



# **IQRA IAS**

**AN INSTITUTE FOR CIVIL SERVICES**

# **CURRENT AFFAIRS**

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# WEEKLY UPDATES

DATE :26<sup>th</sup> May- 01<sup>st</sup> June

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# IQRA

Wisdom leads to success

# POLITY

## Breaking Barriers: First Batch of Women Cadets Graduate from NDA

### ✦ Syllabus Mapping:

- ✓ GS Paper 2 – Polity and Governance (Constitutional Provisions, Gender Equality, Role of Judiciary)
- ✓ GS Paper 3 – Security (Role of Women in Armed Forces)

### 1. Context: Historic Milestone in Military Gender Inclusion

- For the **first time in India's history**, **17 female cadets** have graduated from the **National Defence Academy (NDA)**, marking a **watershed moment in gender inclusion** within the Indian Armed Forces.
- This comes after the **Supreme Court's 2021 directive** mandating the **admission of women into NDA**, with the **first batch enrolled in 2022**.

### 2. About the National Defence Academy (NDA)

FEATURE	DETAILS
ESTABLISHED	1954
LOCATION	Khadakwasla, Pune (Maharashtra)
TYPE	World's <b>first tri-service</b> military academy
TRAINING OFFERED	Joint training for Army, Navy, and Air Force cadets
SIGNIFICANCE	Develops inter-service camaraderie and leadership

### 3. Constitutional Backing for Women in Defence

- **Article 14** – Equality before the law
- **Article 15(1)** – Prohibition of discrimination on grounds of sex
- **Article 15(3)** – Permits positive discrimination (affirmative action)
- **Article 16** – Equality of opportunity in public employment

The **Supreme Court in 2021** held that exclusion of women from NDA violated **Articles 14, 15, and 16**, calling it unconstitutional.

### 4. Significance of Women in Defence Forces

#### A. Promoting Gender Equality

- Enables women to rise to command positions, **breaking institutional biases**.
- Serves as a model for other male-dominated sectors.

#### B. Enhanced Operational Capabilities

- In **modern warfare** (cyber, drone, and remote systems), **physical differences** are increasingly irrelevant.
- Inclusion increases the **diversity of skill sets** and perspectives.

#### C. Humanitarian and Peacekeeping Roles

- Women are effective in:
  - **Civil-Military Interface** in conflict zones.
  - **UN Peacekeeping missions**, especially in gender-sensitive areas.

#### D. Talent Utilisation

- Tapping into a **larger talent pool**, improving quality of leadership and administration.

### 5. Challenges Faced by Women Cadets and Officers

Challenge	Explanation
Physical Standards	Combat roles require intense physical training; current standards may not be inclusive
Social Stereotypes	Societal expectations often discourage women from joining the forces
Infrastructure Gaps	NDA and other academies lacked <b>separate hostels, washrooms, and training gear</b>
Operational Resistance	Lack of acceptance from peers and subordinates; masculine culture
Career Progression	Limited command roles and delayed induction in combat and leadership streams





### 6. Government and Institutional Initiatives

- **Permanent Commission** for women in 10 streams of the Army.
- **Sainik Schools** now open for girl cadets (since 2021).
- **Gender Sensitisation modules** introduced in military training.
- Women officers in **combat roles** in the Navy and Air Force on a **case-by-case basis**.

#### ✓ Conclusion

The **graduation of the first batch of women cadets from NDA** is more than a symbolic victory—it's a **paradigm shift** in India's military ethos, embracing **gender parity, constitutional values, and operational inclusivity**. For the UPSC aspirant, this event represents a key case study in **policy, governance, constitutional law, and gender justice**.

## Bharat Forecast System

#### ✦ Syllabus Mapping:

- ✓ **GS Paper 3 – Science and Technology:** Developments in Weather Forecasting, Supercomputing
- ✓ **GS Paper 3 – Environment:** Disaster Management, Climate Preparedness
- ✓ **GS Paper 2 – Governance:** Role of Government Institutions in Public Service Delivery

### 1. Context: India Launches Bharat Forecast System (BFS) with Unmatched Precision

- On **27 May 2025**, the **Ministry of Earth Sciences** formally launched the **Bharat Forecast System (BFS)**, making India the **only country to operate a real-time global weather forecast system at 6 km resolution**.
- This development positions India at the forefront of **climate modelling, disaster preparedness, and agricultural advisories**.
- Developed indigenously, it is a **landmark initiative led by women scientists** at the **Indian Institute of Tropical Meteorology (IITM), Pune**.

### 2. What is the Bharat Forecast System (BFS)?

#### Definition and Significance

- The **BFS** is an **advanced deterministic weather forecasting model** that delivers **high-resolution global and local forecasts** using real-time data simulation.
- It is designed to produce **single-output forecasts**, offering **definitive and actionable weather predictions**.

#### Development Backbone: Supercomputing Infrastructure

- Enabled by **supercomputer Arka**, installed at IITM, Pune:
  - **Capacity:** 11.77 petaflops (computational speed)
  - **Storage:** 33 petabytes
- This computational power facilitates **large-scale weather simulations** with remarkable speed and accuracy.

### 3. Key Features of the Bharat Forecast System

Feature	Details
Resolution	Forecast accuracy improved to <b>6 km grid</b> in the <b>tropical belt (30°S – 30°N)</b>
Global Benchmark	Surpasses resolution of global models from <b>Europe, UK, and US</b> , which range between <b>9 km and 14 km</b>
Local Forecasting	Delivers <b>panchayat-level forecasts</b> , enabling hyperlocal warnings for extreme rainfall, floods, or heatwaves
Accuracy	Shows <b>30–64% improvement</b> in forecasting <b>extreme rainfall events</b> , based on the <b>Triangular Cubic Octahedral Grid Model</b>
Type	<b>Deterministic model:</b> Gives <b>precise weather outcomes</b> rather than probabilistic ranges

### 4. Enhancing Real-Time Forecasting: Doppler Weather Radar Network

#### What is a Doppler Weather Radar (DWR)?

- DWR is a radar system that uses the **Doppler Effect** to track:
  - **Wind speed and direction**
  - **Rainfall intensity**
  - **Thunderstorms and cyclones**
- The **Doppler Effect** involves a shift in wave frequency perceived by an observer due to relative motion between the source and the observer, enabling **real-time tracking of moving weather systems**.



### Doppler Network Expansion

- Current operational coverage: **40 Doppler radars** across India
- Targeted expansion: **Up to 100 Doppler radars**, ensuring **nationwide “nowcasting”** (2-hour real-time forecasts)
- These radars serve as the **primary data input** for BFS, refining accuracy and regional relevance

## 5. Advantages of the Bharat Forecast System for India

Domain	Impact
Disaster Management	Early warnings for floods, cyclones, and landslides help save lives and reduce economic losses
Agriculture	Micro-level weather inputs aid in crop planning, pest control, and irrigation management
Urban Planning	Supports climate-resilient infrastructure and traffic management during extreme weather
Public Health	Anticipates heatwaves and disease outbreaks, aiding health advisories and emergency services
Policy and Governance	Enables data-backed decision-making for ministries and disaster authorities

## 6. India’s Emerging Role in Global Weather Science

### Leadership in Tropical Modelling

- BFS’s tropical focus (30°S to 30°N) is crucial, as this belt includes:
  - **India, Southeast Asia, Africa, Latin America, and Pacific Island Nations**
- India can now **offer forecast services and training** to tropical countries, enhancing its role in **South-South cooperation** and **climate diplomacy**.

### Research and Women-Led Innovation

- BFS was led by **women atmospheric scientists**, highlighting **gender representation in high-impact science**.
- It sets a benchmark for **STEM-based leadership** from Indian institutions.

## 7. Conclusion: A Predictive Powerhouse for a Climate-Sensitive Nation

- The **Bharat Forecast System** elevates India’s weather intelligence infrastructure into the league of global leaders.
- By combining **scientific excellence, indigenous innovation, and gender inclusion**, BFS represents a **new paradigm in climate resilience**.

It will empower **citizens, farmers, planners, and emergency responders** with data-driven decisions in an era of rising climate uncertainty.

## Reshaping the Apex Court: The Call for a Democratic Supreme Court

### ✦ Syllabus Mapping:

#### ✓ GS Paper 2 – Polity & Governance

- Structure, Organization and Functioning of the Judiciary
- Role of Constitutional Authorities
- Separation of Powers and Judicial Reforms
- Transparency and Accountability in Governance

## 1. Background: Reimagining Power Structures within the Supreme Court

- A current judge of the **Supreme Court of India** recently emphasised the need to **transform the existing power structure** of the Court.
- Highlighting the **Chief Justice-centric functioning**, the judge proposed a shift toward a **more democratic, committee-driven model**, similar to the **functioning of High Courts**.
- The observation marks a significant moment in India’s ongoing debate over **judicial accountability and transparency**.

## 2. Understanding the Authority of the Chief Justice of India (CJI)

### Judicial Standing

- As held in *State of Rajasthan v. Prakash Chand*, the **CJI is “primus inter pares”**—*first among equals*—in judicial matters.
- However, in administrative functions, the CJI holds a **distinct and unparalleled position**—termed *sui generis*, or *unique in kind*.

### Administrative Control

- The CJI wields **exclusive authority** over:
  - **Constitution of benches**
  - **Allocation of cases**
  - **Listing of matters**
  - **Overall functioning of the Court and Registry**

## 3. Issues of Centralised Power: A Structural Critique

### Master of the Roster Doctrine

- The CJI's role as the “**Master of the Roster**” gives them **sole discretion** to decide which judge hears which case.
- This power was critically examined in *Shanti Bhushan v. Supreme Court of India (2018)*, where concerns about arbitrariness and bias were raised.

### Bench Assignments and Judicial Outcomes

- In **Constitution Bench cases**, the CJI frequently appoints themselves as the presiding judge.
- Data Insight:** Since 1950, there have been **only 14 instances of dissent by CJIs** in Constitution Bench decisions—highlighting limited judicial disagreement at the top.

### Delays in Hearings

- The CJI can **indefinitely defer hearings** by not forming a bench for politically or socially sensitive matters.
- This results in **justice being delayed or denied**, undermining judicial credibility.

## 4. Steps Towards Democratization of the Judiciary

### Public Disclosure of Roster (2018)

- Following internal discontent, the SC began **publishing subject-wise judicial rosters**, promoting transparency in **case allocation**.

### RTI Inclusion (2019)

- In *Subhash Chandra Agarwal v. Supreme Court*, a **five-judge Constitution Bench** held that the **office of the CJI is a “public authority”** under the RTI Act.

### Declaration of Assets

- For the first time, SC judges were mandated to **publicly declare their assets**, promoting **ethical standards and public trust**.

### Collegium Proceedings Made Public (2025)

- In a landmark transparency move, the SC uploaded the **entire judicial appointment process**, including **collegium discussions and recommendations**, on its official website.

## 5. Critical Issues in Need of Reform

Concern	Present Practice	Suggested Reform
<b>Concentration of power</b>	CJI decides benches, listings	Formation of an administrative committee
<b>Bench-fixing allegations</b>	Discretion-based allocation	Use of algorithmic/randomised bench creation
<b>Lack of dissent in key rulings</b>	Dominant presence of CJI	Rotate judges in Constitution Benches
<b>Delay in politically sensitive cases</b>	Selective listing control	Statutory time limits for urgent matters

## 6. Global Comparisons: Judicial Power Models

- United Kingdom:** The **President of the UK Supreme Court** does not have sole discretion over bench composition; **decisions are made collectively**.
- United States:** The **Chief Justice of the US Supreme Court** has limited administrative powers. Bench formation is **governed by institutional norms**, not personal discretion.
- European Union:** Many continental courts employ **rotating presidencies** and **panel-based decision systems**, ensuring decentralisation and independence.

## 7. Data, Insights, and Legal Commentary

- According to studies by the **Centre for Research and Planning (CRP)**, delayed formation of benches in high-profile matters is linked to **excessive administrative discretion**.
- Critics argue that the **centralisation of authority** in one individual **contradicts the spirit of constitutional democracy** and **inhibits institutional balance**.

## 8. Conclusion: Institutionalising Collegiality and Transparency

- The debate is no longer about the personal integrity of the CJI, but about creating a **system that institutionalises checks and balances**.
- A transition from a **personality-driven judiciary** to an **institutionally strong and transparent system** is the **need of the hour**.



- The **Supreme Court must lead by example**, by embracing reforms that uphold **collegiality, independence, and public accountability**—cornerstones of constitutional governance.

## NITI Aayog's 10th Governing Council Meeting

### ✦ Syllabus Mapping:

- ✓ **GS Paper 2 – Polity and Governance:** Statutory, Regulatory and Quasi-Judicial Bodies, Cooperative Federalism
- ✓ **GS Paper 2 – Inter-State Relations:** Centre-State Relations, Role of NITI Aayog
- ✓ **GS Paper 3 – Economic Development:** Inclusive Planning and Governance Mechanisms

### 1. Context: 10th Governing Council Meeting of NITI Aayog Chaired by Prime Minister

- The **Prime Minister recently chaired the 10th meeting** of the **Governing Council of NITI Aayog**, reaffirming the platform's role in **policy coordination, federal dialogue, and collaborative governance**.
- The meeting served as a **forum for states and union territories** to voice their priorities, challenges, and reform suggestions in line with **national development goals**.

### 2. NITI Aayog: A Shift from Planning to Strategy

#### Evolution and Nature

- **NITI Aayog (National Institution for Transforming India)** was established in **2015**, replacing the **Planning Commission**.
- It is a **government advisory body**, created by an **executive resolution of the Union Cabinet**.
- It is **neither a Constitutional nor a Statutory body**, making it a **non-binding think tank** rather than a funding agency.

#### Key Mandates

- Acts as the **apex public policy think tank** of the Government of India.
- Aims to promote **bottom-up planning, decentralised governance, and evidence-based policymaking**.
- Encourages **competitive and cooperative federalism**.

### 3. About the Governing Council: Federal Dialogue Mechanism

#### Composition

- **Chairperson:** Prime Minister of India
- **Members:**
  - **Chief Ministers** of all States
  - **Chief Ministers of Union Territories with Legislatures** (e.g., Delhi, Puducherry)
  - **Lieutenant Governors** of other UTs (e.g., Jammu & Kashmir, Andaman & Nicobar Islands)

#### Institutional Genesis

- The **first Governing Council** was constituted in **2015**, coinciding with the birth of NITI Aayog.
- It was later **reconstituted in 2021** to align with evolving governance dynamics and new state-level leadership.

### 4. Objectives and Functions of the Governing Council

#### Purpose

- The Governing Council is designed to **realize cooperative federalism** by bringing together the **Union and State governments on a common platform**.
- It facilitates **collaborative decision-making** on national development strategies.

#### Functional Goals

- **Deliberation on inter-sectoral and inter-departmental coordination**
- **Resolution of federal and policy bottlenecks**
- **Monitoring of flagship programs** like Gati Shakti, PM Awas Yojana, Jal Jeevan Mission, and others
- Accelerating the implementation of **Sustainable Development Goals (SDGs)** and **Vision 2047**



### 5. Importance in Contemporary Governance

Aspect	Role of Governing Council
Federal Integration	Enhances <b>Centre-State alignment</b> on major policies
Policy Experimentation	Encourages <b>best practices sharing</b> and pilot reform models
Responsive Governance	Provides a <b>feedback loop</b> from states for course correction
Holistic Development	Balances <b>local needs with national priorities</b> through dialogue

### 6. Challenges and Critical Observations

Concern	Implication
Non-binding nature of recommendations	Limits enforcement or policy convergence
Political tensions	Some Chief Ministers have <b>boycotted recent meetings</b> , affecting inclusivity
Overlapping roles with Finance Commission and Inter-State Council	Creates <b>ambiguity in federal architecture</b>
Resource constraints	NITI Aayog is not a funding body, which may reduce its influence in implementing reforms

### 7. Conclusion: Strengthening the Federal Spirit through Dialogue

- The 10th Governing Council meeting underscores the continued relevance of **NITI Aayog as a bridge** between the **Centre and States**.
- To fully realise the vision of “**Team India**”, the platform must evolve into a more **institutionalised, empowered, and participative** mechanism.
- With the increasing **complexity of governance challenges**, such forums are essential to foster **unity of purpose and diversity of solutions** in India’s policy landscape.

## Autonomous Satellites

#### 📌 Syllabus Mapping:

- ✓ **GS Paper 3 – Science & Technology:** Space Technology, Artificial Intelligence, Emerging Technologies
- ✓ **GS Paper 3 – Security:** Cybersecurity, Space Militarisation
- ✓ **GS Paper 2 – International Relations:** Outer Space Governance and Global Treaties

### 1. Context: Emergence of Autonomous Satellites as a Strategic Game-Changer

- In 2024, **China launched the world’s first autonomous or ‘self-driving’ satellites**, capable of making **independent decisions without ground intervention**.
- This development signals a transformative leap, where **satellites are evolving from passive data collectors to intelligent, operational machines**.
- Countries including **India, USA, China, and Russia** are now accelerating their **AI-based satellite programs**, blending **edge computing and real-time analytics** into outer space.

### 2. What are Autonomous Satellites?

#### Definition and Concept

- **Autonomous satellites** are **self-governing space systems** that perform various tasks with **minimal or no human control**.
- They are equipped with **Artificial Intelligence (AI), machine learning algorithms, and onboard processing systems**—collectively referred to as **satellite edge computing**.

#### From Observers to Decision-Makers

- These systems can **sense their environment, evaluate scenarios, and execute responses**—a major departure from traditional satellites that rely solely on ground instructions.

### 3. Key Applications of Autonomous Satellites

Domain	Functionality
Automated Space Operations	Perform <b>independent manoeuvres</b> , such as <b>orbital adjustments, docking, in-orbit servicing, and space debris removal</b>
Self-Diagnosis and Repair	Monitor internal systems, detect malfunctions, and <b>initiate auto-repair protocols</b> without waiting for Earth-based commands
Orbital Route Planning	Calculate and adjust <b>fuel-efficient, collision-free trajectories</b> , essential for <b>space traffic management</b>
Targeted Geospatial Intelligence	<b>Detect disasters</b> , track environmental changes, and autonomously coordinate with other satellites to <b>focus surveillance on high-priority areas</b>
Combat Support	Real-time identification of <b>aerial and space-based threats</b> , enabling <b>autonomous target tracking</b> , and possibly <b>offensive capabilities</b> in future space conflicts



### 4. Strategic and Technological Implications

#### Edge Computing in Space

- Satellites no longer need to transmit raw data to Earth for processing.
- With **AI-powered onboard processing**, they reduce latency, **accelerate decision-making**, and function with **operational autonomy in remote missions** (e.g., deep-space probes).

#### Defence and National Security

- Autonomous satellites could become part of **space-based command and control systems**, supporting **hypersonic weapons**, **ballistic missile detection**, and **intelligent battlefield networking**.
- They also offer **strategic independence** in times of **communication blackouts** or **cyberattacks** on ground stations.

### 5. Challenges and Concerns Associated with Autonomous Space Systems

Concern	Implication
AI Hallucination	The AI onboard may misinterpret patterns—e.g., <b>falsely identifying friendly satellites as hostile</b> , risking accidental escalation or satellite destruction
Lack of Legal Clarity	Existing treaties like the <b>Outer Space Treaty (1967)</b> and <b>Liability Convention (1972)</b> presume <b>human accountability</b> , creating ambiguity for <b>autonomous machine actions</b>
Cybersecurity Threats	Autonomous satellites, being data-driven, are <b>vulnerable to hacking, spoofing, or signal jamming</b> , posing risks of <b>AI misdirection or hijacking</b>
Ethical and Operational Risks	Delegating decision-making to AI in space missions raises concerns about <b>accountability, transparency, and human oversight</b> , especially in <b>combat scenarios</b>

### 6. Global Developments in Autonomous Space Technology

Country	Notable Development
China	Launched the <b>first self-driving satellite</b> in 2024, showcasing autonomous path correction and threat detection
United States (NASA + DARPA)	Developing <b>robotic servicing satellites</b> , AI-based <b>autonomous navigation systems</b> for Mars and deep space
European Space Agency (ESA)	Experimenting with <b>autonomous docking and in-orbit assembly missions</b>
India (ISRO)	Exploring AI-integration in <b>satellite data processing</b> , <b>Earth observation</b> , and <b>defence-oriented applications</b> under <b>Defence Space Agency</b> initiatives

### 7. Way Forward: Building Responsible and Resilient Autonomous Systems

Strategy	Actionable Step
Global Norms Development	Push for <b>new treaties and codes of conduct</b> that define <b>autonomy levels, accountability, and conflict prevention</b> in space
AI Ethics Frameworks	Implement <b>red lines and fail-safe protocols</b> to regulate AI behavior in autonomous spacecraft
Invest in Secure Architecture	Harden satellites against <b>cyber intrusions</b> using quantum encryption and advanced firewalls
Promote Dual-Use Balance	Balance strategic use with <b>civilian applications</b> such as disaster response, climate observation, and space exploration

### 8. Conclusion: Redefining the Skies through AI-Driven Autonomy

- Autonomous satellites mark a **technological turning point**, enabling **uninterrupted operations, real-time intelligence, and tactical agility** in space.
- However, their rise demands **parallel advancements in law, cybersecurity, and multilateral cooperation**.
- As space becomes a new arena for **strategic and scientific competition**, India must **innovate responsibly** and **shape global rules** that balance innovation with peace and stability.





# GOVERNANCE

## DHRUVA: A Geospatial Revolution in Digital Addressing

### ✦ Syllabus Mapping:

✓ GS Paper 2 – Governance (Digital Public Infrastructure, Service Delivery Mechanisms)

✓ GS Paper 3 – Science & Technology (ICT in Governance, e-Governance Applications)

### 5. Context: Launch of DHRUVA Framework by Department of Posts

The **Department of Posts (DoP)** has unveiled the policy framework for **DHRUVA (Digital Hub for Reference and Unique Virtual Address)**, India's first **nationwide digital addressing DPI**, aimed at **transforming address identity and delivery systems**.

### 2. What is DHRUVA?

Component	Details
Full Form	Digital Hub for Reference and Unique Virtual Address
Implemented By	Department of Posts (DoP), Ministry of Communications
Purpose	Provide every home in India with a <b>unique, geo-coded digital address</b>
Nature	Part of India's <b>Digital Public Infrastructure (DPI)</b> ecosystem
Framework	Recognizes <b>address information</b> as a <b>foundational layer</b> for governance

### 3. Two-Layered Structure of DHRUVA

#### A. Digital Postal Index Number (DIGIPIN)

- **10-character alphanumeric code** linked to **geo-coordinates (latitude and longitude)**
- Built over **4m x 4m geospatial grids** covering the entirety of India
- **Function:** Converts physical location into a **machine-readable code**

#### B. Digital Address Layer

- **User-consent-based platform**
- Citizens can **assign names or labels** (e.g., "MyHome", "SitaNivas") to their DIGIPIN
- Facilitates **descriptive, shareable digital addresses** without compromising privacy

### 4. Key Features of DHRUVA

- **Privacy and Security** – Consent-based sharing protects user data
- **Interoperability** – Designed to work across platforms and sectors (Govt., fintech, logistics)
- **Scalability** – Capable of scaling to all of India's households
- **Transparency and Accountability** – Open APIs, auditable layers
- **Innovation Friendly** – Enables geospatial startups and governance tech

### 5. Benefits of DHRUVA

Stakeholder	Benefits
Citizens	<ul style="list-style-type: none"><li>• Accurate delivery of ration, welfare schemes, and emergency services</li><li>• Digital KYC integration for address proof</li><li>• Better accessibility in rural and tribal areas</li></ul>
Private Sector	<ul style="list-style-type: none"><li>• Enables efficient verification and delivery by fintechs, banks, and e-commerce platforms</li><li>• Reduced costs due to improved last-mile logistics</li><li>• Facilitates expansion into underbanked or remote areas</li></ul>
Governance	<ul style="list-style-type: none"><li>• Targeted welfare delivery using verified spatial addresses</li><li>• Enhances urban planning, smart cities initiatives, and disaster response</li><li>• Geo-tagging support for assets and beneficiaries in schemes like MGNREGA and PMAY</li></ul>

## 6. Comparative Global Context

Country	Similar Initiative
Mongolia	what3words used to geocode every 3x3 m block
UK	UPRN (Unique Property Reference Number)
Ghana	Digital Address System by Ghana Post GPS

### ✓ Conclusion

DHRUVA marks a bold step toward **precision governance and inclusion**. By **digitizing and geocoding India's address infrastructure**, it opens doors to **targeted public service delivery**, fosters **private innovation**, and promotes **spatially smart administration**. With its potential to **bridge digital and physical divides**, DHRUVA will be **key to India's vision of inclusive and data-driven governance**.

## Karnataka's Ordinance for Gig Workers

### ✦ Syllabus Mapping:

✓ **GS Paper 2 – Governance:** Welfare Schemes for Vulnerable Sections, Government Policies and Interventions

✓ **GS Paper 3 – Economy:** Employment, Inclusive Growth, Informal Sector, Labour Reforms

### 1. Context

The **Karnataka Platform-Based Gig Workers (Social Security and Welfare) Ordinance, 2025** is a pioneering legal intervention addressing the **precarious conditions of gig workers**, who form a significant part of India's digital economy. With India poised to host over **23.5 million gig workers by 2030** (NITI Aayog), this ordinance holds major implications for **labour rights, platform accountability, and inclusive economic growth**.

### 2. Who are Gig Workers?

- **Definition (Code on Social Security, 2020):** A **gig worker** is a person who performs work outside the traditional employer-employee relationship.
- **Types:**
  - **Platform-based gig workers:** Work through digital platforms (e.g. **Zomato, Swiggy, Ola, Uber**).
  - **Non-platform-based gig workers:** Independent freelancers, part-time workers.

### 3. Key Features of Karnataka Ordinance 2025

Provision	Details
<b>Welfare Board</b>	A <b>state-level board</b> for registration, policy oversight, grievance redress
<b>Welfare Fund</b>	To be financed by: <ul style="list-style-type: none"> <li>- <b>Platform aggregators</b> (1–5% per transaction)</li> <li>- <b>Worker contributions</b></li> <li>- <b>State Government grants</b></li> </ul>
<b>Unique Worker ID</b>	Interoperable across all platforms to ensure <b>portability of benefits</b>
<b>Protection from Dismissal</b>	Workers to have safeguards against <b>unfair removal or deactivation</b>
<b>Algorithm Transparency</b>	Mandates <b>platforms to disclose criteria</b> used in automated decision-making (ratings, penalties, job allocation, etc.)

### 4. Challenges Faced by Gig Workers

- **No Formal Employment Status:** Excluded from social security and job benefits.
- **Algorithmic Management:** Surveillance, penalisation without human oversight.
- **Wage Volatility:** Pay-per-task without minimum wage guarantees.
- **Occupational Hazards:** Accidents, long working hours, and mental health concerns.
- **Lack of Collective Bargaining Power:** Weak representation in labour forums.

### 5. Other State and National Initiatives

State/Platform	Initiative
<b>Rajasthan (2023)</b>	First state to pass a <b>Platform-Based Gig Workers Welfare Act</b>
<b>Jharkhand (2024)</b>	Draft Bill for <b>registration and welfare</b> of gig workers
<b>E-Shram Portal (2021)</b>	Centralised database for <b>unorganised and gig workers</b> , seeded with Aadhaar

### 6. Way Forward

#### ◆ Need for a National Framework

- Current interventions are **state-based** and lack uniformity.
- A **comprehensive central legislation** is needed, inspired by ILO guidelines, to regulate gig work across India.

### ◆ Social Security Integration

- Ensure inclusion in **health insurance, accident cover, pension schemes** (e.g., Ayushman Bharat, Atal Pension Yojana).
- **Rationalisation of welfare fees** to avoid undue burden on platforms.

### ◆ Platform Accountability

- Mandate **grievance redress mechanisms**.
- Implement **data transparency standards** in algorithmic management.

### ✓ Conclusion

The **Karnataka ordinance** sets a progressive precedent in the regulation of gig economy, balancing **flexibility of digital platforms with the rights of workers**. With gig work emerging as a **new labour frontier**, India must evolve its policies to protect this large yet invisible workforce and make growth **inclusive, just, and future-ready**.

## Panchayat Advancement Index 2.0

### ✦ Syllabus Mapping:

✓ **GS Paper 2 – Governance:** Panchayati Raj Institutions, E-Governance, Local Governance Reforms

✓ **GS Paper 2 – Social Justice:** Decentralization, Inclusive Development

✓ **GS Paper 3 – Development Indicators:** Rural Development, Data-Driven Policy

## 1. Context: Launch of Panchayat Advancement Index (PAI) 2.0 Portal

- The **Ministry of Panchayati Raj** has launched the upgraded **Panchayat Advancement Index (PAI) 2.0 portal**, a data-driven initiative aimed at **objectively assessing the performance of panchayats** across India.
- Developed by the **National Informatics Centre (NIC)**, PAI 2.0 is part of India's push towards **evidence-based governance at the grassroots level**.

## 2. What is the Panchayat Advancement Index (PAI)?

### Definition and Objective

- The **Panchayat Advancement Index** is a **multi-sectoral assessment tool** designed to evaluate the **holistic development and functional effectiveness of Gram Panchayats**.
- It offers **quantitative insights** into how panchayats are progressing in alignment with **local-level Sustainable Development Goals (LSDGs)**.

## 3. Key Features of PAI 2.0

Feature	Description
<b>Developer</b>	<b>National Informatics Centre (NIC)</b>
<b>Indicator Rationalization</b>	Indicators reduced from <b>516 to 147</b> , improving <b>data quality, ease of reporting, and policy relevance</b>
<b>Multi-Domain Index</b>	Captures development across <b>nine LSDG-aligned themes</b>
<b>Granular Focus</b>	Facilitates <b>micro-level planning and monitoring</b> of local government units
<b>User-Friendly Portal</b>	Allows panchayats to <b>self-report, track progress, and generate development roadmaps</b>

## 4. Nine LSDG-Aligned Themes in PAI 2.0

Theme	Focus Area
<b>Poverty-Free Panchayat</b>	Livelihood generation, skill training, and social security
<b>Healthy Panchayat</b>	Access to healthcare, nutrition, and sanitation
<b>Child-Friendly Panchayat</b>	Early childhood development, schooling, safety
<b>Water-Sufficient Panchayat</b>	Water conservation, irrigation coverage, safe drinking water
<b>Clean and Green Panchayat</b>	Solid/liquid waste management, afforestation
<b>Self-Sufficient Infrastructure Panchayat</b>	Roads, housing, internet, electricity
<b>Socially Secured Panchayat</b>	Schemes for elderly, disabled, and marginalized groups
<b>Women-Friendly Panchayat</b>	Female participation, safety, income generation
<b>Well-Governed Panchayat</b>	Digital services, citizen engagement, transparency



## 5. Why is PAI 2.0 Significant?

- **Evidence-Based Governance:** Enables **data-driven decision-making** at the **lowest tier of governance**, ensuring policies are **context-specific and inclusive**.
- **Decentralized Monitoring:** Allows **Panchayati Raj Institutions (PRIs)** to **self-assess performance**, identify gaps, and adopt **customized developmental interventions**.
- **LSDG Localization:** Supports the Ministry's effort to **localize the Sustainable Development Goals**, bridging global objectives with **rural realities**.
- **Fiscal Planning Support:** Can guide **State Finance Commissions** and **Centrally Sponsored Schemes** in allocating funds **more efficiently** based on real performance.

## 6. Challenges in Implementing PAI Effectively

Challenge	Mitigation Strategy
Data Authenticity	Introduce <b>real-time data validation tools</b> and <b>third-party audits</b>
Digital Literacy of Panchayat Functionaries	Conduct <b>capacity-building workshops</b> and <b>training on digital governance</b>
Lack of Infrastructure in Remote Panchayats	Improve <b>internet access</b> and <b>ICT infrastructure</b> in rural and tribal areas
Integration with Existing Platforms	Ensure <b>interoperability</b> with <b>eGramSwaraj</b> , <b>DISHA portal</b> , and other rural data ecosystems

## 7. Conclusion: Strengthening Panchayati Raj through Smart Metrics

- The **PAI 2.0 portal** represents a forward-thinking approach to **decentralized development**, enabling Gram Panchayats to become **self-evaluating, self-improving, and data-empowered institutions**.
- With a focus on **quality, simplification, and outcome-oriented planning**, it marks a critical step toward **transforming India's rural governance landscape** in line with **LSDGs** and **Amrit Kaal Vikas** vision.

## Emblems and Names (Prevention of Improper Use) Act, 1950

### 📌 Syllabus Mapping:

- ✓ **GS Paper 2 – Governance** (Government policies and interventions; Important Acts and Legal Frameworks)
- ✓ **GS Paper 4 – Ethics** (Public/Civil Service Values and Ethics in Public Administration; Role of Symbols in Public Integrity)

## 1. Context

- The **Supreme Court recently dismissed a plea** seeking to honour a freedom fighter under the **Emblems and Names (Prevention of Improper Use) Act, 1950**, reasserting the sanctity and **non-commercial use of national symbols and legacies**.

## 2. Overview of the Emblems and Names Act, 1950

Feature	Details
Objective	To <b>prevent misuse</b> of national symbols and names for <b>commercial or professional gains</b>
Scope	Applies <b>across India</b> and also to <b>Indian citizens abroad</b>
Penalty	Fine <b>up to ₹500</b> for violations (Section 5)
Emblems Defined	Includes <b>flag, seal, insignia, coat-of-arms</b> , and <b>pictorial representations</b> specified under the Act
Prohibited Uses	No person shall use these for <b>trade, business, or professional purposes</b> without prior permission

## 3. Items Protected under the Act (As per Schedule)

Category	Examples
National Symbols	<b>Indian National Flag, State Emblem of India, Ashoka Chakra, official seals</b> of the President or Governors
National Figures	<b>Mahatma Gandhi, Jawaharlal Nehru, Indira Gandhi</b> , and other specified leaders
Global Bodies	<b>UNO, WHO, Red Cross, Interpol</b> , etc.
Institutions	Names of <b>Government of India, Rashtrapati Bhavan, Rajya Sabha, Lok Sabha</b>

## 4. Relevance of the Act

a) **Preserving National Integrity:** Prevents the **commercialisation of national icons** and emblems for **personal or political gains**.

b) **Preventing Misrepresentation:** Misuse of names such as "Gandhi" or "Ashoka" may **confuse the public** or be used to **exploit emotional sentiments** for marketing or political mileage.

c) **Ethical Significance**

- Promotes the **dignity and sanctity** of national symbols by preventing trivial or profane use.
- Reflects **ethical restraint in public life**, aligning with **Kautilya's Arthashastra**, which stressed state symbols be revered and not misused for private ends.

## 5. Judicial Perspective

- **Supreme Court in the recent case (2025)** upheld the spirit of the Act, observing:

“Public honour must be accorded through **state policy** or statutory mechanism, and not through misapplication of laws intended to prevent misuse.”

- The Court reiterated that **the purpose of the Act is to restrict, not to bestow**, and that **glorification must follow legal decorum and national interest**.

## 6. Limitations and Challenges

Concern	Explanation
<b>Low Penalty</b>	The <b>maximum fine of ₹500</b> is outdated and fails to deter misuse in today's commercialised media and business climate
<b>Lack of Awareness</b>	Many entities, especially startups and local businesses, unknowingly use protected names or emblems
<b>Digital Age Challenges</b>	Widespread <b>misuse on social media, advertisements</b> , and domain names is difficult to regulate under current provisions

## 7. Way Forward

- **Amend the Act** to **increase penalties**, especially for **repeat or commercial violations**.
- **Awareness campaigns** about proper use of national symbols, especially for digital creators, advertisers, and businesses.
- **Digital regulation frameworks** to track online violations, including **AI-powered image and name recognition** tools.
- Strengthen **inter-agency coordination** (with Ministry of Home Affairs, I&B, and IT Ministry) to ensure robust enforcement.

## ✓ Conclusion

The **Emblems and Names (Prevention of Improper Use) Act, 1950** is a vital legal safeguard to **preserve the dignity of national symbols and revered personalities**. While its moral and symbolic value is high, there is a **pressing need to modernise the Act** to address digital misuse and commercial exploitation in the **21st-century information economy**. Strengthening this legislation will uphold the **sanctity of national honour** and align governance with

## Reappraisal of CSSs and CSs: Towards Efficient Public Spending

### ✦ Syllabus Mapping:

✓ **GS Paper 2 – Governance:** Government Policies & Interventions, Role of NGOs, SHGs, and Institutions

✓ **GS Paper 3 – Budgeting:** Public Finance, Fiscal Policy, Outcome-Based Evaluation

## 1. Context: Review of Government Schemes for Next Cycle (Post-2026)

- The **Central Government** has initiated the process of **appraisal and approval** of all **Centrally Sponsored Schemes (CSSs)** and **Central Sector Schemes (CSs)**.
- This is to determine their **continuation, merger, restructuring, or phasing out** after **31st March 2026**, aligning with the upcoming **16th Finance Commission cycle** starting **April 1, 2026**.

## 2. Scope of Review

Category	Total Schemes under Review	Terminal Date
<b>Centrally Sponsored Schemes (CSSs)</b>	54	31 March 2026
<b>Central Sector Schemes (CSs)</b>	260	31 March 2026

## 3. Mandate for Appraisal

- **Sunset Clause Requirement:**  
As per **Union Budget 2016**, all schemes must contain a **pre-defined closing date** unless renewed post-evaluation.
- **Outcome-Based Review:**  
Ensures **accountability and efficiency** in the use of public funds.
- **Appraisal Agencies:**
  - **CSSs:** Evaluated by **Development Monitoring and Evaluation Organisation (DMEO)**, NITI Aayog
  - **CSs:** Evaluated by **third-party agencies** selected by the respective **line ministries**

## 4. Significance of Scheme Appraisal

- **Elimination of Redundancy:** Identify **outdated or overlapping schemes**
- **Merger and Rationalisation:** Consolidate schemes to **improve efficiency and reduce administrative costs**
- **Resource Optimisation:** Free up resources for **new and high-impact interventions**



- **Alignment with Current Priorities:** Reflect the government's **changing priorities**, such as **climate resilience**, **women empowerment**, and **digital governance**

### 5. About Centrally Sponsored Schemes (CSSs)

Feature	Description
Funding Pattern	Jointly funded by <b>Centre and States</b>
Implementation	<b>State Governments</b> execute
Policy Domain	Mostly in <b>State and Concurrent List</b> subjects
Categories	3 types: <ol style="list-style-type: none"><li>1. <b>Core of the Core</b> (e.g., MGNREGA, NRHM)</li><li>2. <b>Core Schemes</b> (e.g., Swachh Bharat, Mid-Day Meal)</li><li>3. <b>Optional Schemes</b> (State discretion-based)</li></ol>

### 6. About Central Sector Schemes (CSs)

Feature	Description
Funding Pattern	<b>100% funded by Central Government</b>
Implementation	By <b>Central Ministries or agencies</b>
Policy Domain	Sectors in the <b>Union List</b>
Examples	PM Gati Shakti, INSPIRE Awards, National Digital Health Mission

### 7. Way Forward

- **Data-driven Governance:** Institutionalising **performance audits** for continuous scheme improvement
- **Stakeholder Involvement:** Inclusion of **state governments, civil society, and beneficiaries** in the review process
- **Digital Dashboards:** Use of **real-time data tracking** for transparency and accountability

### ✓ Conclusion

This appraisal is a step towards **transforming public expenditure into outcomes**, not just outlays. It reinforces India's transition towards a **leaner, result-oriented governance model**, ensuring that **scarce fiscal resources are optimally allocated** in line with national priorities and people's needs.

## Pro-Active Governance and Timely Implementation (PRAGATI)

#### ✦ Syllabus Mapping:

✓ **GS Paper 2 – Governance (Government Policies and Interventions, E-Governance)**

✓ **GS Paper 3 – Infrastructure (Investment Models, Project Management)**

### 1. Context: PM Chairs Latest PRAGATI Meeting

- **Prime Minister** recently chaired a meeting under **PRAGATI**, reviewing the progress of various infrastructure and governance-related projects and programs.

### 2. What is PRAGATI?

Aspect	Details
Full Form	Pro-Active Governance and Timely Implementation
Launched	2015, by the Prime Minister's Office (PMO)
Nature	A multi-purpose, multi-modal e-platform
Objective	- Address grievances of the common man - <b>Monitor key infrastructure and public service projects</b> - <b>Resolve inter-ministerial and Centre-State coordination issues</b>
Access	Video conferencing & digital dashboards connecting PMO, Union Secretaries, and State Chief Secretaries

### 3. Structural Design: Three-Tier System

Tier	Role
PMO	Oversees coordination, chairs the review meetings
Union Secretaries	Present central schemes and sector-specific updates
State Chief Secretaries	Represent state-level project execution and flag delays or concerns

### 4. Key Features and Functionalities

- **Integrated Platform:** Unifies **PMO, central ministries**, and **states** under one digital framework.
- **Real-Time Monitoring:** Uses data dashboards and live updates from ministries and departments.





- **Review Frequency:** Monthly PRAGATI meetings chaired directly by the PM.
- **Follow-Up Mechanism:** Every decision is recorded and **reviewed for compliance** in subsequent meetings.
- **Redressal Component:** Common man's grievances from the **Centralised Public Grievance Redress and Monitoring System (CPGRAMS)** are also addressed.

## 5. Achievements and Impact

Metric	Details
Total Projects Reviewed (till June 2023)	340 projects
Value of Projects Reviewed	₹17.05 lakh crore (≈ \$205 billion)
Major Sectors Covered	Railways, Road Transport, Power, Petroleum, Water Resources
Grievance Redressals	Issues raised by citizens, pending for over 2 years, resolved promptly

## 6. Significance of PRAGATI

- **Reduces Bureaucratic Delays:** Removes inter-ministerial hurdles by direct intervention from top-level administration.
- **Boosts Infrastructure Development:** Ensures timely delivery of **flagship projects** like Smart Cities, Sagarmala, Bharatmala, etc.
- **Strengthens Cooperative Federalism:** Enhances **Centre-State coordination** for better governance outcomes.
- **Digital Governance Model:** A benchmark in **e-Governance**, combining technology with administrative oversight.



## Conclusion

PRAGATI embodies a shift toward **real-time, top-level governance**, making it one of the **most transformative initiatives** in ensuring accountability and timely implementation of public projects. As India marches toward a **\$5 trillion economy**, platforms like PRAGATI are crucial to fast-track development and bridge governance gaps.

# INTERNATIONAL RELATIONS

## India Labels Proxy War as Direct War

### ✦ Syllabus Mapping:

- ✓ **GS Paper 2 – International Relations:** India-Pakistan Relations, Cross-Border Terrorism
- ✓ **GS Paper 3 – Internal Security:** Hybrid Warfare, Border Management, Terrorism
- ✓ **GS Paper 2 – Governance:** Institutional Response to Terrorism

## 1. Context: PM's Bold Assertion on Proxy War as Direct War

- On **28 May 2025**, the **Prime Minister of India** strongly criticized **Pakistan's use of terrorism as a strategic tool**, declaring that **proxy warfare is now tantamount to direct warfare**.
- This signals a **significant policy shift** in India's security doctrine, with broader **strategic, diplomatic, and legal implications** for future response mechanisms.

## 2. What is a Proxy War?

- **Definition:** A **proxy war** is a conflict in which **states support non-state actors**, such as **militant groups**, to wage war **indirectly** without being officially involved.
- **Classification:** Proxy war is a **sub-component of hybrid warfare**, blending:
  - **Conventional war** (troop deployment),
  - **Unconventional tactics** (cyber warfare, disinformation),
  - **Terrorism** (e.g., cross-border militancy),
  - **Economic sabotage**.

## 3. Pakistan's Role in Proxy War Against India

Mechanism	Description
Terrorist Groups	Pakistan's ISI supports groups like <b>Lashkar-e-Taiba (LeT)</b> and <b>Jaish-e-Mohammed (JeM)</b> to destabilize <b>Jammu &amp; Kashmir</b> .
Training and Logistics	Arms training, weapon supply, safe havens, infiltration support provided across <b>Line of Control (LoC)</b> .

<b>Online Radicalization</b>	Coordinated disinformation campaigns and use of <b>social media influencers and OGWs</b> (Over Ground Workers).
<b>Funding Networks</b>	Channels through <b>Hawala</b> , charities, and NGOs to finance sleeper cells and operations.

## 4. Strategic Motivations Behind Proxy War

**4.1 Plausible Deniability:** Pakistan avoids **direct accountability**, evades international scrutiny by blaming “**non-state actors**” for attacks.

**4.2 Strategic Depth:** Enables **remote control** of events and **psychological warfare**, while staying out of formal war declarations.

### 4.3 Cost Asymmetry

- Minimal investment in **militants and covert ops** causes **heavy economic and human losses** to India.
- Pakistan’s “**Thousand Cuts**” Doctrine aims at **bleeding India gradually** through repeated low-intensity conflicts.

## 5. Impact of Proxy War on India

Impact Area	Description
<b>National Sovereignty</b>	Undermines territorial integrity; e.g., insurgency in <b>Kashmir</b> and <b>Northeast</b> .
<b>Loss of Lives</b>	Continuous civilian and security personnel casualties in regions like <b>Pulwama, Uri, Manipur</b> .
<b>Economic Costs</b>	Higher <b>defence expenditure</b> , disrupted local economies, <b>strained infrastructure</b> in border areas.
<b>Social Polarization</b>	Disinformation campaigns and cross-border propaganda create <b>social unrest</b> .

## 6. India’s Response Mechanism

### 6.1 Three-Pillar Security Doctrine

Recently announced by the PM, this doctrine emphasizes:

- Proxy War = Direct War:** Any cross-border terrorism will be treated as **state-sponsored aggression**.
- Zero Tolerance Policy:** No differentiation between **terrorists and their sponsors**.
- Global Alliances:** Strengthening **strategic partnerships** for joint counter-terrorism.

### 6.2 Modernizing Border Management

- Implementation of **Comprehensive Integrated Border Management System (CIBMS)** along LoC and IB.
  - Includes: **Smart fences, thermal imagers, ground sensors, radar-based surveillance**.

### 6.3 Cybersecurity Enhancements

- Institutions such as:
  - CERT-In** (Indian Computer Emergency Response Team),
  - NTRO** (National Technical Research Organisation)
  - Defence Cyber Agency**
- Focus on **counter-cyber ops**, securing **critical digital infrastructure** from Pakistan-based cyber espionage units.

### 6.4 International Measures

- UNSC 1267 Sanctions Committee:** Instrumental in listing individuals like **Masood Azhar** and **Hafiz Saeed** as global terrorists.
- FATF Pressure:** India’s lobbying led to Pakistan being “**grey listed**” for terror financing lapses (2018–2022).
- Bilateral & Multilateral Engagements:** Leveraging forums like **QUAD, BRICS, G20**, and **UNHRC** to raise global awareness.

## 7. Comparative Global Examples of Proxy War

Region	Example
<b>Middle East</b>	<b>Iran–Saudi Arabia</b> rivalry in <b>Yemen</b> and <b>Syria</b> using proxy militias
<b>Afghanistan</b>	The <b>Soviet–US cold war rivalry</b> saw the CIA funding <b>Mujahideen fighters</b>
<b>Ukraine</b>	Western vs. Russian interests through <b>military and cyber operations</b>

## 8. Conclusion: Rewriting the Strategic Narrative

- By declaring **proxy war as direct war**, India has drawn a **clear red line**.
- It reflects an evolution from **reactive diplomacy** to **assertive strategic posture**.
- The emphasis now lies on **pre-emptive actions, international isolation of sponsors**, and **tech-driven surveillance** to neutralize threats at the source.
- The road ahead requires a **synergized national security architecture, global consensus against terrorism**, and **sustained internal resilience**.



## Global Recognition for AYUSH

### ✦ Syllabus Mapping:

- ✓ **GS Paper 2 – International Relations:** International Institutions and Agreements, WHO Collaborations
- ✓ **GS Paper 2 – Governance:** Health Policies, Integration of Traditional Medicine
- ✓ **GS Paper 3 – Science & Technology:** Indian Systems of Medicine, Innovation and Regulation in Healthcare

## 1. Context: India-WHO Partnership to Mainstream Traditional Medicine

- On **26 May 2025**, India entered a **landmark agreement with the World Health Organization (WHO)** to globally formalize and recognize **traditional medicine systems** such as **Ayurveda, Yoga, Unani, and Siddha (AYUSH)**.
- The agreement introduces a **dedicated Traditional Medicine module** within the **International Classification of Health Interventions (ICHI)**—a vital step towards **standardizing and globalizing AYUSH practices**.

## 2. What is ICHI? Understanding the Global Classification Framework

### Definition and Purpose

- The **International Classification of Health Interventions (ICHI)** is a **WHO-endorsed standardized tool** for describing, coding, and reporting **health interventions** across countries.
- It is designed for **clinical use, statistical analysis, health financing, and policy-making**.

### Key Features

- Health Intervention** under ICHI is defined as:  
“An act performed for, with, or on behalf of a person or population to assess, improve, maintain, promote or modify health or health conditions.”
- Developed by the **WHO-Family of International Classifications (WHO-FIC)**.
- Complements **ICD-11 (International Classification of Diseases)** and **ICF (International Classification of Functioning)**.

### Scope of ICHI

- ICHI covers all sectors of healthcare, including:
  - Primary and acute care**
  - Rehabilitation and mental health**
  - Preventive and public health services**
  - Traditional medicine systems**, now formally integrated through the new module

## 3. The New Traditional Medicine Module: Highlights and Impact

### Recognition and Standardization

- Integrates **AYUSH therapies** such as:
  - Panchakarma (Ayurveda)**
  - Yogic interventions (Yoga therapy)**
  - Unani detox procedures**
  - Siddha diagnostic methods**
- These therapies are now **classified in scientific, globally accepted terminologies**, bridging the gap between **ancient wisdom and modern healthcare frameworks**.

### Health Sector Benefits

Sector	Advantages
Insurance	Enables <b>AYUSH inclusion in global health insurance frameworks</b> , improving accessibility and affordability
Billing and Pricing	Promotes <b>transparent and fair pricing</b> for AYUSH services worldwide
Hospital Management	Improves <b>clinical documentation, data management, and interoperability of health records</b>
Health Research	Enhances opportunities for <b>cross-country research</b> , evidence-building, and <b>comparative effectiveness studies</b>
Global Access	Paves the way for AYUSH systems to become <b>mainstream in integrative healthcare</b> , beyond India

## 4. India's Role in Global Traditional Medicine Advocacy

### Institutional Efforts

- Ministry of AYUSH** has been at the forefront of:
  - Establishing **Global Centres of Traditional Medicine**
  - Promoting **evidence-based AYUSH protocols** in collaboration with WHO
- India hosts the **WHO Global Centre for Traditional Medicine (GCTM)** in **Jamnagar, Gujarat**—the first of its kind worldwide.





### International Outreach

- India's collaboration with WHO also strengthens its **soft power diplomacy**, making AYUSH a key instrument of **health-based international engagement**.
- Traditional systems from India are increasingly **integrated into national health policies** across countries like:
  - Sri Lanka
  - Mauritius
  - UAE
  - Germany (via wellness tourism and naturopathy)

## 5. Challenges and the Road Ahead

Challenge	Required Action
<b>Skepticism and lack of empirical validation</b>	Invest in <b>clinical trials, peer-reviewed research, and scientific publishing</b>
<b>Regulatory harmonization</b>	Create <b>global safety and efficacy standards</b> for AYUSH formulations
<b>Integration into medical curricula</b>	Promote <b>AYUSH education in global medical schools</b> through standardized modules
<b>Infrastructure gaps</b>	Upgrade <b>digital health records and coding systems</b> in Indian AYUSH hospitals to align with ICHI

## 6. Conclusion: Toward a Global AYUSH Ecosystem

- The India-WHO partnership under ICHI represents a **paradigm shift** in how **traditional knowledge systems** are positioned in the **global health architecture**.
- With proper **documentation, data generation, and international standardization**, AYUSH can become a **credible and complementary part of modern healthcare**.
- This move marks a **new era of integrative medicine**, where **ancient traditions meet global evidence-based frameworks**, reinforcing **India's leadership** in promoting holistic well-being worldwide.

## National Skill Development Corporation (NSDC)

### ✦ Syllabus Mapping:

✓ **GS Paper 2 – Government Policies & Interventions (Skill Development, PPP Models)**

✓ **GS Paper 3 – Indian Economy (Employment, Inclusive Growth)**

## 1. Context: Leadership Change at NSDC

- The **Board of Directors of NSDC** has **terminated the services of its Chief Executive Officer (CEO)**, bringing focus back on the governance and functioning of this key body under the **Skill India Mission**.

## 2. Overview of NSDC

Feature	Description
<b>Established</b>	2008
<b>Legal Status</b>	Not-for-profit public limited company under <b>Section 25 of Companies Act, 1956</b> (now <b>Section 8 of Companies Act, 2013</b> )
<b>Type</b>	<b>Public-Private Partnership (PPP)</b> model
<b>Parent Ministry</b>	<b>Ministry of Skill Development &amp; Entrepreneurship (MSDE)</b>
<b>Ownership</b>	<b>49% Government of India and 51% private sector</b>

## 3. Objectives and Mandate of NSDC

- Catalyse Skill Development** across India by promoting private sector participation.
- Serve as a **knowledge partner** and **implementation agency** for the **Skill India Mission**.
- Promote **industry-relevant, employable vocational training** to empower India's **demographic dividend**.
- Facilitate the **creation of large-scale, for-profit vocational institutions** and **skill training providers**.

## 4. Key Functions of NSDC

Domain	Activities
<b>Funding Support</b>	Provides <b>financial assistance</b> to private sector training providers through debt, equity, or grants.
<b>Standardization</b>	Develops <b>National Occupational Standards (NOS)</b> and <b>Qualification Packs (QPs)</b> via Sector Skill Councils (SSCs).
<b>Capacity Building</b>	Partners with industry, NGOs, state governments, and academia to build <b>skilling capacity</b> .
<b>Digital Skilling</b>	Supports <b>online learning platforms, blended models</b> , and partnerships like eSkill India.
<b>Monitoring &amp; Evaluation</b>	Conducts real-time <b>skill gap analysis</b> , performance monitoring, and course validation.

## 5. Significance of NSDC in India's Skilling Ecosystem

- **Supports Skill India Mission** (2015), aimed at skilling over **40 crore individuals** by 2022 and beyond.
- Enables **industry-aligned skilling**, helping bridge the **demand-supply gap** in the job market.
- Operates through **Sector Skill Councils (SSCs)** for domain-specific expertise and certifications.
- Integral to schemes like:
  - **PMKVY** (Pradhan Mantri Kaushal Vikas Yojana)
  - **UDAAN Scheme** (for J&K youth)
  - **STRIVE** (Strengthening Industrial Training Institutes)

## 6. Challenges Faced by NSDC

- **Governance issues:** Frequent leadership changes and operational conflicts with private partners.
- **Quality concerns:** Inconsistencies in training standards and outcomes.
- **Placements vs. Training:** Low placement-to-training ratio across many skilling programs.
- **Accountability:** Misutilisation of funds in the past raised concerns over **transparency**.

## 7. Way Forward

- **Strengthen Oversight:** Institutional reforms and an empowered oversight body for accountability.
- **Demand-Driven Skilling:** Align programs with **market requirements**, emerging technologies, and future-of-work sectors.
- **Enhance Monitoring:** Leverage **AI and real-time analytics** to track skilling outcomes.
- **Public-Private Synergy:** Redefine PPP model for shared risk, innovation, and output-based funding.
- **Focus on Women & Marginalized Youth:** Integrate inclusivity and social equity into the skill development strategy.

## ✓ Conclusion

The **NSDC remains a cornerstone** of India's skilling ecosystem. However, recent developments around its leadership underscore the need for **institutional transparency, robust governance, and strategic recalibration** to fulfill its mission of making India the **Skill Capital of the World**.

## Green Line and the Israel–Palestine Conflict

### ✈ Syllabus Mapping:

✓ **GS Paper 2 – International Relations**

✓ **GS Paper 1 – World History (Post-War Political Developments in Middle East)**

## 1. Why in News?

- Amid the **Israel–Gaza conflict (2024–25)**, discussions over the **"Green Line"** have re-emerged in global diplomacy.
- The **Green Line** remains a focal point in debates over **borders, sovereignty, and a two-state solution**.

## 2. What is the Green Line?

Aspect	Description
<b>Origin</b>	<b>1949 Armistice Agreements</b> between <b>Israel and Arab states</b> (Egypt, Jordan, Lebanon, and Syria) after the <b>First Arab–Israeli War (1948–49)</b> .
<b>Nature</b>	It is a <b>ceasefire boundary</b> , not a formally recognized <b>international border</b> .
<b>Color</b>	It was drawn in <b>green ink</b> on military maps, hence the name.
<b>Status</b>	Marked the <b>de facto boundaries of Israel</b> until the 1967 Six-Day War. Still referred to in UN negotiations.

## 3. Territorial Divisions under the Green Line

Region	Control as per 1949 Agreements
<b>West Bank</b>	Occupied by <b>Jordan</b>
<b>East Jerusalem</b>	Occupied by <b>Jordan</b>
<b>Gaza Strip</b>	Occupied by <b>Egypt</b>
<b>Israel</b>	Controlled areas west of the Green Line

- **Palestinian Territories** (West Bank, East Jerusalem, Gaza) **lay outside the Green Line**.
- Israel's **1967 occupation** of these territories blurred the boundary's relevance, but it **still holds legal and diplomatic significance** in international discussions.

## 4. Contemporary Relevance of the Green Line

### A. Diplomatic Significance

- **UN Resolutions** (e.g., **Resolution 242**) refer to Israeli withdrawal from territories **occupied beyond the Green Line**.
- **Two-State Solution Model**: Envisions Israel and Palestine as separate states with the Green Line as the basis for the border.

### B. Ongoing Issues

- **Settlements**: Israeli settlements in **West Bank and East Jerusalem** have expanded **beyond the Green Line**, violating international law (as per the Geneva Conventions).
- **Security Barrier**: Israel's **West Bank wall/fence** deviates from the Green Line, enclosing more territory.
- **Jerusalem**: Both Israel and Palestine claim **Jerusalem**, but the **Green Line divides East (Palestinian) and West (Israeli) Jerusalem**.

## 5. Historical Context of Border Ambiguity

- **Surrounding Arab States (1948–49)**: Did **not recognize Israel**, leading to no formal **recognition of borders**.
- As a result, the **Green Line was treated as a ceasefire line**, not a **recognized political boundary**.
- The **Oslo Accords (1990s)** also left final border decisions unresolved.

## 6. Global Perspective and India's Stand

Stakeholder	Stand on Green Line
United Nations	Recognizes the <b>pre-1967 borders (Green Line)</b> as the legal baseline for a <b>two-state solution</b> .
European Union	Opposes settlement expansion <b>beyond the Green Line</b> .
India	Supports a <b>two-state solution</b> with <b>East Jerusalem as Palestine's capital</b> , implicitly recognizing the Green Line.

### ✓ Conclusion

The **Green Line is not merely a historical boundary**, but a **living symbol of unresolved conflict**, sovereignty claims, and aspirations for peace in the Middle East. As tensions rise in the **Israel-Gaza conflict**, the Green Line continues to serve as a **point of reference for international law, diplomacy, and territorial justice**.

## India–Germany Strategic Partnership @25

### ✦ Syllabus Mapping:

- ✓ **GS Paper 2 – International Relations: Bilateral Relations, Strategic Groupings, Agreements**
- ✓ **GS Paper 3 – Environment: International Cooperation on Climate Action and Sustainability**

## 1. Introduction

As India and Germany commemorate **25 years of their Strategic Partnership**, the relationship reflects deep-rooted cooperation in **economic, environmental, geopolitical, and technological domains**. Their collaboration serves as a model for **North-South global cooperation**, with a shared commitment to **rules-based international order, climate justice, and multilateral reforms**.

## 2. Evolution of Ties

### ◆ Early Diplomatic Foundations

- India was **one of the first countries** to establish ties with post-WWII Germany.
- Ties strengthened post-Cold War, with shared democratic values and emphasis on **economic modernization**.

### ◆ Strategic Partnership (2000–2025)

- Formalised in **2000**, the partnership encompasses:
  - **Security and defence dialogue**
  - **Clean energy collaboration**
  - **High technology trade**
  - **People-to-people linkages** through education and migration

## 3. Key Dimensions of the Partnership

### ◆ Economic and Trade Cooperation

- **Germany is India's largest trading partner in Europe**.



- Around **1,800 German companies** operate in India (BMW, Siemens, Bosch, etc.).
- Key sectors: **Automobile, Engineering, Renewable Energy, Smart Infrastructure**
- Total bilateral trade: Crossed **€30 billion** in 2023.

### ◆ Green and Sustainable Development Partnership (GSDP)

- Launched in 2022 to foster **climate-resilient growth** in India.
- Germany pledged **€10 billion** (till 2030) in:
  - **Climate financing**
  - **Clean energy access**
  - **Sustainable urban mobility**
  - **Green hydrogen development**
- Supports India's targets under **Panchamrit** and **LiFE (Lifestyle for Environment)** movements.

### ◆ Technological and Educational Ties

- **Skill development** collaborations via GIZ and I-GnITE programs.
- Over **35,000 Indian students** in Germany as of 2024 (2nd largest group of foreign students).
- Indo-German Science & Technology Centre (IGSTC) promotes **R&D in Artificial Intelligence, Clean Tech, Robotics**.

### ◆ Geostrategic and Multilateral Cooperation

- Both are part of the **G4 grouping** (India, Germany, Japan, Brazil) advocating **UN Security Council reforms**.
- Joint support for:
  - **Rules-based Indo-Pacific** (Germany's Indo-Pacific guidelines 2020)
  - **Global climate governance**
  - **Reformed multilateral institutions** like IMF, WTO, WHO

## 4. Recent Developments and Highlights (2024–2025)

Area	Recent Progress
<b>G20 and COP28</b>	Joint pitch for <b>climate finance and green technology</b> transfer
<b>Migration &amp; Mobility Pact</b>	Signed to facilitate <b>skilled workforce exchange</b> and academic mobility
<b>Defence Collaboration</b>	Discussion underway on <b>co-development of submarines</b> and high-end tech
<b>India-EU FTA Talks</b>	Germany supporting <b>India-EU Free Trade Agreement</b> negotiations

## 5. Challenges and Opportunities

### ⚠ Challenges

- **Trade imbalances** and regulatory hurdles (stringent EU norms)
- Divergence on **Russia-Ukraine war** and Global South alignment
- **Delays in defence collaboration** due to bureaucratic procedures

### ✅ Opportunities

- Leveraging **Make in India + Germany's engineering strength**
- Advancing **green hydrogen corridors and battery technology**
- Enhancing **cybersecurity and AI cooperation**
- Deepening ties in **Indo-Pacific maritime security frameworks**

### ✅ Conclusion

The **25th anniversary** of the India–Germany Strategic Partnership marks not just a milestone, but a **launchpad for deeper cooperation** in shaping a greener, secure, and inclusive global future. As both nations evolve into **technological and sustainable powerhouses**, their partnership can **set the tone for equitable North-South collaboration** in the **21st century multipolar order**.

## Panama's Strategic Significance and Support for India at UNSC

### ✦ Syllabus Mapping:

- ✓ GS Paper 2 – International Relations (India and its bilateral/global groupings), UN Reforms
- ✓ GS Paper 1 – Geography (World Geography – Physical and Political features)

### 1. Context: Panama Supports India for a Permanent UNSC Seat

- **Panama**, during recent diplomatic engagements, has extended its **support for India's candidature** as a **permanent member** of the **United Nations Security Council (UNSC)**.
- This adds to the growing chorus for **UN reform** and broader representation for the **Global South**.

### 2. Political Features of Panama

Attribute	Details
<b>Capital</b>	<b>Panama City</b>
<b>Location</b>	Central America, on the <b>Isthmus of Panama</b>
<b>Borders (Land)</b>	<b>Costa Rica (West)</b> and <b>Colombia (East)</b>
<b>Borders (Sea)</b>	<b>Caribbean Sea (North)</b> and <b>Pacific Ocean (South)</b>

- **Geostrategic Importance:** Panama acts as a **land bridge** between **North and South America**, enhancing its logistical and geopolitical value.

### 3. Geographical Significance: The Panama Canal

- **About:** An artificial **82 km-long canal**, connecting the **Atlantic Ocean (via the Caribbean Sea)** with the **Pacific Ocean**.
- **Commissioned:** 1914, under U.S. administration; handed over to **Panama in 1999**.
- **Global Importance:**
  - One of the **busiest maritime routes** alongside the **Suez Canal**.
  - Reduces travel time and cost for shipping by **eliminating the long route around South America's Cape Horn**.
  - Carries nearly **5% of global maritime trade**.

### 4. Panama's Support and India's UNSC Aspirations

#### 🌐 Why Panama's Endorsement Matters:

- **Geopolitical Balancing:** Signals **Global South solidarity** for more equitable global governance.
- **India-Latin America Relations:** Reflects India's growing diplomatic outreach in **Central and South America**.
- **Moral Authority:** Panama, as the custodian of a key global commons (Panama Canal), adds **moral weight** to multilateral issues.

### 5. India's Case for UNSC Reform

Justifications	Details
<b>Demographic and Economic Size</b>	Represents <b>1/6th of humanity</b> ; 5th largest economy in the world
<b>Global Responsibilities</b>	Leading voice in <b>climate action</b> , <b>peacekeeping</b> , and <b>global health</b>
<b>UN Peacekeeping</b>	Among the <b>top troop contributors</b> to UN peacekeeping missions
<b>Support from Nations</b>	Supported by <b>Panama, Brazil, Germany, Japan, and France</b>

### ✓ Conclusion

Panama's support reaffirms **India's rising stature in the international order** and the **increasing legitimacy of demands for UNSC reform**. As the world faces transnational challenges—climate change, digital governance, energy transition—the inclusion of **emerging powers** like India becomes vital for a **representative, effective, and just multilateral system**.

## RIC Revival: Strategic Balancing in a Shifting Geopolitical Landscape

### ✦ Syllabus Mapping:

- ✓ GS Paper 2 – International Relations: Bilateral, Regional and Global Groupings
- ✓ GS Paper 3 – Internal Security (Strategic Autonomy, Border Issues)

### 1. Context: Russia's Call to Revive RIC Format

Russia has proposed **reviving the Russia-India-China (RIC)** trilateral dialogue mechanism, citing **de-escalation signals along the India-China border**. The **RIC format**, dormant since the **2020 Galwan Valley incident**, is now under consideration again amidst evolving global power dynamics.

## 2. About the RIC Format

Aspect	Details
Origin	Conceptualized by <b>Russia in late 1990s</b>
Nature	<b>Informal strategic trilateral</b> dialogue among India, Russia, and China
Objective	Promote <b>multipolarity</b> , reduce <b>Western dominance</b> , and coordinate on key global issues
Mechanism	<b>Ministerial-level meetings</b> , over <b>20 meetings</b> since inception
Dormancy	Post <b>India-China Galwan clashes (2020)</b>

## 3. Strategic Importance of RIC

### A. Geopolitical Weight

- **19% of global landmass, 33% of global GDP**
- All three are **nuclear powers**
- Members of **BRICS, SCO, G20**, and **UN bodies**

### B. Non-Western Multilateralism

- Promotes **multipolar world order**
- Counters **Western-centric narratives**
- Calls for **equity in global institutions** (e.g., UNSC reform)

### C. Economic and Regional Integration

- Synergy with **Eurasian Economic Union (EEU)** and **International North-South Transport Corridor (INSTC)**
- Could boost **trade connectivity** across Eurasia

## 4. Challenges to the Revival of RIC

Challenge	Explanation
<b>India-China Border Disputes</b>	<b>Ongoing LAC tensions</b> , lack of trust post-Galwan limit scope for trilateral consensus
<b>Strategic Ambiguity</b>	India's <b>deepening ties with the West (Quad, I2U2)</b> complicate its RIC engagement
<b>Russia-China Axis</b>	Russia's increasing <b>strategic and economic reliance on China</b> post-Ukraine war raises India's concern of imbalance
<b>Structural Incoherence</b>	Divergent visions on global governance—China's assertiveness vs. India's <b>strategic autonomy</b>

## 5. Significance for India

### Opportunities

- **Platform for dialogue** with China amid border tensions
- Reaffirms India's commitment to **non-alignment and strategic autonomy**
- Useful **counterweight to Western pressure** and leverage in global forums

### Risks

- Risk of being seen as **tilting toward anti-West alliances**
- May **dilute India's independent voice** if alignment between Russia and China overshadows Indian concerns
- Might **compromise India's Indo-Pacific outreach**, especially within the Quad

## 6. Way Forward for India

Strategic Steps	Rationale
<b>Pursue Issue-based Engagement</b>	Join RIC meetings selectively based on agenda and national interest
<b>Reinforce Strategic Autonomy</b>	Avoid getting locked into <b>either Western or Sino-Russian blocs</b>
<b>Use RIC for Dialogue with China</b>	Use trilateral format to <b>ease bilateral tensions indirectly</b>
<b>Balance Multilateralism</b>	Maintain strong presence in <b>Quad, BRICS, SCO, and G20</b> to hedge bets

### ✓ Conclusion

The **revival of the RIC format** symbolizes both **geopolitical recalibration** and a **test of India's diplomatic dexterity**. While India must engage constructively, it should ensure its **core interests, strategic autonomy, and border concerns remain uncompromised**. In a fragmented world order, **balancing competing blocs through issue-based, multi-vector diplomacy** will be India's most potent foreign policy tool.





## SECURITY & DEFENCE

### Inter-Services Organisations Rules, 2025

#### ✦ Syllabus Mapping:

✓ **GS Paper 2 – Polity & Governance** (Government Rules, Acts & Administration)

✓ **GS Paper 3 – Security** (Defence Reforms, Military Jointness)

#### 1. Why in News?

- The **Government notified the Inter-Services Organisations (Command, Control and Discipline) Rules, 2025**.
- These rules are part of the **Inter-Services Organisations Act, 2023**, aimed at improving **jointness** among armed forces, strengthening **command control**, and **resolving disciplinary matters efficiently**.

#### 2. Background and Need

Issue	Previous Gap
<b>Fragmented Command Structure</b>	Disciplinary and administrative authority was restricted to personnel of the same service.
<b>Lack of Jointness</b>	Joint Commands existed (e.g., Andaman & Nicobar Command) but without legal framework to enforce unified discipline.
<b>Duplication of Proceedings</b>	Same act/offence required <b>separate proceedings</b> under different service Acts (Army/Navy/Air Force Acts).
<b>Administrative Delay</b>	Slowed down execution of operational and personnel matters in Inter-Service Establishments.

#### 3. About the Inter-Services Organisations (Command, Control & Discipline) Act, 2023

Provision	Details
<b>Objective</b>	To empower Inter-Service Organisations (ISOs) with legal authority over personnel from all three services (Army, Navy, Air Force).
<b>Formation of ISOs</b>	The <b>Central Government can establish</b> ISOs such as Joint Services Commands (JSCs), training institutes, logistics depots, etc.
<b>Leadership</b>	Headed by a <b>Commander-in-Chief (CiC)</b> or <b>Officer-in-Command (OiC)</b> .
<b>Commanding Officer (CO)</b>	Designated over specific units, ships or establishments.
<b>Superintendence</b>	Vested with <b>Central Government</b> to issue directions on national security, administration, or public interest.

#### 4. Key Provisions of the 2025 Rules

Provision	Explanation
<b>Disciplinary Powers</b>	Full authority to <b>CiC, OiC, and CO</b> to initiate and complete <b>disciplinary action</b> across services.
<b>Administrative Powers</b>	These officers can <b>administer service conditions</b> and maintain decorum within ISOs.
<b>Residuary Powers</b>	Any powers not specified or arising in doubt will be <b>referred to the Central Government</b> .
<b>Expeditious Disposal</b>	Aims to <b>avoid duplication</b> of proceedings and enable <b>faster resolution</b> of cases.

#### 5. Significance of the Rules

##### A. Enhances Jointness

- Legalises **integrated command** across Army, Navy and Air Force.
- Promotes **unified response** in operational and administrative spheres.

##### B. Efficiency in Discipline

- Reduces **jurisdictional hurdles**, enabling faster decisions in cases of misconduct or disputes.

##### C. Boost to Theatre Command Reforms

- Aligns with the proposed **theatre command structure**, where integrated forces will operate under **single unified commands**.

##### D. Operational Clarity

- Commanders now have **clearly defined authority** over all personnel under their control, regardless of their parent service.

## 6. Strategic & Contemporary Relevance

Dimension	Insight
National Security	Faster decision-making improves <b>readiness in conflict zones</b> , including borders and maritime areas.
Administrative Modernisation	Aligned with the vision of <b>Chief of Defence Staff (CDS)</b> to modernize and unify military operations.
International Examples	Similar unified command structures exist in the <b>US (Unified Combatant Commands)</b> and <b>China (Theatre Commands)</b> .
Current Relevance	Given <b>ongoing border tensions</b> (e.g., LAC with China), integrated operational capability becomes vital.

### ✓ Conclusion

The **Inter-Services Organisations (Command, Control & Discipline) Rules, 2025** mark a significant step in India's military reform journey. By granting clear powers to unified command structures, they lay the legal groundwork for future **theatre commands**, enhancing India's **military synergy, discipline, and operational readiness**.

## Fibre-Optic First-Person-View (FPV) Drones in Warfare

### ✈ Syllabus Mapping:

- ✓ **GS Paper 3 – Security (Challenges to Internal Security through Communication Networks, Role of Technology in Warfare)**
- ✓ **GS Paper 3 – Science & Technology (Developments and their Applications and Effects in Everyday Life)**

### 1. Context: Use in Russia–Ukraine War

- **Fibre-optic FPV drones** have recently been deployed in **combat operations** by both Russian and Ukrainian forces.
- They represent an evolution in **drone warfare**, addressing vulnerabilities of conventional FPV drones to **electronic warfare (EW)**.

### 2. What are Fibre Optics FPV Drones?

Feature	Description
Definition	<b>Kamikaze (suicide) drones</b> navigated using <b>fibre optic cables</b> instead of radio signals
Working Principle	Operates on <b>total internal reflection</b> —light signals travel through glass or plastic threads
Visual Feedback	Provides <b>First-Person-View (FPV)</b> for real-time high-definition video to the operator

### 3. Key Advantages

Advantage	Explanation
Immune to Jamming	<b>Radio silence</b> makes them <b>undetectable</b> and <b>immune to electronic warfare systems</b>
Secure Communication	<b>Fibre cable</b> makes data interception or manipulation <b>extremely difficult</b>
High-Resolution Targeting	Enables <b>precise strikes</b> with near real-time HD video feed
Better Terrain Navigation	Enhanced capability in <b>urban warfare or tunnels</b> , where GPS may be unreliable
Lower Power Use	More <b>efficient battery consumption</b> due to lack of wireless signal broadcast

### 4. Limitations

Drawback	Details
Mobility Constraint	The drone is <b>physically tethered</b> via cable, which may limit speed or agility
Cable Snagging	In <b>complex terrains</b> , the fibre cable may get <b>entangled</b> or damaged
Deployment Complexity	Requires <b>specialised training and coordination</b> , increasing operational complexity

### 5. Strategic and Military Implications

- **Tactical Superiority:** Offers a significant edge in **close combat and target destruction** missions without EW exposure.
- **Shift in Drone Warfare:** Indicates a **paradigm shift** in how drones are used in **electronic warfare-dense environments**.
- **Global Relevance:** Countries like **India** can study such technologies for **border warfare, anti-insurgency operations, and counter-terrorism**.

### ✓ Conclusion

**Fibre-optic FPV drones** mark the next leap in **stealth combat technology**, particularly suited for **asymmetric and electronic warfare zones**. As seen in the **Russia-Ukraine war**, such innovations will shape **future battlefield doctrines**, demanding swift adaptation by modern militaries like India.

# ECONOMY

## Charting the Rise as the World's 4th Largest Economy

### ✦ Syllabus Mapping:

✓ **GS Paper 3 – Indian Economy:** Growth and Development, Economic Reforms, Infrastructure

✓ **GS Paper 2 – Governance & Policies:** Government Initiatives and Institutional Reforms

✓ **GS Paper 1 – Geography of India and World:** Human Development and Urbanization

## 1. Context: India Becomes the World's 4th Largest Economy

- According to the **International Monetary Fund (IMF) World Economic Outlook (2025)**, India has overtaken Japan to become the **4th largest economy globally** in nominal GDP terms.
- The development was confirmed by the **NITI Aayog CEO**, marking a **historic milestone** in India's economic journey and reflecting the **country's resilience, policy direction, and global integration**.

## 2. Structural Drivers Behind India's Economic Surge

### Urbanization and Rising Aspirations

- Rapid **urban expansion** is transforming consumption patterns, infrastructure, and services.
- A growing middle class with **higher per capita income** is fuelling **lifestyle consumption and retail growth**.

### Demographic Dividend

- With a **median age of ~29 years**, India has one of the **youngest populations globally**.
- This demographic profile offers a **productive workforce** and **potential for innovation, entrepreneurship, and domestic consumption**.

### Domestic Demand and Consumption

- Private consumption** accounts for **nearly 70% of GDP**, anchoring growth amid global volatility.
- India's **internal market strength** has shielded the economy from external shocks and made it a lucrative destination for global investors.

## 3. Policy Reforms Catalysing Economic Momentum

### Taxation and Business Environment

- Implementation of:
  - Goods and Services Tax (GST)** for unified tax structure
  - Insolvency and Bankruptcy Code (IBC)** for faster resolution
  - Corporate tax cuts** to attract investment and boost competitiveness

### Infrastructure and Manufacturing Push

- Flagship initiatives:
  - National Infrastructure Pipeline (NIP)** targeting ₹111 lakh crore investments
  - PM Gati Shakti** for multimodal connectivity and logistics efficiency
  - Atmanirbhar Bharat Abhiyan** to reduce import dependency
  - Production-Linked Incentive (PLI) schemes** across 14 sectors

### Digital Public Infrastructure

- India's **Digital Revolution** includes:
  - Unified Payments Interface (UPI)**: Facilitating over 10 billion transactions/month
  - JAM Trinity (Jan Dhan-Aadhaar-Mobile)**: Enabling financial inclusion
  - Digital ID, eKYC, and Direct Benefit Transfers (DBT)** transforming governance and delivery systems

## 4. Technological and External Catalysts

### IT and Software Exports

- India remains a **global leader in IT services, consulting, and fintech**.



- Growing demand for **AI, cybersecurity, and cloud services** has expanded export opportunities.

### Foreign Direct Investment (FDI) Inflows

- Liberalised FDI norms and improved **Ease of Doing Business** have boosted **foreign capital inflows**, particularly in:
  - Manufacturing
  - Renewable energy
  - Telecom and tech sectors

### Global Supply Chain Rebalancing

- India's role in initiatives like:
  - **'China Plus One' Strategy** adopted by global firms
  - **Supply Chain Resilience Initiative (SCRI)** with Japan and Australia
- These trends are repositioning India as a **manufacturing and logistics hub**.

## 5. India's Future Economic Outlook: Path to 3rd Largest Economy

### Timeline and Projections

- India is **projected to surpass Germany** and become the **3rd largest global economy** in the **next 2.5 to 3 years**, depending on growth consistency and macroeconomic conditions.

### Green Growth and Energy Transition

- India is leading in:
  - **Renewable energy expansion**, with a target of **500 GW by 2030**
  - Founding role in the **International Solar Alliance (ISA)** and **Global Biofuels Alliance**
- These initiatives support India's rise as a **sustainable growth model**.

### Financial Sector and Regulatory Stability

- Institutional strength via:
  - **Reserve Bank of India (RBI)** ensuring monetary stability
  - **Banking sector recapitalisation**, Non-Performing Asset (NPA) reduction, and fintech regulation
- Confidence in **regulatory predictability** attracts long-term investors.

## 6. Global Comparison: India's Ascent in Economic Rankings

Rank	Country	Approx. Nominal GDP (2025, IMF)
1	United States	\$26.9 trillion
2	China	\$18.5 trillion
3	Germany	\$4.9 trillion
4	<b>India</b>	<b>\$4.3 trillion</b>
5	Japan	\$4.2 trillion

*Note: Rankings are based on nominal GDP; in PPP terms, India is already 3rd.*

## 7. Conclusion: A Moment of Transformation, Not Triumph

- India's leap to the 4th position is **not merely statistical**, but a **strategic opportunity**.
- Sustaining this growth demands:
  - **Deepening reforms**
  - **Investing in education and skill development**
  - **Strengthening social infrastructure and innovation ecosystems**
- With strong **governance, resilience, and demographic momentum**, India is poised to emerge as a **global growth engine** in the decades ahead.

## Policy Blueprint for India's Medium Enterprises by NITI Aayog

### 📌 Syllabus Mapping:

- ✅ **GS Paper 3 – Indian Economy:** Industrial Policy, MSME Sector, Inclusive Growth
- ✅ **GS Paper 2 – Governance:** Government Schemes, E-Governance, Skill Development
- ✅ **GS Paper 3 – Science & Technology:** Innovation, Industry 4.0, Research & Development

## 1. Context: NITI Aayog's New Report on Medium Enterprises Policy

- On 27 May 2025, NITI Aayog released a report titled “Designing a Policy for Medium Enterprises”, focusing on **structural issues and untapped potential** within India’s **Micro, Small, and Medium Enterprises (MSME)** sector.
- The report proposes **tailored policy interventions** to support **medium enterprises**, a sub-segment often overlooked in policy narratives despite its **disproportionate contribution to exports and employment**.

## 2. MSME Sector: A Snapshot of Contribution and Composition

Indicator	Value
Share in GDP	~29%
Share in Exports	~40%
Employment Contribution	Over 60% of India's workforce
Composition of Registered MSMEs	<ul style="list-style-type: none"> <li>Micro Enterprises: 97%</li> <li>Small Enterprises: 2.7%</li> <li>Medium Enterprises: 0.3%  </li> <li>Despite being only 0.3% of MSMEs, medium enterprises contribute 40% of total MSME exports, making them a <b>high-value, high-potential group</b> in need of <b>targeted policy attention</b>.</li> </ul>

## 3. Key Challenges Faced by Medium Enterprises

### 3.1 Technological Backwardness

- A staggering **82% of medium enterprises** lack integration with **Industry 4.0 tools** such as **Artificial Intelligence (AI)**, **Internet of Things (IoT)**, and **automation**.
- This results in **lower productivity**, **higher operational costs**, and **competitive disadvantage** in global markets.

### 3.2 Underutilization of Government Training Schemes

- 88% of medium enterprises** are not participating in any **government skill development programmes**, leading to a **skills mismatch** and **lower workforce efficiency**.

### 3.3 Limited Access to Finance

- As per the **World Bank Indian MSME Financing Report**, only **37% of medium enterprises** manage to secure **formal credit**.
- Reliance on **informal channels** increases cost of capital and restricts business expansion.

### 3.4 Regulatory and Compliance Burden

- Medium enterprises face **frequent inspections** from multiple authorities (labour, environment, health, etc.), resulting in **time loss**, **higher compliance costs**, and **operational disruptions**.

### 3.5 Low Investment in R&D

- Only **22% of medium enterprises** undertake any **Research & Development (R&D)**, in contrast to **60% of large firms**.
- This hampers **product innovation**, **process improvement**, and **export competitiveness**.

## 4. Proposed Way Forward: Targeted Policy Interventions

Policy Focus Area	Recommendations
Access to Finance	<ul style="list-style-type: none"> <li>Launch a working capital-linked credit scheme</li> <li>Introduce a ₹5 crore business credit card at market-linked rates</li> </ul>
Digital Integration & Compliance Support	<ul style="list-style-type: none"> <li>Create a dedicated sub-portal on the Udyam Platform for medium enterprises</li> <li>Include scheme discovery tools, compliance navigators, and AI-based support systems</li> </ul>
Skill Development and Capacity Building	<ul style="list-style-type: none"> <li>Embed medium-enterprise-specific modules in the ESDPs</li> <li>Facilitate industry-academia linkage for training relevance</li> </ul>
Innovation and R&D	<ul style="list-style-type: none"> <li>Set up cluster-based testing infrastructure</li> <li>Establish an R&amp;D incentive mechanism under the National Innovation Mission</li> </ul>
Ease of Doing Business	<ul style="list-style-type: none"> <li>Reduce inspection frequency via a risk-based compliance framework</li> <li>Promote self-certification mechanisms where applicable</li> </ul>

## 5. Strategic Importance of Medium Enterprises in India's Growth Story

Parameter	Strategic Significance
Export Powerhouse	High value-added products, global market penetration
Employment Generation	Balance between scalability and labour intensity
Innovation Potential	Agile enough to innovate; large enough to implement
Link in Global Value Chains (GVCs)	Serve as essential suppliers to large corporations, both domestic and international

## 6. Conclusion: From Marginalisation to Mainstreaming Medium Enterprises

- The **medium enterprise segment** represents the “**missing middle**” in India’s industrial structure—too large for micro-support schemes, too small to compete with large firms.
- NITI Aayog’s policy blueprint underscores the **urgency of crafting specialized institutional, financial, and technological support** to unleash their full potential.
- With focused intervention, medium enterprises can evolve into **engines of innovation, employment, and export growth**, propelling India toward its **\$5 trillion economy goal**.

## Buzzing Growth: India's Rising Honey Production and Export Potential

### 📌 Syllabus Mapping:

- ✓ **GS Paper 3 – Economy:** Agricultural Produce, Value Addition, Export Potential
- ✓ **GS Paper 3 – Environment:** Biodiversity and Apiculture
- ✓ **GS Paper 2 – Government Schemes & Policies:** Doubling Farmers' Income, Livelihood Promotion

## 1. Context: India's Honey Production Sees a 60% Surge in the Last Decade

- The **Prime Minister recently highlighted** that honey production in India has **increased by 60%** over the past **11 years**, reflecting the success of **policy support, growing market demand, and apiculture development programs**.
- This growth underscores India’s potential in the **global value chain of natural sweeteners** and its importance in **farmers’ income diversification**.

## 2. Current Status of Honey Production in India

Parameter	Value
Annual Production (2023-24)	~1.25 lakh metric tonnes
Previous Production (2012-13)	~70,000–75,000 metric tonnes
Growth Over 11 Years	Approx. 60% increase
Global Rank	7th largest honey producer
Leading Producer	China continues to dominate both <b>production and export</b> globally

## 3. State-Wise Contribution to Honey Production (2022–23)

State	Share in National Production (%)
Uttar Pradesh	17%
West Bengal	16%
Punjab	Notable Contributor
Bihar	Emerging Hub
Rajasthan	Arid-region apiculture innovation

- Northern and Eastern Indian states** dominate honey production due to favorable **floral diversity and agro-climatic conditions**.

## 4. Honey Export Performance: India in the Global Market

### Export Share and Trends

- Over 50% of India’s honey production is exported**, reflecting strong international demand for **organic, floral, and medicinal honey varieties**.

### Major Export Destinations (2023–24)

- United States of America (USA)**
- United Arab Emirates (UAE)**
- Saudi Arabia**
- Qatar**
- Libya**
- India’s honey exports cater to both **retail and industrial sectors**, including **cosmetics, pharmaceuticals, and natural food products**.



## 5. Benefits of Honey Production for India's Rural Economy

Dimension	Impact
<b>Livelihood Diversification</b>	Empowers <b>marginal and landless farmers</b> , especially in tribal and forest regions
<b>Women Empowerment</b>	Bee-keeping promoted as a <b>micro-entrepreneurship model</b> under various self-help programs
<b>Agricultural Productivity</b>	Enhances <b>pollination efficiency</b> , increasing yield of crops like mustard, sunflower, and fruits
<b>Export Value Addition</b>	High demand for <b>multifloral, eucalyptus, wild forest, and organic honey</b> in niche markets

## 6. Policy Support and Government Initiatives

### National Beekeeping & Honey Mission (NBHM)

- Launched under the **Ministry of Agriculture and Farmers Welfare**
- Focuses on:
  - Capacity building**
  - Quality control labs**
  - Marketing and branding support**
  - Bee-keeping infrastructure**

### Sweet Revolution

- A part of 'Atmanirbhar Bharat Abhiyan', aiming to:
  - Increase **production, processing, and export**
  - Generate **employment and sustainable livelihoods**

### Other Related Initiatives

- Bee Banks and Bee Villages**
- Subsidized **Bee Boxes** and **starter kits** for new beekeepers
- FPO-based approach for **aggregation and branding**

## 7. Challenges in the Sector

Challenge	Explanation
<b>Adulteration and Quality Control</b>	Export rejections due to <b>non-compliance with food safety standards</b> (especially in EU)
<b>Climate Sensitivity</b>	Bee colonies are sensitive to <b>weather fluctuations, pesticides, and monoculture crops</b>
<b>Logistics and Storage</b>	Lack of <b>cold chain and decentralized processing units</b>
<b>Lack of Research &amp; Data</b>	Limited access to <b>scientific breeding and floral mapping</b>

## 8. Way Forward: Creating a Sustainable Apiculture Ecosystem

Priority Area	Policy Recommendation
<b>Traceability and Branding</b>	Develop <b>GI tags</b> and <b>blockchain-based tracking systems</b> for premium honey
<b>Floral Mapping</b>	Promote <b>bee-friendly plantations</b> and <b>seasonal floral atlases</b> at regional levels
<b>Export Compliance Support</b>	Set up <b>residue testing labs</b> and quality certification under FSSAI and APEDA
<b>Market Access</b>	Integrate beekeepers with <b>e-NAM</b> and <b>agri-export clusters</b> for better prices

## 9. Conclusion: Harnessing the Sweet Potential

- The sharp rise in honey production, export demand, and policy momentum places apiculture at the heart of India's **rural transformation strategy**.
- Strengthening **infrastructure, quality control, and global branding** can enable India to emerge as a **world leader in ethical and sustainable honey production**, while improving **farmer incomes and rural employment**.

## National Skill Development Corporation (NSDC)

### 📌 Syllabus Mapping:

- ✅ **GS Paper 2 – Government Policies & Interventions (Skill Development, PPP Models)**
- ✅ **GS Paper 3 – Indian Economy (Employment, Inclusive Growth)**

## 1. Context: Leadership Change at NSDC

- The **Board of Directors of NSDC** has **terminated the services of its Chief Executive Officer (CEO)**, bringing focus back on the governance and functioning of this key body under the **Skill India Mission**.

## 2. Overview of NSDC

Feature	Description
Established	2008
Legal Status	Not-for-profit public limited company under <b>Section 25 of Companies Act, 1956</b> (now <b>Section 8 of Companies Act, 2013</b> )
Type	<b>Public-Private Partnership (PPP)</b> model
Parent Ministry	<b>Ministry of Skill Development &amp; Entrepreneurship (MSDE)</b>
Ownership	<b>49% Government of India and 51% private sector</b>

## 3. Objectives and Mandate of NSDC

- **Catalyse Skill Development** across India by promoting private sector participation.
- Serve as a **knowledge partner** and **implementation agency** for the **Skill India Mission**.
- Promote **industry-relevant, employable vocational training** to empower India's **demographic dividend**.
- Facilitate the **creation of large-scale, for-profit vocational institutions** and **skill training providers**.

## 4. Key Functions of NSDC

Domain	Activities
<b>Funding Support</b>	Provides <b>financial assistance</b> to private sector training providers through debt, equity, or grants.
<b>Standardization</b>	Develops <b>National Occupational Standards (NOS)</b> and <b>Qualification Packs (QPs)</b> via Sector Skill Councils (SSCs).
<b>Capacity Building</b>	Partners with industry, NGOs, state governments, and academia to build <b>skilling capacity</b> .
<b>Digital Skilling</b>	Supports <b>online learning platforms, blended models</b> , and partnerships like eSkill India.
<b>Monitoring &amp; Evaluation</b>	Conducts real-time <b>skill gap analysis</b> , performance monitoring, and course validation.

## 5. Significance of NSDC in India's Skilling Ecosystem

- **Supports Skill India Mission** (2015), aimed at skilling over **40 crore individuals** by 2022 and beyond.
- Enables **industry-aligned skilling**, helping bridge the **demand-supply gap** in the job market.
- Operates through **Sector Skill Councils (SSCs)** for domain-specific expertise and certifications.
- Integral to schemes like:
  - **PMKVY** (Pradhan Mantri Kaushal Vikas Yojana)
  - **UDAAN Scheme** (for J&K youth)
  - **STRIVE** (Strengthening Industrial Training Institutes)

## 6. Challenges Faced by NSDC

- **Governance issues:** Frequent leadership changes and operational conflicts with private partners.
- **Quality concerns:** Inconsistencies in training standards and outcomes.
- **Placements vs. Training:** Low placement-to-training ratio across many skilling programs.
- **Accountability:** Misutilisation of funds in the past raised concerns over **transparency**.

## 7. Way Forward

- **Strengthen Oversight:** Institutional reforms and an empowered oversight body for accountability.
- **Demand-Driven Skilling:** Align programs with **market requirements**, emerging technologies, and future-of-work sectors.
- **Enhance Monitoring:** Leverage **AI and real-time analytics** to track skilling outcomes.
- **Public-Private Synergy:** Redefine PPP model for shared risk, innovation, and output-based funding.
- **Focus on Women & Marginalized Youth:** Integrate inclusivity and social equity into the skill development strategy.



## Conclusion

The NSDC remains a **cornerstone** of India's skilling ecosystem. However, recent developments around its leadership underscore the need for **institutional transparency**, **robust governance**, and **strategic recalibration** to fulfill its mission of making India the **Skill Capital of the World**.

## RoDTEP Scheme Revived for AA, EOU, and SEZ Units



### Syllabus Mapping:



**GS Paper 3 – Indian Economy** (Growth, Development & Employment; Government Schemes; WTO Compliance)

## 1. Recent Update

- The Government of India has restored the RoDTEP scheme benefits to Advance Authorization (AA) holders, Export-Oriented Units (EOUs), and Special Economic Zone (SEZ) units.
- This move is aimed at **boosting India's export competitiveness** and addressing exporters' long-standing demands for inclusivity.

## 2. About RoDTEP Scheme (Remission of Duties and Taxes on Exported Products)

Feature	Details
Launched	January 2021
Administering Ministry	Ministry of Commerce and Industry
Replaced	MEIS (Merchandise Exports from India Scheme)
WTO Compatibility	Yes – In line with WTO's ruling against MEIS (which was deemed WTO non-compliant)
Type of Scheme	Refund-based Export Incentive Scheme

## 3. Objective of RoDTEP

- To **refund embedded, unrebated taxes and duties** (central, state, local) that are **not covered under any other export incentive schemes**.
- To **enhance export competitiveness** by ensuring **zero-rating of exports** in a **WTO-compliant** manner.
- To provide a **level playing field** to Indian exporters in global markets.

## 4. Key Features

Component	Description
Scope	Covers <b>all sectors</b> , including labor-intensive ones such as <b>textiles, agriculture, leather, engineering goods</b>
Refund Types	Refunds cover <b>duties/taxes/levies</b> on fuel, electricity, mandi tax, VAT on transportation, etc.
Mode of Refund	Via <b>electronic transferable scrips</b> on ICEGATE portal; credited to the exporter's ledger account
RoDTEP Rates	Vary from <b>0.5% to 4.3%</b> of the FOB value depending on the product and HS Code

## 5. Significance of Inclusion of AA, EOUs and SEZ Units

Entity	Benefit Gained
Advance Authorization (AA) Holders	Earlier excluded due to duty-free import status, now they can claim refunds on <b>other local levies</b>
Export-Oriented Units (EOUs)	Gain relief on <b>state/local level taxes</b> not exempted under their status
SEZ Units	Get coverage for <b>embedded taxes</b> , ensuring fair treatment and increasing SEZ attractiveness

## 6. Economic and Trade Implications

- Boosts Export Growth:** Especially for **MSMEs and manufacturing sectors**.
- Reduces Cost of Production:** Leading to **price competitiveness** in the global market.
- Complies with Global Trade Rules:** Avoids WTO penalties or challenges.
- Encourages Formalisation:** Drives more units to register and comply with export documentation norms.

## ✓ Conclusion

The restoration of **RoDTEP benefits** to **AA, EOUs, and SEZs** reaffirms the government's commitment to **export-led growth** while staying **WTO-compliant**. In the backdrop of global supply chain shifts and rising competition, such incentives are crucial for **enhancing India's share in world trade**. Strategic integration of such schemes with **logistics support, digital trade facilitation, and FTA negotiations** will further solidify India's position in the global export arena.

## Rising Outbound FDI from India: Strategic or Concerning?

### ✦ Syllabus Mapping:

- ✓ **GS Paper 3 – Indian Economy: Capital flows, Investment Models, Economic Growth**
- ✓ **GS Paper 2 – Bilateral Relations and Economic Diplomacy**

## 1. Context

The **Department of Economic Affairs**, Ministry of Finance, in its **Monthly Economic Review (April 2025)**, has flagged the **significant increase in outward FDI by Indian companies** as an area that “**warrants attention**.”

During FY25, **net capital outflows (FDI + FPI)** increased sharply, with **FDI alone rising by \$12.5 billion**.

## 2. Understanding Key Terms

Term	Meaning
<b>Foreign Direct Investment (FDI)</b>	Investment by a resident of one country in a business located in another country, with <b>control or significant influence</b> (10%+ stake in case of listed Indian companies).
<b>Foreign Portfolio Investment (FPI)</b>	Investment in financial assets like stocks and bonds without control or management role.
<b>Outward FDI</b>	FDI made by Indian firms abroad—via <b>equity, loans, or guarantees</b> .



## 3. Factors Behind Increased Capital Outflows

### A. Global and Domestic Drivers

- **Global Uncertainty:** Trade tensions (e.g. US–China tariffs) and **geopolitical instability** discourage domestic expansion.
- **Regulatory Arbitrage:** **Favourable tax treaties** with **Mauritius, Singapore, Netherlands** attract Indian capital.
- **Guarantee Route:** Rise in **corporate guarantees** to overseas subsidiaries—used as a less-regulated growth mode.
- **Market Expansion Motives:** Indian firms seeking **footholds in Africa, Southeast Asia, and Middle East** to integrate into global value chains.
- **Low Returns in Domestic Market:** Domestic demand-side limitations and **regulatory hurdles** slow down returns on capital.

## 4. Economic Implications of Outward FDI

### \*\*A. Negative Consequences

Impact	Details
<b>Reduced Domestic Investment</b>	As per MoSPI, Indian corporate investment declined from <b>₹6.6 lakh crore in 2024-25</b> to <b>₹4.9 lakh crore in 2025-26</b> .
<b>Stock Market Volatility</b>	Capital outflows can <b>trigger FII withdrawals</b> , leading to <b>market corrections</b> .
<b>Pressure on Rupee</b>	Outflows can widen <b>Current Account Deficit (CAD)</b> and deplete <b>Forex reserves</b> , causing <b>currency depreciation</b> .

### \*\*B. Positive Effects

Impact	Details
<b>Global Business Expansion</b>	Enhances India's <b>corporate footprint</b> and global competitiveness.
<b>Soft Power Leverage</b>	Indian investments in Africa and South Asia build <b>diplomatic goodwill</b> and <b>influence regional geopolitics</b> .
<b>Capital Diversification</b>	Reduces over-reliance on domestic returns; allows <b>portfolio and risk diversification</b> .
<b>Regulatory Reforms</b>	Signals need to <b>improve Ease of Doing Business (EoDB)</b> and create <b>incentives</b> for domestic reinvestment.

## 5. Way Forward

Policy Suggestions	Rationale
<b>Strengthen Domestic EoDB</b>	By cutting red tape and improving judicial/land/labour reforms, domestic investment can be made more attractive.
<b>Review Treaty Abuse</b>	Curb <b>round-tripping</b> via tax havens like Mauritius while retaining genuine business interest.
<b>Monitor Guarantee Channels</b>	Strengthen RBI's oversight over <b>non-equity-based</b> FDI routes.
<b>Targeted Incentives</b>	Offer sector-specific incentives to encourage reinvestment within India in sunrise sectors like <b>semiconductors, AI, EVs</b> .

### ✓ Conclusion

While increased outward FDI reflects **maturing Indian corporates** with **global ambitions**, it also raises red flags on **domestic economic bottlenecks**. A **balanced policy response** is needed—supporting global expansion while also reviving the **investment climate at home**, thereby ensuring a **virtuous cycle of growth, jobs, and productivity**.

## IBBI Amends CIRP Regulations to Boost Transparency and Flexibility

### ✦ Syllabus Mapping:

- ✓ **GS Paper 3 – Indian Economy: Banking Sector, Insolvency Reforms, Regulatory Bodies**
- ✓ **GS Paper 2 – Governance: Statutory Bodies (IBBI), Regulatory Reforms**

## 1. Context

The **Insolvency and Bankruptcy Board of India (IBBI)** has notified amendments to the **Insolvency Resolution Process for Corporate Persons Regulations, 2016**, aiming to enhance **stakeholder inclusion, regulatory efficiency, and market flexibility** in line with evolving insolvency trends.

## 2. Key Amendments Notified by IBBI

Aspect	Details
<b>Revised Forms &amp; Monthly Compliance</b>	Introduced <b>standardized monthly reporting</b> to reduce compliance burden on Insolvency Professionals (IPs) and streamline CIRP monitoring.
<b>Greater Flexibility in Resolution</b>	IPs can now invite <b>resolution plans for the entire corporate debtor or for sale of individual assets</b> . This accommodates sectoral buyers and optimizes asset-specific resolutions.
<b>Enhanced Stakeholder Participation</b>	<b>Committee of Creditors (CoC)</b> can now invite <b>interim finance providers</b> to observe CoC meetings— <b>without voting rights</b> . Enhances transparency in fund sourcing.
<b>Panel of IPs for Appointment</b>	A <b>zone-wise panel of IPs</b> (effective <b>July 1–Dec 31, 2025</b> ) will be maintained to <b>reduce delays</b> in appointments by <b>NCLT/DRT</b> , improving turnaround time.

### 3. About Corporate Insolvency Resolution Process (CIRP)

Feature	Description
<b>Purpose</b>	To assess if a defaulting corporate debtor can repay its debt. If not, it triggers either <b>restructuring or liquidation</b> .
<b>Initiated By</b>	(a) <b>Financial Creditor</b> , (b) <b>Operational Creditor</b> , or (c) <b>Corporate Debtor itself</b> .
<b>Timeline</b>	Resolution must be completed in <b>330 days (including litigation)</b> as per the IBC (Amendment) Act, 2019.
<b>Outcome</b>	Either <b>resolution plan approved by CoC and NCLT</b> , or <b>liquidation process initiated</b> .

### 4. Institutional Framework under IBC, 2016

Pillar	Function
<b>1. Insolvency Professionals (IPs) &amp; Agencies (IPAs)</b>	Administer insolvency and liquidation proceedings.
<b>2. Information Utilities (IUs)</b>	Store validated data about debts and defaults.
<b>3. Adjudicating Authorities (AA)</b>	<b>NCLT</b> for corporate cases; <b>DRT</b> for individuals and partnerships.
<b>4. Appellate Authorities</b>	<b>NCLAT</b> and <b>Supreme Court</b> handle appeals.
<b>Regulator</b>	<b>IBBI</b> : Frames rules, monitors compliance, and ensures capacity building in the ecosystem.

### 5. Significance of the Amendments

Impact Area	Implications
<b>Improved Resolution Outcomes</b>	Flexibility to <b>sell assets individually</b> allows <b>better value realization</b> , especially for companies with diverse holdings.
<b>Reduced Procedural Delays</b>	Pre-approved IP panels and uniform reporting schedules improve <b>timeliness and consistency</b> .
<b>Better Oversight</b>	Allowing <b>interim financiers to observe CoC</b> improves <b>transparency</b> in financing of distressed assets.
<b>Ease of Doing Business</b>	Regulatory simplification contributes to <b>investor confidence</b> and a <b>healthier credit ecosystem</b> .

### ✓ Conclusion

These amendments reinforce the **IBC's core principles of time-bound resolution and maximization of asset value**. By increasing **regulatory agility**, ensuring **stakeholder engagement**, and **simplifying compliance**, the IBBI is enabling a more dynamic and responsive insolvency framework essential for India's maturing credit market.

## CGD Expansion in North Bengal: Energising a Cleaner Future

### ✦ Syllabus Mapping:

✓ **GS Paper 2 – Governance:** Government Policies and Interventions

✓ **GS Paper 3 – Infrastructure & Environment:** Energy, Pollution Control, Sustainable Development

### 1. Context: Foundation Laid for CGD in Alipurduar and Cooch Behar

- On **30 May 2025**, the **Prime Minister** inaugurated the **City Gas Distribution (CGD)** project in **Alipurduar and Cooch Behar** districts of **West Bengal**.
- This move supports India's transition towards a **gas-based economy**, contributing to:
  - Environmental sustainability**
  - Affordable energy access**
  - Localised economic growth**

### 2. Significance of the CGD Network

#### ◆ What is CGD?

- A **network of underground pipelines** that supplies:
  - Piped Natural Gas (PNG)** for **domestic, commercial, and industrial use**
  - Compressed Natural Gas (CNG)** as **automotive fuel**
- Natural Gas** = Clean fossil fuel mainly composed of **Methane (CH<sub>4</sub>)**

#### ◆ Usage Sectors

Fuel Type	Application
<b>PNG</b>	Households (cooking), hotels, hospitals, industries
<b>CNG</b>	Cleaner alternative to petrol/diesel for vehicles

### 3. Regulatory Authority: PNGRB

Body	Details
<b>Petroleum and Natural Gas Regulatory Board (PNGRB)</b>	Established under the <b>PNGRB Act, 2006</b>
<b>Role</b>	- Authorizes CGD network development in <b>Geographical Areas (GAs)</b> Protects interests of consumers and market players

## 4. India's Progress in CGD Infrastructure

Year	Districts Covered	Geographical Areas (GAs)
2014	66	Few GAs
2025	550+	307 GAs post 12/12A bidding round

- The **CGD network now covers the entire country**, up from a limited footprint in 2014.
- It plays a key role in **realising the "One Nation, One Gas Grid" vision**.

## 5. National Vision: Gas-Based Economy

Target	Increase natural gas share in India's primary energy mix to 15% by 2030
Current Share	~6.5% (2024 est.)
Benefits	- Reduces <b>air pollution and GHG emissions</b> Offers <b>cheaper, cleaner fuel</b> Ensures <b>energy security and decentralisation</b>

## 6. Government Measures to Promote CGD

Initiative	Objective
Urja Ganga Project	Gas pipeline extension to Eastern India
Domestic Gas Allocation	Priority allocation to CGD sector
Public Utility Status	Enables smoother land acquisition
PNG in Government Housing	Mandated PNG usage in PSU and Defence establishments

## 7. Broader Impacts

### ✓ Environmental Benefits

- **Methane emits 40% less CO<sub>2</sub>** than coal per energy unit.
- Encourages shift away from biomass, kerosene, and diesel.

### ✓ Economic Upliftment

- Creates **job opportunities** in pipeline laying, distribution, and maintenance.
- Enables **industrialisation in Tier-2 and Tier-3 cities**.

### ✓ Public Health

- Reduces **indoor and outdoor air pollution**, improving quality of life.

### ✓ Conclusion

The CGD expansion in West Bengal is **not just a fuel infrastructure project**, but a cornerstone of **India's energy transformation**. By leveraging natural gas as a **transitional green fuel**, the initiative ensures **economic inclusiveness, climate resilience, and affordable clean energy** for all.

## Provisional Annual GDP Estimates for FY 2024-25

### 📌 Syllabus Mapping:

- ✓ **GS Paper 3 – Indian Economy (Growth & Development, National Income, Investment Models)**
- ✓ **GS Paper 2 – Governance (Role of Statistical Agencies)**

## 1. Context: NSO Releases GDP Provisional Estimates for FY 2024–25

The **National Statistical Office (NSO)** has released its **Provisional Annual Estimates of Gross Domestic Product (GDP)** for FY 2024–25, reflecting the macroeconomic trajectory of India's economy amidst global uncertainties and domestic reforms.

## 2. Key Macroeconomic Estimates

Indicator	FY 2024–25 Estimate
Real GDP Growth (Constant Prices)	6.5%
Nominal GDP Growth (Current Prices)	9.8%
Real GVA	₹171.87 lakh crore
Nominal GVA	₹300.22 lakh crore
Private Final Consumption Expenditure (PFCE)	7.2% growth
Gross Fixed Capital Formation (GFCF)	7.1% growth



### 3. Understanding the Key Components

#### A. Real GDP vs Nominal GDP

- **Real GDP** reflects actual growth after adjusting for inflation.
- **Nominal GDP** is calculated at current market prices, including inflation.

#### B. GVA (Gross Value Added)

- GVA measures the value of goods and services produced without tax and subsidy components.
- It offers sector-wise insight into **agriculture, industry, and services** performance.

#### C. PFCE (Private Final Consumption Expenditure)

- Indicates **household consumption trends**, accounting for the largest portion of GDP.
- Growth signals **resilient domestic demand** and consumer confidence.

#### D. GFCF (Gross Fixed Capital Formation)

- Measures **investment in infrastructure, plant, and machinery**.
- Reflects **capital expenditure push**, supporting future productivity.

### 4. Analytical Insights

#### Positive Signals

- **Recovery Momentum:** Growth reflects post-pandemic stabilisation and strong domestic demand.
- **Investment Push:** Robust GFCF is aligned with the government's **infrastructure-led growth strategy**.
- **Controlled Inflation:** Real GDP growth of 6.5% against 9.8% nominal shows **moderate inflationary pressure**.

#### Concerns

- **Private Consumption Recovery Uneven:** Though improved, it may still be **disproportionately urban-led**.
- **Export Sector Pressure:** Global slowdown and geopolitical tensions may restrict trade growth.
- **Rural Stress:** Agricultural GVA and rural demand indicators remain relatively sluggish.

#### ✓ Conclusion

The **Provisional GDP Estimates** for FY 2024–25 project India as a **stable and resilient economy** on a medium-term growth path. Continued focus on **infrastructure investment, consumption revival, and inflation control** will be vital to sustain this momentum, especially as global headwinds persist.



# AGRICULTURE

## France Legalises Assisted Dying

### ✦ Syllabus Mapping:

✓ **GS Paper 2 – Governance & Constitution:** Fundamental Rights, Right to Life, SC Judgments

✓ **GS Paper 4 – Ethics:** Medical Ethics, Moral Dilemmas, Sanctity of Life

### 1. Context: France Approves Assisted Dying Bill

- In **May 2025**, France's National Assembly passed a **bill legalizing assisted dying**, allowing **adults with incurable illnesses** to access **lethal medication** under strict conditions.
- This places France among a **growing group of European countries** offering legal end-of-life choices, reflecting rising **societal demands for personal autonomy in death**.

### 2. Understanding Assisted Dying: Types and Definitions

Concept	Description
Euthanasia	A <b>third party directly ends a patient's life</b> to relieve suffering. It may be <b>voluntary</b> (with patient's consent) or <b>non-voluntary</b> .
Active Euthanasia	A <b>deliberate act</b> , such as <b>lethal injection</b> , by a doctor or caregiver that <b>directly causes death</b> .
Passive Euthanasia	<b>Withholding or withdrawing medical treatment</b> , e.g., switching off ventilators or stopping life-prolonging drugs.
Assisted Suicide	A <b>medical professional provides a lethal drug</b> , but the <b>patient self-administers</b> it to end their life.

### 3. Key Provisions of the French Bill

- Eligibility:** Adults with **incurable illnesses causing unbearable suffering**.
- Safeguards:** Multiple layers of medical opinion and psychological evaluation.
- Execution:** Patients can **self-administer** or **opt for a third-party** (physician) under consent.

### 4. Ethical and Moral Issues in Assisted Dying

Ethical Dimension	Key Concerns
Autonomy vs. Sanctity of Life	Advocates argue for the <b>right to die with dignity</b> , while critics warn of <b>devaluing human life</b> .
Risk of Coercion	Vulnerable groups – elderly, disabled – may face <b>subtle pressure</b> to choose death.
Medical Ethics Conflict	The practice of <b>assisting death contradicts the Hippocratic Oath</b> , which emphasizes healing.
Slippery Slope Argument	Cases from <b>Netherlands and Belgium</b> show expansion to <b>non-terminal cases</b> , including <b>psychiatric patients</b> .
Religious & Cultural Beliefs	Most faiths consider <b>life sacred</b> and suicide morally impermissible.

### 5. Indian Legal Position: A Passive Middle Path

#### 5.1 Legal Status

- No specific legislation** on euthanasia.
- Passive euthanasia is legal**, subject to conditions laid down by the Supreme Court.

#### 5.2 Key Judgments

Case	Significance
<b>Aruna Shanbaug v. Union of India (2011)</b>	Introduced <b>passive euthanasia</b> for patients in <b>permanent vegetative state</b> with <b>High Court approval</b> .
<b>Common Cause v. Union of India (2018)</b>	Recognized <b>Right to Die with Dignity</b> under <b>Article 21</b> , legalizing <b>passive euthanasia</b> and allowing <b>Living Wills</b> .

#### 5.3 Living Will

- A **written statement** by a person allowing **withdrawal of treatment** in case of **terminal illness or vegetative state**.
- Requires **judicial oversight** and **medical board validation**.

## 6. Global Landscape: Assisted Dying Laws

Country	Legal Status
Netherlands, Belgium, Luxembourg	Both euthanasia and assisted suicide legal.
Switzerland	Assisted suicide legal (not euthanasia).
Canada	Medical Assistance in Dying (MAiD) legalized in 2016.
USA (select states)	Oregon, Washington, California – Assisted suicide under "Death with Dignity Acts".
France	Legalized assisted dying in 2025.

## 7. Arguments in Support and Opposition

### ✓ In Support

- Upholds **individual autonomy and dignity**.
- Reduces **suffering in terminal conditions**.
- Avoids **prolonged medical expenses** and trauma.

### ✗ In Opposition

- Violates the **ethical duty of care**.
- Risk of **abuse and coercion**.
- May lead to **erosion of trust in the medical system**.

## 8. Way Forward for India

- **Legal Codification:** A statutory framework with safeguards may avoid legal ambiguity.
- **Awareness on Living Wills:** Despite SC's approval, uptake remains negligible due to lack of awareness.
- **Medical and Psychological Training:** Sensitize caregivers to **palliative care** and end-of-life decisions.
- **Ethical Oversight:** Establish **bioethics committees** at institutional levels to evaluate requests.

## 🔍 Conclusion: Balancing Dignity with Ethics

- France's move marks a **progressive yet controversial shift** in the global conversation on **end-of-life choices**.
- For India, the challenge lies in **balancing individual dignity with ethical obligations and cultural sensitivities**, while ensuring robust legal and institutional safeguards.

## Inter-Services Organisations Rules, 2025

### ✦ Syllabus Mapping:

✓ **GS Paper 2 – Polity & Governance** (Government Rules, Acts & Administration)

✓ **GS Paper 3 – Security** (Defence Reforms, Military Jointness)

## 1. Why in News?

- The **Government notified the Inter-Services Organisations (Command, Control and Discipline) Rules, 2025**.
- These rules are part of the **Inter-Services Organisations Act, 2023**, aimed at improving **jointness among armed forces**, strengthening **command control**, and **resolving disciplinary matters efficiently**.

## 2. Background and Need

Issue	Previous Gap
<b>Fragmented Command Structure</b>	Disciplinary and administrative authority was restricted to personnel of the same service.
<b>Lack of Jointness</b>	Joint Commands existed (e.g., Andaman & Nicobar Command) but without legal framework to enforce unified discipline.
<b>Duplication of Proceedings</b>	Same act/offence required <b>separate proceedings</b> under different service Acts (Army/Navy/Air Force Acts).
<b>Administrative Delay</b>	Slowed down execution of operational and personnel matters in Inter-Service Establishments.

## 3. About the Inter-Services Organisations (Command, Control & Discipline) Act, 2023

Provision	Details
<b>Objective</b>	To empower Inter-Service Organisations (ISOs) with legal authority over personnel from all three services (Army, Navy, Air Force).
<b>Formation of ISOs</b>	The <b>Central Government can establish</b> ISOs such as Joint Services Commands (JSCs), training institutes, logistics depots, etc.
<b>Leadership</b>	Headed by a <b>Commander-in-Chief (CiC)</b> or <b>Officer-in-Command (OiC)</b> .





<b>Commanding Officer (CO)</b>	Designated over specific units, ships or establishments.
<b>Superintendence</b>	Vested with <b>Central Government</b> to issue directions on national security, administration, or public interest.

### 4. Key Provisions of the 2025 Rules

Provision	Explanation
<b>Disciplinary Powers</b>	Full authority to <b>CiC, OiC, and CO</b> to initiate and complete <b>disciplinary action</b> across services.
<b>Administrative Powers</b>	These officers can <b>administer service conditions</b> and maintain decorum within ISOs.
<b>Residuary Powers</b>	Any powers not specified or arising in doubt will be <b>referred to the Central Government</b> .
<b>Expeditious Disposal</b>	Aims to <b>avoid duplication</b> of proceedings and enable <b>faster resolution</b> of cases.

### 5. Significance of the Rules

#### A. Enhances Jointness

- Legalises **integrated command** across Army, Navy and Air Force.
- Promotes **unified response** in operational and administrative spheres.

#### B. Efficiency in Discipline

- Reduces **jurisdictional hurdles**, enabling faster decisions in cases of misconduct or disputes.

#### C. Boost to Theatre Command Reforms

- Aligns with the proposed **theatre command structure**, where integrated forces will operate under **single unified commands**.

#### D. Operational Clarity

- Commanders now have **clearly defined authority** over all personnel under their control, regardless of their parent service.

### 6. Strategic & Contemporary Relevance

Dimension	Insight
<b>National Security</b>	Faster decision-making improves <b>readiness in conflict zones</b> , including borders and maritime areas.
<b>Administrative Modernisation</b>	Aligned with the vision of <b>Chief of Defence Staff (CDS)</b> to modernize and unify military operations.
<b>International Examples</b>	Similar unified command structures exist in the <b>US (Unified Combatant Commands)</b> and <b>China (Theatre Commands)</b> .
<b>Current Relevance</b>	Given <b>ongoing border tensions</b> (e.g., LAC with China), integrated operational capability becomes vital.

#### ✓ Conclusion

The **Inter-Services Organisations (Command, Control & Discipline) Rules, 2025** mark a significant step in India's military reform journey. By granting clear powers to unified command structures, they lay the legal groundwork for future **theatre commands**, enhancing India's **military synergy, discipline, and operational readiness**.

## Continuation of Modified Interest Subvention Scheme

#### ✦ Syllabus Mapping:

- ✓ **GS Paper 2 – Government Policies and Interventions**
- ✓ **GS Paper 3 – Agriculture: Credit, Marketing & Infrastructure**

### 1. Context

- The **Union Cabinet** has approved the continuation of the **Modified Interest Subvention Scheme (MISS)** for **FY 2025–26** to ensure **affordable short-term loans** to farmers through the **Kisan Credit Card (KCC)** mechanism.

### 2. About the Modified Interest Subvention Scheme (MISS)

Aspect	Details
<b>Type</b>	Central Sector Scheme
<b>Launched By</b>	Ministry of Agriculture & Farmers Welfare
<b>Objective</b>	To provide <b>short-term credit</b> at <b>affordable interest rates</b> to farmers
<b>Loan Limit</b>	Up to ₹3 lakh
<b>Base Interest Rate</b>	7% through KCC
<b>Interest Subvention to Banks</b>	1.5%
<b>Prompt Repayment Incentive (PRI)</b>	3% (Reduces effective interest to <b>4%</b> for timely repayment)
<b>Special Coverage</b>	₹2 lakh for loans in <b>fisheries and animal husbandry</b>

## Implementing Agencies

RBI and NABARD

### 3. Why is this Scheme Important?

- **Reduces Dependence on Informal Sector:** Helps prevent farmer indebtedness from informal moneylenders charging high interest rates.
- **Encourages Timely Repayment:** The 3% incentive promotes financial discipline.
- **Supports Allied Sectors:** Covers not just crop production but also **fisheries** and **livestock**, aiding income diversification.
- **Promotes Financial Inclusion:** Deepens rural credit penetration through the **KCC** network.

### 4. Complementary Government Initiatives for Agricultural Credit

#### A. Agriculture Infrastructure Fund (AIF)

- **Purpose:** Medium-to-long-term financing for **post-harvest infrastructure**, cold chains, warehouses, and logistics.
- **Impact:** Reduces wastage and **empowers FPOs, SHGs, cooperatives**, and agri-entrepreneurs.

#### B. PM-KUSUM Scheme

- **Goal:** To **solarize agriculture** and reduce diesel dependency.
- **Benefits:** 30–50% capital subsidy for:
  - Installation of **solar pumps**
  - Grid-connected solar power plants
  - Solarization of existing pumps

#### C. Voluntary Carbon Market (VCM)

- **Update:** 11 agri-based projects registered on the **Veera VCS platform**.
- **Impact:** Promotes **low-carbon farming**, generates **carbon credits**, and ensures sustainable agricultural growth.

### 5. Contemporary Relevance and Significance

Dimension	Explanation
<b>Food Security</b>	Access to affordable credit ensures <b>timely sowing</b> and input procurement.
<b>Doubling Farmers' Income</b>	Reduces input costs and boosts productivity.
<b>Climate Resilience</b>	Linked with PM-KUSUM and VCM, helps build sustainable farming systems.
<b>Inclusive Growth</b>	Benefits <b>marginal &amp; small farmers</b> , SC/STs, and those in difficult terrain.

#### ✓ Conclusion

The continuation of the **Modified Interest Subvention Scheme** reaffirms the government's commitment to **financially empowering farmers**, promoting **sustainable agriculture**, and enabling **credit-based rural transformation**. Backed by other schemes like **AIF**, **PM-KUSUM**, and **VCM**, it represents a **multi-pronged approach** to rural economic resilience.

# SOCIETY AND SOCIAL ISSUES

## Private School Enrolment on the Rise: A Challenge for Public Education

### ✦ Syllabus Mapping:

- ✓ GS Paper 2 – Governance (Education Policy, Issues in Social Sector Schemes)
- ✓ GS Paper 1 – Indian Society (Social Empowerment, Role of Education)

### 1. Context: UDISE+ Flags Enrolment Trends

The **Ministry of Education**, using data from **UDISE+ (2023–24)**, has raised concerns over the **steady increase in enrolment in private schools** and the **declining share of students in government and aided schools**, urging states to take corrective action.

- **Overall National Data:**  
36% of students are enrolled in **private schools**.
- **Example – Andhra Pradesh (2023–24):**
  - **Government Schools:** 73% of schools serve only **46% of students**
  - **Private Schools:** 25% of schools serve **52% of students**

### 2. Factors Behind the Shift Towards Private Schooling

- **Perceived Better Quality of Education**
  - Better **teacher accountability**, English-medium instruction, tech integration
  - Enhanced **infrastructure** and **extracurricular opportunities**
- **Declining Public Investment in Education**
  - Investment fell from **4.6% of GDP (2021)** to **4.1% (2022)**
  - **NEP 2020 target:** 6% of GDP to be allocated to education
- **Inefficiencies in Government Schools**
  - **Teacher absenteeism**, poor implementation of **Mid-Day Meal** and **SSA**
  - **Inadequate monitoring** and politicisation of school administration
- **Socioeconomic Shifts**
  - Rise in **per capita income** and **urbanisation**
  - Expanding network of **low-cost private schools**

### 3. Positive and Negative Implications of Rising Private School Enrolment

Dimension	Positive Implications	Negative Implications
<b>Access &amp; Choice</b>	- Offers <b>diverse options</b> for parents - Promotes <b>competition</b> , improving overall standards	- Creates <b>urban-rural</b> and <b>rich-poor</b> divide - Poor often forced into <b>low-quality public schools</b>
<b>Quality of Education</b>	- Higher <b>teacher performance</b> accountability - Innovative teaching methods and <b>better infrastructure</b>	- Lack of <b>standardised curriculum</b> - <b>Profit motive</b> may compromise educational ethics
<b>Social Equity</b>	- Builds aspiration among <b>middle-income groups</b>	- <b>Privatisation of education</b> marginalises weaker sections - Weakens the role of education as a <b>public good</b>
<b>Governance &amp; Policy</b>	- Drives urgency to <b>reform public schools</b>	- Leads to <b>state withdrawal</b> from its core duty of providing quality education

### 4. Way Forward: Reinvigorating Public Education

- **Increased Public Investment**
  - Achieve **6% of GDP** allocation as per **NEP 2020**
- **Strengthen Implementation of Existing Schemes**
  - Improve **Sarva Shiksha Abhiyan**, **Mid-Day Meal Scheme**, **Vidya Samiksha Kendra**
- **Capacity Building of Teachers**
  - Use **DIKSHA**, **NISHTHA** platforms to improve **teacher training** and **digital literacy**
- **Community Participation**
  - Encourage **School Management Committees (SMCs)** for accountability
  - **Regular audits**, feedback from parents and panchayats
- **Technology in Public Schools**
  - Leverage **e-Pathshala**, smart classrooms, and **EdTech partnerships**



### ✓ Conclusion

The rise in **private school enrolment** is a wake-up call for India's public education system. While it reflects **aspiration-driven demand**, it also underlines **systemic weaknesses** in public schooling. A **balanced ecosystem** where **public education is revitalised and made equitable** is vital to ensure that **education remains a tool of social empowerment, not exclusion**.

# GEOGRAPHY AND DISASTER

## Birch Glacier Collapse

### ✦ Syllabus Mapping:

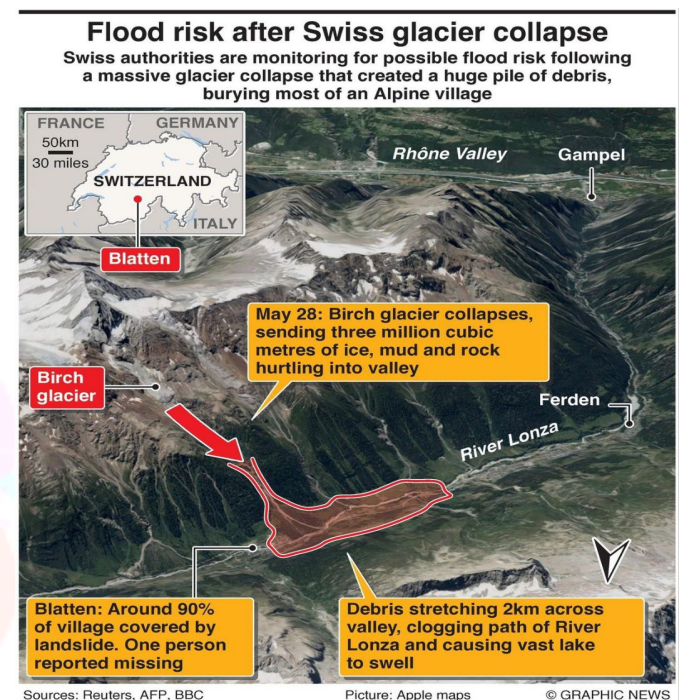
- ✓ **GS Paper 1 – Geography (Glaciology, Climate Change Impacts)**
- ✓ **GS Paper 3 – Environment (Climate Change, Disaster Management)**

### 1. Context: Birch Glacier Disaster in Switzerland

- In May 2025, the Birch Glacier in the Lötschental valley of northern Switzerland suffered a catastrophic collapse.
- This triggered a massive landslide, which partially buried Blatten village and disrupted the Lonza River.

### 2. About Birch Glacier and Its Collapse

Parameter	Details
Location	Lötschental Valley, Canton of Valais, Northern Switzerland
Event	Sudden glacier collapse and subsequent landslide
Impact	Landslide debris over village areas and disruption of local river systems
River Affected	Lonza River, crucial for local hydrology and settlements



### 3. Causes: Climate Change and Glacial Instability

#### ▲ Key Factors Leading to the Collapse:

- **Rapid Glacier Retreat:** Global warming has caused glaciers across the Alps to melt at an unprecedented pace.
- **Permafrost Thaw:** Alpine permafrost, which binds mountain slopes, is melting, destabilizing terrain.
- **Increased Rainfall and Meltwater:** Climate change has altered precipitation patterns, increasing pressure on glacial systems.

#### 🇨🇭 Swiss Glacier Trends:

- Switzerland is home to the highest number of glaciers in Europe.
- According to the **Swiss Glacier Monitoring Network**, the country has lost nearly 40% of its glacial volume since 2000.
- 2022–23 marked one of the worst years on record for glacial melting in Switzerland.

### 4. Broader Implications of the Collapse

#### ✓ Environmental Impacts:

- Disruption of **hydrological systems** like the Lonza River.
- Threats to **alpine biodiversity** and **ecosystem balance**.

#### ✓ Human and Infrastructure Risks:

- **Increased disaster risks** in mountain villages due to **landslides, floods, and GLOFs (Glacial Lake Outburst Floods)**.
- Need for **early warning systems** and better **disaster preparedness** in vulnerable zones.

#### ✓ Scientific and Policy Lessons:

- Highlights the urgency for **enhanced glacial monitoring** and **permafrost mapping**.
- Reinforces the need for **climate-resilient infrastructure** and **adaptation strategies** in alpine regions.

## 5. Global Parallels and India’s Vulnerability

Region	Notable Incidents
Uttarakhand, India	2021 <b>Chamoli disaster</b> linked to glacial burst and landslide
Peru	Glacial lake overflows in the Andes threatening downstream communities
Himalayas	Increasing risk of <b>GLOFs</b> in Ladakh, Sikkim, Arunachal Pradesh, etc.

### ✓ Conclusion

The **Birch Glacier collapse** is a **tragic indicator of accelerating climate change** in alpine environments. It emphasizes the **urgent need for international climate action, early warning systems, and sustainable land-use planning** in glaciated regions. For countries like **India**, especially in the **Himalayan belt**, this serves as a vital **lesson for risk mitigation and climate adaptation strategies**.

## Mozambique’s Triple Crisis

### ✦ Syllabus Mapping:

✓ **GS Paper 1 – Geography:** Africa – Political and Physical Features, Rivers, and Geostrategic Importance

✓ **GS Paper 2 – International Relations:** India–Africa Relations, Regional Conflicts, Refugee and Displacement Issues

✓ **GS Paper 3 – Disaster Management:** Climate Vulnerability, Conflict-Induced Humanitarian Crisis

### 1. Context: Triple Humanitarian Crisis in Northern Mozambique

- Over **25,000 people** have been displaced from **northern Mozambique**, facing a **three-pronged crisis**:
  - Armed conflict** driven by insurgent violence
  - Recurring extreme weather events** like cyclones and floods
  - Post-electoral unrest** following local political tensions
- The situation reflects the complex interplay of **climate vulnerability, political instability, and insecurity** in fragile states.



### 2. Political and Geostrategic Features of Mozambique

Feature	Description
Capital	Maputo
Location	Southeastern Africa, along the <b>Indian Ocean coastline</b>
Strategic Water Body	The <b>Mozambique Channel</b> lies between <b>Mozambique and Madagascar</b> – a vital maritime route for Indian Ocean trade
Bordering Countries	<ul style="list-style-type: none"><li><b>North:</b> Tanzania</li><li><b>Northwest:</b> Malawi and Zambia</li><li><b>West:</b> Zimbabwe</li><li><b>Southwest:</b> South Africa and Eswatini (Swaziland)  </li><li>Mozambique’s <b>location makes it a key node</b> for India’s maritime and energy diplomacy under the <b>SAGAR (Security and Growth for All in the Region)</b> framework.</li></ul>

### 3. Geographical Features of Mozambique

Feature	Description
Major Rivers	<ul style="list-style-type: none"><li><b>Zambezi River:</b> Longest river, flows into the Indian Ocean; important for hydropower (Cahora Bassa Dam)</li><li><b>Limpopo River:</b> Crosses Mozambique, supports agriculture and ecosystems</li><li><b>Ruvuma River:</b> Forms part of the northern boundary with Tanzania</li></ul>
Highest Peak	<b>Mount Binga</b> – Located in the Chimoio Highlands, it is the <b>highest point</b> in Mozambique and part of the <b>Eastern Highlands</b> mountain range shared with Zimbabwe

## 4. Drivers Behind the Ongoing Crisis

### 4.1 Armed Conflict in Cabo Delgado Province

- Mozambique's **northern region of Cabo Delgado** has faced a violent insurgency since 2017, linked to **Islamist extremist groups**.
- The region, rich in **natural gas and minerals**, has seen attacks on civilians and infrastructure, triggering **mass displacement**.

### 4.2 Climate-Related Disasters

- Mozambique is highly **climate-vulnerable**, frequently hit by:



- **Cyclones** (e.g., Cyclone Idai in 2019, Cyclone Freddy in 2023)
- **Flooding and droughts**, particularly affecting riverine communities
- These events worsen **food insecurity, livelihood loss, and infrastructure damage**.

### 4.3 Post-Electoral Political Unrest

- **Local governance disputes and contested election outcomes** have triggered unrest in parts of northern Mozambique.
- The instability further weakens **state control** and public service delivery in an already fragile region.

## 5. Humanitarian and Regional Implications

Issue	Impact
<b>Displacement</b>	Over <b>25,000 people</b> displaced in recent weeks, joining an existing base of <b>over 1 million internally displaced persons (IDPs)</b>
<b>Humanitarian Needs</b>	Shortage of <b>food, shelter, sanitation, and healthcare facilities</b> ; rising threat of <b>disease outbreaks</b>
<b>Security Spillover</b>	Potential cross-border implications for <b>Tanzania, Malawi, and South Africa</b> , heightening regional instability
<b>Aid and Access Constraints</b>	Armed groups and flooding have blocked <b>aid delivery routes</b> , complicating relief efforts

## 6. India's Interest and Strategic Outlook

- Mozambique is a **key African partner** in:
  - **Energy cooperation** (offshore gas blocks operated by Indian PSUs)
  - **Maritime security** (Indian Navy has carried out **joint patrols** in the Mozambique Channel)
  - **Development assistance and capacity building**
- India's humanitarian outreach through **Indian Technical and Economic Cooperation (ITEC)** and **Lines of Credit** for infrastructure, healthcare, and education in Mozambique reinforces its **Africa outreach under the India-Africa Forum Summit (IAFS)**.

## 7. Conclusion: The Case for Integrated Response to Multi-Dimensional Fragility

- The crisis in Mozambique underscores how **conflict, climate change, and governance issues intertwine**, creating **protracted humanitarian emergencies**.
- A **coordinated global response**—including conflict resolution, climate resilience, and development cooperation—is vital.
- For countries like India, it is an opportunity to demonstrate **humanitarian leadership, soft power diplomacy, and regional security engagement** in Africa.

## Persian Gulf Naming Controversy

### ✦ Syllabus Mapping:

- ✓ **GS Paper 1 – Geography:** Important Geopolitical and Maritime Features
- ✓ **GS Paper 2 – International Relations:** Geopolitical Tensions, West Asia, U.S. Foreign Policy
- ✓ **GS Paper 3 – Security:** Energy Security, Maritime Routes, Strategic Straits



### 1. Context: U.S. Decision to Retain 'Persian Gulf' Name

- The **President of the United States recently aborted a move** to rename the **Persian Gulf** as the '**Arabian Gulf**' or '**Gulf of Arabia**', respecting long-standing **international conventions and regional sensitivities**.
- The incident rekindled debates over **territorial nomenclature, historical identity, and geopolitical alignments** in **West Asia**.

### 2. About the Persian Gulf: A Strategic Maritime Zone

#### Geographical Overview

- The **Persian Gulf** is a **shallow marginal sea of the Indian Ocean**, located between the **Arabian Peninsula** and **Southwestern Iran**.
- It is linked to the **Gulf of Oman** and the **Arabian Sea** through the **Strait of Hormuz**, one of the **most critical chokepoints for global oil transport**.

#### Bordering Countries

- **Iran** (North and Northeast)





- **Iraq** and **Kuwait** (Northwest)
- **Saudi Arabia, Bahrain, Qatar, UAE, and Oman** (South and Southwest)

Key Rivers

- **Tigris** and **Euphrates** (originating in Turkey) and the **Karun River** (from Iran) provide **limited freshwater inflow**.

### 3. Geopolitical Importance of the Persian Gulf

Dimension	Significance
Energy Hub	Over <b>20% of global oil trade</b> passes through the <b>Strait of Hormuz</b> , connecting Persian Gulf to global markets
Military and Naval Presence	Host to <b>U.S. 5th Fleet, Iranian Revolutionary Guard Navy, and multinational naval bases</b>
Economic Lifeline	Gulf countries like <b>Saudi Arabia, UAE, Kuwait, and Qatar</b> heavily depend on <b>sea-based hydrocarbon exports</b>
Tensions and Alliances	Site of ongoing <b>Iran-Saudi rivalry, Sunni-Shia power balance, and Israel-Arab normalization efforts</b>

### 4. Naming Dispute: 'Persian Gulf' vs. 'Arabian Gulf'

Historical Usage

- The name “**Persian Gulf**” has been used in **international treaties, maps, and UN documents** for centuries.
- It is **recognized by the United Nations and international maritime bodies**.

Origin of the Dispute

- Some **Arab states**, notably **Saudi Arabia and UAE**, advocate for the term “**Arabian Gulf**”, arguing for **Arab ethnic identity** in the region.
- Iran considers this a **politically motivated move** that undermines its **historical and cultural ties** to the Gulf.

U.S. Position and Reversal

- The **proposed name change** was seen as a gesture toward Arab allies but risked antagonizing Iran and disrupting **regional diplomacy**.
- The **U.S. President’s reversal** is being viewed as a **balancing act** to maintain **strategic neutrality** in the sensitive Gulf region.

### 5. Implications of the Naming Dispute

Stakeholder	Concerns
Iran	Views any alteration as <b>an affront to national sovereignty and identity</b>
Arab States	Seek <b>symbolic assertion</b> in the Gulf’s geopolitical narrative
United States	Caught between <b>preserving alliances with Arab states</b> and <b>managing relations with Iran</b> , particularly over the <b>nuclear deal</b>
International Community	Prefers <b>status quo</b> to avoid escalations over nomenclature in an already volatile region

### 6. Conclusion: The Gulf as a Theatre of History and Power

- The **Persian Gulf** is not merely a **geographical entity**, but a **contested space of history, energy politics, and military power**.
- Renaming debates reflect **deeper identity politics and strategic posturing** rather than semantic concerns.
- Diplomatic restraint and respect for **established international norms** are essential to **maintaining stability in one of the world's most sensitive maritime corridors**.

## Nigeria Flood Crisis

- 📌 **Syllabus Mapping:**
- ✓ **GS Paper 1 – Geography (Climatic Phenomena, Physical Geography)**
  - ✓ **GS Paper 2 – International Relations (India-Africa Relations)**
  - ✓ **GS Paper 3 – Environment (Climate Change, Disaster Management)**

### 1. Context: Deadly Floods in Nigeria Amidst Climate Shifts

At least **111 people have died** due to severe **flooding in Nigeria**, highlighting the country’s growing **climate vulnerability** and poor resilience infrastructure. The floods underline the larger **climate crisis in West Africa**, where extreme weather events are intensifying.

### 2. Political Features of Nigeria

Feature	Details
Capital	Abuja
Location	<b>West Africa</b> , on the Gulf of Guinea
Borders	Niger (N), Chad and Cameroon (E), Benin (W), Gulf of Guinea (S)
Government System	<b>Federal Republic</b> with a <b>bicameral legislature</b>



Population	Most populous country in Africa (~220 million)
Significance	Major oil exporter; regional power in ECOWAS

### 3. Key Geographical Features

Element	Details
Climate	<b>Tropical</b> – humid in the south, arid in the north
Harmattan Wind	Dry, dusty wind from Sahara; lasts <b>3+ months</b> , especially in northern Nigeria
Major Rivers	<b>Niger River, Benue River, Cross River</b> – essential for agriculture and inland transport
Lakes	<b>Lake Chad</b> – Shared freshwater body, shrinking due to overuse and climate change
Mountains	<b>Chappal Waddi</b> (highest), <b>Mount Dimlang</b> – located in eastern highlands near Cameroon border



### 4. Nigeria's Vulnerability to Climate Change

#### A. Climate Events Intensifying

- Increasing frequency of **floods, droughts, and heatwaves**
- 2022 floods** displaced over 1.4 million people
- Agricultural loss** due to floods worsens food insecurity

#### B. Environmental Stressors

- Deforestation**, unregulated urban expansion
- Drainage mismanagement** and encroachment on wetlands
- Shrinking Lake Chad** has affected regional hydrology

### 5. Institutional Challenges

Challenge	Explanation
Weak disaster preparedness	Lack of early warning systems and emergency response
Corruption and poor urban planning	Inadequate infrastructure in flood-prone urban areas
Internal Displacement	Millions displaced annually by floods, insurgencies, and droughts
Lack of climate financing	Insufficient global and domestic investment in resilience

### 6. India–Nigeria Relations: A Strategic Context

Aspect	Details
Trade	Nigeria is India's <b>largest African trading partner</b>
Energy	India imports <b>crude oil and LNG</b> from Nigeria
Defence & Security	Bilateral cooperation in counter-terrorism and maritime security
Diaspora	Over 50,000 Indians live and work in Nigeria
Multilateral Forums	Collaborate in <b>India-Africa Forum Summit, Commonwealth, UN reforms</b>

### ✓ Conclusion

The Nigeria flood crisis exemplifies the **geopolitical consequences of climate change** in developing nations. Strengthening **India-Africa engagement**, investing in **climate adaptation**, and enhancing **disaster governance** are key to ensuring **sustainable development** in vulnerable regions like West Africa.

## WMO Climate Outlook 2025–2029

### ✦ Syllabus Mapping:

✓ **GS Paper 1 – Geography: Climate Change and Monsoon Variability**

✓ **GS Paper 3 – Environment and Ecology: Climate Reports, Global Warming, Adaptation Strategies**

### 1. Introduction

The **World Meteorological Organization (WMO)**, in collaboration with the **U.K. Met Office**, released the **Global Annual to Decadal Climate Update (2025–2029)**. The report projects **intensifying climatic anomalies**, with crucial implications for **South Asia**, particularly **India**, due to changing **monsoon dynamics and precipitation trends**.

### 2. Key Highlights of the WMO 2025–2029 Update

#### ◆ Temperature Rise and Global Warming Limits

- 86% Probability** that **at least one year** between **2025 and 2029** will **exceed 1.5°C** above **pre-industrial levels (1850–1900)**.
- This risks a **temporary breach of the Paris Agreement threshold**, indicating an **accelerating pace of warming**.

### ◆ Changing Precipitation Patterns

- **Wetter-than-usual conditions** forecasted across:
  - Asia
  - India
  - Sub-Saharan Africa
- Indicates higher risks of **flooding, soil erosion, and infrastructure stress**.

### ◆ Monsoon Variability

- **Increased inter-annual variability** in the **South Asian monsoon**.
- **Anomalously wet monsoon seasons** projected to continue through 2025–2029.
- Implications for **agriculture, water availability, rural livelihoods, and disaster preparedness**.

## 3. Implications for India and South Asia

Impact Area	Possible Consequences
<b>Agriculture</b>	Erratic rainfall may affect sowing cycles, yield predictability, and food security.
<b>Flood Risks</b>	Higher chances of <b>urban and flash floods</b> due to excessive precipitation in vulnerable regions.
<b>Public Health</b>	Rise in <b>vector-borne diseases</b> (malaria, dengue) due to humidity and stagnant water.
<b>Energy Security</b>	Pressure on <b>hydropower</b> during off-peak rainfall years; disruption of <b>solar grid reliability</b> due to cloud cover.
<b>Disaster Management</b>	Requires <b>adaptive planning</b> and <b>early warning systems</b> for climate-induced disasters.

## 4. Climate Science and Global Context

- **IPCC's AR6 Report** echoes similar findings: warming may **temporarily exceed 1.5°C** between 2021–2040.
- **Climate tipping points** such as Arctic ice loss, Amazon forest dieback, and marine ecosystem shifts are becoming **increasingly probable**.
- Global **greenhouse gas emissions** continue to rise, with limited progress on **net-zero pathways**.

## 5. Way Forward for India

### ✓ Policy and Institutional Response

- **National Action Plan on Climate Change (NAPCC)** and **State Action Plans (SAPCC)** need **real-time updates** using WMO data.
- Strengthen integration of **climate projections** into **agricultural planning, disaster preparedness, and infrastructure development**.

### ✓ Scientific & Technological Interventions

- **Invest in climate modeling centres** for **region-specific forecasts**.
- Enhance **IMD's precision** in monsoon prediction via AI and big data analytics.
- Expand **Climate Resilient Agriculture Mission**.

### ✓ Community-Level Adaptation

- Promote **climate-resilient crop varieties**.
- Build **rainwater harvesting** and **flood defense infrastructure** in urban-rural landscapes.
- Implement **ecosystem-based adaptation** (e.g., wetland restoration).

### ✓ Conclusion

The **WMO Climate Update 2025–2029** serves as a **wake-up call** to the world and particularly **India**, as it faces **increasing climate-induced uncertainties**. Urgent steps in **adaptation, mitigation, and institutional reforms** are vital to buffer the socio-economic shocks of **volatile monsoon patterns** and **global warming trend**.

## India's First Auction of Potash & Halite Blocks

### ✈ Syllabus Mapping:

- ✓ **GS Paper 1 – Geography:** Distribution of Key Natural Resources
- ✓ **GS Paper 3 – Economy:** Infrastructure, Industrial Policy, Mineral Resources in India
- ✓ **GS Paper 3 – Agriculture:** Fertilizer Sector, Soil Health, Input Management

## 1. Context: First-Ever Auction of Potash and Halite Mining Blocks

- In a landmark achievement under the **5th tranche of mineral block auctions**, India has **successfully auctioned potash and halite mining blocks for the first time**.



- Out of **15 critical mineral blocks**, **10 were auctioned**, including the **first critical & strategic mineral block in Rajasthan**.
- This move is aligned with India's goal to **reduce import dependence** for fertilizers and support **agriculture self-reliance** under **Atmanirbhar Bharat**.

## 2. Location of Newly Auctioned Blocks

Location	State	Minerals
Jhandawali-Satipura	Rajasthan	Potash & Halite
Jorkian-Satipura-Khunja Amalgamated Block	Rajasthan	Potash & Halite

- These sites mark the beginning of **commercial-scale mining** of potash and halite in India.

## 3. About Potash: A Critical Fertilizer Mineral

### 3.1 Definition and Composition

- **Potash** is a generic term for **inorganic potassium compounds** that are **water-soluble**, typically containing **potassium carbonate or potassium salts**.
- Main ore: **Sylvinite** – a mix of **sylvite (KCl)** and **halite (NaCl)**.

### 3.2 Geological Occurrence in India

- As per **Indian Minerals Yearbook 2022**:
  - **Rajasthan (Nagaur district)**: **91%** of India's potash reserves
  - **Madhya Pradesh (Panna district)**: **5%**
  - **Uttar Pradesh (Sonbhadra & Chitrakoot districts)**: **4%**

### 3.3 Import Dependence

- **India imports 100%** of its potash requirements.
- This auction is a **historic step** to reduce this strategic vulnerability.

### 3.4 Key Uses

- **Agriculture**: As a **fertilizer**, potash enhances:
  - **Crop yield**
  - **Disease resistance**
  - **Texture, color, and nutrient quality** of produce
- **Water purification**: Potash alum is used for **removing water hardness** and has **anti-bacterial properties**.
- **Industrial uses**:
  - **Glass, ceramics, soaps and detergents**
  - **Synthetic rubber, dyes, and chemical manufacturing**
  - **Potassium nitrate** – used in **explosives**

## 4. About Halite: A Versatile Industrial Salt

### 4.1 Definition and Nature

- **Halite**, also known as **rock salt** or **table salt**, is chemically **sodium chloride (NaCl)**.
- It is a **sedimentary mineral**, forming in **arid regions** through **evaporation of saline water bodies**.

### 4.2 Industrial and Public Uses

- **De-icing roads** in snow-prone areas.
- **Chemical industry**: Key input in the production of:
  - **Sodium hydroxide, soda ash, hydrochloric acid, chlorine, and metallic sodium**
- **Water softening systems**.
- **Food industry**: Processed into table salt.
- **Textile and dyeing**: Fixing color and enhancing texture.

## 5. Strategic and Economic Significance

### 5.1 Reducing Import Bills

- India's fertilizer import bill is significant due to complete dependency on potash.



- This move aligns with the **National Mineral Policy 2019**, which emphasizes **exploration and self-reliance** in critical minerals.

### 5.2 Boost to Agriculture and Rural Economy

- Ensures **steady fertilizer supply**, reducing cost shocks to farmers.
- Enhances **soil health** and **productivity**, directly improving **food security**.

### 5.3 Mineral Security

- Minerals like potash are classified as **critical & strategic minerals**, essential for **agriculture and defence**.
- Domestic mining supports **strategic autonomy** in a geopolitically volatile global market.

## 6. Government Initiatives to Support Critical Minerals

Initiative	Focus Area
Critical Minerals List (2023)	Includes potash, lithium, cobalt, rare earths
National Mineral Exploration Policy	Exploration in PPP mode
District Mineral Foundation (DMF)	Community development from mining revenue
One Nation One Fertilizer Scheme	Uniform branding to rationalize fertilizer use

## 7. Conclusion: Towards Self-Reliant Resource Governance

- The auction of **potash and halite mining blocks** is a **watershed moment** for India's resource and fertilizer security.
- With **Rajasthan emerging as a mining hub**, this move promotes **regional development**, **job creation**, and **technological investment**.
- Future success depends on **sustainable mining practices**, **local stakeholder engagement**, and **robust infrastructure support**.

## Global Assessment Report 2025 on Disaster Risk Reduction

### 📌 Syllabus Mapping:

- ✅ **GS Paper 3 – Disaster Management: Disaster Risk Reduction, Climate Change, Resilience Building**
- ✅ **GS Paper 2 – International Institutions and Reports (UNDRR, Sendai Framework)**

### 1. Context

The **United Nations Office for Disaster Risk Reduction (UNDRR)** released its **Global Assessment Report (GAR) 2025** titled “**Resilience Pays: Financing and Investing for our Future.**” It calls for a fundamental shift from reactive disaster relief to **proactive, risk-informed investments**, especially for climate-vulnerable developing nations like **India**.

### 2. Key Global Findings of GAR 2025

Finding	Details
Rising Economic Burden	<b>\$2.3 trillion</b> is lost annually due to disasters— <b>most of it uninsured</b> , including in advanced economies.
Disproportionate Vulnerability	As of 2023, only <b>49% of Least Developed Countries (LDCs)</b> had <b>multi-hazard early warning systems</b> .
Investment Misallocation	Merely <b>2% of global development aid</b> is invested in <b>Disaster Risk Reduction (DRR)</b> . Yet, <b>\$1 in DRR saves \$15 in post-disaster recovery</b> .
Growing Humanitarian Needs	Rising climate extremes are increasing <b>debt burdens</b> and <b>humanitarian assistance requirements</b> across regions.

### 3. India-Specific Observations in GAR 2025

Impact Area	Details
Infrastructure Damage	Cyclone <b>Fani (2019)</b> caused <b>US\$1.2 billion</b> damage to Odisha’s power grid.
Climate Displacement	Between <b>10–30 million people</b> displaced within India due to <b>climate-related events</b> .
Living Standards	By <b>2050</b> , changing weather patterns may cause a <b>9% drop in living standards</b> , especially in <b>agriculture-dependent regions</b> .
Insurance Penetration	Remains <b>below 1%</b> , exposing millions to <b>financial ruin post-disaster</b> .

### 4. Institutional Framework for DRR

#### Sendai Framework for Disaster Risk Reduction (2015–2030)

- Adopted at:** 3rd UN World Conference on Disaster Risk Reduction, Sendai, Japan
- Successor to:** Hyogo Framework for Action (2005–2015)
- Seven Global Targets** include:
  - Substantial reduction in global disaster mortality
  - Reduce economic losses, critical infrastructure damage, and disaster-related disruption

- Increase availability of early warning systems
- **Four Priorities for Action:**
  1. **Understanding disaster risk**
  2. **Strengthening disaster risk governance**
  3. **Investing in disaster risk reduction**
  4. **“Build Back Better” in recovery and reconstruction**

## 5. Critical Challenges in India's DRR Landscape

Challenges	Examples/Implications
<b>Low Funding for Risk Mitigation</b>	Budget allocations still prioritize <b>relief and rehabilitation</b> over <b>risk forecasting</b> .
<b>Urban Vulnerability</b>	Rapid <b>urbanisation</b> without disaster-resilient infrastructure in cities like Mumbai, Chennai.
<b>Insurance &amp; Risk Sharing Gaps</b>	Lack of crop, life, and disaster insurance limits <b>resilience of vulnerable populations</b> .
<b>Weak Local Governance</b>	Poor coordination among local disaster management authorities affects <b>timely response</b> .

## 6. Way Forward

Measure	Benefits
<b>Mainstream DRR in Development Plans</b>	Ensures <b>resilient infrastructure</b> , reduces GDP losses.
<b>Increase DRR Investment to 5–10% of Aid</b>	Align with GAR’s recommendation to <b>prioritise prevention</b> over relief.
<b>Expand Insurance Coverage</b>	Promote schemes like <b>PMFBY, Fasal Bima Yojana</b> to <b>enhance financial protection</b> .
<b>Promote Nature-Based Solutions</b>	Coastal afforestation, wetland restoration can act as <b>natural buffers</b> against disasters.
<b>Leverage Technology</b>	Use <b>AI, satellite imagery, GIS tools</b> for <b>risk forecasting and real-time alerts</b> .

## ✓ Conclusion

The GAR 2025 report reinforces that **resilience is not a cost but an investment**—one that yields long-term dividends in **saving lives, protecting infrastructure, and ensuring economic stability**. For India, aligning policy with **Sendai Framework** goals, improving **insurance penetration**, and enhancing **climate-resilient infrastructure** is key to managing the growing threat of **climate-induced disasters**.

# HISTORY

## Veer Savarkar: Revolutionary, Reformer, and Nationalist Thinker

### ✦ Syllabus Mapping:

- ✓ **GS Paper 1 – Modern Indian History: Freedom Struggle, Revolutionary Movements**
- ✓ **GS Paper 2 – Polity and Governance: Social Reforms, Political Ideologies**

## 1. Introduction

Prime Minister Narendra Modi recently **paid homage to Vinayak Damodar Savarkar** on his birth anniversary, acknowledging his pivotal role in India’s **freedom movement, social reform, and nationalistic thought**. Savarkar remains a **contested yet influential figure**, whose life journey reflects the evolution of political ideologies during colonial India.

## 2. Early Life and Background

- **Born:** 1883, **Bhagur village**, near Nashik, Maharashtra
- **Education:** Fergusson College, Pune; further studied law in London
- **Influences:** Inspired by nationalist ideals and revolutionary movements in Europe

## 3. Key Contributions to India’s Nationalist Movement

### ◆ Revolutionary Nationalism

- **Founded Abhinav Bharat Society (1904):**
  - A secret revolutionary organization promoting armed rebellion.
  - Inspired by Italian revolutionary Giuseppe Mazzini.
- **Established Free India Society (1906) in London:**
  - Mobilized Indian students abroad against British rule.
  - Promoted political activism among the Indian diaspora.



### ◆ Literary Contribution

- **Authored “The First War of Indian Independence – 1857”:**
  - Countered British narratives that termed it a ‘Sepoy Mutiny’.
  - Viewed 1857 as a **nationalist uprising** with **Hindu-Muslim unity**.
- **Other Works:**
  - *Hindutva: Who is a Hindu?* – Theoretical foundation for cultural nationalism.
  - *Six Glorious Epochs of Indian History* – Reinterpretation of India’s past glories and resistance.

### ◆ Imprisonment and Sacrifice

- **Arrested for Sedition (1910):**
  - Tried in Bombay, then transported to the **Cellular Jail in Andaman (Kala Pani)**.
  - **Sentence:** Double transportation for life — total **50 years of rigorous imprisonment**.

## 4. Role in Social Reform and Hindu Identity

### ◆ Social Reform Initiatives

- **Against Untouchability:**
  - Advocated for **social inclusivity** and **eradication of caste-based discrimination**.
  - Built the **Patit Pavan Mandir** in Ratnagiri—open to Dalits, with them serving as priests.
- **Support for Inter-dining and Inter-caste Marriages:**
  - Aimed to modernize Hindu society and unite it against colonial rule.

### ◆ Hindu Mahasabha Leadership

- **President (1937–1944):**
  - Advocated **Hindu political consolidation** during a time of communal polarization.
  - Participated in **Cripps Mission** and **Wavell Plan** discussions for political negotiations with British.

## 5. Legacy and Controversies

Aspect	Legacy
<b>Patriotism</b>	Remembered for his <b>militant nationalism</b> , sacrifices, and literary work.
<b>Social Reformer</b>	Pioneer in <b>Dalit inclusion</b> and <b>progressive Hindu practices</b> .
<b>Political Thought</b>	His concept of <b>Hindutva</b> remains central to political debates today.
<b>Controversies</b>	Accused of <b>clemency petitions</b> during jail term; alleged indirect link to Gandhi’s assassination (acquitted).

### ✓ Conclusion

Vinayak Damodar Savarkar occupies a complex space in Indian history—a **revolutionary, intellectual, and reformer**, but also a **contentious ideologue**. His contributions to India’s freedom struggle and societal reforms are **undeniable**, making him a figure worth **scholarly exploration** and **critical engagement**, especially in contemporary debates around **nationalism and identity**.

# ENVIRONMENT & ECOLOGY

## Kerala’s Coastal Emergency

### ✦ Syllabus Mapping:

- ✓ **GS Paper 3 – Environment and Ecology:** Pollution – Oil Spills, Disaster Management, Marine Ecology
- ✓ **GS Paper 3 – Science and Technology:** Applications of biotechnology and chemical safety
- ✓ **GS Paper 2 – Governance:** Role of regulatory agencies (Coast Guard, NDRF, State Disaster Authorities)

## 1. Context: Kerala Declares Emergency Over Maritime Hazard

- On **26 May 2025**, Kerala declared a **state of emergency** following the **capsizing of a Liberian container ship** near its coast.
- The incident raised **alarm over a potential ecological crisis** due to two major concerns:
  - A possible **oil spill** contaminating the marine environment
  - The **presence of Calcium Carbide**, a hazardous substance, aboard the vessel

## 2. Chemical Threat: Calcium Carbide and Its Reaction with Seawater

- **Calcium Carbide (CaC<sub>2</sub>)** is a **highly reactive industrial chemical**.
- When it comes in contact with **seawater**, it reacts violently to produce **acetylene gas**, which is:
  - **Highly flammable** and explosive
  - Potentially dangerous to **marine biodiversity** and **human responders**
- Calcium Carbide is listed under **hazardous chemicals** in the Manufacture, Storage and Import of Hazardous Chemical Rules (1989), posing risks during **transport accidents**.

## 3. Oil Spills: Causes, Effects, and Environmental Implications

### Definition and Sources

- An **oil spill** refers to the **release of liquid hydrocarbons** (e.g., crude oil, diesel) into water bodies due to **accidents or human negligence**.
- **Sources:**
  - Collisions or capsizing of **oil tankers**
  - Failures at **offshore drilling rigs**
  - Pipeline leaks and illegal discharges

### Ecological Impacts

- **Algae and Marine Food Chain:**
  - Oil reduces light penetration and **poisons phytoplankton**, disrupting food chains.
- **Fish and Hatcheries:**
  - Fish eggs and larvae are **especially vulnerable** to hydrocarbon toxicity.
  - Commercially important species develop **contaminated flesh**, harming livelihoods.
- **Benthic Organisms:**
  - Oil particles settle on the seabed, affecting organisms like **clams and mussels**.
- **Tourism and Coastal Economy:**
  - Oil spills severely affect **fishing communities, tourism, and biodiversity reserves**.

## 4. Technologies and Innovations in Oil Spill Remediation

Technology	Description	Notable Example
<b>Bioremediation</b>	Uses <b>oil-degrading bacteria</b> to break hydrocarbons into harmless byproducts	<i>Oilzapper</i> and <i>Oilivorous-S</i> , developed by <b>TERI</b>
<b>Sorbents</b>	Materials that <b>absorb or adsorb</b> oil from the water surface	<b>Milkweed fiber</b> , naturally found in Rajasthan, used as an eco-friendly sorbent
<b>Oil Booms</b>	Large floating barriers with skirts that contain the spread of oil on water	Deployed to <b>isolate and concentrate the spill</b> for recovery
<b>Skimmers</b>	Mechanical devices that <b>skim oil from the water surface</b> after initial containment	Used to <b>collect and store spilled oil</b> efficiently

## 5. Regulatory and Response Mechanisms

- **Indian Coast Guard:** Lead maritime agency for **oil spill containment and maritime security**.
- **National Oil Spill Disaster Contingency Plan (NOS-DCP):**
  - Coordinates multi-agency response for **Tier-I to Tier-III oil spills**
  - Involves **state, central, and private sector coordination**
- **National Disaster Response Force (NDRF) and State Disaster Management Authorities (SDMAs):**
  - Mobilised in the event of **chemical hazards and evacuation needs**
- **Ministry of Environment, Forest and Climate Change (MoEFCC):**
  - Grants environmental clearances and monitors compliance under **Environment Protection Act, 1986**

## 6. Legal Frameworks for Chemical and Marine Safety

Legislation	Objective
<b>The Environment (Protection) Act, 1986</b>	Empowers the central government to regulate industrial pollution
<b>The Disaster Management Act, 2005</b>	Enables coordinated disaster preparedness and response
<b>Hazardous Waste Management Rules, 2016</b>	Regulates handling and transport of hazardous substances like Calcium Carbide
<b>Merchant Shipping Act, 1958</b>	Governs maritime navigation, vessel safety, and liability for damages

## 7. Global Examples and Best Practices

- **Deepwater Horizon Spill (2010, Gulf of Mexico):** Worst offshore oil disaster; led to stricter US environmental liability laws.
- **Prestige Tanker Spill (Spain, 2002):** Resulted in stronger EU protocols on double-hulled vessels and port-state control.

- **Singapore's Marine Emergency Response Command (MERCOTM):** Provides an example of **centralised, rapid marine incident response infrastructure**.

## 8. Conclusion: Coastal Preparedness and Environmental Vigilance

- The Kerala incident underlines the **urgent need for robust maritime safety protocols, chemical cargo monitoring, and coastal disaster readiness**.
- With **climate-sensitive ecosystems and densely populated coastlines**, India must invest in:
  - **Early-warning systems**
  - **Eco-sensitive zone regulations**
  - **Integrated coastal zone management (ICZM)**
- Strengthening **institutional coordination, technological readiness, and legal enforcement** is key to preventing ecological disasters and safeguarding livelihoods.

## Emblems and Names (Prevention of Improper Use) Act, 1950

### ✦ Syllabus Mapping:

- ✓ **GS Paper 2 – Governance** (Government policies and interventions; Important Acts and Legal Frameworks)
- ✓ **GS Paper 4 – Ethics** (Public/Civil Service Values and Ethics in Public Administration; Role of Symbols in Public Integrity)

### 1. Context

- The **Supreme Court recently dismissed a plea** seeking to honour a freedom fighter under the **Emblems and Names (Prevention of Improper Use) Act, 1950**, reasserting the sanctity and **non-commercial use of national symbols and legacies**.

### 2. Overview of the Emblems and Names Act, 1950

Feature	Details
<b>Objective</b>	To <b>prevent misuse</b> of national symbols and names for <b>commercial or professional gains</b>
<b>Scope</b>	Applies <b>across India</b> and also to <b>Indian citizens abroad</b>
<b>Penalty</b>	Fine <b>up to ₹500</b> for violations (Section 5)
<b>Emblems Defined</b>	Includes <b>flag, seal, insignia, coat-of-arms</b> , and <b>pictorial representations</b> specified under the Act
<b>Prohibited Uses</b>	No person shall use these for <b>trade, business, or professional purposes</b> without prior permission

### 3. Items Protected under the Act (As per Schedule)

Category	Examples
<b>National Symbols</b>	<b>Indian National Flag, State Emblem of India, Ashoka Chakra, official seals</b> of the President or Governors
<b>National Figures</b>	<b>Mahatma Gandhi, Jawaharlal Nehru, Indira Gandhi</b> , and other specified leaders
<b>Global Bodies</b>	<b>UNO, WHO, Red Cross, Interpol</b> , etc.
<b>Institutions</b>	Names of <b>Government of India, Rashtrapati Bhavan, Rajya Sabha, Lok Sabha</b>

### 4. Relevance of the Act

#### a) Preserving National Integrity

- Prevents the **commercialisation of national icons** and emblems for **personal or political gains**.

#### b) Preventing Misrepresentation

- Misuse of names such as "Gandhi" or "Ashoka" may **confuse the public** or be used to **exploit emotional sentiments** for marketing or political mileage.

#### c) Ethical Significance

- Promotes the **dignity and sanctity** of national symbols by preventing trivial or profane use.
- Reflects **ethical restraint in public life**, aligning with **Kautilya's Arthashastra**, which stressed state symbols be revered and not misused for private ends.

### 5. Judicial Perspective

- **Supreme Court in the recent case (2025)** upheld the spirit of the Act, observing:

“Public honour must be accorded through **state policy** or statutory mechanism, and not through misapplication of laws intended to prevent misuse.”





- The Court reiterated that **the purpose of the Act is to restrict, not to bestow**, and that **glorification must follow legal decorum and national interest**.

## 6. Limitations and Challenges

Concern	Explanation
Low Penalty	The <b>maximum fine of ₹500</b> is outdated and fails to deter misuse in today's commercialised media and business climate
Lack of Awareness	Many entities, especially startups and local businesses, unknowingly use protected names or emblems
Digital Age Challenges	Widespread <b>misuse on social media, advertisements</b> , and domain names is difficult to regulate under current provisions

## 7. Way Forward

- Amend the Act to increase penalties**, especially for **repeat or commercial violations**.
- Awareness campaigns** about proper use of national symbols, especially for digital creators, advertisers, and businesses.
- Digital regulation frameworks** to track online violations, including **AI-powered image and name recognition** tools.
- Strengthen **inter-agency coordination** (with Ministry of Home Affairs, I&B, and IT Ministry) to ensure robust enforcement.



## Conclusion

The **Emblems and Names (Prevention of Improper Use) Act, 1950** is a vital legal safeguard to **preserve the dignity of national symbols and revered personalities**. While its moral and symbolic value is high, there is a **pressing need to modernise the Act** to address digital misuse and commercial exploitation in the **21st-century information economy**. Strengthening this legislation will uphold the **sanctity of national honour** and align governance with

## Kawal Tiger Reserve and Kumram Bheem Conservation Corridor

### 📌 Syllabus Mapping:

✅ **GS Paper 3 – Environment and Ecology (Protected Areas, Conservation Efforts, Biodiversity)**

✅ **GS Paper 2 – Governance (Federalism and Centre-State Coordination in Environmental Protection)**

## 1. Context: New Conservation Corridor Notification

The **Telangana Government** has declared a **tiger corridor** connecting **Kawal Tiger Reserve (Telangana)** and **Tadoba-Andhari Tiger Reserve (Maharashtra)** as the '**Kumram Bheem Conservation Reserve**'.

This aims to ensure **habitat connectivity, tiger dispersal**, and **biodiversity conservation** under the *Wildlife Protection Act, 1972*.

## 2. About Kawal Tiger Reserve

Feature	Description
Location	Sahyadri ranges along the banks of River Godavari, Telangana
Established	2012 (Declared as Tiger Reserve)
Landscape Context	Lies at the southern tip of the <b>Central Indian Tiger Landscape</b>
Connectivity	Linked with <b>Tadoba-Andhari TR (Maharashtra)</b> and <b>Indravati TR (Chhattisgarh)</b>

### Flora:

- Southern Tropical Dry Deciduous Forest**
- Southern Dry Mixed Deciduous Forest**

### Fauna:

- Flagship species:** Tiger, Leopard
- Ungulates:** Nilgai, Chinkara
- Carnivores:** Jackal, Fox
- Others:** Sloth Bear, Wild Boar, Barking Deer

## 3. Kumram Bheem Conservation Reserve – Importance

### ✅ Ecological Significance:

- Secures corridor for tiger dispersal and gene flow**, reducing chances of inbreeding.
- Facilitates **landscape-level conservation** across **inter-state boundaries**.

### ✅ Legal and Policy Backing:

- Wildlife Protection Act, 1972** allows declaration of Conservation Reserves for protecting landscapes connecting wildlife habitats.

- Supports India's commitment to **Global Tiger Recovery Program** and **Convention on Biological Diversity (CBD)**.

## 4. Tiger Corridor Importance – Central Indian Landscape

Corridor	Connects	Status/Challenge
<b>Kawal-Tadoba Corridor</b>	Kawal TR (Telangana) ↔ Tadoba-Andhari TR (Maharashtra)	Notified as Kumram Bheem Reserve
<b>Tadoba-Indravati-Kanha Axis</b>	Long-range dispersal corridor	Threatened by deforestation, mining
<b>Melghat-Satpura</b>	Across Satpura Range	Needs community cooperation

## 5. Conservation Challenges

- **Habitat Fragmentation:** Due to roads, agriculture, and mining
- **Human-Wildlife Conflict:** Tiger movement near human settlements
- **Encroachments & Land-Use Change:** Illegal grazing, firewood collection
- **Insufficient Ecological Monitoring:** For assessing corridor health



## Conclusion

The **declaration of Kumram Bheem Conservation Reserve** marks a progressive step in **landscape-level tiger conservation** by Telangana. It aligns with India's broader vision of protecting wildlife corridors and preserving **genetic viability** of tiger populations through **scientific and inter-state conservation planning**.

# BIOTECHNOLOGY & HEALTH

## Zoonotic Disease Outbreaks in India

### ✦ Syllabus Mapping:

✓ **GS Paper 2 – Governance (Health Policies, Issues Related to Health Sector)**

✓ **GS Paper 3 – Science & Technology (Biotechnology in Health), Environment & Ecology (Zoonotic Diseases and Biodiversity)**

## 1. Context: IDSP Data Analysis (2018–2023)

According to the **Integrated Disease Surveillance Programme (IDSP)**, **8.3% of disease outbreaks** reported from 2018 to 2023 were **zoonotic in nature**, with a **median of 7 zoonotic outbreaks per month**.

### Regional Trends

- **Northeast India:** Accounts for **~33%** of zoonotic outbreaks
- **Southern India:** Second-most affected region

### Major Zoonotic Diseases Identified

Disease	Share in Zoonotic Outbreaks
<b>Japanese Encephalitis</b>	<b>29.5%</b>
<b>Leptospirosis</b>	Significant share
<b>Scrub Typhus</b>	Significant share

## 2. Understanding Zoonotic Diseases

- **Definition (WHO):**  
**Zoonoses** are infectious diseases naturally transmitted between **vertebrate animals and humans**.
- **Causative Agents:**  
May be **bacterial, viral, or parasitic** in origin.
- **Transmission:**  
Spread through **direct contact, food, water, or environmental exposure**.
- **Global Impact:**
  - **Millions of deaths annually** from zoonoses
  - **60% of emerging infectious diseases (EIDs)** are zoonotic

### 3. Factors Contributing to Zoonotic Disease Emergence

Category	Contributing Factors
Ecological	Habitat destruction, deforestation, biodiversity loss
Agricultural	Intensive livestock farming, close human-animal interactions
Climate Change	Alters vector habitats and transmission cycles
Urbanisation	Human encroachment into forest and wildlife zones
Wet Markets & Illegal Wildlife Trade	Increases exposure to novel pathogens

### 4. Government Initiatives to Tackle Zoonoses

#### A. Integrated Disease Surveillance Programme (IDSP)

- **Nodal Programme** under MoHFW
- Monitors **six major zoonotic diseases**:
  - **Anthrax, CCHF, Rabies, KFD, Leptospirosis, Scrub Typhus**

#### B. National One Health Programme

- Aim: **Institutionalise One Health** at **national, state, and district levels**
- Key Components:
  - **Integrated surveillance** for human-animal-environment health
  - **Community outreach programmes** promoting One Health literacy

#### C. Disease-Specific Interventions

Programme Name	Focus
<b>National Rabies Control Programme</b>	Rabies prevention through vaccination and awareness
<b>Prevention &amp; Control of Leptospirosis</b>	Early diagnosis and vector control
<b>National Programme for Snakebite Envenoming</b>	Treatment infrastructure and awareness

### ✓ Conclusion

Zoonotic diseases represent a **persistent and evolving threat** to India's public health system, especially in the **context of climate change, urbanisation, and unregulated livestock-human interfaces**. Effective implementation of **One Health Approach**, supported by robust surveillance systems like **IDSP**, is imperative to mitigate the impact of future outbreaks and **safeguard public health security**.

## Folate Deficiency Among Adolescents

### ✦ Syllabus Mapping:

- ✓ **GS Paper 2 – Health, Issues Related to Children and Adolescents**
- ✓ **GS Paper 3 – Science and Technology (Biochemistry, Nutritional Deficiencies)**

### 1. Context: AIIMS Report on Folate Deficiency

- A recent **study by AIIMS** reveals that nearly **41% of urban adolescents** in **government schools across North India** are suffering from **Vitamin B9 (folate) deficiency**.
- This points to a **silent nutritional crisis** in India's youth, especially in vulnerable socio-economic settings.

### 2. What is Vitamin B9?

Parameter	Details
<b>Also Known As</b>	Folate (natural form) / Folic Acid (synthetic supplement)
<b>Nature</b>	<b>Water-soluble vitamin</b> from the <b>B-complex family</b>
<b>Main Role</b>	Formation of <b>DNA and RNA, protein metabolism</b> , production of <b>RBCs</b>
<b>Critical Phases</b>	Pregnancy, fetal development, adolescence – due to <b>rapid cell division</b>

### 3. Sources of Folate (Vitamin B9)

- **Natural Sources:**
  - **Dark green leafy vegetables** (e.g. spinach, methi, mustard greens)
  - **Legumes:** Beans, lentils, peas
  - **Nuts and Seeds:** Especially **peanuts**, sunflower seeds
  - **Citrus fruits**, avocado, eggs, bananas
- **Fortified Foods:**
  - Fortified flours and cereals, especially under **government nutrition programs**



## 4. Consequences of Folate Deficiency

Health Impact	Explanation
Megaloblastic Anemia	Impaired DNA synthesis leads to large, immature, and dysfunctional RBCs
Fatigue and Weakness	Due to reduced oxygen-carrying capacity of blood
Birth Defects (in pregnant women)	Risk of <b>neural tube defects</b> like spina bifida in newborns
Cognitive Decline	In children and adolescents, it can affect memory and learning ability
Poor Immune Function	Increased susceptibility to infections

## 5. Factors Leading to Rising Deficiency in Adolescents

- **Poor dietary intake:** Inadequate consumption of folate-rich foods in mid-day meals or home diet
- **High dependence on refined and processed foods**
- **Low nutritional literacy** in school-going children and their caregivers
- **Increased folate demand during adolescence** (due to growth spurts)
- **Socioeconomic constraints** limiting access to diverse diets

## 6. Policy and Programmatic Implications

Current Programs	Relevance to Folate Deficiency
POSHAN Abhiyaan	Focus on adolescent nutrition but needs more micronutrient-focused delivery
National Iron Plus Initiative (NIPI)	Includes <b>IFA supplementation</b> , but folate coverage remains variable
Mid-Day Meal Scheme	Must include <b>folate-rich vegetables and legumes</b> regularly
Food Fortification Initiatives	Mandatory folic acid fortification in wheat flour and rice is being scaled

### ✓ Conclusion

The high prevalence of **Vitamin B9 deficiency among adolescents** is a warning signal that demands **urgent policy attention**. It is essential to integrate **micronutrient-rich food provisioning**, **school-based health education**, and **regular nutritional screening** to protect the physical and cognitive development of India's future workforce

# SCIENCE & TECHNOLOGY

## Autonomous Satellites

### ✈ Syllabus Mapping:

- ✓ **GS Paper 3 – Science & Technology:** Space Technology, Artificial Intelligence, Emerging Technologies
- ✓ **GS Paper 3 – Security:** Cybersecurity, Space Militarisation
- ✓ **GS Paper 2 – International Relations:** Outer Space Governance and Global Treaties

## 1. Context: Emergence of Autonomous Satellites as a Strategic Game-Changer

- In 2024, China launched the world's first autonomous or 'self-driving' satellites, capable of making **independent decisions without ground intervention**.
- This development signals a transformative leap, where **satellites are evolving from passive data collectors to intelligent, operational machines**.
- Countries including **India, USA, China, and Russia** are now accelerating their **AI-based satellite programs**, blending **edge computing and real-time analytics** into outer space.

## 2. What are Autonomous Satellites?

### Definition and Concept

- **Autonomous satellites** are **self-governing space systems** that perform various tasks with **minimal or no human control**.
- They are equipped with **Artificial Intelligence (AI)**, **machine learning algorithms**, and **onboard processing systems**—collectively referred to as **satellite edge computing**.

### From Observers to Decision-Makers

- These systems can **sense their environment**, **evaluate scenarios**, and **execute responses**—a major departure from traditional satellites that rely solely on ground instructions.



### 3. Key Applications of Autonomous Satellites

Domain	Functionality
Automated Space Operations	Perform <b>independent manoeuvres</b> , such as <b>orbital adjustments</b> , <b>docking</b> , <b>in-orbit servicing</b> , and <b>space debris removal</b>
Self-Diagnosis and Repair	Monitor internal systems, detect malfunctions, and <b>initiate auto-repair protocols</b> without waiting for Earth-based commands
Orbital Route Planning	Calculate and adjust <b>fuel-efficient, collision-free trajectories</b> , essential for <b>space traffic management</b>
Targeted Geospatial Intelligence	<b>Detect disasters</b> , track environmental changes, and autonomously coordinate with other satellites to <b>focus surveillance on high-priority areas</b>
Combat Support	Real-time identification of <b>aerial and space-based threats</b> , enabling <b>autonomous target tracking</b> , and possibly <b>offensive capabilities</b> in future space conflicts

### 4. Strategic and Technological Implications

#### Edge Computing in Space

- Satellites no longer need to transmit raw data to Earth for processing.
- With **AI-powered onboard processing**, they reduce latency, **accelerate decision-making**, and function with **operational autonomy in remote missions** (e.g., deep-space probes).

#### Defence and National Security

- Autonomous satellites could become part of **space-based command and control systems**, supporting **hypersonic weapons**, **ballistic missile detection**, and **intelligent battlefield networking**.
- They also offer **strategic independence** in times of **communication blackouts or cyberattacks** on ground stations.

### 5. Challenges and Concerns Associated with Autonomous Space Systems

Concern	Implication
AI Hallucination	The AI onboard may misinterpret patterns—e.g., <b>falsely identifying friendly satellites as hostile</b> , risking accidental escalation or satellite destruction
Lack of Legal Clarity	Existing treaties like the <b>Outer Space Treaty (1967)</b> and <b>Liability Convention (1972)</b> presume <b>human accountability</b> , creating ambiguity for <b>autonomous machine actions</b>
Cybersecurity Threats	Autonomous satellites, being data-driven, are <b>vulnerable to hacking, spoofing, or signal jamming</b> , posing risks of <b>AI misdirection or hijacking</b>
Ethical and Operational Risks	Delegating decision-making to AI in space missions raises concerns about <b>accountability, transparency, and human oversight</b> , especially in <b>combat scenarios</b>

### 6. Global Developments in Autonomous Space Technology

Country	Notable Development
China	Launched the <b>first self-driving satellite</b> in 2024, showcasing autonomous path correction and threat detection
United States (NASA + DARPA)	Developing <b>robotic servicing satellites</b> , AI-based <b>autonomous navigation systems</b> for Mars and deep space
European Space Agency (ESA)	Experimenting with <b>autonomous docking and in-orbit assembly missions</b>
India (ISRO)	Exploring AI-integration in <b>satellite data processing</b> , <b>Earth observation</b> , and <b>defence-oriented applications</b> under <b>Defence Space Agency</b> initiatives

### 7. Way Forward: Building Responsible and Resilient Autonomous Systems

Strategy	Actionable Step
Global Norms Development	Push for <b>new treaties and codes of conduct</b> that define <b>autonomy levels, accountability, and conflict prevention</b> in space
AI Ethics Frameworks	Implement <b>red lines and fail-safe protocols</b> to regulate AI behavior in autonomous spacecraft
Invest in Secure Architecture	Harden satellites against <b>cyber intrusions</b> using quantum encryption and advanced firewalls
Promote Dual-Use Balance	Balance strategic use with <b>civilian applications</b> such as disaster response, climate observation, and space exploration

### 8. Conclusion: Redefining the Skies through AI-Driven Autonomy

- Autonomous satellites mark a **technological turning point**, enabling **uninterrupted operations, real-time intelligence, and tactical agility** in space.
- However, their rise demands **parallel advancements in law, cybersecurity, and multilateral cooperation**.
- As space becomes a new arena for **strategic and scientific competition**, India must **innovate responsibly** and **shape global rules** that balance innovation with peace and stability.



## Ending Deception in E-Commerce

### ✦ Syllabus Mapping:

✓ **GS Paper 2 – Government Policies & Consumer Protection**

✓ **GS Paper 3 – Science and Technology (Digital Governance, E-Commerce Ethics)**

## 1. Context

The **Ministry of Consumer Affairs** recently convened a **stakeholder dialogue** to eliminate **dark patterns** from e-commerce platforms. All companies have been directed to conduct **self-audits** to ensure compliance with consumer rights and digital fairness norms.

## 2. What are Dark Patterns?

**Feature**      **Details**

**Definition** Deceptive UI/UX designs that **manipulate or mislead** users into taking unintended actions.

**Purpose** Often used to trick consumers into purchases, subscriptions, or revealing personal information.

**Legal View** Treated as **misleading advertisements, unfair trade practices, and violations of consumer autonomy.**

## 3. Legal and Policy Provisions

### A. Consumer Protection Act, 2019

- Defines **unfair trade practices** and grants **redressal mechanisms** through the **CCPA** (Central Consumer Protection Authority).

### B. Guidelines for Prevention and Regulation of Dark Patterns, 2023

- **Issued by:** Department of Consumer Affairs.
- **Covers:** 13 dark patterns including:
  - **Basket Sneaking:** Adding items to cart without consent.
  - **Confirm Shaming:** Using guilt to influence decisions.
  - **Forced Continuity:** Making it hard to cancel subscriptions.
  - **Interface Interference:** Hiding options or disabling cancellation buttons.
  - **Nagging, Bait and Switch, etc.**

## 4. Tools to Combat Dark Patterns

Tool	Function
Jagriti App	Allows consumers to <b>report dark patterns</b> directly to CCPA.
Jago Grahak Jago App	Offers <b>real-time safety scores</b> of e-commerce links and <b>blocks malicious content.</b>
Jagriti Dashboard	Helps regulators <b>monitor trends</b> , generate <b>analytical reports</b> , and track <b>non-compliant platforms.</b>

## 5. Significance of the Crackdown

- **Digital Trust:** Promotes fairness and transparency in online platforms.
- **Consumer Empowerment:** Protects user autonomy and **informed choice.**
- **Business Accountability:** Encourages ethical design practices and **self-regulation.**
- **Global Alignment:** Brings India closer to **OECD and EU standards** on digital consumer protection.

## 6. Way Forward

Suggestion	Explanation
<b>Consumer Awareness Campaigns</b>	Through school curricula, social media, and vernacular outreach under <b>Jago Grahak Jago.</b>
<b>Algorithmic Audits</b>	Periodic tech audits to <b>detect deceptive coding patterns</b> in apps and websites.
<b>Global Cooperation</b>	Collaborate with digital regulators across <b>EU, USA, and ASEAN</b> for common frameworks.

### ✓ Conclusion

Dark patterns are subtle yet **powerful threats** to consumer rights in the digital age. With regulatory clarity and digital tools like **Jagriti**, India is taking a firm step toward **ethical e-commerce**, ensuring **transparency, trust, and autonomy** for users navigating the online marketplace.



## Battery Aadhaar

### ✦ Syllabus Mapping:

✓ **GS Paper 3 – Science and Technology: Indigenisation of Technology, Innovation, E-Governance Applications**

✓ **GS Paper 3 – Environment: Waste Management, Circular Economy, Green Technology**

## 1. Introduction

The **Battery Aadhaar Initiative**, launched by the **Department of Science and Technology (DST)** during the **Battery Summit 2025**, aims to revolutionize **battery traceability and sustainability**. It is India's pioneering step toward **establishing a battery lifecycle registry**, fostering a **circular economy**, and ensuring **battery safety and standardisation**.

## 2. What is Battery Aadhaar?

- It is a **unique digital identity** assigned to **each battery pack**.
- Tata Elxsi demonstrated the initiative via its **MOBIUS+ platform**, serving as a **Digital Product Passport (DPP)**.
- Aligns with the global trend of **tech-enabled product lifecycle management**.

## 3. Key Objectives and Benefits

### ◆ Lifecycle Traceability

- **Tracks origin**, manufacturing details, and **chemistry composition** of each battery pack.
- Documents **safety certifications**, usage data, and **lifecycle performance** in real-time.

### ◆ Enables Predictive Maintenance

- Real-time monitoring of:
  - **Charge-discharge cycles**
  - **Thermal behaviour**
  - **Voltage drops**
- Prevents accidents and **improves reliability** of Electric Vehicle (EV) batteries.

### ◆ Boosts Recycling and Reuse

- Promotes **battery reuse, repurposing and material recovery**, in line with **Extended Producer Responsibility (EPR)**.
- Facilitates compliance with the **Battery Waste Management Rules, 2022**.

### ◆ Counterfeit Prevention

- Acts as a **regulatory check** to curb fake or substandard batteries in the market.
- Supports **standardisation and certification frameworks** for battery components.

## 4. Importance in Contemporary Context

Issue Area	Relevance of Battery Aadhaar
<b>EV Boom</b>	Assists in managing growing <b>battery demand</b> in EVs
<b>Consumer Safety</b>	Reduces risks of <b>explosion or overheating</b>
<b>Waste Management</b>	Streamlines <b>eco-friendly disposal and recycling</b>
<b>Green Energy Push</b>	Complements <b>India's Net-Zero 2070 target</b>
<b>Data-Driven Governance</b>	Enables <b>policy-making</b> based on battery usage trends

## 5. International Comparisons

- **European Union:** The **Digital Battery Passport** is set to become mandatory by 2026 under the **EU Battery Regulation**, mandating full traceability of battery materials.
- **USA:** Advanced Battery Supply Chain mapping is a focus under **Biden's Inflation Reduction Act**, aiming for clean tech and battery localisation.

## 6. Way Forward for India

### ✓ Policy Integration

- Integrate with **National Battery Storage Programme** and **FAME schemes**.



- Link Battery Aadhaar with **OEM platforms** and **National Dashboard for Battery Safety**.

### ✓ Incentivise Circular Economy

- Encourage industry adoption through **PLI schemes** for Advanced Chemistry Cells (ACCs).
- Provide tax benefits for companies using Battery Aadhaar in compliance and recycling.

### ✓ Skilling & Infrastructure

- Train battery operators and service personnel on using the Battery Aadhaar interface.
- Create **national-level battery recycling hubs** integrated with Aadhaar-tagged waste tracking.

### ✓ Conclusion

**Battery Aadhaar** is a visionary leap toward **tech-enabled sustainability** in India's energy and transport ecosystems. By ensuring transparency, traceability, and safety, it **empowers consumers, regulators, and manufacturers** alike—making it a key pillar for **energy security and circular economy** in a climate-resilient India.

## Indian Space Situational Assessment Report (ISSAR) 2024

### ✦ Syllabus Mapping:

✓ **GS Paper 3 – Science & Technology (Space Technology), Security**

✓ **GS Paper 2 – International Relations (Global Space Governance)**

### 1. Context: ISSAR 2024 Released by ISRO

- **ISSAR (Indian Space Situational Assessment Report)** is published annually by **ISRO's IS4OM** under the **Space Situational Awareness (SSA)** initiative.
- SSA involves **monitoring, threat assessment, and mitigation strategies** related to India's space assets.

### 2. India's Space Profile (2024)

Category	Details
<b>Total Spacecrafts Launched</b>	136 spacecrafts
<b>Operational Satellites</b>	<b>22 in LEO</b> and <b>31 in GEO</b> , all under Government control
<b>Active Deep Space Missions</b>	<b>Chandrayaan-2 Orbiter</b> and <b>Aditya-L1</b> at Sun-Earth Lagrange Point
<b>Collision Avoidance Manoeuvres</b>	10 CAMs carried out by ISRO
<b>Satellites Re-entered</b>	9 Indian satellites including <b>Cartosat-2</b>
<b>Decommissioned Spacecrafts</b>	<b>Scatsat-1, INS-2B, and EOS-7</b>
<b>POEM Missions</b>	POEM-3 and POEM-4 upper stages deorbited to <b>350 km</b> altitude

### 3. India's Space Governance and Global Leadership

- **UN Working Group Chair:** India currently chairs the **UN Working Group on Long-Term Sustainability of Outer Space Activities**.
- **IADC Leadership:**
  - Chaired the **Inter-Agency Space Debris Coordination Committee (IADC)** for 2023–24.
  - Hosted the **42nd IADC Annual Meeting**.
  - Contributed to:
    - **Revision of IADC Space Debris Mitigation Guidelines.**
    - Launch of **Debris-Free Space Mission (DFSMD)** Declaration:  
→ All Indian space actors (public & private) must aim for **debris-free missions by 2030**.

### 4. Global Space Activity Trends (2024)

Category	Details
<b>Total Launches (World)</b>	254 successful orbital launches
<b>Total Space Objects Launched</b>	2963 objects placed in orbit
<b>Major Breakup Events</b>	3 on-orbit fragmentation events
<b>Notable Incident</b>	<b>Long March (CZ-6A)</b> rocket stage fragmentation → Added ~650 catalogued debris objects

### 5. Significance of ISSAR 2024

- **Improved National Preparedness:** Through regular **Collision Avoidance Manoeuvres (CAMs)**.
- **Sustainability Focus:** Emphasis on **deorbiting** and **decommissioning** post-mission to prevent **space debris accumulation**.
- **Technology Leadership:** India's POEM missions reflect capacity for **low-cost, sustainable experimentation**.
- **Global Diplomacy:** India's active leadership in **UN** and **IADC** forums underscores its evolving role in **global space governance**.



## ✓ Conclusion

India's ISSAR 2024 demonstrates a robust and **responsible approach to space governance**, emphasizing **sustainability, safety**, and **strategic autonomy**. As the country gears up for more ambitious missions and greater private participation, aligning with **international best practices** and **domestic innovations like POEM and DFSM** will be crucial to safeguarding space as a **shared global commons**.



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