



# ONE-PAGER

# CURRENT AFFAIRS

# SEPTEMBER-2025

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## DEFENCE & TECHNOLOGY (GS-3)

### 1. Saudi Arabia-Pakistan Mutual Defence Pact

#### What Happened

- Agreement:** Pakistan and Saudi Arabia signed a formal mutual defence pact in Riyadh, stating that *“any aggression against either country shall be considered aggression against both.”*
- Signatories:** PM Shehbaz Sharif and Crown Prince Mohammed bin Salman; attended by Army Chief Field Marshal Asim Munir, underscoring the military dimension.
- Scope:** A comprehensive defence partnership joint deterrence, intelligence cooperation, arms production, and potential **nuclear umbrella** (Pakistan being the only Islamic nuclear power).



#### Context of Signing

- Historical Ties:** Cooperation since the 1960s (Pakistani troops defended Saudi Arabia during Yemen conflict); strengthened after **1979 Grand Mosque seizure** when Pakistani commandos aided Riyadh.
- Recent Triggers:**
  - Signed amid heightened regional tension following **Israel's Sept 2025 strike on Qatar** targeting Hamas leaders.
  - Followed the **Arab-Islamic Emergency Summit in Doha (15 Sept)** invoking **GCC joint defence mechanism**.
- Strategic Shifts:**
  - Saudi Arabia:** Diversifying from traditional **US security guarantees**, wary of Washington's conditionalities tied to Israel normalization.
  - Pakistan:** Seeking **Saudi investments** and renewed strategic relevance amid fiscal crisis and debt distress.

#### What It Means for the Two Countries

- For Pakistan:**
  - Secures **Saudi financial assistance and defence investments**.
  - Enhances role as **pan-Islamic security provider**, training hub (8,000+ Saudis trained since 1967).
  - Offers leverage against India but risks **regional escalation**.

- **For Saudi Arabia:**
  - Strengthens defence against **Iran, Houthis, and potential Israeli hostility** amid the Gaza conflict.
  - Access to **Pakistan's nuclear deterrent and manpower**—first major **Arab–nuclear alliance**.
  - Symbolises a **shift from U.S.-centric security** to diversified partnerships within the Islamic world.

### India's Reaction and Ties

- **Official Response:** MEA spokesperson **Randhir Jaiswal** said India was “aware” of the development and would “study implications for regional stability.”
- **India–Saudi Relations:**
  - Deepened since **2006 Delhi Declaration** and **2010 Riyadh Declaration**.
  - **Trade:** USD 43 billion (FY 2023–24); India is Saudi's 2nd largest partner.
  - **Political Cooperation:** Saudi Arabia supported India post-Pulwama (2019) and condemned the **Pahalgam terror attack (2025)**.
  - Acts as a **moderating force** between India and Pakistan, balancing strategic autonomy and economic ties.

### Broader Implications

- **Regional Geopolitics:**
  - Shifts Middle East–South Asia balance; Saudi–Pakistan bloc adds new complexity amid **Iran–Israel tensions**.
  - Weakens U.S. strategic monopoly; enhances **Gulf–Asia security axis**.
- **For India:**
  - Potential **security challenge** if the pact emboldens Pakistan.
  - Yet Saudi Arabia unlikely to jeopardize its **India partnership** given economic interdependence.
- **Expert Views:**
  - *Husain Haqqani*: Pact lets Pakistan procure U.S. arms using Saudi funds.
  - *Asfandyar Mir (Stimson Center)*: A “**watershed moment**” reshaping Islamic bloc power alignments.
- **Concerns:**
  - Pakistan's anti-Israel stance contrasts with Saudi's cautious engagement with Tel Aviv—creating strategic ambiguity.

## Organization of Islamic Cooperation (OIC)

### Introduction and Establishment

- **OIC: World's second-largest intergovernmental organisation (after UN) representing 57 Muslim-majority countries to safeguard Islamic and collective political, economic, and cultural interests.**
- **Founded: 25 September 1969 (Rabat, Morocco); renamed OIC in 2011.**
- **Headquarters: Jeddah, Saudi Arabia.**



### Objectives and Mandate

- **Core Goals:**
  - Promote solidarity among member states.
  - Uphold international peace and support Palestine.
  - Advance education, science, and technology in the Islamic world.
- **Principles:** Protection of Islamic heritage, economic cooperation, and mediation in conflicts.
- **Structure:** Operates via Summits (every 3 years), Council of Foreign Ministers, and permanent UN/EU delegations.

### Membership and Structure

- **Members:** 57 states (56 UN members + Palestine).
- **Observers:** Bosnia & Herzegovina, Russia, Thailand, CAR, Northern Cyprus.
- **Consensus-Based Decisions:** Requires 2/3rd presence and agreement.
- **India's Status:** Not a member; Pakistan blocks entry since 1969 despite India's 200 million+ Muslim population.

### India's Relation with OIC

- **Engagement:**
  - Attended as Guest of Honour (2019 Abu Dhabi) and Observer (2022 virtual summit).
  - Pursues bilateral diplomacy with key OIC members (Saudi Arabia, UAE, Indonesia).
- **Challenges:**
  - OIC often echoes Pakistan's position on Kashmir, affecting India's perception of its neutrality.
  - India instead focuses on economic and strategic ties with individual OIC nations rather than collective engagement.
- **Analytical Angle:**
  - The pact represents a Gulf realignment toward Islamic collective defence amid waning U.S. hegemony.
  - For India, it tests the balancing of energy diplomacy and security prudence in a volatile West Asian landscape.

## 2. AGNI Prime and AGNI

### India's Strategic Leap: Agni-Prime Missile from Rail Launcher

#### Introduction

In a landmark development, India has successfully test-fired its **Agni-Prime (Agni-P)** missile from a **rail-based mobile launcher** at Integrated Test Range, Chandipur, Odisha



#### What is Agni-Prime? — Key Features

- **Type:** Intermediate-range ballistic missile (IRBM)
- **Range:** Up to **2,000 km**
- **Design:** Canisterised, solid-fueled, road and rail-mobile
- **Payload:** 1,500–3,000 kg
- **Accuracy:** Advanced INS + GNSS systems
- **Induction:** Road-mobile trials completed; rail-launch capability newly demonstrated

#### Why Launch from Rail? — Strategic and Operational Benefits

1. **Survivability:** Easy dispersal along 70,000 km Indian Railways network → harder to detect/target.
2. **Flexibility:** Quick redeployment across regions, hidden among civilian rolling stock.
3. **Cost-effective:** Cheaper than submarine or silo deployment.
4. **Rapid response:** Short reaction time; independent communication & launch.

#### Strategic Implications

- **Second Strike Credibility:** Boosts India's NFU posture by making forces less vulnerable to first strikes.
- **Elite Club:** India joins US, Russia, China in rail-launch missile capability.
- **Deterrence:** Enhances unpredictability, credibility of nuclear arsenal.

Missile	Range (km)	Stages	Propellant	Payload / Notes
<b>Agni-I</b>	~700–1,200	Single-stage	Solid fuel	Can carry nuclear warhead
<b>Agni-II</b>	~2,000–3,500	Two-stage	Solid fuel	Can carry nuclear warhead
<b>Agni-III</b>	~3,000–5,000	Two-stage	Solid fuel	Designed to carry nuclear warhead
<b>Agni-IV</b>	~3,500–4,000	Two-stage	Solid fuel	Improved accuracy, quick deployment, re-entry shield
<b>Agni-V</b>	~5,000–8,000	Three-stage	Solid fuel	Long-range; MIRV-capable design
<b>Agni-VI</b>	Expected >8,000	Expected 3-stage	Solid fuel	In development; expected MIRV capability

## Ballistic vs Cruise Missiles

Feature	Ballistic Missile	Cruise Missile
Flight Path	Follows <b>parabolic trajectory</b> after initial boost (gravity-driven)	Flies like an <b>aircraft</b> using aerodynamic lift
Powered Phase	Powered only in the <b>initial stage</b>	Powered <b>throughout the flight</b>
Speed	Very high, often <b>hypersonic (Mach 5+)</b>	Subsonic (Mach 0.8), Supersonic (Mach 2–3), Hypersonic (under development)
Range	<b>300 km – 5,000+ km</b> (short to intercontinental)	<b>100 km – 3,000 km</b> (short to intermediate)
Accuracy	Moderate → High (with modern guidance like MIRVs, GPS, INS)	<b>Very high precision</b> , can strike pinpoint targets
Payload	Large, can carry <b>nuclear + multiple warheads (MIRVs)</b>	Smaller payloads (nuclear/conventional)
Launch Platforms	Silos, road/rail-mobile, submarines	Aircraft, ships, submarines, ground launchers
Examples (India)	<b>Agni series, Prithvi, K-series (SLBM)</b>	<b>BrahMos (supersonic), Nirbhay (subsonic)</b>

## PYQ

"Consider the following statements: 2023 PYQ

1. Ballistic missiles are jet-propelled at subsonic speeds throughout their flights, while cruise missiles are rocket-powered only in the initial phase of flight.
2. Agni V is a medium-range supersonic cruise missile, while BrahMos is a solid-fueled intercontinental ballistic missile.

Which of the statements given above is/are correct?"

a) Only 1 b) Only 2 c) Both d) None

### Answer:

Both statements are incorrect. Ballistic missiles are rocket-powered only in the initial phase of flight and follow a ballistic trajectory over most of their flight path. Cruise missiles, on the other hand, are jet-propelled at subsonic speeds throughout their flights. Agni V is an intercontinental ballistic missile (ICBM) with a range of over 5,000 km, not a medium-range supersonic cruise missile. BrahMos is a supersonic cruise missile, not a solid-fueled intercontinental ballistic missile

### 3. Integrated Guided Missile Development Programme (IGMDP)

Launched in 1983 by DRDO to achieve self-reliance in missile technology, amid global sanctions. Led by Dr. A.P.J. Abdul Kalam, it integrated efforts from various labs. Completed in 2008, cost ~₹3.8 billion.

#### Key outcomes:

- Developed five missile systems: Prithvi (surface-to-surface), Agni (intermediate-range ballistic), Akash (surface-to-air), Trishul (short-range surface-to-air, discontinued), Nag (anti-tank).
- Paved way for advanced programs like Agni series and BrahMos.
- Significance: Boosted indigenous R&D, production shifted to Bharat Dynamics Ltd., evolved into separate projects for hypersonic/cruise missiles.



#### Types of Missiles in India

Categorized by launch and target platforms; India has ~4,000+ missiles, emphasizing strategic deterrence and tactical operations

#### Types of Missiles in India

Categorized by launch and target platforms; India has ~4,000+ missiles, emphasizing strategic deterrence and tactical operations.

##### Surface-to-Surface (SSM):

- Ballistic: Prithvi (150–350 km, tactical), Agni-I to VI (700–10,000 km, nuclear-capable), Shaurya (hypersonic, 700 km), Pralay (quasi-ballistic, - Cruise: BrahMos (supersonic, 290–800 km), Nirbhay (subsonic, 1,000 km).

##### Surface-to-Air (SAM):

- Akash (medium-range, 30 km), Barak-8/MRSAM (with Israel, 70 km), QRSAM (quick reaction, 30 km), S-400 (imported from Russia, long-range 400 km), Advanced Air Defence (AAD, ballistic intercept).

##### Air-to-Air (AAM):

- Astra (beyond visual range, 80–110 km), Astra Mk-2 (extended, 160 km), Novator KS-172 (long-range, with Russia).

##### Air-to-Surface (ASM):

- BrahMos-A (air-launched supersonic cruise), Rudram (anti-radiation, 200 km), HELINA (air-launched anti-tank).

##### Other Categories:

- Anti-Tank:** Nag (ground/air-launched, 4 km), MPATGM (man-portable).
- Submarine-Launched:** K-15 Sagarika (ballistic, 750 km), K-4 (3,500 km).

**Anti-Ship/Ballistic:** Dhanush (naval Prithvi variant), Pinaka (multi-barrel rocket, not pure missile).

## 4. India–China Border Issue: The Line of Actual Control (LAC)

**Core Issue:** The India–China boundary—about 3,488 km long—remains **undefined and disputed**, as both sides differ on the **exact alignment of the Line of Actual Control (LAC)**, the de-facto border separating their controlled territories.

### Panchsheel Agreement (1954)

- Five Principles of Peaceful Co-existence:  
Mutual respect, non-aggression, non-interference, equality & mutual benefit, peaceful co-existence.
- Signed by **Nehru & Zhou Enlai** to regulate ties over Tibet.
- Collapsed after the **1959 Tibet crisis** and Dalai Lama's asylum in India.



### Causes of the 1962 War

- **Border ambiguity:** McMahon Line (East) & Aksai Chin (West).
- **China's annexation of Tibet** vs India's support to Dalai Lama.
- **Forward Policy:** Indian outposts in disputed zones.
- Mutual mistrust → Chinese attacks (Oct 1962).
- **Outcome:** India lost Aksai Chin; China withdrew from NEFA (now Arunachal).
- Lesson: Need for military modernisation.

### Normalisation & Key Agreements

Year	Agreement / Event	Significance
1976	Diplomatic ties restored	Re-opening of dialogue
1988	Rajiv Gandhi's Beijing visit	Framework for peace & cooperation
1993 BPTA	Border Peace & Tranquility Agreement	Freeze status quo; no force use; minimal troops
1996 CBMs Agreement	Confidence-Building Measures	Limit heavy armaments; regulate exercises
2005	Political Guiding Principles	Broader framework for final settlement
2013	Border Defence Cooperation Agreement	Enhanced communication on patrols

### Major Standoffs Post-2000

- **Doklam (2017):** China's road construction near Bhutan–India tri-junction → 73-day face-off near Siliguri Corridor; mutual withdrawal.

- **Galwan Valley (2020):** Violent clash (20 Indian deaths) after Chinese objection to Indian road works; broke 45 years of peace; led to rapid buildup and disengagement talks.
- **Depsang & Demchok (2024):** Partial restoration of patrolling per pre-2020 arrangements after new agreement.

### The LAC Problem

- **No common map:** India–China perceptions vary in Western (Ladakh) and Eastern (Arunachal) sectors.
- **Failed clarification talks:** Map exchanges (2000–05) collapsed over areas like Depsang & Pangong Tso.
- **Result:** Recurring face-offs, erosion of trust, continued deployment of minimal but strategic forces.

### Why LAC Remains Undefined

- **Conflicting claims:** India claims Aksai Chin; China claims Arunachal ( $\approx 65,000$  sq km as “South Tibet”).
- **Nationalism & security sensitivities:** No political space for compromise.
- **Terrain & infrastructure gap:** China’s better access from Tibet plateau vs India’s logistical difficulties.

### Impact & Challenges

- **Frequent incidents:** Depsang, Pangong Tso, Chumar, Galwan.
- **Trust deficit & military buildup.**
- **Missed diplomatic openings:** SR talks (24 rounds till 2025) yield no final deal.

### Line of Actual Control vs Line of Control

Feature	LoC (India–Pakistan)	LAC (India–China)
Legal status	Demarcated on maps after 1972 Shimla Agreement	Not demarcated; conceptual line
Nature	Recognised de facto border	Disputed boundary
Supervision	DGMOs signed maps	No mutual map or survey
Peace Mechanism	Ceasefire Line (1949), UN monitors	Bilateral agreements (1993, 1996, 2013) only

### McMahon Line & China's Stand

- Drawn at **Simla Convention (1914)** between British India & Tibet (by Henry McMahon).
- **India:** Considers it legal boundary.
- **China:** Rejects it (citing Tibet’s non-sovereignty); claims Arunachal as “South Tibet.”
- **Military Reality:** LAC in Eastern sector largely follows McMahon Line.

### Strategic Geography

- **Galwan Valley:** Overlooks 255 km **DSDBO road**, linking Leh to Karakoram Pass; vital for India’s access & surveillance of Aksai Chin.
- **Depsang Plains:** Controls approach to Daulat Beg Oldie air strip and Karakoram corridor.

- **Demchok:** Near southern Pangong Tso; China claims territory south of lake.

#### Post-Galwan Actions (2020–25)

- Suspension of flights & tourist visas; FDI scrutiny for Chinese investment.
- Ban on ≈ 300 apps and telecom/power project reviews.
- **2024 Agreement:** Restored patrolling rights & size limits in Depsang & Demchok.

#### Recent Efforts & Current Status (2025)

- **24th SR Talks:** Commitment to build on 2005 guidelines; proposal to settle Sikkim–Tibet sector first.
- Expert Group set up to revise border management protocols.
- Persistent **large-scale deployments** on both sides continue.

#### Important Border Passes & Tunnels

Region	Key Pass / Tunnel	Significance
Arunachal Pradesh	Dihang, Bum La, Bomdila, Diphu	Trade & military routes
Sikkim	Nathu La, Jelep La	Connects to Tibet (Chumbi Valley)
Tunnels	<b>Sela (9.02 km) &amp; Nechoiphu (500 m)</b>	All-weather access to Tawang sector

#### POK (India–Pakistan Context)

- **Azad Kashmir:** SW part of POK – nominally self-governing, controlled by Pakistan.
- **Gilgit-Baltistan:** North POK; borders China & Afghanistan; vital for CPEC & Karakoram corridor.

## SPACE, ICT & OTHERS

### 5.ISRO inks agreement with HAL for transfer of SSLV technology

#### Why in News?

- ISRO has signed a technology transfer agreement with Hindustan Aeronautics Limited (HAL) for the production of Small Satellite Launch Vehicles (SSLVs).
- It marks the 100th technology transfer facilitated by IN-SPACe, strengthening industry participation and commercialization of India's space sector.

#### What is SSLV?

India's Small Satellite Launch Vehicle (SSLV) is a new-generation, compact, cost-effective rocket designed by ISRO to meet the rising demand for small-satellite launches.

#### Key Features:

- Structure: 3 solid propulsion stages + 1 liquid *Velocity Trimming Module (VTM)* for precise orbit insertion.
- Capacity: Carries up to 500 kg payload to Low Earth Orbit (LEO, 500 km).
- Dimensions: 34 m tall, 2 m diameter, 120 tonnes lift-off mass.
- Launch Site: Satish Dhawan Space Centre (SDSC), Sriharikota.
- Purpose: Provides on-demand, low-cost, quick-turnaround launch capability for small payloads and startups.

#### Significance of the Agreement

- HAL's Role Expansion: HAL to manufacture and commercialise SSLVs independently for domestic and global clients.
- Public-Private Synergy: Deepens industry-ISRO collaboration under India's growing space economy.
- Commercial Competitiveness: Enables frequent and affordable launches, meeting global demand for small satellite deployment.
- Strategic Step: Advances India's transition from state-led to market-driven space operations.

#### Institutional Players Involved

Institution	Role
ISRO	Provides SSLV technology, training, and support.
HAL	Industry partner for full-scale SSLV production.
NSIL (NewSpace India Ltd.)	Commercial arm responsible for global marketing.
IN-SPACe	Regulator and facilitator of private sector participation.

## Other Launch Vehicles (Comparison Overview)

Launch Vehicle	Description	Payload	Distinct Feature
<b>SLV</b>	India's first rocket (1980)	40–150 kg	4 solid stages
<b>ASLV</b>	SLV successor (1990s)	~150 kg	Enhanced payload
<b>PSLV</b>	Workhorse rocket (since 1994)	~1750 kg (SSO)	Reliable; Chandrayaan-1, MOM
<b>GSLV</b>	Cryogenic stage rocket	Up to 10 t (LEO)	Heavier payloads
<b>LVM3 (GSLVMk III)</b>	Crew & heavy-lift vehicle	4–5 t (GTO)	Chandrayaan-2, Gaganyaan
<b>SSLV</b>	For small satellites	~500 kg (LEO)	Low-cost, flexible
<b>RLV-TD</b>	Reusable tech demo	—	Reduces cost & debris

### New Launch Site: Kulasekharapattinam, Tamil Nadu

India's second spaceport—dedicated primarily to SSLV launches—is under construction near Tiruchendur, Thoothukudi district.

#### Project Details:

- Land: 2,233 acres acquired.
- Cost: ₹985.96 crore total; ₹100 crore for launch pad.
- Status: Land & site prep completed; facilities under construction.
- Expected Launch: FY 2026–27.
- Planned Capacity: 20–25 launches/year, open to private players.

#### Why a New Launch Site?

- Decongestion: Frees up Sriharikota for GSLV, LVM3, and crewed missions.
- Geographical Advantage:
  - Near equator, allowing direct southward launches over sea → avoids fuel-wasting “dogleg” trajectory.
  - Higher payload efficiency for polar and sun-synchronous orbits.
- Commercial Growth: Attracts startups like Skyroot, Agnikul, Pixxel, Dhruva Space.



#### Sriharikota vs Kulasekharapattinam

Feature	Sriharikota (Andhra Pradesh)	Kulasekharapattinam (Tamil Nadu)
<b>Launch Pads</b>	2 existing (+1 under construction)	1 under development
<b>Main Rockets</b>	PSLV, GSLV, LVM3	SSLV
<b>Orbit Type</b>	Polar & Geostationary	Mainly Polar/Sun-Synchronous
<b>Launch Frequency</b>	~6–8/year	Planned 20–25/year
<b>Access</b>	ISRO, foreign agencies	ISRO + private startups

### Strategic Importance

- Boosts India's space economy, especially in the \$10+ billion small-satellite market.
- Enables private participation and "Make in India" innovation in launch vehicles.
- Enhances global competitiveness vs. SpaceX, China's CASC, and Russian Soyuz launches.
- Aligns with *Atmanirbhar Bharat* and *Space Policy 2023* — promoting self-reliance, innovation, and commercialization.

ARK Reflections IAS

## 6. Centre grants licences to five firms to manufacture its first indigenous malaria vaccine

### Context

- The Union Government licensed five Indian firms to produce and commercialise AdFalcivax, the first indigenous multi-stage malaria vaccine, co-developed by ICMR, NIMR, and NII.
- It targets *Plasmodium falciparum*, India's deadliest malaria parasite, and aims to block infection before parasites enter the bloodstream, thereby reducing community transmission.

### About Malaria

- Causative Agent: *Plasmodium* spp. transmitted by infected *female Anopheles* mosquitoes.
- Types: *P. vivax*, *P. falciparum*, *P. malariae*, *P. ovale* — *falciparum* causes most fatalities.
- Transmission: Through mosquito bites, rarely via blood transfusion or contaminated needles.
- Symptoms: Fever, chills, headache appearing 10–15 days post-bite.

### About the Vaccine – AdFalcivax

- Type: *Recombinant chimeric multi-stage* vaccine using genetically engineered *Lactococcus lactis* as a safe bio-factory.
- Targets Two Stages:
  1. Pre-erythrocytic (liver) stage – prevents human infection.
  2. Sexual (mosquito) stage – blocks parasite transmission.
- Antigenic Components:
  - CSP (Circumsporozoite Protein): Generates immunity against infection.
  - Pro6C (fusion of Pfs230 + Pfs48/45): Transmission-blocking antigens.
- Adjuvant: Alum – safe, non-inflammatory.
- Thermal Stability: > 9 months at room temperature → ideal for tropical delivery.

### Key Features

- Dual Protection: Prevents infection *and* transmission.
- Affordable & Scalable: Suited for national immunisation programmes.
- Long-Lasting Immunity: Strong pre-clinical protection.

### Licensed Manufacturers

Indian Immunologicals Ltd., Techinvention Lifecare Pvt. Ltd., Panacea Biotec Ltd., Biological E Ltd., Zydus Lifesciences

### Collaborative Research

- Lead: ICMR; Partners: ICMR-NIMR and NII (DBT)
- Outcome: Validated safety & efficacy → enabled technology transfer for scale-up and clinical trials.

### Malaria Burden in India

- India = 1.4 % of global cases, 66 % of WHO-SEAR burden.
- High incidence in tribal & rural belts; affects productivity and public health.
- Progress: Cases fell from 6.4 million (2017) → ~2 million (2023); deaths 11 100 → 3 500.
- 122 districts reported zero cases (2023); India exited WHO's *High Burden-High Impact* list (2024).

### Significance of AdFalcivax

- Public Health: Breaks malaria transmission cycle; complements elimination goal.
- R&D Leadership: Showcases India's biotech capacity & vaccine self-reliance (*Atmanirbharta*).
- Global Relevance: Low-cost, thermostable vaccine for malaria-endemic developing nations.

### Challenges

1. Parasite's multi-stage lifecycle → vaccine resistance possible.
2. Vector resistance to insecticides reduces traditional control efficacy.
3. Rural access gaps → poor diagnosis & treatment.
4. Climate change expands mosquito breeding zones.

### Government Initiatives

- Goal: Zero indigenous malaria by 2027; elimination by 2030.
- Frameworks:
  - *National Framework for Malaria Elimination (2016–30)*
  - *National Strategic Plan (2023–27)* – surveillance, vector control, universal diagnosis.
- Measures: IRS & ITNs, digital case tracking, ASHA mobilisation, artemisinin-based combination therapies, and Global Fund–WHO partnerships.

### Strategies Against Aedes-Borne Viral Diseases (ABVD)

*(Dengue, Zika, Chikungunya)*

Concerns: Frequent urban outbreaks, chemical resistance, ineffective fumigation.

### Innovations Needed:

- Wolbachia Mosquitoes: Bacteria reduce virus replication inside vectors (proven in 15 countries).
- Spatial Emanators: Low-cost jute/plastic devices releasing transfluthrin vapours → 15-day bite protection indoors.
- Vaccine Research: Advance dengue vaccine (Dengvaxia – FDA 2019); Zika & chikungunya trials pending.
- Community Engagement: Remove stagnant water, use repellents and larval control.

## 7. China Digs in on 'Rare Earth', Commands Global Market

### Context

- In **Sept 2025**, China's Ministry of Industry announced **interim rules** to tighten control over **rare earth mining, refining, and exports**.
- These rules centralize oversight amid global efforts (India, U.S., Japan) to **reduce dependence** on China for **critical minerals**.
- **Rare Earth Elements (REEs)** are essential for **clean energy, defense, and high-tech industries**.



### What are Rare Earth Elements (REEs)?

- **Definition:** 17 metallic elements (lanthanides + yttrium + scandium) used in high-tech applications.
- **Categories:**
  - *Light REEs*: Lanthanum, Cerium, Neodymium.
  - *Heavy REEs*: Dysprosium, Terbium, Yttrium.
- **Note:** They are **abundant but hard to extract/refine**; **Promethium** excluded (radioactive).

### India's REE Distribution

- Found mainly in **monazite sands** (also rich in thorium).
- **Key states:** Tamil Nadu, Kerala, Andhra Pradesh, Odisha (+ Maharashtra, Gujarat, Jharkhand, West Bengal).
- Managed by **Indian Rare Earths Ltd (IREL)** under Dept. of Atomic Energy.
- Potential source of **light REEs** critical for electronics and EVs.

### Significance of REEs

1. **Clean Energy:** Used in wind turbines, EV motors, and solar panels.
2. **Defense:** Integral to radar, missiles, and precision guidance systems.
3. **High-Tech Devices:** Used in smartphones, semiconductors, and data storage.

### China's Dominance

Parameter	China's Share
Global reserves	~50%
Production	> 60%
Refining capacity	~92%
Export share	~30%
Research papers (2023)	30% (vs U.S. 10%, India 6%)
Annual investment (since 2022)	\$14 billion

- Tightened **export curbs (Apr 2025)** on seven REEs disrupted **U.S. and Indian supply chains**.
- Uses **quotas and technology export bans** to strengthen strategic leverage.

## Concerns

1. **Export restrictions** heighten supply risk for U.S., India, Japan.
2. **Dependency trap:** India & U.S. import > 75% REEs from China.
3. **Geopolitical leverage:** Trade weaponization amid tariff wars.
4. **Supply chain vulnerability:** Impacts EV, renewable, and defense sectors.

## Way Forward for India

- **Diversify imports** from Australia, Vietnam, Africa, U.S.
- **Boost domestic capacity:** Expand IREL; incentivize magnet and battery manufacturing.
- **Strategic stockpiling** of critical minerals.
- **Leverage Quad cooperation** for supply-chain resilience.

## Rare Earth Magnet Dispute:

- **Magnets (NdFeB, SmCo)** — key components in EVs, defense, and electronics.
- **India imports 90% from China;** shipments stalled despite diplomatic assurances (Aug 2025).
- **Indian Response:** May seek resolution via China's Commerce Ministry.

## Types & Features

Type	Composition	Feature
Neodymium (NdFeB)	Neodymium + Iron + Boron	Strongest permanent magnet
Samarium–Cobalt	Samarium + Cobalt	High heat & corrosion resistance

**Applications:** EV motors, wind turbines, missiles, drones, MRI machines, smartphones.

## China's Leverage

- Controls **80% of refining** and **90% of magnet production**.
- Recent **export restrictions** magnify its control over **clean-tech & defense industries** globally.

## India's Strategic Response

- **Public–private partnerships** to build rare-earth stockpiles.
- **Fiscal incentives** for magnet manufacturing under "Make in India."
- **Integration with global supply chains** through Quad and Indo-Pacific Economic Framework (IPEF).

## Why This Move Matters

Dimension	Significance
National Security	REEs vital for defense, space, nuclear tech.
Economic Resilience	Reduces vulnerability to Chinese dominance.
EV Transition	Ensures stable magnet supply for electric mobility.
Geo-Strategic Cooperation	Strengthens Quad mineral alliance and global trust chains.

**In Essence:** China's tightening grip over **rare earths** highlights a **new front in geo-economic competition**. For India, success lies in **domestic exploration, value-chain integration, and multilateral resilience**, transforming its **dependency** into **strategic autonomy** in the **critical minerals economy** of the 21st century.

## 8. PM Modi's Inauguration of Assam's Bamboo-Based Ethanol Plant

### Key Highlights

- **Event:** On September 14, 2025, PM Narendra Modi inaugurated India's first bamboo-based ethanol plant in Golaghat, Assam, and laid the foundation for a ₹7,230-crore polypropylene plant at Numaligarh Refinery.
- **Bioethanol Plant:** Described as the world's first "zero-waste" green bamboo bioethanol facility, costing ₹5,000 crore, producing ethanol and by-products like acetic acid and CO<sub>2</sub>.
- **Purpose:** Promotes energy self-sufficiency, clean energy, and reduces India's reliance on fossil fuel imports.



## 9. QuantM

QuantM is a portable, low-cost device developed by scientists at the **National Institute of Animal Biotechnology (NIAB)** in Hyderabad, India, for **on-site detection of somatic cell count (SCC)** in milk. SCC is a key indicator of **mastitis** (udder infection in dairy animals), which signals microbial contamination, reduced milk quality, and health risks. Launched in August 2025 by Union Minister Jitender Singh, QuantM addresses gaps in traditional testing by providing rapid, affordable results at the farm level, enhancing milk safety and supporting small farmers.



**QUANTM** Industrial Electric Pump

- **How It Works:**

- Uses **amine-functionalized iron oxide nanoparticles** (positively charged) that bind to **negatively charged somatic cells** in milk.
- A **surfactant** induces aggregation of these cells into clusters.
- An **integrated optical system** captures images of the clusters, and a **built-in algorithm** analyzes them to deliver an SCC reading within **10 minutes**.
- **Detection Sensitivity:** As low as **0.017 million cells per ml** (comparable to expensive flow cytometry but at ~1/10th the cost).
- **Cost:** Device ~₹15,000; each test <₹10.

## 10. Adi Vaani: India's First AI Tribal Language Translator

**Category:** Governance, Technology & Inclusive Development | GS Paper II & III

### What is in the News?

The Ministry of Tribal Affairs launched Adi Vaani, an AI-powered tribal language translator, developed by IIT Delhi and Tribal Research Institutes.

### Key Features

- Preserves endangered tribal languages through digitisation.
- Supports real-time translation in Santali, Bhili, Mundari, and Gondi.
- Expands access to education, healthcare, and governance for tribal communities.



### Significance

- Preserves indigenous knowledge systems.
- Promotes inclusive governance and welfare delivery.
- Enables education and healthcare outreach in local languages.

### Policy Context

Aligned with Digital India, Tribal Affairs initiatives, and UNESCO efforts for indigenous language preservation.

### UPSC Keywords

Adi Vaani, Indigenous Languages, Digital Inclusion, Tribal Welfare.

### PYQs and Linkages

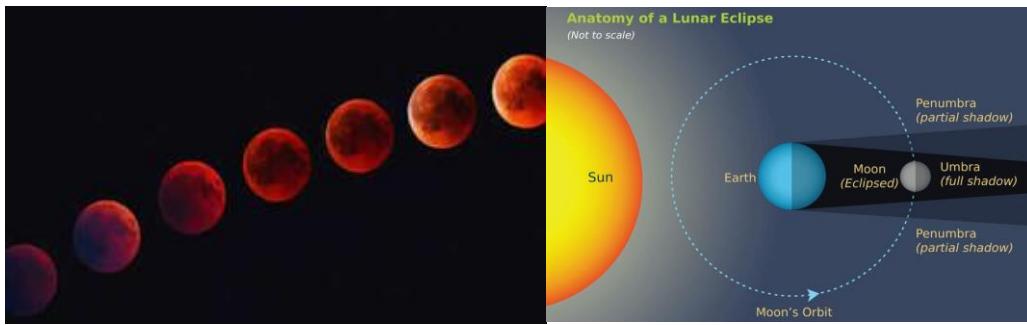
- GS II (2021): Role of e-governance in inclusion.
- Essay (2020): Technology as a bridge, not a barrier.

### Conclusion

Adi Vaani ensures digital inclusion while safeguarding India's tribal heritage.

## 11. Lunar Eclipse

The longest total lunar eclipse visible in India since 2022 is happening on the night of September 7-8, 2025, and can be seen from all parts of the country. The last time an entire total lunar eclipse was viewable across India was on July 27, 2018, and the next one won't be until December 31, 2028



### What Is Happening?

- A lunar eclipse occurs when the Earth moves directly between the Sun and the Moon, casting a shadow on the Moon.
- The penumbral eclipse (when the Moon enters the Earth's faint outer shadow) will start at 8:58 PM IST on September 7.
- The partial eclipse (the Moon begins to enter the Earth's dark inner shadow) begins at 9:57 PM IST.
- The total eclipse starts at 11:01 PM and will last for 82 minutes, ending at 12:22 AM.

➤ **The moon appears red during lunar eclipses because the only sunlight reaching it is reflected and scattered through the earth's atmosphere**

➤ **Light is made of different colours and each has a different wavelength. Shorter wavelengths (blue & violet) scatter the most. Longer wavelengths (red & orange) scatter less and pass through. (Rayleigh Scattering)**

➤ **Why the Sun Appears Red and Orange During Sunrise and Sunset**

The red and orange hues of the sun during sunrise and sunset are due to the way sunlight interacts with Earth's atmosphere. Here's a concise explanation:

1. **Longer Travel Distance:** At sunrise and sunset, sunlight passes through a thicker layer of the atmosphere because the sun is low on the horizon.
2. **Scattering of Blue Light:** Shorter blue wavelengths scatter out of view, leaving longer red and orange wavelengths to dominate the visible light.

**A solar eclipse** is an astronomical event that occurs when the Moon passes between the Sun and Earth, casting a shadow on Earth and blocking all or part of the Sun's light. During a total solar eclipse, the Moon completely covers the Sun, creating a brief period of darkness known as totality.

- Lunar eclipse: Safe to watch with the naked eye because the moon only reflects sunlight that has passed through the Earth's atmosphere, so there's no risk of eye damage.
- Solar eclipse: Dangerous to look at directly because the sun's light is intensely bright and contains harmful ultraviolet (UV) rays; even during partial or annular phases, looking at the sun without special solar filters can cause permanent eye injury or blindness.

**UPSC PYQ - 2017**

Q- The terms 'Event Horizon', 'Singularity', 'String Theory' and 'Standard Model' are sometimes seen in the news in the context of

- (a) Observation and understanding of the Universe
- (b) Study of the solar and the lunar eclipses
- (c) Placing satellites in the orbit of the Earth
- (d) Origin and evolution of living organisms on the Earth

Answer is A.

ARK Reflections IAS

## 12. Global Innovation Index (GII):

**Why in the News?** : The World Intellectual Property Organization (WIPO) has released the Global Innovation Index (GII) 2025.

### About the Global Innovation Index (GII):

- Annual ranking of 139 economies based on their innovation capacity and success.
- Published jointly by Cornell University, INSEAD, and WIPO.
- First published in 2007.
- Evaluates innovation using 80+ metrics across 7 pillars.

### Structure of GII:

- Innovation Input Sub-Index: Includes institutions, human capital and research, infrastructure, market sophistication, business sophistication.
- Innovation Output Sub-Index: Covers knowledge and technology outputs, creative outputs.

### Purpose:

- Helps governments assess how effectively R&D, education, and infrastructure translate into innovation outcomes.

### Key Highlights of GII 2025:

- Global R&D growth slowed to 2.9% in 2024 and projected at 2.3% in 2025, the lowest since 2010 financial crisis.
- Top ranking countries: Switzerland (1st), Sweden (2nd), United States (3rd), followed by South Korea, Singapore, UK, Finland, Netherlands, Denmark, and China (10th).
- China leads in knowledge and technology outputs, patent filings, and ranks 2nd in R&D expenditure.
- Europe dominates with 15 of the top 25 economies; Southeast, East Asia, and Oceania region has 6 in the top 25.



#### India's Performance:

- Ranked 38th globally with an approximate score of 40.5.
- Top among lower-middle-income countries and in the Central & Southern Asia region.
- Strengths: Knowledge and technology outputs (22nd), market sophistication, human capital, and research.

Weaknesses: Business sophistication, infrastructure, and institutions lag behind

## HEALTH & MEDICINE (GS-2 / GS-3)

### 13. Mosquito control methods

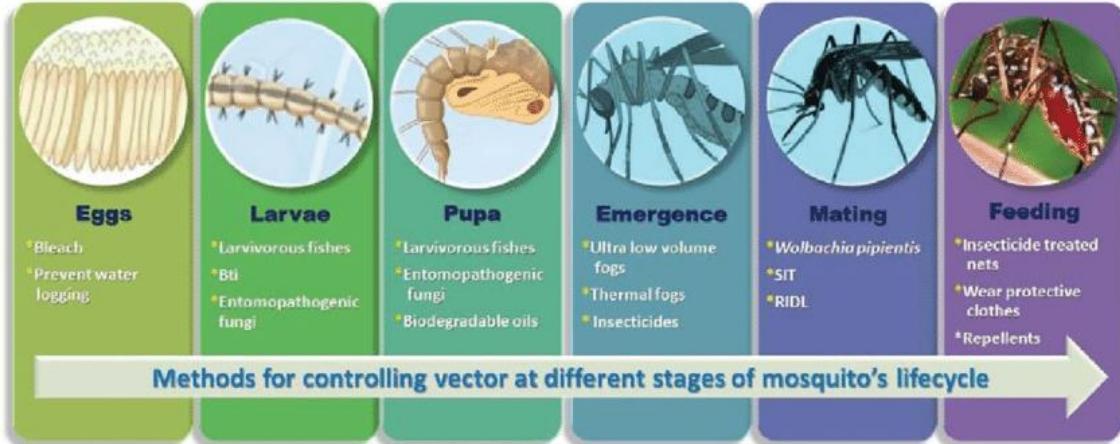
#### Which Mosquito Spreads Which Disease

Mosquito Species	Diseases Spread
Aedes aegypti	Dengue, Zika, Chikungunya, Yellow fever
Anopheles (esp. gambiae)	Malaria (caused by <i>Plasmodium</i> parasite)
Culex species	West Nile virus, Japanese Encephalitis, Filariasis

#### New Control Methods

Method	What it is / Mechanism	Key tech / Example	Main benefits	Extra notes
<b>1. Sterile Insect Technique (SIT)</b>	Release sterile males so matings yield no viable eggs, causing population decline	Shift from X-ray sterilization (low fitness) to CRISPR targeting fertility genes; can also bias to all-male offspring	Species-specific; non-biting males released; reduces reliance on insecticides	Works best with repeated, large releases and good sex-sorting
<b>2. Genetic Modification</b>	CRISPR-Cas9 edits to reduce fertility or disrupt femaleness genes → fewer biting females and overall suppression	Gene drives/gene edits (design varies by program)	Potential long-term vector reduction without full eradication	Requires strong governance, monitoring, and community consent
<b>3. Drug-based Approaches</b>	Feed on treated blood → mosquitoes die (blocks digestive enzyme)	Nitisinone (repurposed FDA-approved drug); outperformed ivermectin in trials; works vs insecticide-resistant strains	Fast-acting; leverages existing human/animal meds where appropriate	Delivery strategy and safety thresholds must be carefully managed
<b>4. Wolbachia Bacteria Method</b>	Introduce Wolbachia into <i>Aedes aegypti</i> → viruses can't replicate (dengue, Zika,	Field programs in Australia, Brazil, Colombia	Maternally inherited → can self-sustain after releases; males only gives short-term	Releasing females establishes Wolbachia long-term; males only gives short-term

	chikungunya, yellow fever)	bia show major dengue drops (even local elimination)	reduces transmission	suppression (non-viable eggs)
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- Introducing *Wolbachia* in females—essential for spreading the bacteria in the wild and reducing disease transmission.
- Introducing *Wolbachia* in males only—used for population suppression via non-viable eggs but will not sustain *Wolbachia* in the population long-term

### Other Bacteria (Harmane-producing)

- Targeted at *Anopheles* mosquitoes, which spread malaria (caused by *Plasmodium* parasite).
- Scientists identified bacteria that produce harmane, a substance that blocks the malaria parasite from maturing in the mosquito gut.
- These mosquitoes still bite, but cannot transmit malaria.
- Can spread naturally through eggs and mating, making it sustainable

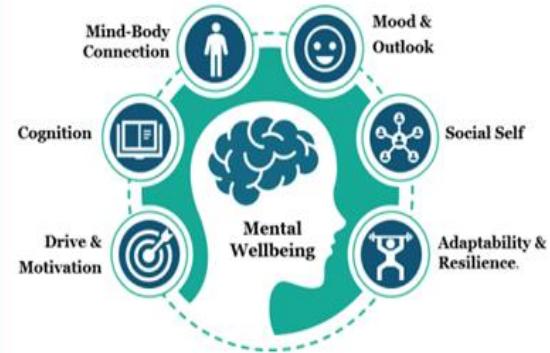
## 14. Mental Health in India – Constitutional, Legal and Policy Dimensions

Recent SC judgment *Sukdeb Saha vs. State of Andhra Pradesh* (July 2025) recognized **mental health as integral to the Right to Life (Article 21)**, making it a constitutional obligation for the State.

- Mental health is not just absence of illness but complete well-being (WHO definition). Yet, it remains one of the most neglected areas in India's health sector.

### Reasons for Growing Mental Health Concerns in India

- **Socio-economic stressors:** poverty, unemployment, agrarian distress, urban stress, migration.
- **Changing lifestyles:** social media addiction, cyberbullying, declining social support systems.
- **Stigma and lack of awareness** → reluctance to seek help.
- **Public health neglect:** <2% of health budget for mental health.
- **Post-pandemic crisis:** rise in depression, anxiety, suicides.
- **Workplace stress** and rising student suicides (e.g., Kota, IITs).
- **Gender & vulnerability issues:** women, LGBTQ+, elderly, and persons with disabilities face compounded stress.



### Measures Taken by India

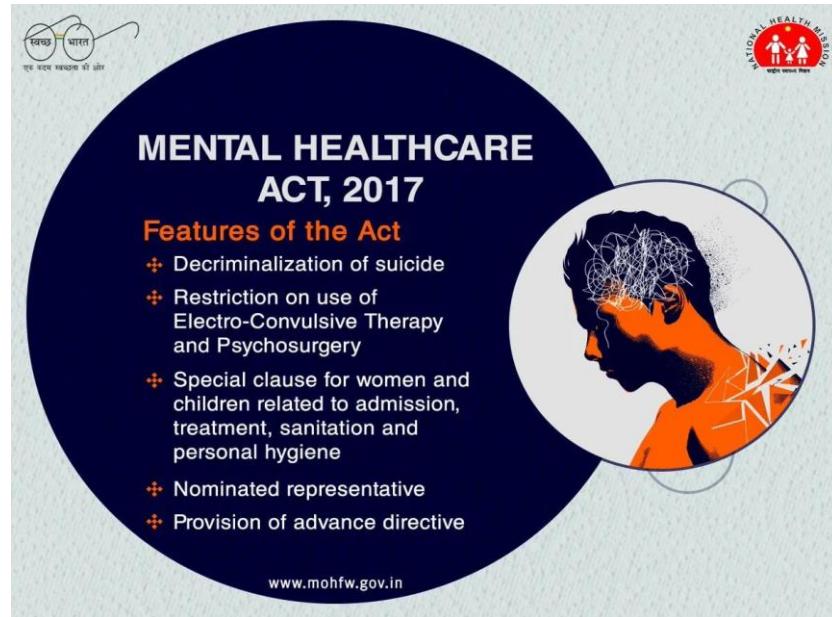
- **National Mental Health Policy, 2014** – emphasizes rights-based approach.
- **National Mental Health Programme (NMHP), 1982** – to integrate mental health with primary healthcare.
- **Mental Healthcare Act, 2017** – progressive legislation ensuring rights, consent, decriminalizing suicide attempts.
- **Tele-MANAS (2022)** – 24x7 tele-counselling under MoHFW.
- **Kiran helpline (2020)** – toll-free helpline for mental health crisis.
- **Education sector:** Manodarpan initiative for student counselling.
- **Budget 2022-23:** First-ever National Tele-Mental Health Programme.

### Challenges

- **Treatment gap:** 70–80% of patients receive no treatment (NIMHANS report).
- **Acute shortage:** <10,000 psychiatrists for 140 crore people (WHO recommends 3 per lakh).
- **Urban-rural divide:** 80% services concentrated in cities.
- **Stigma & discrimination** against patients.
- **Implementation issues:** Mental Healthcare Act rights not effectively enforced.
- **Insurance gap:** despite SC rulings, parity with physical health in insurance coverage is weak.

## 15. Mental Healthcare Act, 2017 – Salient Features & Issues

- Recognizes right to affordable mental healthcare.
- Decriminalized suicide attempts (Section 309 IPC effectively neutralized, later repealed under **BNS 2023**).
- Introduces **Advance Directive** (patient can decide future treatment preferences).
- Establishes **Mental Health Review Boards**.
- Ensures insurance coverage.
- **Issues:**
  - Implementation poor due to resource shortage.
  - Advance directive rarely operationalized.
  - Funding constraints; state mental hospitals in disrepair.
  - Insurance discrimination continues.



ARK Reflections

## POLITY, GOVERNANCE & LAW (GS-2 / GS-3 OVERLAP)

### 16. Section 309 IPC & its Repeal

- Earlier, **attempt to suicide was a criminal offence** under IPC Section 309.
- MHCA 2017 presumed mental stress → protection from prosecution.
- **Bharatiya Nyaya Sanhita (BNS), 2023** → **repealed Section 309** completely → now attempt to suicide is no longer a criminal offence in India.
- This aligns law with **human rights approach** to mental health.

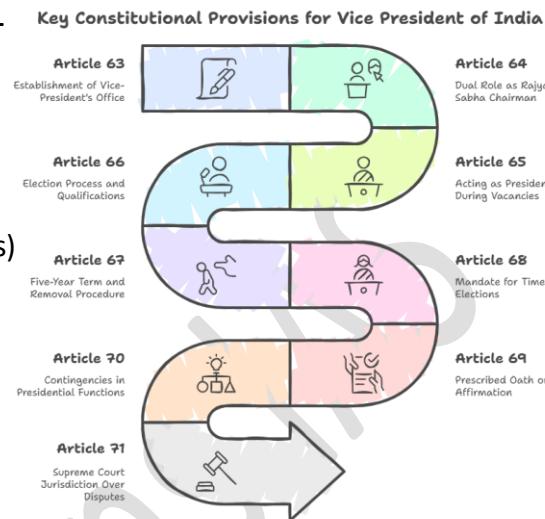
#### Way Forward

- **Mainstream mental health** in primary healthcare.
- Increase **budget allocation & workforce** (psychiatrists, counsellors).
- **Community-based care** rather than institutional confinement.
- **Digital health platforms** expansion.
- Workplace mental health policies → mandatory in corporates & educational institutions.
- Remove **stigma through awareness campaigns**.
- Ensure **effective implementation of MHCA, 2017** and SC directives.

## 17. Radhakrishnan elected Vice-President of India

### Context

- C.P. Radhakrishnan** became India's 15th Vice-President on 9 Sept 2025, polling 452 first-preference votes against Justice B. Sudershan Reddy's 300.
- Held after **Jagdeep Dhankhar's early resignation (July 2025)**—first mid-term VP election since 1987.
- Turnout:** 98.2 % (767 of 781 MPs). Margin (152 votes) suggested cross-voting from opposition benches.



### Constitutional Status

- Articles 63–71** establish the Vice-President as **India's second-highest constitutional authority**.
- Article 63:** "There shall be a Vice-President of India."

### Role & Functions

#### 1. Ex-officio Chairman of Rajya Sabha (Article 64)

- Presides over the Upper House, maintains order, interprets rules, and decides points of procedure.
- Chairs key committees — Business Advisory, Rules & General Purposes.

#### 2. Acting President (Article 65)

- Discharges Presidential functions on vacancy till a new President assumes office (max 6 months).
- In temporary absences (illness/travel), acts without time limit.

### Election Process

#### Electoral College

- All members of Lok Sabha + Rajya Sabha (elected + nominated).

233 elected + 12 nominated (Rajya Sabha) + 543 elected (Lok Sabha) = 788 MPs (781 voting currently).

### Differences from Presidential Election

- Nominated members included.
- State Assemblies excluded.

*(Ambedkar: Since the VP presides over Rajya Sabha, state involvement is unnecessary.)*

### Voting Method

- Proportional Representation – Single Transferable Vote.
- Secret ballot; no party whip.
- Ballot valid only if first preference marked.

### Nomination & Eligibility

- ≥ 20 MP proposers + 20 seconders; ₹15,000 deposit.
- Qualifications (Art. 66):**
  - Citizen of India | ≥ 35 years | Qualified for Rajya Sabha | No office of profit.

## Oath (Article 69)

"I do swear/affirm ... to bear true faith to the Constitution of India and faithfully discharge the duties of Vice-President."

- Administered by the President before assumption of office.

## Conditions of Office

- **Term:** 5 years (Article 67); continues till successor assumes office; re-eligible.
- **Restrictions:** Cannot hold any other office of profit or be MP/MLA.
- **Compensation:** Receives salary as Rajya Sabha Chairman; when acting President, draws Presidential emoluments.

## Vacancy & Removal

### 1. Vacancy Causes

- Term expiry | Resignation | Death | Removal | Disqualification.
- **Election Timing:** Before term ends or within 6 months of casual vacancy.

### 2. Removal (Article 67 (b))

- **Motion in Rajya Sabha** with 14-day notice → passed by **effective majority**, then **agreed to by Lok Sabha** (simple majority).
- **Chairman cannot preside** during discussion (Article 92).

## Powers and Functions

### Legislative

- Presides over Rajya Sabha; ensures decorum and fair debate.
- Determines admissibility of motions and questions.
- Works with Business Advisory Committee on agenda scheduling.
- Interpretation of rules is binding precedent.

### Administrative

- Controls Rajya Sabha Secretariat and committee appointments.
- Sanctions privilege notices and authenticates official corrections to Bills.

### Judicial / Quasi-Judicial

- Decides on **disqualification of members** under Tenth Schedule (anti-defection).
- Election disputes adjudicated by Supreme Court (Article 71).

### Emergency Functions

- When acting as President, exercises executive and legislative powers to maintain constitutional continuity (max 6 months).

### In Essence:

The Vice-President of India embodies a **dual constitutional identity** — *legislative arbiter* as **Rajya Sabha Chairman** and *executive standby* as **Acting President**. C.P. Radhakrishnan's election reaffirms the office's vital role in ensuring **continuity, neutrality, and constitutional balance** within India's parliamentary democracy.

## 18. NARI 2025 REPORT

General Studies Paper I - Indian Society, Topic: Role of women and women's organizations; population and associated issues; urbanization, their problems and remedies.

**Context:** The NARI 2025 report was released by the National Commission for Women (NCW) in August 2025 highlighting ongoing safety challenges for women in India's cities.

- Delhi ranked 28th out of 31 major cities, among the worst-performing, indicating serious gaps in women's safety even 13 years after the 2012 Delhi bus gang rape.
- The survey covered 12,770 women across 31 cities to assess women's safety perceptions and experiences.

### What is NARI 2025?

- First-ever National Annual Report & Index on Women's Safety (NARI) in India.
- Joint initiative by NCW, Pvalue Analytics, The NorthCap University, and Jindal Global Law School.
- Measures women's safety beyond just crime statistics, incorporating perceptions, experiences, infrastructure, and institutional responses.
- Covers overall safety, infrastructure quality, harassment occurrence, domain-specific safety (neighbourhoods, transport, work, education, health, online), and trust in authorities.

### Key Findings of NARI 2025

- The national safety score is 65%, with cities categorized as "much above," "above," "below," or "much below" this benchmark.
- Delhi ranked 28th with women reporting high insecurity, especially in deserted and poorly lit areas.
- 31% of women in Delhi said women-friendly infrastructure was minimal or non-existent.
- Harassment in public spaces was higher than the national average: 12% in Delhi vs 7% nationally.
- Frequent harassment was reported by 61% of women in Delhi who faced it more than twice.

### Safety Score & Safest Cities

- National safety score: 65%.
- Safest cities: Kohima, Visakhapatnam, Bhubaneswar, Aizawl, Gangtok, Itanagar, Mumbai.
- These cities share characteristics like strong gender equity, inclusive governance, good infrastructure, and effective policing.

### Least Safe Places

- Cities ranking lowest included: Delhi (28th), Kolkata, Srinagar, Ranchi, Faridabad, Patna, Jaipur.
- Common issues: weak infrastructure, patriarchal social norms, poor police responsiveness.

### Poor NARI ranking exposes women safety gaps in Delhi

Ashna Butani  
NCW

Thirteen years after the 2012 bus gang rape and murder shocked the nation, women in Delhi continue to face glaring safety gaps in everyday public life.

From poorly lit streets and lack of infrastructure to the lack of secure public spaces and limited emergency services, the ranking remains the same, according to the National Annual Report & Index on Women's Safety (NARI) 2025.

The survey, launched by the National Commission for Women (NCW) last month, covered 12,770 women across 31 cities.

Delhi ranked 28th on the women safety index, placing it among the worst-performing cities, ahead only of Kolkata, Srinagar, and Ranchi.

According to the report, 31% of women in Delhi said women-friendly infrastructure was "minimal" or "non-existent."

"Serious concern"

Nationally, the figure stood at 23%.

"This ranking is a serious cause for concern, particularly because Delhi,



Over 30% of women in Delhi said women-friendly infrastructure was either minimal or non-existent. PIZ PHOTO

The contrast between daytime and night-time safety was stark: while 8% felt unsafe during the day, the figure jumped to 35% after dark.

The report found that nearly 70% of women felt unsafe during the day, compared to the national average of 55%.

The national capital recorded a higher incidence of harassment in public spaces compared with the national average. While 7% of women across the country reported experiencing harassment, in Delhi, the figure was 12%.

**Repeated harassment:**

Alarmingly, 61% of Delhi women who reported harassment in public spaces faced it more than twice,

pointing to systemic lapses in deterring repeat offend-

ers. Neighborhoods were most frequently cited as sites of harassment (24%), indicating that proximity to home does not guarantee safety. This was followed by transport facilities (22%).

When asked for solutions, 50% of women demanded more policing, while 40% specifically called for timely and proper police action, underscoring the connection with law enforcement.

Cities that ranked higher than the national average included Kohima, Visakhapatnam, Aizawl, Bhubaneswar, Gangtok, Itanagar, and Mumbai. Faridabad ranked 20th, just above Delhi. The NARI report, ideated and funded by the NCW, was released on August 28 and marks the first such national safety index.

### **Women's Perception of Safety**

- 41% women in Delhi feel unsafe in deserted spaces; 35% feel unsafe after dark.
- In contrast, only 8% felt unsafe during the day.
- 51% demanded more visible policing, with 17% emphasizing timely and proper police action.
- Harassment occurred mostly in neighbourhoods (34%) and transport (32%), proving proximity to home does not ensure safety.

### **Forms of Harassment**

- Most common was verbal abuse (around 58%), followed by physical and digital harassment.
- Repeated harassment highlighted systemic lapses in deterring offenders.

### **Institutional Gaps**

- Women's limited trust in police and institutions due to slow or inadequate response to harassment complaints.
- Lack of women-friendly infrastructure and safe public spaces.
- Neglected needs of vulnerable groups including migrants, students, gig workers.

## 19. The "Meitei crisis"

### What it is?

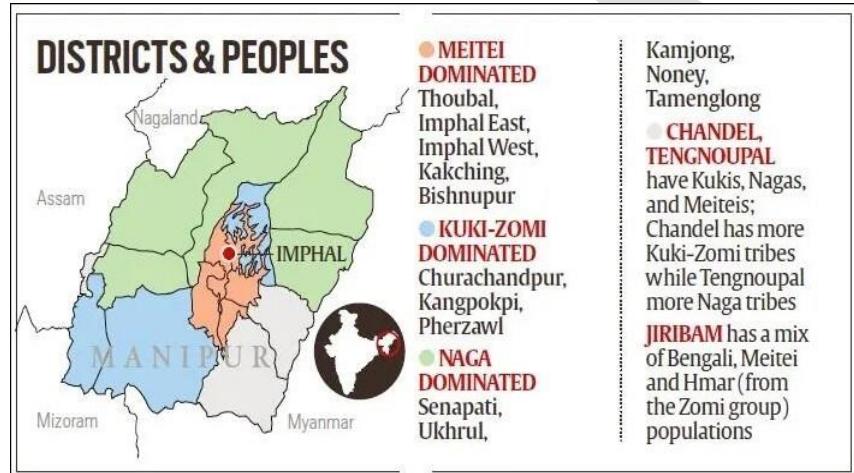
- ❖ Ethnic conflict in **Manipur** between **Meiteis (~53%)** in the valley and **Kuki-Zo (~16%)** in the hills, with **Nagas (~24%)** also affected.
- ❖ Sparked **May 3, 2023**; linked to Meitei demand for **ST status** vs tribal fears over land/reservations.
- ❖ **>260 deaths, ~60,000 displaced**, deep segregation; **President's Rule imposed Feb 13, 2025**

### ST Criteria (Lokur Committee)

- ❖ RGI/Gol still reference five criteria:  
**primitive traits, distinctive culture, geographical isolation, shyness of contact, backwardness**

### Historical Context

- Pre-colonial Meitei kingdom in Imphal valley; British-era settlement of **Kuki-Zo** as buffer against **Naga** raids seeded rivalries.
- Post-1949 merger saw **Naga** secessionism and **Meitei/Kuki-Zo** mobilization; **1993 Naga-Kuki clashes** a major rupture.



### Cultural Geography of Manipur

- **Valley (10% area)**: dense, Meitei-dominated, political/economic center.
- **Hills (90% area)**: Naga and Kuki-Zo tribes with cross-border ties to **Myanmar**.
- **Land regime**: Tribals can buy valley land; **Meiteis barred from hill land** → core grievance

### Triggers & fear drivers

- Meitei nationalism from 1970s; backlash to 2001 NSCN-IM ceasefire extension; ILP agitation (2006–2012).
- Meitei fears: jobs/reservations squeeze, migration (incl. Myanmar refugees), drugs/poppy.
- Kuki-Zo view: underdevelopment, labeling as "outsiders," push for autonomy.

### Immediate causes (2023)

- **Apr 2023 HC order urging consideration of Meitei ST status** → tribal backlash.
- **May 3 ATSUM march vs counter-protests** → arson/shootings.
- **Forest evictions (Feb 2023), police actions, refugee verification drives** escalated tensions

### Other concerns

- **AFSPA (since 1980)**; contested **Article 371C** hill administration; not under **Sixth Schedule**.
- **Poppy eradication** hitting livelihoods; colonial border legacies complicate FMR/fencing.

### SOO (Suspension of Operations) pact

- Tripartite ceasefire (Centre–Manipur–Kuki-Zo groups) to contain violence and enable talks.
- **Revised pact signed Sept 4, 2025** with **24 Kuki-Zo groups (KNO/UPF)** for one year: Aadhaar/ID verification, bank-linked stipends for verified cadres, **no separate administration**, reopen **NH-2**, resume tripartite talks, de-list foreign nationals.

### Recent development (Sept 11, 2025)

- **United Naga Council suspended trade embargo** after state assured consultations on **border fencing/FMR** and tripartite talks resumption.

### Strategic facts

- **NH-2 (Imphal–Dimapur)** a lifeline; local segments called **Tedim/Tipaimukh Road**.
- **India–Myanmar border (1,643 km)** shared by **Arunachal Pradesh, Nagaland, Manipur, Mizoram**.

**Bottom line:** A layered conflict of **identity, land, and representation**—immediate flashpoints (ST demand, evictions, refugees) sit atop long historical and administrative fractures. Resolution hinges on **security calm + credible talks, land/administrative safeguards, and inter-community guarantees**.

## 20. SC to hear President's reference to it on timeline to assent to bills

### Context & Timeline

- Trigger: After **Apr 8, 2025** ruling (TN govt. Vs Governor) that struck down delays and set **outer limits** (Gov: ~1 month; President on re-served Bills: **3 months** using Art. 142), **President Droupadi Murmu** invoked Art. 143(1) on **May 13, 2025** seeking the SC's advisory view on **14 questions**.
- Hearing: 5-judge Bench led by CJI B.R. Gavai, Aug 19–Sept 11, 2025.
- Backdrop: Increasing Governor–State frictions (TN, Kerala, Punjab) over **withholding/delaying assent**.



### What the Reference Asks (themes)

- Can a **smaller Bench** set constitutional **timelines** via Art. 142?
- Scope of **Governor's discretion** (Arts. 163, 200) and **President's role** (Art. 201).
- Mechanisms to resolve **Centre–State** disputes over assent.
- Whether courts may **mandate time limits** where the Constitution is silent.

### Positions at a Glance

Issue	States' stance	Centre's stance
Maintainability of reference	Indirect appeal; <b>decline</b> under stare decisis	Art. 143 is proper to clarify doubts of public importance
Governor's role	<b>Bound by advice</b> (Art. 163); no <b>pocket veto</b> ; "as soon as possible" = <b>no delay</b>	Not a <b>postman</b> ; historic veto/check on unconstitutional laws (1935 lineage)
Judicial timelines	Needed to curb abuse and protect <b>federalism/democracy</b>	<b>Constituent Assembly</b> rejected fixed limits; Art. 142 can't rewrite text
Frequency of abuse	Delays systemic in some States; rights under Art. 32	Withholding rare (tiny fraction of ~17,000 Bills); political processes suffice
Federalism	Timelines prevent partisan obstruction	Timelines may <b>judicialize</b> executive domain

### Constitutional Architecture (must-know)

- Art. 200: Governor may **assent/withhold/return** (not money Bills)/**reserve for President**; if **re-passed unchanged**, Governor **must assent**.
- Art. 201: For **reserved Bills**: President may **assent/withhold/return**; if **re-passed**, President **not bound** to assent but **must act** (no limbo).

- **Art. 163(1):** Governor acts on **aid & advice** except where Constitution requires **discretion**.
- **Art. 142:** SC's **complete justice** power (used in Apr 2025 to set outer limits).
- **Art. 143: Presidential reference** → SC's **advisory** (non-binding; can **decline**).

### Key Judicial Markers

- **Nov 2023:** Governors must act "**as soon as possible**", not sit indefinitely.
- **Apr 8, 2025 (TN v. Governor):** Delay in 10 TN Bills **unconstitutional**; **outer timelines:** ~1 month for Governors; **3 months** for **President** on reserved Bills; **assent mandatory** after re-passage.

### Likely Outcome Scenarios (what to watch)

1. **Affirm but calibrate:** Court **endorses need for expedition, softens** hard deadlines (principle > perse days).
2. **Process-first approach:** Lay down **guidelines/SOPs** (recorded reasons, periodic status to Speaker/CM, model timeline) rather than strict limits.
3. **Hands-off on timelines:** Hold that **hard caps** need **constitutional amendment/statute**, not **Art. 142**; still reiterate "no pocket veto".

### Why it matters

- Decides if **assent delays** can be checked **judicially** to protect **State legislatures** or if timelines are a **political/executive** domain.
- Sets contours of **Governor's discretion** and **President's reserve power**, impacting **federal balance**.

### PYQ

#### Consider the following statements regarding constitutional provisions in India: 2025

- I. The Constitution of India explicitly mentions situations where the Governor of a State can act in his/her discretion.
- II. The President of India can, on his/her own, reserve a Bill passed by a State Legislature for consideration, even without it being forwarded by the Governor of the concerned State.

#### Which of the above statements is/are correct?

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

#### Answer: (a)

Article 163(1) of the Indian Constitution states that the Governor is to act on the aid and advice of the Council of Ministers, **except in matters where the Constitution requires him to act in his discretion**. According to **Article 200 of Indian constitution**, the Governor has the power to reserve certain bills passed by the State Legislature for the **President's consideration**. The President acts only when a bill is forwarded to him by the Governor and cannot reserve a state bill for consideration on his own.

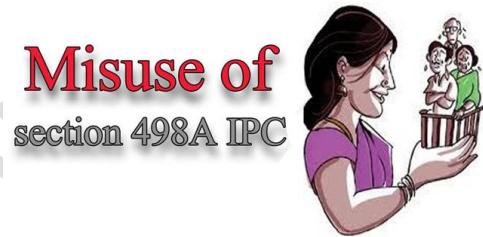
## 21. Section 498A

### Context

- **Issue:** On July 22, 2025, the Supreme Court in *Shivangi Bansal vs. Sahib Bansal* upheld the Allahabad High Court's 2022 guidelines (*Mukesh Bansal vs. State of U.P.*) to curb misuse of Section 498A IPC (now Section 85, Bharatiya Nyaya Sanhita), introducing a two-month "cooling period" and Family Welfare Committee (FWC) referral, criticized for delaying victims' justice.
- **Conflict:** These measures aim to prevent false complaints and arrests but undermine prompt access to justice and criminal justice autonomy, echoing the overturned 2017 *Rajesh Sharma* ruling.

### What is Section 498A and Its Objectives

- **Definition:** Section 498A IPC (1983, now Section 85 BNS) penalizes cruelty by a husband or his relatives against a woman in a matrimonial setting (e.g., dowry harassment, mental/physical abuse), with up to 3 years imprisonment and fines.
- **Objectives:** Protect women from domestic cruelty, ensure justice for victims, and deter dowry-related violence in marital relationships.



### Safeguards Introduced in Various Judgments

- **Lalita Kumari (2013):** Mandates preliminary inquiry before FIR registration in matrimonial disputes to filter out false or frivolous complaints.
- **Arnesh Kumar (2014):** Introduced arrest checklists and "notice of appearance" to curb arbitrary police arrests in 498A cases, emphasizing necessity.
- **Satender Kumar Antil (2022):** Directed bail for arrests non-compliant with *Arnesh Kumar*, balancing accused liberty with victim justice.
- **Mukesh Bansal (2022):** Allahabad HC set a two-month cooling period post-FIR/complaint, referring cases to FWC to verify legitimacy before coercive actions.
- **Shivangi Bansal (2025):** SC endorsed *Mukesh Bansal* guidelines, reinforcing cooling period and FWC to prevent 498A misuse, despite criticism.

### Concerns Associated with the Guidelines

- **Delayed Justice:** Cooling period stalls victim's access to justice, exacerbating distress post-FIR, prioritizing accused protection.
- **No Statutory Basis:** FWC referral lacks legal grounding, bypassing CrPC and police/court autonomy in criminal justice.
- **Regressive Precedent:** Mirrors *Rajesh Sharma* (2017), overturned in 2018 (*Social Action Forum*) as regressive and beyond judicial competence.

- **Undermines Victim Rights:** Delays action against cruelty, denting women's right to timely redress under Section 498A.
- **Existing Safeguards Sufficient:** CrPC amendments (2008) and judicial rulings (*Arnesh Kumar, Antil*) already address misuse without harming victims.

### Way Forward

- **Revisit Ruling:** SC should overturn *Shivangi Bansal* like *Rajesh Sharma* to restore prompt justice, as urged in *Social Action Forum* (2018).
- **Strengthen Existing Laws:** Enhance CrPC and judicial checks (e.g., preliminary inquiries) to balance misuse prevention and victim rights.
- **Avoid Quasi-Judicial Bodies:** Eliminate FWC referrals, ensuring police/courts handle 498A cases per statutory framework.
- **Public Awareness:** Educate on 498A misuse and victim rights to reduce false complaints while supporting genuine cases.
- **Monitor Implementation:** Ensure *Arnesh Kumar* and *Antil* guidelines are strictly followed to prevent arbitrary arrests without delays.

## 22. Article 200 and Article 201 and Governor controversy

### Supreme Court's Ruling on Governor's Bill Assent Timelines and Lack of Discretion

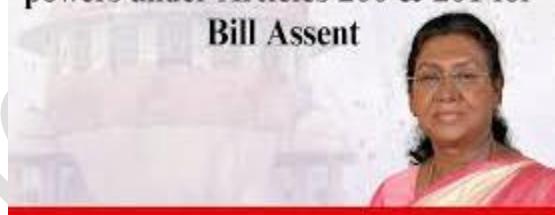
#### Background

- Context: On Sept 11, 2025, a five-judge SC Bench led by CJI B.R. Gavai reserved judgment on a Presidential Reference under Article 143(1) concerning timelines for Governors/President to act on Bills. This followed the State of Tamil Nadu vs. Governor of Tamil Nadu (April 2025) verdict, which fixed a three-month limit after Governor R.N. Ravi delayed 10 Bills unconstitutionally.
- Issue: Repeated delays by Governors in opposition-ruled states (Tamil Nadu, Punjab) disrupt legislative processes and threaten federalism. The Centre termed timelines as judicial overreach, but SC held that Governors have no discretion under Article 200

#### Constitutional Framework

- Article 200: Governor may assent, withhold, return (except Money Bills), or reserve a Bill; must act "as soon as possible" and per ministerial advice (Art. 163).
- Article 201: President may assent, withhold, or return reserved Bills; must act promptly though not bound post-reconsideration.
- Article 355: Union must ensure states act constitutionally; Governor's delay breaches this duty, justifying SC's intervention.

**President questions SC on setting timelines on Governor and President's powers under Articles 200 & 201 for Bill Assent**



#### Key Judgments Highlighting No Governor Discretion

- Shamsher Singh (1974): Governors act only on Council of Ministers' advice, except in rare constitutional cases.
- Nabam Rebia (2016): Governors cannot act independently in summoning Assemblies or influencing disqualification.
- Punjab Case (2023): Delays in assent violate Article 200's "prompt action" requirement.
- Tamil Nadu Case (2025): Indefinite withholding held unconstitutional; set three-month deadline, rejecting any implied discretion.

#### Government of India Act, 1935, and Constitutional Amendment

- Section 75 (1935 Act) gave Governors discretionary powers, reinforcing central control.
- Article 200 (1950) deliberately removed the discretion, reflecting the framers' intent to establish a parliamentary form of government where Governors act on ministerial advice, not personal judgment

#### Constitutional Arguments Against Governor Discretion

- No Discretionary Power:** Article 200's omission of "discretion" (unlike 1935 Act) and Article 163 mandate Governors act on Council advice, except in specified exceptions (e.g., Article 356).
- Sarkaria/Punchhi Commissions:** Both emphasized Governors as ceremonial heads, acting on ministerial advice; discretion only in "rare" cases (e.g., patently unconstitutional Bills), not routine delays.

- **Judicial Precedent:** *Shamsher Singh and Nabam Rebia* clarified Governors lack independent authority; *Tamil Nadu* (2025) rejected discretion in withholding/reserving Bills to protect state autonomy.
- **UK Parallel:** UK sovereigns cannot withhold assent without ministerial advice; Article 200's design mirrors this, ensuring Governors don't override elected legislatures.

### Why Timelines Were Set

- Chronic Delays: Multi-year inaction (e.g., TN's 10 Bills) violated Article 200.
- Centre's Inaction: Failure under Art. 355 led SC to set a three-month cap.
- Federal Safeguard: Prevents Governors from acting as "super-constitutional authorities".
- CJI Gavai's remark "Should the Court sit powerless while Governors make legislatures defunct?" summed up the concern.

### Key Points from Hearings

- Constitutional Clarity: Bench affirmed indefinite delay = constitutional paralysis;
- States' Stand: Argued that Article 163 binds Governors to ministerial advice to preserve autonomy.
- Centre's Defence: Claimed Governors act as a check on hasty laws, but the Bench noted that delay cannot replace review.
- Judicial Review: If Art. 356 actions face review, Art. 200 acts must too

### Concerns

- Political Bias: Delays concentrated in opposition States.
- Advisory Route: Using Art. 143 reference may bypass binding rulings (Art. 141).
- Federal Impact: Inaction erodes state autonomy and cooperative federalism

### What are Review and Curative Petitions?

- **Review Petition:** Under Article 137, parties can seek SC review of its own judgment for errors apparent on record or new evidence; heard by the same Bench, typically dismissed unless clear miscarriage of justice (e.g., 99% dismissed per 2023 data).
- **Curative Petition:** A last resort post-review (*Rupa Ashok Hurra vs. Ashok Hurra*, 2002); allows SC to correct grave errors (e.g., gross injustice, natural justice violation); heard by three senior-most judges plus original Bench; rarely granted (e.g., 1-2% success rate).

The Supreme Court's judgment in 'Sukdeeb Saha vs The State Of Andhra Pradesh', acknowledges mental health to be an integral part of the right to life. In July 2025, the Supreme Court of India pronounced a verdict which has been called a constitutional landmark.

## 23. Waqf (Amendment) ACT, 2025

### What is a Waqf?

- Waqf is a permanent, irrevocable donation of property by a Muslim (waqif) under Islamic law for religious, pious, or charitable purposes; ownership transfers to Allah, managed by a Waqf Board, and cannot be sold or transferred.
- **Key Principle:** It is a divine trust; the mutawalli (manager) oversees it, ensuring perpetual use for the intended purpose.

### What is the Waqf Act? What is the History Behind It?

- **Waqf by user'** refers to land or property that is considered waqf due to its long-term use for religious purposes. Even without formal documentation or a written deed, such property could be declared 'waqf by user', depending on its usage over time. Gyamwapsi Mosque.
- Waqf Act Overview: Central law regulating Waqf properties. The 2025 Amendment modernises the 1995 Act to curb mismanagement, encroachments, and opacity.
- Historical Timeline:
  - 13th century: Origin during Delhi Sultanate.
  - 19th century: Privy Council termed Waqf "perpetuity of the worst kind."
  - 1913: Mussalman Waqf Validating Act restored legality.
  - 1923 → 2013: Series of reforms culminating in the 2025 overhaul.
- 'Waqf by user': Property deemed Waqf due to continuous religious use even without deed

### Administrative Bodies for Waqf Management

- **Central Waqf Council (CWC):** Provides policy advice but does not control properties directly.
- **State Waqf Boards (SWBs):** Direct management and protection of properties.
- **Waqf Tribunals:** Exclusive forums for dispute resolution and speedy adjudication.

### Issues with Previous Act / Need for Amendments

- Ambiguity over Waqf by user; encroachments and irrevocability causing litigation.
- Mismanagement, illegal occupation, delayed surveys, poor coordination.
- Tribunal finality curtailed appeals, limiting transparency.
- Constitutional validity questioned for religion-specific focus.

### What Does the Waqf (Amendment) Act, 2025 Aim to Do and its features?

- Goal: Modernise governance, enhance transparency, digitise records, and improve accountability.
- Renamed: Unified Waqf Management, Empowerment, Efficiency and Development (UMEED) Act.
- Objectives: Better registration, technology integration, inclusive representation.

### Key Reforms in the Waqf (Amendment) ACT, 2025

1. Separation of Trusts: Muslim trusts under other laws excluded from Waqf.

2. Central Portal: Online system for registration, audit, and litigation.
3. Eligibility: Only practising Muslims ( $\geq 5$  years) can dedicate property.
4. Protection of 'Waqf by User': Existing registered ones protected.
5. Women's Rights: Inheritance settled before dedication; safeguards for widows/divorcees/orphans.
6. Transparency: Mutawallis must register property details within six months.
7. Government Land Disputes: Senior officers to verify claims.
8. Waqf Tribunal Reform: Fixed tenure and structured selection.
9. Non-Muslim Representation: Two in CWC and SWBs for inclusivity.
10. Reduced Contributions: 7  $\rightarrow$  5 percent to Boards.
11. Limitation Act Applied: 12-year limit on property suits.
12. Mandatory Audit: Income  $> ₹1$  lakh to be audited by State-appointed auditors.
13. Judicial Review Restored: Tribunal decisions appealable in High Court.

### Issues Raised

1. Denotification powers may override court-declared Waqf status.
2. Articles 25–26 concerns: religious freedom and minority rights.
3. Non-Muslim members questioned for autonomy intrusion.
4. Proof of practising Islam deemed intrusive.
5. Protected monuments losing Waqf status sparked heritage concerns

### Contentious Provisions

- **Abolition of future 'Waqf by user'.**
- **5-year practice rule** for dedications.
- **Collectors empowered** to verify government-land claims.
- **Non-Muslim inclusion** up to 12 in CWC, 7 in Boards; Muslim CEO no longer mandatory.
- **Ban on claims** over tribal/ASI-protected lands.
- **Tribunal finality removed**; appeals allowed.
- **Limitation Act enforced** for time-bound claims.

### What Has the Supreme Court Ruled Regarding This?

- **Interim Order (15 Sept 2025):** No blanket stay; partial suspension of provisions in 65 petitions.
- **Stayed:**
  - **Collector powers** to alter records during inquiry.
  - **Non-Muslim representation capped** (4 in CWC, 3 in Boards).
  - **5-year practising rule** till rules framed.
- **Upheld:**
  - **Abolition of 'Waqf by user' (prospective).**
  - **Application of Limitation Act.**
  - **Bar on tribal/ASI lands.**

- **Observation:** Acts of Parliament presumed constitutional; detailed hearing pending

#### What Next?

- **Pending final judgment:** SC to decide on alleged **violations of Arts 25–26**.
- **Government:** Must frame clear rules for stayed clauses; law remains operative otherwise

#### Reaction of Stakeholders

- **Opposition:** Hailed SC stay as a **judicial check** on executive excess.
- **Islamic Bodies:** Mixed-relieved by interim relief but wary of upheld clauses.
- **Government/BJP:** Welcomed verdict; claimed it validates reform and transparency efforts

ARK Reflections IAS

## 24. Comptroller and Auditor General (CAG) of India:

### Introduction

- Constitutional authority under Article 148, inspired by the British Constitution.
- Guardian of public purse; ensures accountability, transparency, financial propriety in governance.
- Called “watchdog of public finances” and guide, friend, philosopher of the Public Accounts Committee (PAC).

### Constitutional Provisions

- Art. 148 – Appointment, tenure, service conditions.
- Art. 149 – Duties & powers.
- Art. 150 – Accounts format prescribed by President with CAG advice.
- Art. 151 – Submission of reports to President/Governor → laid before Parliament/State Legislatures.

### Appointment, Tenure, and Removal

- Appointed by President; 6 years or 65 years tenure.
- Removed like SC judges (special majority, misbehavior/incapacity) → not at President's pleasure.
- Post-retirement bar on holding govt office

### The Three Major Audit Reports

- Appropriation Accounts – Spending vs allocation.
- Finance Accounts – Financial performance analysis.
- Public Undertakings – PSUs' financial & operational health.  
→ Submitted to President/Governor → Parliament/Legislature → examined by PAC.

### Main Types of CAG Audits

- Financial Audit: Accuracy of accounts.
- Compliance Audit: Laws, rules followed
- Performance Audit: Economy, efficiency, effectiveness.
- Propriety Audit – Checks wastefulness/extravagance (discretionary).

### Comparison: CAG in India vs. Britain

The roles and powers of the CAG in India differ significantly from those in Britain, as outlined below:

Aspect	India	Britain
Role	Auditor General only; ex-post audits	Comptroller + Auditor; prior approval for withdrawals
Audit Timing	Post-expenditure	Pre-expenditure
Parliamentary Membership	Not a member of Parliament.	A member of the <b>House of Commons</b> .

## Primary Functions of the CAG

- Audits Union, State, UT accounts, PSEs, autonomous bodies.
- Certifies Finance & Appropriation Accounts.
- Advises govt on financial reforms & policies.
- Audits local bodies when requested.
- Ensures legality (expenditure per law) & propriety (value for money)

## Issues and Challenges

- **Independence** – Appointment controlled by executive.
- **Resource constraints** – Only ~60k of 2.5 lakh entities audited annually.
- **Decline in reports** – 55 (2015) → 14 (2020).
- **Implementation gap** – Weak follow-up on audit findings.
- **Tech lag** – Needs AI/data tools for complex governance.
- **Public awareness** – Reports not widely accessible

## Suggestions for Improving the CAG's Functioning

- Appointment Reform – Broad-based collegium (PM, LoP, CJI). Prefer IAAS officers.
- Strengthen Independence – Stricter post-retirement restrictions.
- Audit Capacity – More staffing, continuous training, digital tools.
- Scope Expansion – More propriety & performance audits.
- Public Engagement – Wider dissemination, civil society involvement.
- Tech Integration – AI, blockchain, digital audits.

## New Initiatives (2025)

- CAG-LLM: AI-powered tool for analysing past audit data, improving reports.
- CONNECT Portal: Digital platform for ~10 lakh auditee entities → real-time responses, faster audit resolution.

## Conclusion

The CAG is the “Conscience-keeper of public finance”, vital for parliamentary control over the executive. Yet, effectiveness depends on greater independence, capacity building, and modernisation. Strengthening the CAG is indispensable for India’s vision of a transparent and accountable democracy.

### UPSC PYQ

**In India, other than ensuring that public funds are used efficiently and for intended purpose, what is the importance of the office of the Comptroller and Auditor General (CAG)? (2012)**

1. CAG exercises exchequer control on behalf of the Parliament when the President of India declares national emergency/financial emergency

2. CAG reports on the execution of projects or programmes by the ministries are discussed by the Public Accounts Committee.
3. Information from CAG reports can be used by investigating agencies to press charges against those who have violated the law while managing public finances.
4. While dealing with the audit and accounting of government companies, CAG has certain judicial powers for prosecuting those who violate the law.

**Which of the statements given above is/are correct?**

- (a)** 1, 3 and 4 only
- (b)** 2 only
- (c)** 2 and 3 only
- (d)** 1, 2, 3 and 4

**Q1:** "The Comptroller and Auditor General (CAG) has a very vital role to play." Explain how this is reflected in the method and terms of his appointment as well as the range of powers he can exercise. **(2018)**

**Q2:** Exercise of CAG's powers in relation to the accounts of the Union and the States is derived from Article 149 of the Indian Constitution. Discuss whether audit of the Government's policy implementation could amount to overstepping its own (CAG) jurisdiction. **(2016)**

## 25. Reservation

### Context: Reservation in Telangana (2025)

- **G.O.Ms.No.09 (26 Sept 2025):** 42% BC quota in rural/urban local bodies.
- **Total quota:** ~67% (BC 42% + SC 15% + ST 10%).
- **Support:** Congress, BRS, BJP, AIMIM → “social justice” consensus.
- **Justification:** Based on caste census (BCs 56.33%) & Rao Commission data (per *Janhit Abhiyan v. Union of India*, 2022).
- **Note:** States can breach 50% cap in *exceptional circumstances* (SC 1992 *Indra Sawhney*; Tamil Nadu 69%, Maharashtra 52% Maratha quota struck down).



### What is Reservation?

- **Definition:** Affirmative action providing quotas in education, jobs, and political representation.
- **Objective:** Correct historical inequalities, ensure representation, promote social justice.
- **Beneficiaries:** SCs, STs, OBCs, EWS, PwDs.
- **Implementation:** Central/state govts, PSUs, local governance.

### Current Status of Reservation

Category	% Reservation	Legal Basis
SC	15%	Articles 15(4), 16(4), 330–332
ST	7.5%	Articles 15(4), 16(4), 330–332
OBC	27%	Mandal Commission (1990), <i>Indra Sawhney</i> (1992)
EWS	10%	103rd Amendment Act (2019)
PwD	4%	RPwD Act, 2016

### First Constitutional Amendment (1951)

- **Case:** *State of Madras v. Champakam Dorairajan* (1951) struck down caste-based quotas.
- **Response:** 1st Amendment inserted **Article 15(4)** → enabled special provisions for socially/educationally backward classes.
- **Impact:** Opened door for SC/ST/OBC quotas in education.

Article 15	Article 16	Other Supporting Articles
<b>Prohibition of Discrimination</b> <ul style="list-style-type: none"><li>• <b>15(1): No discrimination by State.</b></li><li>• <b>15(2): No discrimination in public access.</b></li><li>• <b>15(3): Special provisions for women/children.</b></li></ul>	<b>Equality in Public Employment</b> <ul style="list-style-type: none"><li>• <b>16(1): Equal opportunity in public jobs.</b></li><li>• <b>16(4): Reservation for backward classes in services.</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Art 46:</b> State to promote weaker sections.</li><li>• <b>Art 243D, 243T:</b> Quotas in Panchayats &amp; Municipalities.</li><li>• <b>Arts 330–332:</b> Seats in legislatures for SC/ST.</li></ul>

<ul style="list-style-type: none"> <li>• <b>15(4): Reservation for SEBCs, SCs, STs.</b></li> <li>• <b>15(5): Quotas in private unaided educational institutions.</b></li> <li>• <b>15(6): 10% EWS quota.</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>16(4A): Reservation in promotions (SC/ST).</b></li> <li>• <b>16(4B): Carry forward of unfilled vacancies.</b></li> <li>• <b>16(6): 10% EWS in jobs.</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Art 335: Balance representation with efficiency.</b></li> </ul> <p><b>Arts 341–342:</b> Presidential power to notify SC/ST lists.</p>
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## Evolution of Reservations

### 1. Initial Focus (1950–1980)

- SC: 15%, ST: 7.5% → education, jobs, legislatures.

### 2. Mandal Commission (1980 → Implemented 1990)

- **OBCs:** 27% reservation.
- Identified 3,743 OBC castes (~52% pop.).
- Sparked anti-Mandal protests.

### 3. Indra Sawhney v. Union of India (1992)

- **Upheeld** 27% OBC quota.
- Set **50% cap** (exceptions allowed).
- Introduced **creamy layer** exclusion.
- Banned promotions → overturned later.

### 4. Breaching the 50% Cap

- **Tamil Nadu:** 69% (protected in 9th Schedule).
- **Maharashtra:** 52% Maratha quota struck down (2021).
- **Telangana (2025):** 67% quota – pending Presidential assent.

## Reservations in Promotions

Amendment	Provision
<b>77th (1995)</b>	Art. 16(4A) → Promotion quotas for SC/ST
<b>81st (2000)</b>	Art. 16(4B) → Carry forward unfilled vacancies
<b>82nd (2000)</b>	Relaxation of qualifying marks
<b>85th (2001)</b>	Consequential seniority for SC/ST promotees

### Key Cases:

- *M. Nagaraj (2006)*: Allowed but with conditions (data on backwardness, representation, efficiency).
- *Jarnail Singh (2018)*: Removed backwardness test (SC/ST presumed backward), creamy layer applies.

### Sub-Categorization & Creamy Layer

Case	Ruling
<b>E.V. Chinnaiah (2004)</b>	No sub-classification within SC/ST.
<b>Davinder Singh (2024, 7-judge bench)</b>	Allowed sub-classification if backed by quantifiable data + creamy layer exclusion.

### Process for SC/ST Reservations

1. President issues initial notification (Constitution Orders 1950).
2. Amendments require **Parliamentary Bill + Presidential assent**.
3. Process: State proposal → RGI verification → NCST/NCSC review → Union Cabinet → Parliament → President.
  - o Example: Telangana Kurmi ST demand (2023–25, pending).

### Identification of OBCs

- **NCBC (1993 Act)**: recommends inclusions/exclusions.
- **Central OBC list**: Maintained by Ministry of Social Justice.
- Criteria: Social, educational, economic backwardness.
- No Presidential notification needed (unlike SC/ST).

### PYQ Linkages

- *2018/2019 Mains*: Sub-categorization of castes, creamy layer.
- *2023 Mains*: “How far reservation has succeeded in addressing inequalities?”

## 26. Ladakh

Ladakh was established as a Union Territory on October 31, 2019, following the abrogation of Article 370 and the bifurcation of the erstwhile state of Jammu and Kashmir into two UTs: Jammu & Kashmir and Ladakh. As a UT without a legislative assembly, Ladakh is directly administered by the Central Government through an appointed Lieutenant Governor.



### Key Facts About Ladakh

Aspect	Details
<b>Capitals</b>	Leh (summer) and Kargil (winter).
<b>Geography</b>	High-altitude desert region (~59,146 sq km) with stunning landscapes (e.g., Nubra Valley, Pangong Lake); borders China (Aksai Chin) and Pakistan (Siachen).
<b>Population (2011 Census)</b>	~2.74 lakh (predominantly tribal; 46% Buddhist in Leh, 66% Muslim in Kargil).
<b>Culture</b>	Rich Tibetan Buddhist heritage (ancient monasteries like Hemis, Thiksey); festivals (Losar, Sindhu Darshan); languages (Bhoti, Purgi).
<b>Economy</b>	Tourism, horticulture, handicrafts; strategic for India's <b>Blue Economy</b> and border security.
<b>Strategic Role</b>	Key to national security (e.g., LAC tensions with China); hosts Indian Army bases.

### Governance Structure

Ladakh's administration emphasizes central control while incorporating local hill councils for limited autonomy.

#### Central Administration

- Lieutenant Governor (LG):** Appointed by the President; heads the UT (current: Brig. (H) Dr. B.D. Mishra, as of September 2025).
- No Legislative Assembly:** Unlike Delhi or Puducherry, decisions are made via **executive regulations** by the Centre, leading to perceptions of "bureaucratic governance."
- Parliamentary Representation:** 1 Lok Sabha seat (Ladakh); no Rajya Sabha seats.

#### Local Governance: Hill Development Councils

- Establishment:** Under the **Ladakh Autonomous Hill Development Council (LAHDC) Act, 1995.**
- Councils:** Two autonomous bodies:
  - LAHDC Leh:** Covers Leh district (Buddhist-majority).
  - LAHDC Kargil:** Covers Kargil district (Muslim-majority).
- Composition:**
  - Elected members (26 in Leh, 26 in Kargil) + nominated members.
- Executive Committee:** Led by a **Chief Executive Councillor (CEC)** and Deputy CEC.
- Powers:** Limited to local subjects (e.g., tourism, horticulture, education); no control over land, law/order, or taxation.

## 27. Pratibha Setu Portal: Opportunity Beyond UPSC

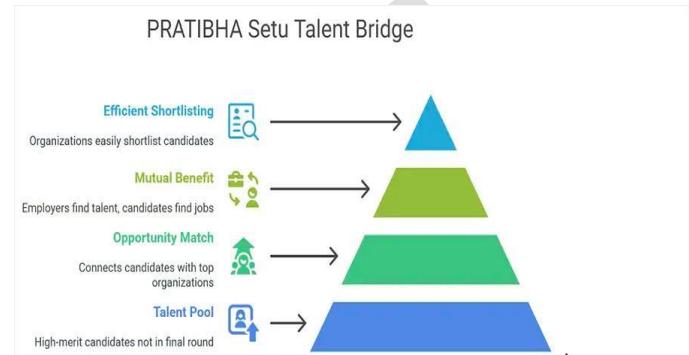
Category: Governance & Human Capital | GS Paper II

### What is in the News?

The Government has launched Pratibha Setu, a digital platform for UPSC aspirants who cleared all stages but missed the final merit list.

### Key Features

- Database of over 10,000 capable candidates from civil, engineering, and medical backgrounds.
- Private companies can recruit from this talent pool.
- Hundreds of aspirants have already secured jobs through the portal.



### Significance

- Utilises the skills of UPSC aspirants for nation-building.
- Encourages private participation in tapping human capital.
- Provides dignity and opportunities beyond the exam system.

### Policy Context

Aligned with Skill India, Startup India, and SDG 8 on Decent Work and Growth.

### UPSC Keywords

Pratibha Setu, Human Capital, Governance Innovation, Talent Utilisation.

### PYQs and Linkages

- GS II (2019): Harnessing India's human capital.
- Essay (2022): Education without employment breeds frustration.

### Conclusion

Pratibha Setu is an example of governance innovation ensuring talent is channelised productively.

## ENVIRONMENT, ECOLOGY & BIODIVERSITY (GS-3 / GS-1 OVERLAP)

### 28. Ethiopia inaugurates Africa's biggest dam despite protest from downstream Egypt

#### Context

- Ethiopia inaugurated the **Grand Ethiopian Renaissance Dam (GERD)** on the **Blue Nile**, the **largest hydroelectric project in Africa**.
- PM **Abiy Ahmed** hailed it as a symbol of *African pride and self-reliance*, while **Egypt** lodged a protest at the **UN**, calling it a threat to its **water security** and **existential survival**.



#### The Grand Ethiopian Renaissance Dam (GERD)

- **Location:** Blue Nile, near the Sudan border in northern Ethiopia.
- **Purpose:** Hydroelectric generation for domestic and regional use.
- **Capacity:** Over **6,000 MW**, capable of doubling Ethiopia's electricity output.
- **Controversy:** Disputes over **Nile water sharing** among **Ethiopia, Sudan, and Egypt**.
- **Status:** Despite negotiations under **AU and U.S. mediation**, no final water-sharing agreement exists.

#### Nile River – Key Facts

1. **Sources:**
  - *Blue Nile* – from **Lake Tana**, Ethiopia.
  - *White Nile* – from **Lake Victoria**, fed by tributaries in Rwanda, Burundi, and Tanzania.
2. **Length:** ~6,650 km — one of the world's longest rivers.
3. **Basin Countries:** 11, including Ethiopia, Sudan, Egypt, Uganda, and Kenya.
4. **Historical Role:** Cradle of ancient Egyptian civilization; key for **irrigation and agriculture**.
5. **Flow Pattern:** South → North; drains into the **Mediterranean Sea**.

#### Importance of GERD for Ethiopia

- **Energy Security:** Doubles national power generation; supports electrification for 60%+ of Ethiopians lacking access.
- **Economic Growth:** Enables **power exports** to Sudan, Djibouti, Kenya.
- **Climate Benefit:** Provides **clean, renewable energy** for sustainable development.
- **National Pride:** Embodies **Ethiopia's sovereignty and Pan-African independence**.

#### Egypt's Opposition

- **Dependence:** Relies on the **Nile for ~97% of its freshwater**.

- **Concerns:**
  - Reduced downstream flow could harm **agriculture, industry, and drinking water.**
  - Sees GERD as an **“existential threat.”**
  - Argues Ethiopia violated **international law** by unilaterally filling and operating the dam.
- **Action:** Filed formal complaints to the **UN Security Council**, seeking **binding dispute resolution.**

#### **Sudan's Position**

- **Supportive yet cautious.**
  - **Benefits:** Cheaper power, controlled flooding, and steady water flow.
  - **Concerns:** **Dam safety** and reduced sovereignty over water management.
  - Favors a **coordinated trilateral mechanism** for dam operation.

#### **Strategic and Geopolitical Implications**

- **Regional Tensions:** Risks escalating water diplomacy conflicts in the **Horn of Africa.**
- **Legal Framework:**
  - Cites **UN Convention on Non-Navigational Uses of International Watercourses (1997)** and **principle of equitable utilization.**
- **Hydro-Diplomacy Challenge:** Balancing **Ethiopia's right to development** with **Egypt's right to survival.**
- **Global Context:** Sets precedent for **transboundary water governance** amid **climate change** and **resource scarcity.**

#### **In Essence**

GERD epitomizes the **development-security paradox** in Africa — where **hydropower ambitions** of an upstream nation clash with **existential water needs** of downstream states.

For the region's stability, **cooperative water governance, data-sharing, and AU-led mediation** remain the only sustainable path forward.

## 29. INDUS RIVER SYSTEM

### 1. Introduction

- One of three major Himalayan basins (with Ganga, Brahmaputra).
- 3,000 km long, lifeline for Pakistan & Ladakh (India).
- Historically supported Indus Valley Civilization.
- Home to Indus River Dolphin (endangered).

### 2. Origin

- Glacier near Bokhar Chu, Kailash Range (Tibet) near Mansarovar.
- Enters India at Demchok (Ladakh).
- Locally called Singi Khamban (Lion's Mouth) in Tibet

### 3. Course

1. Joined by **Zaskar River** at Leh, **Shyok River** in Ladakh.
2. Receives waters of **five eastern tributaries** (Jhelum, Chenab, Ravi, Beas, Sutlej) at **Panchnad** near **Mithankot**.
3. Forms **Indus Delta** in Sindh before draining into **Arabian Sea** near Karachi.

### 4. Tributaries

A. Left Bank Tributaries	B. Right Bank Tributaries
<ol style="list-style-type: none"><li>1. <b>Zanskar River</b> – sparse human settlements.</li><li>2. <b>Suru River</b> – Ladakh.</li><li>3. <b>Soan River</b> – Pakistan.</li><li>4. <b>Jhelum River</b> – Kashmir; main tributary: Kishanganga (Neelum) River.</li><li>5. <b>Chenab River</b> – originates Bara Lacha Pass; confluence of Chandra &amp; Bhaga at Tandi; called Chandrabhaga upstream.</li><li>6. <b>Ravi River</b> – Dhauladhar Range, Himachal; Ranjit Sagar Dam; Chamba on right bank.</li><li>7. <b>Beas River</b> – originates Rohtang Pass, Himachal; joins Sutlej at Hari-Ke-Pattan, Punjab.</li></ol>	<ol style="list-style-type: none"><li>1. <b>Shyok River</b> – Karakoram Range; joined by <b>Nubra River</b> (from Nubra Glacier).</li><li>2. <b>Gilgit River</b> – Gilgit region, Pakistan.</li><li>3. <b>Hunza River</b> – Pakistan.</li><li>4. <b>Swat River</b> – Pakistan.</li><li>5. <b>Kunar, Kurram, Gomal, Tochi, Kabul Rivers</b> – Afghanistan/Pakistan.</li></ol>

<p>8. <b>Satluj River</b> – antecedent river; originates from Rakas Lake, Tibet; enters India at Shipki La; major projects: Bhakra Nangal, Kol Dam, Nathpa Jhakri.</p> <p>9. <b>Panjnad River</b> – formed by Chenab, Ravi, Beas, Sutlej; joins Indus at Mithankot.</p>	
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## 5. Key Features

- **Snow-fed rivers** in upper catchment; some monsoon-fed (Ghaggar/Saraswati).
- Forms **deep gorges** in Ladakh/Karakoram.
- **Sediment-rich**, forming fertile plains in Sindh and Punjab.
- Supports **hydroelectric & irrigation projects** (Bhakra Nangal, Ranjit Sagar, Mangla, Uri).

## 6. Ecological and Cultural Importance

- **Indus Delta**: supports mangroves, estuarine biodiversity.
- Cradle of **Indus Valley Civilization**.
- Provides **water for agriculture, electricity, and fisheries**.

## 7. Indus Water Treaty (1960)

- Brokered by **World Bank** between **India and Pakistan**.
- Allocation:
  - ✓ **Eastern rivers (Ravi, Beas, Sutlej)** → India
  - ✓ **Western rivers (Indus, Jhelum, Chenab)** → Pakistan
- India allowed **non-consumptive uses** and **hydropower projects** on western rivers.
- Treaty ensures **peaceful water sharing**, even amid geopolitical tensions.

## 8. Summary Table of Tributaries

Bank	Tributaries	Key Notes / Projects
Left	Zanskar, Suru, Soan, Jhelum, Chenab, Ravi, Beas, Satluj, Panjnad	Ranjit Sagar Dam (Ravi), Bhakra Nangal (Sutlej), Nathpa Jhakri (Sutlej)
Right	Shyok, Nubra, Gilgit, Hunza, Swat, Kunar, Kurram, Gomal, Tochi, Kabul	Shyok & Nubra – Ladakh; Kabul – Afghanistan; supports Pakistan's irrigation

## 30. Oil Spills

### Context

- Kerala HC (2025) reduced compensation claim against MSC Elsa 3 owners from ₹9,531 crore → ₹1,227 crore, citing lack of substantiation.
- Kerala Govt: sought \$1.1 billion damages.
- Response: Indian Coast Guard deployed pollution control vessel *Samudra Prahari*, booms, skimmers, dispersants.

### What is an Oil Spill?

Accidental/intentional release of petroleum hydrocarbons (crude oil, diesel, lubricants) into marine/coastal waters. Oil spreads rapidly, forming slicks that severely impact ecosystems, economies, and health.



### Types of Oil Spills

1. Acute: Sudden large-scale (e.g., Deepwater Horizon, 2010).
2. Chronic: Continuous small leaks from ports/offshore rigs, causing cumulative long-term damage.

### Why Oil Spills Matter

1. Ecological: Smothers marine life, blocks sunlight/oxygen, disrupts food chains, damages coral & mangroves.
2. Economic: Fisheries collapse, tourism decline, port closures.
3. Social: Coastal communities face income loss, food insecurity, health risks (respiratory/skin ailments, cancer).
4. Strategic: Undermines Blue Economy, maritime trade, and port operations.

### Response Methods

#### A. Mechanical/Physical

- Booms (contain oil), Skimmers (suction), Absorbents (shoreline cleanup), Vacuum pumps & dredging.

#### B. Chemical

- Dispersants: Break oil into droplets (harm plankton/fish larvae).
- Solidifiers: Convert oil into solids (costly, limited).

#### C. Biological (Bioremediation)

- Oil Zapper (TERI & DRDO): mix of bacteria degrading hydrocarbons.
- Oilivorous-S (IIT-M & IOC): microbial solution for sludge/spills.
- Natural degraders: e.g., *Alcanivorax borkumensis*.

#### D. Emerging Technologies

- Nano-adsorbents, Acoustic levitation, AI & drones, Oleophilic reusable sponges.

#### Conventions & Legal Framework

##### International

- MARPOL (1973/78): ship pollution prevention.
- London Convention (1972): restricts dumping.
- OPRC (1990): preparedness & cooperation.
- IOPC Funds: compensation mechanism.

##### Indian

- EPA 1986, Merchant Shipping Act 1958, CRZ Rules.
- National Oil Spill Disaster Contingency Plan (NOSDCP): ICG as nodal agency.

##### Challenges

1. Rapid spread during monsoons.
2. Hazardous cargo risks (explosions/fires).
3. Weak port infrastructure.
4. Liability disputes & slow compensation.
5. Public health impacts often neglected.

#### PYQ

UPSC PYQ 2011:

**Recently, "oil zapper" was in the news. What is it?**

- (a) An eco-friendly technology for the remediation of oily sludge and oil spills
- (b) A genetically engineered high biofuel-yielding maize variety
- (c) A subsurface water-filled cavity in Bangladesh
- (d) A nuclear-powered device to detect water pollution
- Answer: (a)

#### 2023 GS3

**What is oil pollution? What are its impacts on the marine ecosystem? In what way is oil pollution particularly harmful for a country like India?**

## ECONOMY & TRADE (GS-3)

### 31. India's Cotton Production Crisis and Import Duty Removal

- **Action:** Govt removed 11% cotton import duty to cut input costs for mills facing 50% U.S. tariffs and global supply-chain stress.
- **Immediate effect:** Imports up to 5.25 lakh tonnes in 2024–25 (+77% YoY).
- **Distributional impact:** Textile industry (jobs, esp. women) welcomed; farmer unions opposed (price pressure on domestic kapas).
- **Trade flip: Imports USD 1.04 bn > Exports USD 660.5 mn (2024–25)** → signals structural weakness

#### Trends in Growth of Cotton Production in India

- **Historical Growth (Post-Independence to 2004–05):**
- Post-Partition focus on boosting output via Intensive Cotton Production Programme (1970s hybrids) and Technology Mission on Cotton (1999–2014).
- Lint yield increased from 207 kg/ha (1997–2002) to higher levels; exports surged post-2004 due to Bt cotton approvals (2002 for west/south, 2006 for north) and global demand.
- **Post-Independence → 2004–05:** Programs (ICPP, TMC) + **Bt approvals (2002/2006)** → yield jump from 207 kg/ha (1997–2002); exports surged.
- **Peak Period (2012–17):** Avg lint yield 481 kg/ha; Bt hybrids ~95% of area; **production peak 39.8 mn bales (2013–14)**.
- **Trade and Productivity Shifts (2020–25):** Production 31.1 mn ('21–22) → 33.6 ('22–23) → ~29.5–30.72 ('24–25) (lowest since '08–09). **Acreage –8.7% ('24–25)** as farmers shift (north→paddy; Gujarat→soy/groundnut). **Yield ~437 kg/ha vs world ~833.**



#### Why Cotton Production is Falling (root causes)

- **Pest resistance:** Pink bollworm resistant to Bt → losses/poor lint.
- **Tech stagnation:** No new GM approvals since 2006; others moved to Bollgard III/CRISPR
- **Acreage shifts:** Better returns/assured water in paddy/soy/groundnut.
- **Thin margins:** Farm-gate prices often ≤ MSP; global prices undercut.
- **Rising costs:** Seeds, fertilisers, pesticides up.
- **Climate shocks:** Erratic rain, heat, long dry spells.
- **Trade signal:** Duty removal cheapens imports → domestic price pressure.
- **R&D & extension gaps:** Slow varietal pipeline; weak IPM adoption.

## What Needs to be Done

- **Approve New Seeds:** Fast-track approval and adoption of next-gen GM and CRISPR-based cotton seeds.
- **Pest Management:** Implement integrated pest management, crop rotation, and promote new resistant hybrids.
- **Strengthen Supply Chains:** Revitalize farm-to-mill linkages to ensure better prices for farmers.
- **Boost Research:** Increase public investment in cotton R&D for improved yield and climate adaptation.
- **Support to Farmers:** Raise MSP, ensure timely procurement, improve irrigation, and expand crop insurance.
- **Sustainable Practices:** Promote water-efficient, climate-resilient, and diversified farming.
- **Balanced Trade Policy:** Blend support for the textile sector with fair policies for cotton farmers to ensure a sustainable domestic industry.

## Government Initiatives for Revival:

- Five-year Mission for Cotton Productivity (Budget 2025-26) aims for 800-900 kg/ha lint yield, focusing on Extra-Long Staple cotton to cut imports.
- Kasturi Cotton branding and Rs. 10 crore allocations to enhance quality and global competitiveness.

### Cotton to Lint Ratio – Explained

- Definition: **Share of usable lint obtained from total seed cotton harvested (kapas).**
- Why it matters: **Higher ratio → more lint per harvest → better ginning efficiency & realisable value.**
- Formula:  $\text{Lint} \div \text{Seed cotton} \times 100$ .

## 32. India's GDP Growth in Q1 FY 2025-26

### Key Highlights

- **Real GDP: 7.8%** (Apr–Jun 2025) — best in 5 quarters; above RBI's **6.5%** and last year's **6.5%**.
- **Nominal GDP: ₹86.05 lakh crore** (↑ **8.8%** from ₹79.08 lakh crore).
- **Real GVA(Value-added) : ₹44.64 lakh crore** (↑ **7.6%**).
- **Release date: Aug 29, 2025** — resilience despite weak global trade.

### Drivers of Growth

- **Broad-based strength:** Manufacturing + construction + services; **GFCF (investment)** up **7.8%** (vs 6.7%).
- **Policy support:** Lower indirect taxes aided demand; **agri 3.7%** supported rural spend.
- **Global context:** U.S. **50% tariffs** a mild export risk; official guidance points to **limited impact** near term.



### Outlook and Concerns

- **Future Projections:** Government retains FY 2025-26 growth estimate of 6.3-6.8%; expects recovery in consumer demand before festival season.
- **Challenges:** Export uncertainties from U.S. tariffs may slightly affect demand; mining contraction (-3.1%) and utilities slowdown indicate uneven sectoral recovery.

### Sector-Wise Performance

Sector / Sub-sector	Q1 FY26
<b>Manufacturing</b>	<b>7.7%</b> (vs 7.6% a year ago; 4.8% in Q4 FY25)
<b>Construction</b>	<b>7.6%</b> (vs 10.1% last year)
<b>Services – Overall</b>	<b>9.3%</b>
• <b>Public Admin., Defence &amp; Other Services</b>	<b>9.8%</b> (3-yr high)
• <b>Financial, Real Estate &amp; Prof. Services</b>	<b>9.5%</b> (2-yr high)
• <b>Trade, Hotels, Transport, Comm.</b>	<b>8.6%</b> (2-yr high)
<b>Agriculture</b>	<b>2.8%</b> (vs 2.2%)
<b>Utilities (Electricity, Gas, Water)</b>	<b>0.5%</b> (vs 10.2%)
<b>Govt consumption</b>	<b>9.7%</b>
<b>Private consumption</b>	<b>7.0%</b> (vs 8.3%)

Note: Mining shows weakness elsewhere (-3.1%) → uneven primary-sector momentum.

### Who Provides GDP Data

- **Authority:** Ministry of Statistics and Programme Implementation (MoSPI), specifically its National Statistical Office (NSO), releases quarterly and annual GDP data.
- **Method:** Compiles via **GVA (production), expenditure, income** approaches using admin data, enterprise surveys, and govt accounts.

### Quarters of GDP Data Released

- **Frequency:** Four quarterly estimates are released annually for each financial year (April-March):
  - Q1 (April-June): Released by August end (e.g., August 29, 2025).
  - Q2 (July-September): Released by November end.
  - Q3 (October-December): Released by February end.
  - Q4 (January-March): Released by May end.
- **Additional Releases:** Annual GDP estimates (provisional in May, revised later) and advance estimates (January/February) for the full fiscal year.

### Who Releases IIP & Other Indicators

- **IIP: NSO (MoSPI)** — monthly (manufacturing, mining, electricity).
- **CPI (retail inflation): NSO** — monthly.
- **WPI (wholesale inflation): Office of the Economic Adviser, Commerce** — monthly.
- **Core Sector (8 industries): OEA, Commerce** — monthly.
- **Trade (exports/imports): DGCI&S, Commerce** — monthly.
- **GST revenue: Dept. of Revenue, Finance** — monthly



### 33. The Public Distribution System (PDS)

The India's largest food-security network, PDS supplies rice, wheat, sugar, kerosene to the poor at subsidised prices through Fair Price Shops (FPS) under the Ministry of Consumer Affairs, Food & Public Distribution. It is jointly managed by Centre and States and ensures price stability, poverty reduction, and food access.

#### Objectives of PDS

- **Scarcity management:** Maintains supplies during shortages.
- **Price stabilisation:** Controls food-grain inflation.
- **Food security:** Protects vulnerable households against hunger



#### Operation & Management

- **Centre (FCI):** Procures food grains at **MSP**, maintains buffer stocks, allocates to states, and transports to depots.
- **States:** Identify beneficiaries, issue **ration cards**, and manage FPS operations.

**Food Corporation of India (FCI)** acts as the nodal agency for procurement, storage, transportation, and sale at the **Central Issue Price** to states.

#### Evolution of PDS

1. **1960s:** Began for urban scarcity relief.
2. **Revamped PDS (1992):** Extended to remote/drought-prone regions.
3. **Targeted PDS (1997):** Focused on **BPL households**.
4. **Antyodaya Anna Yojana (2000):** "Poorest of the poor" families given **35 kg grains/month** at steep subsidy.

#### PDS Supply Chain

1. **Procurement** → 2. **Storage** → 3. **Allocation** → 4. **Transport** → 5. **Intra-state movement** → 6. **Distribution via FPS**.

#### Problems in the Supply Chain

1. **Procurement Inefficiencies:**
  - Open-ended procurement → excess stocks (30 % above norms).
  - Payment delays; corruption in procurement.
2. **Storage & Transport:**
  - Wastage (62,000 MT in 2022-23), poor warehousing, high logistics cost (14 % of GDP).
3. **Leakages & Diversions:**
  - ~40 % grain loss despite e-PoS; ghost cards persist.
4. **Inefficient Distribution:**
  - FPS malpractice, only 60 % digitised (DoCA 2023).

#### Other Structural Issues

- Targeting errors (exclusion/inclusion).

- Black-marketing of subsidised goods.
- Narrow food basket (mostly rice & wheat).
- Poor access in remote areas, migrant exclusion, high subsidy burden, WTO scrutiny.

### Reforms & Best Practices

- **Chhattisgarh:** End-to-end digital tracking.
- **Tamil Nadu:** Universal PDS to reduce exclusion.
- **Delhi:** Diversified outlets.
- **Aadhaar-based e-PoS & DBT:** Curtail leakages; yet risk exclusion and payment delays.

### Recent Schemes

**Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)** – free 5 kg grains/person/month (2020 → 2029), cost ≈ ₹11.8 lakh crore.

**PMGKP (2020):** ₹1.7 lakh crore relief with DBT, Ujjwala refills, MGNREGA wage hike, insurance for health workers.

### Shanta Kumar Committee on FCI Reforms (2015)

- **Goal:** Cut losses & subsidy; modernise PDS under **NFSA 2013**.
- **Key Recommendations:**
  - Reduce NFSA coverage to 40 %.
  - **Outsource procurement/storage** via private silos.
  - Rationalise buffer stocks (3 months wheat, 2 months rice).
  - End state MSP bonuses.
  - Use **DBT** to replace physical grain transfer.
  - Introduce **smart cards, pulses, and oilseeds** in PDS.

### Way Forward

- **Universalise PDS** in vulnerable regions.
- **Diversify basket:** add millets, pulses, oils for nutrition.
- **Digitise & track:** AI, blockchain, GPS for real-time monitoring.
- Implement **One Nation One Ration Card (ONORC)** for portability.
- Combine **cash + kind** models for flexibility.
- Strengthen **social audits and grievance redressal**.

### Conclusion

PDS remains a **lifeline for 80 crore citizens** and a pillar of India's **food-security architecture**. Yet, leakages, targeting errors, and high costs dilute its impact.

### PYQs (Mains)

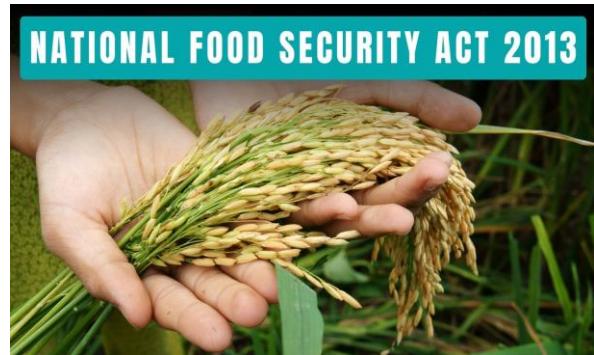
- *Reformative steps for effective food-grain distribution – 2019*
- *Features and impact of NFSA 2013 – 2021*
- *Major challenges of PDS & measures for transparency – 2022*

## 34. National Food Security Act, 2013 (NFSA)

### Introduction

The NFSA (2013) marks a **paradigm shift** from a *welfare-based* to a **rights-based approach** to food security. It legally guarantees access to adequate, quality food at affordable prices, building on earlier **PDS** and **TPDS** mechanisms.

Though the Constitution does not explicitly guarantee the **Right to Food, Article 21 (Right to Life with Dignity)** and SC judgments (e.g., *PUCL vs Union of India, 2001*) interpret it as a constitutional entitlement.



### Core Concept of Food Security

Globally, food security is defined by **availability, access, utilization, and stability**. NFSA operationalizes these principles through legal entitlements for two-thirds of India's population.

### Life-Cycle Approach

The Act adopts a **life-cycle nutrition model**:

- **Children (6 months–14 years):** Free nutritious meals via **ICDS (Anganwadi) & Mid-Day Meal (MDM)** schemes.
- **Pregnant and Lactating Women:** Free meals + ₹6,000 maternity benefit (partial wage loss compensation).
- **Malnourished Children:** Higher nutritional norms prescribed.

In case of non-supply, beneficiaries receive a **Food Security Allowance** (under **Food Security Allowance Rules, 2015**).

### Key Features

1. **Rights-Based Framework:** Legally entitles citizens to subsidized food grains.
2. **Coverage:**
  - **Rural:** 75 % population
  - **Urban:** 50 % population
    - Around **80 crore people (two-thirds)** of India.
3. **Beneficiary Categories:**
  - **AYY:** Poorest households (35 kg/month).
  - **Priority Households (PHH):** 5 kg/person/month.
4. **Women Empowerment:**
  - Eldest woman (18+) is **household head** for ration card issuance.
5. **Pricing:** Rice ₹3/kg, Wheat ₹2/kg, Coarse grains ₹1/kg (initial rates).
6. **Central–State Roles:**
  - **Centre:** Procurement, allocation, transport (via **FCI**).

- **States:** Beneficiary identification, FPS management, grievance redressal.

7. **Grievance Mechanism:**

- Food Security Allowance for non-delivery of entitlements.

8. **Direct Benefit Transfer (DBT):**

- Optional cash transfer in lieu of grains (pilot in Chandigarh, Puducherry, DNH).

### Issues & Challenges

- **Inaccurate Targeting:** Outdated **SECC-2011** data; ~12 % exclusion of eligible households (Centre for Equity Studies, 2023).
- **Leakages:** 10–15 % diversion of food grains (DoCA, 2023).
- **Nutritional Deficit:** Focus on rice/wheat; ignores protein and micronutrient needs.
- **Quality Issues:** Adulteration and infestation reduce nutritional value.
- **Fiscal Stress:** Food subsidy exceeds ₹2.5 lakh crore (Budget 2024).
- **Technological Barriers:** Only 37 % rural internet penetration (IAMAI, 2023).
- **Weak Grievance Redressal:** Poor awareness of rights and complaint systems.

### Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)

#### Overview

Launched in **March 2020** under **Atmanirbhar Bharat Abhiyan** to provide relief during COVID-19.

Integrated with NFSA from **Jan 2024–2029**.

#### Key Features

- **Free 5 kg food grains/person/month** for AAY & PHH beneficiaries (~ 80 crore people).
- **Implementation:** Through existing **PDS** and **Fair Price Shops**.
- **Financial Outlay:** ₹11.8 lakh crore (5 years).

#### Impact

- Ensured **food and nutritional security** during crisis.
- Reduced **poverty and hunger**; strengthened the social safety net.
- Supported **agriculture and rural demand**.

#### Challenges

- Exclusion of migrants and unregistered workers.
- Logistical delays in delivery.
- Fiscal sustainability concerns due to high subsidy burden.

### Integrated Management of Public Distribution System (IM-PDS)

#### Introduction

Launched **April 2018**, the scheme aims for **nationwide portability** of foodgrain distribution under NFSA.

#### Objectives & Features

1. **One Nation One Ration Card (ONORC):**
  - Ration portability via Aadhaar/ePoS authentication.

- Access entitlements anywhere in India—especially for **migrants**.

2. **Beneficiary Empowerment:** Freedom to choose any FPS nationwide.
3. **Technical Support:** Implemented with NIC's IT infrastructure.
4. **Status:** As of 2025, all **32+ States/UTs** on portability grid.

#### **Standing Committee Report: Key Observations**

1. **Uneven Implementation:** Chhattisgarh, Assam yet to join grid.
2. **Targeting Issues:** Gaps in biometric coverage in some states.
3. **Connectivity Problems:** 13,000 FPS lack stable internet; offline options suggested.
4. **Financial Viability:** Recommended higher margins for FPS dealers.
5. **Logistics & Coordination:** FCI automation and communication reforms advised.
6. **DBT Use:** Should remain optional—cash transfer risks liquidity and exclusion.
7. **Awareness:** SMS alerts to beneficiaries about stock and transactions recommended.

#### **One Nation, One Ration Card (ONORC)**

##### **Key Features**

- **Nationwide Portability:** Beneficiaries can lift entitlements from any FPS.
- **Aadhaar-Based Authentication:** Reduces duplication and fraud.
- **Technology Backbone:** Operates via **IM-PDS** with real-time tracking.
- **MERA RATION App:** Provides entitlements, FPS location, and usage info in 13 languages.
- **Transparency:** Ensures real-time digital tracking, curbing leakages.
- **Financial Inclusion:** Uses **Aadhaar Enabled Payment System (AePS)** for transactions.

##### **Benefits**

- Empowers **migrant workers**.
- Ensures **food portability, inclusion, and dignity**.
- Promotes **efficiency, transparency, and fiscal discipline**.

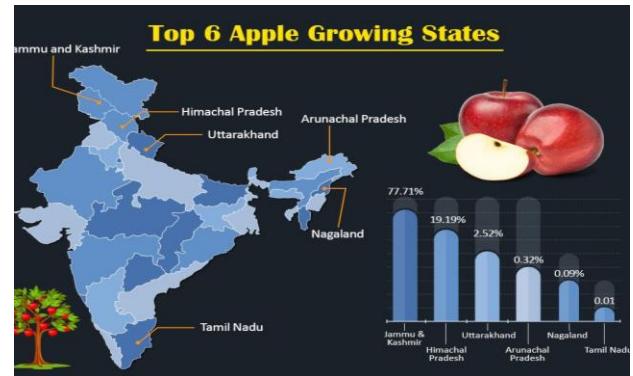
##### **In essence:**

The **NFSA, 2013**, integrated with **PMGKAY** and strengthened by **ONORC**, represents India's largest experiment in **rights-based food security**. However, ensuring **nutritional diversity, accurate targeting, and fiscal sustainability** remains key to achieving the constitutional vision of **freedom from hunger for all Indians**.

## 35. Apple Production in India

### Introduction

- Apples are a key temperate fruit crop in India, especially in the Himalayan region.
- Crucial for livelihoods & regional economy, particularly in Jammu & Kashmir (J&K), Himachal Pradesh, Uttarakhand.



### Cropping Pattern for Apples in India

#### Cropping Pattern for Apples in India

##### Agro-Climatic Conditions & Geography

- Temp:** 21–24°C (summer); 1,000–1,500 hrs chilling at  $\leq 7^\circ\text{C}$  (winter).
- Altitude:** 1,500–2,700 m; Sunshine for color; Rainfall: 1,000–1,250 mm.
- Sensitive to high-velocity winds.

**Main belts:** Kashmir Valley, Shimla, Kinnaur, Kullu, Mandi, Solan, parts of Uttarakhand.

##### Varieties & Planting Pattern

- Varieties: Red Delicious, Golden Delicious, Fuji, Gala.
- Orchards last 20–30 years with pruning/rejuvenation.

##### Crop Cycle / Harvest Season

- Bloom: spring; Harvest: Sept–Nov.
- Off-season gap → filled by imports

##### Land Use & Cropping Shifts

- Shift from cereals to fruits/vegetables in hill states.
- Dependence on cold storage & transport infra

### Production Status

#### Volume and Trends

- 2022/23:** ~2.35 MMT apples.
- J&K:** 70–80% share; Himachal second; Uttarakhand minor share

#### Productivity & Challenges

- Old orchards → low productivity.
- Risks: hail, frost, erratic monsoon, climate change.
- Infra gaps: cold chain, transport, high post-harvest losses.

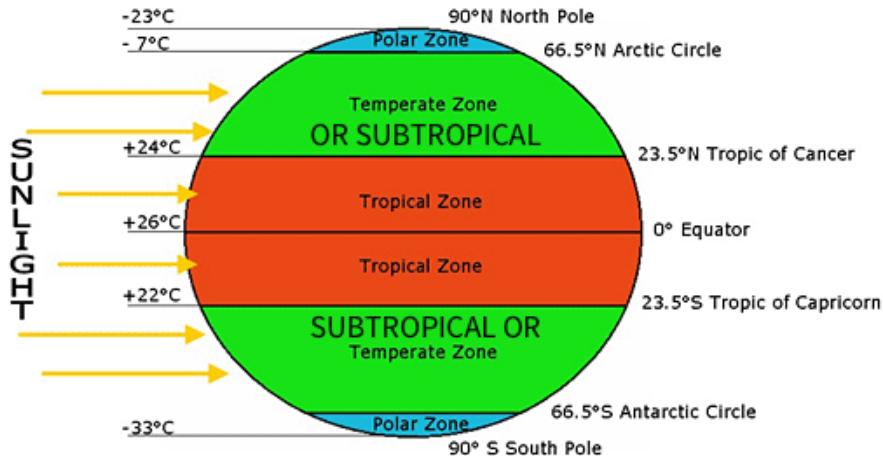
### Import and Export Status

#### Imports

- ~430,000 MT (2022/23).**
- Sources:** Turkey, Iran, Italy, Chile.
- Import regulated by 50% duty & certification norms.

#### Exports

- ~30,000–45,000 MT annually.
- Destinations: Nepal, Bangladesh, Bhutan. Limited by quality, grading, storage & global competition.



## Kashmir as Major Producer & Recent Disruptions      Government Initiatives & Policy Measures

### Role of Kashmir

- Valley produces 75–80% of India's apples.
- Critical for rural employment & incomes

### Recent Crisis: Highway Closure & Floods

- 2025 floods/landslides → highway closures (NH44).
- Losses: ₹600–700 crore; apple boxes losing ~40% value
- Parcel train (Budgam–Delhi) started, but limited capacity

- Apple Cluster Development: Shopian, focus on value addition & branding.
- Market Intervention Schemes, Procurement, Universal Cartons.
- Cold chain, packaging & connectivity projects.

### Policy Challenges & Recommendations

1. Infra Resilience: all-weather roads, landslide-resistant designs, early warning.
2. Post-Harvest: expand cold storages, grading/packhouses, packaging.

Quality/Varietal Upgradation: promote high-yield, disease-resistant varieties; rejuvenate old orchards

**Quality & Varietal Upgradation:** Promote high-yielding, disease-resistant varieties; rejuvenate old orchards; improve management practices

## 36. Bamboo in India: Production, Legal Status & Emerging Role in Energy

### Introduction

Bamboo, often called the “green gold,” is both an ecological resource and an economic commodity. Globally, **China is the largest producer**, while India, with over **136 species across 23 genera**, holds the **second position in diversity and growing stock**. Its uses span handicrafts, housing, paper, furniture, and, more recently, bio-energy.

### Production and Distribution

- **Area:** ~13–15 million hectares under bamboo.
- **Annual production:** ~3–5 million tonnes.
- **Major states:** Assam, Arunachal Pradesh, Tripura, Mizoram, Madhya Pradesh, Maharashtra, West Bengal.
- **North-East India:** Accounts for nearly **two-thirds of bamboo growing stock** in the country.
- **Economic significance:** Source of livelihood for tribal and rural communities, particularly artisans and small enterprises.

### Legal and Policy Status

#### 1. Under Indian Forest Act (IFA), 1927

- Bamboo was historically treated as a “**tree**”, requiring permits for felling and transit, even if grown on private land.
- The **2017 amendment** reclassified bamboo grown on **non-forest land** as **not a tree**, thereby exempting it from felling and transit restrictions.
- On **forest land**, however, bamboo continues to be regulated as a tree species.

#### 2. Under Forest Rights Act (FRA), 2006

- Bamboo is explicitly recognised as **Minor Forest Produce (MFP)**.
- FRA grants **ownership and usage rights to forest dwellers** for collection, transportation, and disposal of MFP, including bamboo.
- This has empowered tribal communities by legally securing their access.

#### 3. Forest Conservation Act (FCA), 1980

- FCA primarily governs diversion of forest land.
- Thus, if bamboo is on forest land, diversion requires FCA clearance, but bamboo itself is not restricted on non-forest lands.

### Bamboo and Bio-energy: Assam Ethanol Plant

- India’s **first bamboo-based ethanol plant** was inaugurated in **Golaghat, Assam** (2025).
- Joint venture by **Numaligarh Refinery Ltd.** and international partners.
- **Capacity:** ~48,900 MT of 2G ethanol annually.

- **Feedstock:** ~5 lakh tonnes of green bamboo from Assam and NE states.
- **By-products:** acetic acid, furfural, food-grade CO<sub>2</sub>.
- **Features:** Zero-waste, non-food biomass based (2G ethanol).
- **Significance:**
  - Aligns with India's **20% ethanol blending target**.
  - Provides stable market for bamboo growers, especially in NE India.
  - Generates rural employment and adds value to the resource.

### Challenges

1. **Supply sustainability:** Over-harvesting and monoculture risks.
2. **Regulatory overlaps:** Different interpretations under IFA, FRA, FCA create confusion.
3. **Value chain gaps:** Lack of storage, processing units, and market linkages.
4. **Tribal rights:** Risk of displacement or exploitation if industrial demand sidelines forest dwellers.
5. **Awareness & skill gaps:** Artisans face limited training, poor access to finance and technology.

### Conclusion

Bamboo exemplifies the convergence of **ecology, economy, and energy**. Policy changes removing bamboo from the “tree” definition under IFA, coupled with its recognition as **Minor Forest Produce under FRA**, have unlocked growth opportunities. The Assam bamboo ethanol plant represents a new era of **green industrialisation**. Going forward, balancing industrial utilisation with **community rights and ecological sustainability** will be key to positioning India as a global bamboo leader.

### UPSC PYQ - 2019

#### 1. Consider the following statements:

- 1) As per recent amendment to the Indian Forest Act, 1927, forest dwellers have the right to fell the bamboos grown on forest areas.
- 2) As per the Scheduled Tribes and Other Traditional Forest Dwellers Recognition of Forest Rights) Act, 2006, bamboo is a minor forest produce.
- 3) The Scheduled Tribes and Other Traditional Forest Dwellers Recognition of Forests Rights) Act, 2006 allows ownership of minor forest produce to forest dwellers.

#### Which of the statements given above is/ are correct?

(a) 1 and 2 only (b) 2 and 3 only (c) 3 only (d) 1, 2 and 3

#### Correct answer: 2 and 3

#### Explanation:

- FRA 2006 recognises both **habitation and use rights** of tribal and traditional forest dwellers.
- Bamboo is explicitly included as a **minor forest produce**.
- Ownership, collection, usage, and sale rights are vested with the **forest dwellers**, subject to community management and state regulations.

## 37. Geothermal energy

Geothermal energy is thermal energy that comes from natural hot springs. In India, the Geological Survey of India (GSI) has identified 350 geothermal energy locations. The most promising of these is in the Puga Valley of Ladakh.

### Why in News?

- India launched its first National Policy on Geothermal Energy in September 2025 under MNRE.
- Aligned with India's Net Zero 2070 target and renewable energy expansion

### What is Geothermal Energy?

- It is heat stored beneath the Earth's surface.
- The energy can be used for electricity, heating, cooling, agriculture, aquaculture, and spa tourism.
- Offers continuous, reliable power unlike intermittent solar or wind.

### Key Highlights of the Policy

- Scope: Applies to power generation and direct use like heating, agriculture, and cooling.
- Implementation: MNRE leads with other ministries, states, companies, and academia involved.
- Financial support: Tax benefits, concessional loans, VGF (~₹36 cr/MW).
- Regulation: Must-run status, open access, parity with renewables.
- Repurposing wells: Collaboration with ONGC, Reliance, Vedanta.
- Global tie-ups: Iceland, Norway, USA, Indonesia for R&D.
- Pilot projects: Five demonstration sites approved.

### Geothermal Energy Scenario in India

- Potential: ~10.6 GW estimated by GSI.
- Resources: ~381 hot springs, temps 35–89°C.
- Global context: India, US, China hold 75% of next-gen potential.
- Current pilots: Puga, Chhumathang (Ladakh), Cambay (Gujarat), Barmer (Rajasthan), 20 kW plant in Telangana

#### Major Geothermal Sites in India

<ul style="list-style-type: none"><li>• <b>Ladakh</b> – Puga, Chhumathang.</li><li>• <b>Himachal Pradesh</b> – Manikaran, Satluj, Beas, Spiti valleys.</li><li>• <b>Uttarakhand</b> – Tapoban, Alaknanda valley.</li><li>• <b>Gujarat</b> – Cambay Graben.</li><li>• <b>Chhattisgarh</b> – Tattapani.</li></ul>	<ul style="list-style-type: none"><li>• <b>Jharkhand/West Bengal</b> – Damodar Valley, Surjkund, Bakreshwar.</li><li>• <b>Andaman &amp; Nicobar</b> – Volcanic fields.</li><li>• <b>Telangana</b> – Manuguru pilot plant.</li><li>• Others: MP, Odisha, Maharashtra, Meghalaya</li></ul>
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## Future Roadmap

- 10 GW geothermal capacity targeted by 2030.
- Around 100 GW potential expected by 2045.
- Vision for hybrid solar-geothermal projects and heating for cold regions like Ladakh, Northeast, and Andamans by 2047.

Geothermal energy, though currently underutilized, has significant potential in India.

## Significance

1. Potential: 350+ identified sites; Puga, Manikaran, Bakreshwar are promising.
2. Reliable: Provides consistent base-load power.
3. Environmental gains: Low GHG emissions, supports carbon reduction.
4. Energy security: Cuts dependence on fuel imports.
5. Direct uses: Heating, greenhouses, aquaculture, industries, tourism.

## Challenges in Geothermal Energy

1. **Resource/location specific** – Limited to geologically active areas.
2. **High infrastructure costs** – Capital-intensive development.
3. **Costlier than solar/wind initially.**
4. **Not unlimited** – Needs sustainable management.
5. **Remote sites** – Often far from load centers.
6. **Transmission issues** – High costs to connect remote plants.
7. **Environmental risks** – Land subsidence, GHG leaks.
8. **Induced seismicity** – Drilling may trigger minor earthquakes

## 38. India's Exploration Licence

- India signed a contract with **International Seabed Authority (ISA)** (Jamaica-based UN body) for **exploring polymetallic sulphides in Carlsberg Ridge (NW Indian Ocean, Arabian Sea)**.
- First licence of its kind granted globally.
- Contract covers **3,00,000 sq km stretch** forming boundary between **Indian & Arabian tectonic plates**.



## Background

- **ISA Role:** Regulates mineral-related activities in the “**Area**” (international seabed beyond national jurisdiction) under **UNCLOS (1982)**.
- Countries must obtain ISA permission for exploration in **high seas**.
- **India’s applications:**
  1. Carlsberg Ridge (approved – 2025).
  2. **Afanasy–Nikitin Seamount (ANS)** (pending – also claimed by Sri Lanka).
- Earlier rights:
  - **2002:** Polymetallic nodules, Central Indian Ocean Basin (till 2027).
  - **2016:** Polymetallic sulphides, Indian Ocean Ridge (till 2031).

PYQ-2021

### **Consider the following statements:**

1. The Global Ocean Commission grants licences for seabed exploration and mining in international waters.
2. India has received licences for seabed mineral exploration in international waters.
3. “Rare earth minerals” are present on seafloor in international waters.

**Which of the statements given above are correct?**

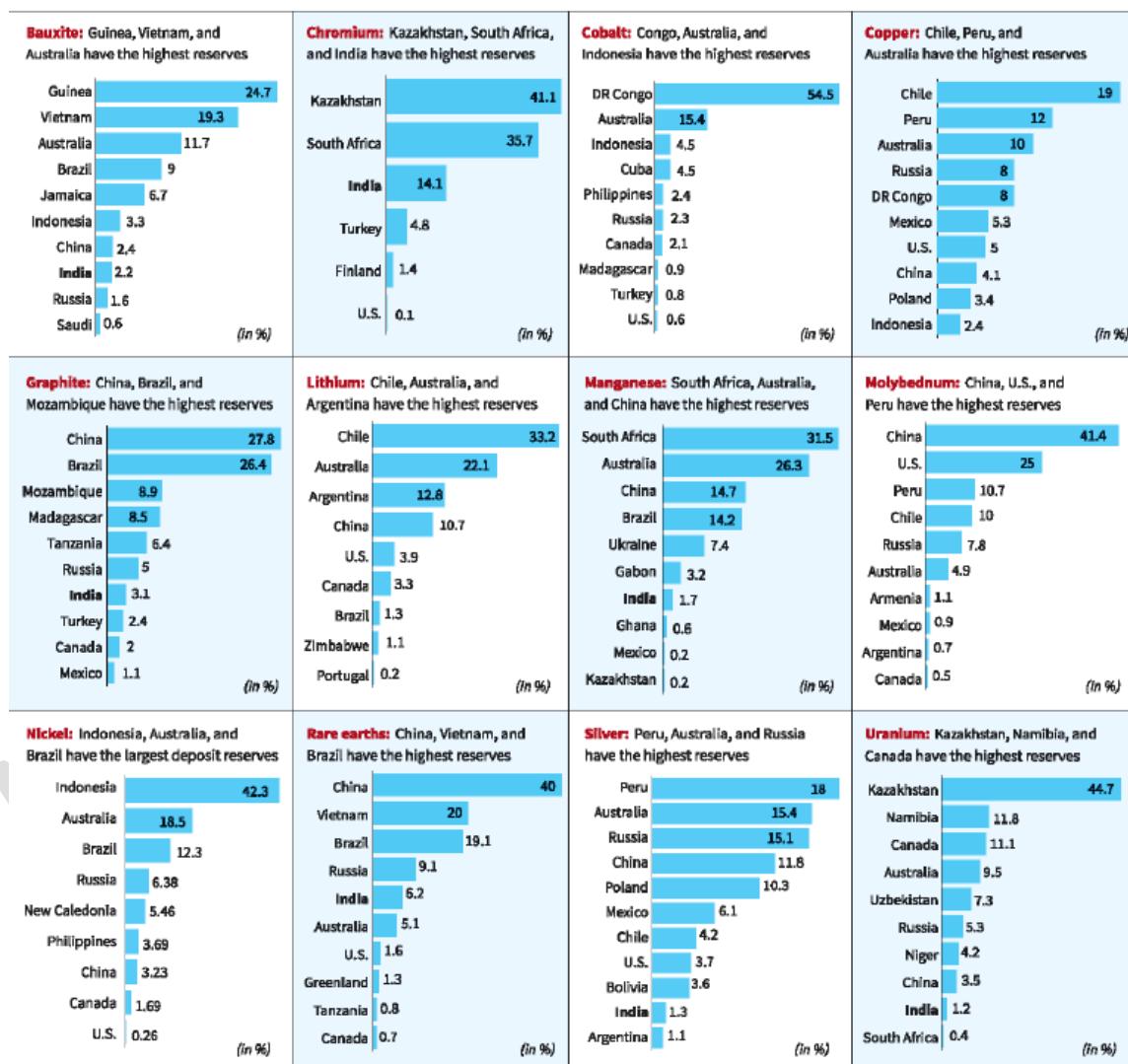
## 39. Critical Minerals

IEEFA's report examines five critical minerals (and their compounds) — cobalt, copper, graphite, lithium and nickel — from the perspectives of import dependency, trade dynamics, domestic availability, and global price fluctuations. The findings show that India remains largely import-dependent for these minerals and their compounds, with 100% import reliance for minerals like lithium, cobalt, and nickel.

India has committed to achieving 500 gigawatts (GW) of non-fossil fuel-based electricity installed capacity by 2030. Currently, the country's renewable energy installed capacity stands at 201 GW, with solar energy accounting for 91 GW

### Minerals for a clean and green future

The data for the charts were sourced from Our World In Data. The data shows the reserves as a share of the global total as of 2023



## 40. Online Gaming Bill 2025: Sunrise Sector, Rising Challenges

Category: Economy, Technology & Governance | GS Paper II & III

### What is in the News?

The Online Gaming Bill, 2025 aims to regulate India's fast-growing gaming sector, which has emerged as both an economic driver and a social challenge.

### Growth Drivers

- **Technology:** Affordable smartphones, 5G rollout, and cloud gaming platforms.
- **Policy Support:** IT Rules (2021, amended 2023) and AVGC Task Force recommendations.
- **Cultural Shift:** Surge in gaming during COVID-19; recognition of e-sports at global events.
- **Economic Push:** Over 400 start-ups, unicorns such as Dream11 and MPL, and \$2.8 billion investment inflows (2024).

### Regulation and Challenges

- **Legal Basis:** IT Act 2000, IT Rules 2021/23 (establishing SRBs), Bharatiya Nyaya Sanhita 2023 (Sections 111 & 112 on illegal betting), IGST Act 2017 (offshore platforms), Consumer Protection Act 2019 (advertising).
- **Challenges:**
  - Fragmented state laws leading to legal uncertainty.
  - Money laundering and illegal gambling (UNODC: \$350 bn global betting market).
  - Rising addiction: 87% students gaming regularly; 23% report stress.
  - Cybersecurity breaches (11 million accounts in 2024).
  - Financial instability: ₹20,000 crore annual losses; GST at 28% discourages small firms.



### Way Forward

- Establish a **central regulator** for uniform rules.
- Encourage **responsible gaming practices** (age limits, spending caps, helplines).
- Strong **AML monitoring** with RBI and global cooperation.
- Cyber resilience with audits, encryption, and GDPR-style compliance.
- Promotion of gaming hubs under **Digital India and Start-up India**.

### Relevance for UPSC

- **GS II:** Federalism, regulation of digital platforms, consumer protection.
- **GS III:** Cybersecurity, money laundering, sunrise industries, digital economy.
- **Essay:** Balancing innovation with ethics and societal well-being.

### **PYQs and Linkages**

- GS II (2022): Challenges of regulating online platforms.
- GS III (2019): Technology shaping new economic sectors.
- Essay (2021): “Technology is a useful servant but a dangerous master.”

### **Conclusion**

India's gaming industry is a sunrise sector with global potential. But without clear regulation, it risks addiction, financial fraud, and social harm. A framework of **Governance, Awareness, Monitoring, and Engagement (GAME)** can balance innovation with safeguards.

## 41. US Tariffs Shock Indian Exports

Category: Economy & Trade | GS Paper III

### What is in the News?

The United States imposed steep tariffs (50 percent and above) on India's labour-intensive exports, disrupting sectors such as shrimp, textiles, jewellery, and carpets.

### Worst-hit Sectors

- Shrimp exports: \$2.4 bn (32 percent share) with prices falling over 20 percent in Andhra Pradesh.
- Jewellery: \$10 bn exports (40 percent share); 12 lakh workers in Surat affected.
- Textiles and apparel: \$10.8 bn exports (35 percent share); major disruption in Tiruppur, Noida, Gurugram.
- Carpets: \$1.2 bn exports (58 percent share).
- Also impacted: handicrafts, footwear, rice, spices.

### Moderate Impact

- Chemicals (\$2.7 bn), metals (\$4.7 bn), machinery (\$6.7 bn) less hit due to smaller US market dependence.

### Implications

- Job losses in SMEs and export hubs.
- Risk of global buyers shifting away from India.
- Pressure on foreign trade balance.



### Government Response

- Short-term: relief package under discussion, RBI credit/liquidity support, promotion of Vocal for Local.
- Long-term: Diversify markets, expand FTAs, build resilience in textiles, shrimp, and jewellery.

### Relevance for UPSC

- **GS III:** External sector, trade policy, impact of protectionism.
- **GS II:** India-US economic relations.
- **Essay:** Globalisation and protectionism.

### PYQs and Linkages

- GS III (2020): Impact of protectionism on globalisation.
- GS II (2016): Balancing growth and resilience in foreign trade policy.

### Conclusion

The tariff shock demonstrates India's vulnerability in labour-intensive exports. Strategic diversification, FTAs, and resilience-building are critical for insulating India from external shocks.

## 42. Energy Sovereignty in an Unstable World

Category: Economy, Energy Security & Environment | GS Paper III

### What is in the News?

With 85 percent crude and over 50 percent natural gas imports, India faces severe energy vulnerability. Recent global flashpoints such as the Israel–Iran crisis, the Russia–Ukraine war, and the Iberian blackout have highlighted the urgency of energy sovereignty.



### Import Dependence and Risks

- Russia now supplies 35–40 percent of India's crude (up from 2 percent pre-Ukraine war).
- Crude and gas imports worth \$170 billion account for one-fourth of total imports.
- Over-dependence on discounted Russian oil is strategically risky.

### Global Flashpoints and Lessons

- 1973 Arab Oil Embargo → creation of Strategic Petroleum Reserves.
- 2011 Fukushima disaster → nuclear scepticism.
- 2022 Ukraine war → Europe's gas crisis.
- 2025 Iberian blackout → lessons on renewable over-dependence.

### Energy Transition vs Realism

- Fossil fuels still provide more than 80 percent of global energy demand.
- Solar and wind contribute less than 10 percent.
- Decline in oil and gas investments despite sustained demand creates volatility.

### Five Pillars for India's Energy Sovereignty

1. Coal Gasification: 150 billion tonnes reserve for syngas, hydrogen, fertilizers.
2. Biofuels: E20 blending transferring ₹92,000 crore to farmers; SATAT scheme for compressed biogas.
3. Nuclear: Thorium roadmap, uranium partnerships, and small modular reactors.
4. Green Hydrogen: 5 MMT target by 2030; indigenous electrolyser development.
5. Pumped Hydro Storage: Grid balancing and renewable backup.

### **Policy Context**

National Hydrogen Mission, SATAT scheme, E20 roadmap, nuclear expansion plan.

### **PYQs and Linkages**

- GS III (2023): India's energy security challenges in global geopolitics.
- Essay (2018): Alternative technologies for a climate-smart future.

### **Conclusion**

India must secure energy sovereignty by balancing traditional and renewable sources, ensuring long-term stability and strategic autonomy.

ARK Reflections IAS

## INTERNATIONAL RELATIONS & DIPLOMACY (GS-2)

### 43. NEPAL CRISIS

#### Why is Kathmandu Burning? (Gen Z Protests in Nepal, September 2025)

##### Overview

Kathmandu has erupted in the **largest youth-led unrest in decades**, sparked by a **social-media ban** and deepening into a **nationwide anti-corruption revolt**. Violence since early September 2025 has left **50+ dead**, Parliament and key institutions burned, and **Prime Minister K.P. Oli resigned** (Sept 9). The **Nepal Army now controls security**, mediating talks for an interim government amid curfews and black smoke-filled streets.

##### Causes

###### Immediate Grievances

- **Social-Media Ban (Sept 4 2025):** Blocking of 26 apps (Facebook, X, YouTube, TikTok etc.) on “non-registration” grounds was viewed as censorship of corruption exposés. VPN surges fuelled mobilisation.
- **Gen Z Mobilisation:** Educated, under-employed youth—angered by “*Nepo Kids*” flaunting elite privilege—used encrypted apps (Viber, Telegram) to organise rallies via groups like *Hami Nepal*.
  - **Demands:** Parliament dissolution, interim non-partisan government, corruption probes, asset disclosure by politicians.

###### Long-Term Grievances

- **Endemic Corruption:** Rotational elite politics and impunity eroded faith in institutions.
- **Economic Distress:** Youth unemployment ≈ 25%; per-capita income ≈ US \$1,300; COVID recovery stalled.
- **Generational Anger:** Frustration with dynastic politics and inequality turned a censorship issue into a **systemic-reform movement**.

##### Key Events Timeline

Date	Major Developments
Sept 4	Social-media ban triggers online dissent via VPNs.
Sept 8	Protests erupt; 19 killed; curfew in New Baneshwor.
Sept 9	Parliament, Singha Durbar & Supreme Court set ablaze; PM Oli resigns; ban revoked.
Sept 10	Army takes control; curfew extended; airport shut.
Sept 11	Gunfire, pro-monarchy chants for ex-King Gyanendra.
Sept 12	51 dead; Army-protester talks on interim setup; civic clean-ups show youth solidarity.

**Damage:** Parliament, ministries, media houses burned; President Poudel under Army protection. Viral footage by foreign vloggers drew global attention.

##### Political Instability in Nepal: A Historical Lens

- **Pre-1951:** Rana oligarchy under monarchy.
- **1951–1990:** Experiments with democracy; *Panchayat* authoritarianism (1960).

- **1996–2006:** Maoist insurgency → 17,000 deaths → peace accord.
- **2008 onwards:** Republic established; **14 governments in 17 years**—chronic coalition politics, corruption, and elite power-sharing.
- **Current Unrest:** Mirrors the 2006 People's Movement but is **digital-age, youth-centric, and class-conscious**.

## India–Nepal Relations: Convergences and Divergences

### Convergences

- **Cultural–Historical:** Shared civilisational ties; “*Roti-Beti ka Rishta*” and Buddhist heritage (Lumbini).
- **Treaty of 1950:** Reciprocal rights of movement, residence, and trade.
- **Economic:** India = Nepal's largest trade partner + FDI source (e.g., Motihari–Amlekhgunj pipeline, Kathmandu–Raxaul rail).
- **Defence:** Gorkha Regiments, Surya Kiran joint exercises, hydropower co-operation.
- **Regional/Aid:** BBIN, BIMSTEC, SAARC; humanitarian leadership (Operation Maitri 2015 quake, Vaccine Maitri 2021).

### Divergences (Intensified by Unrest)

- **Border Dispute:** Nepal's 2020 map claiming Lipulekh–Kalapani–Limpiyadhura.
- **China Factor:** BRI projects heighten India's security concerns; possible Gorkha recruitment drift to PLA.
- **Perceptions of Interference:** Memory of 2015 blockade and delays in Indian projects fuel resentment.
- **Treaty Reform Demands:** 1950 Treaty viewed as unequal.
- **Open Border Risks:** Potential spill-over of refugees and unrest into India.

### Current Situation (as of Sept 12 2025)

- **Security:** Army patrolling Kathmandu Valley; curfew intact; sporadic gunfire.
- **Political:** Power vacuum after Oli's exit; talks for interim non-partisan PM under Army mediation.
- **Public Response:** Civil clean-up drives and youth solidarity echo a “People's Movement 2.0.”

### In essence:

*Kathmandu 2025* reflects a **digital-age rebellion against corruption and inequality**, exposing the fragility of Nepal's post-monarchy democracy. For India, the challenge lies in **supporting stability without appearing interventionist**, balancing strategic interests with the aspirations of Nepal's angry youth.

## 44. United Nations Convention on the Law of the Sea (UNCLOS)

The United Nations Convention on the Law of the Sea (UNCLOS) is an international treaty that establishes a legal framework for all marine and maritime activities. It was adopted in 1982 and came into force in 1994. UNCLOS is often referred to as the "Constitution of the Oceans" and covers various aspects of ocean governance, including territorial waters, sea lanes, and ocean resources.

### Key Provisions of UNCLOS

#### Maritime Zones

##### 1. Internal Waters:

- Landward of the baseline (bays, rivers, ports).
- Full sovereignty like land territory.

##### 2. Territorial Sea (12 nm):

- Complete sovereignty; foreign vessels enjoy **innocent passage**.

##### 3. Contiguous Zone (24 nm):

- Enforcement rights on **customs, taxation, immigration, and sanitation**.

##### 4. Exclusive Economic Zone (EEZ – 200 nm):

- Sovereign rights** for exploration and exploitation of natural resources (living + non-living).
- Jurisdiction over **marine research and environmental protection**.

##### 5. Continental Shelf (200–350 nm):

Rights over seabed and subsoil resources, e.g., minerals, hydrocarbons.

##### 6. High Seas:

Beyond national jurisdiction; open to all states for navigation, fishing, overflight, and research.

#### Navigation and Overflight

##### • **Innocent Passage**:

Continuous and non-threatening navigation through territorial waters; submarines must surface.

##### • **Transit Passage**:

Through **international straits**—continuous and unimpeded movement for ships and aircraft.

#### Marine Resources

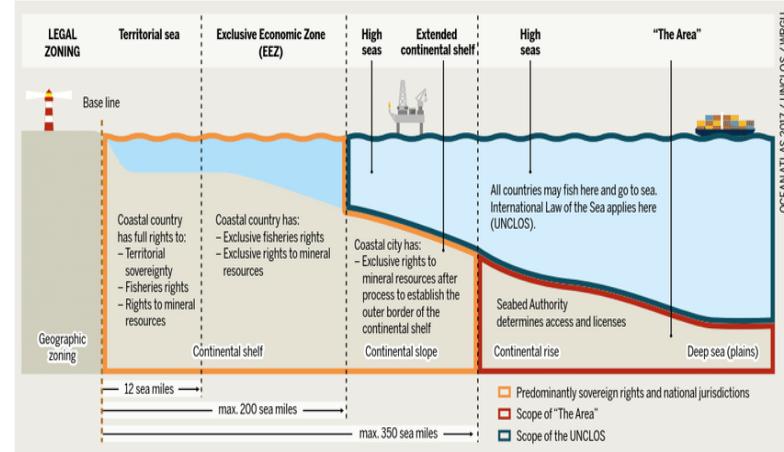
- Living Resources:** Sustainable management of fisheries and biological resources.
- Non-Living Resources:** Sovereign rights over oil, gas, and mineral extraction within EEZ/continental shelf.

#### Marine Environmental Protection

- States must **prevent, reduce, and control marine pollution** from land, ships, or seabed activity.
- Obligation to cooperate globally and regionally to preserve marine ecosystems.

#### Marine Scientific Research

- Coastal states regulate research in EEZ/continental shelf.



- UNCLOS promotes **scientific collaboration for peaceful purposes**.

### Dispute Resolution

- Peaceful mechanisms: negotiation, conciliation, arbitration, and adjudication.
- Key bodies:
  - **International Tribunal for the Law of the Sea (ITLOS)**
  - **International Court of Justice (ICJ)**
  - **Arbitration panels**

### Institutions Established by UNCLOS

1. **International Tribunal for the Law of the Sea (ITLOS):**
  - Judicial body for interpreting UNCLOS; based in **Hamburg, Germany**.
2. **International Seabed Authority (ISA):**
  - Regulates mineral exploration in “**the Area**” (beyond national jurisdiction).
  - HQ: **Kingston, Jamaica**.
3. **Commission on the Limits of the Continental Shelf (CLCS):**
  - Reviews states’ submissions on extended continental shelves (up to 350 nm).

### Significance of UNCLOS

1. **Legal Framework:**
  - Defines **maritime boundaries** and rights of states, ensuring predictability and peace in ocean governance.
  - Basis for resolving maritime disputes (e.g., **South China Sea Arbitration, 2016**).
2. **Environmental Protection:**
  - Promotes **sustainable resource use** and global cooperation to reduce marine pollution.
3. **Economic Benefits:**
  - Enables states to harness ocean wealth—fisheries, hydrocarbons, and seabed minerals.
  - Safeguards **freedom of navigation**, vital for global trade and blue economy development.
4. **Dispute Resolution Mechanisms:**
  - Provides structured, peaceful avenues to avoid maritime conflict and foster cooperation.

### In essence:

UNCLOS underpins the **rules-based maritime order**, ensuring that oceans remain a **global common** — balancing state sovereignty, economic opportunity, and environmental stewardship.

## 45. Katchatheevu island

**Context:** In September 2025, Sri Lankan President Anura Kumara Dissanayake made a historic visit to Katchatheevu island, the first by a Sri Lankan head of state, reaffirming Sri Lanka's sovereignty.

- Indian politicians, especially in Tamil Nadu, have revived demands to reclaim Katchatheevu amid upcoming state polls.
- The dispute remains a sensitive issue tied to fishery conflicts and political rhetoric despite being diplomatically settled decades ago.

### Historical Background

- Katchatheevu is a 1.15 sq. km uninhabited island in the Palk Strait, located about 33 nautical miles off the Jaffna Peninsula (Sri Lanka) and near Tamil Nadu coast.
- Owned historically by the Madras Presidency (British India) but remained disputed until the 1970s.
- In 1974 and 1976, India and Sri Lanka signed bilateral agreements recognizing Katchatheevu as Sri Lankan territory to settle long-standing maritime boundary disputes.
- India received sovereign rights over Wadge Bank near Kanniyakumari in exchange.



### Geographical Location

- Situated in the Palk Strait, between Tamil Nadu (India) and Jaffna Peninsula (Sri Lanka).
- The island is barren, without fresh water or sanitation facilities.
- It hosts the St. Anthony's Catholic Shrine, a pilgrimage site for both Indian and Sri Lankan fishermen annually.

### Importance of Katchatheevu

1. **Strategic Significance:**
  - Controls a key corridor between the Bay of Bengal and the Indian Ocean.
  - Offers vantage for **maritime surveillance and security** in the Palk Strait.
2. **Religious & Cultural Value:** St. Anthony's Shrine symbolizes **shared Catholic heritage** and **people-to-people links**.
3. **Marine & Economic Importance:** Rich in **fish, corals, and sea cucumbers**—crucial for **Ramanatha-puram** fishers' livelihoods.

### Dispute and Controversy

#### Tamil Nadu's Opposition

- Political leaders argue the **1974 cession lacked Parliamentary ratification**, violating India's sovereignty.
- They demand **re-negotiation or retrieval**, citing **fishermen's economic distress**.

## The Fishermen Issue

Dimension	Details
Shared Waters	Generations of TN and Northern SL fishers have shared Palk Strait resources.
Trawling Conflict	Indian <b>mechanized bottom-trawlers</b> (banned in SL since 2017) damage coral beds and stocks.
Livelihood Clash	TN artisanal fishers, displaced by trawlers, venture into SL waters → frequent arrests.
Post-War SL Context	Northern SL fishers rebuilding post-civil war livelihoods feel threatened by Indian incursions.
Community Divide	Profit-oriented trawler owners vs subsistence artisanal fishers on both sides.

## Legal and Institutional Framework

- **UNCLOS (1982):**
  - Advocates **equitable resource sharing** and sustainable practices; opposes destructive trawling.
  - **Article 123:** Mandates **cooperation in semi-enclosed seas** like Palk Bay.
- **FAO Code of Conduct:** Discourages **bottom trawling**; promotes ecosystem-based management.
- **Historic Waters Concept:**
  - Recognizes long-standing sovereign control regardless of modern 12-nm limits;
  - Palk Bay considered part of such *historic waters* with no “innocent passage.”
- **Judicial Precedent (1904, Madras HC):** Upheld **traditional fishing rights** in the Palk Bay.

## Way Forward

1. **Humane & Community-Centric Approach:** Prioritize **artisanal fishers** through bilateral quotas and conflict-sensitive engagement.
2. **Joint Management:** Create an **India–Sri Lanka Fisheries Management Mechanism**—define fishing days, establish a **marine research station** on Katchatheevu.
3. **Deep-Sea Transition:** Promote **offshore & deep-sea fishing** within India’s EEZ to reduce near-shore pressure.
4. **Provincial Dialogue:** Enable **Tamil Nadu–Northern Province** cooperation under federal guidance for confidence-building.
5. **Legal Adherence:** Respect **1974 Agreement** and **UNCLOS framework** to sustain regional peace and maritime stability.

## In Essence:

*Katchatheevu symbolizes the intersection of law, livelihood, and identity.*

While the **1974 treaty settled sovereignty**, recurring **fishery tensions and Tamil sentiment** keep it politically alive.

The sustainable path forward lies in **joint management, ecological responsibility, and empathetic diplomacy**.

## 46. Report on Israel's Actions in Gaza

### Overview

- **Report Summary:** The **UN Independent International Commission of Inquiry (2021-)** found **Israel committed genocide** in Gaza after the **Oct 7 2023 Hamas attack**—the UN's strongest finding so far.
- **Commission:** Headed by **Navi Pillay**, with **Chris Sidoti** and **Miloon Kothari**; covers Oct 2023–Jul 2025. Though not an official UN stance, it is based on verified evidence.
- **Previous Findings:** Earlier reports held **Hamas guilty of war crimes (Oct 7 attacks)** and **Israel guilty of crimes against humanity** during its Gaza operations.



### What the UN Commission of Inquiry Says

- **Genocide Conclusion:** Israel's conduct shows “genocidal intent” under the **1948 Genocide Convention**; states must prevent or risk complicity.
- **Evidence Basis:** Two-year fact-finding using verified data on siege, aid blockade, and defiance of ICJ aid orders (**Mar 2024**).
- **Attribution:** Responsibility lies with **Israel** for committing, failing to prevent, or punish genocide; concerns extend to **West Bank and East Jerusalem**.

### Reasonable Grounds for the Findings

- **Acts under Genocide Convention:**
  1. **Killing members** – large-scale civilian strikes on hospitals, schools.
  2. **Causing serious harm** – torture, displacement, sexual violence.
  3. **Inflicting destructive conditions** – starvation, siege, service collapse.
  4. **Preventing births** – destruction of Gaza's fertility clinic (Dec 2023).
- **Genocidal Intent:** Shown in leaders' statements (“human animals,” “mighty vengeance”) and systematic conduct.
- **Scale:** ~65,000 killed; 90 % homes destroyed; over 1 million displaced.

### Status of Gaza

- **Humanitarian Collapse:** Repeated displacements, famine in Gaza City, destroyed infrastructure, severe pollution.
- **Continuing War:** Israeli offensive since Oct 2023; major assault resumed Sep 2025 despite ICIJ orders.
- **Broader Impact:** Cultural and environmental devastation described as a “**moral and legal emergency**.”

## Response of Other Nations

- **USA:** Rejected report as biased; continues aid and diplomatic backing to Israel.
- **EU:** Considering sanctions, trade suspension, and ceasefire appeal—divided stance (Germany opposed).
- **India:** Maintained **silence**, balancing historic Palestine support with current strategic tilt toward Israel.

## UNHRC (United Nations Human Rights Council)

### Introduction and Establishment

- **Intergovernmental body (2006)** replacing the UN Commission on Human Rights; promotes global rights and addresses violations.
- **Headquarters:** Geneva, Switzerland.

### Structure and Composition

- **47 members**, 3-year non-renewable terms distributed by region.
- **President & Bureau:** Coordinate sessions (e.g., Jürg Lauber, 2025).
- **Subsidiary Bodies:** Universal Periodic Review (UPR) group, Advisory Committee, and Special Rapporteurs.

### Functions and Mandate

- Investigates abuses, adopts resolutions, and appoints rapporteurs.
- **Mechanisms:** UPR, Special Sessions, thematic resolutions.
- Works closely with the **OHCHR** as its secretariat.

### India's Role

- **Member:** Six terms including 2024–26; promotes the “**Samman–Samvad–Sahyog**” (Respect–Dialogue–Cooperation) approach.
- **Engagement:** Actively counters politicised narratives (e.g., Pakistan’s Kashmir remarks 2025).



## Office of the High Commissioner for Human Rights (OHCHR)

### What is the OHCHR?

- **Principal UN human-rights body (est. 1993, GA Res 48/141) headquartered in Geneva, led by Volker Türk (Austria, since 2022).**
- **Coordinates UN-wide human-rights efforts, investigates abuses, assists governments, and supports civil society.**

### Key Functions

- **Monitoring & Reporting:** Global investigations and public briefings.
- **Support to UN Bodies:** Secretariat for UNHRC sessions, resolutions, and UPR.
- **Technical Assistance & Advocacy:** Legal guidance, capacity-building, awareness.
- **Coordination:** Integrates rights perspectives into UN agencies and crisis responses.

### How OHCHR is Related to UNHRC

- **Serves as the administrative secretariat and implements Council decisions.**
- **UNHRC: Political body that sets mandates; OHCHR: Professional arm executing them.**
- **Collaboration seen in the 2025 Gaza genocide inquiry, where OHCHR supplied data and logistics; High Commissioner Türk briefed the Council while noting that courts determine genocide status.**

## 47. International North-South Transport Corridor (INSTC)

### Why in News

- Recently, the **U.S. revoked the sanctions waiver on Iran's Chabahar Port**, effective September 29, 2025.
- Chabahar Port is a **key node of INSTC**, developed by India to access Afghanistan and Central Asia while bypassing Pakistan.
- This development has **strategic and economic implications** for India's trade and connectivity in the region.

### Overview

- INSTC is a **7,200 km multi-modal transport corridor** established in 2000 by India, Iran, and Russia.
- It connects the **Indian Ocean to Russia and Europe** via Iran and the Caspian Sea.
- Provides a **shorter, faster, and cost-effective alternative** to the Suez Canal route.
- Currently, there are 13 Members of INSTC (India, Iran, Russia, Azerbaijan, Armenia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Ukraine, Belarus, Oman and Syria)
- Bulgaria has joined as an Observer State.

### Key Routes

#### 1. Western Route (via Azerbaijan – Baku to Astrakhan)

- Path:** Mumbai → Bandar Abbas (Iran) → Astara (Iran-Azerbaijan border) → Baku (Azerbaijan) → Astrakhan (Russia) → Moscow → Europe
- Significance:**
  - Seamless rail connectivity **Baku → Astrakhan** for cargo to Russia.
  - Critical for India-Iran-Russia trade.
  - Rasht-Astara railway is a key segment.



#### 2. Caspian Sea Route

- Path:** Mumbai → Bandar Abbas → Caspian Sea ports (Bandar Anzali, Amirabad) → Astrakhan → Moscow → Europe
- Significance:**
  - Uses the Caspian Sea for cargo transit.
  - Provides flexibility and bypasses Azerbaijan if needed.

### Strategic Importance for India

- Trade Diversification:** Reduces dependency on the Suez Canal and Pakistan routes.

- **Regional Connectivity:** Links India with Russia, Central Asia, and Europe.
- **Economic Benefits:** Faster trade, lower costs (~30%), and improved access to Russian energy.
- **Geopolitical Leverage:** Counters China's Belt and Road Initiative and enhances India's Eurasian influence.

#### **Recent Development: U.S. Sanctions on Chabahar**

- **Waiver Revocation:** U.S. ended the sanctions waiver granted to Chabahar Port, impacting India's operations.
- **Impact:**
  - Operational uncertainty for India's terminal at Chabahar.
  - Risk to trade flows via INSTC and regional influence.
- **Strategic Response:**
  - Diplomatic engagement with the U.S.
  - Investment in alternative routes and port infrastructure.

## 48. Trump Issues Ultimatum to Afghanistan over Bagram Airbase

### Why in News

- US President **Donald Trump** demanded the **return of Bagram Airbase** to US control.

### Bagram Airbase: Key Details

Bagram Airbase was the **largest U.S. military base in Afghanistan**, situated adjacent to the historic city of Bagram.

- According to U.S. officials, it served as the **central hub for operations against militants for nearly 20 years**.
- Geographically, Bagram is located at the **junction of the Ghorband and Panjshir Valleys**, close to the present-day city of **Charikar** in Afghanistan.
- US Withdrawal:**
  - July 2021, as part of the **Trump-mediated peace deal** facilitating Taliban return.
  - Taliban now controls the base.



### Strategic Importance

- Regional Influence:** Control over Bagram enhances operational reach across Afghanistan and Central Asia.
- Geopolitical Leverage:** Its location is critical vis-à-vis **China, Pakistan, and regional security**.
- Security Considerations:** Any US attempt to retake Bagram would likely **heighten tensions with China**.

### Responses

- Afghanistan / Taliban:**
  - Foreign Minister **Amir Khan Muttaqi**: No foreign military presence permitted.
  - Afghan officials open to political/economic engagement, but **reject re-establishing US troops**.
- China:** Condemned Trump's call, stating it **stokes regional instability** and violates Afghan sovereignty.

## 49. China's Strategic Maritime Investments in the Indian Ocean Region (IOR)

### Context

- In News:** Prime Minister Narendra Modi, as President of the United Nations Security Council, chaired a high-level debate on strengthening maritime security through cooperation.
- Focus:** Emphasized sustainable maritime connectivity, highlighting the need for projects to consider the physical sustainability and absorption capacity of host countries.

### Strategic Importance of the Indian Ocean Region

- Energy Imports:** The IOR accounts for 80% of China's energy imports.
- Trade Routes:** Crucial for China's trade activities, making the region strategically and economically significant.
- Infrastructure Investments:** Over the past three decades, Chinese investment and construction activity in the IOR have increased, particularly in port development.

### Chinese Involvement in IOR Ports

China has been involved in 17 port projects across the IOR, ranging from major deep-water ports to smaller terminals. This involvement includes direct construction, financial investments, and strategic partnerships.

### Chinese Ports in the Indian Ocean Region

Port	Country
Lamu Port	Kenya
Mombasa Port	Kenya
Bagamoyo Port	Tanzania
Dar es Salaam Port	Tanzania
Doraleh Multipurpose Port	Djibouti
Sudan Port	Sudan
CSP Terminal, Khalifa Port	U.A.E.
Sokhna Port	Egypt
Gwadar Deepwater Port	Pakistan
Karachi Deepwater Terminal	Pakistan
Hambantota Port	Sri Lanka
CICT Terminal Colombo	Sri Lanka
Chittagong Port	Bangladesh
Payra Port	Bangladesh
Kyaikpyu Port	Myanmar
Malacca Port	Malaysia
Darwin Port	Australia



## 50. The Chabahar port in Iran

**Context:** On September 18, 2025, the U.S. State Department announced revocation of India's waiver on sanctions regarding the Chabahar port in Iran, effective September 29, 2025.

- This decision represents an escalation of U.S. sanctions pressure on Iran, disrupting India's strategic regional connectivity plans.
- It follows recent talks signaling U.S.-India trade rapprochement but highlights tensions in other bilateral and regional issues.



### What is Chabahar Port?

- Located in southeast Iran, jointly developed by India–Iran.
- Strategic route for India–Afghanistan–Central Asia trade, bypassing Pakistan.
- Enhances regional integration and connectivity

### Background of the US Waiver

- 2018: U.S. gave India a special exemption for Chabahar under sanctions.
- Waiver recognised port's role in connectivity + balancing China–Pakistan axis.
- India developed Shahid Beheshti terminal under this waiver.

### What Happened Now in 2025

- President Trump's executive order on February 5, 2025, mandated a review of all Iran sanctions waivers.
- The State Department revoked the Chabahar waiver, effective September 29, citing changed circumstances like Taliban's control in Afghanistan and port revenues funding Iran's proxies.
- Indian firms involved risk sanctions including asset freezes and transaction bans.

## 51. Upcoming FTA talks with the EAEU

**CONTEXT:** The upcoming FTA talks with the EAEU form part of India's broader strategy to deepen trade ties with regional economic blocs.

- This development follows recent diplomatic engagements and is set against global trade uncertainties including US tariff threats.
- The meetings between Indian Commerce Minister Piyush Goyal and EAEU's Trade Minister Andrei Slepnev signal growing momentum towards formal trade agreements.

### Objectives of India-EAEU FTA

- Enhance trade and investment between India and the EAEU member states: Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia.
- Provide Indian exporters access to a market with a combined GDP of around \$6.5 trillion.
- Boost diversification of Indian exports and reduce dependence on traditional markets.



### Comparison with European Union (EU)

Aspect	Eurasian Economic Union (EAEU)	European Union (EU)
Member Nations	Armenia, Belarus, Kazakhstan, Kyrgyzstan, Russia	27 European countries
Established	2015	1993 (Maastricht Treaty)
Combined GDP	~\$6.5 trillion	Over \$17 trillion
Governance Body	Eurasian Economic Commission (Moscow)	European Commission (Brussels)
Economic Integration	Goods, services, capital, and labor mobility	Goods, services, capital, and labor mobility
Market Nature	Mixed economies with varying levels of market reforms	Primarily market economies
Trade Challenges	Sanctions and geopolitical tensions	Regulatory complexity but high standards

## 52. India–Japan Relations: A Next-Generation Partnership

**Category:** International Relations & Economy | GS Paper II

### What is in the News?

India and Japan have deepened their partnership in 2025 with a target of JPY 10 trillion trade and investment by 2030 and adoption of a "Joint Vision for the Next Decade".

### Trade and Investment

- Bilateral trade: \$22.8 bn (2023–24).
- Japan's cumulative FDI in India: \$43.2 bn (2024).
- Presence of 1,400 Japanese firms in India; over 100 Indian firms in Japan.
- Joint projects in textiles, logistics, MSMEs under IJICP.



### Defence and Security

- Frameworks: Joint Declaration 2008, ACSA 2020.
- Joint exercises: Malabar, JIMEX, Milan, Dharma Guardian.
- 2025 focus: tri-service drills, cyber and space resilience, counter-terrorism cooperation.

### Development and Connectivity

- Japan remains India's largest ODA donor (~JPY 580 bn in 2023–24).
- Mumbai–Ahmedabad bullet train project with Japanese technology.
- Smart cities, disaster modelling, TOD/MaaS projects.

### Multilateral Issues

- Cooperation in Quad for a free and open Indo-Pacific.
- Joint support for UNSC reforms.
- Common stance on Myanmar, Ukraine, and Middle East crises.
- ASEAN cooperation under AOIP framework.

### Economic Security Cooperation

- **Semiconductors:** Renesas–CG Power OSAT, Tata–TEL partnership.
- **Critical Minerals:** Toyota Tsusho refinery in Andhra Pradesh.

- **Clean Energy:** JCM carbon-crediting, bamboo bioethanol, ammonia co-firing projects.

#### **PYQs and Linkages**

- GS II (2021): Evaluate India-Japan strategic partnership in the Indo-Pacific.
- GS II (2016): Significance of India-Japan civil nuclear agreement.

#### **Conclusion**

India-Japan ties have transformed into a comprehensive partnership spanning trade, technology, defence, and global governance. Their cooperation is a pillar of a rules-based Indo-Pacific order.

ARK Reflections IAS

## 53. 25th SCO Summit 2025: India's Strategic Stakes

**Category:** International Relations & Security | GS Paper II & III

### What is in the News?

The 25th SCO Summit (Tianjin, 2025) adopted the Tianjin Declaration, long-term strategies, and condemned terrorism including the Pahalgam attack, marking a diplomatic success for India.

### Key Outcomes

- Adoption of SCO Development Strategy 2026–35 and Energy Roadmap 2030.
- Establishment of SCO Development Bank and 4 new centres (cyber, security, drugs, crime).
- Expansion with Laos as new partner; SCO now 27 members.

### Terrorism and Security

- Explicit condemnation of Pahalgam, Jaffer Express hijacking, Khuzdar school bombing.
- Recognition of terrorism as SCO's core threat.
- Correction of earlier omission at Defence Ministers' Meet due to Pakistan's objections.

### India's Role

- Advocated three pillars: Security (anti-terror financing), Connectivity (INSTC, Chabahar), and Opportunity (startups, cultural exchange).
- Supported UN reforms and SCO civilizational dialogue.
- India–China diplomatic thaw after 7 years, signalling cautious rapprochement.

### PYQs and Linkages

- GS II (2022): India's SCO and QUAD memberships as multi-alignment.
- GS II (2017): Role of regional groupings in security.

### Conclusion

The SCO summit underlined India's ability to push for anti-terror commitments and connectivity while balancing China and Pakistan. It reaffirmed India's relevance in Eurasian security architecture.



## 54. SCO Heads Condemn Pahalgam Terrorist Attack

### Context:

- At the **25th SCO Summit (Tianjin, China, 2025)**, member states adopted the **Tianjin Declaration**, condemning terrorism in all forms explicitly the **Pahalgam attack in India (26 deaths)**, Pakistan's **Jaffar Express** and **Khuzdar** incidents.
- The declaration reaffirmed **unity against terrorism**, rejection of **double standards**, and resistance to **economic coercion**, highlighting the SCO's role in ensuring **Eurasian stability** and promoting a **multi-polar world order**.

### Background

- Origin:** Began as the **Shanghai Five (1996)** – China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan – to address post-Soviet extremism and border issues.
- Formation:** SCO established in 2001, with Uzbekistan joining; later expanded to India, Pakistan (2017), Iran (2023), and Belarus (2024) → 10 full members.
- Observer States:** Afghanistan, Mongolia.
- Principle:** **"Shanghai Spirit"** – mutual trust, equality, respect for diversity, and collective development.
- Share:** 24% global land, 42% population → major Eurasian bloc.
- Official Languages:** Chinese & Russian.

### Key Outcomes of SCO Summit 2025

- Tianjin Declaration:** Unified stand against terrorism, sanctions, and "Cold War mentality."
- 24 Documents Signed:** Including **SCO Development Strategy 2035**.
- New Institutions:**
  - SCO Anti-Drug Center
  - SCO Universal Security Center
  - SCO Development Bank (reduce dollar dependence)
- New Energy Cooperation Platform:** Roadmap till 2030 for stable supply chains.
- Dialogue Partners:** Laos added → 10 members, 17 partners.
- Cultural Diplomacy:** *Cholpon-Ata (Kyrgyzstan)* named Tourist Capital 2025–26.
- Chairmanship:** Kyrgyz Republic (Theme: *25 Years of SCO – Stable World, Prosperity*).
- Trade Figures:** Intra-SCO trade > \$2.3 trillion; China–SCO trade \$500 billion+.
- India's Proposal:** *Civilisation Dialogue Forum* to deepen cultural and civilisational exchange.



### Significance for India

- Regional Security:** Forum for counter-terrorism and intelligence coordination via **RATS** (Regional Anti-Terrorist Structure).

- **Connectivity:** Supports **INSTC**, energy corridors, and Eurasian market access.
- **Strategic Balance:** Platform to **counter Chinese dominance** while engaging Russia and Central Asia.
- **Multipolarity:** Strengthens India's role in shaping non-Western governance structures.
- **Pan-Eurasian Presence:** Expands India's engagement beyond South Asia to the Global South.

### Challenges for India

- **China Factor:** Border tensions, trade imbalance, strategic rivalry.
- **Pakistan's Role:** Limits counter-terror consensus inside SCO.
- **BRI Opposition:** India rejects Belt and Road / CPEC (sovereignty concerns).
- **Economic Disparity:** Low trade share vs China's dominance.
- **Balancing Powers:** Maintaining **strategic autonomy** amid U.S. expectations and SCO-BRICS engagements.

### Broader China-India Issues

- **Border Conflicts:** LAC friction & infrastructure asymmetry.
- **Trade Deficit:** India imports heavily from China.
- **Pakistan Nexus:** China's close defence and economic ties with Pakistan.
- **Indo-Pacific Rivalry:** India aligns with **Quad**; China expands its maritime footprint.
- **Economic Institutions:** India wary of **AIIB**, **RCEP**, and China-led supply chains.

### Foreign Policy Pressures

- **U.S. Pressure:** Align with West; India insists on **strategic autonomy**.
- **Tariff Wars:** U.S.–China trade conflict indirectly impacts India.
- **Quad Dynamics:** India–U.S. cooperation balances China despite divergences.
- **Global Perception:** India's neutrality in blocs like SCO, BRICS shows independence, not anti-West bias.

### Key Resources in Central Asia

Country	Key Resources
Kazakhstan	Uranium, oil, rare earths
Uzbekistan	Gold, copper, gas
Turkmenistan	4th-largest gas reserves
Kyrgyzstan	Gold, antimony, hydro
Tajikistan	Hydro, gold, uranium

## 55. Singapore formally acknowledged India's plans to patrol the Malacca Strait

- **GS-II (International Relations):** Bilateral relations with Singapore, ASEAN diplomacy, CECA/AITIGA negotiations.
- **GS Paper I: Geography: Important Geophysical Phenomena and Geographical Features:**

**Context:** Singapore formally acknowledged India's plans to patrol the Malacca Strait during talks between PM Modi and PM Lawrence Wong.



### Malacca Strait Importance

- Connects Indian Ocean to South China Sea/Pacific; bordered by Malaysia, Indonesia, Singapore, Thailand.
- Carries ~60% of India's maritime trade, nearly all LNG imports, and 80% of China's oil imports—making it a strategic chokepoint.
- Any disruption affects global and regional energy and trade security.
- Proximity to Andaman & Nicobar links the Strait directly to India's maritime zone.

### Recent Developments (2025)

- Singapore welcomed India's interest in joining Malacca Straits Patrol (MSP).
- Five new agreements, including green energy exports and collaboration on emerging sectors.
- India aims for synergy with MSP members for joint patrols and info-sharing.

**Q. Between India and East Asia, the navigation-time and distance can be greatly reduced by which of the following?**

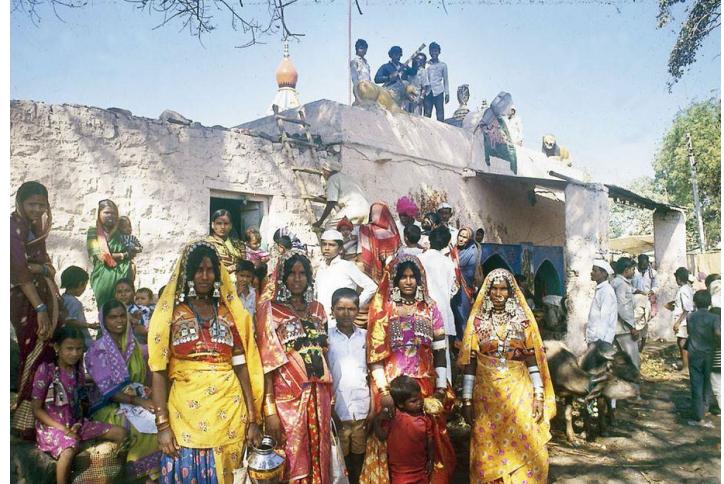
- (a) Deepening the Malacca Strait
- (b) Opening a new canal across the Kra Isthmus
- (c) Liberalizing the policies regarding the transit of maritime traffic in the South China Sea
- (d) All of the above

## SOCIAL ISSUES & SOCIETY (GS-1 / GS-2 / ESSAY)

### 56. Denotified Tribes (DNTs) in India

#### Who are Denotified Tribes?

- **Definition:** Communities once branded as “*Criminal Tribes*” under the **Criminal Tribes Act (CTA), 1871** by the British, presumed to be *hereditarily criminal* and placed under police surveillance.
- **Post-Independence:** CTA repealed in **1952**; these communities were “**denotified**.”
- **Persistent Issues:** Despite legal repeal, stigma, poverty, and police harassment continue; most remain outside formal caste-based welfare structures.
- **Parliamentary Concern (2022):** The Standing Committee on Social Justice criticized delays in their classification and welfare measures.



#### Historical Context

- **CTA, 1871:** Institutionalised racial prejudice—restricted movement, forced registration, and criminalized nomadism.
- **Post-1952:** Replaced by **Habitual Offenders Acts** in several states, perpetuating surveillance and discrimination under a new name.

#### Commissions & Committees on DNTs

- **A.N. Sinha Commission (1961):** First systematic assessment.
- **Kaka Kalelkar Commission (1953):** Identified DNTs as part of socially backward classes.
- **Renke Commission (2008):**
  - Estimated population: **10–12 crore** (now ~25 crore).
  - Found extreme marginalisation; sought **exclusive welfare boards** and **sub-quotas** within SC/ST/OBC categories.
- **Idate Commission (2015–17):**
  - Recommended inclusion of DNTs in **Caste Census**, creation of **National Commission**, and separate sub-quota under existing reservations.
- **Kasturirangan (NITI Aayog, 2018):**
  - Highlighted policy vacuum and need for **permanent institutional mechanism**; noted DNTs “fall between the cracks” of SC/ST/OBC frameworks.

#### Present Status

- **Population:** ~10–11 crore (1,500+ communities).

- **Categorisation:** Fragmented—some under SC, some ST/OBC, many unclassified.
- **Data Gap:** No distinct enumeration in Census or NSS surveys → policy invisibility.

### Government Schemes

- **SEED Scheme (2022)** – *Scheme for Economic Empowerment of DNTs, NTs, and SNTs*
  - **Budget:** ₹200 crore (5 years).
  - **Four components:** Free coaching, Health insurance, Livelihood support, and Housing.
  - Aim: Holistic socio-economic upliftment.
- **Other Support:** Scholarships, hostels, skill training under various ministries.

### Challenges

- **Data Deficit:** No reliable socio-economic survey or caste enumeration.
- **Exclusion:** Many communities outside SC/ST/OBC safety nets.
- **Social Stigma:** “Criminal tribe” legacy fuels police bias and social ostracism.
- **Administrative Fragmentation:** Weak coordination between Centre and States; DNT Boards lack statutory authority.
- **Nomadic Lifestyle:** Limits access to ration, education, and healthcare due to lack of documentation and permanent address.

### Denotified Tribes Development Boards

- Several States and the Centre created **DNT Development Boards**, but most are **ad-hoc**, underfunded, and without **statutory backing**.
- **Demand:** Creation of a **Permanent National Commission for DNTs** with **constitutional status** and **financial powers**.

### Way Forward

1. **Permanent National Commission:** With constitutional/statutory authority to monitor welfare schemes.
2. **Comprehensive Enumeration:** A dedicated **DNT Census** or integration into SECC for data-driven policymaking.
3. **Sub-Quota & Budget Earmarking:** Under existing SC/ST/OBC reservations.
4. **Strengthen SEED Scheme:** Expand coverage, simplify access, ensure convergence with state schemes.
5. **Legal Safeguards:** Repeal Habitual Offenders laws and introduce anti-discrimination provisions.
6. **Inclusive Development:** Focus on education, health, skilling, and political participation to mainstream nomadic groups.

**In essence:** DNTs represent India’s “*invisible citizens*” — victims of colonial prejudice and post-colonial neglect. Recognising their distinct identity and institutionalising their welfare is vital to achieving the constitutional ideals of **equality, dignity, and social justice**

## 57. World's top 10 happiest cities in 2025:

### Why in News?

- The 2025 Happy City Index ranks the world's happiest cities using 82 indicators across six themes.
- The report gained attention post-COP29, with Copenhagen topping for environment and citizen engagement.
- A new "Health" category was added, reflecting COVID-19 impacts on public health priorities.
- No Indian cities ranked, sparking debates on urban governance and pollution challenges versus Asian peers like Singapore.

### What Makes a City Happy?

- Cities evaluated on six themes: Citizens, Governance, Environment, Economy, Health, and Mobility.
- Factors include infrastructure, work-life balance, and eco-friendly initiatives promoting well-being.
- Rankings split into Gold (top 31), Silver (32-100), and Bronze (101-200) tiers.
- Nordic cities excel due to balanced policies and strong social safety nets.

### Top 10 Happiest Cities in 2025

Rank	City, Country	Score	Key Strengths
1	Copenhagen, Denmark	1039	Environment, Citizens
2	Zurich, Switzerland	993	Citizens, Governance
3	Singapore	979	Citizens, Health
4	Aarhus, Denmark	958	Citizens, Governance
5	Antwerp, Belgium	956	Citizens, Governance
6	Seoul, South Korea	942	Citizens, Governance
7	Stockholm, Sweden	941	Citizens, Environment
8	Taipei, Taiwan	936	Governance, Environment
9	Munich, Germany	931	Citizens, Health
10	Rotterdam, Netherlands	920	Environment, Health

### European Dominance and Asian Presence

- Europe claims 7 top 10 spots, including Copenhagen and Aarhus from Denmark.
- Asian cities: Singapore (#3), Seoul (#6), and Taipei (#8), known for governance and health.
- US, UK, and China cities absent in top 10; highest ranks: New York (#17), London (#31), Beijing (#54).

### **India's Position**

- No Indian city in top 200 due to governance, pollution, and health service issues.
- Challenges include air pollution, inequality, and infrastructure deficits in cities like Mumbai and Delhi.
- Opportunity for sustainable urban development aligned with India's Smart Cities Mission.

### **Key Takeaways**

- The index stresses holistic well-being beyond just economic growth.
- Gold-tier cities balance all well-being factors effectively.
- Calls for policies fostering inclusive happiness and sustainable urban planning globally.

ARK Reflections IAS

## 58. Mahatma Ayyankali: Social Justice Crusader

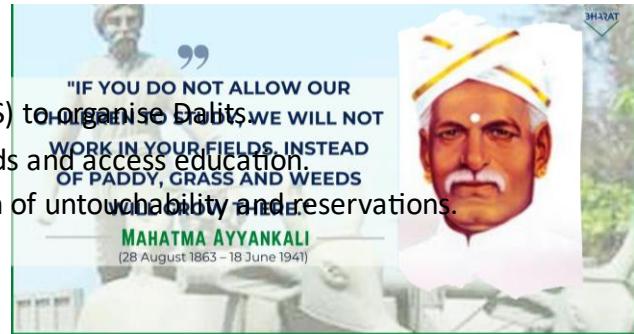
**Category:** Social Reformers & Society | GS Paper I & II

### What is in the News?

Mahatma Ayyankali (1863–1914), Kerala's pioneering social reformer, fought for Dalit rights and equality.

### Contributions

- Founded Sadhu Jana Paripalana Sangham (SJPS) to organise Dalits.
- Championed Dalits' right to walk on public roads and access education.
- Inspired constitutional safeguards like abolition of untouchability and reservations.



### Legacy

- Precursor to Ambedkar's social justice vision.
- Strengthened Kerala's tradition of reform alongside Sree Narayana Guru.

### UPSC Keywords

Ayyankali, Dalit Reform Movements, Kerala Renaissance, Social Justice.

### PYQs and Linkages

- GS I (2019): Reform movements in India as foundations for democracy.
- GS I (2017): Role of social reformers in inclusiveness.

### Conclusion

Ayyankali's reformist struggle remains central to India's constitutional vision of equality and dignity.

ARK Reflections

## 59. Nuakhai Festival: Odisha's Agrarian Celebration

**Category:** Indian Society & Culture | GS Paper I

### What is in the News?

Nuakhai, the annual harvest festival of Western Odisha, was celebrated on 28 August 2025, a day after Ganesh Chaturthi.

### Key Features

- Celebrates the first consumption of new rice crop.
- Most significant cultural festival of Western Odisha; also observed in Jharkhand and Chhattisgarh.

### Cultural Significance

- Reinforces agrarian community bonds.
- Reflects regional identity and cultural pride.
- Symbol of India's unity in diversity.

### PYQs and Linkages

- GS I (2020): Regional festivals as socio-economic institutions.
- Essay: Culture as the widening of the mind.



### Conclusion

Nuakhai highlights India's agrarian traditions and cultural vibrancy, strengthening social cohesion.