

PRAAYAAS TIMES

CA CAPSULE
SEPTEMBER SECOND WEEK
UPSC/MPSC 2025-26

UPSC/MPSC

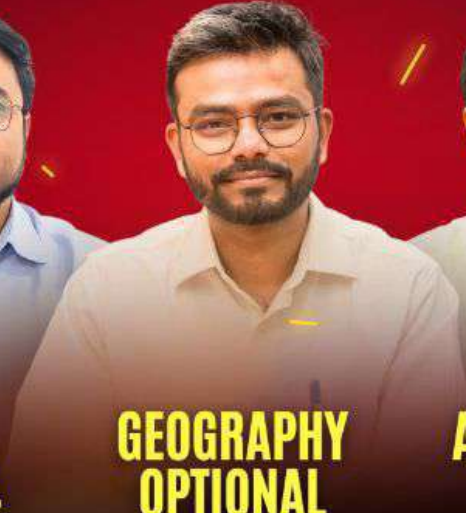
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MAINS FOCUS

1. General Studies I

1.1 India's First National Policy on Geothermal Energy

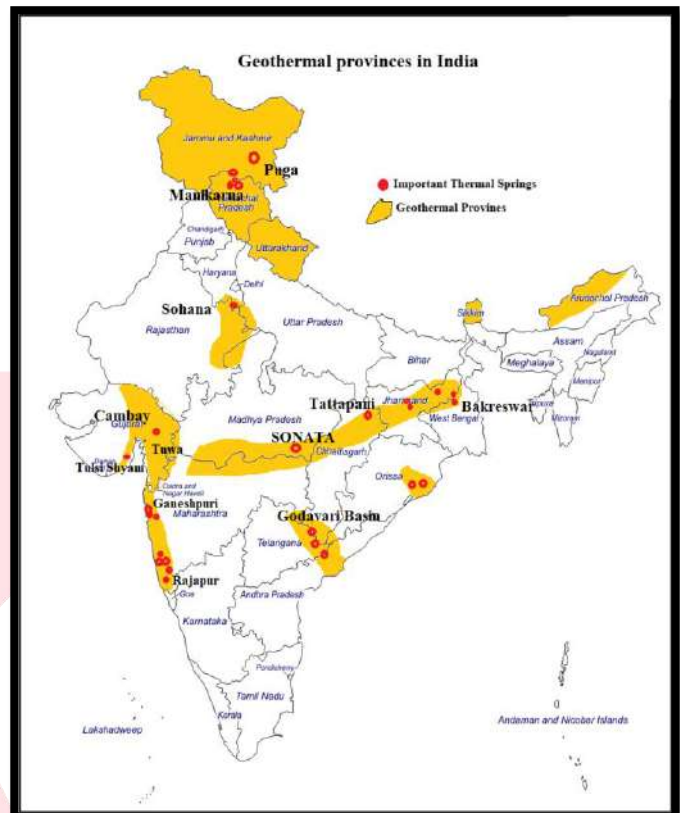
News Context

- The Ministry of New and Renewable Energy (MNRE) has launched India's first National Policy on Geothermal Energy, aiming to expand the renewable energy mix beyond solar and wind power.

Syllabus of Mains : GS 1 – Geography - Key Natural Resources across the world- Energy Resources

Geothermal Energy Potential in India

- India possesses an estimated geothermal potential of around 10,000–10,600 MW, as per MNRE and Geological Survey of India (GSI) assessments.
- The Geological Survey of India has identified 381 geothermal sites (or thermally anomalous zones) across the country, many associated with tectonic activity and volcanic systems.
- These sites are distributed across 10 major geothermal provinces, including Ladakh, Himachal Pradesh, Uttarakhand, Jharkhand, Gujarat, Chhattisgarh, Odisha, Maharashtra, Andhra Pradesh, and the Andaman-Nicobar Islands.
- India hosts approximately 340–380 hot springs with surface temperatures ranging from 32°C to 97°C, many suitable for both electricity generation and direct-use applications.
- High-potential regions include the **Puga Valley and Chumathang** in Ladakh, **Manikaran** in Himachal Pradesh, **Tapovan** in Uttarakhand, **Unai** in Gujarat, and **Surajkund** in Jharkhand.



Salient Provisions of India's first Geothermal Energy Policy

- Open Investment Regime:** Allows 100% Foreign Direct Investment (FDI) in geothermal energy ventures, encouraging global participation and technology transfer.
- Comprehensive Fiscal Support:** Extends tax holidays, import duty waivers, concessional loans, and viability gap funding to attract private and international investors.
- Long-Term Project Tenure:** Ensures operational support for 30 years, extendable based on the continued viability of geothermal resources.
- Collaborative Resource Development:** Promotes joint ventures with established oil, gas, and mineral companies to leverage exploration expertise and existing infrastructure.
- Sustainable Asset Repurposing:** Encourages conversion of abandoned oil and gas wells into productive geothermal wells to minimise land and resource wastage.
- Technology-Driven Applications:** Advocates for the deployment of ground source heat pumps to enhance energy efficiency in heating and cooling systems across industries and buildings.

Significance of India's Recently Launched Geothermal Energy Policy

- Diversifies India's Renewable Energy Mix:** Marks a major step beyond solar and wind dominance, integrating geothermal energy as a stable, base-load renewable source.
- Accelerates Clean Energy Transition:** By promoting low-emission geothermal power, the policy directly supports India's net-zero emissions target by 2070.

- **Encourages Investment and Technology Transfer:** Allows 100% FDI and offers fiscal incentives that can attract global investors and advanced geothermal technologies.
- **Utilises Domestic Geological Potential:** Provides a structured roadmap to harness India's 381 mapped hot springs across 10 geothermal provinces, unlocking regional energy opportunities.
- **Reduces Dependence on Fossil Fuels:** Encourages substitution of coal-based power with cleaner geothermal energy, cutting long-term carbon intensity.
- **Promotes Economic Development in Remote Areas:** Focus on regions like Ladakh, Himachal Pradesh, and Gujarat can spur local employment, infrastructure growth, and rural electrification.
- **Boosts Industrial Competitiveness:** Offers reliable and round-the-clock power for energy-intensive sectors such as manufacturing, cold storage, and AI-driven data centres.
- **Encourages Efficient Use of Existing Assets:** Promotes repurposing of abandoned oil and gas wells, reducing exploration costs and ensuring sustainable resource utilisation.
- **Enhances Energy Security:** Provides a non-weather-dependent renewable energy source, improving grid stability and resilience.
- **Aligns with Global Renewable Trends:** Positions India to join leading geothermal nations like the US, Indonesia, and the Philippines, expanding its role in global clean energy leadership.

Challenges Ahead

- **High Capital and Exploration Costs:** Deep drilling, resource mapping, and exploration require substantial upfront investment, often deterring private participation.
- **Geological and Resource Uncertainty:** The actual geothermal potential can only be confirmed after extensive drilling, making early-stage projects risky and time-consuming.
- **Technological and Infrastructure Gaps:** India currently lacks advanced geothermal drilling technology, skilled manpower, and transmission infrastructure in remote geothermal zones.
- **Policy and Regulatory Coordination:** Successful execution will depend on seamless coordination among MNRE, state governments, regulatory bodies, and private investors, which remains a major challenge.
- **Limited Awareness and Investor Confidence:** Absence of proven large-scale geothermal projects in India creates low investor confidence and limited public understanding of its economic and environmental benefits.

Way Forward

- Launch **pilot projects** in Ladakh, Himachal Pradesh, and Gujarat to demonstrate feasibility.
- Foster **international collaborations** for advanced geothermal drilling and technology transfer.
- Establish a **dedicated geothermal mission or agency** under MNRE for streamlined project execution.
- Integrate geothermal energy with **district heating, industrial cooling, and greenhouse applications**.
- Provide **financial incentives and risk mitigation mechanisms** to attract private and foreign investment.

Conclusion

- The National Geothermal Energy Policy marks a strategic leap in India's clean energy journey, turning its untapped subsurface heat into a dependable renewable source.
- By promoting sustainable, round-the-clock, and low-carbon power, it directly contributes to **SDG 7 (Affordable and Clean Energy)** and **SDG 13 (Climate Action)**. With consistent policy support, innovation, and global collaboration, geothermal energy can become a key pillar of India's transition toward a resilient and inclusive net-zero future.

Question for Practice: -

- How can India's National Geothermal Energy Policy, 2025, contribute to sustainable and reliable energy in line with the SDGs? (10 M, 150 Words)

3.General Studies III

3.1 Declining trend of foreign capital inflows in India

News Context

- Despite being the world's fastest-growing major economy, India's foreign capital inflows have dropped to a 15-year low, with a 40% decline in April-June 2025 compared to last year.

Syllabus of Mains: GS 3 – Indian Economy

India's Growth vs Investment Reality

- India recorded an average 8.2% GDP growth (2021–2024), higher than China, Vietnam, and the US.
- Yet, net capital flows fell to \$18.3 billion in 2024–25, the lowest since 2008–09.
- Over the last five years, FPIs have withdrawn capital in four out of five fiscal years, with only 2023–24 witnessing net inflows of \$25.3 billion.
- While investment inflows declined, external commercial borrowings (ECBs) rose to \$15.8 billion in 2024–25, showing dependence on debt rather than equity financing.
- FDI and FPI inflows have turned sluggish despite strong growth fundamentals.

Reasons for Weak Foreign Investor Sentiment

- Profit-Taking by Past Investors:** Earlier private equity and venture capital investments (in retail, e-commerce, green energy, etc.) are being exited—valued at \$33 billion in 2024—as investors cash out mature positions.
- Overvalued Stock Markets:** High market valuations make new investments less attractive; FPIs prefer selling over reinvesting.
- Trade Deficit and Tariff Uncertainty:** India's trade deficit surged to \$287 billion (2024–25), while US tariffs of 50% on Indian goods threaten export competitiveness.
- Uneven Corporate Earnings:** Despite high GDP growth, corporate profit growth remains moderate, raising doubts over long-term returns.
- Global and Domestic Risks:** The weak rupee (₹88.26/\$), tightening global liquidity, and geopolitical uncertainty have discouraged fresh capital inflows.

Implications of Declining Capital Inflows

- Pressure on Balance of Payments (BoP):** Lower capital inflows make it harder to finance India's current account deficit, increasing dependence on foreign exchange reserves.
- Rupee Depreciation Risk:** Reduced dollar inflows weaken the rupee, already at a record low of ₹88.37 per dollar, raising import costs and inflationary pressures.
- Financing Constraints for Growth:** With foreign equity and debt inflows falling, India faces limited access to external capital, potentially slowing infrastructure and industrial investment.
- Higher Borrowing Dependence:** A decline in FDI and FPI pushes firms and the government toward external commercial borrowings (ECBs), increasing exposure to global interest rate shocks.

Foreign Direct Investment (FDI)

- Investment by a foreign entity in productive assets or companies with management control ($\geq 10\%$ equity).
- Long-term and stable capital inflow.
- Routes: Automatic (no approval) & Government (approval needed).
- Regulated by DPIIT & RBI.
- Brings technology, jobs, and capital.
- Example: Toyota or Amazon setting up units in India.

Foreign Portfolio Investment (FPI)

- Investment by foreign individuals/funds in shares, bonds, or mutual funds without control ($< 10\%$ equity).
- Short-term and volatile capital movement.
- Regulated by SEBI under FPI Regulations, 2019.
- Adds liquidity to markets but increases volatility.
- Example: FIIs buying Infosys or Reliance shares.

External Commercial Borrowings (ECB)

- Foreign loans raised by Indian firms in foreign currency for commercial use.
- Form of external debt, not equity.
- Regulated by RBI under FEMA, 1999.
- Routes: Automatic & Approval.
- Maturity: 3–5 years or more; used for infra or expansion projects.
- Example: Indian company borrowing from a foreign bank.

- **Reduced Market Liquidity:** Continuous FPI sell-offs can cause stock market volatility, lower valuations, and weaken investor sentiment in the short term.
- **Impact on Fiscal Stability:** Lower inflows may narrow fiscal space for public investment, forcing greater reliance on domestic borrowing and potentially crowding out private credit.
- **Threat to Foreign Exchange Reserves:** Persistent outflows without compensating inflows can slow the accumulation of reserves, reducing India's buffer against global financial turbulence.
- **Investor Perception and Confidence:** Weak inflows signal eroding investor confidence, affecting India's global image as a preferred investment destination.
- **Export Competitiveness at Risk:** Coupled with rising trade deficits and tariff barriers (e.g., US tariff hikes), low capital inflows may amplify external sector stress.
- **Long-Term Growth Concerns:** Sustained decline in foreign investment could delay India's structural transformation, affecting job creation, innovation, and productivity gains.

Government Measures to Revive Foreign Investor Confidence

- **Tax and Consumption Reforms:** Reduction of Goods and Services Tax (GST) rates to stimulate domestic demand, enhance corporate profitability, and make India's market more attractive to investors.
- **Next-Generation Reform Task Force:** Proposal for a "Task Force on Next-Generation Reforms" aimed at simplifying business regulations, cutting red tape, and improving the ease of doing business across sectors.
- **Green Investment Promotion: Inviting global investors into renewable and climate-linked projects, aligning with India's Net-Zero 2070 vision and global ESG priorities. Infrastructure Push:** Strengthened focus on the National Infrastructure Pipeline (NIP) and PM Gati Shakti to attract long-term investors in transport, logistics, and energy sectors.
- **Macroeconomic Stability Measures:** Commitment to fiscal prudence, stable inflation, and predictable monetary policy to build investor trust in India's economic fundamentals.
- **Trade and Investment Diplomacy:** The recently concluded India-UK Free Trade Agreement (FTA) aims to enhance market access, reduce tariffs, and boost investor confidence by providing greater policy certainty and mutual protection for capital flows.

Conclusion

- The sharp decline in foreign capital inflows amid India's strong economic growth reflects a disconnect between performance and investor confidence.
- Sustaining the growth story now depends on addressing structural bottlenecks, ensuring policy predictability, and improving corporate profitability. With reforms anchored in the **Viksit Bharat Vision 2047**, India must translate its impressive GDP numbers into an equally compelling investment destination for global capital.

Question for Practice: -

- India's economy is growing fast, yet foreign capital inflows are at a 15-year low. What explains this disconnect between growth and investor sentiment? (15 M, 250 Words)

3.2 Armed Forces Special Powers Act (AFSPA) 1958

Why in the News?

- Recently, the Ministry of Home Affairs (MHA) has extended the Armed Forces (Special Powers) Act (AFSPA) in parts of Arunachal Pradesh and Nagaland for another six months.

Syllabus of Mains – GS 3- Security challenges and their management in border areas

History of AFSPA: -

- **British Ordinance 1942:** It was enacted during WW II to control the Indian independence movement.
- **Initial Imposition in Naga Hills in 1958** was primarily to address rising insurgencies and to restore order amid violent separatist movements led by the Naga National Council (NNC).
- **Expansion to Other Northeastern States (1960s-1980s)** AFSPA was extended to other northeastern states, including Assam, Manipur, Tripura, Mizoram, Arunachal Pradesh and Meghalaya.
- **Extension to Jammu and Kashmir in 1990** amid an increase in militancy and separatist movements, particularly with the rise of armed insurgent groups like Hizbul Mujahideen and Lashkar-e-Taiba.

- Amendments to the AFSPA in 1972, allowed the central government to declare any area as “disturbed” and to apply AFSPA **without consent from the respective state governments.**

Recent impositions and withdrawals: -

- **Withdrawal in Tripura (2015) due to significant improvements** in law and order and a decline in insurgency-related violence, indicating a shift towards normalcy in the region.
- **Withdrawal in Meghalaya (2018)** as the state reported a peaceful environment with reduced violence from insurgent groups, reflecting progress in reconciliation and strengthening civil governance.
- **Extended the AFSPA by The Union Home Ministry in parts of Nagaland and Arunachal Pradesh for an additional 6 months, effective from October 1, 2024.**

Features of the AFSPA: -

- **Declaration of Disturbed Areas under Section 3 of AFSPA by the Governor, UT Administrator, or the Central Government** can through a notification in the Official Gazette.
- **Special Powers for Armed Forces:** Section 4 grants armed forces personnel special powers to use force, including lethal measures, against individuals violating laws or engaging in unlawful activities.
- **Powers of Arrest without Warrant:** Empowers armed forces to arrest individuals without a warrant if there is reasonable suspicion of their involvement in unlawful activities.
- **Search and Seizure:** Permits armed forces to enter and search premises without a warrant, facilitating swift action against insurgents or lawbreakers.
- **Prohibition of Assembly:** Prohibits gatherings of five or more individuals in disturbed areas, aiming to prevent potential unrest or violence.
- **Immunity from Prosecution:** Section 6 Provides legal protection to armed forces personnel from prosecution for actions taken under AFSPA unless the Central Government allows it.
- **Periodic Review:** The status of disturbed areas and the necessity of AFSPA are subject to periodic review by the government, allowing for adjustments based on the prevailing law-and-order situation.

Positive implications of AFSPA: -

- **Operational Flexibility:** The powers under AFSPA allow for fast action without legal delays. In 2017, an operation in Nagaland under AFSPA led to the elimination of several key insurgents from NSCN-K.
- **Legal Protection:** AFSPA provides immunity to armed forces personnel from prosecution, allowing them to perform their duties without fear of legal reprisals.
- **Ensuring National Security by securing areas vulnerable** to insurgency and foreign threats. Operations in Manipur under AFSPA have been instrumental in curbing drug trafficking from the Golden Triangle.
- **Deterring Insurgency:** The presence of AFSPA creates a deterrence against anti-national activities and strengthens security in border areas.
- **Restoring Political Stability where **civilian administration is weak** due to insurgency.** AFSPA in Assam helped stabilize the state and allowed for the conduct of elections.

Challenges of AFSPA: -

- **Human Rights Violations:** As of 2020, there were more than 1,500 extrajudicial killings attributed to AFSPA in Manipur (as per the Supreme Court’s data).
- **Alienation of Local Populations:** The continued presence of armed forces under AFSPA often leads to alienation and mistrust among civilians.
- **Prolonged Enforcement:** AFSPA has been in force for decades in certain areas without showing substantial improvement in peace. Nagaland has been under AFSPA since 1958, yet insurgency persists.
- **Psychological Impact on Civilians:** Continuous military presence affects the mental health of local populations, instilling fear and trauma.
- **Judicial Criticism:** SC 2016 ruling questioned justification behind excessive use of force under AFSPA.

Recommendations of Jeevan Reddy Committee:

- In November 2004, the Central government appointed a five-member committee headed by Justice B P Jeevan Reddy to review the provisions of the act in the northeastern states.

The committee recommended that:

- **AFSPA should be repealed, and appropriate provisions should be inserted in the Unlawful Activities (Prevention) Act, 1967.**

- The Unlawful Activities Act should be modified to clearly specify the powers of the armed forces and paramilitary forces and Grievance cells should be set up in each district where the armed forces are deployed.

Second ARC Recommendation:

- The 5th report of the Second Administrative Reforms Commission (ARC) on public order has also recommended the repeal of the AFSPA. However, these recommendations have not been implemented.

Way Forward: -

- Phased Withdrawal as law-and-order situations improve. AFSPA was lifted from Tripura, Meghalaya and some parts of northeastern states after a significant reduction in insurgent activities.
- Strengthening Accountability for independent investigations. The **2005 Jeevan Reddy Committee recommended the repeal of AFSPA** and replacing it with a more humane legal framework.
- Balancing Security and Rights for not infringing on fundamental rights. The Supreme Court's ruling on "encounter killings" (2016) emphasized human rights in AFSPA regions.
- Political Dialogue with insurgent groups can help in reducing dependence on military measures. E.g. **Naga peace accord 2015 Indian government** and the National Socialist Council of Nagaland.
- **Increased Focus on Development:** Address the root causes of insurgency by promoting economic development and improving infrastructure in disturbed areas.

Conclusion: -

- The AFSPA has served as an important tool in combating insurgencies, but its continuation has raised human rights concerns.
- A phased withdrawal, coupled with accountability mechanisms, political dialogue, and socio-economic development, offers a balanced path forward.
- A restructured framework that balances national security and human rights is essential for long-term stability. **As Kofi Annan remarked, "Human rights are the foundation for human dignity, and they form the cornerstone of societies built on justice, tolerance, and peace."**

PYQs: -

- Human rights activists constantly highlight the fact that the Armed forces (Special Powers) Act, 1958 (AFSPA) is a draconian act leading to cases of human rights abuses by security forces. What sections of AFSPA are opposed by the activists? Critically evaluate the requirement with reference to the view held by the Apex Court. (2015)

3.3 BBNJ: The High Seas Treaty

Context: -

- **India recently signed the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement,** aiming to protect marine ecosystems and promote sustainable use of resources in international waters.
- This global agreement is designed to safeguard high seas marine biodiversity through collaboration at international level, and it will operate **within the framework of the United Nations Convention on the Law of the Sea (UNCLOS).**

Syllabus of Mains - Conservation, environmental pollution and degradation, environmental impact assessment.

What are High Seas?

- According to the 1958 Geneva Convention on the High Seas, parts of the sea that are not included in the territorial waters or the internal waters of a country are known as the high seas.
- It is the **area beyond a country's Exclusive Economic Zone** (that extends up to 200 nautical miles from the coastline) and till where a nation has jurisdiction over living and non-living resources.

- **No country is responsible for the management and protection** of resources on the high seas.



Significance:

- The high seas cover over 64% of the world's oceans and 50% of the Earth's surface, making them vital for marine life.
- They are home to around 270,000 known species, with many yet to be discovered.
- The ***high seas regulate climate, absorb carbon, store solar radiation, and distribute heat, crucial for planetary stability and mitigating climate change.***
- They are essential for human survival, providing resources like seafood, raw materials, genetic and medicinal resources.

Threats:

- They absorb heat from the atmosphere and are affected by phenomena like the El Nino, and ocean acidification which is endangering marine flora and fauna.
- Several thousand marine species are at risk of extinction by 2100 if current warming and acidification trends continue.
- Anthropogenic pressures on the high seas include seabed mining, noise pollution, chemical and oil spills and fires, disposal of untreated waste (including antibiotics), overfishing, introduction of invasive species, and coastal pollution.
- Despite these threats, only about 1% of the high seas are currently protected.

High Seas Treaty: -

- It is **formally called the Agreement on Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction.**
- In short, **known as BBJN or High Seas Treaty.**
- It is a new international legal framework under UNCLOS for maintaining the ecological health of the oceans.
- The treaty was negotiated in 2023 and is meant to reduce pollution, and promote the conservation and sustainable use of biodiversity and other marine resources in ocean waters outside the national jurisdiction of any country.
- This **aligns with the 30x30 target, it is a global commitment to protect at least 30% of the planet for nature by 2030.** It was agreed upon at the Convention on Biological Diversity (CBD) at the Conference of Parties (COP15) to the UN Convention on Biological Diversity in 2022 and is **included in the Kunming-Montreal Global Biodiversity Framework.**

Signing and Ratification:

- Till June 2024, 91 countries have signed the treaty so far, with 10 of them having ratified it.
- It will **become legally binding 120 days after 60 countries ratify it.**

- Ratification is the process by which a country agrees to be legally bound to the provisions of an international law, while signing indicates agreement without legal obligation until ratification occurs. The process for ratification varies by country.

Key Features of the BBNJ Treaty: -

Conserving Marine Biodiversity:

- Protecting marine ecosystems beyond national jurisdictions.

Equitable Sharing of Benefits:

- Mandating fair distribution of profits from marine genetic resources through a global fund.

Environmental Impact Assessments (EIAs):

- Requiring assessments to regulate harmful activities in international waters.

Marine Protected Areas (MPAs):

- Creation of protected zones in high seas to safeguard biodiversity.

Capacity-Building & Technology Transfers:

- Equitable partnerships in maritime science & governance.

Third UNCLOS Implementing Agreement:

- Complements treaties on deep-sea mining and fisheries.

Significance of the BBNJ Treaty: -

Protecting Global Commons:

- Safeguards international waters (constitute over 60% of world's oceans).

Sustainable Marine Governance:

- Addresses critical gaps in international maritime regulation to ensure resource conservation.

Global Equity:

- Aims to balance benefits among developed and developing nations through shared responsibilities.

Issues with the BBNJ Treaty: -

Delayed Ratification:

- Only 14 of 104 signatories have ratified, far from required 60 for enforcement.

Lack of Strategic Clarity:

- The treaty lacks a detailed roadmap for achieving its ambitious goals.

Territorial Disputes:

- Overlapping maritime claims, e.g. in South China Sea, hinder consensus on MPAs.

Livelihood Concerns:

- Coastal communities dependent on marine resources fear restrictions from MPAs.

Weak Accountability Mechanisms:

- Wealthier nations may under-report profits from marine genetic resource exploitation.

Fragmented Regulations:

- Conflicts with existing treaties, like the Convention on Biological Diversity, create enforcement challenges.

Inequities in Capacity:

- Low and middle-income nations lack the necessary support for maritime research and technology access.

Neglect of EEZ Impacts:

- The treaty overlooks harmful activities within EEZs, such as oil and gas exploration, reducing its environmental effectiveness.

Measures to Address Challenges: -

Integrating High Seas and Coastal Regulations:

- Develop cohesive frameworks linking high-seas governance with coastal policies.

Promoting Incentives for Compliance:

- Encourage coastal states, especially in the Global South, to align domestic laws with international norms.
- Foster collective agreement among nations for shared responsibility in ocean governance.

Global Cooperation:

- Wealthier nations must provide assistance to ensure equitable benefits.

Transparent Mechanisms:

- Introduce robust checks to prevent underreporting by wealthier nations.

Strengthening EIAs:

- Comprehensive reviews for planned activities, including oil & gas exploration.

Conclusion: -

- The High Seas Treaty **represents a landmark agreement in global ocean governance.**
- India's decision to ratify the treaty is a significant step that could have far-reaching implications for the conservation and sustainable use of marine resources worldwide.

Previous Year Question (PYQ)

Q.1 With reference to the United Nations Convention on the Law of Sea, consider the following statements: (2022)

- 1) A coastal state has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from baseline determined in accordance with the convention.
- 2) Ships of all states, whether coastal or land-locked, enjoy the right of innocent passage through the territorial sea.
- 3) The Exclusive Economic Zone shall not extend beyond 200 nautical miles from the baseline from which the breadth of the territorial sea is measured.

Which of the statements given above are correct?

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

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PRAYAAS Education

PRAYAAS Shorts- UPSC & MPSC

1. Swachh Vayu Sarvekshan 2025 Awards

Context

- The Ministry of Environment, Forest and Climate Change (MoEFCC) honoured top-performing cities under the Swachh Vayu Sarvekshan 2025, conducted as part of the National Clean Air Programme (NCAP).

About

- The survey evaluates 130 cities annually on air quality improvement efforts under NCAP through a multi-tier assessment system.
- It aims to promote competitive federalism, motivating cities to adopt faster and sustained measures for cleaner air.
- Award Categories:**
 - Category 1 (>10 lakh population):** Indore ranked 1st (200/200), followed by Jabalpur, Agra, and Surat.
 - Category 2 (3-10 lakh):** Amravati topped with 200/200, followed by Jhansi, Moradabad, and Alwar.
 - Category 3 (<3 lakh):** Dewas secured 1st position, followed by Parwanoo and Angul.
- Performance Highlights:** 103 cities showed air quality improvement, and 25 achieved $\geq 40\%$ reduction in PM10 levels since 2017.
- Tracking & Transparency:** Progress of city-level clean air actions is monitored through the PRANA digital portal, ensuring accountability and public access to data.

2. AdFalcivax Malaria Vaccine

Context

- The Indian Council of Medical Research (ICMR) has invited industry partners to commercialise AdFalcivax, India's first indigenous multi-stage malaria vaccine with dual-stage targeting capability.

About

- Type:** Recombinant chimeric vaccine designed against Plasmodium falciparum, the deadliest malaria-causing parasite.
- Platform:** Developed using Lactococcus lactis, a food-grade bacterium commonly used in dairy fermentation — ensuring high safety and ease of production.
- Dual Mechanism:** Combines antigens from both pre-erythrocytic (human infection) and sexual (mosquito transmission) stages, offering dual protection — preventing infection and blocking further transmission.

- Thermal Stability:** Retains full potency for up to nine months at tropical ambient temperatures, reducing the need for a cold chain — a major advantage for field deployment in malaria-endemic regions.
- Significance:** Represents a key milestone in India's move toward self-reliant vaccine innovation and could complement the WHO-approved RTS,S and R21 vaccines in global malaria control efforts.

3. Enteromix mRNA Cancer Vaccine

Context

- Russian scientists have developed Enteromix, an mRNA-based cancer vaccine, which has demonstrated 100% efficacy in early-stage trials, marking a significant advancement in cancer immunotherapy.

About

- Enteromix is an mRNA cancer vaccine that works by instructing body cells to produce tumor-specific antigens, triggering a strong immune response against cancer cells while sparing normal tissues.
- It uses the messenger RNA platform, similar to COVID-19 mRNA vaccines, offering advantages of rapid design, scalability, and safety (as no live components are used).
- Designed to activate T-cells, it helps the immune system recognize and destroy malignant cells, showing promise for customized, tumor-specific treatments.

3.1 Types of Vaccines (General Classification):

- Live-attenuated vaccines** – contain weakened pathogens (e.g., MMR, BCG).
- Inactivated vaccines** – contain killed pathogens (e.g., Polio – IPV, Hepatitis A).
- Subunit/recombinant vaccines** – use purified antigens or proteins (e.g., Hepatitis B, HPV).
- Toxoid vaccines** – use inactivated toxins (e.g., Diphtheria, Tetanus).

4. Micro-OLED Display Technology

Context

- The Ministry of Electronics and Information Technology (MeitY) is evaluating micro-OLED technology for India's first display fabrication plant, aiming to boost domestic capability in advanced display manufacturing.

About Micro-OLED

- Combines OLED chemistry with silicon micro-fabrication to produce ultra-compact, self-emissive displays.
- Each pixel emitter is mounted directly on a silicon chip, enabling very high pixel density (over 4000 ppi).
- Provides superior contrast, brightness, and response time in miniature display modules.
- Rigid silicon base limits flexibility and transparency, restricting applications to near-eye displays.
- Commonly used in AR/VR headsets, camera viewfinders, defence optics, and wearables.
- Faces challenges of heat buildup, emitter ageing, and complex, costly fabrication processes.

4.1 OLED

- Organic Light-Emitting Diode (OLED) displays use organic compounds that emit light on electric excitation.
- Do not require a backlight — allowing thinner, lighter, and more power-efficient screens.
- Offer deep blacks, vibrant colours, and wide viewing angles.
- Used extensively in smartphones, TVs, and flexible or foldable displays.

5. International Conference on Space 2025

Context

- India inaugurated the International Conference on Space 2025, underscoring its strategic vision in space exploration, innovation, and global partnerships.

About

- **Teme:** "Harnessing Space for Global Progress: Innovation, Policy, and Growth."
- Aims to position India as a leader in sustainable and collaborative space exploration, integrating technology, policy, and industry growth.
- India plans to establish a **Bharatiya Space Station by 2035** and send an Indian astronaut to the Moon by 2040, reflecting long-term self-reliance and exploration goals.
- The Gaganyaan human spaceflight programme remains the central focus.
- Future missions include planetary exploration of Mars, Venus, and asteroids, expanding India's deep-space portfolio.

6. International Electrotechnical Commission 2025

Context

- The Bureau of Indian Standards (BIS) announced that India will host the 89th

International Electrotechnical Commission (IEC) General Meeting in New Delhi in 2025, marking a key milestone in India's role in global standardization.

About International Electrotechnical Commission (IEC)

- Established in 1906, the IEC is a non-profit international organization headquartered in Geneva, Switzerland.
- It develops and publishes global standards for electrical, electronic, and related technologies, ensuring safety, interoperability, and sustainability.
- The IEC's work covers areas like power generation, semiconductors, renewable energy, automation, and smart grids.
- With around 170 member countries, it represents 99% of the global population and nearly 20% of world trade, making it the primary platform for harmonizing electrotechnical standards worldwide.

6.1 About BIS

- The Bureau of Indian Standards (BIS) is India's national standards body, functioning under the Ministry of Consumer Affairs, Food & Public Distribution.
- It is responsible for formulating, certifying, and promoting quality standards across industrial, consumer, and service sectors.
- BIS represents India at international standardization bodies like the IEC and ISO, ensuring India's interests are reflected in global standards.

7. Account Aggregator

Context

- As per recent government data, India's Account Aggregator (AA) system has reached 112 million users, making it one of the fastest-growing components of the country's Digital Public Infrastructure (DPI).

About Account Aggregator

- The AA framework was officially launched in 2021 to enable secure and consent-based financial data sharing.
- Account Aggregators (AAs) are licensed entities regulated by the Reserve Bank of India (RBI) under the NBFC-AA framework.
- They act as data intermediaries, enabling individuals to consolidate and share their financial information (such as bank accounts, insurance, mutual funds, and tax data) across institutions in a secure, digital, and consent-driven manner.
- AAs cannot view or store data — they only facilitate encrypted transfer between Financial

Information Providers (FIPs) and Financial Information Users (FIUs).

8. Grey Rhino Event

Context

- A recent study identified the Wayanad landslides as a “Grey Rhino Event”, highlighting that the disaster was highly predictable yet poorly addressed, rather than being a sudden or unforeseeable event.

About Grey Rhino Event

- The term “Grey Rhino” was coined by Michele Wucker, an American author and policy analyst.
- It refers to highly probable, high-impact threats that are often ignored or neglected despite clear early warning signs.
- Unlike “Black Swan” events, which are rare and unpredictable, Grey Rhino events are visible, foreseeable, and usually result from systemic neglect or delayed action.
- Examples include climate-induced disasters, financial crises, infrastructure collapse, or public health emergencies that evolve from long-term risks.

9. Scarborough Shoal



Context

The Philippines has strongly condemned China's decision to establish a “nature reserve” at the Scarborough Shoal, escalating tensions in the South China Sea dispute.

About

- Scarborough Shoal known as **Huangyan Island in China and Panatag Shoal in the Philippines** is a small atoll located in the South China Sea, about 220 km west of Luzon (Philippines).

- It consists of a triangular chain of reefs and rocks enclosing a shallow lagoon, rich in marine biodiversity and fisheries resources.
- The shoal is strategically important, offering potential naval and air surveillance advantages in a region critical to global trade routes.
- Both China and the Philippines claim sovereignty over it:
 - The Philippines bases its claim on proximity and EEZ rights under UNCLOS.
 - China claims it as part of its historical maritime territory within the nine-dash line.

10. World Boxing Championships 2025

Context

- India's Jaismine Lamboria and Minakshi Hooda clinched gold medals at the World Boxing Championships 2025, marking a historic performance for Indian boxing.

About World Boxing Championships 2025

- Hosted in Liverpool, United Kingdom, the 2025 edition was notable for featuring men's and women's events together for the first time in the tournament's history.
- India's medal tally:
 - Gold:** Jaismine Lamboria (57 kg) and Minakshi Hooda (48 kg)
 - Silver:** Nupur Sheoran
 - Bronze:** Pooja Rani
- Kazakhstan topped the overall medal table, followed by strong performances from Cuba and Uzbekistan.

11. Langkhun Festival

Context

- The Tiwa tribesmen recently celebrated the Langkhun Festival in Umsowai village, located in the Karbi Anglong district of Assam, marking an important cultural and agrarian occasion for the community.

About Langkhun Festival

- A socio-religious festival celebrated by the Tiwa (Lalung) community of Assam.
- Observed annually to pray for a prosperous Rabi crop season and seek divine blessings for agricultural abundance.
- Community members make ritual offerings to local deities, symbolizing gratitude and hope for a good harvest.
- The celebrations include traditional music, dance, and communal feasts, reflecting Tiwa cultural identity and social harmony.

- The festival also reinforces agrarian traditions, intergenerational bonding, and respect for nature and ancestral customs.

12. Perpetual Bonds

Context

- The Indian Renewable Energy Development Agency Ltd (IREDA) has raised ₹453 crore at 7.70% per annum through its second issue of Perpetual Bonds, aimed at strengthening its capital base for green energy financing.

About Perpetual Bonds

- A fixed-income security with no maturity date, offering interest payments indefinitely to investors.
- The issuer is not obligated to repay the principal, making it a permanent source of capital for the organization.
- Commonly referred to as “perps” or “consol bonds”, they are used by entities like banks and financial institutions to boost Tier-I capital and support long-term funding.
- Combine characteristics of both debt and equity — they pay regular interest like bonds but resemble equity as the principal is never repaid.
- The interest payments can be deferred or canceled in certain cases, depending on the bond’s structure and regulatory norms.

13. Pink Tax

Context

- The National Consumer Disputes Redressal Commission (NCDRC) recently ruled that companies must ensure fair pricing practices and avoid gender-based price discrimination, even though no specific law in India currently regulates the Pink Tax.

About Pink Tax

- The Pink Tax is not an actual tax or government-imposed fee — it refers to the extra cost companies charge for products and services marketed to women compared to similar ones marketed to men.
- The term highlights gender-based pricing disparity, where women often pay more for comparable goods or services, even when the difference lies only in packaging, colour, or branding.
- Examples include razors, deodorants, shampoos, clothing, toys, salon services, and dry cleaning, where female-marketed versions are typically costlier.
- In India, the Pink Tax is not legally prohibited, and no formal regulation exists to control such market pricing practices.

PRAYAAS

PRAYAAS Shorts- MPSC Specific

1

.International

1.1 Nepal to Get First Woman Prime Minister as Sushila Karki Set for Oath as Interim Leader

- **President Ram Chandra Paudel** has appointed **former Chief Justice Sushila Karki** as **Nepal's interim Prime Minister**, marking a **historic first** for the country.
- With this appointment, **Sushila Karki becomes the first woman** to lead **Nepal's government**.
- The interim leadership aims to ensure **political stability and smooth governance** ahead of the upcoming national elections.

2.State

2.1 Himachal Pradesh Becomes a 'Fully Literate State'

- On September 8, 2025, Chief Minister Sukhvinder Singh Sukhu declared Himachal Pradesh a "fully literate State" on the occasion of International Literacy Day.
- With this achievement, Himachal joins the list of states that have achieved near-total literacy.
- Earlier in 2025, the following states had already attained full literacy status:
 - Goa: 99.7%
 - Mizoram: 98.2%
 - Tripura: 95.6%

3.Maharashtra

3.1 Maharashtra Leads the Market for Small Business Credit: SIDBI-CRIF Report

- The joint report "**Small Business Spotlight**", released by **SIDBI** and **CRIF High Mark**, provides key insights into lending trends among small businesses in India.
- **State-wise findings:**
 - **Maharashtra:** Largest market with ₹6.0 lakh crore outstanding credit.
 - **Tamil Nadu:** Second with ₹4.21 lakh crore.
 - **Gujarat:** Third with ₹3.69 lakh crore.
 - **Uttar Pradesh:** Fourth with ₹3.61 lakh crore.
 - **Karnataka:** Fifth with ₹3.18 lakh crore.
- **Growth highlight:** Uttar Pradesh recorded the **highest year-on-year (YoY) growth** in small business credit at **20.7%**.

3.2 Maharashtra CM Inaugurates CPRI's Testing Lab in Nashik

- Maharashtra Chief Minister Devendra Fadnavis inaugurated the Central Power Research

Institute's (CPRI) Regional Testing Laboratory (RTL) at Shilapur, Nashik.

- The laboratory was sanctioned under the 12th Finance Commission and is spread across 100 acres, built with an investment exceeding ₹200 crore.
- With this new facility, electrical equipment manufacturers in Maharashtra will no longer need to send their products to Hyderabad or Bhopal for testing and certification, greatly reducing costs and turnaround time for the industry.

4.Defence

4.1 India-Russia Multilateral Joint Military Exercise ZAPAD 2025

- An **Indian Armed Forces contingent** of **65 personnel** departed on **September 9, 2025**, for the **Mulino Training Ground in Nizhniy, Russia**.
- The contingent is participating in the **multilateral joint military exercise "ZAPAD 2025"**, scheduled to be held from **September 10 to 16, 2025**.
- The exercise aims to enhance **interoperability, coordination, and strategic cooperation** among participating nations.

4.2 India Launches World's First Digital Tribal University 'Adi Sanskriti'

- The Ministry of Tribal Affairs launched the beta version of "Adi Sanskriti", the world's first digital university dedicated to tribal culture, at Bharat Mandapam, Delhi, during the National Conference on Adi Karmayogi Abhiyan.
- **Objective:** To preserve and promote tribal art forms, enable sustainable livelihoods, and connect tribal communities with global audiences through digital education and outreach.
- **Significance:**
 - Marks a pioneering step in digitally empowering tribal communities.
 - Enhances visibility and accessibility of indigenous knowledge systems.

4.3 India Participates in 4th Coast Guard Global Summit in Rome

- The 4th Coast Guard Global Summit (CGGS) was held in Rome, Italy, from 11-12 September 2025.

- The event saw participation from delegates representing 115 countries and several international organizations.
- The summit was co-chaired by Italy and Japan, focusing on enhancing global maritime cooperation, safety, and environmental protection

5.Award

5.1 Indian Filmmaker Anuparna Roy Wins Best Director Award at 82nd Venice Film Festival

- Filmmaker Anuparna Roy won the **Best Director award** in the Orizzonti section at the **82nd Venice Film Festival**.
- Her film "Songs of Forgotten Trees" was the only Indian entry in this category.
- The film portrays the lives of two migrant women in Mumbai, exploring themes of displacement, resilience, and identity.

6.Sport

6.1 India Wins Men's Asia Cup Hockey Championship 2025

- India clinched the Men's Asia Cup Hockey Championship 2025 by defeating South Korea 4-1 in the final held at Rajgir Hockey Stadium, Bihar.
- **Key Points:**
 - With this win, India secured its 4th Asia Cup title, ending an eight-year wait since the last victory in 2017.
 - The triumph also ensured India's qualification for the FIH Men's Hockey World Cup 2026, to be hosted jointly by the Netherlands and Belgium.

6.2 ICC Launches 'Will to Win' Campaign for 13th Women's World Cup

- The **International Cricket Council (ICC)** has unveiled its flagship campaign **"Will to Win"** ahead of the **13th ICC Women's Cricket World Cup 2025**.
- The campaign celebrates the **spirit, resilience, and determination** of women cricketers globally, aiming to inspire the next generation of players and fans.
- **Tournament Details:**
 - **Host Countries: India and Sri Lanka**
 - The 2025 edition promises to be a landmark event for **women's cricket in South Asia**, showcasing talent and promoting gender equality in sports.

7.Important Day

7.1 National Forest Martyrs Day - 11th September 2025

- National Forest Martyrs Day is observed annually on September 11th across India.
- Theme (2025): "Remembering Martyrs, Protecting Forests"
- The day honors the sacrifice of forest personnel and community members who laid down their lives to protect India's forests and wildlife.
- In 2013, the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India, officially declared September 11 as National Forest Martyrs Day to commemorate those who dedicated their lives to the cause of forest conservation.