

Today's Prelims Topics

PM MITRA Parks

Context

PM Modi laid the foundation stone for the country's first PM Mega Integrated Textile Region and Apparel (PM MITRA) Park in Dhar district of Madhya Pradesh.

About PM MITRA Parks

- It was launched in 2021 under the Ministry of Textiles.
- **Objective:** To develop world-class industrial infrastructure that will attract cutting-edge technology and boost foreign direct investment (FDI) and local investment in the textiles sector.

• Features:

- O **Integrated Value Chain:** All activities—spinning, weaving, dyeing, processing, and garmenting—are housed within one zone, reducing transport costs and turnaround time.
- O **Modern Infrastructure:** Equipped with quality roads, reliable power and water supply, worker hostels, logistics hubs, plug-and-play factory units, along with dedicated space for R&D, skill training, and commercial facilities.
- Employment & Investment: Each park is projected to generate about 1 lakh direct jobs and 2 lakh indirect jobs, while drawing investments worth ₹70,000 crore+.
- O PPP Model: Parks will be managed through Special Purpose Vehicles (SPVs), jointly promoted by the Central and state governments with participation from private developers.
- Capital Support & Incentives: For Greenfield projects, Central assistance will cover up to 30% of project cost (max ₹500 crore), in addition to production-linked incentives for units operating inside the parks.

Location of PM MITRA Parks (announced so far):

Madhya Pradesh: Dhar district

O Tamil Nadu: Virudhunagar

O Karnataka: Kalaburagi

Telangana: Warangal

O Gujarat: Navsari

O Maharashtra: Amravati

O Uttar Pradesh: Lucknow



Relocation of Cheetah

Context

On the occasion of third anniversary of Project Cheetah a female cheetah named Dheera has been relocated from Kuno National Park to Gandhisagar Wildlife Sanctuary in MP.

About Project Cheetah

- Launch: 17 September 2022.
- Objective: Reintroduce cheetahs into India, where they went extinct in 1952 due to hunting and habitat loss
- Source of Cheetahs: Namibia and South Africa have supplied the animals.
- Implementation: Managed by the National Tiger Conservation Authority (NTCA) in collaboration with state forest departments and international experts.
- Current count in India: Between Kuno and Gandhisagar, India has 27 cheetahs
 - 11 adults brought from African nations,
 - 16 Indian-born cubs.

Gandhisagar Wildlife Sanctuary

- Location: Mandsaur and Neemuch district in western Madhya Pradesh, bordering Rajasthan.
- Notified: As a WLS in 1974
- **River:** The River Chambal divides the sanctuary into two parts.
- Flora: Khair, Salai, Tendu, Palash etc.
- Fauna: Chinkara, Nilgai, and Spotted Deer, Leopard, Striped Hyena, and Jackal etc.
 - O It also has a good population of **crocodiles and turtles.**
- Historical Places: Chaturbhujnath temple, Bhadkaji rock paintings & Hinglajgarh fort



Periyar Tiger reserve

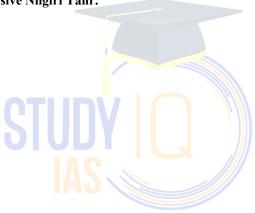
Context

A State Finance Inspection wing report has revealed financial irregularities at the Periyar Tiger Reserve (PTR), Kerala.

About Periyar Tiger Reserve

- Location: Western Ghats of Kerala.
- It was declared a Tiger Reserve in 1978.
- Two main rivers, **Periyar and Pamba** drain the reserve.
- Home to many tribal communities including the Mannans and the Palians.
- Fauna:
 - Includes Elephants, Sambar, Gaur, Mouse Deer, Dole or Barking Deer, Indian Wild Dog and Tiger.
 - O The major four species of primates are also found at Periyar the rare lion-tailed macaque, the Nilgiri Langur, Gee's Golden Langur, Common Langur and Bonnet Macaque.

Habitat of the elusive Nilgiri Tahr.





Finance Commission

Context

The Kerala government has requested the 16th Finance Commission for supplementary grants and a temporary extra borrowing limit of 0.5% of Gross State Domestic Product (GSDP).

Finance Commission (FC) of India

- It is a constitutional body established under Article 280 of the Indian Constitution.
- Mandate:
 - O Recommend distribution of **net tax revenues** between Union and States (vertical devolution).
 - Recommend distribution among States (horizontal devolution).
 - O Suggest grants-in-aid from the Centre to States.
 - O Suggest measures to improve fiscal consolidation and sound financial management.
- Tenure: Constituted every 5 years by the President of India.
- Current Commission: 16th Finance Commission (Chairman: Dr. Arvind Panagariya), tenure 2023–2028.

Tax Devolution in India

- Article 270 of the Constitution provides for the scheme of distribution of net tax proceeds collected by the Union government between the Centre and the States.
- Vertical Devolution (Union States): Share of Union taxes devolved to States.
 - As per the **15th Finance Commission** (2021–26): States receive 41% of divisible pool of central taxes.
 - Earlier, 14th FC had raised this to 42%.
- Horizontal Devolution (Among States): Based on criteria/weights:

Table 1: The criteria for horizontal devolution among States over the last five FCs

Criteria	11th FC 2000-05	12th FC 2005-10	13th FC 2010-15	14th FC 2015-20	15th FC 2021-26
Income Distance	62.5	50	47.5	50	45
Population (1971 Census)	10	25	25	17.5	-
Population (2011 Census)	-	-	-	10	15
Area	7.5	10	10	15	15
Forest cover	1-	-	-	7.5	-
Forest and ecology	-	-	-	-	10
Infrastructure index	7.5	-		-	-
Fiscal discipline	7.5	7.5	17.5	-	-
Demographic performance	-	-	-	-	12.5
Tax effort	5	7.5	-	-	2.5
Total	100	100	100	100	100

• Grants-in-Aid (Article 275):

- Revenue deficit grants.
- O Sectoral grants (health, education).
- O Disaster management grants.



Advanced Air Defence Radars

Context

The Indian Army has begun procuring a new range of advanced Air Defence (AD) radars to strengthen its defence network along the northern and western borders.

What is RADAR (Radio Detection and Ranging)

• It is an electronic system that uses radio waves to detect, locate, and track objects by transmitting signals and analyzing the echoes reflected back from those objects.

Components:

- O **Transmitter:** Sends out radio waves into the surrounding space.
- Receiver: Captures the reflected signals (echoes) when radio waves hit an object.
- Processor/Display Unit: Analyzes the reflected signals and shows the location and movement of the target.

• Functions:

- Finds the direction (angle) of the target.
- Measures the distance (range) of the object.
- Calculates the velocity (speed) of moving targets.
- O By monitoring reflections over time, RADAR can predict the trajectory (path) of the target.

• Types of Air Defence (AD) Radars:

- Surveillance Radars: Continuously scan the skies to detect aerial objects.
 - Provide situational awareness but are **not directly connected to weapons**.
- Fire Control Radars: Work closely with weapons like surface-to-air missiles or anti-aircraft guns.
 - Lock onto targets and help guide weapons to destroy them.



Mediterranean Harvester Ant (Messor ibericus)

Context

Researchers have discovered that Messor ibericus (Mediterranean harvester ant) queens can produce males of a different species, Messor structor.

About Mediterranean Harvester Ant

- **Distribution:** Found widely in the Mediterranean region of Europe.
- Characteristics:
 - O Colony Structure:
 - **Queens** reproductive females laying eggs.
 - Workers sterile females responsible for foraging, nest building, and brood care.
 - **Drones (Males)** usually provide sperm for reproduction.
 - Queens can also directly give birth to Messor structor males, despite no colonies of Messor structor being present nearby.



Global Innovation Index (GII) 2025

Context

The World Intellectual Property Organisation (WIPO) released the Global Innovation Index (GII) 2025.

Global Innovation Index (GII) 2025 - Key Highlights

Global Trends

- R&D Growth Decline: Slowed to 2.9% in 2024 and projected to fall further to 2.3% in 2025, lowest since the 2010 financial crisis.
- **Tech Shift:** Despite slowdown, rapid advances in AI, quantum computing, and innovation clusters are driving global competitiveness.

Top Global Performers (2025)

- #1 Switzerland retains top spot.
- #2 Sweden, #3 United States strong in high-tech R&D and innovation ecosystems.
- #4 Republic of Korea, #5 Singapore lead in Asia-Pacific innovation.
- China (#10): enters Top 10, ranked #2 globally in R&D expenditure and world leader in patent filings.

India's Performance

- Overall Rank: #38 (up from #48 in 2020).
- Regional Leader: #1 in Central & Southern Asia.
- Income Group Leader: #1 among lower-middle-income economies.
- Strengths:
 - O Knowledge & Technology Outputs: #22
 - O Market Sophistication: #38
- Weaknesses:
 - O Business Sophistication: #64
 - O Infrastructure: #61
 - O Institutions: #58

18th - September - 2025

Narcotics Control Bureau (NCB) Annual Report 2024

Context

The union Home minister released the Narcotics Control Bureau (NCB) Annual Report-2024 and launched the Online Drug Disposal Campaign at the inaugural session of the second National Conference of the Heads of Anti-Narcotics Task Force (ANTF) of states and Union Territories.

Drug Trafficking Scenario in India

- Vulnerable Geostrategic Location: Lies between two major global drug belts:
 - "Death Crescent" Afghanistan, Pakistan, Iran (major opium/heroin producers).
 - "Death Triangle/Golden Triangle" Myanmar, Thailand, Laos (synthetic drugs and opium).
 - This makes India a transit as well as a destination country for narcotics.

Border Vulnerabilities:

- \circ **Punjab, Rajasthan, J&K** \rightarrow Heroin inflow from Pakistan.
- \circ North-East states \rightarrow Spillover from Myanmar.
- **Coastal states** (Mumbai, Gujarat, Kerala, Tamil Nadu) → Smuggling of synthetic drugs & precursors.

• Emerging Trends in Trafficking:

- O Shift towards synthetics: Growing use of methamphetamine, LSD, mephedrone.
- Clandestine labs: Unearthed in hotspots like Maharashtra, Gujarat, Punjab, North-East.
- Online marketplaces and cryptocurrency enable anonymous global transactions.
- O Maritime routes: Drugs smuggled through Chabahar, Gwadar, Karachi ports into India.
- New technologies: Drones increasingly used for cross-border narcotics delivery (India—Pakistan border).

India's Initiative to tackle Drug Trafficking

- Legal: Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances (PITNDPS) Act
- Coordination: NCORD (National Narcotics Coordination Portal).
- Data: NIDAAN (National Database of Arrested Narco Offenders).
- **Helpline:** MANAS National Narcotics Helpline.
- Awareness: Drug-Free India Campaign.

Source: PIB



Moran Community

Context

Organisations representing the Moran community in Assam have intensified their push for recognition as a Scheduled Tribe.

About Moran Community

- **Distribution:** Indigenous tribes of Assam mainly found in **Upper Assam** Tinsukia, Dibrugarh, Sivasagar.
- History: led the Moamoria Rebellion (1769–1805) against the Ahoms.
- Language & Culture: Earlier spoke the Moran language (related to Dimasa); now largely use Assamese.
- Livelihoods: Dependent on agriculture, fishing, and forest resources along the Brahmaputra valley.

Process of Granting ST Status in India

• Constitutional Basis:

- O Defined under **Article 366(25)** "Scheduled Tribes" are those communities notified under **Article 342**.
- Article 342(1): The President, after consultation with the Governor of the State/UT concerned, notifies tribes or tribal communities as ST.
- Article 342(2): Only Parliament can include or exclude a community from the ST list by law.
- Criteria (not in Constitution but evolved by Government/committees):
 - O Primitive traits / distinctive culture.
 - O Geographical isolation.
 - Shyness of contact with the community at large.
 - Backwardness (social and economic).

• Procedure:

- **Proposal** originates from the concerned State/UT Government.
- Sent to Ministry of Tribal Affairs (MoTA) → examined with the Registrar General of India (RGI) and National Commission for Scheduled Tribes (NCST).
- O If cleared, proposal goes to Cabinet Committee.
- Finally, a Bill is introduced in Parliament → amendment to the Constitution (Scheduled Tribes) Order, 1950.
- O After passage, President notifies the inclusion.



Sarnath

Context

India has also officially nominated Sarnath for inclusion in the UNESCO World Heritage List (2025–26 cycle).

Historical Significance of Saranth

- Buddhist Heritage: Located near Varanasi, it is the site where Gautama Buddha delivered his first sermon (Dhammachakra Pravartana) in 528 BCE, marking the founding of the Buddhist Sangha.
 - The **Dhamek Stupa** is said to mark this spot.
- Mauryan Patronage: Emperor Ashoka (268–232 BCE) visited Sarnath, built monasteries, and erected the Lion Capital pillar, which later became the Emblem of the Republic of India.
- Subsequent Dynasties: Flourished under Kushanas (1st-4th c. CE) and Guptas (3rd-6th c. CE), who expanded monasteries and restored Ashokan structures.
 - O Became a major Buddhist pilgrimage centre until the **12th century CE**.
- **Destruction:** Decline began around the 12th century.
 - Historical accounts attribute destruction to invasions under Qutb-ud-din Aibek (1193 CE), though some scholars suggest gradual decline due to the waning of Buddhism.
- **Rediscovery:** Site was re-identified in the late 18th century.
 - O Systematic excavations by Alexander Cunningham (ASI, 1861) and later by Friedrich Oertel (1904–05) unearthed sculptures, inscriptions, monasteries, and relics.





Places in News

Mozambique

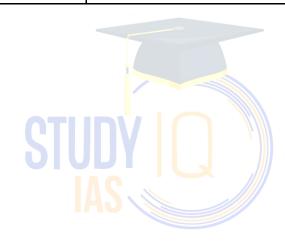


News? The 1st Training Squadron (1TS) of the Indian Navy comprising **INS Tir, INS Shardul, INS Sujata**, and ICGS Sarathi entered Maputo, Mozambique.

About Mozambique

- Location: Southeastern Africa,
- Bordered: Indian Ocean (east), Tanzania (north),
 Malawi & Zambia (northwest), Zimbabwe (west), South
 Africa & Eswatini (southwest).
- Capital: Maputo
- Major rivers: Zambezi, Limpopo, Save, Rovuma.

Source: PIB



Mains Topics

Out-of-Pocket Expenditure in Health

Context

In India, out-of-pocket expenditure is the main way households pay for healthcare, but while official data (NHA) shows it declining, other surveys suggest it is actually rising, revealing a major data gap.

Out-of-Pocket Health Expenditure (OOPE)

- OOPE in health refers to direct payments made by households at the time of using healthcare services.
- It includes costs of consultations, medicines, diagnostics, hospitalisation, informal charges, etc.
- It excludes **prepaid mechanisms** like government subsidies, social insurance, or employer-based coverage.

Data Discrepancy on OOPE in India

- National Health Accounts (NHA): Reports OOPE share of total health expenditure has declined from 64% (2013-14) to 39% (2021-22).
- NFHS-5 (2019-21): Shows very high OOPE per hospitalisation ₹4,452 in public and ₹26,475 in private facilities.
- Consumer Expenditure Survey (2022-23): OOPE share in household consumption rose (rural: 5.9%, urban: 7.1%).

Reasons behind high OOPE in India

- Low Public Health Spending: India spends ~2% of GDP on health (Union + State), far lower than the global average of ~6%.
- Dominance of Private Healthcare: Nearly 70% of outpatient and 60% of inpatient care is delivered by the private sector, which is costly.
- **High Medicine Costs:** Medicines and diagnostics contribute to **60-70% of OOPE**.
 - O Price regulation is limited to a fraction of drugs under the National List of Essential Medicines (NLEM).
- **Insurance Gaps:** Low penetration of health insurance, especially in the informal sector.
 - Even schemes like **Ayushman Bharat–PM-JAY** cover only ~50 crore people, with significant exclusions.
- Limited Primary Health Infrastructure: Weak primary care forces patients to seek expensive tertiary facilities even for minor ailments.
- Pandemic Effect: COVID-19 led to spikes in OOPE due to high costs of hospitalisation, oxygen, and medicines, which NHA estimates largely missed.
- Informal Costs: Under-the-table payments, non-standardised charges, and high outlays for diagnostics in urban centres.



Consequences of Increasing OOPE

- Impoverishment and Poverty Trap: Households liquidate savings, borrow, or sell assets to meet healthcare costs.
- Catastrophic Health Expenditure: Families spending >10% of household consumption expenditure on health.
- Inequity in Healthcare Access: Poor households forgo care, delay treatment, or opt for informal providers, worsening outcomes.
- Intergenerational Effects: Children pulled out of schools; women bear extra workload to cover medical costs.
- Nutritional and Social Impact: Families cut down on food, housing, or education expenditure to finance treatment.

Way Forward

- Raise Public Health Spending: To 2.5% of GDP by 2025 (NHP target).
- Strengthen Primary Care: Fully functional Health & Wellness Centres with diagnostics and medicines.
- Universalise Insurance: Expand PM-JAY coverage and include outpatient care.
- Affordable Medicines & Diagnostics: Scale up Jan Aushadhi; expand NLEM coverage.
- Private Sector Regulation: Enforce standard treatment costs, reduce overbilling.
- Financial Protection: Micro-insurance and community-based insurance for informal workers.
- Improve Data Quality: Combine NSS, NFHS, CES, LASI, and CMIE surveys for realistic OOPE estimates.
- Leverage Digital Health: Ayushman Bharat Digital Mission for portability, transparency, and cost efficiency.





Future ready disaster management in Himalayas

Context

The Monsoon 2025 floods across J&K, Himachal Pradesh, Punjab, and Uttarakhand exposed the ecological fragility of India's mountain states and underscored the urgent need for a future-ready disaster management framework in the Himalayas.

Technology in Action

- Drones: Used extensively for damage assessment, guidance of relief teams, and search & rescue.
- Satellite Communication & OneWeb links: Enabled coordination in areas where mobile towers collapsed.
- Doppler Radars & Nowcasting by IMD: Gave short-term forecasts for localised heavy rainfall.
- Temporary Incident Command Posts (ICPs): Allowed real-time coordination across agencies.
- **GIS-based mapping:** Supported route planning and resource allocation.
- Scope for Expansion:
 - O GSI must expand landslide mapping based on soil soaking and slope gradients.
 - NRSC should monitor glacial lakes and debris flows 24×7.
 - O **Predictive surveillance:** Drones to continuously monitor vulnerable slopes, rivers, and glaciers.
 - AI models: Integrating hydro-meteorological data for early prediction of flash floods and cloudbursts.
 - O Urban resilience: Adoption of local models such as the Gorakhpur Model of flood control.

Challenges Highlighted

- Awareness Deficit: Despite lakhs of SMS alerts and the Sachet app, many citizens were unsure how to respond.
- Pilgrimage Vulnerability: Yatras like Machail, Manimahesh, and Gangotri continued even under red alerts, straining response capacity.
- **Unchecked Development:** Construction in riverbeds, slope destabilisation, and disregard of building codes. Illegal mining weakened embankments.
- Citizen Preparedness Gaps: Lack of community drills, minimal knowledge of evacuation routes or nearest shelters.
- **Technology Gaps:** Doppler radar network remains sparse across valleys; early warning systems are not yet localised.
- Response-Centric Approach: Focus remains on post-disaster action; prevention and resilience still under-emphasised.
- Institutional Weaknesses: DDMAs often lack technical expertise and integration with civil society.

Way Forward

- Community-Centric Preparedness:
 - O Deepen Aapda Mitra Programme into schools, panchayats, RWAs.
 - O Treat **mock drills** as essential training, not token exercises.
 - Citizen handbooks with evacuation protocols.



• Scaling Technology:

- O Dense **network of Doppler radars** across valleys.
- O GIS-based **risk mapping** of slopes, rivers, and villages.
- O Drone-based predictive surveillance, coupled with AI forecasting models.
- O NRSC to monitor glacial lakes and debris flows continuously.

• Stronger Infrastructure & "Build Back Better":

- Roads rebuilt with slope stabilisation techniques.
- Enforce **no-build zones** along rivers, strict adherence to seismic building codes.
- Reinforce river embankments, curb illegal sand mining.

• Institutional Strengthening:

- O Build a technically oriented disaster management cadre.
- Empower DDMAs to integrate civil society and local knowledge.
- O Mandate **disaster awareness events** in schools and workplaces.

Balancing Development & Ecology:

- Adopt sustainable construction practices.
- O Promote eco-tourism and regulated pilgrim footfall with seasonal restrictions.





Iran Nuclear Crisis and India's Role

Context

The strikes on Iran's Fordow nuclear facility by the United States in June 2025, followed by the E3's activation of the snapback clause of the 2015 JCPOA, have reignited tensions around Iran's nuclear programme.

Global Stakes: An IR Perspective

• Challenge to Multilateralism:

- The E3's (UK, Germany, France) invocation of the snapback clause is a test of the credibility of international agreements.
- O If the JCPOA collapses, it could weaken the norm of negotiated arms control and encourage other states to defect from multilateral arrangements.

U.S. vs. Revisionist Powers:

- O US is trying to frame the crisis as a **litmus test for the non-proliferation regime**, seeking to reaffirm its primacy.
- Russia and China, however, view the situation as an opportunity to **erode U.S. dominance**, strengthen ties with Tehran, and project themselves as alternative power brokers.

• Regional Security Architecture in Flux:

- Israel and Gulf monarchies see Iran's nuclear trajectory as an existential threat, pushing the region closer to a security dilemma - where one state's pursuit of security increases insecurity for others
- O This increases the likelihood of preventive strikes or proxy escalations in West Asia.

Energy Geopolitics:

- With **20% of global oil trade** passing through the Strait of Hormuz, instability risks global economic shockwaves.
- O Import-dependent economies (India, Japan, EU) face price volatility, while exporters (Russia, Gulf states) may gain leverage.

• Non-Proliferation Regime Credibility:

- O If Iran exits the **NPT** in response to snapback measures, it would be the first major defection since North Korea (2003), dealing a serious blow to the **global non-proliferation architecture**.
- O This could trigger a **domino effect**, with other states recalculating their nuclear options.

Gap in Verified Facts

- **No IAEA Inspections:** Without neutral checks, talks on Iran's nuclear issue rely only on intelligence claims. This raises chances of misjudgments and even military action.
- Comparison: In Ukraine, IAEA's presence at Zaporizhzhia nuclear plant gave markets reliable updates, reducing panic. In Iran, the lack of such oversight worsens uncertainty in oil, trade, and finance.
- **Crisis of Trust:** When global institutions cannot provide verified facts, countries fall back on their own narratives, often shaped by strategic interests.



Iran's Strategic Concerns

- **Sovereignty vs. Rules**: Iran argues that its sovereignty is more important than treaty commitments. It sees inspections as security risks.
- Past Experience: Israeli and U.S. strikes in the past came soon after IAEA disclosures, making Iran mistrustful of inspections.
- Ambiguity as Leverage: By keeping details vague, Iran gains bargaining power in talks a a tactic known in game theory as "strategic opacity."
- NPT Exit Threat: If Iran leaves the Nuclear Non-Proliferation Treaty (NPT), it will weaken IAEA authority and global nuclear norms.

What Role Can India Play?

• Diplomatic Mediation:

- As a long-standing IAEA Board member, India enjoys credibility across divides.
- Within SCO and BRICS (both including Iran), India can support calls for restoring IAEA access, framed as Iran's sovereign choice rather than an external concession.

Technical Contributions:

- India's IAEA-certified Tarapur facility can undertake nuclear sample analysis under safeguards, enhancing transparency while respecting Iran's sensitivities.
- Sharing expertise on safeguards could strengthen Iran's civilian claims.

• Voice of the Global South:

O By aligning with Global South perspectives, India can argue for **balanced verification** that protects sovereignty while ensuring compliance.

Protecting Own Interests:

- Energy Security: Ensuring stability in oil flows through the Strait of Hormuz.
- O Diaspora Security: Safety of 8 million Indians in West Asia.
- Regional Stability: Preventing escalation in India's extended neighbourhood.
- Image as a Responsible Power: Active involvement enhances India's claim of being a <u>norm entrepreneur</u> in global nuclear governance.