



**Secure Synopsis compilation for June-2025**

**General Studies-1**

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## Indian culture will cover the salient aspects of Art Forms, literature and Architecture from ancient to modern times.

Q. Indian cultural forms reflect continuity through adaptation. Examine this in the evolution of architecture across dynasties. Analyse the impact of colonial and post-colonial interventions. Suggest ways to balance heritage conservation with development. (15 M)

### Introduction

Indian architecture represents a living tradition—where innovation, syncretism, and regional influences shaped continuity across dynasties, from ancient to post-colonial times.

### Body

#### Continuity through adaptation across dynasties

1. **Synthesis of local and pan-Indian styles:** Each dynasty adapted prevailing forms with local idioms and patronage aesthetics.
  - **Eg:** The **Chalukyan Vesara style** blended **Dravidian and Nagara traditions**, seen in **Pattadakal temples (8th century CE)**.
2. **Religious pluralism and architectural dialogue:** Buddhist, Hindu, and Jain architecture often coexisted and drew inspiration from each other.
  - **Eg:** The **Ellora caves (600–1000 CE)** house **Buddhist, Hindu, and Jain monuments**, reflecting cultural integration.
3. **Islamic influence and Indo-Islamic synthesis:** Sultanate and Mughal periods integrated Persian, Timurid, and Indian motifs.
  - **Eg:** The **Qutb Minar complex** reused temple materials and introduced **arches and domes** in Indian masonry.
4. **Vernacular continuity despite political change:** Indigenous wooden and mud architecture continued at regional levels irrespective of dynastic shifts.
  - **Eg:** **Kath-Kuni style** of **Himachal Pradesh** persisted through the Mughal and British periods.
5. **Adaptation under royal patronage:** Kings invested in styles that served political, spiritual, and regional identity purposes.
  - **Eg:** **Vijayanagara architecture (1336–1565 CE)** combined **Hoysala intricacy with military functionality** in monuments like **Hampi**.

#### Impact of colonial and post-colonial interventions

1. **Introduction of new materials and techniques:** Colonial rule brought concrete, cast iron, and neoclassical styles, altering traditional forms.
  - **Eg:** **Lutyens' Delhi (1911–1931)** fused **classical symmetry with Indian domes and chhatris**, reflecting imperial aspirations.

2. **Neglect and distortion of native traditions:** British art historians often viewed Indian architecture as static or inferior.
  - **Eg: James Fergusson's works** described Indian styles as “decadent”, influencing colonial conservation biases.
3. **Heritage conservation limited to monumentalism:** Focus on grand monuments sidelined vernacular and lived heritage.
  - **Eg:** Post-independence, ASI focused on **monuments like Taj Mahal**, ignoring urban heritage in **Old Delhi** and **Lucknow**.
4. **Modernist rupture in post-independence architecture:** Early planners discarded traditional forms in favour of international modernism.
  - **Eg: Le Corbusier's Chandigarh (1950s)** rejected local traditions for a geometric, abstract model of urban planning.
5. **Revival efforts and adaptive reuse in recent years:** Conservation has shifted towards inclusive heritage models and community-led efforts.
  - **Eg: HRIDAY scheme (2015)** and **National Mission on Cultural Mapping (2021)** aim to protect both tangible and intangible heritage.

### **Balancing heritage conservation with development**

1. **Integrated heritage zoning in urban planning:** Embed conservation into city master plans to avoid demolition of cultural assets.
  - **Eg: Ahmedabad's walled city** integrated heritage into urban development and became a **UNESCO World Heritage Site in 2017**.
2. **Use of digital documentation and AI tools:** Modern tech can assist in mapping, monitoring, and restoration.
  - **Eg: The INTACH digital inventory project** uses **AI-enabled 3D modelling** to preserve fragile heritage sites.
3. **Community-based conservation models:** Involve local communities in restoration for sustainable upkeep and livelihood.
  - **Eg: Hampi's conservation model** incorporates local guides and artisans into tourism-linked preservation.
4. **Financial and legal incentives for private owners:** Tax reliefs and flexible building codes for heritage properties.
  - **Eg: Jaipur Municipal Corporation** gives **rebates to heritage haveli owners** for maintenance.
5. **Balanced eco-tourism and capacity regulation:** Manage footfall without compromising structural integrity.
  - **Eg: ASI's footfall limits at Ajanta-Ellora** help prevent erosion of ancient murals and caves.

### **Conclusion**

India's architectural tradition is not frozen in time—it has survived by evolving. A 21st-century cultural vision must blend heritage with smart urbanism, where conservation becomes a part of development, not a casualty of it.

## Q. Outline the significance of India's ancient universities in shaping intellectual and cultural exchanges. Explain their relevance for India's educational heritage. (10 M)

### Introduction

India's ancient universities became epicenters of intellectual, cultural, and global knowledge exchanges, contributing to the subcontinent's unique educational legacy.

### Body

#### Significance of ancient universities in shaping intellectual and cultural exchanges

1. **Centres of multidisciplinary knowledge**: They offered integrated learning of philosophy, logic, medicine, astronomy, and linguistics.
  - **Eg: Nalanda University (5th century CE)** taught **Buddhist philosophy, Ayurveda, astronomy, and grammar**
2. **Attracted international scholars**: Scholars from Asia visited these universities, promoting transnational intellectual networks.
  - **Eg: Chinese traveler Xuanzang studied at Nalanda for 5 years in 7th century CE**
3. **Platforms for religious and philosophical dialogues**: Encouraged inter-sectarian debates and knowledge sharing among various traditions.
  - **Eg: Vikramashila (8th century CE)** promoted dialogues between **Mahayana, Theravada, and Hindu scholars**
4. **State patronage fostered institutional growth**: Royal support ensured resource stability and international recognition.
  - **Eg: Pala rulers like Dharmapala patronized Nalanda and Vikramashila's expansion**
5. **Preserved and transmitted Indian knowledge systems globally**: These universities acted as conduits for knowledge transfer across Asia.
  - **Eg: Buddhist scholars from Korea, Japan and Tibet carried Nalanda's teachings to East Asia**

#### Relevance for India's educational heritage

1. **Foundation for India's knowledge traditions**: Laid the intellectual base for India's multidisciplinary learning approach.
  - **Eg: National Education Policy 2020 emphasizes holistic multidisciplinary learning inspired by ancient models.**
2. **Symbol of soft power and cultural diplomacy**: Revives India's image as a historical global education hub.
  - **Eg: Nalanda University (Bihar) reopened as an international university in 2014**
3. **Inspiration for modern university systems**: Influenced contemporary institutional autonomy and research-based education.
  - **Eg: Indian Knowledge Systems division (AICTE 2022) integrates ancient sciences into higher education .**
4. **Model for international academic collaboration**: Reinforces India's role in global south-south knowledge exchange.

- **Eg: Nalanda and Takshashila models discussed in BIMSTEC education cooperation (2023) .**
5. **Source of cultural identity and pride:** Connects modern India with its rich historical intellectual traditions.
- **Eg: UNESCO listed Nalanda Mahavihara as World Heritage Site in 2016** recognizing its global significance .

## Conclusion

Reviving the inclusive, interdisciplinary spirit of ancient universities can position India as a leading knowledge economy rooted in its civilizational legacy.

## Q. How do rediscovered substructures in stupas inform us about ritual evolution and architectural continuity in early Indian Buddhism? (10 M)

### Introduction

The buried layers of ancient stupas reveal a stratified record of ritual innovations and architectural endurance, enriching our understanding of Buddhism's evolving material culture.

### Body



### Ritual evolution in early Buddhism

1. **Wider circumambulatory paths reflect enhanced collective ritual movement:** Rediscovered pathways show increasing emphasis on **public ritual participation** through expanded pradakshina.
  - **Eg: Kesariya Stupa (2025)** unearthed a **crescent-shaped outer path**, expanding beyond earlier known boundaries
2. **Presence of Buddha icons marks a shift to image-based devotion:** Subterranean cells housing Buddha images indicate a doctrinal transition from **aniconic to Mahayana worship**.
  - **Eg: Stucco images of seated Buddha** found on the third terrace of Kesariya reflect **Mahayana influence**
3. **Cellular structures show formalisation of monastic rituals:** Discovery of ritual-specific enclosed spaces points to growing **institutionalisation of meditation and ritual practice**.

- Eg: **Two meditation cells** at Kesariya housed **ritual Buddha figures**, showing structured devotional usage.
- 4. **Drainage and floors reveal adaptation for congregational gatherings:** Ritual floors with drainage suggest **mass congregation planning** and emphasis on hygienic sacred space.
  - Eg: **Lime-plastered brick floors and drains** uncovered in Kesariya indicate large-scale ritual use.
- 5. **Use of ritual flooring materials indicates standardisation in sacred design:** Materials like brick jelly and lime plaster point to a **refined and consistent ritual architectural grammar**.
  - Eg: **Brick jelly top with kankar base** discovered in substructures shows standardised flooring

### **Architectural continuity across time**

1. **Layered terraces show evolution without erasure of older structures:** Each new layer retained the sanctity of the previous, showing a **non-destructive architectural progression**.
  - Eg: **7th terrace found beneath Kesariya's base** illustrates vertical evolution over time – **ASI Excavation, 2025**
2. **Use of consistent brickwork shows continuity in construction methods:** Similarity in size, binding, and layering indicates **sustained architectural traditions across dynasties**.
  - Eg: Brick styles at **Kesariya and Lauria Nandangarh** reveal shared **regional construction patterns**
3. **Cylindrical drum structure remains a symbolic constant:** The persistence of the drum design across sites reflects **continuity of sacred symbolism in Buddhist stupas**.
  - Eg: Drum forms at **Sanchi, Kesariya, and Amravati** display consistent design lineage.
4. **Use of fired bricks and lime plaster signals enduring material traditions:** These choices show a **long-standing architectural vocabulary** across centuries.
  - Eg: Identical **brick-lime compositions** in Kesariya and **Sarnath** support continuity in sacred architecture – **IGNCA Reports**
5. **Vertical additions indicate ritual layering over time:** Later structures were built above older ones, preserving the **ritual core of the original monument**.
  - Eg: From **Mauryan to Gupta era**, Kesariya expanded vertically, retaining original sacred base.

### **Conclusion**

Rediscovered stupa substructures act as archaeological palimpsests—preserving centuries of ritual innovation and architectural continuity that collectively narrate the enduring legacy of Indian Buddhism.

**Q. Discuss the key elements of temple architecture in Northeast India. Analyse its significance in the broader landscape of Indian architectural heritage. (10 M)**

### **Introduction**

The temple architecture of Northeast India represents a confluence of **indigenous traditions, Tantric practices, and regional materials**, offering distinct expressions of India's sacred landscape.

## Body



Kamakhya Temple

### Key elements of temple architecture in Northeast India

1. **Use of natural materials and organic forms:** Predominantly uses **wood, bamboo, stone**, adapted to the seismic and climatic conditions of the region.
  - **Eg: Rang Ghar (Ahom period), Sibsagar** used locally quarried stone with indigenous designs.
2. **Absence of classical shikhara styles:** Many temples lack the towering **Nagara or Dravida shikharas**, adopting **low-profile roofs or dome-like structures**.
  - **Eg: Kamakhya Temple, Guwahati**, features a beehive-shaped shikhara called **Sikhara deul**.
3. **Strong Tantric and fertility symbolism:** Reflects **Tantric Shaktism**, celebrating fertility and nature worship.
  - **Eg: Ambubachi Mela at Kamakhya Temple**, where menstruation is ritually celebrated.
4. **Integration with nature and landscape:** Temples often built amidst hills, forests or river valleys, respecting the surrounding ecology.
  - **Eg: Malinithan temple, Arunachal Pradesh**, harmonises with surrounding landscapes.
5. **Use of relief carvings and local motifs:** Rich in **floral, animal, and tribal motifs**, reflecting local folklore.
  - **Eg: Charaideo Maidams (Ahom royal tombs)** exhibit indigenous carvings and structures.

### Significance in Indian architectural heritage

1. **Illustrates regional diversity within Indian temple architecture:** Expands understanding beyond Nagara, Dravida, Vesara typologies.
  - **Eg: ASI's ongoing documentation of Kamakhya and Tawang Monastery** as regional variations.
2. **Preserves living traditions of Tantra and animism:** Sustains **Tantric rituals** that are marginal in other regions.
  - **Eg: Rituals of goddess Kamakhya** blend Vedic and folk traditions.
3. **Contributes to the narrative of pan-Indian sacred geography:** Forms part of India's **Shakti Peetha network**.

- **Eg: Kamakhya Temple** as one of the 51 Shakti Peethas.
- 4. **Inspires sustainable architectural practices:** Promotes eco-sensitive design in modern Northeast architecture.
  - **Eg: New state buildings in Arunachal Pradesh** inspired by monastery styles using local wood.
- 5. **Strengthens cultural identity and tourism:** Becomes a core component of Assam's tourism policies.
  - **Eg: Assam Tourism's Kamakhya Corridor project, 2025,** for heritage promotion.

### Conclusion

Recognising Northeast India's unique temple forms will enrich India's architectural narrative and foster inclusive cultural conservation in heritage discourse.

**Q. Examine the role of Vedic and post-Vedic texts in shaping early Indian scientific thought. How can they be made accessible to today's learners? (10 M)**

### Introduction

Vedic and post-Vedic texts laid the foundation for multiple branches of Indian scientific inquiry, blending empirical observation with metaphysical insights. Their relevance for modern knowledge systems is immense if effectively integrated into contemporary education.

### Body

#### **Role of Vedic and post-Vedic texts in shaping early Indian scientific thought**

1. **Foundation of astronomy and mathematics:** Rigveda hymns encode astronomical phenomena and early number theory
  - **Eg: Rigveda** describes nakshatras and solar-lunar cycles influencing Jyotisha Vedanga.
2. **Development of medicine and surgery:** Atharvaveda contains medicinal hymns; Sushruta Samhita builds on this
  - **Eg: Atharvaveda's herbal remedies** informed Ayurveda, later codified in Sushruta Samhita (~600 BCE).
3. **Advancement of metallurgy and materials:** Textual references to smelting, alloys and rust-resistant iron
  - **Eg: Mention of ayas (iron) in Yajurveda** aligns with Iron Pillar of Delhi's corrosion resistance.
4. **Insights into fluid dynamics and civil engineering:** Descriptions of water management systems and town planning
  - **Eg: Manusmriti** details urban drainage; reflected in Dholavira's water structures.
5. **Philosophical foundations of mind sciences:** Upanishads explore consciousness and cognition
  - **Eg: Chandogya Upanishad's** teachings on manas (mind) and prana (life force) influenced modern yoga psychology.

#### **Ways to make them accessible to today's learners**

1. **Curricular integration at school level:** Embed scientific concepts from Vedic texts in NCERT syllabi

- **Eg: NEP 2020** advocates inclusion of **Indian Knowledge Systems** at all stages.
- 2. **Digital translation and open-source access:** Provide accurate translations via government platforms
  - **Eg: Bharatiya Virtual University for Indian Knowledge Systems (BVUIKS)** launched in 2024.
- 3. **Research centres for interdisciplinary studies:** Establish chairs in universities for rigorous academic study
  - **Eg: IIT Kharagpur's Centre of Excellence for Indian Knowledge Systems** operational since 2022.
- 4. **Collaboration with global academic platforms:** Promote comparative research with global ancient sciences
  - **Eg: Indira Gandhi National Centre for the Arts (IGNCA) MoUs with SOAS London.**
- 5. **Mass media and cinematic representations:** Leverage documentaries and visual media to popularise content
  - **Eg: Documentary Science in Ancient India** released in 2025.

### Conclusion

Reviving and integrating Vedic scientific heritage into modern learning will enrich India's innovation ecosystem. A balanced approach blending authentic scholarship with accessible platforms is key to realising this potential.

## Modern Indian history from about the middle of the eighteenth century until the present- significant events, personalities, issues.

**Q. Evaluate the significance of the 1937 elections under the Government of India Act, 1935. Analyse the functioning of Congress ministries. Examine how this experience influenced post-independence democratic governance. (15 M)**

### Introduction

The **1937 provincial elections**, held under the **Government of India Act, 1935**, marked India's first large-scale experiment in limited self-rule. While framed within colonial constraints, they offered nationalist leaders a **practical platform to exercise legislative power**, laying the groundwork for democratic governance in free India.

### Body

#### **Significance of the 1937 elections**

1. **Foundation of provincial autonomy:** For the first time, Indians exercised limited legislative power in provinces under a quasi-federal structure.
  - **Eg: Government of India Act, 1935** enabled **11 provinces** to elect their own governments with defined powers.
2. **Mass electoral participation and political awareness:** Created political mobilisation across classes and regions through campaigning and voter education.
  - **Eg: Over 15 million people voted** across British India, setting the stage for electoral culture (Source: National Archives of India).

3. **Congress's democratic mandate**: Legitimised the Indian National Congress as the dominant political force.
  - **Eg**: Congress won **716 out of 1585 seats**, forming governments in **7 provinces**.
4. **Marginalisation of Muslim League**: The League's underperformance intensified its separatist posture.
  - **Eg**: Muslim League won only **109 of 482 Muslim seats**, failing to form government in any province.
5. **Trial run for self-governance**: Allowed Indian leaders to gain administrative and legislative experience.
  - **Eg**: Leaders like **Govind Ballabh Pant** and **Dr. Khan Sahib** gained practical governance skills.

### **Functioning of Congress ministries (1937–39)**

1. **Legislative activism and social reform**: Congress ministries repealed repressive laws and focused on education, labour, and land reform.
  - **Eg**: **Madras ministry** introduced compulsory primary education and abolished manual scavenging.
2. **Promotion of civil liberties**: Political prisoners were released, and freedom of press and assembly improved.
  - **Eg**: In **Bihar and UP**, emergency laws like the **Public Safety Act** were withdrawn.
3. **Focus on indigenous economic policies**: Encouraged swadeshi industries, rural cooperatives, and khadi promotion.
  - **Eg**: **Central Provinces** ministry gave incentives to village industries and implemented rural credit schemes.
4. **Administrative limitations exposed**: Governors retained overriding powers under Section 93 of the Act.
  - **Eg**: In **Bengal**, Governor dismissed nationalist policies using discretionary powers.
5. **Resignation as a political statement**: Ministries resigned in protest against India's entry into WWII without consultation.
  - **Eg**: All **Congress ministries resigned in Oct 1939**, exposing the hollowness of provincial autonomy.

### **Influence on post-independence democratic governance**

1. **Trained leadership for post-1947 India**: Provincial governance experience prepared leaders for national roles.
  - **Eg**: **Jawaharlal Nehru, Govind Ballabh Pant, and B.C. Roy** transitioned from provincial leadership to Union Cabinet roles.
2. **Shaped India's federal architecture**: Lessons from provincial autonomy helped in drafting a federal Constitution.
  - **Eg**: **Articles 163–167** on State Executive reflect the framework first tested in 1937.
3. **Parliamentary accountability mechanisms**: Ministries institutionalised debates, no-confidence motions, and budget discussions.
  - **Eg**: **Legislative Assemblies** in UP and Bombay had active question hours and fiscal scrutiny.

4. **People-centric governance orientation:** Ministries attempted to address peasant and labour concerns, setting a governance tone.
  - **Eg: Bombay Congress ministry** introduced tenant rights and labour welfare schemes.
5. **Deepening of democratic ethos:** Fostered the practice of coalition politics, legislative consensus, and peaceful protest.
  - **Eg: Resignation in 1939** upheld constitutional morality and democratic protest, influencing future norms.

### Conclusion

Though curtailed by imperial design, the experience of 1937–39 **trained a generation of leaders, tested institutions, and embedded accountability norms** that would shape India's post-1947 democratic architecture. It proved that Indians were not just ready for freedom—they were ready to govern it.

### Q. The vernacular press served as both a catalyst and a mirror of nationalist consciousness in colonial India. Comment. (10 M)

#### Introduction

The vernacular press became a **potent medium of political awakening**, spreading nationalist ideas to the masses and simultaneously reflecting the evolution of the freedom struggle across India.

#### Body

##### Role as a catalyst of nationalist consciousness

1. **Dissemination of anti-colonial thought:** The vernacular press translated nationalist arguments into local idioms for wider reach.
  - **Eg: Kesari (1881)** simplified **Tilak's call for Swaraj** for rural Maharashtra audiences.
2. **Mobilisation during economic protests:** It drove public participation in movements such as Swadeshi and boycott.
  - **Eg: Bengalee and Jugantar** popularised the **1905 Swadeshi boycott** post Bengal Partition.
3. **Promotion of cultural pride and linguistic identity:** It linked regional cultural pride with pan-Indian nationalist aspirations.
  - **Eg: Swadesamitran (Tamil)** promoted **Tamil linguistic pride** within nationalist discourse.
4. **Platform for early nationalist leadership:** It provided space for emerging leaders and thinkers absent in colonial-controlled media.
  - **Eg: Amrita Bazar Patrika** amplified **Surendranath Banerjee's anti-colonial arguments**.

##### Role as a mirror of nationalist consciousness

1. **Reflecting phases of the freedom struggle:** It recorded the shift from moderate petitions to mass movements and resistance.
  - **Eg: Prabuddha Bharat** covered **Non-Cooperation (1920)** and **Civil Disobedience (1930)** phases.
2. **Highlighting regional dimensions:** It showcased unique regional articulations of nationalism.
  - **Eg: Kesari** documented **Maharashtra's agrarian participation** during the **Home Rule Movement (1916)**.

3. **Exposing colonial repression**: The vernacular press laid bare the colonial government's fear of rising Indian political consciousness.
  - **Eg: The Vernacular Press Act (1878)** faced resistance by editors like **Surendranath Banerjee**.
4. **Capturing growth of public consciousness**: It reflected the increasing politicisation of Indian society, especially the middle class.
  - **Eg: Sudharak (1890s)** engaged readers with debates on democracy, caste reform, and self-rule.

### Conclusion

By shaping and reflecting **Indian nationalist consciousness**, the vernacular press left a legacy of **democratic engagement**. Strengthening **media freedom** today is key to upholding this foundational role in India's democracy.

## The Freedom Struggle — its various stages and important contributors/contributions from different parts of the country.

**Q. Explain the role of labour strikes and trade union activism in expanding the social base of India's nationalist movement. (10 M)**

### Introduction

The rise of labour strikes and trade union activism infused the nationalist movement with mass working-class participation, converting economic grievances into political consciousness.

### Body

#### Labour strikes as a tool for political mobilisation

1. **Colonial exploitation of industrial labour**: Harsh working conditions and low wages created resentment against colonial rule.
  - **Eg: The Bombay Mill Strike of 1918 led by B.P. Wadia** mobilised 1,25,000 workers against exploitative wages.
2. **Expansion of nationalist platforms**: Strikes brought new sections of industrial workers into mainstream national movements.
  - **Eg: The Ahmedabad Textile Labour Strike of 1918 under Mahatma Gandhi's leadership** linked workers' demands to nationalist goals.
3. **Strengthening mass movements**: Labour strikes added strength to civil disobedience campaigns by creating industrial unrest.
  - **Eg: The 1920 Non-Cooperation Movement saw coordinated labour protests in Calcutta and Bombay** amplifying political pressure.
4. **Fusion of class and national identity**: Economic struggles were framed as anti-colonial resistance, broadening the social base.
  - **Eg: The All India Trade Union Congress (AITUC) founded in 1920** combined labour rights with nationalist aspirations.
5. **Challenging imperial authority**: Strikes questioned the legitimacy of colonial economic control and governance.

- Eg: **The 1946 Royal Indian Navy Mutiny** involved around **20,000** naval ratings challenging British rule directly.

### **Trade unions as organised vehicles of nationalist resistance**

1. **Institutionalising labour voice:** Trade unions formalised worker representation within the nationalist discourse.
  - Eg: **The leadership of V.V. Giri in the 1930s and 1940s** strengthened trade union activism linked to freedom struggle.
2. **International linkages:** Trade unions connected Indian nationalism to global anti-imperial movements.
  - Eg: **Indian trade union delegations participated in the World Trade Union Conference (1945)** enhancing global solidarity.
3. **Broadening class alliances:** Trade union participation created alliances between industrial workers, peasantry, and urban middle class.
  - Eg: **The 1938 Bombay Industrial Disputes demonstrated cross-class solidarity** during nationalist agitations.
4. **Creating future political leadership:** Many nationalist leaders emerged from trade union activism, expanding organisational capacity.
  - Eg: **George Fernandes, though post-independence, represented continuation of labour politics rooted in pre-independence activism.**
5. **Pressure on colonial policy:** Growing labour activism forced colonial authorities to enact labour reforms under political pressure.
  - Eg: **The Government of India Act 1935 led to increased provincial powers over labour welfare** partly responding to organised activism.

### **Conclusion**

Labour strikes and trade union activism were not mere economic protests but evolved into powerful political instruments that democratized and strengthened India's freedom struggle.

**Q. The Battle of Plassey not only exposed internal fissures in Bengal's polity but also reshaped the trajectory of British expansion in India. Examine the key causes behind the battle and its larger consequences (10 M)**

### **Introduction**

The **Battle of Plassey (1757)** marked a watershed in Indian history, laying the foundation of British political control, aided by internal divisions in Bengal's polity.

### **Body**

#### **Key causes behind the battle**

1. **Factionalism in Bengal court:** Rivalries between Siraj-ud-Daulah and disgruntled nobles like Mir Jafar weakened internal unity.
  - Eg: **Mir Jafar's secret pact (1757)** with Robert Clive ensured British support
2. **Commercial conflicts:** The East India Company's misuse of trade privileges under Farman of **1717** caused tensions with the Nawab.

- Eg: **Company's refusal to pay customs duties** angered Siraj-ud-Daulah.
- 3. **British fortification without consent:** The Company fortified **Fort William in Calcutta** without Nawab's approval, escalating conflict.
  - Eg: Seizure of **Fort William (1756)** by Siraj-ud-Daulah led to British retaliation.
- 4. **Diplomatic intrigue:** British exploitation of court conspiracies deepened divisions.
  - Eg: **Clive's secret negotiations** with Mir Jafar and Omichund
- 5. **Weak military leadership of Nawab:** Poor coordination and betrayal led to an ineffective defence at Plassey.
  - Eg: **Mir Madan's death and defection of key forces** ensured British victory.

### Larger consequences

1. **Establishment of British political control:** Company secured revenue rights of Bengal through the Treaty of 1765.
  - Eg: **Diwani rights of Bengal, Bihar, Orissa granted in 1765** (Grant by Emperor Shah Alam II).
2. **Control over Indian commerce:** The British monopoly over Bengal's trade boosted imperial revenues.
  - Eg: Bengal's revenue of over **₹2 crore annually (1760s)** under Company rule (Bipan Chandra).
3. **Erosion of Indian sovereignty:** Indian rulers became subordinate allies of the Company.
  - Eg: Mir Jafar's puppet rule (**1757–1760**) symbolised loss of autonomy.
4. **Beginning of British territorial expansion:** Victory at Plassey paved way for later conquests like **Battle of Buxar (1764)**.
  - Eg: Defeat of Shuja-ud-Daula and Mughal Emperor in **Buxar** furthered British expansion.
5. **Deepening economic exploitation:** Drain of wealth began as Bengal's surplus funded British wars and trade.
  - Eg: **Dadabhai Naoroji's analysis** in Poverty and Un-British Rule in India (1901) highlights this trend.

### **Conclusion**

The **Battle of Plassey transformed British merchants into political masters**, triggering a chain of events that reshaped India's colonial trajectory and economy for decades to follow.

### **Post-independence consolidation and reorganization within the country.**

**Q. What role did mass movements and civil society play in resisting authoritarianism during the Emergency? How did they shape India's democratic resilience? (10 M)**

### **Introduction**

Even during institutional breakdown, India's democratic spirit found expression through mass resistance, civic solidarity, and defiant conscience.

### **Body**

#### Role in resisting authoritarianism

1. **Mobilising public opinion against state repression**: Civil society groups, students, and unions challenged Emergency excesses through coordinated protests.
  - **Eg: The JP Movement**, led by **Jayaprakash Narayan**, united students and workers across states against the suspension of **civil liberties**.
2. **Preserving constitutional ideals outside Parliament**: Civic organisations became guardians of **Articles 14, 19, and 21** during institutional silence.
  - **Eg: PUCL (People's Union for Civil Liberties)**, formed in 1976, documented **state atrocities** and **forced sterilisation drives** under **Sanjay Gandhi's programme**.
3. **Religious and cultural institutions offered refuge**: Faith-based and community groups protected political dissenters and facilitated underground networks.
  - **Eg: Gandhian ashrams** and **Jesuit centres** in **Bihar and Kerala** sheltered activists and distributed banned literature.
4. **Underground journalism challenged state narrative**: Covert publications exposed state censorship and preserved dissenting voices.
  - **Eg: The Indian Express** published a **blank editorial (June 28, 1975)** to protest press censorship; **Mainstream Weekly** circulated discreetly.
5. **Support from international human rights groups**: Indian civil society reached out globally to expose internal repression.
  - **Eg: Amnesty International's 1976 report** criticised mass detentions under **MISA**, drawing international attention to human rights abuses.

### **Role in shaping democratic resilience**

1. **Strengthening grassroots political awareness**: The repression catalysed popular interest in civil rights and electoral participation.
  - **Eg: The 1977 general elections** saw a surge in rural voter turnout, resulting in a historic defeat of the ruling Congress.
2. **Revival of constitutional accountability mechanisms**: Public outrage inspired legal and judicial reforms post-Emergency.
  - **Eg: In Maneka Gandhi v. Union of India (1978)**, the Supreme Court expanded **Article 21**, correcting the errors of **ADM Jabalpur (1976)**.
3. **Institutionalisation of civil society in governance**: Post-Emergency India saw greater civil society participation in oversight and service delivery.
  - **Eg: The Second ARC (2007)** advocated for **citizen charters** and **social audits** as tools to strengthen democratic governance.
4. **Emergence of alternative political narratives**: New political coalitions emerged promoting decentralisation and civil liberty.
  - **Eg: The Janata Party government (1977)** institutionalised anti-authoritarianism and restored **press freedom** and **legislative scrutiny**.
5. **Legacy of legal and media activism**: The Emergency laid the foundation for future judicial activism and watchdog journalism.
  - **Eg: Justice P.N. Bhagwati's PIL jurisprudence** and **Ramnath Goenka Awards** commemorated resistance against state overreach.

### **Conclusion**

The Emergency fortified India's democratic reflexes by proving that public will and civil action could confront authoritarianism. This legacy sustains the republic's moral core even today.

**Q. Examine the role of regional movements in shaping India's post-independence state boundaries. What lessons does this offer for managing contemporary regional demands? (10 M)**

### **Introduction**

India's linguistic and cultural diversity, though a strength, posed challenges to national integration post-independence. Regional movements played a pivotal role in the creation of responsive federal units.

### **Body**

#### **Role of regional movements in state reorganisation**

1. **Linguistic assertion as a catalyst**: Mass regional agitations forced the State to accommodate identity within federal boundaries.
  - Eg: **Andhra movement (1953)** led to the creation of **Andhra Pradesh**, influencing the **States Reorganisation Act, 1956**.
2. **Cultural and tribal distinctiveness**: Regions with unique tribal and ethnic identities mobilised for political recognition.
  - Eg: **Jharkhand movement** led by **Shibu Soren** culminated in statehood in **2000**.
3. **Economic marginalisation and resource control**: Regional disparities triggered demands for autonomy to protect local interests.
  - Eg: **Bodoland agitation** emerged from economic neglect and identity assertion within **Assam**.
4. **Constitutional evolution through political demands**: Regional movements influenced constitutional mechanisms for state creation under **Article 3**.
  - Eg: Creation of **Telangana in 2014** showed use of **Article 3** for bifurcation on administrative and emotional grounds.
5. **Institutional response and balancing integration**: Committees like the **Fazl Ali Commission (1955)** institutionalised the principle of linguistic and administrative viability.
  - Eg: **Fazl Ali Commission** recommended reorganisation on **linguistic and administrative efficiency** grounds.

#### **Lessons for contemporary regional demands**

1. **Need for inclusive dialogue**: Addressing regional aspirations through negotiation prevents violent escalation.
  - Eg: **Gorkhaland Territorial Administration (2011)** created after prolonged unrest in **Darjeeling**.
2. **Balancing identity with national integrity**: Recognising identities while ensuring national unity must be the guiding principle.
  - Eg: **Sixth Schedule provisions** in NE India protect tribal identity within Indian Union.
3. **Importance of federal responsiveness**: A flexible federal system reduces alienation and strengthens democratic legitimacy.

- Eg: **Inter-State Council revival (2017)** ensures federal dialogue on sensitive issues.
- 4. **Addressing developmental deficits**: Economic empowerment can defuse separatist sentiments rooted in regional deprivation.
  - Eg: **NITI Aayog's Aspirational Districts Programme** targets backward regions to reduce disparities.
- 5. **Using constitutional and legal frameworks**: Institutional channels like **Article 263, Finance Commission grants, and Zonal Councils** can address regional concerns.
  - Eg: **North Eastern Council (NEC)** supports coordinated regional development in the NE.

## Conclusion

India's journey of state formation reveals that **accommodation, dialogue and decentralised governance** remain key to managing rising regionalism in a democratic manner.

**History of the world will include events from 18th century such as industrial revolution, world wars, redrawing of national boundaries, colonization, decolonization, political philosophies like communism, capitalism, socialism etc.— their forms and effect on the society.**

**Q. Explain the key ideological foundations of the Cold War. Discuss how they shaped global alliances. Analyse their impact on the foreign policy of newly independent countries. (15 M)**

## Introduction

The Cold War was rooted in a deep ideological divide between **liberal capitalism** and **state socialism**, which influenced global politics, alliance formation, and postcolonial diplomacy from **1947 to 1991**.

## Body

### Ideological foundations of the Cold War

1. **Economic divergence**: The US promoted **free-market capitalism**, while USSR supported **centrally planned economies**.
  - Eg: **Marshall Plan (1948)** extended aid to capitalist democracies; **COMECON (1949)** supported socialist economies.
2. **Political system conflict**: Liberal democracy clashed with one-party communist rule.
  - Eg: **Eastern Europe's Soviet-backed regimes** replaced multi-party democracy with single-party control by the 1950s.
3. **Human rights vs state control**: The West emphasised **individual freedoms**; the East prioritised **collective state authority**.
  - Eg: **UN Declaration of Human Rights (1948)** vs **Stasi surveillance state in East Germany**.
4. **Strategic ideology export**: Each bloc aimed to **expand its model globally** through ideological influence.
  - Eg: **US Containment Doctrine (1947)** aimed to halt communism; USSR supported **revolutions in Cuba, Vietnam**.

5. **Cultural and media warfare**: Propaganda became a tool to influence minds and justify ideological superiority.
  - Eg: **Voice of America and Radio Free Europe** vs **Soviet cultural delegations and state media like Pravda**.

### **How they shaped global alliances**

1. **Creation of military blocs**: Ideological divisions led to formal military alliances.
  - Eg: **NATO (1949)** among capitalist democracies; **Warsaw Pact (1955)** among socialist states.
2. **Economic sphere alignment**: Economic assistance was used to bind allies ideologically.
  - Eg: **US economic aid under the Marshall Plan** strengthened Western Europe; USSR tied members via **COMECON**.
3. **Ideological loyalty tests**: Countries were often judged based on ideological alignment rather than domestic legitimacy.
  - Eg: **US support to Pinochet in Chile (1973)** despite authoritarianism, due to anti-communism.
4. **Intelligence and covert alliances**: Espionage alliances were formed to contain opposing ideology.
  - Eg: **CIA interventions** in Iran (1953) and Guatemala (1954); **KGB support** to global communist parties.
5. **UN and diplomatic division**: Voting patterns in international forums reflected ideological blocs.
  - Eg: **UN General Assembly divisions during Korean War (1950)** and **Suez Crisis (1956)**.

### **Impact on foreign policy of newly independent countries**

1. **Non-alignment as a strategic buffer**: Newly free nations avoided alignment to retain policy autonomy.
  - Eg: **NAM founding in 1961** by India, Egypt, and Yugoslavia aimed at neutrality.
2. **Selective bloc engagement**: Many countries pragmatically took support from both sides.
  - Eg: **India received Soviet military aid and US food assistance under PL-480**.
3. **Use of ideology for internal legitimacy**: Leaders borrowed Cold War ideologies to build national consensus.
  - Eg: **Nasser's Arab socialism** and **Tanzania's Ujamaa model** mirrored socialist rhetoric.
4. **Internal polarisation and conflict**: Superpower rivalry fuelled civil wars and coups in the Global South.
  - Eg: **Angola Civil War (1975–2002)** became a Cold War proxy involving US, USSR, and Cuba.
5. **Economic dependency and policy limitations**: External aid influenced internal development priorities.
  - Eg: **Ethiopia's Derg regime** implemented Soviet-style policies under USSR backing.

### **Conclusion**

The Cold War was not just a geopolitical contest but a **civilisational and ideological struggle**. Its legacy endures in global institutions, postcolonial alignments, and strategic doctrines still visible in the modern world order.

**Q. Kissinger's diplomacy in West Asia reflected a blend of realism and restraint. Critically examine this approach. Analyse its influence on Cold War power balancing. Evaluate its relevance in the 21st century multipolar world. (15 M)**

### **Introduction**

Kissinger's post-1973 diplomacy was a masterclass in pragmatic engagement—aiming to freeze conflicts, realign allies, and preserve American strategic dominance through limited, calculated peace rather than justice-driven solutions.

### **Body**

#### **Kissinger's approach: A blend of realism and restraint**

1. **Strategic interests over ideological alignment**: Kissinger aligned with regimes that secured U.S. regional leverage
  - Eg: Sinai II Agreement (1975) prioritised Israeli-Egyptian disengagement while ignoring the Palestinian right to self-determination, securing Egypt's pivot to the U.S.
2. **Stepwise disengagement**: Diplomacy was driven by achievable, incremental goals instead of idealistic endgames
  - Eg: Through shuttle diplomacy (1974–75), Kissinger brokered phased military pullbacks between Israel, Egypt, and Syria without proposing a long-term peace vision.
3. **Controlled escalation**: Kissinger restrained superpower involvement while allowing regional adjustments
  - Eg: During the 1973 Yom Kippur War, he delayed ceasefire implementation to let Israel regain ground while avoiding direct Soviet intervention.
4. **Oil geopolitics as a peace driver**: Diplomacy was shaped by energy security imperatives
  - Eg: Following the 1973 Arab oil embargo, Kissinger stabilised ties with Saudi Arabia and Iran to ensure reliable U.S. access to Gulf oil supplies.
5. **Exclusion of complex actors**: Simplified negotiations by avoiding non-state and multilateral participation
  - Eg: The PLO was deliberately excluded from early peace talks, postponing Palestinian representation until the Madrid Conference (1991).

#### **Influence on Cold War power balancing**

1. **Shift of Arab powers from Soviet to U.S. bloc**: Diplomacy realigned key players in favour of Washington
  - Eg: Anwar Sadat's Egypt, once aligned with the USSR, decisively moved towards the U.S. after Kissinger's mediation post-1973 war.
2. **Flexible bloc-building**: U.S. promoted regional alliances based on strategic compatibility over ideological affinity
  - Eg: The U.S. deepened ties with authoritarian allies like the Shah of Iran and the Saudi monarchy, ensuring a pro-Western buffer against Soviet influence.
3. **Counterweight to Soviet proxies**: Kissinger's diplomacy diplomatically isolated hardline Soviet-aligned regimes

- Eg: The 1974 Golan Heights disengagement agreement limited Syrian military options and curbed Soviet leverage in Damascus.
4. **Stabilising regional fronts for global gains**: Reduced volatility in West Asia helped the U.S. pursue détente and Asian realignments
    - Eg: West Asian stability enabled the U.S.-China rapprochement (1972) and SALT II talks, while freeing U.S. bandwidth from Middle Eastern entanglements.
  5. **Tactical arms diplomacy**: U.S. weapon flows built military dependencies that cemented Cold War loyalties
    - Eg: Post-1973, U.S. military aid to Israel tripled, turning Israel into a long-term strategic partner within the U.S. Cold War framework.

### **Relevance in the 21st century multipolar world**

1. **Return of power-based diplomacy**: Realism is again dominating international peace negotiations
  - Eg: The China-brokered Iran-Saudi agreement (2023) reflected Kissingerian pragmatism—focusing on strategic accommodation over ideological transformation.
2. **Strategic ambiguity in multipolarity**: Countries are increasingly adopting non-aligned, flexible approaches
  - Eg: India's neutral stance on the Russia-Ukraine war balances Western engagement with BRICS commitments, echoing Kissinger-style restraint.
3. **Challenges with non-state actors**: Traditional diplomacy fails in asymmetric, identity-based conflicts
  - Eg: In the 2023–24 Israel-Hamas conflict, state-to-state models were inadequate for resolving deeper political and cultural grievances.
4. **Short-term stability vs long-term legitimacy**: Realist deals often avoid structural injustice, leading to recurring crises
  - Eg: The Doha Agreement with the Taliban (2020) enabled U.S. withdrawal but triggered regime collapse and humanitarian disaster soon after.
5. **Lessons for Indian foreign policy**: Blending strategic realism with inclusive regional engagement is essential
  - Eg: India's balanced ties in West Asia via I2U2, INSTC, and Operation Dost (2023) reflect a hybrid approach combining power and compassion.

### **Conclusion**

Kissinger's strategy of calculated restraint remains instructive in a volatile world, but diplomacy today must look beyond containment and control—to create peace that is participatory, just, and resilient in a multipolar age.

## **Salient features of Indian Society, Diversity of India.**

**Q. Examine the societal and institutional factors responsible for the normalisation of gender-based violence in India. How can intersectional and gender-sensitive approaches help dismantle this normalisation? (15 M)**

### **Introduction**

The normalisation of gender-based violence (GBV) in India stems from an interplay of entrenched

patriarchy, societal silence, and institutional neglect that invisibilises everyday acts of abuse and discrimination.

## Body

### Societal factors driving normalisation of GBV

1. **Patriarchal family structure**: Hierarchical norms sustain male dominance and suppress women's agency.
  - Eg:– NFHS-5 (2021) shows that ~30% of women justify wife-beating under certain conditions.
2. **Cultural silence and honour norms**: Speaking out is seen as dishonouring the family or community.
  - Eg:– In the 2023 Ujjain rape case, locals avoided reporting the crime due to fear of community backlash.
3. **Misogynistic socialisation of boys**: Toxic masculinity is reinforced through media, peer groups, and homes.
  - Eg:– A UNICEF 2021 study found that 55% of adolescent boys in India considered women responsible for provoking violence.
4. **Stereotyping in popular culture**: Films and TV glorify stalking, victim-blaming, and romanticise aggression.
  - Eg:– Bollywood films like Kabir Singh (2019) were criticised for normalising toxic masculinity.
5. **Caste and class hierarchies**: Marginalised women face multiple layers of vulnerability and invisibilisation.
  - Eg:– The Hathras case (2020) highlighted how Dalit women are denied access to justice due to caste oppression.

### Institutional factors enabling the culture of silence

1. **Underreporting and poor police response**: Victims face stigma, disbelief, or hostility at police stations.
  - Eg:– As per NCRB 2022, only 10% of sexual assault survivors approached the police immediately after the incident.
2. **Gender bias within justice system**: Judicial delays, insensitive questioning, and lack of fast-track courts hamper redress.
  - Eg:– The Verma Committee (2013) condemned judicial insensitivity and urged reforms in survivor-friendly processes.
3. **Inadequate implementation of laws**: Acts like POSH (2013) remain under-implemented in institutions.
  - Eg:– As per a GOI 2022 report, over 70% of Indian universities lacked functional Internal Complaints Committees (ICCs).
4. **Neglect of gender budgeting**: GBV prevention is not adequately prioritised in public expenditure.
  - Eg:– In the Union Budget 2023–24, only ₹3,144 crore was allocated to the Ministry of Women and Child Development, less than 0.1% of total spending.

5. **Limited reach of protection officers:** Domestic violence protection infrastructure remains weak and underfunded.
  - Eg:– The NCW 2024 audit flagged that many districts had **no full-time Protection Officers**, violating the DV Act (2005) mandate.

### **Role of intersectional and gender-sensitive approaches**

1. **Recognition of layered vulnerabilities:** Intersectionality helps address specific experiences of women by caste, religion, disability, or sexuality.
  - Eg:– SEWA Bharat’s initiatives in Gujarat tailored legal and social support to **tribal and Muslim women workers**.
2. **Inclusive curriculum and sensitisation:** Education can challenge patriarchal norms from an early stage.
  - Eg:– The Gender Lab (Mumbai) works with schoolboys on **gender sensitivity and empathy training**.
3. **Community-based justice models:** Localised approaches can address GBV in rural and semi-urban contexts.
  - Eg:– As per MoWCD 2024, over **5 lakh survivors** accessed **Sakhi One Stop Centres**, with rural women forming a major beneficiary group.
4. **Gender-disaggregated data for policy:** Targeted policy action requires accurate and granular data.
  - Eg:– Niti Aayog’s SDG Index and Justice Verma Committee called for **sex-disaggregated crime data** collection and monitoring.
5. **Responsive urban planning and mobility design:** Infrastructure and safety protocols must reflect women's needs.
  - Eg:– Hyderabad’s SHE Teams and Delhi’s **pink buses** provide safer urban mobility options to women.

### **Conclusion**

Laws alone cannot undo centuries of cultural conditioning. Only by embedding **intersectionality and empathy** in governance, education, and institutions can India truly confront and reverse the normalisation of gender-based violence.

### **Role of women and women’s organization, population and associated issues, poverty and developmental issues, urbanization, their problems and their remedies.**

**Q. “Rivers and drains in Indian cities have become instruments of urban decay rather than renewal”. Examine the ecological and civic significance of urban water bodies and the reasons for their decline. Suggest sustainable approaches for their revival. (15 M)**

### **Introduction**

India’s urban water bodies, once symbols of ecological balance and civic life, now reflect infrastructural failure and environmental neglect. Their collapse underlines a deeper urban planning crisis in the face of unregulated growth.

### **Body**

## Ecological and civic significance of urban water bodies

1. **Flood buffering capacity**: Urban lakes and wetlands absorb monsoonal runoff and reduce flooding risks.
  - **Eg: Pallikaranai marsh, Chennai** helped buffer 2015 floods before encroachments disrupted its retention capacity.
2. **Groundwater recharge**: They facilitate percolation and maintain aquifer levels in water-stressed cities.
  - **Eg: Sasthamkotta Lake, Kerala** supports **Kollam district's** drinking water through natural recharge.
3. **Urban biodiversity hotspots**: Sustain flora and fauna critical to urban ecosystems.
  - **Eg: Ranganathittu Bird Sanctuary** near **Mysuru** supports diverse **migratory birds** through connected riverine flows.
4. **Public health and filtration function**: They act as natural filters, reducing pollutant concentration and disease risk.
  - **Eg: Restoring Yamuna floodplains in Delhi** could reduce **vector-borne diseases** like **dengue** (12,000+ cases in 2025).
5. **Civic and cultural utility**: Serve as community spaces for tourism, heritage, and recreation.
  - **Eg: Dal Lake, Srinagar** is central to **Kashmiri cultural identity** and **houseboat-based tourism economy**.

## Reasons for their decline

1. **Real estate encroachments**: Urban expansion leads to filling of lakes and wetlands.
  - **Eg: Bengaluru** lost **90% of its 800 lakes** to real estate (Source: **IISc 2025**).
2. **Untreated sewage discharge**: Pollution from residential and industrial sources deteriorates water quality.
  - **Eg: Vrishabhavathi river in Bengaluru** carries **80% untreated sewage** daily (**BWSSB, 2025**).
3. **Narrowing of river channels**: Slum encroachments and infrastructure squeeze natural flow paths.
  - **Eg: Mithi river in Mumbai** shrank from **120 ft to 60 ft**, worsening 2025 monsoon floods.
4. **Administrative apathy and corruption**: Misallocation of desilting funds and lack of regular maintenance.
  - **Eg: Rs 1,200 crore desilting scam (Mumbai, 2024)** left **55% of drains clogged** (**CAG 2025**).
5. **Stormwater-sewage network failure**: Combined pipelines overload during rains, causing urban flooding.
  - **Eg: Delhi's May 2025 floods** affected **170 areas** due to failure of its outdated **dual-use drain network**.

## Sustainable approaches for revival

1. **Community-led restoration**: Involving local citizens ensures accountability and cultural alignment.
  - **Eg: Kaikondrahalli Lake, Bengaluru** was revived through **citizen-led efforts** involving fencing, cleaning, and water monitoring.

2. **Integrated urban water management**: Combines reuse, recharge, and runoff planning across sectors.
  - **Eg: Pune's Smart City Mission (2024)** introduced **greywater recycling** and aquifer recharge in slums.
3. **Legal protection and zoning enforcement**: Stronger compliance with Wetlands Rules, 2017.
  - **Eg: Umngot river in Meghalaya** remains pollution-free due to **community bans on dumping and mining**.
4. **Ecologically sensitive riverfront design**: Focus on restoration over concretisation in urban projects.
  - **Eg: Sabarmati Riverfront Phase II (2025)** includes **silt traps and green buffer zones** under NMCG guidelines.
5. **Tech-enabled monitoring and mapping**: Use of geospatial tools to track encroachments and plan recovery.
  - **Eg: Bhopal Municipal Corporation** used **ISRO's BHUVAN satellite data** to reclaim and fence **8 urban lakes**.

### Conclusion

India's rivers and urban water bodies are not mere drains but urban lifelines. Reclaiming them through law, science, and local stewardship is not just ecological necessity—it is a moral imperative for urban survival.

**Q. Discuss the projected demographic trends of senior citizens in India up to 2047. What are the implications of these trends on social infrastructure? Suggest how the upcoming National Policy can respond to these projections. (15 M)**

### Introduction

India is entering an era of demographic ageing where the elderly will account for nearly one-fifth of the population by 2047, demanding a paradigm shift in welfare planning and infrastructure design.

### Body

#### **Demographic trends of senior citizens up to 2047**

1. **Rising elderly share**: Senior citizens will constitute around **20% of India's population by 2047**.
  - **Eg: As per MoSJ&E 2025 draft policy discussion**, the elderly population will rise from 8.6% (2011 Census) to **12.16% by 2026**, and further to **~20% by 2047**.
2. **Feminisation of ageing**: A higher number of elderly women, especially widows, will emerge due to longer life expectancy.
  - **Eg: NSO Elderly in India 2021** shows women outlive men by an average of **2.5 years**, widening the gender gap among the aged.
3. **Urbanisation of elderly**: Migration trends are leading to growing numbers of **urban elderly living alone**.
  - **Eg: Census 2011** showed over **15 million elderly were living alone**, and the number has increased with rural-urban youth migration.
4. **Growing dependency ratio**: India's **old-age dependency ratio** will increase significantly, straining working-age support systems.
  - **Eg: As per UN World Population Prospects 2022**, India's dependency ratio will rise from **17% (2020)** to over **35% (2050)**.

5. **Changing household structure**: Joint families are disintegrating into nuclear units, increasing institutional and state dependency.
  - **Eg: LASI 2020 (Longitudinal Ageing Study in India)** noted a rise in elderly without familial support, especially in urban states like **Maharashtra** and **Delhi**.

### **Implications on social infrastructure**

1. **Healthcare and geriatric care**: Surge in non-communicable diseases will require robust geriatric health systems.
  - **Eg: National Health Profile 2023** showed over **52% of elderly suffer from hypertension, arthritis, or diabetes**.
2. **Old age homes and assisted living**: Rising demand for state-regulated and affordable elder-care homes.
  - **Eg: Under IPSrC**, only **708 NGOs** operate elder homes, grossly inadequate for the projected demand (MoSJ&E, 2025).
3. **Transport and mobility infrastructure**: Age-inclusive urban planning with barrier-free access will be essential.
  - **Eg: Smart Cities Mission guidelines (2021)** encourage “**elderly-friendly public infrastructure**”, but implementation remains uneven.
4. **Social security and pensions**: Pensions need universalisation and inflation-adjustment.
  - **Eg: Indira Gandhi National Old Age Pension Scheme** covers only those under BPL; universalisation recommended by **V.M. Rao Committee (2020)**.
5. **Housing and community spaces**: Safe, affordable housing with proximity to healthcare and social hubs will be crucial.
  - **Eg: Delhi's ‘Savera Grih’ model** provides free housing, meals, and healthcare to destitute elderly, supported by **CSR** and government aid.

### **Policy responses in the upcoming National Policy**

1. **Data-driven planning**: Use population projections and ageing indices for decentralised planning.
  - **Eg: National Policy 2025 draft** incorporates **NITI Aayog's Elderly Vulnerability Index** for state-level policy customisation.
2. **Integration of digital inclusion**: Enhance digital literacy and access for the elderly in e-governance, health, and banking.
  - **Eg: Senior Citizen Portal** aims to provide services and grievance redress; MoSJ&E 2025 suggests wider roll-out with trained volunteers.
3. **Mandatory standards for elder care homes**: Enforce uniform norms for infrastructure, quality, and accountability.
  - **Eg: Maintenance and Welfare of Parents and Senior Citizens Rules (2009)** lack binding provisions for private elder care institutions.
4. **Community and intergenerational initiatives**: Promote shared spaces, intergenerational bonding, and active ageing.
  - **Eg: ‘Adopt a Gran’ initiative** by NGOs in Kerala facilitates student–senior bonding to reduce loneliness and isolation.
5. **Institutional role of CSOs and local bodies**: Formalise NGO partnerships and delegate implementation to panchayats/ULBs.

- **Eg:** Draft policy proposes inclusion of **NGOs and senior citizen associations in policymaking and feedback loops** (MoSJ&E, June 2025 meeting).

## Conclusion

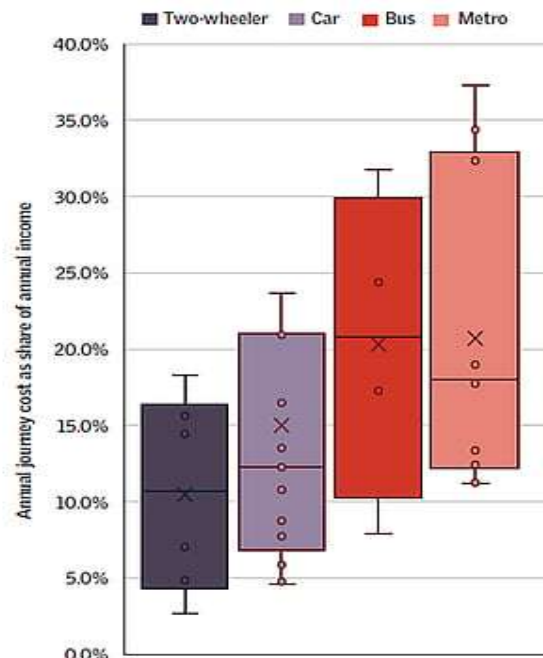
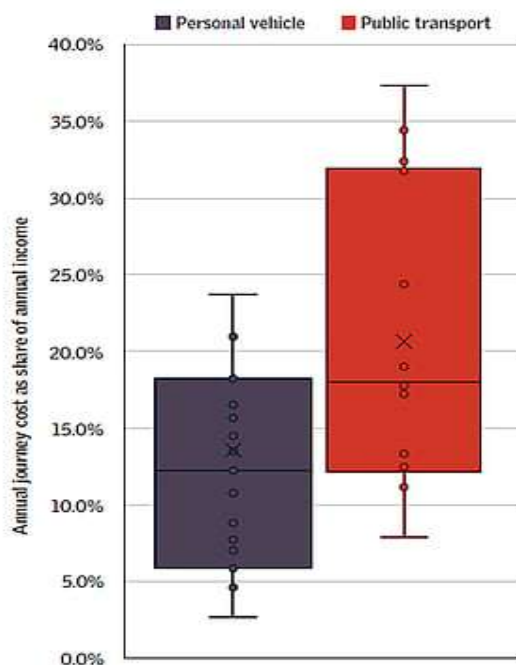
India's future as a humane and inclusive society will be judged by how it treats its elderly. The upcoming national policy must shift from a welfare lens to a **rights-based, decentralised and dignity-focused framework** rooted in demographic realism.

**Q. "Public transport in Indian cities suffers not from lack of awareness but from lack of reliability". Examine the validity of this statement and propose corrective strategies. (10 M)**

## Introduction:

Despite growing awareness of its environmental and economic value, public transport in Indian cities fails to attract users due to inconsistent service, lack of integration, and poor commuter experience.

## Body



## Public transport suffers from lack of reliability

1. **Infrequent and unpredictable services:** Irregular frequency makes public transport unviable for time-bound commuters.
  - **Eg:** 50% of Delhi bus stops have average waiting times exceeding 10 minutes .
2. **Declining service efficiency and fleet inadequacy:** Limited fleet expansion leads to overcrowding and reduced access.
  - **Eg:** Bus fleet of 19 STUs grew by just 4.6%, while ridership dropped 5.8% between 2014–2019
3. **Lack of integrated planning and interchange connectivity:** Fragmented corridors increase travel time and reduce ridership.

- **Eg: 15 of 16 metro cities** in India have only **corridor-based** systems, limiting coverage (IIT Delhi, 2023).
- 4. **Longer total journey time**: Poor interchange planning and congestion lead to time delays in multimodal transport.
  - **Eg: Peak-hour speed in Delhi** drops by **56% in evenings**, delaying buses and commuters
- 5. **Low user comfort and security**: Overcrowding and poor infrastructure create a deterrent, especially for women.
  - **Eg: Delhi Transport Corporation** reported a **40% drop** in female ridership between 2016–2022 (DTC internal study).

### **Corrective strategies to improve reliability**

1. **Set and monitor service-level benchmarks**: Regular frequency, reduced waiting time, and uptime targets must be enforced.
  - **Eg: MoHUA's Service Level Benchmarks (2017)** must be revised to include frequency, uptime and occupancy targets.
2. **Expand last-mile connectivity infrastructure**: Walkability, cycling lanes and formal feeder modes should be funded.
  - **Eg: Bangalore's metro** now includes **e-auto integration** and walking paths to boost access (BMTC, 2024).
3. **Strengthen multimodal and network planning**: Transit plans must ensure seamless integration of modes and schedules.
  - **Eg: Surat's Unified Mobility Plan** links buses, BRTS and feeder autos via a common mobility card (UMTA Surat, 2023).
4. **Link public transport funding to reliability indicators**: Incentivise state transport undertakings to improve commuter metrics.
  - **Eg: 15th Finance Commission** proposed conditional urban grants tied to **mobility performance** metrics.
5. **Promote data-driven service design**: Use real-time commuter feedback, GPS and AI to optimise routes and frequency.
  - **Eg: Ahmedabad BRTS** deploys **real-time passenger data** to reduce bus bunching and optimise schedules.

### **Conclusion:**

The challenge is not commuter apathy but system inefficiency. **Only a reliable, accessible and efficient transport system can win back urban commuters and drive a sustainable modal shift.**

**Q. "The commodification of marriage is no longer confined to dowry; it now extends to deception and digital manipulation". Examine how technology and changing societal norms are shaping marriage-related frauds. Discuss its implications for family structures. (10 M)**

### **Introduction**

The digital era has transformed traditional matchmaking into an unregulated market of trust and vulnerability, where fraud often masquerades as courtship.

### **Body**

## How technology and social change are enabling marriage-related frauds

1. **Rise of unregulated digital matchmaking platforms**: Online matrimonial and dating apps offer anonymity and scale without background verification.
  - **Eg**: The **Reshma marriage fraud case (Aryanad, 2025)** involved the use of **online matrimonial sites** to deceive over **10 men** across Kerala.
2. **Erosion of traditional social vetting mechanisms**: Community elders and kinship checks are bypassed in modern nuclear and urban setups.
  - **Eg**: In **urban Tier-1 cities**, most marriages through online platforms now occur **without family vetting**, increasing fraud vulnerability (Pew Internet India Survey, 2023).
3. **Manipulation of emotional narratives**: Technology enables identity manipulation and fake emotional backstories to gain trust.
  - **Eg**: Reshma posed as an **abused adopted child** to gain sympathy and manipulate victims into quick marriages.
4. **Weak legal and cyber tracking frameworks**: IPC sections on marriage fraud (Sections 415-420) are rarely invoked due to lack of digital-specific clauses.
  - **Eg**: The **Law Commission (Report No. 266)** noted the **absence of targeted digital marriage fraud provisions** in Indian criminal law.
5. **Changing societal norms around marriage fluidity**: Decline of stigma around multiple marriages has made concealment easier.

## Implications for family structures

1. **Breakdown of trust in marital institutions**: Repeated deception erodes social confidence in marriage as a sacred bond.
  - **Eg**: Marriage scams lead to **reluctance among urban singles to trust online matches**, as noted in **Mumbai Police cybercrime reports (2024)**.
2. **Psychological trauma and emotional insecurity**: Victims face long-term mental health issues, impacting social reintegration.
  - **Eg**: Victims of marriage fraud often undergo **depression, withdrawal, and suicidal tendencies (NIMHANS 2022 report on online abuse)**.
3. **Impact on children and dependents**: Multiple marriages may result in unacknowledged children, leading to identity, custody, and inheritance issues.
4. **Gender narrative complications**: Female-perpetrated frauds challenge one-sided narratives of victimhood and demand gender-neutral discourse.
  - **Eg**: The case highlights the **need to reframe laws like Section 498A IPC** to also address male victimisation.
5. **Legal complexity for families**: Multi-jurisdictional frauds complicate criminal tracking, dowry laws, and matrimonial redress.
  - **Eg**: Victims across **Thiruvananthapuram, Ernakulam, and Kottayam** are pursuing separate cases, causing judicial strain.

## **Conclusion**

Marriage frauds in the digital age are not mere crimes of deception—they are crises of trust, culture, and law. India needs a layered legal-social-tech framework to preserve the dignity of the institution.

**Q. Urban transport in India is both a lifeline and a liability. In this context explain how poor transit infrastructure threatens urban mobility. Assess the implications for the working population. (10 M)**

**Introduction:**

Urban transport in India is indispensable for economic survival, yet its weak infrastructure exposes citizens—especially the working class—to risk, delay, and despair.

**Body**

**How poor transit infrastructure threatens urban mobility**

1. **Overcrowding and safety hazards:** Inadequate transit capacity causes overcrowding and fatal accidents.
  - **Eg:** In **June 2025**, 6 passengers died after falling from an overcrowded suburban train in **Thane**, Maharashtra.
2. **Inadequate last-mile connectivity:** Lack of seamless access from home to transit points reduces effectiveness.
  - **Eg:** A **NITI Aayog 2021 report** stated that only **18% of Indian cities** have planned last-mile integration.
3. **Aging infrastructure and poor maintenance:** Deteriorated buses, rails, and stations compromise safe mobility.
  - **Eg:** The **CAG Report (2023)** found that **40% of buses** in major cities are older than 8 years, violating safety norms.
4. **Insufficient multimodal integration:** Lack of coordination between buses, metros, and autos leads to commuter stress.
  - **Eg:** According to **MoHUA's Ease of Living Index 2022**, only **3 cities** achieved high multimodal transport scores.
5. **Neglect of pedestrian infrastructure:** Unsafe or non-existent walkways hinder access to transit for all.
  - **Eg:** A **2024 IIHS study** in Bengaluru showed that **42% of footpaths** are obstructed or unfit for walking.

**Implications for the working population**

1. **Loss of income and productivity:** Frequent delays reduce work hours and lead to wage losses.
  - **Eg:** **ASICS 2023** found that Indian cities lose over **Rs 14,000 crore** annually due to urban traffic delays.
2. **Gender-specific safety concerns:** Unsafe and overcrowded transport deters women's participation in the workforce.
  - **Eg:** **NCRB 2022** recorded **1,300+ harassment cases** in urban transport hubs across India's top 8 cities.
3. **Health and mental stress burden:** Long commutes in harsh conditions worsen physical and mental health.
  - **Eg:** A **2023 AIIMS-ICMR study** linked poor commuting with rising **hypertension and anxiety** among low-income workers.

4. **Forced spatial exclusion:** Poor transport pushes low-income workers to distant and underserved peripheries.
  - **Eg:** The **UDPFI Guidelines** note that poor mobility leads to **urban sprawl and transit inequality**.
5. **Reduced labour force participation:** Unsafe and unreliable mobility discourages workers, especially women and the elderly.
  - **Eg:** **PLFS 2022-23** data showed **urban female LFPR** at just **20.6%**, partly due to transport-related deterrents.

### **Conclusion:**

Urban mobility must evolve from being merely functional to being **safe, inclusive, and dignified**. Cities that fail to move their people safely will eventually halt their own growth.

## **Q. Discuss the causes and consequences of India's declining fertility rate. How should social and economic policy adapt to this transition? (15 M)**

### **Introduction**

India's **TFR has declined to 1.9 in 2025** (UNFPA), falling below replacement level for the first time. This reflects deep structural shifts in society and economy that call for policy recalibration.

### **Body**

#### **Causes of declining fertility**

1. **Expansion of female education and autonomy:** Greater access to education has empowered women to delay marriage and childbirth.
  - **Eg:** **NFHS-5 (2021)** reported women with higher education had **TFR as low as 1.7**, compared to 2.8 for those with no education.
2. **Access to contraception and reproductive healthcare:** Family planning services have enabled voluntary fertility control.
  - **Eg:** Contraceptive prevalence rate stood at **67% nationwide** with sharp rises in urban areas (NFHS-5).
3. **Urbanisation and lifestyle changes:** Nuclear families, job mobility, and urban cost pressures have led to preference for fewer children.
  - **Eg:** **NSS 75th Round** shows over **70% of urban families** live in nuclear households with limited space.
4. **Economic insecurity and delayed family planning:** Young couples delay childbirth due to employment instability and rising living costs.
  - **Eg:** **PLFS 2023** showed youth unemployment rate at **15.3%**, discouraging early parenthood.

#### **Consequences of declining fertility**

1. **Rapid ageing and dependency burden:** A shrinking base of young workers will need to support a growing elderly population.
  - **Eg:** **UNFPA 2025** estimates **65+ population will double by 2050**, raising dependency ratio from 15% to 28%.

2. **Falling demographic dividend window**: Fewer youth may lower India's growth potential if productivity isn't enhanced.
  - **Eg: NITI Aayog 2023** warned of **workforce decline post-2041**, particularly in southern states.
3. **Intergenerational care imbalance**: Fewer children means weaker family-based care for the elderly, especially in urban settings.
  - **Eg: LASI 2020** found only **47% of elderly** receive routine care from their children.
4. **Regional disparities in population dynamics**: Northern states have higher fertility while southern states face rapid ageing.
  - **Eg: SRS 2021** reports **Bihar TFR at 2.8 vs Kerala at 1.7**, posing asymmetric planning challenges.

### **Social policy adaptation**

1. **Ensure reproductive agency and awareness**: Guarantee access to contraception, sex education, and informed family planning.
2. **Expand geriatric and elder care services**: Build community-based, home-care, and palliative care infrastructure.
  - **Eg: National Policy for Senior Citizens (2011)** recommends integrated elder care centres across districts.
3. **Support child-rearing through social incentives**: Provide tax breaks, crèches, and parental leave to reduce the cost of raising children.
  - **Eg: Maternity Benefit (Amendment) Act, 2017** mandates **26 weeks paid leave**, aiding work-family balance.
4. **Strengthen demographic data systems**: Accelerate Census and health surveys for better social planning.
  - **Eg: Census 2021**, delayed due to COVID-19, is now rescheduled for **March 2027** (MHA 2025).

### **Economic policy adaptation**

1. **Invest in workforce skilling and productivity**: Upskill youth in digital, green, and care economy sectors to offset labour decline.
  - **Eg: PM Kaushal Vikas Yojana 4.0 (2024)** aims to skill **1 crore youth** in three years.
2. **Widen social security coverage**: Strengthen pension, insurance, and healthcare coverage for the growing elderly population.
  - **Eg: Atal Pension Yojana** crossed **5.25 crore subscribers** by 2024 (PFRDA), yet remains limited among informal workers.
3. **Boost female and migrant labour force participation**: Tapping underutilised human capital can compensate for shrinking youth base.
  - **Eg: NITI Aayog's Women@Work Strategy (2023)** targets **45% female LFPR** by 2030.
4. **Revise intergovernmental fiscal formulae**: Reflect regional demographic divergence in resource allocation and governance support.
  - **Eg: 15th Finance Commission** warned against solely using **2011 population** as base post-2026 devolution.

## Conclusion

India's declining fertility offers both **warnings and opportunities**. Proactive, inclusive, and region-sensitive social and economic planning today will decide whether the country ages with dignity or disarray.

## Q. Enumerate the socio-economic causes of child labour in India. Elaborate how structural reforms can break this cycle. (10 M)

### Introduction

Child labour persists in India as an outcome of entrenched socio-economic vulnerabilities where poverty, inequality, and institutional failures converge to trap children in exploitative labour cycles.

### Body

#### Socio-economic causes of child labour in India

1. **Chronic poverty and income insecurity**: Families push children into work to supplement household income.
  - Eg: As per **NSSO 2023 report**, over **20% rural households** rely on children's income for survival.
2. **Lack of universal quality education**: Poor accessibility and quality of education lead to school dropouts.
  - Eg: **ASER Report 2023** highlighted gaps in foundational literacy, especially in rural India.
3. **Debt bondage and informal lending**: Parents pledge children's labour to repay informal debts.
  - Eg: In **Velpur (Telangana) 2001**, child labour was linked to informal loans, as acknowledged by the **Parliamentary Standing Committee (2022)**.
4. **Weak enforcement of labour laws**: Limited monitoring allows employers to exploit children.
  - Eg: **ILO Global Estimates 2023** stated that India accounts for significant informal child labour, particularly in agriculture and home-based industries.
5. **Cultural normalization of child work**: In certain sectors, child labour is socially accepted as part of vocational training or family tradition.
  - Eg: **Beedi and carpet industry clusters in Uttar Pradesh and Tamil Nadu** continue to engage child labour despite legal bans (Ministry of Labour 2024).

#### Structural reforms to break the child labour cycle

1. **Strengthening legal enforcement and monitoring**: Proactive implementation of the **Child Labour (Prohibition and Regulation) Amendment Act 2016**.
  - Eg: **Labour Ministry's Child Labour Tracking Portal (2024)** enables real-time reporting and rescue operations.
2. **Universal access to quality education**: Strengthening **Right to Education (Article 21A)** with improved infrastructure, teacher training, and learning outcomes.
  - Eg: **PM SHRI Schools (2023)** aim to upgrade 14,500 schools with quality education standards.
3. **Targeted poverty alleviation schemes**: Direct income support to vulnerable families to prevent child work dependence.

- Eg: **PM Garib Kalyan Anna Yojana (2023)** provided free foodgrain to 80 crore beneficiaries during post-pandemic recovery.
- 4. **Financial inclusion and credit reforms**: Expanding formal credit access to prevent debt bondage situations.
  - Eg: **MUDRA Yojana (2024)** disbursed loans worth over **₹25 lakh crore** to micro and small enterprises.
- 5. **Community-driven social accountability models**: Replicating success stories like the **Velpur Model** where community participation eliminated child labour sustainably.
  - Eg: Recognized by **V.V. Giri National Labour Institute (2021)** and appreciated by **ILO** as a replicable model.

## Conclusion

Ending child labour requires sustained structural reforms that integrate poverty alleviation, education access, legal enforcement, and empowered community participation to break the intergenerational cycle of exploitation.

**Q. Discuss how emerging smart city models can reduce transit demands through better urban design. Analyse why Indian smart cities have struggled to achieve this integration. (10 M)**

## Introduction

Urban design directly influences commuting patterns by optimising spatial layouts, reducing the need for long-distance travel, and promoting compact, efficient cities.

## Body

### **Smart city models can reduce transit demand through better urban design**

1. **Mixed land use planning**: Integrates residential, commercial, and institutional spaces to minimize travel needs.
  - Eg: **Pune Smart City** promotes **mixed-use development** zones under its Smart City Proposal, reducing work-home distances (MoHUA, 2024).
2. **Transit-oriented development (TOD)**: Focuses high-density development around transit hubs.
  - Eg: **Delhi TOD Policy (2022)** encourages high-density housing near metro stations to reduce vehicle dependency (Delhi Development Authority).
3. **Walkability and non-motorised transport**: Prioritise pedestrian and cycling infrastructure.
  - Eg: **Chennai's Non-Motorised Transport Policy (2023)** enhanced **pedestrian pathways and cycle tracks**, improving last-mile connectivity (ITDP India).
4. **Decentralised service delivery**: Distributes essential services closer to residential clusters.
  - Eg: **Surat Smart City** deployed **area-based development** with localised health and education services (Surat Municipal Corporation Report 2024).
5. **Integrated digital platforms**: Uses data to optimise traffic flow and urban mobility.
  - Eg: **Bhubaneswar Smart City** implemented **integrated command and control centres** for real-time traffic management (MoHUA, 2024).

### **Indian smart cities have struggled to achieve this integration**

1. **Legacy urban structures**: Pre-existing unplanned urban sprawl limits redesign opportunities.

- Eg: **Mumbai's dense informal settlements** restrict urban redesign efforts (NITI Aayog, Urban Transformation Report 2024).
- 2. **Fragmented institutional coordination: Lack of synergy between multiple planning bodies.**
  - Eg: **Bhopal Smart City** faced coordination issues between Bhopal Municipal Corporation and Smart City SPV (CAG Performance Audit 2023).
- 3. **Funding constraints: Inadequate private sector participation and limited municipal financial autonomy.**
  - Eg: As per MoHUA (2024), only **35% of Smart City funding** has come from convergence and PPP sources.
- 4. **Limited citizen participation: Top-down planning ignores local commuting needs.**
  - Eg: **Ahmedabad's Riverfront Project** faced criticism for poor integration of informal sector mobility needs .
- 5. **Slow technology integration: Digital platforms underutilised due to weak capacity building.**
  - Eg: **Agra Smart City** struggled to fully operationalise its integrated traffic management system (MoHUA Progress Report 2024).

### Conclusion

Smart cities hold transformative potential if India shifts from isolated infrastructure projects to integrated urban ecosystems that synchronise spatial planning, technology, and governance.

**Q. Assess the gender dimensions of India's declining sex ratio at birth. Analyse how son-preference persists despite welfare schemes targeting girl children. Suggest multi-sectoral interventions to address this demographic concern. (15 M)**

### Introduction

Declining sex ratio at birth reflects deep-rooted gender bias, where socio-cultural norms continue to undervalue the girl child despite state interventions.

### Body

#### **Gender dimensions of India's declining sex ratio at birth**

1. **Patriarchal social structure:** Cultural norms equate sons with lineage continuity, property inheritance, and religious duties.
  - Eg: **National Family Health Survey-5 (2021)** shows persistent son preference in states like **Punjab and Haryana**.
2. **Economic dependence and dowry system:** Girls are seen as financial burdens due to dowry practices and limited inheritance rights.
  - Eg: **India Human Development Survey 2022 (NCAER)** found that dowry expectations remain high even among middle-income groups.
3. **Weak enforcement of legal safeguards:** Poor implementation of **PCPNDT Act, 1994** allows illegal sex determination.
  - Eg: In 2024, **Delhi High Court** flagged rising instances of unregistered ultrasound clinics evading monitoring.
4. **Technological misuse in prenatal diagnosis:** Advanced diagnostic tools enable selective abortions despite legal restrictions.

- Eg: **Ministry of Health report (2023)** indicated increased misuse of portable sonography machines in rural areas.
- 5. **Societal undervaluation of female labour:** The economic contributions of women in unpaid care work are not formally recognized.
  - Eg: **ILO 2023 Report** highlighted that Indian woman spend **299 minutes/day** on unpaid domestic work compared to **97 minutes/day** by men.

### **How son-preference persists despite welfare schemes**

1. **Inadequate behavioural change campaigns:** Schemes fail to address deep-rooted socio-cultural mindsets.
  - Eg: Despite **Beti Bachao Beti Padhao (BBBP)** since 2015, **CAG Report 2023** noted that only **25% of funds** were spent on actual awareness generation.
2. **Limited economic incentives:** The financial assistance provided under schemes like **Sukanya Samridhi Yojana (SSY)** remains insufficient to counter dowry pressures.
  - Eg: Average account balance under **SSY (2023)** remains modest at **INR 50,000-70,000**.
3. **Poor last-mile delivery:** Corruption and inefficiency dilute scheme benefits, particularly in rural and backward districts.
  - Eg: **NITI Aayog evaluation (2024)** found delays in disbursement under **Ladli Laxmi Yojana** in Madhya Pradesh.
4. **Insufficient male engagement:** Most programs target women without involving men who hold decision-making power in families.
  - Eg: **UNICEF 2023 study** stressed need for involving fathers in gender sensitization to influence reproductive choices.
5. **Fragmented inter-departmental coordination:** Lack of synergy between health, education, and welfare departments weakens the overall impact.
  - Eg: **Economic Survey 2024** identified weak convergence as a major constraint in gender-focused programs.

### **Multi-sectoral interventions to address the demographic concern**

1. **Strengthening legal enforcement:** Enhance surveillance, digital monitoring, and accountability for violations of **PCPNDT Act, 1994**.
  - Eg: **Maharashtra's online tracking of sonography machines (SEITO system)** has shown better compliance (**Maharashtra Health Dept, 2024**).
2. **Property and inheritance reforms:** Ensure implementation of **Hindu Succession (Amendment) Act 2005** to guarantee equal inheritance rights.
  - Eg: **Supreme Court judgment (2020)** reaffirmed equal rights for daughters in ancestral property.
3. **Education and skill development for girls:** Expand vocational training and STEM education for girls to enhance economic independence.
  - Eg: **Skill India Mission (2023-24)** has seen increasing female participation in IT and health sectors (**Ministry of Skill Development**).
4. **Culturally sensitive behaviour change programs:** Local leaders, religious heads, and media should drive grassroots gender sensitization.

- Eg: **Kanyaka project in Odisha (2023)** successfully involved community leaders to promote birth of girl children.
5. **Inclusive male sensitization**: Design programs to involve men and boys in challenging gender stereotypes.
- Eg: **HeForShe movement by UN Women**, adapted by some Indian universities like **Delhi University (2024)** for campus sensitization programs.

### Conclusion

India's battle against gender-biased sex selection demands not just schemes but a transformation of social norms, legal rigor, and inclusive development to restore gender balance for future generations.

**Q. Patriarchy victimises both genders by restricting emotional expression, but men's mental health remains invisible. Examine how patriarchal values affect men's emotional wellbeing. Analyse how male silence reinforces patriarchal cycles. Discuss the need for collective responsibility in changing these norms. (15 M)**

### Introduction

Patriarchy conditions men into emotional suppression, leading to rising mental health challenges, as highlighted during **Men's Mental Health Awareness Month 2025** amidst growing global concern on male suicides and untreated disorders.

### Body

#### **How patriarchal values affect men's emotional wellbeing**

1. **Toxic masculinity norms**: Social conditioning equates masculinity with emotional suppression and stoicism.
  - Eg: **WHO 2024** reports suicide rates among men aged **20-24** are **3.7 times higher** than women.
2. **Fear of stigma**: Seeking help is perceived as weakness, limiting access to mental health support.
  - Eg: **Men's Mental Health Awareness Month 2025** data shows men are **50% less likely** to seek mental health care.
3. **Gendered grief processing**: Social expectations force men to suppress grief and loss emotions.
4. **Lack of safe emotional spaces**: Absence of culturally acceptable forums for men to share emotions.
  - Eg: **The Lancet 2023** highlights absence of peer-based male support groups in South Asia.
5. **Pressure of breadwinner role**: Patriarchal role expectations increase stress, anxiety, and burnout.
  - Eg: **ILO 2023** links employment-related stress to rising depression rates among working-age men.

#### **How male silence reinforces patriarchal cycles**

1. **Normalisation of emotional suppression**: Male silence validates the stereotype of men being unemotional.
  - Eg: **UNFPA 2024** identifies early childhood socialisation as critical in reinforcing male emotional repression.
2. **Intergenerational transmission**: Sons observe fathers' emotional restraint, perpetuating the cycle.

- Eg: **NCERT Socialization Study 2023** documents boys adopting father's non-expressive behaviour.
- 3. **Undermines help-seeking culture:** Silence reduces awareness, investment, and policy focus on men's mental health.
  - Eg: **National Mental Health Survey 2024** reports low male enrollment in public mental health programs.
- 4. **Reinforcement of hyper-competitive identity:** Men equate vulnerability with personal and professional failure.
  - Eg: **ILO 2024** survey notes job loss stigma higher among men due to fear of being seen as weak providers.
- 5. **Limits empathy from others:** Society dismisses male emotional issues as personal failings, not systemic.
  - Eg: **Harvard Gender Studies 2023** shows women's distress gets more empathetic attention in healthcare.

### **Need for collective responsibility in changing these norms**

1. **Inclusive gender discourse:** Recognise that patriarchy affects both genders' emotional freedoms.
  - Eg: **MenEngage Global Alliance 2024** promotes cross-gender dialogue on dismantling toxic masculinity.
2. **Gender-sensitive mental health policies:** Public health frameworks must address male-specific barriers.
3. **Redefining masculinity models:** Promote emotional literacy and healthy expression in boys from early education.
  - Eg: **UNICEF India 2024 pilot schools** integrate emotional intelligence modules into curriculum.
4. **Workplace reforms:** Build supportive environments encouraging emotional openness and counselling access.
  - Eg: **Microsoft India 2023 initiative** offers gender-neutral employee assistance programs.
5. **Family-level behavioural change:** Encourage shared caregiving and emotional openness across family structures.
  - Eg: **Ministry of Women & Child Development 2025 campaign** promotes father-inclusive parenting practices.

### **Conclusion**

Transforming gendered emotional norms demands **societal, institutional and familial shifts** to make emotional expression a shared human right, not a gendered burden.

**Q. "India faces a triple challenge — persistent high fertility in parts, a looming ageing population, and urban disorder". Discuss. What are the key drivers of this situation? Suggest policy reforms to address it. (15 M)**

### **Introduction**

India's demographic landscape today is marked by widening internal divergence — rising fertility in certain

regions, fast ageing elsewhere, and chaotic urbanisation — posing a complex challenge to sustainable development.

## Body

### India's triple demographic challenge

1. **Persistently high fertility in lagging states**: Fertility transition is uneven, with a demographic divide between the Hindi heartland and southern states.
  - Eg: **Bihar (TFR 3.0), UP (2.7), Jharkhand (2.4)** vs national TFR of **2.0** (NFHS-5, 2021).
2. **Rapidly ageing population**: Growing old-age dependency is projected post-2040, risking economic stagnation if unaddressed.
  - Eg: **Half of India's 610 million workforce is aged above 45 years** (UNFPA).
3. **Unplanned and chaotic urbanisation**: Migration-driven growth is overwhelming urban infrastructure and governance.
  - Eg: **Tier-2 cities like Patna, Jaipur seeing 30%–35% decadal growth** without adequate planning .
4. **Mismatch between demographic trends and economic opportunities**: The window for demographic dividend is closing amid jobless growth.
  - Eg: **Youth unemployment at 17.5% nationally** (CMIE, May 2025).
5. **Environmental stress in urban areas**: Overpopulation is worsening pollution, slum proliferation and public health risks.
  - Eg: **Delhi-NCR ranked world's most polluted urban region** (IQAir World Air Quality Report 2024).

### Key drivers of this situation

1. **Uneven socio-economic development**: Poor literacy, healthcare and nutrition in lagging states fuel high fertility.
  - Eg: **Bihar female literacy 63.8% vs India 77.7%** (MoSPI, 2024).
2. **Entrenched patriarchy and gender inequality**: Early marriages and low female autonomy perpetuate early and frequent childbearing.
  - Eg: **42.5% of girls in Bihar married below 18 years** (NFHS-5, 2021).
3. **Weak reproductive healthcare systems**: Inadequate access to contraception and services in high fertility zones.
  - Eg: **UP's modern contraceptive use is only 31.7%** (NFHS-5, 2021).
4. **Regional joblessness driving migration**: Lack of quality jobs in rural regions spurs distress urban migration.
  - Eg: **12% rise in rural-urban migration from UP and Bihar in 2023** (NITI Aayog, 2024).
5. **Ineffective urban governance capacity**: Urban local bodies remain underfunded and weakly empowered.
  - Eg: **Only 18% of municipalities have functional master plans** (MoHUA Report 2025).

### Policy reforms to address the challenge

1. **Universalise quality education and gender equity**: Target female education, gender parity and delayed marriages.

- Eg: **National Education Policy 2020** targets **50% female GER** in higher education by 2035.
- 2. **Strengthen reproductive healthcare and family planning**: Scale modern contraceptive access and services.
  - Eg: **Mission Parivar Vikas (2021)** targeting 146 high TFR districts in UP, Bihar and Jharkhand.
- 3. **Reform marriage laws and social behaviour**: Enforce **Prohibition of Child Marriage Act 2006** with stronger community mobilisation.
  - Eg: **Rajasthan's Child Marriage Free Villages initiative** saw 80% drop in incidence (State Report 2024).
- 4. **Promote balanced regional development and non-farm job creation**: Boost rural livelihoods and reduce distress migration.
  - Eg: **PM Vishwakarma Yojana (2023)** aims to modernise traditional crafts and generate rural employment.
- 5. **Strengthen urban governance and planning capacity**: Empower ULBs under **74th Constitutional Amendment** and enhance urban planning.
  - Eg: **Smart Cities Mission** successfully improved urban governance in **Indore, Surat** (MoHUA, 2024).

### Conclusion

India's demographic fault-lines need urgent, coordinated reforms — marrying robust reproductive health services, empowered urban governance and inclusive regional development — to ensure a resilient and sustainable future.

### Q. How do intra-family relationships and gendered social expectations influence the incidence of domestic violence in India? Examine their consequences for adolescent mental health. (10 M)

#### Introduction

Recent Indian studies, including the **cVEDA 2025 report**, confirm that gendered family hierarchies and intra-family power dynamics are key factors shaping domestic violence patterns, with serious repercussions on adolescent psychological well-being.

#### Body

#### **Influence of intra-family relationships and gendered expectations on domestic violence**

1. **Male dominance reinforced by patriarchal norms**: Traditional gender roles create expectations of male authority and female submission, normalising control and abuse.
  - Eg: **NFHS-5 (2021)** reports that **32% of ever-married women** in India have experienced spousal violence, often justified by male entitlement.
2. **Extended family's active participation in abuse**: In joint family settings, in-laws frequently sanction or participate in violence to enforce obedience or extract dowry.
  - Eg: **cVEDA study 2025** found that **multi-generational households** often escalate domestic violence, with **in-law pressure** cited as a key driver.
3. **Dowry-driven coercion and harassment**: Monetary and material demands place women under constant threat of violence, especially after marriage.

- **Eg: NCRB Crime in India 2023** recorded **6,795 dowry deaths** and **13,534 cases of dowry harassment** under Section 498A IPC.
- 4. **Stigma around divorce and marital breakdown**: Social disapproval of separated women traps many in abusive relationships, prolonging exposure to violence.
  - **Eg: MWCD National Consultation (2024)** highlighted that social stigma prevented over **60% of abuse survivors** from seeking help.
- 5. **Reproductive expectations and gender discrimination**: Cultural pressure to bear male children or punish infertility leads to abuse from both husband and in-laws.
  - **Eg: Dr. Singh (RIMS, Manipur) in cVEDA 2025** observed that **infertility stigma** and **son preference** often triggered domestic violence.

### **Consequences for adolescent mental health**

1. **Development of chronic anxiety and depression**: Constant exposure to familial violence induces fear, helplessness, and long-term emotional disorders in adolescents.
  - **Eg: cVEDA study 2025** showed that adolescents exposed to maternal physical abuse had a **significantly higher risk of depressive disorders**.
2. **Impaired ability to trust and form relationships**: Dysfunctional family environments disrupt healthy emotional development, affecting peer and adult relationships.
  - **Eg: Lancet Psychiatry (2023)** linked early exposure to domestic violence with **low social competence and trust deficits** in Indian adolescents.
3. **Risk of aggression or internalised violence**: Witnessing abuse increases the likelihood of externalising behaviours such as aggression or perpetuating violence later.
  - **Eg: UNICEF 2023** flagged a **higher propensity for aggressive behaviour** among adolescents raised in violent households in South Asia.
4. **Academic underperformance and school dropout**: Mental distress and social stigma contribute to poor academic outcomes and higher dropout rates.
  - **Eg: NCERT 2023** reported a **15% dropout rate** among adolescents from households reporting domestic violence.
5. **Intergenerational transmission of trauma**: Childhood exposure to domestic violence increases the risk of replicating abusive behaviours in future intimate relationships.
  - **Eg: WHO SE Asia 2022** highlighted intergenerational cycles of violence as a **growing concern in adolescent mental health** in India.

### **Conclusion**

Breaking the cycle of domestic violence requires addressing the deep-seated patriarchal structures within families, promoting gender-equitable attitudes, and embedding trauma-informed mental health support across schools and communities.

## Effects of globalization on Indian society.

**Q. “Addictive behaviours have expanded beyond substance use into digital and behavioural domains”. Examine the rise of behavioural addictions such as online gambling in India. Analyse their broader societal impact and suggest comprehensive interventions to address this growing menace. (15 M)**

### Introduction

The convergence of digital access, financial gamification, and psychological vulnerability is fuelling a new age of **behavioural addictions** that threaten India's social fabric and youth stability.

### Body

#### Rise of behavioural addictions such as online gambling in India

1. **Digital proliferation and ease of access:** Smartphones and 24x7 internet have made gambling apps instantly accessible across age groups.
  - **Eg:** India had **759 million internet users** by 2024, with over **150% rise in gaming app downloads** between 2020 and 2023 (IAMAI Report, 2024).
2. **Psychological design of platforms:** Gamified reward systems, variable payouts, and peer competition induce compulsive behaviour.
  - **Eg:** **WHO (2019)** recognised **gaming disorder** as a mental health condition caused by compulsive digital engagement.
3. **Lack of regulation and age checks:** Absence of enforceable age filters or financial caps on betting apps increases youth vulnerability.
  - **Eg:** The **Rajasthan suicide case (2025)** involved a man losing **₹5 lakh** on an unregulated betting app .
4. **Economic stress and escape mechanisms:** Rural and urban youth often turn to digital gambling as a coping mechanism for insecurity or unemployment.
  - **Eg:** **ASER 2023** found that over **25% rural youth** faced skill-employment mismatch, creating frustration and escape-seeking.
5. **Social validation and peer influence:** Social media communities glamorise online gambling wins, fuelling imitation.
  - **Eg:** Studies by **TISS Mumbai (2022)** noted the rise of “influencer gamblers” on platforms like **YouTube and Telegram**.

#### Broader societal impact of behavioural addictions

1. **Breakdown of family trust and cohesion:** Addictions lead to secrecy, financial stress, and emotional disconnection within households.
  - **Eg:** **NCRB 2022** recorded over **10,000 family disputes** linked to financial mismanagement through online betting.
2. **Rise in mental health disorders and suicides:** Addictions lead to anxiety, depression, and in extreme cases, suicide.
  - **Eg:** **Tele MANAS (MoHFW)** noted a spike in calls related to **digital behaviour-related distress** between 2023 and 2024.

3. **Financial exploitation and indebtedness**: Unregulated apps often lead to debt traps, payday loan abuse, and extortion.
  - **Eg**: In **Telangana (2023)**, police uncovered illegal loan apps linked with gambling platforms targeting youth through UPI fraud.
4. **Distortion of social values and aspirations**: Easy money culture weakens the work ethic and promotes speculative attitudes.
  - **Eg**: **NCERT Survey (2024)** noted that **18% of Class XI-XII students** aspired for gaming-based earnings over traditional careers.
5. **Threat to community well-being**: Collective moral panic, domestic violence, and crime have shown links with addictive online behaviours.
  - **Eg**: **Karnataka police (2024)** linked **46 local crimes** to betting-related disputes and debt recovery gangs.

### **Comprehensive interventions to address the menace**

1. **Digital regulation and licensing framework**: Create a central regulatory body to license, monitor, and penalise digital gambling platforms.
  - **Eg**: The **Ratan Watal Committee (2020)** recommended real-time monitoring of fintech platforms, which can be extended to gambling apps.
2. **Community-based mental health outreach**: Scale up Tele MANAS, school counsellors, and SHG-based awareness in rural and peri-urban India.
  - **Eg**: **Kerala's 'OTT-Free Schools' initiative (2023)** combines parental training and child counselling to prevent digital addiction.
3. **Financial literacy and behaviour change campaigns**: Use social media and influencers to promote risk awareness and responsible digital behaviour.
  - **Eg**: **SEBI's 2024 campaign** used **local influencers** to bust investment myths in rural Maharashtra, which can be adapted for gambling.
4. **Incorporation into school and college curriculum**: Embed digital ethics, emotional intelligence, and addiction education in NEP-aligned syllabi.
  - **Eg**: The **NEP 2020** advocates for **21st-century life skills** including digital and emotional literacy from early grades.
5. **Involvement of civil society and faith-based organisations**: Leverage trust-based actors to destigmatise addiction and offer support channels.
  - **Eg**: NGOs like **SPYM and NIMHANS** have successfully worked with **faith networks** to spread awareness about substance use, a model now adaptable to digital addictions.

### **Conclusion**

Behavioural addictions are the unseen pandemic of a digital-first society. India must act now with a synergy of **policy, pedagogy, and public participation** to rebuild digital safety and societal resilience.

**Q. "Hustle culture has normalised burnout as a badge of honour". Discuss how this impacts young Indians. Evaluate the invisibilised mental health burden in informal workspaces. (10 M)**

### **Introduction**

India's youthful workforce is increasingly trapped in a culture that glorifies overwork, where rest is guilted and exhaustion is misread as dedication—fueling a silent mental health crisis across both formal and informal sectors.

## Body

### Impact on India's youth

1. **Glorification of overwork and productivity obsession**: Long working hours and sleep deprivation are framed as success indicators.
  - **Eg: Deloitte India (2022)** reported **80% of Indian professionals** faced mental health challenges; **Gen Z most affected** (Deloitte Mental Health Survey).
2. **Normalisation of burnout and anxiety**: Work-related stress has become pervasive, often unacknowledged until it causes breakdowns.
  - **Eg: In 2023**, an **EY India employee died by suicide**, citing work pressure.
3. **Lack of psychosocial safety in workplaces**: Employees fear repercussions if they seek mental health breaks or speak up.
  - **Eg: A 2022 LinkedIn survey** showed **55% of Indian millennials** feared being judged for seeking mental health support.
4. **Cultural pressure on first-generation earners**: Hustle is survival, not choice, especially for socio-economically vulnerable youth.
  - **Eg: CMIE (2024)** noted high **youth unemployment at 45%** in urban areas, leading to overwork in low-paying jobs (CMIE).
5. **Digital pressure and performance fatigue**: Curated social media success stories intensify comparison and self-doubt.
  - **Eg: NIMHANS (2023)** observed rising cases of **tech-driven social anxiety** among students and new professionals.

### Invisibilised mental health burden in the informal workforce

1. **Absence of mental health safeguards**: No legal mandates for counselling, breaks, or workload limits exist for informal workers.
  - **Eg: 93% of India's workforce is informal** with no access to ESI or paid leave (Economic Survey 2022-23).
2. **Occupational hazards and precarity**: Gig workers, vendors, and construction labourers face unsafe, irregular hours with survival anxiety.
  - **Eg: ILO (2023)** noted **Indian gig workers** clocking **12+ hour shifts** without basic protections.
3. **No institutional recognition of psychological stress**: Labour laws rarely consider mental well-being as a workplace right.
  - **Eg: The Occupational Safety, Health and Working Conditions Code, 2020** has **no provisions** for psychological health.
4. **Social invisibility and stigma**: In many communities, mental illness is either spiritualised or stigmatised, preventing help-seeking.
  - **Eg: A NIMHANS 2022 study** found **only 20% of informal workers** sought mental health help despite symptoms.

5. **Lack of public mental health infrastructure**: Rural and urban poor have little access to affordable or quality care.
- **Eg: India has only 0.75 psychiatrists per 1 lakh people**, mostly urban (National Mental Health Survey, 2016; reiterated in **MoHFW 2023 update**).

## Conclusion

Burnout must not be the price of participation in India's economy. Building **care-inclusive labour systems**—from legal safeguards to community support—will define whether India's youth become a demographic dividend or a lost generation.

**Q. “The rise in juvenile violence signals emerging vulnerabilities within modern societies”. Examine the sociological factors behind such violent behaviour. Analyse the role of early intervention mechanisms. (15 M)**

## Introduction

The increasing incidents of juvenile violence reflect changing social environments where multiple structural, psychological, and technological factors interact to create new vulnerabilities.

## Body

### **The rise in juvenile violence signals emerging vulnerabilities within modern societies**

1. **Digital hyper-exposure**: Early and excessive exposure to violent or inappropriate online content affects cognitive and emotional development.
  - Eg: **France 2025 case**, where overexposure to violent digital content is being examined after the **school stabbing in Nogent**.
2. **Changing family dynamics**: Decline in extended family structures and increasing single-parent households reduce social support systems.
  - Eg: **OECD Family Database (2024)** shows a rise in single-parent families in Europe and North America.
3. **Peer influence and online communities**: Adolescents are more influenced by peer validation, sometimes through violent or risky behavior.
  - Eg: **TikTok and Snapchat challenges** have been linked to violent behaviours among teens globally (UNICEF 2024).
4. **Societal desensitization to violence**: Constant media portrayal of violence reduces sensitivity towards aggression.
  - Eg: **WHO 2024 Report** identified media-induced normalization of aggression as a factor in rising youth violence.
5. **Mental health strain in competitive societies**: Academic, social, and economic pressures lead to emotional instability.
  - Eg: **Lancet Global Health (2024)** highlighted rising adolescent anxiety and depression globally, contributing to aggression.

### **Sociological factors behind such violent behaviour**

1. **Erosion of primary socialization**: Weakening of parental control and value transmission during early childhood.
  - Eg: **National Crime Records Bureau (NCRB) India 2023** showed rise in juvenile crimes linked to poor parental supervision.
2. **Community disintegration**: Declining neighborhood cohesion reduces informal social control mechanisms.
  - Eg: **Putnam's "Bowling Alone" thesis (updated 2023)** reflects weakening community ties even in urban India.
3. **Inequality and deprivation**: Socio-economic gaps fuel frustration and aggression among disadvantaged youth.
  - Eg: **UNDP Human Development Report 2023** linked youth violence with rising urban inequality.
4. **School environment stressors**: Bullying, peer exclusion, and academic competition foster violent tendencies.
  - Eg: **India National Mental Health Survey 2022** flagged bullying as a factor behind aggressive school behaviour.
5. **Cultural glorification of aggression**: Media, gaming, and popular culture sometimes glorify violent heroes.
  - Eg: **European Commission study (2024)** linked violent gaming to aggressive tendencies in adolescents.

### **Role of early intervention mechanisms**

1. **Strengthening parental education**: Parenting workshops to equip parents in emotional regulation and discipline techniques.
  - Eg: **India's National Parenting Programme (pilot 2024)** launched under POSHAN Abhiyan 2.0.
2. **School-based mental health screening**: Regular psychological assessments to detect early signs of emotional distress.
  - Eg: **UK CAMHS (Child and Adolescent Mental Health Services) 2024** expanded early intervention units in schools.
3. **Community mentoring and youth engagement**: Structured mentorship to guide vulnerable adolescents.
  - Eg: **USA's Big Brothers Big Sisters Programme (revamped 2023)** successfully reduced juvenile arrests.
4. **Restricting access to harmful content**: Legal restrictions on violent online platforms for minors.
  - Eg: **France 2025 proposal to ban social media for under-15s** following school stabbing case.
5. **Juvenile justice reforms with counselling focus**: Shifting from punishment to rehabilitation for first-time offenders.
  - Eg: **Juvenile Justice (Care and Protection of Children) Act 2015, India** emphasizes rehabilitation over incarceration.

### **Conclusion**

Addressing juvenile violence requires not only policing but rebuilding family, community, and institutional safeguards with an emphasis on timely psychological and social interventions.

## Social empowerment, communalism, regionalism & secularism.

**Q. Despite constitutional and legal protections, caste-based violence continues to persist in India. Analyse the role of social hierarchy in perpetuating such violence. Examine the institutional barriers in timely justice delivery. Suggest comprehensive reforms to strengthen protection for marginalised groups. (15 M)**

### Introduction

The brutal **Beed atrocity** exposes how deep-rooted caste hierarchies continue to fuel violence despite robust constitutional and statutory frameworks.

### Body

#### Role of social hierarchy in perpetuating caste-based violence

1. **Historical caste stratification institutionalises social inequality**: The rigid Varna and Jati systems have historically legitimised oppression of lower castes, making violence against them socially acceptable.
  - Eg: **NCRB 2022** reported **57,582 cases of atrocities against SCs**, indicating persistent structural violence.
2. **Economic dependency reinforces vulnerability**: The marginalised communities remain economically dependent on dominant castes, reducing their bargaining power and increasing subjugation.
  - Eg: **India Exclusion Report 2022 (Centre for Equity Studies)** highlighted that Dalits own only **9% of cultivable land**.
3. **Community sanction allows impunity**: The collective silence of local communities often emboldens perpetrators and suppresses victim voices.
  - Eg: In the **Beed case (2025)**, nearly **200 villagers remained silent** during the public assault.
4. **Persistence of caste bias even among educated youth**: Despite formal education, caste prejudices are transmitted intergenerationally through family and peer socialisation.
  - Eg: In Beed, the attackers included **classmates of the victim**, revealing caste bias among the educated.
5. **Cultural normalisation of untouchability practices sustains discrimination**: Practices like restricted temple entry, separate wells, and seating arrangements continue to legitimise caste divisions.
  - Eg: **Sahyadri Hills study 2023 (Indian Institute of Dalit Studies)** documented **prohibited temple entry for Dalits** in several villages.

#### Institutional barriers in timely justice delivery

1. **Police reluctance to register cases under SC/ST Act**: Fear of political backlash and pressure from dominant groups often discourages police from promptly filing FIRs.
  - Eg: In Beed, police **delayed FIR registration for hours despite repeated pleas**.
2. **Caste bias compromises investigations**: Prejudiced investigating officers often dilute evidence or fail to pursue key leads, weakening prosecutions.
  - Eg: **NCRB 2022** revealed Maharashtra's conviction rate for SC atrocities was only **8.9%**.

3. **Use of counter-complaints to intimidate victims:** Perpetrators exploit legal loopholes by filing false counter-cases, forcing victims into compromise.
  - Eg: In Beed, the accused lodged a **fabricated theft case against the victim's family**.
4. **Judicial pendency delays justice:** Overburdened courts result in prolonged trials, discouraging victims and emboldening perpetrators.
  - Eg: NCRB 2022 showed **14,504 atrocity cases against SCs pending trial in Maharashtra**.
5. **Lack of sensitisation among officials weakens enforcement:** Police, prosecutors, and judges often lack caste sensitivity, undermining effective application of protective laws.
  - Eg: The **Justice J.S. Verma Committee (2013)** recommended mandatory sensitisation training for officials handling such cases.

### **Comprehensive reforms to strengthen protection**

1. **Independent investigative agencies enhance neutrality:** Establishing autonomous SC/ST Protection Cells insulated from political interference can ensure impartial investigations.
  - Eg: The **Supreme Court in Lalita Kumari vs UP (2013)** mandated compulsory FIR registration for cognisable offences.
2. **Dedicated fast-track courts ensure timely trials:** Exclusive courts for atrocity cases with specially trained judges can reduce pendency and delays.
  - Eg: Despite **Section 14 of SC/ST Act 1989** mandating special courts, implementation remains uneven across states.
3. **Robust legal aid empowers victims:** Strengthening state legal aid services ensures that victims receive timely, quality legal support to navigate complex trials.
  - Eg: **NALSA 2022 report** flagged the need for expanded legal aid for SC/ST victims.
4. **Community-based vigilance mechanisms prevent escalation:** Involving civil society in early-warning systems can monitor rising tensions and prevent violence.
  - Eg: **Madhya Pradesh's Gram Nyayalaya model** incorporates community participation in dispute resolution.
5. **Awareness campaigns promote constitutional morality:** Mass education on rights under **Articles 14, 15, 17 and 21** can empower marginalised groups and reshape social attitudes.
  - Eg: The **National Campaign on Dalit Rights 2023** conducted extensive legal literacy drives in multiple states.

### **Conclusion**

Ending caste violence demands that **institutional accountability and social transformation advance together**. India's constitutional vision will remain incomplete until both the **rule of law and rule of equality** are firmly established on the ground.

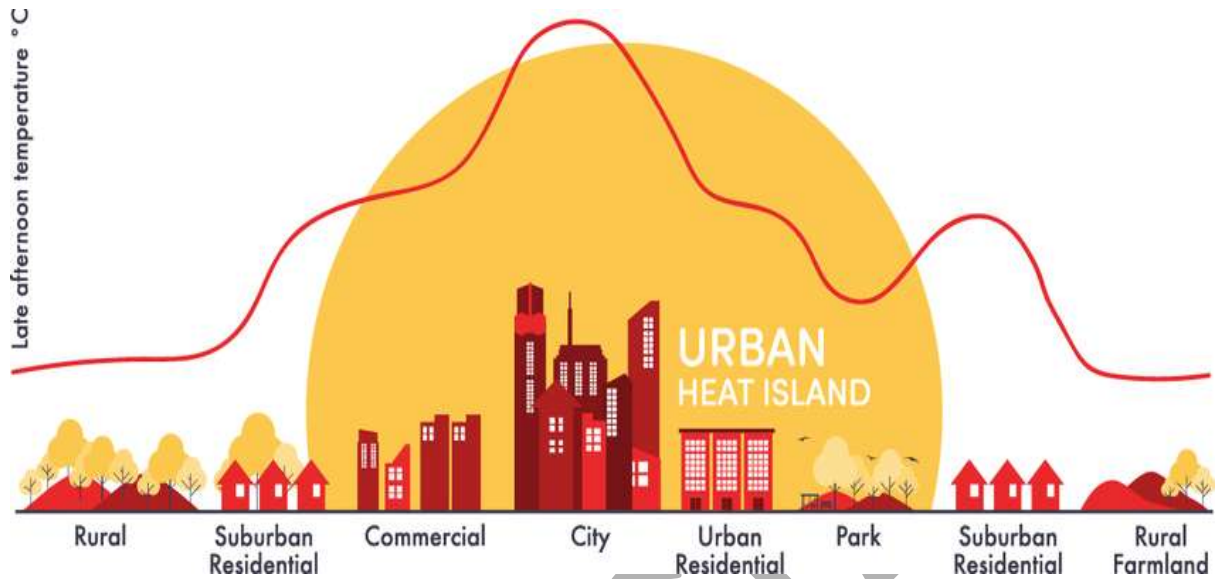
## **Salient features of world's physical geography.**

**Q. What is the Urban Heat Island effect? Discuss its main drivers in the context of Indian urban environments. (10 M)**

### **Introduction**

As Indian cities expand vertically and horizontally, their capacity to retain heat increases, creating localised temperature zones hotter than surrounding areas — a phenomenon known as the **Urban Heat Island (UHI) effect**.

## Body



### What is Urban Heat Island effect?

1. **Definition and nature:** UHI refers to significantly higher temperatures in urban areas compared to nearby rural zones due to altered land surfaces and human activities.
  - Eg: **IMD's 2022 study** showed that **Delhi's core city** is on average **4°C hotter** than surrounding rural regions in peak summer.
2. **Types of UHI:** Surface UHI (based on land surface temp) and atmospheric UHI (based on air temp).
  - Eg: **ISRO-LST data (2023)** revealed **surface UHI intensity** of over **6°C** in Indian cities like **Nagpur and Ahmedabad (NRSC)**.

### Main drivers in Indian urban environments

1. **Loss of vegetation cover:** Urban expansion reduces tree cover, limiting natural evapotranspiration.
  - Eg: **Bengaluru lost 88% tree cover** between 2000 and 2020 due to rapid real estate development (IISc, 2022).
2. **High thermal mass materials:** Use of concrete, asphalt, and glass increases heat absorption and retention.
  - Eg: **Mumbai's slum clusters and high-rises** with minimal ventilation record **maximum UHI intensity** during night hours (TERI report, 2023).
3. **Dense built-up and poor urban ventilation:** Closely spaced buildings reduce airflow and trap heat.
  - Eg: **Old Delhi and Hyderabad's core zones** face stagnant hot air conditions due to congested layouts (NIUA, 2023).
4. **Waste heat from anthropogenic activities:** Air conditioners, traffic, and industries release heat directly into the atmosphere.
  - Eg: **Delhi's power load in May 2024** crossed **8,000 MW**, mostly due to cooling appliances (BEE, 2024).
5. **Disappearance of traditional water bodies:** Urban lakes and stepwells that earlier helped in cooling are neglected or encroached.

- Eg: **Ahmedabad lost over 65% of its urban lakes** between 1970–2020, intensifying UHI (CEPT University Study, 2022).
6. **Unclimate-responsive architecture:** Modern glass façades trap heat and lack passive cooling mechanisms.
- Eg: **Commercial complexes in Gurugram** contribute to heat retention due to **fully glazed surfaces** (CPWD observation, 2023).

## Conclusion

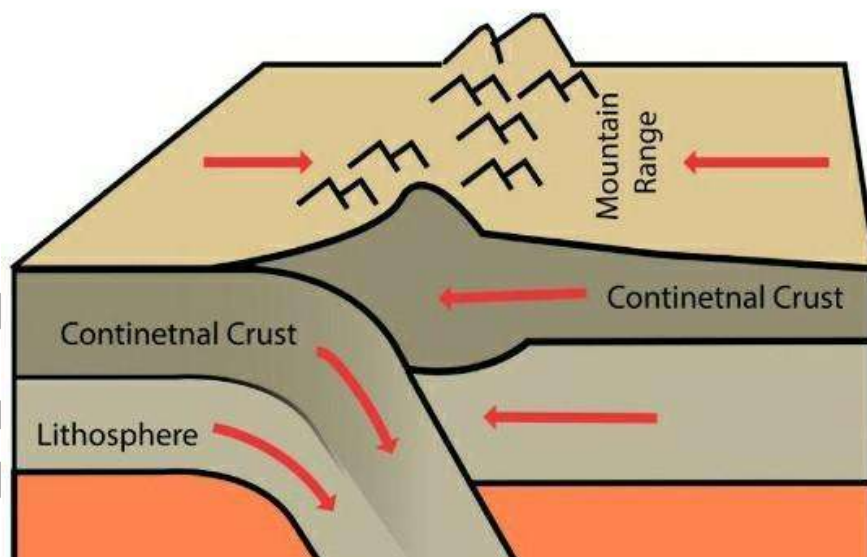
Without urgent thermal-sensitive planning, India's cities risk becoming heat traps. **A fusion of green infrastructure and passive design** is essential to cool down urban spaces and protect future urban livelihoods.

**Q. Explain the processes involved in the formation of fold mountains. Analyse their role in shaping global climatic patterns. Assess their economic significance for human societies. (15 M)**

## Introduction:

Folded mountains are dynamic landforms created through **plate tectonic forces** and play a crucial role in **modulating climate patterns** and supporting diverse **economic activities**.

## Body



## Processes involved in the formation of folded mountains

1. **Plate convergence and compressive stress:** Converging tectonic plates apply intense pressure, deforming and uplifting the Earth's crust.
  - Eg: **Himalayas** formed due to the **collision of the Indian and Eurasian plates**, which continues today at a rate of **5 cm/year** (USGS, 2024).
2. **Folding of sedimentary rock layers:** Horizontal sedimentary strata buckle into anticlines and synclines under compressive forces.

- Eg: **Zagros Mountains** exhibit prominent folds due to the ongoing **Arabian-Eurasian plate collision** (Geological Society of Iran, 2023).
3. **Plastic deformation at depth:** Deep crustal rocks deform plastically under high temperature and pressure, forming large-scale folds.
    - Eg: **Alps** show evidence of **ductile folding** within the deep lithosphere (European Geosciences Union, 2023).
  4. **Development of thrust faults and nappes:** Intense compression results in the displacement of rock layers along thrust faults, producing nappes.
    - Eg: **Rocky Mountains** exhibit major **thrust faults** and nappes displaced over distances exceeding **100 km** (GSA, 2024).
  5. **Continued crustal shortening and uplift:** Long-term compression causes sustained crustal shortening, resulting in the uplift of mountain ranges.
    - Eg: **Andes** continue to rise at rates of **1-2 mm/year** due to **Nazca-South American plate convergence** (World Tectonics Report, 2024).

### Role of folded mountains in shaping global climatic patterns

1. **Enhancement of orographic rainfall:** Mountain ranges force moist air to rise, cool, and condense, producing heavy rainfall on windward slopes.
  - Eg: **Western Ghats** contribute to high **monsoonal rainfall** in Kerala, averaging over **3,000 mm/year** (IMD, 2024).
2. **Creation of rain shadow zones:** Dry air descending on the leeward side of mountains produces arid and semi-arid regions.
  - Eg: **Tibetan Plateau** generates a rain shadow effect that leads to **arid climates in Central Asia** (WMO, 2023).
3. **Influence on atmospheric circulation:** Large mountain systems deflect jet streams and alter global atmospheric circulation patterns.
  - Eg: **Himalayas** significantly shape **South Asian monsoon** dynamics by blocking cold continental air (IITM, 2024).
4. **Modification of temperature gradients:** Mountains create diverse microclimates and altitudinal climatic zones.
  - Eg: **Andes** range from tropical lowlands to **glaciated peaks**, supporting multiple climate zones (IPCC, 2023).
5. **Storage of cryospheric carbon and water:** Mountain glaciers store both freshwater and carbon, influencing regional hydrology and global carbon cycles.
  - Eg: **Himalayan glaciers** provide **vital freshwater** to Asia and function as **seasonal carbon sinks** (UNEP, 2024).

### Economic significance for human societies

1. **Freshwater resources:** Mountain glaciers and snowfields feed major river systems, sustaining agriculture and livelihoods.
  - Eg: Rivers such as the **Ganga, Brahmaputra, and Indus** support over **800 million people** in South Asia (NITI Aayog, 2023).
2. **Tourism and recreation:** Folded mountain landscapes attract tourists, generating revenue and employment.

- Eg: **Alps** tourism generates over **€50 billion annually**, benefiting local communities (EU Tourism Council, 2024).
3. **Mineral and resource wealth:** Folded belts are rich in minerals such as copper, lithium, and rare earth elements.
    - Eg: The **Andes** host vast deposits of **copper and lithium**, critical for **green technologies** (World Bank, 2024).
  4. **Hydropower generation:** Steep gradients and abundant water make folded mountain regions ideal for hydropower projects.
    - Eg: **Tehri Dam** in the Himalayas significantly contributes to **India's renewable energy mix** (MNRE, 2024).
  5. **Cultural and spiritual significance:** Mountains hold deep cultural and religious meaning for local and global communities.
    - Eg: **Mount Kailash** is a sacred site for **Hindu, Buddhist, and Jain** pilgrims, supporting **spiritual tourism** (Ministry of Culture, 2024).

### Conclusion

Folded mountains are pivotal in sustaining **ecological balance**, **water security**, and **regional economies**. Their conservation must remain central to **global climate adaptation** strategies.

**Q. Explain the concept of evaporative demand. Analyse the factors driving its recent rise across Indian agro-ecosystems. Evaluate its implications for sustainable water resource management. (15 M)**

### Introduction

With intensifying climate change, evaporative demand has emerged as a crucial indicator of how much water the atmosphere seeks to pull from land and vegetation, directly influencing irrigation needs and crop resilience.

### Body

#### Concept of evaporative demand

1. **Definition of evaporative demand:** It represents the atmosphere's potential to evaporate water from land and transpire it through plants if water is sufficiently available.
  - Eg: Concept highlighted in **Earth's Future (2025)** by **Kukul and Hobbins** as a driver of "thirstwaves"
2. **Measurement method:** Calculated through standardised short-crop evapotranspiration (ET<sub>0</sub>), integrating temperature, humidity, solar radiation, and wind.
  - Eg: Used in **FAO's Penman-Monteith Equation**, widely adopted in **irrigation planning manuals (FAO 56 Guidelines)**

#### Factors driving recent rise in Indian agro-ecosystems

1. **Rising ambient temperatures:** Higher surface temperatures increase atmospheric capacity to hold and demand moisture.

- **Eg: IMD 2024 Report** recorded all-India mean land temperature rise by 0.65°C since 1990
- 2. **Declining relative humidity:** Drying atmosphere boosts evaporative gradients between land and air.
  - **Eg: IIT-Roorkee and NIH study (2022)** reported significant humidity decline in northwest and central India
- 3. **Increased solar radiation:** Reduction in atmospheric aerosols and clearer skies enhance solar radiation intensity.
  - **Eg: Journal of Cleaner Production (2022)** noted enhanced radiation in Indo-Gangetic plains post COVID-19 lockdown
- 4. **Changing wind patterns:** Higher wind speeds facilitate faster evaporation rates from exposed soil and crop surfaces.
  - **Eg: IITM Pune (2023)** identified rising pre-monsoon wind anomalies in western Rajasthan
- 5. **Land use change and crop intensification:** Expansion of water-intensive crops in semi-arid zones raises cumulative evaporative demand.
  - **Eg: NITI Aayog 2023 Report** highlighted paddy-wheat cycle expansion in Punjab and Haryana

#### **Implications for sustainable water resource management**

1. **Increased irrigation demand:** Farmers require more frequent irrigation to compensate for higher evaporative losses.
  - **Eg: Punjab Water Resources Management Authority (2024)** reported 15% rise in groundwater extraction
2. **Stress on groundwater resources:** Unsustainable withdrawal depletes aquifers faster than recharge rates.
  - **Eg: CGWB 2024 assessment** found 78% of monitored wells in north India showing declining trends
3. **Altered cropping calendars:** Shifting evaporative patterns necessitate changes in sowing dates and varietal selection.
  - **Eg: ICAR advisory (2024)** recommended preponing kharif paddy sowing by 10–15 days in eastern UP
4. **Need for efficient irrigation:** Promotes adoption of micro-irrigation and precision farming to minimise water wastage.
  - **Eg: PMKSY (2023)** achieved 14.7 million hectares under micro-irrigation, led by Maharashtra and Andhra Pradesh
5. **Regional water stress differentials:** Rising evaporative demand is uneven, requiring region-specific adaptation strategies.
  - **Eg: IIT-Roorkee study (2022)** identified Western Himalayas and northwest plains as high-risk zones

#### **Conclusion**

Mainstreaming evaporative demand monitoring into India's farm advisories can revolutionise water management. Proactive strategies combining climate-smart agriculture and demand-side efficiency are vital for ensuring long-term water sustainability.

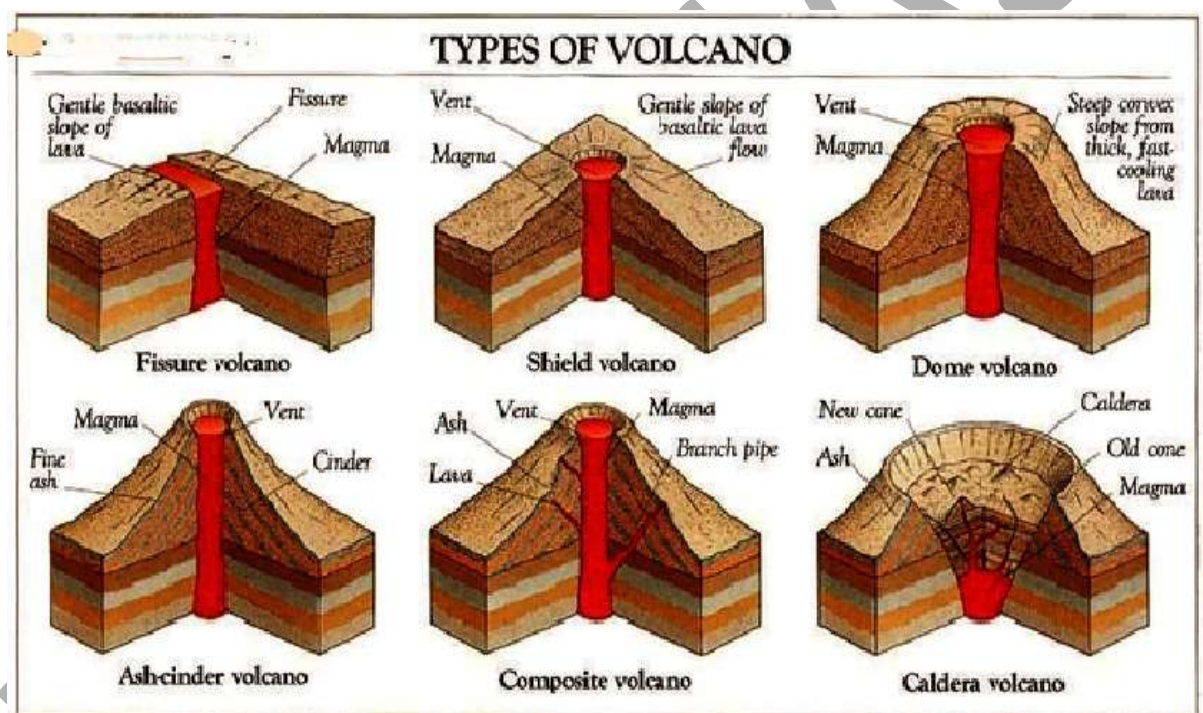
## Distribution of key natural resources across the world (including South Asia and the Indian sub-continent); factors responsible for the location of primary, secondary, and tertiary sector industries in various parts of the world (including India).

Q. Describe the different types of volcanoes based on shape and eruption style. Explain how they form. Give examples of each from different parts of the world. (15 M)

### Introduction

Volcanoes reflect the dynamic nature of Earth's interior, and their shape and eruption style depend on magma type, tectonic setting, and gas content.

### Body



### Types of volcanoes based on shape and eruption style

1. **Shield volcanoes**: Broad, gently sloping structures with fluid lava flows
  - **Eg: Mauna Loa in Hawaii**, among the world's largest volcanoes with basaltic lava and non-explosive eruptions (USGS, 2023).
2. **Stratovolcanoes (composite volcanoes)**: Steep, conical shape with alternating explosive and effusive eruptions
  - **Eg: Mount Fuji in Japan and Mount St. Helens in the USA**, built from andesitic lava and pyroclastic layers.
3. **Cinder cone volcanoes**: Small, steep-sided cones formed by pyroclasts and gas-rich eruptions
  - **Eg: Parícutin in Mexico** emerged in a farmer's field in 1943 and lasted for 9 years, forming a classic cinder cone.
4. **Lava domes**: Dome-shaped, formed by slow extrusion of viscous lava

- **Eg: Mount Unzen in Japan** formed a lava dome during its 1991 eruption, causing deadly pyroclastic flows.
5. **Caldera volcanoes:** Large depressions formed by collapse after massive eruptions
- **Eg: Yellowstone Caldera in the USA**, an active super volcano with past catastrophic eruptions.

### Formation of different volcano types

1. **Tectonic settings:** Formed along divergent, convergent, or hotspot boundaries
  - **Eg: Icelandic volcanoes** lie on the **Mid-Atlantic Ridge**, a divergent boundary, while **Andean volcanoes** form at a subduction zone .
2. **Magma composition:** Silica-rich magma forms explosive volcanoes, basaltic magma forms effusive ones
  - **Eg: Kilauea's fluid basaltic magma** results in calm lava flows, unlike **Mount Pinatubo's high-silica magma**, which caused an explosive eruption in 1991 .
3. **Gas content and pressure:** High gas pressure leads to violent eruptions and pyroclastic material
  - **Eg: Mount Etna in Italy** often releases gas before eruptions, with varying intensity based on gas content.
4. **Crustal structure and vent geometry:** Determines the eruption path and surface morphology
  - **Eg: Krakatoa's narrow conduit** led to its violent 1883 eruption and subsequent caldera collapse.
5. **Duration and periodicity of eruption:** Influences volcano size and layering pattern over time
  - **Eg: Mount Rainier in the USA** has built layers over repeated eruptions, forming a large stratovolcano.

### Global distribution and examples

1. **Ring of Fire:** Concentrated zone of composite volcanoes around the Pacific Plate
  - **Eg: Mount Merapi (Indonesia)** and **Popocatépetl (Mexico)** are part of the seismically active Pacific Ring of Fire.
2. **Hotspot volcanoes:** Occur within plates, independent of boundaries
  - **Eg: Mauna Kea and Mauna Loa in Hawaii** formed due to a stationary hotspot under the Pacific Plate.
3. **Mid-ocean ridge volcanoes:** Located along underwater divergent boundaries
  - **Eg: Eyjafjallajökull in Iceland**, part of the Mid-Atlantic Ridge, erupted in 2010 disrupting global air traffic.
4. **Intraplate calderas:** Supervolcanoes formed within continental crust
  - **Eg: Taupo Caldera in New Zealand** formed after a massive eruption around 26,500 years ago.
5. **Volcanoes in continental rift zones:** Associated with crustal thinning
  - **Eg: Mount Nyiragongo in East Africa**, a fast-flowing lava volcano located in the East African Rift.

### **Conclusion**

Understanding the types and formation of volcanoes is crucial for disaster risk reduction, landform

evolution, and interpreting Earth's internal processes—especially as monitoring technology evolves to anticipate future eruptions.

## **Q. The growing mismatch between global oil supply and demand is reshaping energy geopolitics. How can India navigate this shifting oil market scenario? (10 M)**

### **Introduction**

The **IEA Oil 2025 report** indicates a structural shift as supply growth surpasses demand, leading to price volatility, changing trade alignments, and energy diplomacy challenges—key for India's future energy security.

### **Body**

#### **Changing geopolitics due to oil mismatch**

1. **Rise of supply-led price volatility:** A growing surplus will amplify sharp swings in oil prices, exposing vulnerable economies to external shocks.
  - Eg: **IEA 2025** projects oil production capacity of **114.7 mb/d** against demand of **105.5 mb/d** by 2030.
2. **Shifting influence of traditional producers:** OPEC+ control over prices is diminishing as US shale and non-OPEC output expands, altering old power balances.
  - Eg: **US and Saudi Arabia** to drive over **5 mb/d** of new capacity growth (IEA 2025).
3. **Geopolitical risks from Iran-Israel tensions:** Rising conflict increases chances of supply disruptions despite overall surplus, unsettling oil-importing countries.
  - Eg: **June 2025 Iran-Israel clashes** caused temporary spikes in Brent crude prices.
4. **Declining Chinese demand reshaping trade:** As China's oil imports plateau, traditional supply chains and pricing arrangements are being restructured.
  - Eg: **IEA 2025** projects China's demand in **2030** will be marginally above **2024** levels.
5. **India's growing demand altering global flows:** India's surging energy needs make it a more influential player in global energy diplomacy.
  - Eg: **IEA 2025** forecasts **+1 mb/d growth** in Indian oil demand, highest globally for 2024–30.

#### **How India can navigate the shifting oil market**

1. **Diversifying crude sourcing strategy:** India must broaden its import basket to include more non-OPEC sources to reduce supply risk.
  - Eg: **IOC and BPCL** increased imports from **US and Latin America** in 2024–25 (MoPNG data).
2. **Strengthening strategic reserves capacity:** Enhancing storage capacities will offer a buffer against geopolitical and market disruptions.
  - Eg: India's plan to expand **Strategic Petroleum Reserves** from **5.33 MMT to 11.83 MMT** by 2030.
3. **Scaling domestic biofuel production:** Promoting ethanol blending will lower dependence on imported crude and improve rural income.
  - Eg: Targeting **20% ethanol blending by 2025–26** under MoPNG's roadmap.

4. **Accelerating energy efficiency and electrification**: Adoption of EVs and efficiency in transport can moderate future oil demand growth.
  - Eg: Under **FAME II**, India crossed **1 million EV sales** by 2025 (NITI Aayog).
5. **Proactive energy diplomacy and trade deals**: India should leverage new opportunities by securing long-term diversified supply agreements.
  - Eg: **India-UAE 2024 MoU** on broad-based energy cooperation and investments (MEA 2024).

### **Conclusion**

India's energy policy must combine **supply diversification, clean alternatives, and strategic diplomacy** to enhance resilience amid evolving global oil market uncertainties.

**Q. How have technological innovations influenced the global location of tertiary sector industries? Explain their role in shaping new service industry hubs. Evaluate the socio-economic implications of these shifts. (15 M)**

### **Introduction**

The rise of **advanced digital technologies, AI, cloud computing, and fintech** has disrupted traditional location patterns of the global tertiary sector, creating new hubs beyond older financial capitals.

### **Body**

#### **How technological innovations influenced the global location of tertiary sector industries**

1. **Reduction in dependence on physical proximity**: Technologies like **video conferencing, cloud-based tools** enable remote services, diminishing reliance on traditional urban centres.
  - Eg: **Zoom-based global consulting** and **telemedicine platforms** expanding to tier-2 cities (McKinsey 2024).
2. **Creation of global service chains**: Technologies allow **fragmentation and global distribution of service tasks**, moving back-end processes to low-cost destinations.
  - Eg: India's **BPO sector** contributing **~8% of global market** with hubs in Hyderabad and Pune (NASSCOM 2025).
3. **Data localisation and regulatory shifts**: Tech-driven industries adapt locations to local **data privacy laws and compliance standards**.
  - Eg: European **GDPR norms** prompted US firms to set up **data centres in Ireland** (EU Commission 2024).
4. **Infrastructure-driven relocation**: Emergence of **high-speed internet, 5G**, and tech parks redefines location choices.
  - Eg: **Bangalore-Chennai tech corridor** attracting **cloud service firms** (Invest India 2025).
5. **AI and automation reshaping workforce needs**: Demand for **AI and data science talent** creates new spatial clusters.
  - Eg: **Toronto** emerged as an **AI research hub** supported by public policy (OECD 2025).

#### **Role in shaping new service industry hubs**

1. **Rise of non-traditional urban centres**: Digital services enable **tier-2 and tier-3 cities** to become service hubs.

- **Eg: Coimbatore and Bhubaneswar** growing as **IT service centres** (NASSCOM 2025).
- 2. **Emergence of niche global hubs:** Specific technologies drive specialised service hubs globally.
  - **Eg: Tallinn (Estonia)** as an **e-governance solutions hub** (World Bank 2025).
- 3. **Regional rebalancing within countries:** Improved **infrastructure and policy incentives** foster decentralised service growth.
  - **Eg: GIFT City (Gujarat)** as an emerging **international financial services centre** (IFSCA 2025).
- 4. **Shift toward environmentally sustainable hubs:** Companies prefer locations with **green energy grids** for data-heavy services.
  - **Eg: Nordic countries** hosting **low-carbon data centres** (IEA 2025).
- 5. **Government policy shaping new hubs:** Targeted **industrial and innovation policies** attract service clusters.
  - **Eg: Singapore's AI strategy** fostering **AI-driven financial services** hub (Singapore Budget 2025).

### Socio-economic implications of these shifts

1. **Creation of distributed employment opportunities:** Service jobs increasingly spread beyond metros.
  - **Eg: 70% of India's IT hiring** in 2025 happened in non-metro cities (NASSCOM-MoLE report 2025).
2. **New urbanisation patterns and secondary city growth:** Emerging hubs drive growth in infrastructure, housing, and consumption.
  - **Eg: Bengaluru suburban zones** seeing **30% real estate growth** (Knight Frank 2025).
3. **Widening digital divides and skill gaps:** Uneven access to **digital skills** leads to socio-economic disparities.
  - **Eg: ILO 2024** flagged rising **rural-urban service employment gaps** in South Asia.
4. **Global competition for high-end talent:** Concentration of demand in AI, fintech raises global talent migration.
  - **Eg: Canada's tech visa policy 2025** boosted **AI workforce inflows**.
5. **Informalisation of gig economy:** Platform-based service work grows, but with limited social protections.
  - **Eg: India's gig workforce** crossed **7.7 million** in 2025 (NITI Aayog Report 2025).

### **Conclusion**

As **technology continues to transform services geography**, balanced investment in **skills, infrastructure, and regional planning** is crucial to ensure **equitable growth** and **inclusive urbanisation**.

**Q. India's deepening groundwater crisis is fast becoming one of the most pressing challenges to its development trajectory. Examine its economic and ecological consequences. What policy shifts are required to ensure sustainable use? (15 M)**

### **Introduction:**

**Groundwater depletion in India is accelerating**, with over **60 percent** of irrigation and **85 percent** of drinking water dependent on it (CEEW, 2024). The crisis is now a critical threat to the economy, food security, and ecosystem sustainability.

## Body

### Economic consequences

1. **Reduced agricultural productivity:** Declining water tables adversely affect yields of key crops, particularly rice, wheat, and sugarcane, threatening India's food security.
  - **Eg: Punjab** has reported a sustained decline in **paddy productivity** due to water stress and deteriorating aquifer quality (Punjab Agriculture Dept., 2024).
2. **Rising costs of irrigation:** Farmers are forced to drill deeper borewells and invest in high-powered pumps, leading to escalating irrigation costs and financial stress.
  - **Eg: In Haryana**, average irrigation costs have risen by **₹25,000 per acre**, making cultivation increasingly unviable for smallholders (CEEW, 2023).
3. **Impact on rural incomes and employment:** Falling crop productivity reduces farm incomes and rural employment opportunities, driving migration and distress.
  - **Eg: Economic Survey 2018-19** found a **15%-18% decline** in farmer incomes linked to declining rainfall and groundwater depletion in central India.
4. **Industrial water scarcity:** Sectors like textiles, beverages, and pharmaceuticals face rising production costs and operational disruptions in water-stressed regions.
  - **Eg: CII Water Report 2023** identified industrial hubs in **Ahmedabad** and **Surat** facing frequent water shortages, impacting industrial output.
5. **Public health costs:** Increased contamination of groundwater with fluoride, arsenic, and nitrates leads to greater disease burden and rising healthcare expenses.
  - **Eg: CGWB 2024 report** found that over **230 million Indians** are exposed to contaminated groundwater, causing fluorosis, cancers, and other chronic illnesses.

### Ecological consequences

1. **Land subsidence:** Excessive groundwater extraction causes sinking of land surfaces, damaging infrastructure and altering hydrology.
  - **Eg: Lucknow city** has recorded **subsidence rates of 11 cm/year**, disrupting urban drainage and building foundations (IIT Kanpur, 2023).
2. **Degradation of wetlands and ecosystems:** Falling water tables dry up wetlands, degrade habitats, and threaten biodiversity in critical ecosystems.
  - **Eg: Keoladeo Ghana National Park** in Rajasthan now experiences frequent dry spells, affecting migratory bird populations (MoEFCC, 2024).
3. **Decline in river base flows:** Rivers dependent on groundwater recharge witness reduced flow volumes, harming aquatic life and drinking water availability.
  - **Eg: Yamuna River** near Delhi now flows at **15%-20% lower volumes** during lean seasons due to aquifer depletion (NIH Roorkee, 2024).
4. **Accelerated desertification:** Depletion of groundwater intensifies land degradation in semi-arid zones, expanding desertified areas.
  - **Eg: ISRO's Desertification Atlas 2024** shows a **30% increase** in desertification across parts of Rajasthan, Gujarat, and Haryana linked to groundwater decline.
5. **Soil salinisation:** Falling water tables bring saline water closer to the root zone, reducing soil fertility and harming crop yields.

- **Eg:** The **Indo-Gangetic Plain** has witnessed rising soil salinity, with degraded lands now affecting **over 2 million hectares** (ICAR, 2023).

### Required policy shifts

1. **Groundwater regulation through participatory management:** Decentralised groundwater management with strong community participation to ensure sustainable withdrawal.
  - **Eg:** The **Atal Bhujal Yojana** (World Bank, 2024) empowers **8,000 gram panchayats** in water-stressed states to manage groundwater recharge and usage.
2. **Crop diversification incentives:** Shifting away from water-guzzling crops towards millets, pulses, and oilseeds through procurement support and MSP.
  - **Eg:** **Madhya Pradesh's Bhavantar Bhugtan Yojana** incentivises farmers to cultivate millets and pulses, improving water efficiency (NITI Aayog, 2024).
3. **Scaling up micro-irrigation and precision farming:** Widespread adoption of drip and sprinkler systems to optimise water use in agriculture.
  - **Eg:** Under **PMKSY - Per Drop More Crop**, **9 million hectares** are now covered with micro-irrigation, but much larger scaling is needed (MoA&FW, 2024).
4. **Reforming electricity subsidy regime:** Rationalising flat power tariffs for agriculture to discourage excessive groundwater pumping.
  - **Eg:** **Punjab's pilot DBT for electricity subsidy** has reduced uncontrolled groundwater extraction by improving usage accountability (Planning Commission, 2023).
5. **Real-time groundwater monitoring and data-driven planning:** Establishing nationwide aquifer mapping and water accounting systems to inform local policy decisions.
  - **Eg:** **CEEW 2024 report** recommends mandatory **groundwater accounting** at district and panchayat levels to enable better management.

### **Conclusion:**

India's groundwater crisis demands a **transformative policy shift towards community-led, climate-adaptive and data-driven** management. Ensuring **inter-sectoral coordination** and **strengthening institutional capacity** will be critical to safeguard this invisible lifeline for sustainable development.

### **Q. Why is inland water transport underutilised in Indian cities despite having geographical potential? How can urban planning unlock this mode for sustainable mobility? (10 M)**

#### **Introduction**

Despite over **14,500 km of navigable waterways**, inland water transport (IWT) remains grossly underused in Indian cities due to systemic, infrastructural, and planning failures—turning a geographic advantage into a missed opportunity.

#### **Body**

#### **Reasons for underutilisation of inland water transport**

1. **Seasonal river depth variability:** Inconsistent flow and siltation make year-round navigation difficult.
  - **Eg:** **Ganga in Patna** becomes shallow during dry months due to **high sediment load** (IWAI Feasibility Study, 2024).

2. **Poor infrastructure and terminals**: Absence of modern docks, ticketing, and safety amenities deters passengers.
  - **Eg: Varanasi and Patna ferry terminals** on NW-1 lack basic infrastructure despite high commuter potential (JMVP Status Report, 2023).
3. **Fragmented governance and lack of coordination**: Multiple agencies delay clearances and operations.
  - **Eg: CAG Report 2022** flagged coordination failure between **IWAI and state urban bodies** as a major delay factor.
4. **Lack of integration with urban transport**: IWT often functions in isolation without multimodal linkages.
  - **Eg: Kolkata ferry services** have minimal connection to **metro or bus networks** (MoHUA Urban Mobility Review, 2022).
5. **Safety and regulatory vacuum**: Unorganised operations lack standardised safety and fare mechanisms.
  - **Eg: The 2021 Assam ferry capsized** revealed absence of safety audits and crew training.

### **Urban planning strategies to unlock IWT for sustainable mobility**

1. **Integrate IWT into city masterplans**: Waterways must be part of comprehensive urban transport strategy.
  - **Eg: Patna Master Plan 2041** includes 16 proposed jetties linked with road and metro corridors (BUIDCo Draft, 2024).
2. **Adopt transit-oriented riverfront development**: Promote residential and commercial hubs near terminals.
  - **Eg: Kochi Water Metro TOD zones** include walkable public spaces, jetties, and retail (KMRL Annual Report, 2024).
3. **Invest in clean vessel technology**: Use electric or hybrid boats for pollution-free transport.
  - **Eg: Under Sagarmala**, the **JMVP** has procured **electric catamarans** for river cities (Ministry of Ports, 2023).
4. **Establish single-window river transport cells**: Ensure coordination, licensing, and safety enforcement.
  - **Eg: Delhi's proposed Yamuna Mobility Cell** aims to unify waterway planning under one regulatory roof.
5. **Drive behavioural change and digital adoption**: Use fare integration, apps, and awareness campaigns.
  - **Eg: MyBharat App in Kochi** offers digital ticketing and incentives for eco-friendly water commute (MoHUA, 2024).

### **Conclusion**

Waterways can be India's **next-generation urban mobility frontier**—but only if rivers are planned as **infrastructure assets**, not geographical constraints. Strategic planning, clean tech, and integration will be key to realising this shift.

**Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., geographical features and their location-changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.**

**Q. The increasing intensity of Himalayan disasters reflects a crisis of cumulative vulnerability. Identify the multiple layers of risk in the region. Propose an integrated strategy for risk reduction.**

### **Introduction**

The 2023 South Lhonak lake outburst and 2025 Sikkim landslides highlight how fragile ecosystems, anthropogenic stress, and climate change converge to heighten disaster intensity in the Himalayas.

### **Body**

#### **Multiple layers of risk in the Himalayan region**

1. **Geological instability of young fold mountains**: The Himalayas are seismically active due to ongoing tectonic convergence.
  - **Eg**: The **2023 Joshimath land subsidence** was triggered by slope instability in a highly seismic zone (**Wadia Institute of Himalayan Geology**).
2. **Intensifying extreme weather due to climate change**: Warmer temperatures are increasing glacial melt and cloudbursts.
  - **Eg**: The **2023 Sikkim GLOF** was linked to abnormal warming of South Lhonak Lake (**ISRO-NSF report**).
3. **Unregulated tourism and infrastructure expansion**: Roads, hotels, and dams often ignore environmental carrying capacity.
  - **Eg**: The **Gurudongmar tourism route in North Sikkim** lacks slope-retaining walls and drainage control (**NDMA Landslide Risk Atlas, 2023**).
4. **Overdependence on military and linear infrastructure**: Border zones are overloaded with roads and camps that increase slope stress.
  - **Eg**: The **2025 Chaten landslide** killed 3 soldiers and disrupted rescue due to camp location on fragile slopes (**MoD brief, June 2025**).
5. **Delayed or weak enforcement of hazard zonation**: Most Himalayan states have poor implementation of scientific zoning maps.
  - **Eg**: **Himachal Pradesh** has not fully integrated the **GSI's Landslide Susceptibility Mapping** into urban planning (**CAG Report, 2023**).

#### **Integrated strategy for risk reduction**

1. **Enforce terrain-sensitive land use planning**: Mandatory integration of hazard zonation in development approvals.
  - **Eg**: **Uttarakhand's revised Town Planning Act (2022)** mandates slope and soil analysis before construction in hazard zones.

2. **Institutionalise early warning and real-time monitoring:** Expand Doppler radars, glacial monitoring, and AI-led forecasting.
  - **Eg:** The IMD's Doppler Radar in Gangtok (2024) enabled early evacuation alerts during May 2025 landslides.
3. **Promote eco-sensitive and regulated tourism:** Cap footfall, decentralise sites, and link permits with environmental compliance.
  - **Eg:** Sikkim's Tarey Bhir model (2022) uses QR-based entry, carrying capacity limits, and local guides to regulate flows.
4. **Strengthen civil-military disaster coordination:** Protocols for joint drills, shared terrain data, and rapid deployment units.
  - **Eg:** The Integrated Mountain Disaster Response Exercise (2023) was conducted by NDMA and Army in Arunachal Pradesh.
5. **Mainstream local resilience and capacity building:** Empower panchayats, forest dwellers, and tour operators through training and risk literacy.
  - **Eg:** Eco Task Forces in Himachal Pradesh, staffed by local ex-servicemen, conduct slope protection and awareness drives (MoEFCC Annual Report, 2024).

## Conclusion

India must treat the Himalayas as a climate-sensitive zone requiring geostrategic restraint and ecological wisdom. **Preventive risk governance, not reactive disaster relief, must shape the mountain development paradigm.**

**Q. What are the key climatic and geomorphological factors contributing to avalanche formation in the Indian Himalayas? How do they differ from those in mid-latitude mountain systems? (10 M)**

## Introduction

The Himalayas are now experiencing **frequent, unseasonal, and unpredictable avalanches**, intensified by climate shifts and unstable terrain, unlike the more stable patterns of mid-latitude regions.

## Body

### **Climatic factors in the Indian Himalayas contributing to avalanche**

1. **Wet and dense snow from western disturbances:** Heavy moisture-laden snow increases snowpack instability.
  - **Eg:** January 2024 avalanche in Gurez (J&K) followed heavy **western disturbance snowfall**.
2. **Sudden temperature rise after snowfall:** Sharp warming weakens snowpack bonding and triggers slab failure.
  - **Eg:** Chamoli disaster (2021) was preceded by **rapid warming after snowfall**.
3. **Increased rain-on-snow events due to climate change:** Rising temperatures cause rainfall over snow, destabilising it.
  - **Eg:** IMD's Climate Report 2023 recorded a **30% increase in rain-on-snow episodes** in Himachal Pradesh.

4. **Erratic and unseasonal snowfall patterns:** Late or early-season snow accumulates unevenly, worsening risk.
  - **Eg: DGRE (2023)** noted **off-season snow buildup** in Lahaul-Spiti linked to multiple avalanche warnings.

### **Geomorphological factors in the Indian Himalayas contributing to avalanche**

1. **Steep slopes and elevation gradients:** The Himalayas' terrain exceeds 30–45°, ideal for slab avalanches.
  - **Eg: Siachen sector** frequently records slides on **45° slopes** (DGRE slope profile data 2022).
2. **Tectonic activity and seismic micro-shocks:** Constant crustal movements loosen snow anchors.
  - **Eg: USGS (2023)** recorded over **120 tremors in the Garhwal belt**, influencing slope instability.
3. **Glacial moraine and loose debris fields:** Retreating glaciers leave unstable substrates beneath snow.
  - **Eg: South Lhonak lake burst (Oct 2023)** involved **moraine dam failure** triggering cascading effects.
4. **Sparse high-altitude vegetation:** Lack of trees reduces friction and anchoring capacity for snow layers.
  - **Eg: Ladakh's bare upper slopes** above 3500m linked to frequent slides (MoEFCC Forest Survey Report 2021).

### **Differences from mid-latitude mountain systems**

1. **Snow type contrast:** Indian Himalayas receive **wet, heavy snow**, while mid-latitudes get **dry powder snow**.
  - **Eg: DGRE (2023)** reported higher snow density in Kargil than in the **Swiss Alps**.
2. **Altitude and gradient difference:** Avalanches in India occur at **3000–6000m**, unlike **1500–2500m** in Europe.
  - **Eg: Avalanche zones in Uttarakhand** lie far higher than those in **Austria or Italy**.
3. **Anthropogenic pressure is higher:** Indian regions have more **military posts, pilgrims, and road construction**.
  - **Eg: Chopta road widening (2022)** in Uttarakhand disrupted **natural snow pathways**.
4. **Erratic snow-weather cycles:** Indian systems are influenced by **western disturbances and ENSO**, unlike predictable mid-latitude systems.
  - **Eg: 2023 Western Himalayas saw 3 snowstorms in March**, highly unusual in Swiss Alps timeline (IMD).

### **Conclusion**

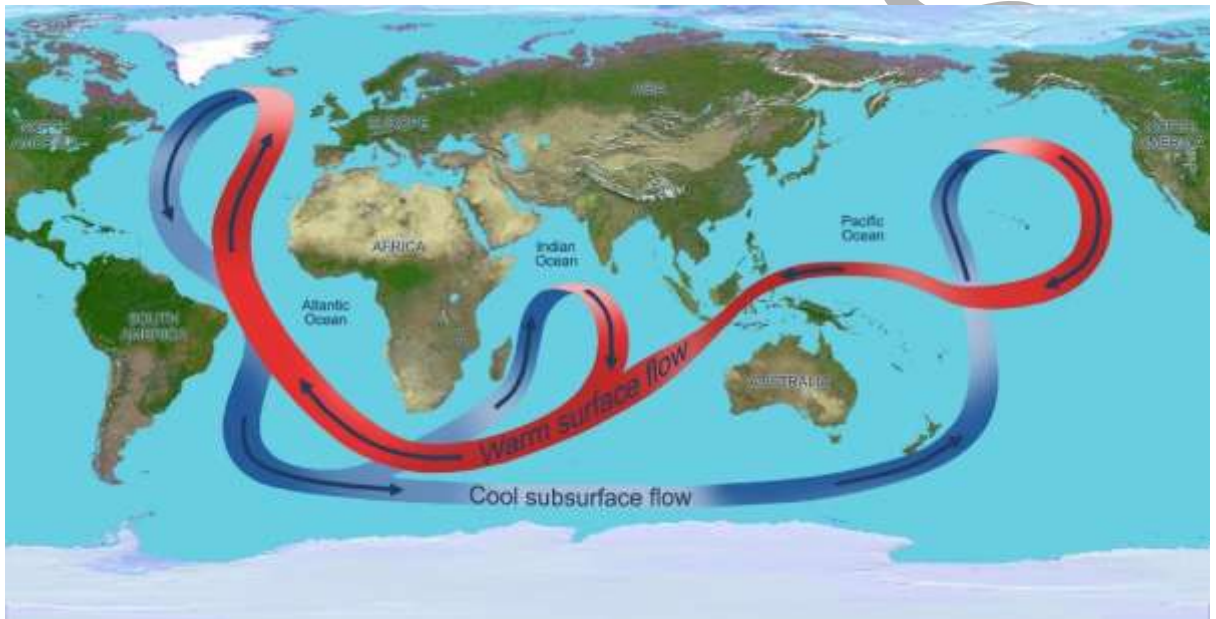
To minimise avalanche impacts in India, **climate-resilient infrastructure, real-time snowpack monitoring, and terrain-specific planning** must become integral to both civil and military strategies.

**Q. “Global ocean current systems are critical regulators of regional climate stability”. Discuss how the collapse of the Atlantic Meridional Overturning Circulation (AMOC) could alter global hydrological cycles. Evaluate its potential to trigger abrupt climate change events. (15 M)**

### **Introduction**

Global ocean currents act as a planetary thermostat by redistributing heat and moisture, driving regional climate patterns and monsoon systems, as highlighted in the **IPCC AR6 Synthesis Report 2023**.

### **Body**



### **Global ocean current systems are critical regulators of regional climate stability**

1. **Heat redistribution across latitudes**: Ocean currents transport warm equatorial waters to higher latitudes, moderating regional temperatures.
  - **Eg: Gulf Stream** keeps **North-Western Europe** significantly warmer than similar latitudes in Canada.
2. **Influence on atmospheric circulation**: Oceanic heat patterns influence jet streams and monsoonal circulations.
  - **Eg: El Niño–Southern Oscillation (ENSO)** alters monsoons in **India and Australia**.
3. **Driving hydrological cycles**: Currents modulate evaporation and precipitation patterns across basins.
  - **Eg: Kuroshio Current** enhances rainfall in **East Asia**.
4. **Regulating sea ice extent**: Currents impact polar ice melt and formation, influencing albedo feedback.
  - **Eg: Antarctic Circumpolar Current** maintains Southern Ocean temperature balance.
5. **Buffering abrupt climate shifts**: Deep-water currents stabilise long-term climate trends.
  - **Eg: AMOC strength reduction** linked to abrupt past events like **Younger Dryas cold period** (~12,900 years ago).

## Collapse of the Atlantic Meridional Overturning Circulation (AMOC) and global hydrological cycles

1. **Disruption of inter-hemispheric heat transport**: Weakening AMOC shifts heat southward, altering global rainfall zones.
  - **Eg: IPCC AR6 (2023)** projects southward shift of **Intertropical Convergence Zone (ITCZ)**.
2. **Weakening of South Asian and African monsoons**: Reduced oceanic heat delivery affects land-sea thermal gradient.
  - **Eg: Utrecht University 2025 study** links potential AMOC collapse to weaker **Indian and West African monsoons**.
3. **Altered tropical Atlantic rainfall**: Shifts in Atlantic SSTs impact precipitation over Amazon and Sahel.
  - **Eg: Nature Climate Change 2024** warns of reduced **Amazon Basin rainfall** under AMOC weakening.
4. **Changes in Pacific Ocean circulation**: AMOC collapse could alter ENSO patterns, causing unpredictable droughts and floods.
  - **Eg: NOAA 2024 Report** anticipates altered **ENSO variability** under declining AMOC.
5. **Impact on Arctic hydrology**: Enhanced freshwater inflow from Greenland melt could further disrupt AMOC and Arctic precipitation.
  - **Eg: GRACE satellite data (2023)** shows increasing **Greenland ice sheet freshwater contribution**.

## Potential of AMOC collapse to trigger abrupt climate change events

1. **Regional cold extremes in Europe**: Sudden plunge in winter temperatures despite global warming trends.
  - **Eg: Utrecht University 2025 model** predicts **London winters averaging 1.9°C** with extremes near **-19.3°C**.
2. **Rapid sea level rise along US East Coast**: Slowed Gulf Stream raises coastal sea levels by reducing dynamic height.
  - **Eg: Nature Communications 2023** shows projected **sea level rise of up to 30 cm** on US eastern seaboard.
3. **Collapse of marine ecosystems**: Disruption in nutrient upwelling affects fish stocks and food webs.
  - **Eg: North Atlantic cod fishery collapse during the 1990s** linked to weakened AMOC phases.
4. **Aridification of critical regions**: Sudden shift in rainfall patterns could trigger droughts in tropics and Mediterranean.
  - **Eg: Sahel drought episodes of 1970s-80s** were linked to AMOC variability.
5. **Triggering global climatic feedback loops**: Positive feedbacks from permafrost melt and forest dieback may accelerate climate tipping.
  - **Eg: Permafrost carbon feedback risks** highlighted in **IPCC SRCCL 2019**.

## **Conclusion**

Strengthening **international climate cooperation** and enhancing **early warning systems** for oceanic tipping points are critical to mitigate cascading risks of AMOC disruption in this century.

## Q. Why are certain parts of eastern India, more prone to lightning fatalities? What geographic and human factors exacerbate the risk? (10 M)

### Introduction

Lightning is now India's biggest natural killer, and eastern states like Bihar and Jharkhand are emerging as high-fatality zones due to a lethal combination of geographic triggers and human vulnerabilities.

### Body

#### Certain parts of eastern India more prone to lightning fatalities?

1. **High land surface heating and humidity:** Indo-Gangetic plains record high diurnal temperatures with moisture, fuelling thunderclouds
  - **Eg:** Bihar recorded **48,000 lightning strikes in May–July 2024 alone**, with peak surface temperatures crossing **40°C (IMD Lightning Atlas, 2023)**
2. **Frequent thunderstorm systems (Nor'westers):** Pre-monsoon storms in eastern India increase lightning risk intensity
  - **Eg:** **Nor'wester systems in April 2022** caused multiple lightning deaths across Jharkhand and Bihar (NDMA, 2023)
3. **Lack of natural discharge agents (like tall trees):** Decline of toddy palms has removed natural conductors that safely diverted lightning
  - **Eg:** **NGT 2025 hearing** linked decline in **palmyra trees** to increased fatalities due to lightning strikes in Bihar (NGT Order, June 2025)
4. **High strike density zones near plateaus and plains meeting zones:** Sudden uplift from plains to plateau (e.g., Chotanagpur) enhances storm activity
  - **Eg:** Lightning density is highest in **Gaya, Aurangabad, Rohtas**, which lie at **plateau-plain transition belts (Lightning Report 2023–24)**
5. **Persistent cloud formation over Ganga basin:** Moisture-laden winds from Bay of Bengal converge and stagnate, fuelling repeated discharges
  - **Eg:** **Ganga basin saw 17% of all lightning strikes in India** during July–August 2023 (IMD, 2023)

#### Geographic and human factors exacerbating the risk

1. **Loss of palm tree cover:** Trees like toddy palms that dissipate current are being indiscriminately cut
  - **Eg:** Bihar's palm tree cover fell by **40% in a decade**, directly impacting rural safety from lightning (Pasi community report, NGT 2025)
2. **Outdoor working patterns in peak lightning hours:** Most people are exposed during afternoon work hours
  - **Eg:** **Over 80% of lightning deaths in Bihar** occur between **12:30–4:30 pm**, when people are working in fields (Bihar Disaster Management Authority, 2024)
3. **Poor early warning communication:** Delayed alerts and absence of last-mile messaging fail to warn rural populations
  - **Eg:** Only **12 out of 38 districts in Bihar** use **Damini app**, and only **7% of farmers received alerts** in 2023 (MoES Lightning Forecast Report, 2024)

4. **Vulnerable housing and shelter infrastructure:** Thatched roofs and open spaces offer no protection during discharges
  - **Eg: 63% of rural households** in Bihar have **kutcha or semi-permanent roofing**, exposing them to ground current (**Census 2011, validated by SECC 2022**)
5. **Lack of designated lightning shelters:** Unlike cyclone shelters, lightning protection structures are absent in risk-prone villages
  - **Eg: Odisha's community lightning shelters in Kandhamal** reduced fatalities, but no such system exists in Bihar (**NDMA Best Practice Note, 2022**)

### **Conclusion**

Lightning fatalities in eastern India are not just acts of nature but indicators of ignored vulnerabilities. Building **nature-based buffers, community shelters**, and **digital early warning access** must become integral to rural climate resilience planning.