **Key Requirements:**
 - **Tamper-proof Containers:** Every shipment of rough diamonds must be transported in a tamper-proof container.
 - **Validated Certificates:** Each shipment must be accompanied by a government-validated **Kimberley Process Certificate**.
 - **Restricted Trade:** Participants can **only trade rough** diamonds with other members of the KPCS.

3. Tripartite Structure

The Kimberley Process is unique because it operates as a **tripartite coalition** involving:

1. **Governments:** Currently has 60 participants (representing 86 countries, with the EU as one participant).
2. **Diamond Industry:** Represented by the **World Diamond Council (WDC)**.
3. **Civil Society:** Represented by various NGOs like the Kimberley Process Civil Society Coalition.

4. Governance and Decision Making

- **Consensus-Based:** All decisions within the KP are made by **consensus**, meaning any single participant can veto a resolution. This often leads to "deadlocks" on sensitive issues like sanctioning major producers.
- **Rotating Chair:** The Chairmanship rotates annually; the Vice-Chair of the current year typically becomes the Chair the following year.

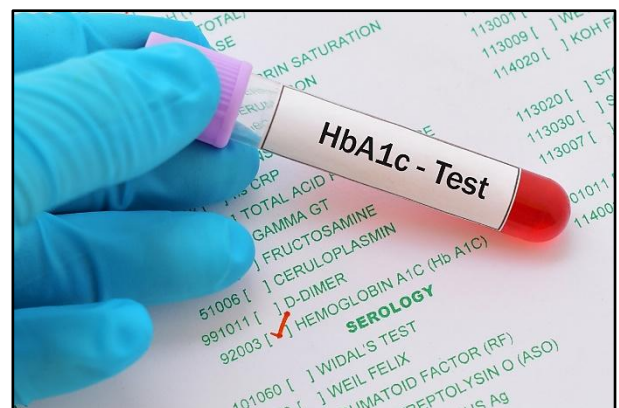
5. Kimberley Process and India

- **Founding Member:** India is a founding member of the KPCS.
- **Nodal Agency:** The **Department of Commerce** is the nodal department, and the **Gem & Jewellery Export Promotion Council (GJEPC)** is the designated authority for issuing certificates.
- **Strategic Importance:** India processes (cuts and polishes) nearly **90% of the world's rough diamonds**, primarily in Surat and Mumbai.
- **2026 Chair Goals:** India aims to focus on digital traceability (blockchain), strengthening compliance, and supporting the interests of the African diamond-producing nations (the "Global South").

5.9. HBA1C (GLYCATED HAEMOGLOBIN) TEST

Context:

Indian diabetologists cautioned against over-reliance on the HbA1c test for diabetes care, noting that widespread anaemia, iron deficiency and genetic blood disorders in India can distort results. They recommended a multiparametric diagnostic approach—combining HbA1c with OGTT and continuous glucose monitoring (CGM)—to ensure accurate assessment and management of India's 101+ million diabetics.



About HbA1c (Glycated Haemoglobin) Test

The HbA1c test has long been considered the "gold standard" for assessing long-term blood sugar control.

1. What is HbA1c?

- **Definition:** HbA1c stands for **glycated haemoglobin**. It is formed when glucose (sugar) in the blood sticks to haemoglobin, the protein in red blood cells (RBCs) responsible for carrying oxygen.
- **Mechanism:** The process of glucose binding to haemoglobin is called **glycation**. The more sugar there is in the blood, the higher the percentage of haemoglobin that becomes glycated.
- **Timeframe:** Because red blood cells have an average lifespan of approximately **120 days (3 to 4 months)**, the HbA1c test reflects the average blood sugar levels over the preceding **8 to 12 weeks**.

2. Advantages over Traditional Tests

- **Stability:** Unlike Fasting Plasma Glucose (FPG) or Post-Prandial (PP) tests, HbA1c is not affected by recent meals, physical activity, or short-term stress.

- **Convenience:** The test can be performed at any time of the day and does **not require fasting**.
- **Complication Correlation:** High HbA1c levels are directly linked to an increased risk of long-term diabetic complications such as **retinopathy** (eye damage), **nephropathy** (kidney disease), and **neuropathy** (nerve damage).

3. Interpretation of Results

The results are typically reported as a percentage. According to the American Diabetes Association (ADA) and WHO:

Result Range	Category
Below 5.7%	Normal
5.7% to 6.4%	Prediabetes
6.5% or Higher	Diabetes

4. Limitations and Factors Affecting Accuracy

Several biological factors can lead to falsely high or low readings, making the test unreliable in specific populations:

- **Haemoglobin lifespan:** Any condition that changes the lifespan of RBCs (like certain types of anaemia) will alter the result.
- **Anaemia:** Iron-deficiency anaemia can lead to **falsely elevated** HbA1c levels.
- **Blood Disorders:** Haemoglobinopathies such as **sickle cell disease** or **thalassaemia** interfere with the measurement of glycated haemoglobin.
- **Other Conditions:** Kidney failure, liver disease, pregnancy (especially in the 2nd and 3rd trimesters), and recent blood transfusions can significantly distort results.

5.10. UNDERSTANDING THE SCIENCE OF MICROBIAL COORDINATION

Context:

Recently, the renowned molecular biologist Prof. Bonnie Bassler, while delivering a lecture at the Indian Institute of Science (IISc) in Bengaluru, highlighted how bacteria use a "chemical language" to coordinate collective behavior.

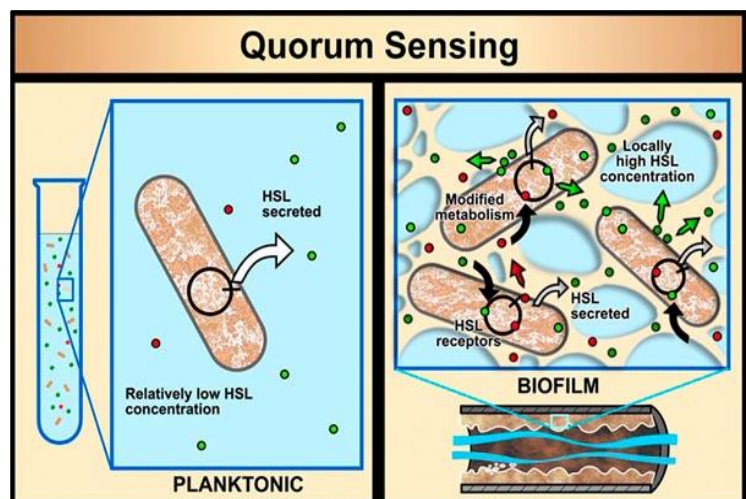
This phenomenon, known as Quorum Sensing, is being hailed as a critical frontier in medical science, particularly for developing "anti-quorum sensing" therapies. These therapies aim to disrupt

bacterial communication to treat infections like Cholera without the use of traditional antibiotics, thereby providing a potential solution to the global crisis of Anti-Microbial Resistance (AMR).

More About Bacterial Communication (Quorum Sensing)

1. What is Quorum Sensing?

- **Definition:** It is a process of **cell-to-cell communication** that allows bacteria to share information about their population density and adjust their gene expression accordingly.



- **Collective Behavior:** It enables single-celled organisms to act like a multicellular entity. This ensures that energy-expensive processes (like toxin production) are only performed when there are enough bacteria present to successfully overwhelm a host's immune system.

2. The Mechanism of Communication

Bacterial communication relies on the production and detection of signaling molecules called Autoinducers. The process follows four distinct stages:

- **Production:** Bacteria continuously produce a low level of autoinducer molecules.
- **Accumulation:** As the bacterial population grows, the concentration of these molecules in the environment increases.
- **Detection:** Once the concentration reaches a specific threshold (a "quorum"), the molecules bind to receptors on or inside the bacterial cells.
- **Response:** This binding triggers a synchronized change in gene expression across the entire population.

3. Key Traits Controlled by Quorum Sensing

- **Virulence:** The release of toxins (e.g., *Vibrio cholerae*).
- **Biofilm Formation:** Creating sticky, protective layers on surfaces like medical implants or teeth, which makes them highly resistant to antibiotics.
- **Bioluminescence:** Producing light in response to high density (e.g., *Vibrio fischeri* in a symbiotic relationship with the Hawaiian bobtail squid).

4. Quorum Quenching: The Future of Medicine

- **Concept:** Instead of killing bacteria (as antibiotics do), Quorum Quenching focuses on "silencing" them by disrupting their communication.

5.11. DAC APPROVAL FOR 114 RAFALES & P-8I

Context:

Recently, the Defence Acquisition Council (DAC), chaired by Union Defence Minister Rajnath Singh, accorded the **Acceptance of Necessity (AoN)** for capital acquisition proposals worth approximately **₹3.60 lakh crore**.

The most prominent approvals include the procurement of **114 Multi-Role Fighter Aircraft (MRFA)**, specifically the **Rafale**,

for the Indian Air Force and **six additional Boeing P-8I Poseidon** long-range maritime reconnaissance aircraft for the Indian Navy.



1. The 114 Rafale (MRFA) Project

- **Operational Need:** The Indian Air Force (IAF) currently operates about **29-30 squadrons**, far below the sanctioned strength of **42 squadrons**.
- **Procurement Model:** Out of the 114 jets, approximately **18 will be in fly-away condition** from France, while the remaining **96 will be manufactured in India** through a collaboration between **Dassault Aviation and Indian partners** (HAL/Private sector).

- **Indigenous Content:** The deal mandates nearly **50-60% indigenous content**, supporting the *Atmanirbhar Bharat* initiative.
- **Capabilities:** The Rafale is a **4.5-generation** "omni-role" aircraft equipped with the **Meteor** (Beyond Visual Range air-to-air), **SCALP** (cruise missile), and **MICA** missile systems.

2. P-8I Poseidon Maritime Aircraft

- **Function:** The P-8I is a Long-Range Maritime Reconnaissance and **Anti-Submarine Warfare (LRMR-ASW)** aircraft.
- **Manufacturer:** It is manufactured by **Boeing (USA)** and is a variant of the P-8A Poseidon used by the US Navy.
- **Equipment:** It features a **Magnetic Anomaly Detector (MAD)** (specific to the Indian version), AGM-84 Harpoon anti-ship missiles, and Mk-54 lightweight torpedoes.
- **Strategic Role:** These aircraft are "force multipliers" in the Indian Ocean Region (IOR), used for surveillance, search and rescue, and tracking enemy submarines.

3. Defence Acquisition Council (DAC)

- **Authority:** The DAC is the highest decision-making body in the Ministry of Defence for new acquisitions.
- **Composition:** It is chaired by the **Union Minister of Defence** and includes the Chief of Defence Staff (CDS) and the three Service Chiefs.
- **The AoN Step:** The **Acceptance of Necessity (AoN)** is the initial regulatory hurdle. It does not mean a contract is signed but signals that the government agrees the equipment is a necessity.

5.12. AMCA AND INDIA'S DEFENCE INDUSTRIAL ECOSYSTEM

Context:

The government is diversifying India's aerospace ecosystem by proposing to award the **AMCA prototype contract** to private players, bypassing HAL. This shift aims to end HAL's monopoly, address production delays, and foster a competitive **private defense industrial complex**.

AMCA as a National Strategic Project

The **Advanced Medium Combat Aircraft (AMCA)** is not merely another fighter programme; it represents:

- India's entry into **5th-generation air combat**
- Mastery over **stealth design, sensor fusion, avionics, AI-assisted warfare**
- Strategic autonomy in **high-end aerospace manufacturing**

Significance of Private Sector Participation in Fighter Aircraft Development

1. Breaking the Public Sector Monopoly

The most immediate significance is the creation of a **Second Aircraft Manufacturing Line**.

- **Commercial Discipline:** Introducing private players like Tata, L&T, or Bharat Forge brings market-driven benchmarks for cost, quality, and delivery—concepts often sidelined in PSU environments.



- **Avoiding "Bottlenecking":** With HAL currently overburdened by orders for 180+ Tejas Mk-1A and Mk-2 aircraft, a private line ensures the AMCA timeline is not cannibalized by existing production loads.

2. Deepening the "Atmanirbhar" Ecosystem

Privatization is the key to building a robust **Military-Industrial Complex (MIC)**:

- **IP Ownership:** Under the new model, the government retains the Intellectual Property (IP), but the private sector masters the **Lead System Integration (LSI)**—the most complex part of aerospace manufacturing.
- **Tier-2/3 Growth:** Private lead integrators are structurally more agile at fostering a network of MSME suppliers, creating a pyramid of domestic aerospace expertise.

3. Global Competitiveness and Exports

- **Agility in Innovation:** Private firms can more easily form Joint Ventures (JVs) with global giants (like Safran for engines or Boeing for airframes) to absorb technology.
- **Export Mindset:** Unlike PSUs, private entities are incentivized to design for the global market, potentially turning the AMCA into an exportable 5th-gen alternative for nations wary of US or Russian restrictions.

4. Risk Mitigation through Diversification

- **Financial Hedging:** Conglomerates can spread the high R&D risks of fighter development across their civilian portfolios, whereas HAL is entirely dependent on government budgetary cycles.
- **Competitive Bidding:** A multi-vendor environment forces companies to innovate on manufacturing processes (e.g., using **3D printing** or **AI-driven assembly**) to stay cost-competitive.

Challenges of Private Sector Participation in Fighter Aircraft Development

1. The Experience & Expertise Gap

- **"Start-up" Status:** India's private giants (Tata, L&T, Bharat Forge) are globally competitive in component manufacturing but have **zero experience** as Lead Integrators for a complete fighter aircraft.
- **Complexity:** Building a 5th-generation stealth prototype is vastly more complex than the aerospace parts or airframes they currently produce.
- **Institutional Memory:** HAL possesses 80 years of "hard-won" expertise in flight testing, weapon integration, and life-cycle support that private entities must now acquire or "poach" rapidly.

2. Infrastructure & Capital Risk

- **Bengaluru Hub Dependency:** The entire design-test ecosystem (DRDO labs, ASTE, National Flight Test Centre) is concentrated in Bengaluru.
- **Sunk Costs:** Private players may be hesitant to invest the massive capital required for specialized rigs and hangars when the initial contract is limited to **only five prototypes** without an ironclad "series production" guarantee.
- **The SPV Model:** The initial Special Purpose Vehicle (SPV) model faced hurdles because private firms were wary of the high financial risks and the "black hole" of R&D costs.

3. Fragmentation of the Design-Build Chain

- **Loss of Singular Control:** Historically (e.g., HF-24 Marut), having design and production under one roof ensured seamless resolution of technical differences.
- **Ownership Ambiguity:** With **ADA (Government)** as the designer and a **Private Firm** as the builder, accountability for flight-test failures or design-to-manufacturing friction becomes a potential legal and operational bottleneck.

4. Human Resource Bottlenecks

- **Test Aircrew:** India has only one school for test pilots. A private developer will struggle to find and fund the specialized crew needed to test a futuristic, unstable stealth platform from day one.
- **Skilled Workforce:** Private firms will likely need to recruit heavily from retired HAL and ADA personnel to bridge the skill gap, potentially just shifting the same talent pool rather than expanding it.

Way Forward

1. Collaborative Infrastructure Model

India should adopt a **Plug-and-Play** model for infrastructure:

- **Shared National Assets:** Grant private consortia (like the shortlisted Tata, L&T, or Bharat Forge) access to **HAL's Bengaluru airfield**, ADA's National Flight Test Centre, and DRDO's specialized labs.
- **Co-location:** Private design and engineering teams should be co-located with the **Aircraft and Systems Testing Establishment (ASTE)** to ensure continuous user (IAF) feedback during the prototype phase.

2. Refining the Industry Partnership Model

The shift from the initial "Special Purpose Vehicle" (SPV) to a more competitive **Industry Partnership Model** requires clear financial de-risking:

- **Assured Production Commitment:** The Ministry of Defence should provide a clear "buy back" guarantee or a firm commitment for the first two squadrons (Mk-1) to ensure private firms can justify the high R&D and capital expenditure.
- **Tier-2/Tier-3 Integration:** The lead private integrator must be encouraged to decentralize work packages to a broader **domestic vendor network** (including MSMEs) to prevent a single point of failure in the supply chain.

3. Addressing the Engine Bottleneck

The "heart" of the 5th-Gen fighter remains its propulsion. The Way Forward involves a dual-track approach:

- **Mk-1 (Short-term):** Ensure smooth integration of the **GE F414 engines** for the initial prototypes.
- **Mk-2 (Strategic):** Fast-track the **Safran-GTRE 120kN engine** joint venture. True strategic autonomy is only achieved once India owns the Intellectual Property (IP) for the engine, allowing for future upgrades without foreign clearance.

4. Human Capital and "Pilot-in-the-Loop" Design

- **Test Pilot Expansion:** India must scale up its only test pilot school or allow private-sector pilots to train alongside the IAF to build a larger pool of expertise for futuristic flight testing.

- **AI and Sensor Fusion:** Since the private sector leads in software and AI, they should focus on the "**Digital Backbone**" of the AMCA, allowing the aircraft to function as a command node for unmanned systems (Loyal Wingman).

Conclusion

The AMCA project marks a definitive pivot toward **Atmanirbhar Bharat**, transitioning from public-sector dependence to a private-led industrial base. By fostering a competitive ecosystem, India secures technological sovereignty, ensuring its 5th-generation air superiority is developed, manufactured, and sustained entirely within its borders.

ART & CULTURE

6.1. SANT GURU RAVIDAS

Context: Recently, the nation observed the **649th birth anniversary** of Sant Guru Ravidas on **February 1, 2026** (Magh Purnima), marked by high-profile visits and state-level celebrations. Prime Minister Narendra Modi visited **Dera Sachkhand Ballan** in Jalandhar, Punjab—a prominent spiritual center for the Ravidassia community—to offer prayers and emphasize the government’s commitment to the saint’s vision of an egalitarian society.



1. General Profile and Life

- **Era:** He was a 15th–16th century mystic poet-saint of the **Bhakti Movement**.
- **Birth:** He was born in **Seer Goverdhanpur** near Varanasi, Uttar Pradesh. His birthplace is now a major pilgrimage site known as **Shri Guru Ravidas Janam Asthan**.
- **Lineage:** He belonged to a family of leather workers (**Chamar** community), and he continued to take pride in his profession as a symbol of the dignity of labor (*Kirat*).
- **Contemporary Figures:** He was a contemporary of **Saint Kabir** and is widely believed to be a disciple of the Brahmin Bhakti poet **Ramananda**.

2. Philosophy and Teachings

- **Nirguna Bhakti:** Guru Ravidas was a prominent figure of the **Nirguna Sampradaya**, emphasizing the worship of a formless, omnipresent God rather than idol worship or ritualistic orthodoxy.
- **Equality:** He was one of the earliest advocates for the **abolition of the caste system** and gender discrimination, teaching that God resides in every human soul regardless of birth.
- **Sahaj:** He used the term “Sahaj” to describe a mystical state where the individual soul and the Divine unite in a state of spiritual harmony.
- **Association with Meera Bai:** Sant Guru Ravidas is traditionally considered the spiritual guide (**Guru**) of the famous Rajput princess and poetess **Meera Bai**.

3. The Concept of “Begumpura”

- **Definition:** Derived from “Be-gham” (without sorrow) and “Pura” (city), it represents a **Utopian city** envisioned by Ravidas in one of his famous hymns.
- **Characteristics:** He described it as a land where there is no suffering, no taxes, no private property, and no social hierarchy.
- **Constitutional Link:** Modern scholars and political leaders often draw a parallel between the vision of **Begumpura** and the principles of **Social Justice** and **Equality** enshrined in the Indian Constitution.

4. Literary Contributions

- **Guru Granth Sahib:** His spiritual influence is immortalized in the Sikh holy scripture, which contains **41 of his hymns (Shabads)**. He is one of the 36 contributors (Bhagats) to the **Adi Granth**.

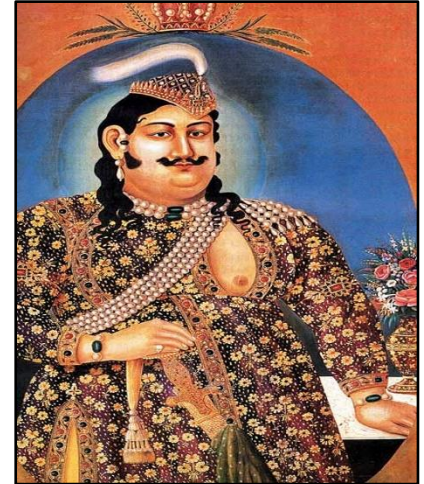
- **Panch Vani:** His verses are also found in the **Dadu Panthi** tradition of Rajasthan.
- **Amritbani Guru Ravidas Ji:** This is the primary holy book of the **Ravidassia religion**, which emerged as a distinct faith in the 21st century.

6.2. NAWAB WAJID ALI SHAH

Context:

Recently, the 19th-century Nawab of Awadh, Wajid Ali Shah, returned to the limelight following the release of a new biography by his great-grandson, which challenges the long-held historical narrative that he was forcibly "exiled" to Calcutta by the British.

The book argues that the Nawab moved to Calcutta of his own volition to prepare for a journey to London to petition Queen Victoria against the annexation of his kingdom, a plan that was ultimately thwarted by the British.



Details About Nawab Wajid Ali Shah

1. The Tenth and Last Nawab of Awadh

- Wajid Ali Shah ascended the throne in 1847 at a time when the British East India Company (EIC) had already turned Awadh into a **buffer state**.
- Despite British claims of his "maladministration," records show he introduced reforms in the **military and judicial systems** based on both Mohammedan and Hindu laws.

2. Annexation of Awadh (1856)

- **Pretext:** Lord Dalhousie annexed Awadh on February 7, 1856, citing "**maladministration**" or misgovernance, rather than the Doctrine of Lapse (as the Nawab had heirs).
- **Justification:** The decision was largely based on a biased report by the British Resident, **Colonel Sleeman**, and later **James Outram**.
- **Impact:** The annexation was a primary spark for the **Revolt of 1857**, as Awadh was the main recruiting ground for the EIC's sepoys.

3. Patron of Culture and Arts

Wajid Ali Shah is often credited with the revival and refinement of North Indian art forms:

- **Kathak:** He was a disciple of **Thakur Prasad** and **Durga Prasad**. Under his patronage, the **Lucknow Gharana** of Kathak emerged, characterized by *Nazakat* (elegance) and *Abhinaya* (expression).
- **Thumri:** He is considered a pioneer of the light classical music form, **Thumri**. He composed numerous pieces under the pseudonym '**Akhtarpiya**'.
- **Theatre:** He established the '**Parikhana**' (a school for music and dance) and staged elaborate dance-dramas called '**Rahas**' (inspired by Rasleela).

4. Legacy in Calcutta (Metiabruz)

Following the annexation, he shifted to **Metiabruz** (Kolkata). He recreated the culture of Lucknow there, introducing:

- **Cuisine:** The addition of the **potato** to Biryani is famously attributed to the financial constraints of his exiled court in Calcutta.
- **Pastimes:** He popularized **kite-flying** and exotic animal collections (zoos) in Bengal.

5. Notable Literary Works

Wajid Ali Shah was a prolific writer in Urdu, Persian, and Braj Bhasha.

- **Bani:** A comprehensive treatise on music and dance.
- **Huzn-i-Akhtar:** An autobiographical work detailing his emotional suffering after losing his kingdom.
- **Sawat-ul-Qalub:** A massive collection of over 44,000 couplets.

6.3. THE DISCOVERY OF TAMIL-BRAHMI AND SANSKRIT INSCRIPTIONS AT LUXOR"

Context:

Recently, researchers discovered nearly **30 inscriptions** in Indian languages, including **Tamil Brahmi (Tamili)**, **Prakrit**, and **Sanskrit**, within the rock-cut tombs of the **Valley of the Kings** in Luxor, Egypt. The inscriptions date back to the **1st to 3rd centuries CE** and provide conclusive evidence of the deep-seated presence of Indian merchants and travelers in the heart of the Roman-era Nile Valley, extending beyond the previously known coastal trade hubs.



Key Highlights of the Discovery

1. Geographical Location and Context

- **Site:** The inscriptions were found in six rock-cut tombs in the **Theban Necropolis (Valley of the Kings)**, a UNESCO World Heritage site.
- **Significance of Location:** Earlier, most Indian inscriptions were found at Red Sea ports like **Berenike and Quseir al-Qadim**; their discovery in the Nile Valley suggests that Indian traders traveled beyond the ports into Egypt's interior for trade or other activities.

2. Major Inscriptions and Decipherment

- **Cikai Korran:** This name appears **eight times** across five different tombs.
 - 'Cikai' is linked to the Sanskrit *shikha* (tuft/crown).
 - '**Korran**' is a distinct Tamil name derived from *korram* (victory), often associated with the goddess **Korravai**.
- **Kopan Varata Kantan:** Another inscription translated as "**Kopan came and saw**," which mirrors the formulaic style of Greek graffiti found in the same tombs. This suggests the visitors were literate and possibly multilingual.
- **Other Names:** Inscriptions also mentioned names like **Catan** and **Kiran**, which are common in Tamil Sangam literature.

3. Linguistic and Historical Significance

- **Two-Way Trade:** The discovery proves that trade was not merely a "one-way" Roman venture to India but involved active participation and physical presence of Indian mercantile communities in the Roman Empire.

- **Script Variety:** While 20 inscriptions are in **Tamil Brahmi**, others are in **Sanskrit** and **Prakrit**. One Sanskrit inscription mentions a *duta* (envoy) of a **Kshaharata king** (Western Kshatrapas), highlighting official diplomatic or trade missions from Western India.
- **Timeline:** The 1st to 3rd century CE timeframe aligns perfectly with the peak of the **Indo-Roman trade** mentioned in Sangam literature and by Roman chroniclers like **Ptolemy** and **Pliny the Elder**.

4. Comparative Table: Indian Inscriptions in Egypt & Middle East

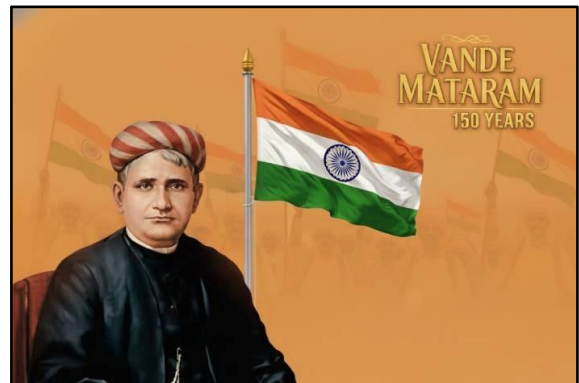
Site Name	Location	Key Discovery	Script / Language
Valley of the Kings	Nile Valley, Egypt	Graffiti on tomb walls (Cikai Korran)	Tamil Brahmi, Prakrit, Sanskrit
Berenike	Red Sea Coast, Egypt	Potsherd mentioning <i>Korrapuman</i>	Tamil Brahmi
Quseir al-Qadim	Red Sea Coast, Egypt	Storage jar with <i>Paanai ori</i> (pot in a rope net)	Tamil Brahmi
Khor Rori (Sumhuram)	Dhofar, Oman	Potsherd mentioning <i>Nantai Kiran</i>	Tamil Brahmi

6.4. PLAYING VANDE MATARAM BEFORE THE NATIONAL ANTHEM

Context:

Recently, a fresh administrative and political discourse has emerged following new guidelines issued by the Ministry of Home Affairs (MHA) regarding the protocol for the National Song, **Vande Mataram**.

Centre has mandated that the **complete six-stanza version** of the song be played or sung at official government functions, award ceremonies, and civil investiture ceremonies. Crucially, the directive stipulates that when both the National Song and the National Anthem are performed together, **Vande Mataram must precede Jana Gana Mana**.



Historical Evolution of Vande Mataram

1. Composition and Publication

- **Author:** Composed by **Bankim Chandra Chattopadhyay** in the 1870s (specifically 1875).
- **Language:** Written in a mixture of **Sanskrit and Bengali**.
- **Literary Source:** It was later included in his famous novel *Anandamath*, published in **1882**, which depicts the **Sannyasi Rebellion**.

2. Role in the Freedom Movement

- **1896 Congress Session:** First sung publicly by **Rabindranath Tagore** at the Calcutta session of the **Indian National Congress**.
- **1905 Swadeshi Movement:** It became the primary rallying cry and a symbol of resistance during the protests against the **Partition of Bengal**.
- **1907 Global Recognition:** **Madam Bhikaji Cama** unfurled the first version of the Indian flag in Stuttgart, Germany, with "**Vande Mataram**" inscribed on it.

Constitutional and Legal Status

1. National Song vs. National Anthem

- **Adoption:** On **January 24, 1950**, the President of the Constituent Assembly, **Dr. Rajendra Prasad**, declared *Jana Gana Mana* as the National Anthem and *Vande Mataram* as the National Song.
- **Equality of Status:** Dr. Prasad stated that *Vande Mataram* shall be honored equally with *Jana Gana Mana* and shall have **equal status** with it.

2. Legal Protections

- **National Anthem:** Explicitly protected under the **Prevention of Insults to National Honour Act, 1971**. Disrespecting or intentionally preventing the singing of the anthem is a punishable offense.
- **National Song:** While the government maintains it deserves equal respect, it is **not explicitly mentioned** in the 1971 Act or **Article 51A** (Fundamental Duties) of the Constitution. Article 51A(a) only mentions the National Flag and the National Anthem.

Comparison: Jana Gana Mana vs. Vande Mataram

Feature	National Anthem (Jana Gana Mana)	National Song (Vande Mataram)
Composer	Rabindranath Tagore	Bankim Chandra Chattopadhyay
First Performance	1911 (Congress Session, Calcutta)	1896 (Congress Session, Calcutta)
Official Duration	Approximately 52 seconds	New guidelines: 3 mins 10 secs (Full version)
Legal Mandate	Prevention of Insults to National Honour Act, 1971	Guidelines (MHA), No specific penal law yet
Fundamental Duty	Explicitly mentioned in Article 51A(a)	Not explicitly mentioned in Article 51A

MISCELLANEOUS

7.1. SOCIAL MEDIA REGULATION FOR CHILDREN

Context:

- The tragic suicide of three sisters in Ghaziabad, Uttar Pradesh, recently has reignited debates on social media's impact on **adolescent mental health**. Preliminary investigations point to screen addiction and **familial conflicts**, prompting calls for outright bans amid global precedents.
- However, such **blunt policy measures** may inadvertently compromise the **digital rights** of minors while absolving technology platforms of **structural accountability**, necessitating a shift toward a **healthy media ecology**.



Social Media's Dual-Edged Potential

I. Benefits of Social Media for Children

Social media platforms offer **substantial developmental and social advantages**, especially in an increasingly digital society, despite legitimate concerns:

- **Access to information and learning:** Enables exposure to **educational content, skill-building resources, and collaborative learning communities**, supplementing formal education.
- **Creative expression:** Provides avenues for **artistic, literary, musical, and innovative expression**, fostering **imagination, confidence, and problem-solving skills**.
- **Social inclusion and support:** Acts as a **lifeline for marginalised groups**, including **LGBTQIA+ youth, children with disabilities, and those in remote or socially restrictive environments**.
 - Facilitates **peer-support networks** and shared experiences that may be unavailable offline.
- **Digital skills development:** Early engagement enhances **media literacy, communication competencies, and digital skills** essential for **future employability**.
- **Civic and cultural engagement:** Encourages participation in **social causes, awareness campaigns, and cultural exchange**, promoting **active digital citizenship**.
- **Social mobility and gender equity:** Social media can expand access to **information and opportunities**, particularly for girls.
 - **National Sample Survey data** indicate that only **33.3% of women** in India have ever used the internet compared to **57.1% of men**, highlighting how **restrictive measures risk deepening gendered digital divides**.

II. Necessity of Banning Social Media Use Among Children

Concerns around banning or restricting social media for children arise from its **multi-dimensional impact on health, behaviour, and safety**, particularly during formative years:

- **Impact on cognitive functioning:** Excessive screen exposure is associated with **reduced attention span, impaired concentration, and difficulty in learning and information retention**, adversely affecting **academic performance**.
- **Mental health vulnerabilities:** Prolonged and addictive use has been linked to **heightened anxiety, depressive tendencies, low self-esteem, diminished emotional self-regulation**, and a rise in **attention-related disorders such as ADHD**.
- **Adverse physical health outcomes:** Repeated exposure to curated content encourages **sedentary lifestyles, disordered eating patterns, and unrealistic body image standards**, contributing to **sleep disturbances, obesity, and related health concerns**.
- **Disruption of social development:** Over-reliance on virtual interactions can reduce **face-to-face communication**, leading to **social withdrawal, strained family relationships**, and difficulties in **emotional regulation**.
- **Online safety and child protection risks:** Children are increasingly vulnerable to **cyberbullying, online harassment, sexual exploitation**, and exposure to **age-inappropriate or harmful content**.
- **Influence of hazardous viral trends:** The rapid spread of **risky online challenges**—such as **breath-holding or delinquent behaviour trends**—poses risks of **physical harm, legal consequences, and disciplinary action** among minors.
- **Inadequate parental supervision:** In **urban and dual-income households**, limited parental oversight has contributed to **unregulated screen time**, often reflected in the phenomenon of **excessive device-dependent childhood**.
- **Algorithm-driven overuse:** **Engagement-maximising algorithms** personalise content to prolong usage, making it **difficult for children to disengage** and increasing the risk of **addictive behaviour**.

Key Challenges Linked to Banning Social Media for Children

Drawing on **Stanley Cohen's concept of moral panic**, such prohibitionist responses risk framing digital platforms as "*folk devils*"—creating an illusion of control while **diverting attention from structural gaps in child mental-health governance and digital regulation**. These challenges manifest across multiple dimensions:

- **Concerns over age verification and privacy:** The absence of **credible age-verification systems** allows underage users to evade restrictions using **VPNs and other workarounds**. Measures such as **government ID linkage, biometric verification, or age-estimation tools** pose significant **privacy and data-security risks**.
- **Possibility of excessive regulation:** Blanket restrictions may inadvertently include **gaming and communication platforms like Roblox and Discord**, leading to **unnecessary curbs on legitimate users**.
- **Movement to unsafe online spaces:** Since bans are difficult to enforce, children may migrate to **unregulated and encrypted platforms**, including the **Dark Web**, increasing exposure to harm.
- **Rights-related concerns and exclusion:** Prohibitions can undermine **freedom of expression and access to information**, disproportionately affecting **vulnerable communities**, especially **LGBTQIA+ youth** who rely on online support networks.

- **Barriers to digital skill building:** Limiting access also curtails **creative engagement, educational collaboration, and interest-based learning**, weakening the development of **essential digital skills**.

Why a Blanket Ban Will Not Work in India

Copy-pasting foreign bans ignores India's unique socio-technical landscape, yielding democratic deficits and unintended harms.

- **Technical Porosity:** India's vast digital population makes enforcement impractical.
- **Diversity of Contexts:** One-size-fits-all policies ignore variations across class, caste, gender, and region.
- **Democratic Deficit:** Policies are often framed **without consulting children**, disregarding their agency.
- **Institutional Capacity Constraints:** Regulatory institutions lack technical expertise to monitor compliance effectively.
- **Risk of State Overreach:** Linking social media access to identity verification may erode civil liberties.

India's Initiatives to Protect Children on Online Platforms

India has enacted a multi-layered framework emphasizing prevention, consent, and enforcement.

- **Digital Personal Data Protection Act, 2023:** Mandates verifiable parental consent for processing data of those under 18, addressing consent gating flaws.
- **Section 67B, IT Act, 2000:** Imposes stringent penalties for child sexual abuse material (CSAM) publication, transmission, or viewing.
- **National Action Plan for Children, 2016:** Targets prevention of crimes, prioritizing sexual offenses.
- **Protection of Children from Sexual Offences (POCSO) Act, 2012:** Safeguards children under 18 from exploitation, ensuring child-centric judicial processes.
- **National Commission of Protection of Child Rights (NCPCR) Mechanisms:** Operates online complaint systems for swift redressal.
- **Ratification of UNCRC {UN Convention on the Rights of the Child (CRC)} 1990:** Promotes protections for online/offline child rights violations.

Global Steps taken to Protect children from Social Media

- **Australia:** Australia enacted a law that prohibits anyone under 16 from **holding accounts on 10 major platforms**—including **Instagram, TikTok, YouTube, Snapchat, and X**—enforced through mandatory age verification and fines of up to 50 million Australian dollars, making **Australia the first country** to effectively ban **under-16 social media accounts**.
- **Germany and France:** Raised age needed for parental consent to open an account.
- **United States:** Kids Online Safety Act provides protections for children online related to privacy and mental health concerns.
- **U.K.:** Online Safety Act, 2023 sets tougher standards for social media platforms like facebook-including appropriate age restrictions.
- **Netherlands and South Korea:** Restricted use of cell-phones in classrooms.

Way Forward

A nuanced, child-centric strategy must prioritise a **healthy media ecology** over blanket bans, integrating **multiple stakeholders** to create **sustainable and rights-respecting safeguards**.

- **Child-Centric Digital Governance:** Promote **age-appropriate design, privacy-by-default, and algorithmic accountability** through coordinated action by the State, platforms, and civil society; draw lessons from the **UK's Age-Appropriate Design Code**.
- **Strengthen Redressal Mechanisms:** Enhance **Child Helpline 1098**, appoint and train **cyber nodal officers**, and expand rapid-response tools such as **POCSO e-Box panic buttons** for online abuse reporting.
- **Improving Digital Skills and Education:** Institutionalise **digital literacy, responsible online behaviour, and self-regulation** through school-based initiatives; replicate **Kerala's Digital De-Addiction (D-DAD) centres** for children facing screen dependency.
- **Awareness Campaigns:** Leverage national programmes like **NIPUN Bharat** and **Digital India** to empower **communities, parents, and educators** to recognise and mitigate **online risks**.
- **Parental Involvement and Control:** Encourage **joint parent-child accounts, robust privacy settings, and screen-time management tools** such as **Google Family Link**.
- **Tech Company Accountability:** Enforce a **duty of care** on platforms, strengthen **digital competition laws**, and ensure oversight by an **independent regulator** beyond **MeitY**; platforms like **Meta** already prescribe **13+ age thresholds**.

Conclusion

Bans provide illusory control, eroding digital rights while ignoring social media's dual-edged potential. True protection demands **robust regulation, local research, youth-inclusive policymaking, and equitable access**—fostering resilience in a tech-driven world. This **balanced ecology** aligns with India's constitutional ethos of empowering the young without compromising freedoms.

7.2. THE MINEABLE SELF – HUMAN LIFE AS THE NEXT BIG COMMODITY

Context:

Recently, a conceptual shift in global capitalism has been highlighted through a detailed analysis of how **human selves, stories, and social relations** are being transformed into a **new global commodity**, cutting across **media, technology, finance, identity politics, and artificial intelligence ecosystems**.

Evolution from Industrial Capitalism to Sociality Extraction

Historical transition from traditional **industrial capitalism** to contemporary era is marked by profound shift in focus of value extraction.

- **Marxist Surplus Value Theory:** **Industrial capitalism** is noted for **marked predilection** for **creation and exploitation** of **surplus value**. As theorized by **Marx**, **surplus value** is value generated beyond **value of labour** required to produce **commodities**, which floats into mysterious form of **profit** for **owners and managers of capital**.



- **Shift in Horizon of Extraction:** Today, **human beings** have become new object and horizon of capitalist extraction. New object is identified as **sociality itself**, shifting focus from **physical labour to core of human relationships**.
- **Exhaustive Extraction of Social Bonds:** This new form of mining targets every domain of human connection, including **friendships, love lives, family connections, classmates, children, fellow workers, and neighbours**.
- **Functional and Digital Networks:** Extraction extends to **digital lives, political allies, and even food and drug suppliers**, rendering all sociality resource for profit.
- **Creative Destruction of Social Guardrails:** This process represents new feat of **creative destruction**, where traditional ideas of **privacy, intimacy, and trust** are rendered obsolete to facilitate extraction without permission or limit.

Mineable Self and Major Drivers of the Mineable Self

The **mineable self** refers to the **self treated as a commodity** that can be **mined, packaged and monetised** through stories, sociality and digital identities. Transformation of **self into newest form of raw material** is driven by **three fundamental structural changes** in global market:

- **Global Hunt for Portability and Characters:** Allure of global market has captured market in characters, leading to global hunt for stories from **Mexico to Nepal and Spain to Indonesia**.
 - Every form of **local mythology and folklore** is trolled by publishers and prize committees in search of **portability** and "**vaguely universal themes**."
 - New character types such as **aliens, cyber-monsters, and post-blobs** are sought to fulfill global appetites.
- **Redefinition of Locality:** Locality is no longer bound by **parochial or proximate** but acts as **prismatic refraction of global issues**.
 - **Narrative First Responders (persons with cameras in war zones act as photojournalists)** put global narrative system on alert.
 - **Syndicated news services perform triage on local incidents**, stoking furnace of global media and creating new geography that transcends **global-local antonyms**.
- **Multiplication of the "I" and the "Me":** Right to have story is extended to **ordinary humans, banks, nations, and corporations**.
 - In **twilight zone of AI**, bots like **Siri and ChatGPT** compete to display human-like emotions and vulnerabilities, challenging human monopolies over **affect, judgement, and intuition**.

The Great Chain of Storytelling

Mining of self is optimized through systematic narration and audience acquisition:

- **Right to Story:** Every individual is encouraged to claim narrative of **heroism, victimhood, or redemption**. Professional assistance is provided by **influencers, coaches, and writing apps** to refine these narrations for market consumption.
- **Monetization of Virality:** Lucky virality of trivial self-narrations has powered careers of numerous **YouTube stars**.
- **Convergence of Slogans:** Current market operates on twin beliefs that **every self has story** and **every story deserves audience**, leading to drilling of every living "mineshaft" for extractable data.

Technological Catalyst: OTT Streaming and Deconstruction

Over-the-Top (OTT) streaming (Netflix, Amazon Prime, Disney) is identified as single biggest force in story market.

- **Infrastructure Disruption:** OTT technologies rely solely on Internet, colonizing markets previously held by **big studios** and bypassing traditional distribution models.
- **Rise of the Ordinary:** Story economy is powered by rise of "**unknowns**"—mid-market actors appearing extraordinarily ordinary—highlights global trend toward **democratization of self**, though phenomenon is not entirely positive.
- **The Unstable Composite:** Classical individual is replaced by **unstable composite** of **credit scores, actuarial charts, algorithmic storehouses, and consumer profiles**. Unified or continuous anchor in singular person is no longer required.
- **Sources of the Selfie:** Shift is noted from **Charles Taylor's "Sources of the Self"** to "**sources of the selfie**," where **photobombing celebrities** signifies **democratization** through lens-based equality.

Case Study: The Streaming Market in India

Netflix CEO Reed Hastings claimed in 2018 that Indian market would bring **100 million subscribers**. This case highlights scale of **narrative colonization** where ordinary life is woven into streaming content to drive global subscription models.

Ethical Implications of the Mineable Self

Mining of human essence for commercial profit raises profound ethical concerns regarding dignity and autonomy:

- **Dehumanization through Commodification:** Transformation of sacred human bonds—such as friendships and family connections—into **marketable raw material** reduces human existence to economic utility.
- **Erosion of Moral Agency:** Replacement of unified personhood with **unstable composite** of **algorithmic storehouses** and **credit scores** diminishes capacity of individuals to act as independent moral agents.
- **Informed Consent Deficit:** Systematic mining of **deepest affinities** and ephemeral social ties is often conducted without permission, violating fundamental principles of **autonomy and digital consent**.
- **Exploitation of Human Vulnerability:** Active search for narratives of **heroism, victimhood, or martyrdom** incentivizes commodification of trauma and suffering for global entertainment.
- **Artificial Displacement of Human Affect:** AI mimicry of human intuition and vulnerability creates **ethical crisis** where artificial bots potentially manipulate human emotions for profit-driven outcomes.

Way Forward: Strategies for Digital Sovereignty

- **Institutionalizing Sociality Sovereignty:** Robust legislative frameworks must be formulated to ensure that **deepest affinities and social ties** cannot be mined as resource without explicit permission or limit.
- **Regulating Narrative Extraction Markets:** Strict oversight of **OTT platforms and news syndicates** is required to prevent exploitation of local volatility and trauma for global commercial gain.
- **Protecting Identity and Personhood:** Measures should be taken to prevent reduction of individuals to **unstable composites** of algorithmic storehouses, ensuring legal right to unified and continuous identity.

- **Governing AI Emotional Mimicry:** Global ethics standards must be developed to govern **AI emotional mimicry**, preventing artificial entities from monopolizing human affect and intuition for profit.
- **Restoring Values of Privacy:** Cultural and legal shifts are needed to re-evaluate **creative destruction**, restoring social value of **privacy, intimacy, and trust** against encroaching digital commodification.

Conclusion

Emergence of **mineable self** signals profound transformation where human stories and social ties serve as primary **access codes** for capitalist extraction. While technology offers tools for **self-narration**, it simultaneously facilitates deconstruction of individual into **marketable raw material**. Preservation of **human-centric sociality** and unified identity against **unbounded mining** remains defining challenge for contemporary digital civilization.

7.3. THE SHANTI ACT AND INDIA'S NUCLEAR TRANSITION

Context:

- Parliament has recently passed the **Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Act**, which allows **private companies to enter the nuclear power sector**. It repeals the **Atomic Energy Act, 1962** and the **Civil Liability for Nuclear Damage Act (CLNDA), 2010**, and establishes new regulatory and liability frameworks.
- The Shanti Act is aimed at accelerating **India's clean energy transition** and achieving a **100 GW nuclear capacity target by 2047**. However, it has raised concerns over **supplier indemnification, dilution of liability provisions, and possible moral hazard affecting public safety**.



Background: Rationale for the Reforms under the SHANTI Act

The SHANTI Act marks a structural shift from a **closed, state-led model** to a **liberalized, hybrid ecosystem**. The rationale for this overhaul is rooted in several critical factors:

- **Persistent Stagnation in Energy Share:** Despite being a priority for decades, **nuclear power has accounted for only about 3% of India's total electricity generation**. The present nuclear capacity stands at a modest **8.78 GW**, failing to become a primary energy pillar.
- **Historical Failure to Meet Targets:** The sector has a **legacy of missed milestones**; in the 1980s, a target of **10 GW by 2000** was set, but only **2.86 GW** was achieved. Similarly, the 2006 target of **20 GW by 2020** resulted in an actual capacity of only **6.78 GW**.
- **Systemic Bottlenecks and Delays:** These failures stem from **high capital costs, safety concerns, and chronic project delays**. A prime example is the **Prototype Fast Breeder Reactor (PFBR) at Kalpakkam**; originally scheduled for commissioning in **2010**, it has yet to become operational.
- **Need for Resource Mobilization:** Opening the sector enables **private participation** to expand **capital availability**, attracting the domestic and global investment required to scale operations beyond the limitations of public funding.

- **Access to Advanced Technology:** Private sector entry is intended to accelerate the adoption of **advanced technologies**, such as **Small Modular Reactors (SMRs)** and modern safety systems. However, it has been found that SMRs remain an **untested technology** with **potentially higher estimated capital costs** per unit of power.

Core Features of the SHANTI Act

The SHANTI Act represents a significant overhaul of India's nuclear energy policy, positioned as a critical reform to achieve the national target of **100 GW nuclear capacity by 2047** and support the long-term goal of **decarbonization by 2070**.

- **End of State Monopoly:** The Act terminates the **government's exclusive control** over nuclear power. It permits **private companies and joint ventures** to operate plants, generate power, manufacture specialized equipment, and engage in fuel fabrication.
- **Strategic Government Control:** Sensitive "**fuel-cycle**" activities—including **uranium enrichment, management of spent fuel, and thorium processing**—are reserved exclusively for the Central government.
- **Statutory Status for AERB:** The **Atomic Energy Regulatory Board (AERB)** is granted **statutory status** to strengthen its authority. It is now answerable to **Parliament** rather than solely to the executive.
- **Graded Liability System:** A clear, tiered financial liability cap is established for operators based on the size of the installation:
 - **Large Plants:** ₹3,000 crore.
 - **Medium Plants:** ₹1,500 crore.
 - **Small Modular Reactors (SMRs):** ₹100 crore.
- **Nuclear Liability Fund:** For damages exceeding the operator's cap, the Central Government provides coverage through a dedicated fund. The total liability for any single incident is capped at **300 million Special Drawing Rights (SDRs)**, approximately **₹3,900 crore**.
- **Complete Supplier Indemnity:** In a major shift from the **CLNDA 2010**, the "**right of recourse**" against suppliers is removed. Suppliers are now **exempt from civil or criminal liability**, even if an accident is caused by **defective equipment**; all legal liability is channeled solely to the **plant operator**.
- **Legal Consolidation:** The Act omits **Clause 46 of CLNDA**, preventing **victims from using other civil or criminal laws** to seek **additional remedies**. All claims must now be processed specifically through the mechanisms defined in this Act.
- **Oversight of Non-Power Uses:** Beyond energy, the Act provides a structured framework for the peaceful application of radiation in **healthcare (radiotherapy), agriculture, and industrial research**, including a licensing system for these activities.
- **Adjudication Mechanisms:** To manage disputes and ensure timely compensation, the Act establishes the **Atomic Energy Redressal Advisory Council** and a specialized **Nuclear Damage Claims Commission**. The **Appellate Tribunal for Electricity** serves as the **final appellate body**.
- **International Alignment:** The compensation scope is extended to **cover damage** caused in **foreign territories** by an incident in India, aligning domestic rules with global treaties like the **Convention on Supplementary Compensation (CSC)**.

Significance of the SHANTI Act

The **SHANTI Act** is designed to transform nuclear energy into a high-value commercial market, offering massive financial incentives for private industry.

- **Massive Market Scale:** Individual nuclear projects involve huge investments. For example, two **Westinghouse AP1000** reactors in the U.S. recently cost about **\$18 billion each**. The Act opens this **multi-billion dollar** market to private players in India.
- **Profit Without Liability:** The Act allows **private corporations** and **foreign suppliers** to earn significant profits from these projects. Crucially, it ensures they can do so without the risk of facing heavy financial consequences or lawsuits if an accident occurs.
- **Incentivizing Private Investment:** By removing the "**right of recourse**" (the ability to sue suppliers for defective equipment), the government has removed the biggest "**risk barrier**" for global companies, making India an attractive destination for **Foreign Direct Investment (FDI)**.
- **Business-Friendly Environment:** The Act aims to ensure that private ventures can proceed quickly. It balances regulatory oversight with the need for speed, ensuring that regulations do not become an obstacle to the **profitability** of nuclear power plants.

Critical Concerns: Accountability and Safety Risks

The transition to the **SHANTI Act** framework introduces significant concerns regarding the balance between industrial growth and public protection.

- **Gross Disparity in Compensation:** The total liability cap under the Act (approx. **₹3,900 crore**) is nearly a thousand times smaller than the actual costs of historical disasters. For instance, the **Fukushima accident** costs are projected to reach **₹46 lakh crore**, and the **Chernobyl disaster** cost Belarus alone **₹21 lakh crore**, leaving an area the size of Goa as a restricted "**Exclusion Zone**" for 40 years.
- **Financial Burden on Victims:** Even with international funds from the **Convention on Supplementary Compensation (CSC)**, total available money is unlikely to cover even **1% of potential damage**. Under the Act, victims have **no legal right** to seek **compensation beyond this cap**, potentially forcing citizens to bear the loss of life and property on their own.
- **Issue of "Moral Hazard":** By shielding **private operators and suppliers** from the full financial weight of a catastrophe, the Act creates a **moral hazard**. This insulation from consequences may discourage the industry from maintaining the **highest safety standards** and encourage **greater risk-taking**.
- **Dilution of Absolute Liability:** The Act indemnifies operators for accidents caused by "**grave natural disasters**." This reverses India's established legal principle of "**absolute liability**" for hazardous industries. Since the Fukushima disaster was caused by a tsunami, this exemption is seen as a major loophole that reduces the incentive to build ultra-resilient plants.
- **Prioritizing Corporate Interests:** While the liability cap protects **private nuclear operators** from financial ruin and encourages investment, it effectively shifts the massive socio-economic risk of a nuclear accident away from the corporations and onto the **State and its citizens**.

Additional Initiatives to Promote Nuclear Energy

- **National Nuclear Energy Mission:** Established in the **Union Budget 2025-26** with a **₹20,000 crore** outlay, this mission focuses on the **design and deployment** of **Small Modular Reactors (SMRs)**. The objective is to have **five indigenous SMRs** operational by **2033** to accelerate the **clean energy transition**.

- **Indigenous Innovation via BARC:** The **Bhabha Atomic Research Centre** is pioneering the **200 MWe Bharat Small Modular Reactor (BSMR-200)**. This initiative aims to establish a local supply chain and reduce **technological import dependency**.
- **Three-Stage Power Programme:** This long-term strategy ensures **fuel security** by progressing from **PHWRs** to **Fast Breeder Reactors**, eventually utilizing India's extensive **Thorium reserves** for near-infinite energy sovereignty.
- **International Nuclear Alliances:** Through agreements like the **123 Agreement** and partnerships with **Russia and France**, India secures **global fuel supplies** and **advanced reactor technology**, overcoming domestic uranium limitations.

Way Forward: Strengthening the SHANTI Act Framework

- **Strengthening Regulatory Independence:** The **AERB** must be granted full functional autonomy, moving away from the influence of the **Atomic Energy Commission**, to ensure safety is not compromised for commercial speed.
- **Revisiting Liability Caps:** To protect citizens, the **liability caps** should be indexed to inflation or linked to the potential scale of disasters, ensuring that compensation remains realistic in the event of a major accident.
- **Ensuring Contractual Recourse:** While the Act omits statutory recourse, operators must be encouraged to include **stringent indemnity clauses** in private contracts with suppliers to maintain a check on equipment quality.
- **Focusing on Indigenous R&D:** Reliance on high-cost foreign technology should be balanced by accelerating the **Three-Stage Nuclear Power Programme**, utilizing India's vast **thorium reserves** to ensure long-term energy sovereignty.
- **Public Awareness and Transparency:** Given the history of nuclear apprehensions, a robust **public communication framework** is required to build trust regarding the safety protocols of new private-sector-operated plants.

Conclusion

The **SHANTI Act** marks a significant step toward **liberalizing India's nuclear sector** and advancing its **Net Zero 2070 goals**. However, the provisions on **supplier indemnification** and **liability caps** raise serious concerns about **public safety and accountability**. Its success will depend on balancing **ease of doing business** with **strict safety standards and fair compensation mechanisms**.

7.4. REVISED LABOUR CODES

Context:

- The implementation of the **Four Labour Codes** in India represents a paradigm shift from a **fragmented, colonial-era regulatory framework** to a **cohesive, digitally-driven ecosystem**.
- By consolidating **29 central labour laws**, the reforms aim to balance the "**ease of doing business**" with a "**universalization of social security**."
- At the heart of this transition is a structural intervention designed to foster **financial inclusion**, redefine the **employer-employee relationship**, and ensure that the fruits of economic growth are equitably distributed among the workforce.



Background: The Need for Reforming Labour Codes

Historically, India's labour market was governed by a complex web of overlapping statutes that created compliance burdens for employers and left nearly **90% of the workforce (unorganized sector)** without formal protection. The **Second National Commission on Labour (2002)** recommended consolidation to resolve:

- **Systemic Complexity:** Over 40 central and 100 state laws fostered an inefficient "Inspector Raj."
- **Legal Fragmentation:** Inconsistent definitions of "wages," "worker," and "factory" led to endless litigation.
- **Modern Exclusions:** A total lack of recognition for the burgeoning **gig and platform economy**.

Key Provisions of Labour Codes Redefining Wages and Empowering Workers

The reform is built upon four pillars: the **Code on Wages (2019)**, the **Industrial Relations Code (2020)**, the **Social Security Code (2020)**, and the **Occupational Safety, Health and Working Conditions Code (2020)**.

1. Uniform Definition of Wages

- The **Code on Wages, 2019** introduces a single, universal definition of "wages" applicable across all four labour codes, replacing the earlier fragmented and sector specific definitions used under precode laws.
- Under the **earlier regime**, 'wages' were defined inconsistently across statutes such as the **Payment of Wages Act, 1936, Minimum Wages Act, 1948, Payment of Gratuity Act, 1972,** and **Employees' Provident Funds and Miscellaneous Provisions Act, 1952**. These definitions often excluded various allowances, leading to a **lower wage-base for social security calculations**.
- Now, **wages** explicitly include **basic pay, dearness allowance and retaining allowance**, while certain components such as **house rent allowance, conveyance allowance, employer's contribution to PF/NPS and statutory bonus** are treated as **exclusions**, subject to a cap.-**rent allowance, conveyance allowance, employer's contribution to PF/NPS and statutory bonus**
- A "**50% rule**" is embedded: **wages must constitute at least 50% of total remuneration**; if allowances exceed 50%, the **excess is added back to wages** for statutory calculations, thereby **raising the wage share and expanding social security contributions.-share and expanding social-security contributions**

2. Universal Minimum Wages and Timely Payment

- The Code mandates a **floor wage** (a **national baseline** set by the **Central Government based on minimum living standards**, below which no State Government can set wages) and **statutory minimum wages** (the **legally lowest remuneration** fixed by the appropriate government for specific regions or occupations, which must be equal to or higher than the floor wage) applicable to all workers, including permanent, fixed-term, contract, part-time, and gig workers, thereby eliminating earlier sectoral exclusions and wage ceiling thresholds.
- It also **prohibits arbitrary deductions**, requires **timely payment of wages** (often into bank accounts), and removes the earlier wage ceiling threshold that limited coverage, thus **enhancing income security and financial inclusion.-ceiling threshold that limited coverage, thus**

3. Gratuity and Fixed Term Employment Term Employment-Term Employment

- Under the **revised gratuity provisions**, **fixed term employees** become eligible for **gratuity after completing one year of continuous service**, instead of the earlier **five year requirement** under the **Payment of Gratuity Act, 1972**.-term employees-year requirement
- This change recognises the growing share of **fixed-term and project-based employment** and converts **short-term work** into a mechanism for **terminal financial benefits** and **asset creation**, thereby strengthening long-term income security.

4. Coverage of Gig and Platform Workers

- The **Social Security Code** formally recognises **gig and platform workers**, bringing them under the ambit of **social security schemes, insurance and welfare funds** for the first time, unlike the **earlier framework** which largely excluded them from statutory protections.
- It also provides **portability of benefits** across states and employers, which is particularly significant for **migrant and informal workers**, enabling **continuous access to social security entitlements** despite job or location changes.-security entitlements

Significance of the Labour Reforms: Empowering the Modern Workforce

The consolidation of labour laws into four comprehensive codes is not merely an administrative exercise; it is a **structural intervention** aimed at aligning India's economic growth with **social justice** and **financial dignity**.

- **Enhanced Financial Inclusion and Social Security:** By **raising the wage share** in total remuneration, the codes increase **employer contributions to provident fund (PF), pension and gratuity**, leading to **higher long term savings and retirement security** for workers.-share-term savings and retirement security
 - **Furthermore, gratuity after one year** for **fixed term employees** transforms **short term contracts** into **structured income security mechanisms**, reducing vulnerability during job transitions.-term employees-term contracts-security mechanisms
- **Formalisation of Informal and Gig Work:** Extending **minimum wages, social security and welfare benefits** to **gig, platform and unorganised workers** helps **formalise large segments of the informal economy** and integrate them into the **formal financial and social security architecture**.-security architecture
 - Additionally, **portability of benefits** reduces the risk of exclusion when workers migrate across states or switch between formal and informal engagements.
- **Income Redistribution and Inclusive Growth:** The **redistribution of economic value from capital to labour** through higher wages and contributions strengthens **workers' purchasing power**, which in turn stimulates **domestic demand and consumption led growth**.-security contributions strengthens -led growth
 - Unlike capital income that may flow into financial markets or external assets, **labour income tends to circulate within the domestic economy**, generating **multiplier effects** on employment and local demand.-income that may flow into financial markets or external assets,
- **Regulatory Simplification and Transparency:** Consolidating 29 laws into **four codes** reduces **compliance complexity**, improves **transparency**, and creates a **more predictable regulatory environment** for both workers and employers.
 - The introduction of **single registration, single licence, and single return** mechanisms streamlines administration and reduces opportunities for **regulatory arbitrage and non-compliance**.

Multidimensional Impact of Labour Reforms: Workers, Employers, and the Economy

The transition to the unified labour codes generates a cascading effect across different stakeholders, shifting the focus from mere regulation to a **sustainable economic partnership**.

- **Impact on Workers: Higher wage share and gratuity eligibility** directly enhance **income security, savings and long term social protection**, especially for **fixed term, contract and informal workers**.
 - By establishing **universal minimum wages and timely payment**, the codes reduce wage-arbitrariness and **protect vulnerable workers** from exploitation and delayed remuneration. This formal recognition of the **gig economy** ensures that even non-traditional workers have a stake in the formal social safety net.
- **Impact on Employers: The 50% wage rule and expanded gratuity coverage** increase **statutory liabilities** for large firms, particularly those with **high reliance on fixed term and contract workers** (e.g., IT services, construction, manufacturing).
 - However, this increase in cost is balanced by **simplified compliance and digital-first processes**, which reduce administrative friction, minimize "Inspector Raj" interference, and improve **labour-management predictability rule**.
- **Macroeconomic and Structural Impact: Greater financial inclusion of workers** expands the **formal savings base**, deepens **financial markets**, and supports **long-term investment** in infrastructure and human capital.
 - By **reducing labour-market segmentation** and integrating gig and informal workers into social-security nets, the codes contribute to **social stability and resilience** against economic shocks.
 - The resulting boost in **purchasing power** creates a self-sustaining cycle of **consumption-led growth**, ensuring that economic progress is broad-based and inclusive.

Key Limitations of the New Labour Codes

Despite the transformative potential of the reforms, several structural and operational hurdles persist that could undermine the goal of universal worker empowerment.

1. Implementation and Enforcement Bottlenecks

- **Uneven Adoption:** While the Central Government has notified the codes, effective implementation remains inconsistent across **Small and Medium Enterprises (SMEs)**, the informal sector, and remote geographical regions.
- **Capacity Constraints:** Weak **inspection capacity** and a lack of awareness among the grassroots workforce often lead to non-compliance.
- **Diluted Oversight:** The transition from "Inspectors" to "**Inspector-cum-Facilitators**" and the shift toward web-based inspections are perceived by some as a softening of enforcement, potentially allowing safety and wage violations to go unchecked.

2. Ambiguities in the Wage Definition and Legal Friction

- **Calculation Uncertainty:** The absence of a clear statutory definition for "**total remuneration**" makes applying the **50% wage-rule** technically complex, leading to compliance uncertainty and high **litigation risks**.
- **Interpretive Disputes:** Ongoing disputes over which specific allowances fall under "exclusions" versus "wages" may lead to **delayed benefit accrual** for workers as companies await judicial clarifications.

3. Trade-Union Resistance and the Political Economy

- **Perception of Bias:** Major **trade unions** have launched nationwide strikes (such as the **Bharat Bandh in February 2026**), arguing that the codes favor **corporate flexibility** (e.g., easing hiring and firing norms) over long-term job security.
- **Erosion of Bargaining Power:** Restrictions on the **right to strike** and the requirement for extended notice periods are viewed as a dilution of collective bargaining rights, overshadowing the pro-worker social security gains.

Way Forward: The Path to 'Viksit Bharat'

To ensure that the transition to the new labour codes results in genuine empowerment rather than administrative friction, a multi-pronged strategy is required:

- **Harmonized Federal Implementation:** As "Labour" is a subject on the **Concurrent List**, there is an urgent need for the **rapid notification of rules** by all State Governments. This uniformity is essential to prevent **regulatory arbitrage**, where businesses might migrate to states with more relaxed enforcement, thereby creating a "race to the bottom" in worker protection.
- **Leveraging Digital Public Infrastructure (DPI):** The success of these reforms hinges on **strengthening the e-Shram and EPFO portals**. Enhancing **digital literacy** among the workforce will ensure that workers—especially migrant and informal labourers—can directly track their contributions and claim benefits via **Aadhaar-seeded accounts**, effectively eliminating exploitative middlemen.
- **Support Ecosystem for MSMEs:** Recognizing that Small and Medium Enterprises are the largest employers, the government should consider **providing temporary subsidies or tax breaks**. These fiscal incentives would help small businesses absorb the **increased statutory liabilities** of the new wage structure without compromising their financial viability or reducing their workforce.
- **Strengthening Social Dialogue:** To resolve the deadlock with trade unions, a **continuous tripartite dialogue** between the government, employers, and labour representatives is necessary. **Transparent communication** can help bridge the trust gap, ensuring that the codes are viewed not as a threat to rights, but as a modern tool for **inclusive prosperity**.

Conclusion

India's labour codes are not merely a regulatory cleanup; they are a **social contract for the 21st century**. By prioritizing **income security** and **dignity of labour**, the reforms transition the Indian worker from a "**variable cost**" to a "**valued stakeholder**." The long-term success of this framework will lie in its **effective enforcement**, ensuring that the "last mile" worker is the primary beneficiary of India's growth story.



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