1. India and the Indian Ocean: Strategic Importance & Evolving Role

News: External Affairs Minister S. Jaishankar stressed the need for a **"coordinated flotilla"** to enhance stability and cooperation in the Indian Ocean Region (IOR), underscoring rising geopolitical competition and security challenges.

Indian Ocean Overview
- **Geography**: Third-largest ocean, spanning 9,600 km (Bay of Bengal to Antarctica) and 7,800 km (South Africa to Western Australia), with a 70,000 km coastline.
- **Demographics:** Home to 35% of the world's population and 40% of the global coastline.
- **Historical Significance:** A vital trade route since the first millennium, facilitating the Silk Route & Spice Trade among Europe, Asia, and Africa.

Strategic Importance: Maritime Chokepoints: India's central position grants strategic leverage over key routes:
- **Strait of Hormuz (Iran-Oman)** – Critical for global oil shipments.
- **Bab el-Mandeb (Yemen-Djibouti)** – Entry to the Red Sea & Suez Canal.
- **Strait of Malacca (Indonesia-Malaysia)** – Essential for East Asian trade.

Challenges in the IOR
- **Maritime Security:** Piracy, trafficking (notably near Somalia & Gulf of Aden).

- **Economic & Environmental Issues:** Overfishing, deep-sea mining, and marine ecosystem threats.
- **Climate Change:** Rising sea levels endanger small island nations.
- **Humanitarian Crises:** Frequent cyclones, tsunamis, and oil spills.
- **Geopolitical Rivalries:** Competition among the U.S., China, UK, and France.

India's Policy & Strategic Initiatives
- **Strengthening Regional Ties:**
  - **Indian Ocean Conference (IOC):** Key diplomatic platform.
  - **Indian Ocean Rim Association (IORA):** Economic & maritime security cooperation.
  - **Indian Ocean Naval Symposium (IONS):** Naval interoperability & intelligence sharing.
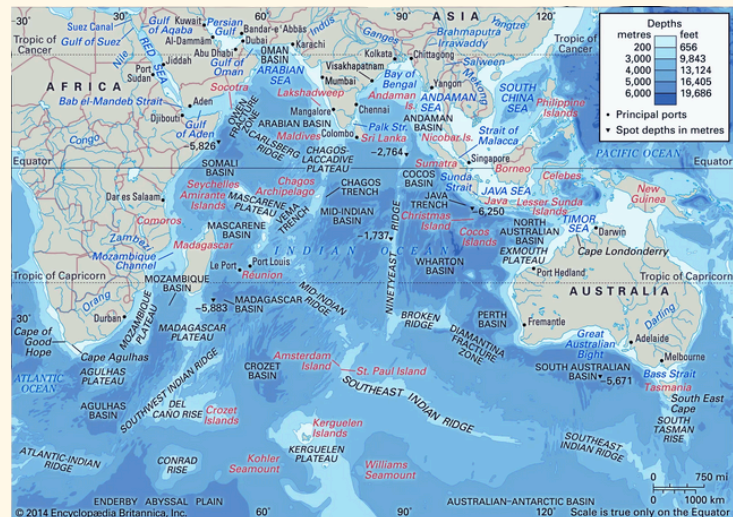
- o **Colombo Security Conclave:** Maritime security & counterterrorism (with Sri Lanka, Maldives, Mauritius).
- **SAGAR** (Security and Growth for All in the Region) Initiative (2015):
  - o Strengthens India's leadership in IOR.
  - o Ensures secure sea lanes for global trade.
  - o Promotes sustainable maritime development.
- **Enhancing Blue-Water Capabilities:**
  - o **Naval Expansion**: Indigenous aircraft carriers & advanced submarines.
  - o **Maritime Surveillance:** Deployment of P-8I Poseidon aircraft & satellite tracking.
  - o **Quad Cooperation:** India, U.S., Japan, and Australia collaborate on maritime security & intelligence sharing.

2. Decentralization in India: Devolution to Panchayats in 2024

News: The Union Ministry of Panchayati Raj has released the report titled 'Status of Devolution to Panchayats in States – An Indicative **Evidence-Based Ranking**' (2024), assessing the implementation of the 73rd and 74th Amendments.

About the Devolution Index
- Developed by the **Indian Institute of Public Administration** to evaluate power and resource devolution to Panchayati Raj Institutions (PRIs) across States/UTs.
- **Ranks States/UTs based on six dimensions:** framework, functions, finances, functionaries, capacity enhancement, and accountability.

Panchayati Raj in India- Timeline

Need for the Assessment
- While constitutional provisions like **regular elections, SC/ST and women reservations**, and state finance commissions are mandated, actual devolution varies.
- Effective local governance requires not only **function, finance, and functionary** transfers but also capacity enhancement and accountability.

Major Findings
- **Top Performers:** Karnataka ranks first overall, followed by Kerala and Tamil Nadu.
- **Growth in Devolution:** Increased from 39.9% (2013-14) to 43.9% (2021-22).

- **Capacity Enhancement:** Rashtriya Gram Swaraj Abhiyan (RGSA) led to an increase from 44% to 54.6%.
- **Functionaries Component: Jumped from 39.6% to 50.9% during the same period.**

- **Key Rankings by Criteria:**
  - o **Framework:** Kerala (1st), followed by Maharashtra, Karnataka, Haryana.
  - o **Functions:** Tamil Nadu (1st), followed by Karnataka, Odisha, Rajasthan.
  - o **Finances:** Karnataka (1st), followed by Kerala, Tamil Nadu, Rajasthan.
  - o **Functionaries:** Gujarat (1st), followed by Tamil Nadu, Kerala.
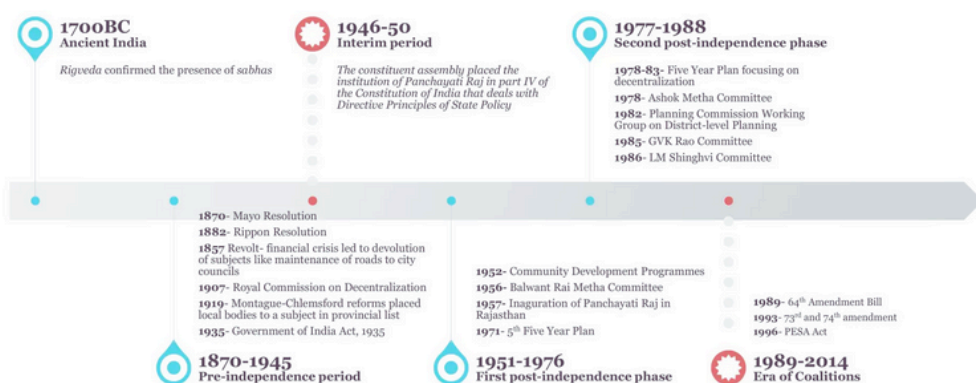 - o **Capacity Building:** Telangana (1st), followed by Tamil Nadu, Gujarat.

Challenges Identified
- **Legal & Institutional Gaps:** Some states delay or avoid conducting panchayat elections.
- **Limited Policy Role:** Panchayats have minimal control over centrally sponsored schemes like MGNREGA and PMAY.
- **State Disparities:** Strong governance structures benefit some states while others lag due to poor implementation.
- **Low Public Participation:** Gram Sabhas are often poorly attended and ineffective.

Recommendations & Suggestions
- **Strengthening Legal Framework:** Ensure regular elections and empower State Election Commissions (SECs) to function independently.
  - **Financial Empowerment:** Establish a Consolidated Fund for Local Government and implement 16th Finance Commission recommendations to ensure GST revenue allocation.
  - **Enhancing Functional Autonomy:** Decentralize service delivery to strengthen PRI involvement in rural development.
  - **Improving Accountability & Transparency:** Strengthen Gram Sabhas for more participatory governance and effectiveness.

Local Government Sources of Revenue
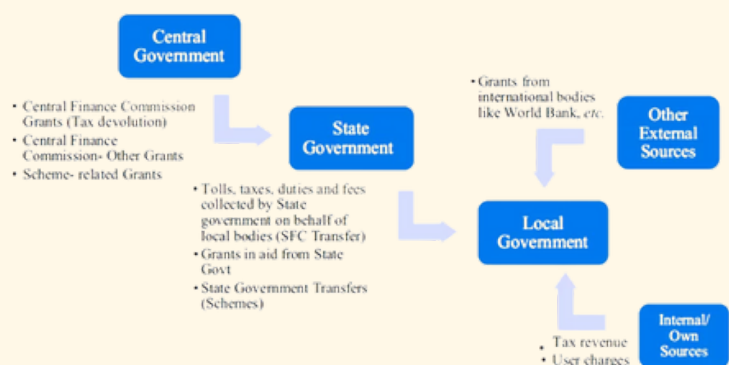
3. From Chipko to Cities: The Rise of Urban Environmental Activism

News: Recent protests in Pune against the **Pune Riverfront Development** Project have reignited the debate between development and environmental conservation. The '**Chalo Chipko**' movement echoes the spirit of the 1970s Chipko Movement.

The Chipko Movement: A Grassroots Environmental Protest

- **Originated in 1973 in Chamoli**, Uttarakhand, led by villagers—especially women—who hugged trees to prevent deforestation.
- **Key figures:** Sunderlal Bahuguna and Gaura Devi emphasized sustainable development and ecological conservation.
- **Key Features:**
  - **Grassroots Activism:** Rural communities, particularly women, led the protests.
  - **Non-Violent Resistance:** Inspired by **Gandhian** principles, protesters used tree-hugging and sit-ins.
  - **Environmental Awareness:** Highlighted forests' role in preventing **soil erosion** and sustaining biodiversity.
  - **Policy Impact:** Led to a government ban on commercial deforestation in the Himalayan region (1980).

Chipko's Influence on Urban Environmental Protests

Cities face environmental threats like **pollution, water scarcity, and deforestation**. Urban activism now mirrors Chipko's ethos, using protests, legal action, and advocacy.

Aspect	Chipko Movement	Urban Environmental Protests
Issue Addressed	Deforestation, biodiversity loss	Air pollution, land use change
Mode of Protest	Tree-hugging, sit-ins, marches	Legal petitions, protests, social media campaigns
Key Participants	Rural women, villagers	Urban residents, activists, students
Government Response	Policy bans on deforestation	Mixed—some policy wins, ongoing legal battles

Notable Urban Environmental Protests Inspired by Chipko

- **Save Aarey Forest (Mumbai):** Protested against felling 2,700+ trees for a metro project through Chipko-style human chains and legal action.
- **Save Aravalli Campaign (Gurugram):** Fights illegal mining and encroachment, emphasizing the Aravalli Hills' role in air purification.
- **Air Pollution Campaigns (Delhi-NCR):** Initiatives like Right to Clean Air and My Right to Breathe demand stronger policies.
- **Save Lakes Movements (Bengaluru & Hyderabad):** Citizen-led protests and PILs combat pollution and encroachment of water bodies like Bellandur and Ulsoor lakes.
- **Raahgiri Movement (Gurugram & Other Cities):** Advocates for pedestrian-friendly, vehicle-free streets to reduce pollution and reclaim public spaces.

Challenges & Future of Environmental Protests

- **Government & Corporate Resistance:** Infrastructure projects often prioritize economic growth over sustainability.
- **Public Apathy:** Urban issues may seem less urgent compared to rural deforestation.
- **Legal Battles:** Lengthy and complex legal proceedings delay environmental protection efforts.
- **Growing Activism:** Movements like Fridays for Future India signal increasing youth-led environmental advocacy.

Conclusion: The Chipko Movement's legacy endures as a symbol of grassroots activism and **ecological consciousness**. Its principles of **nonviolent resistance** and community action continue to inspire urban environmental protests, shaping a more sustainable future.

4. India's Employment Shift: From Public to Private Sector

News: Post-1991 economic reforms, employment in India has shifted from the public to the private sector, redefining the working middle class.

Key Trends in Employment

- **Decline in Public Sector Jobs:**
  - **Public sector employment fell** from 194.7 lakh (1995) to 176.1 lakh (2012), while private sector jobs grew from 80.6 lakh to 119.7 lakh.
  - I**ndian Railways workforce declined** from 16.5 lakh (1990-91) to 11.9 lakh (2022-23).
- **Rise of the Private Sector:**
  - **IT sector jobs surged**—TCS and Infosys had 45,714 and 36,750 employees (2004-05), which grew to 4,48,464 and 2,42,371 in 15 years.
  - **Private banks** now employ 8.74 lakh workers, surpassing public sector banks (7.5 lakh) in 2023-24.

Reasons for Workforce Shift

- **Economic Liberalization (1991):** Expanded private sector job opportunities.
- **Higher Salaries & Career Growth:** Private jobs offer better pay and incentives.
- **Limited Public Sector Expansion:** Stagnation in government job openings.
- **Rise in Entrepreneurship & Startups:** More individuals are opting for self-employment.

Challenges in Employment

- **Agriculture Sector's Persistent Dominance:**
  - Workforce in agriculture declined from **64%** (1993-94) to **42.5%** (2018-19) but rebounded to 46.2% (2023-24).
- **Prevalence of Informal Jobs:**
  - **85%** of India's workforce is in the informal sector, with low wages and no social security.
  - Vulnerable sections of society remain concentrated in **unstable jobs**.
- **Lack of Industry-Aligned Skills:**

- Education **remains theoretical**, leaving graduates unprepared for job demands.
- Rural areas **lack quality skill** development programs.

Formal vs. Informal Jobs in India Over Time
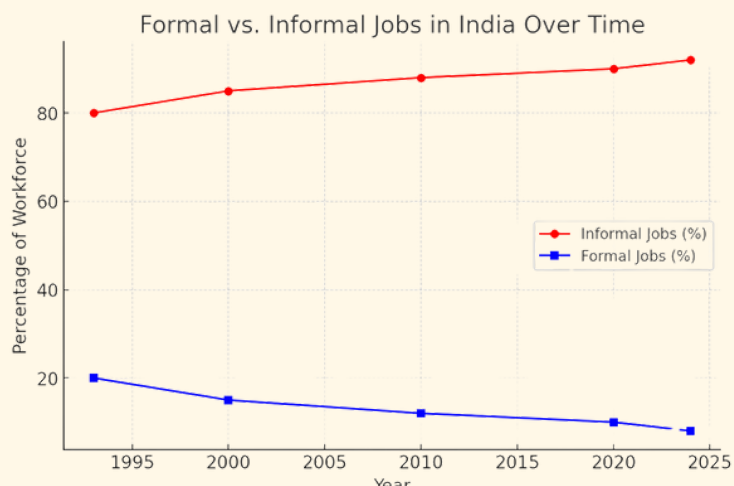
Way Forward

- **Bridging the Skills Gap:** Align education with industry needs for better employment outcomes.
- **Government Initiatives:** Promote skill-building in green jobs (e.g., solar energy, waste management).
- **Strengthening Rural Training Programs:** Use technology to expand access to quality education.
- **Enhancing Employee Retention:** Upskilling programs, inclusive work cultures, and mental health support can improve workforce stability.

5. RuTAGe Smart Village Center: Bridging Technology and Rural Development

News: The RuTAGe Smart Village Center (RSVC) was launched in **Mandaura village, Sonipat**, to drive rural technological innovation and sustainable development.

About RSVC

- Conceptualized by the Office of the Principal Scientific Advisor (PSA), RSVC serves as a **permanent Panchayat-level hub** catering to 15-20 villages.
- It won the **first prize at NSE's Social Stock Exchange** event (2024) for its impactful rural development model.

Key Technological Solutions

RSVC addresses rural challenges through 12 technology tracks:

- **Agriculture & Waste Management:** Pre-sowing to post-harvest support, rural tourism, and waste management in collaboration with KVKs.
- **RuTAG Technologies:** Solutions from 7 IITs under the PSA Office.
- **Livelihood & Entrepreneurship:** Promoting local businesses via NRLM in Uttar Pradesh.
- **Renewable Energy:** Solar and wind energy solutions supported by SELCO Foundation.
- **WASH (Water, Sanitation, and Hygiene):** IIT Madras Aquamaps and weVois for waste and water management.

- **FinTech:** Financial inclusion tools and AR/VR-based solutions by IISC and XR Group.
- **Capacity Building:** Research collaborations and training with institutions like NIFTEM and NAARM.
- **Government Scheme Apps:** Digital access to welfare and science programs.
- **Assistive Technologies:** Innovations for differently-abled individuals via the Assistive Technology Foundation.

Objective of RSVC

- **Connects grassroots communities** with technological advancements.
- Addresses rural issues such as **organic farming**, **animal intrusion**, and employment generation.

Role of Technology in Rural Growth

- **Agriculture**: Precision tools and mechanization enhance productivity.
- **Education**: Digital platforms (PM e-VIDYA, SWAYAM) improve access to learning.
- **Financial Inclusion:** DBT and PM Jan Dhan Yojana enable secure cashless transactions.
- **Water Management:** National aquifer mapping for efficient groundwater usage.

Future Outlook

The RSVC model aims to scale up, refine its approach based on feedback, and create a lasting impact on rural livelihoods.

Government Schemes Related to RuTAGe

1. Agriculture & Rural Development
- **Paramparagat Krishi Vikas Yojana (PKVY):** Promotes organic farming.
- **e-NAM:** Digital marketplace for farmers.

2. Renewable Energy & Sustainability
- **PM-KUSUM:** Promotes solar energy for agriculture.
- **National Bio-Energy Mission:** Encourages waste-to-energy conversion.

3. Livelihood & Entrepreneurship
- **MGNREGA**: Provides guaranteed rural employment.
- **DAY-NRLM:** Supports self-help groups and rural entrepreneurs.

4. Water, Sanitation & Waste Management
- **Swachh Bharat Mission (Gramin):** Focuses on sanitation and waste management.

5. Financial Inclusion & Digital Access
- **PM Jan Dhan Yojana:** Provides banking access for rural citizens.
- **Digital India Initiative:** Expands internet connectivity and e-services.

6. Assistive Technology & Capacity Building
- **Sugamya Bharat Abhiyan:** Improves accessibility for differently-abled individuals.
- **Skill India Mission:** Focuses on vocational training and capacity building.

6. Delhi Earthquake: Causes, Impact, and Risks

News: A recent **4.0-magnitude earthquake** in Delhi-NCR caused strong tremors despite its moderate intensity. The **National Center for Seismology** (NCS) attributed it to in-situ material heterogeneity rather than tectonic activity.

Understanding 'In-Situ Material Heterogeneity'
Unlike typical earthquakes caused by **tectonic plate movements**, this event resulted from **natural geological variations** such as:
* Differences in rock type and density
* Presence of underground fluids
* Localized stress accumulation in the Earth's crust

Why Were the Tremors Strong?
* **Shallow Depth (5 km):** Less energy dissipation led to stronger surface shaking.
* **Epicenter Within Delhi:** Urban density and high-rise structures amplified the effects.
* **Soft Alluvial Soil:** Indo-Gangetic Plain geology enhanced seismic wave propagation.

Delhi's Seismic Vulnerability
* **Located in Seismic Zone IV** (second highest risk in India).
* Close to major fault lines:
  * **Delhi-Haridwar Ridge** (extension of the Indian Plate).
  * **Aravalli Fault System** (deep-seated geological structure).

India's Seismic Zones & Risk Areas
* **Zone V (Highest Risk):** Northeast India, Uttarakhand, Himachal Pradesh, Bihar, Gujarat.
* **Zone IV:** Delhi, parts of Maharashtra, J&K—high earthquake probability.
* **Zone III:** Moderate risk in southern & central India.
* **Zone II:** Least risk, mostly southern regions.

Government Initiatives
* **Seismic Monitoring:** IMD provides real-time updates on seismic activity.
* **NDMA Guidelines:** Focus on earthquake preparedness, awareness, and structural safety.
* **Resilient Infrastructure:** Smart Cities mission emphasizes earthquake-resistant construction in high-risk zones.

India Earthquake Zone Map

7. Peatlands: A Crucial Carbon Sink at Risk

News: A recent study warns that peatlands, vital carbon reservoirs, remain **severely underprotected**. Their degradation threatens global climate goals.

What are Peatlands?
Peatlands are **wetland ecosystems** rich in partially decomposed organic matter, **storing carbon accumulated over millennia**. They exist in all climatic zones, with dominant vegetation varying by region—**Sphagnum mosses** in cool climates and **graminoids** in warmer areas.

Global Distribution & Carbon Storage
* Peatlands **cover 4.23 million km²** (2.84% of Earth's land surface).
* Five countries—**Canada, Russia, Indonesia**, the U.S., and Brazil—hold 70% of global peatlands.
* They **store 600 billion tonnes of carbon**, surpassing all global forest biomass.
* Despite their significance, **only 17% of peatlands** are under formal protection.

Peatlands & Wetlands in India
* **Sundarbans Wetland** (West Bengal) – a Ramsar site.
* **Loktak Lake (Manipur)** – Contains floating peatland formations (**Phumdis**), vital for the ecosystem.
* **Wular Lake** (Jammu & Kashmir) – extensive peat deposits.
* **Rann of Kutch** (Gujarat) – Seasonal wetlands.
* **Keoladeo National Park** (Rajasthan) – A peat-rich wetland .

Major Threats
* **Agriculture & Forestry:** Drainage for farming and logging releases stored carbon.
* **Mining & Infrastructure:** Peat extraction for fuel and commercial use depletes reserves.
* **Climate Change:** Rising temperatures and erratic rainfall increase degradation and wildfire risks.

Conservation Efforts
* **Indigenous Stewardship:** 27% of peatlands lie within indigenous lands, where traditional practices aid conservation.
* **Global Initiatives:**
  * **Brazzaville Declaration** (2018): Protects the Congo Basin peatlands.
  * **Global Peatlands Initiative** (GPI): Led by UNEP to conserve peatlands.
  * **Ramsar Sites:** Cover 20% of protected peatlands, with a higher share in tropical regions.

Way Forward
* **Stronger Legal Protections:** Integrate peatland conservation into national laws and global climate frameworks like NDCs under the Paris Agreement.
* **Support Indigenous-Led Conservation:** Recognize local stewardship to enhance preservation.
* **Sustainable Management:** Restore degraded peatlands through rewetting and responsible land use policies.

Conclusion: Peatlands play a **crucial role in carbon storage** and climate regulation. Protecting them requires urgent policy interventions, **global cooperation**, and sustainable conservation strategies.

8. Digital Content Censorship in India: Striking a Balance

Context: The **debate over digital content censorship** in India has intensified with the rise of social media, streaming services, and independent **journalism**. The controversy surrounding the show **India's Got Latent** has renewed discussions on content regulation.

What is Digital Censorship?
Digital content censorship **involves restricting or removing online material** by governments, organizations, or platforms. It includes:
- **Blocking websites and apps**
- **Social media content takedowns**
- **Regulation of OTT (Over-The-Top) platforms**
- **Restrictions on digital journalism**

Why is Digital Censorship Debated?
Arguments for Regulation:
- **Preventing Hate Speech & Misinformation –** Curbing fake news and inflammatory content.
- **Protecting Cultural Sensitivities –** India's diverse society requires safeguards.
- **Regulating Online Harassment & Obscenity –** Addressing explicit content and cyberbullying.
- **Ensuring Child Safety –** Implementing age-based content restrictions.

Concerns Over Censorship:
- **Threat to Free Speech –** Overregulation may stifle dissent and creativity.
- **Lack of Transparency –** Content removal decisions often lack clear guidelines.
- **Political Misuse –** Censorship could be used to suppress criticism and independent media.

Legal Framework in India
- **Article 19(1)(a) & 19(2) –** Freedom of speech is subject to reasonable restrictions.
- **IT Act, 2000 (Section 69A) –** Allows the government to block content for security concerns.
- **Intermediary Guidelines, 2021 –** Regulates digital media, OTT platforms, and social media.
- **Self-Regulation by OTT Platforms –** Platforms like Netflix follow voluntary guidelines.
- **Cinematograph Act, 1952 (Proposed Amendments) –** Plans to bring OTT under film censorship rules.
- **Press & Registration of Periodicals Bill, 2023 –** Aims to regulate digital news platforms.

Global Approaches to Censorship
- **China –** Strict state control over digital content.
- **EU –** Digital Services Act balances regulation and free expression.
- **US –** Relies on self-regulation by platforms.

Challenges in Digital Censorship
- **Balancing Regulation & Freedom –** Overreach could limit democratic discourse.
- **Jurisdictional Issues –** Many platforms operate outside India.
- **Evolving Technology –** Difficulties in keeping up with digital advancements.
- **Ethical Concerns –** Subjective definitions of obscenity and offensive content.

Supreme Court's Perspective
In **Apoorva Arora v. Govt. of NCT Delhi** (2024), the court stressed the need for objective criteria in **determining obscenity rather than subjective morality**. However, ambiguity remains a challenge.

Way Forward
- **Independent Oversight –** Regulatory bodies should function autonomously.
- **Transparency in Moderation –** Platforms should publish content takedown reports.
- **Digital Literacy –** Educating users to differentiate between fake news and facts.
- **Public Consultation –** Involving experts, journalists, and civil society in policymaking.

Conclusion: While content regulation is **necessary to curb harm**, excessive censorship risks **undermining democracy** and **creative freedom**. A balanced, **transparent approach** is essential to maintain an open and fair digital space.

9. India-China Relations: Between Cooperation and Confrontation

Context: India and China, two of the world's most influential nations, share a historically **complex relationship** defined by cooperation, competition, and conflict. While **economic ties** have strengthened, **border tensions** and strategic rivalry continue to shape their engagement.
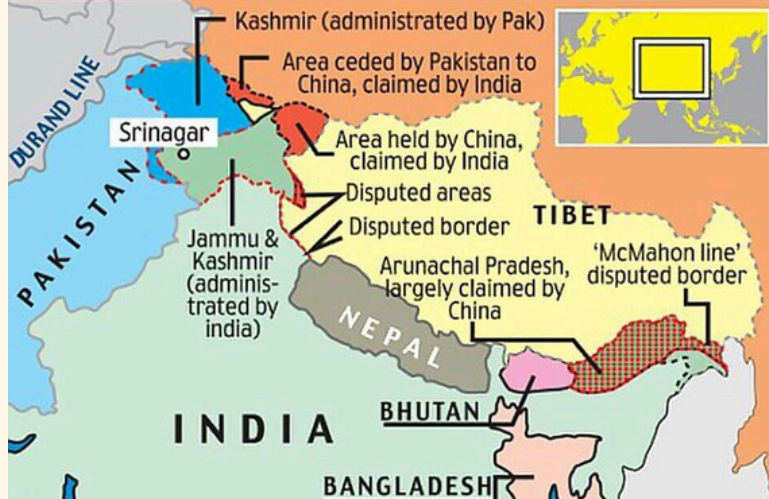
Historical Overview
- **Early Diplomatic Ties (1950s):** India recognized the People's Republic of China in 1950, signing the **Panchsheel Agreement (1954)** for peaceful coexistence. However, the **1962 Sino-Indian War** over territorial disputes shattered initial goodwill.

- **Cold War Period (1962–1990s):** Strategic divergences grew as China aligned with Pakistan and the U.S., while **India moved closer to the Soviet Union**. Skirmishes occurred at Nathu La (1967), Cho La (1967), and Sumdorong Chu (1987). The **first diplomatic thaw** came in **1988** with Prime Minister Rajiv Gandhi's visit to China.

- **Engagement and Economic Growth (1990s–2010s):** Agreements in 1993 and 1996 **improved border stability,** while the 2005 **Strategic Partnership** boosted trade and multilateral cooperation through **BRICS** and **SCO**.

- **Border Confrontations (2010s–Present):**
  - Depsang (2013), **Chumar** (2014), **Doklam** (2017), and **Galwan** (2020) have led to heightened military tensions.
  - Despite multiple rounds of military talks, the **Line of Actual Control (LAC)** remains a persistent flashpoint.

Key Areas of Conflict

- **Economic Relations:**
  - China remains India's **largest trading partner** ($125 billion bilateral trade in 2024), but the trade deficit is a major concern.
  - India has imposed **restrictions on Chinese investments** and apps due to security concerns.
- **Geopolitical Rivalry:**
  - India challenges China's **Belt and Road Initiative (BRI)** and seeks influence in the Indo-Pacific.

TERRITORIAL DISPUTE

- Kashmir (administrated by Pak)
- Area ceded by Pakistan to China, claimed by India
- Area held by China, claimed by India
- Disputed areas
- Disputed border
- Jammu & Kashmir (adminis-trated by india)
- Arunachal Pradesh, largely claimed by China
- 'McMahon line' disputed border

- China's **growing ties with Pakistan** and expansion into the Indian Ocean Region **(IOR)** impact India's strategic interests.
- **Border Disputes:**
  - Frequent **military build-ups** in Ladakh, Arunachal Pradesh, and Sikkim.
  - **Slow progress in resolving disputes** despite diplomatic and military talks.

Pathways for the Future
- **Economic Diversification:**
  - **Reducing dependency** on Chinese imports and strengthening domestic industries.
  - Promoting **trade agreements** to address imbalances.
- **Military and Strategic Preparedness:**
  - Strengthening **border infrastructure** and regional alliances.
  - Continued diplomatic and military **negotiations** through **WMCC** and Corps Commander-level talks.
- **Global Cooperation:**
  - Climate change, trade, and **counter-terrorism** offer areas of engagement.
  - Regular **diplomatic summits** to build trust.
- **Cultural & Educational Exchanges:**
  - Promoting tourism, **student exchanges**, and academic collaborations.

Conclusion: India-China relations are marked by both economic interdependence and **strategic friction**. While diplomatic engagement remains vital, resolving border disputes and managing **geopolitical rivalry** will determine the future trajectory of this complex relationship.

India's Trade Deficit with China 2021 and 2022

	2021 (USD Million)	2022 (USD Million)
India Exports to China	20,982	15,743
India Imports from China	96,405	126,851

Trade Balance 2021 (-75,423) 2022 (-111,107) USD million

10. Constitutional Morality: The Guiding Principle of Democracy

News: In recent years, Indian courts have increasingly invoked constitutional morality as a **guiding principle** in interpreting laws and **adjudicating constitutional disputes**. This evolving concept plays a crucial role in safeguarding justice, **equality**, and democracy.

Understanding Constitutional Morality
Constitutional morality refers to **adherence to the core values enshrined in the Constitution**, ensuring justice, liberty, equality, and fraternity. It emphasizes:
- **Respect** for constitutional principles over personal or majoritarian beliefs.
- The role of **institutions in upholding** democratic norms.

Origins and Evolution
- **George Grote's Perspective (19th Century):** The British historian introduced the concept in his work **A History of Greece**, highlighting the importance of public reason, **self-restraint**, and adherence to constitutional norms.
- **Dr. B.R. Ambedkar's Vision (1948):** He emphasized constitutional morality as essential for India's democracy, ensuring **laws supersede personal biases** and majoritarian influence.

Pros & Cons of Constitutional Morality

Pros	Cons
Upholds fundamental rights & social justice	Subjectivity and ambiguity in interpretation
Ensures accountability of institutions	Risk of judicial overreach
Adapts laws to changing societal values	Possible clash with religious & traditional beliefs
Strengthens democratic governance	Complexity and legal uncertainty

Judicial Interpretations and Expansion
- **Kesavananda Bharati Case (1973):** Linked constitutional morality to the Basic Structure Doctrine.
- **K.S. Puttaswamy Case (2017):** Declared the right to privacy a fundamental right.
- **Navtej Singh Johar Case (2018):** Decriminalized Section 377, reinforcing individual dignity over societal morality.
- **Sabarimala Temple Entry Case (2018):** Upheld women's right to worship, overriding religious customs.
- **Joseph Shine Case (2018):** Struck down adultery laws, promoting gender equality.

Constitutional Morality in India's Governance
- **Balancing Individual Rights & Societal Norms:** Ensures laws protect individual freedoms while respecting societal values.
- **Preventing Majoritarianism:** Protects minority rights against the excesses of majority rule.
- **Evolving with Time:** Expands with judicial pronouncements on LGBTQ+ rights, gender justice, and free speech.

Way Forward
- **Strengthening Judicial Clarity**
- **Promoting Constitutional Literacy**
- **Balancing Rights and Traditions**

Conclusion: Constitutional morality is central to India's democratic evolution, **balancing tradition with progress.** As societal values shift, courts and policymakers must ensure that constitutional **principles remain the cornerstone** of governance, reinforcing justice, equality, and liberty for all.

NEWS IN BREIF

Gulf of Eilat (Gulf of Aqaba)

News: Recent research has revealed a **pause in coral reef growth** in the Gulf of Eilat (Gulf of Aqaba), raising ecological concerns.

About the Gulf of Eilat

- **Location:** Northern Red Sea, between the Sinai and Arabian Peninsulas.
- **Bordering Countries:** Egypt, Israel, Jordan, and Saudi Arabia.
- **Depth:** 1,850 meters, significantly deeper than the Gulf of Suez (100 meters).
- **Coral Ecosystem:** Hosts one of the **world's northernmost** coral reefs, crucial for marine biodiversity.

Asteroid YR24: Hit or Miss in 2032

News: The **Torino Scale** categorises asteroid threats based on their potential impact. **A Level 3 ranking** means there is a 1% or greater chance of collision, warranting **attention** but not immediate concern.

About Asteroid YR24

- **Classification**: Near-Earth Asteroid (NEA), part of the Apollo group.
- **Size & Speed:** Estimated to be several dozen meters wide, traveling at high velocity through space.
- **Close Approach:** Passed within a safe distance of Earth, closely monitored by space agencies.

Potential Risks & Monitoring: Although YR24 does not pose a **current danger**, scientists emphasize the need for continued observation of such objects. **NASA's Planetary Defense** Coordination Office and other global agencies track NEOs to **assess potential impact risks** and develop future mitigation strategies.

Conclusion: Asteroid **YR24's flyby** serves as a reminder of Earth's dynamic cosmic environment. Advancements in tracking and **deflection technology** remain crucial for planetary defense against possible future asteroid threats.

Torino Scale: Measuring Asteroid Impact Threats

- The Torino Scale is a **risk-assessment tool** used to categorize the likelihood and potential **consequences** of an asteroid or comet colliding with Earth.
- Developed in 1999 by **astronomer Richard P. Binzel**, the scale helps both scientists and the public understand the significance of **near-Earth object (NEO)** threats.

Torino Scale: Asteroid Impact Hazard Levels

Scale	Threat Level	Description	Color
0	No Hazard	No risk, or too small to cause harm.	White
1	Normal	Extremely low probability of impact.	Green
2-4	Meriting Attention	Requires further observation, low risk.	Yellow
5-7	Threatening Impact	Significant chance of regional/global damage.	Orange
8-10	Certain Impact	Collision inevitable, serious consequences.	Red
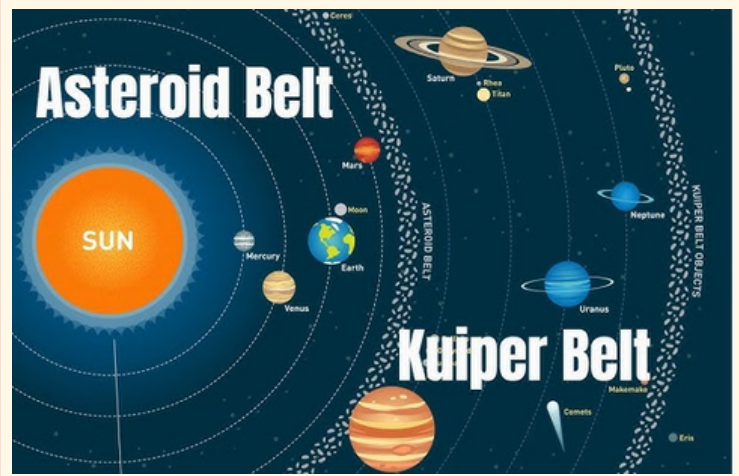
Russia's mRNA-Based Cancer Vaccine

News: Russia has developed an mRNA-based **personalized cancer vaccine**, expected to be available for free by early 2025.

What is mRNA?

Messenger RNA (mRNA) **carries genetic instructions from DNA** to cells, directing them to produce specific proteins.

How Do mRNA Cancer Vaccines Work?

- mRNA vaccines **train the immune system** to recognize and attack cancer cells by producing tumor-specific antigens.
- Unlike traditional therapies, they are **personalized,** targeting **unique markers** on a patient's tumor.
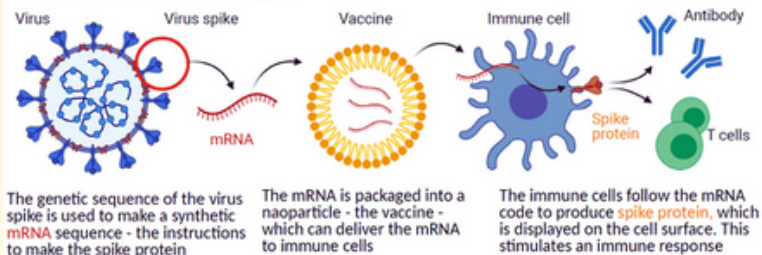
Global Efforts in Cancer Vaccines

- **UK**: NHS launched the Cancer Vaccine Launch Pad with BioNTech.
- **US**: CureVac is developing an mRNA vaccine for glioblastoma.

China's EAST Reactor: Fusion Energy

News: China's Experimental Advanced **Superconducting Tokamak (EAST)** sustained a plasma temperature of 100 million°C for 1,066 seconds, advancing nuclear fusion research.

About EAST & ITER

- EAST is a **testbed for ITER**, a global megaproject involving six countries, including India.
- **Tokamak**: Uses magnetic fields to confine plasma for nuclear fusion.

What is Nuclear Fusion?

- **Process**: Fuses **Deuterium** (H-2) and **Tritium** (H-3) to form Helium, releasing massive energy.
- **Challenges**: Requires **extreme temperatures** and pressures, replicating star-like conditions.

Significance of Fusion Energy

- **Clean & Sustainable:** No **greenhouse gas emissions**, minimal radioactive waste.
- **High Efficiency:** Generates **4x more energy than fission**, millions of times more than fossil fuels.
- **Abundant Fuel: Deuterium** from seawater & Tritium from lithium ensure long-term availability.
- **Safe:** No risk of runaway reactions or meltdowns.

Future Prospects

- EAST's success is vital for **ITER's progress**, though cost overruns (~€18 billion) raise concerns.
- Alternative Fusion Methods:
  - **Stellarator:** Complex magnets replace the need for poloidal magnetic fields.
  - **Laser Fusion:** High-powered lasers compress fuel for fusion, generating energy.

Fusion energy remains the **holy grail** of clean power, promising a limitless energy future.
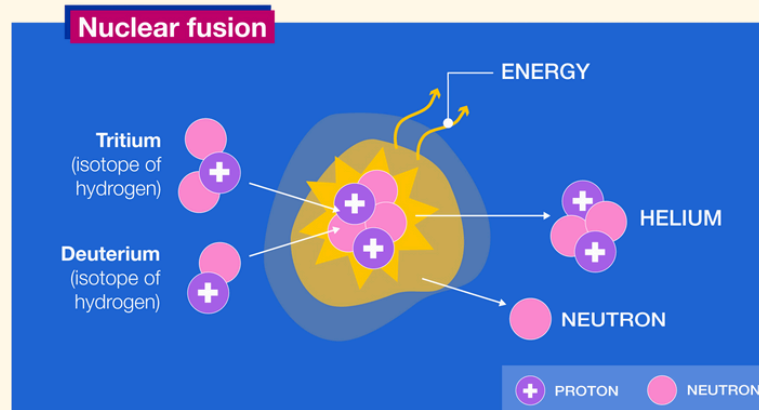
Parambikulam Tiger Reserve: New Species

News: A faunal survey at Parambikulam Tiger Reserve, Kerala, recorded 15 new species, enhancing its biodiversity checklist.

About the Reserve

- **Location**: Western Ghats (**Palakkad** & **Thrissur**, **Kerala**)
- **Tribes**: Kadar, Malasar, Muduvar, Mala Malasar
- **Flora**: Teak, neem, sandalwood, **rosewood**; home to **Kannimara Teak**, the oldest known teak tree.

Fauna: Rich biodiversity, known as the **"Gaur Capital of Kerala"**; endemic species include **Parambikulam** Frog and Garro surendranathanii **fish**.

Key Survey Findings

- **Birds** 🦜: 206 species recorded; 7 new additions, including **Painted Spurfowl** & Indian **Grey Hornbill**.
- **Butterflies** 🦋: 273 species; 5 new, including Scarce Shot Silverline & **Palni Dart**.
- **Odonates** 🦟: 3 new dragonfly species, including Brown Darner & **Parakeet Darner**.

Parambikulam continues to be a **biodiversity hotspot**, contributing to conservation efforts.

Aravali Safari Park Project

Context: Haryana's 3,858-hectare Aravali Safari Park, spanning **Gurugram and Nuh**, aims to be the world's largest safari park, promoting conservation and tourism.

Key Highlights

- Announced: 2022
- **Phase 1:** Covers **2,500 acres** with enclosures for **big cats** & other wildlife.
- **Conservation:** Focus on endangered species like **blackbucks**, vultures, & soft-shelled **turtles**.
- **Concerns:** Environmentalists and ex-IFS officers warn of ecological risks.
- **Current Status:** Still in planning & development, with ongoing stakeholder discussions.

Balancing conservation, tourism, and ecology remains key to the project's success.

DDoS Attack: A Growing Cyber Threat

News: Karnataka's **Kaveri 2.0 portal** faced severe server outages due to a **DDoS (Distributed Denial-of-Service)** attack.

What is a DDoS Attack?

- It is a type of **denial-of-service (DoS) attack**, which includes all cyberattacks that disrupt or stop services.
- It aims to **disable or take down websites**, web applications, cloud services, or other online resources.
- It overwhelms the target with **fake packets**, pointless connection requests, or malicious traffic.
- It involves traffic from multiple sources, making them **"distributed."**
- **Effect**: While it **doesn't steal data**, it can distract from other cyberattacks.

Mitigation Measures

- **Traffic filtering, bot detection,** rate limiting, strong authentication, and collaboration with cybersecurity agencies.

Notable DDoS Attacks

- **X (Twitter) (2024)** – Disrupted the platform.
- **GitHub (2015)** – Hit by a China-based botnet to bypass censorship.

Strengthening **cybersecurity measures** is crucial to prevent such attacks.

India-Qatar Elevate Ties to Strategic

News: India and Qatar signed an agreement to upgrade their relationship to a **strategic partnership**, marking **50 years** of diplomatic ties.

Key Outcomes
- Exploring a **Free Trade Agreement** (FTA)
- Signed a **double taxation avoidance treaty**
- Target to double **trade to $28 billion** in five years
- Discussed **Israel-Palestine conflict**

India-Qatar Relations
- **Trade**: Qatar is India's **largest LNG & LPG supplier** (10.91M metric tonnes of LNG in FY 2023-24).
- **Defense**: Bilateral naval exercise **Zair-Al-Bahr,** extended Defense Cooperation Agreement (2008, renewed in 2018).
- **Diaspora**: 700,000+ Indian **expatriates** contribute to Qatar's economy.

Challenges
- **Middle East conflicts** affecting energy security & trade.
- **Delays in India-GCC FTA** due to GCC policy shifts.

Way Forward: India seeks stronger political, economic, and **security ties with the Gulf,** aiming for greater regional influence and long-term cooperation.

Bharat Tex 2025: Boosting India's Textile Industry

News: Bharat Tex 2025, **India's largest global textile event**, was held in New Delhi, showcasing innovations and trade opportunities.

Key Highlights
- **Vision**: "Farm to Fibre, Fabric, Fashion, and Foreign Markets"
- **Participation**: 5,000+ exhibitors, 1,20,000+ visitors from 120+ countries

India's Textile Industry
- **6th largest global exporter**, contributing 8.21% to India's total exports (2023-24)
- **Employs 45+ million** people
- **US & EU account for 47% of exports**

Government Initiatives
- **PM MITRA Parks:** 7 mega textile parks with **$10B investment**
- **PLI Scheme:** ₹10,683 Cr incentives for MMF & technical textiles
- **Samarth:** Skill development for textile workers
- **NHDP:** Support for handloom weavers

Challenges
- **High** raw material **costs** & outdated technology
- Strong global **competition** (China, Vietnam, Bangladesh)
- Environmental & **regulatory issues**
- **Skilled labor shortage** & supply chain bottlenecks

Way Forward
- **Technology upgradation** & sustainable practices
- Skill development & **global market expansion**
- Enhancing raw material security

Samudrayan Project: Deep Ocean Exploration

News: **Matsya-6000**, developed under the Samudrayan Project, successfully completed wet testing.

About Samudrayan Project
- Part of **Deep Ocean Mission**, aimed at deep-sea exploration.
- **Matsya-6000:** A 4th-gen manned submersible designed to reach 6,000m depth, carrying **three crew members** with scientific tools.

Deep Ocean Mission
- Launched in 2021 by the **Ministry of Earth Sciences.**
- Multi-ministerial program to explore **living & non-living resources** in the Indian Ocean.
- Supports India's **Blue Economy ambitions**.

TrailGuard AI in Similipal Tiger Reserve

Context: Similipal Tiger Reserve has **deployed 100-150 AI-enabled cameras** under the TrailGuard AI system to detect poachers.

About TrailGuard AI
- Developed by **Nightjar Technologies** for wildlife surveillance.
- **Features:** Compact cameras with 6-12 months battery life, real-time alerts, and AI-based detection of humans, animals, and vehicles.
- **Significance:** Enhances anti-poaching efforts and is also used in Kanha Tiger Reserve & Dudhwa National Park.

Similipal Tiger Reserve
- Located in **Mayurbhanj, Odisha** with hilly terrain and grasslands.
- Only known habitat of **melanistic tigers/black tigers** in India.

Chhatrapati Shivaji Maharaj Jayanti

News: PM Narendra Modi paid tribute to Chhatrapati Shivaji Maharaj on his birth anniversary.

About Shivaji
- **Born:** 1630, Maharashtra.
- **Founder:** Maratha Empire, known for military strategy and governance.
- **Inspired by:** Saints **Tukaram, Dnyaneshwar**, and **Ramdas**.

Coronation & Administration
- **1674:** Crowned at Raigad, establishing the **Rajyabhisheka** Era.
- **Governance:** Introduced **Ashtapradhan** (Council of Eight Ministers).
- **Revenue System:** Adopted **Malik Ambar's model**, abolished intermediaries, and introduced **Chauth** (25% tax) & **Sardeshmukhi** (9-10% tax).

Military & Legacy

- Built a **strong army**, efficient intelligence network, and India's first naval force, earning the title "**Father of the Indian Navy**".
- His governance laid the foundation for the **Maratha Empire**, shaping India's political and administrative history.

Global Sea Ice Cover Hits Record Low

News: The US National Snow and Ice Data Center (NSIDC) reported that **global sea ice extent fell** to a record 15.76 million sq km in February 2025.

What is Sea Ice?

- **Floating ice in polar regions**, expanding in winter and melting in summer.
- Plays a crucial role in **cooling the planet** and regulating ocean temperatures.

Reasons for Decline

- **Rising Global Temperatures:** Arctic warming 4x faster than the global average.
- **Ice-Albedo Effect:** Less ice → More heat absorption → Faster melting.
- **Wind & Storms:** Arctic storms breaking ice, Antarctic ice becoming more mobile.

Implications

- **Climate Change Acceleration:** More heat absorption increases warming.
- **Disrupts Ocean Currents:** Freshwater influx slows circulation.
- **Rising Sea Levels:** Exposed glaciers and ice sheets melt faster.
- **Ecosystem Disruptions:** Threatens species like krill, seals, and polar bears.
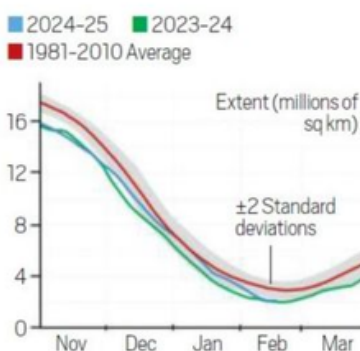
Way Forward

- Adhere to Paris Agreement to **limit warming to 1.5°C**.
- Expand **satellite monitoring** to track polar ice changes.
- Strengthen **international protections** for marine ecosystems.
- **Regulate industrial** activities in polar regions.

The record low sea ice cover **signals urgent climate action** to prevent irreversible damage.
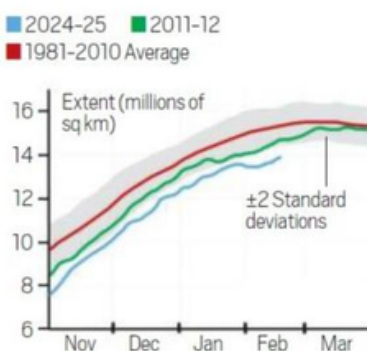
Translocating African Cheetahs to India

News: A study by the **Centre for Wildlife Studies** (CWS) highlights **ethical, ecological, and welfare** concerns regarding the translocation of African cheetahs to India.

Project Cheetah Overview

- 20 African cheetahs introduced to **Kuno National Park**, India (8 from Namibia in 2022, 12 from South Africa in 2023).
- **Plan:** Import **12 cheetahs annually** to establish a viable population.

Challenges

- **High Stress & Mortality:** Over 90 immobilizations, requiring frequent veterinary care. **Mortality rate: 40-50%** (expected: 15%).
- **Conservation Risks:** African cheetah population is already **declining (~6,500 left)**.
- **Sustainability Issues:** Continuous imports seen as unsustainable and ethically problematic.

Cheetah Extinction in India

- **Declared extinct in 1952** due to hunting, prey loss, and habitat destruction.
- Once widespread, now **gone from 14 other countries**, including Pakistan, Afghanistan, and Israel.

Suggestions

- **Justice-Based Conservation:** Include local communities & diverse knowledge systems.
- **Sustainable Coexistence:** Prioritize human-wildlife balance over forced reintroductions.

India-Argentina & Lithium Exploration

Context: India and Argentina are expanding **mining cooperation**, focusing on lithium exploration for **EV batteries** and renewable energy.

Key Points

- **Argentina's Lithium Reserves:** Part of the Lithium Triangle **(Argentina, Bolivia, Chile)**, which holds **58% of global lithium reserves.**
- **India's Involvement:**
  - **Khanij Bidesh India Ltd.** (KABIL) & Greenko exploring lithium opportunities.

Lithium mining — Selected salt flats, 2017. Source: Apex

- Expanding Indian investment in Argentina's mining sector.

About Lithium
- Silvery-white, **highly reactive metal** used in lithium-ion batteries for electronics, EVs, and energy storage.
- **Key Producers: Australia, Chile, Argentina** dominate global lithium production.

Significance for India
- Strengthens critical **mineral security for India's EV** & renewable energy goals.
- Enhances diplomatic and economic ties with Lithium Triangle countries.

Inland Waterways Terminal (IWT) in Assam

News: The Union Minister of Ports, Shipping & Waterways inaugurated an Inland Waterways Terminal (IWT) at **Jogighopa, Assam on the Brahmaputra River**.

Key Points
- **Strategic Trade Hub:**
  - Enhances India-Bangladesh trade under the **Bharatmala Programme.**
  - Strengthens **trilateral trade** with Bhutan and Bangladesh.
- **Growth in Inland Waterways:**
  - **767% rise** in operational national waterways.
  - 727% surge in cargo handling.
  - **62% increase** in multi-modal terminals.
  - **Cargo traffic** jumped from 18 million tonnes (2014) to 133 million tonnes (FY 2023-24).

National Waterways — Total Length: 4,503 KM. Total States Served: 15.
NW-1 GANGA HALDIA TO ALLAHABAD 1,620 Km — States served: UP, Bihar, Jharkhand and West Bengal.
NW-2 BRAHMAPUTRA DHUBRI TO SADIYA 891 Km — States served: Assam, West Bengal, Arunachal Pradesh, Meghalaya.
NW-3 WEST COAST CANAL KOLLAM TO KOTTAPURAM 205 Km — State served: Kerala.
NW-4 GODAVARI, KRISHNA & CANALS KAKINADA TO PUDUCHERRY 1,078 Km — States served: AP, Tamil Nadu, UT of Puducherry.
NW-5 BRAHMANI, DELTA CANALS, ECC GOENKHALI TO TALCHER 588 Km — States served: Odisha, West Bengal.
NW-6 BARAK LAKHIPUR TO BHANGA (IN PROCESS) 121 Km — States served: Assam, Mizoram, Manipur, Tripura.

Coronal Holes and Their Impact

News: A study by the Indian Institute of Astrophysics has estimated the thermal and magnetic structures of solar coronal holes.

Key Points
- **What Are Coronal Holes?**
  - Discovered in the 1970s via **X-ray satellites.**
  - **Dark patches** in the solar corona, appearing in EUV and X-ray images.
  - Emit **fast solar winds** (450-800 km/sec) into space.
- **Impact on Space Weather & Climate:**
  - Cause **geomagnetic disturbances** affecting satellites, GPS, and power grids.
  - **Disrupt radio wave propagation** in the Earth's ionosphere.
  - Studies link their **radiative effects** to Indian monsoon variability.

Majorana 1: A Quantum Chip by Microsoft

News: Microsoft has unveiled Majorana 1, a **breakthrough in quantum computing** using **topological qubits** for improved stability and reduced errors.

Quantum Computing Overview
- Uses **qubits based on superposition,** entanglement, and quantum interference, enabling exponentially faster calculations.
- **Potential applications:** Cryptography, AI, drug discovery, financial modeling, and climate predictions.

Majorana 1 Features
- Uses **topoconductors** to create **topological qubits**, which are more stable than traditional qubits.
- Built with Indium **Arsenide (semiconductor)** and **Aluminum (superconductor)** to enable error-resistant quantum operations.

Challenges in Quantum Computing
- **Hardware Limitations:** Quantum **coherence is difficult** to maintain.
- **Error Correction:** High susceptibility to errors.
- **Scalability:** Large-scale quantum systems are **expensive** and complex.
- **Security Risks:** Threat to classical encryption methods.

India's Quantum Initiatives
- **National Quantum Mission** (NQM): ₹6003.65 crore (2023-31) for quantum R&D.
- **NM-QTA (2020):** ₹8,000 crore for **quantum tech** applications.
- **Institutions Involved:** IISc, IITs, **DRDO, and C-DAC** working on quantum security, computing, and cryptography.

Bit (0, 1) vs Qubit ($|0\rangle$, $|1\rangle$), $|\psi\rangle = \alpha|0\rangle + \beta|1\rangle$
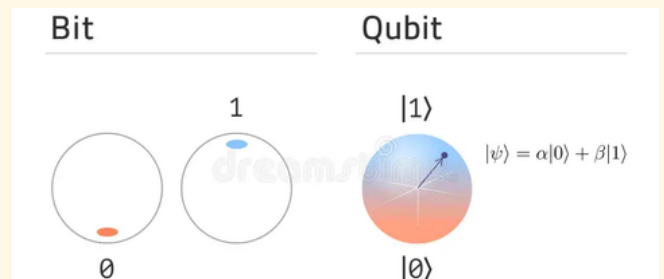
PRELIMS & MAINS PRACTICE QUESTIONS

Q1. Consider the following statements regarding India's strategic role in the Indian Ocean Region (IOR):
1. India is the only country in the IOR to have a fully operational tri-service military command.
2. The 'Security and Growth for All in the Region' (SAGAR) initiative is exclusively focused on military security cooperation with Indian Ocean littoral states.
3. The Andaman and Nicobar Islands provide India with strategic control over key chokepoints such as the Malacca Strait.
4. China's Belt and Road Initiative (BRI) has no significant presence in the Indian Ocean Region.

Which of the statements given above is/are correct?
(A) 1 and 3 only
(B) 2 and 4 only
(C) 1, 2, and 3 only
(D) 1, 3, and 4 only

Q2.Consider the following statements:
1. The 73rd Constitutional Amendment Act grants Panchayats the authority to prepare and implement economic development plans for subjects listed in the Eleventh Schedule.
2. The devolution of powers and finances to Panchayats varies across states as it is determined by respective State Legislatures.
3. Panchayats have no power to levy taxes and rely entirely on state and central government grants for revenue.

Which of the statements given above is/are correct?
(A) 1 and 2 only
(B) 2 and 3 only
(C) 1 and 3 only
(D) 1, 2, and 3

Q3.Consider the following statements:
1. RuTAGe Smart Village Centers focus on rural technology adaptation and dissemination.
2. These centers are established under the National Rural Employment Guarantee Act (NREGA).
3. They aim to bridge the gap between research institutions and rural communities.

Which of the statements given above is/are correct?
(A) 1 and 2 only
(B) 1 and 3 only
(C) 2 and 3 only
(D) 1, 2, and 3

Q4.Consider the following statements:
1. Peatlands store more carbon than all the world's forests combined.
2. They are found only in tropical regions and are absent in temperate climates.
3. Drainage and degradation of peatlands release large amounts of CO_2 into the atmosphere.

Which of the statements given above is/are correct?
(A) 1 and 2 only
(B) 1 and 3 only
(C) 2 and 3 only
(D) 1, 2, and 3

Q.5 Consider the following statements:
1. Delhi lies in Seismic Zone IV, indicating a high risk of earthquakes.
2. The Himalayan tectonic activity has no direct impact on earthquakes in Delhi.
3. Liquefaction is a major concern during strong earthquakes in Delhi due to its alluvial soil composition.

Which of the statements given above is/are correct?
(A) 1 and 2 only
(B) 1 and 3 only
(C) 2 and 3 only
(D) 1, 2, and 3

Q.6 Consider the following statements:
1. India and China are both members of the Quadrilateral Security Dialogue (Quad).
2. The Line of Actual Control (LAC) serves as the de facto border between India and China.
3. China is India's largest trading partner in terms of bilateral trade.

Which of the statements given above is/are correct?
(A) 1 and 2 only
(B) 2 and 3 only
(C) 1 and 3 only
(D) 1, 2, and 3

Q.7 Consider the following statements:
1. Constitutional morality refers to adherence to the letter of the Constitution rather than its spirit.
2. Dr. B.R. Ambedkar emphasized constitutional morality as essential for India's democratic framework.
3. The Supreme Court of India has invoked constitutional morality in landmark judgments related to fundamental rights.

Which of the statements given above is/are correct?
(A) 1 and 2 only
(B) 2 and 3 only
(C) 1 and 3 only
(D) 1, 2, and 3

Q.8 Consider the following statements:
1. The Torino Scale is used to assess the impact hazard of near-Earth objects (NEOs), ranging from 0 (no risk) to 10 (certain collision with catastrophic consequences).
2. Asteroid YR24 has been classified as a Level 10 threat on the Torino Scale for a potential impact in 2032.
3. NASA and ESA monitor hazardous asteroids using telescopes and planetary defense missions like DART.

Which of the statements given above is/are correct?
(A) 1 and 3 only
(B) 2 and 3 only
(C) 1 and 2 only
(D) 1, 2, and 3

Q.9 Consider the following statements:
1. China has developed the world's first mRNA-based cancer vaccine, which works by directly killing cancer cells.
2. Unlike chemotherapy, mRNA cancer vaccines do not cause any side effects.
3. mRNA technology, widely used in COVID-19 vaccines, is now being explored for cancer immunotherapy.

Which of the statements given above is/are correct?
(A) 2 and 3 only
(B) 3 only
(C) 1 and 2 only
(D) 1, 2, and 3

Q.10 Consider the following statements:
1. China's EAST (Experimental Advanced Superconducting Tokamak) reactor is the world's first commercial nuclear fusion power plant.
2. Fusion energy is generated by combining atomic nuclei, releasing immense energy without greenhouse gas emissions.
3. The EAST reactor aims to support the International Thermonuclear Experimental Reactor (ITER) project.

Which of the statements given above is/are correct?
(A) 1 and 3 only
(B) 2 and 3 only
(C) 1 and 2 only
(D) 1, 2, and 3

Q.11 Consider the following statements:
1. A DDoS (Distributed Denial-of-Service) attack directly steals sensitive data from targeted servers.
2. DDoS attacks overwhelm a network or website by flooding it with excessive traffic from multiple sources.
3. Botnets are commonly used to execute large-scale DDoS attacks.

Which of the statements given above is/are correct?
(A) 1 and 2 only
(B) 2 and 3 only
(C) 1 and 3 only
(D) 1, 2, and 3

Q.12 Consider the following statements:
1. The Samudrayan project is India's first manned space mission designed to explore marine biodiversity.
2. It aims to send humans 6000 meters deep into the ocean using the Matsya 6000 submersible.
3. The project is part of India's Deep Ocean Mission, focusing on resource exploration and deep-sea research.

Which of the statements given above is/are correct?
(A) 1 and 2 only
(B) 2 and 3 only
(C) 1 and 3 only
(D) 1, 2, and 3

Q.13 Consider the following statements:
1. TrailGuard AI is a satellite-based tracking system used to monitor bird migration in Simlipal Reserve.
2. It uses AI-powered cameras to detect poachers and alert forest officials in real time.
3. Simlipal Reserve, located in Odisha, is a critical habitat for tigers and other wildlife.

Which of the statements given above is/are correct?
(A) 1 and 2 only
(B) 2 and 3 only
(C) 1 and 3 only
(D) 1, 2, and 3

Q.14 Consider the following statements:
1. India has signed a lithium exploration agreement exclusively with Bolivia, bypassing Argentina and Chile.
2. The 'Lithium Triangle' refers to Argentina, Bolivia, and Chile, which hold the majority of the world's lithium reserves.
3. Lithium is a key component in rechargeable batteries used for electric vehicles and renewable energy storage.

Which of the statements given above is/are correct?
- (A) 1 and 2 only
- (B) 2 and 3 only
- (C) 1 and 3 only
- (D) 1, 2, and 3

Mains Practice Questions

1. Discuss the progress and challenges in the devolution of powers to Panchayati Raj Institutions (PRIs) in India. How can fiscal decentralization be strengthened to improve local governance?
2. How has environmental activism evolved in India from the Chipko Movement to modern urban movements? What role does citizen participation play in urban sustainability?
3. Examine the trends in India's employment shift from the public to the private sector. What are the key drivers of this transition, and what implications does it have for job security and labor rights?
4. What is the significance of peatlands in global carbon sequestration? Discuss the threats to peatland ecosystems and suggest measures for their conservation.
5. In the context of rising digital censorship, how can India strike a balance between free speech and national security? Discuss with relevant examples.
6. India-China relations have oscillated between cooperation and confrontation. Analyze the key factors shaping bilateral ties and suggest a roadmap for stability.
7. How do border tensions and economic engagements coexist in India-China relations? Discuss the challenges and opportunities for future diplomacy.
8. Define constitutional morality. How does it ensure the supremacy of constitutional values over majoritarianism and political expediency?
9. Assess the impact of privatization and gig economy growth on employment patterns in India. What policy measures are needed to ensure job stability and social security?
10. Discuss the role of constitutional morality in addressing contemporary socio-political challenges in India. Provide examples from recent judicial verdicts.