

Today's Prelims Topics

How Bats Avoid Collisions While Exiting Caves in Massive Numbers

Context

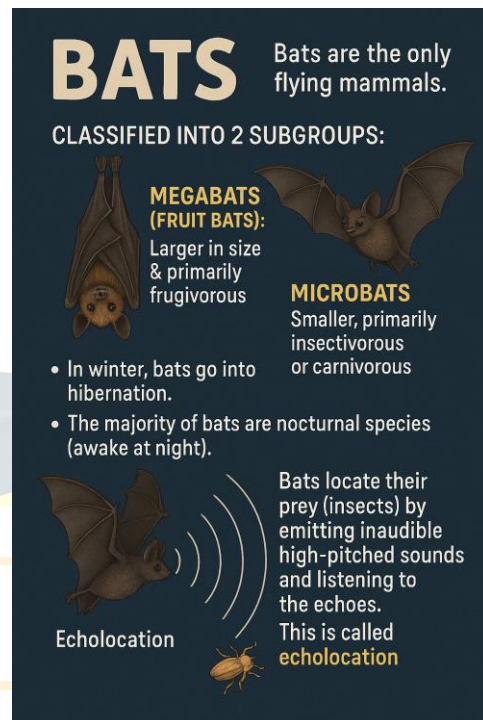
A new study has revealed how bats use adjusted echolocation to avoid collisions when flying in large groups.

How Do Bats Avoid Crashing?

- Bats use sound (**echolocation**) to fly safely.
- When too many bats echolocate together, their sounds get mixed up, this leads to a phenomenon called **echolocation jamming**.
- Despite the intense jamming, bats avoid mid-air collisions by adapting their **behavior and echolocation strategy**. The two strategies are:
 - Spreading out to reduce density.
 - Shorter, weaker, higher-frequency calls.

Other Animals That Use Echolocation

- **Dolphins** - To find fish and navigate underwater.
- **Toothed Whales** - To hunt prey and avoid obstacles.
- **Oilbirds & Swiftlets** - To fly through dark caves.



UPSC PYQ

Q. Consider the following: (2014)

1. Bats
2. Bears
3. Rodents

The phenomenon of hibernation can be observed in which of the above kinds of animals?

- (a) 1 and 2 only
- (b) 2 only
- (c) 1, 2 and 3
- (d) Hibernation cannot be observed in any of the above

Answer: C

Source:

- [The Hindu - Echolocation](#)

Crisis in India's Cotton Production

Context

India's cotton output in the 2024-25 has declined to 294 lakh bales. It is lowest since 2008-09 (290 lakh bales).

About Cotton

- Cotton is a **kharif crop**. It is grown mainly for its **fiber** (used in textiles) and **seeds** (used for oil and fodder).
- It is also called "**White Gold**" because of its economic importance to farmers and the textile industry.
- India is the **largest producer** of cotton globally, it accounts for **23%** of total global cotton production.
- **Ideal Conditions for Cotton Cultivation** ☁️
 - Warm, dry climate with uniformly high temperatures (21°C to 30°C)
 - Frost-free period of at least **200 days**
 - Moderate rainfall (**50-100 cm**).
- **Major Cotton Producing States in India:** (1) Gujarat (2) Maharashtra (3) Telangana

Why is Cotton Production Declining in India?

- **Pink Bollworm (PBW)**
 - **PBW is a pest** whose larvae damage cotton bolls (fruits), destroying seeds and lint (cotton fiber).
 - It has **developed resistance to Bt cotton** (GM variety used in India).
- **No New GM Approvals** 🧬
 - Existing Bt cotton (with cry1Ac and cry2Ab genes) is now **ineffective**.
 - **New GM hybrids** developed by Indian companies are stuck in **regulatory trials**.
 - No GM crop has been commercialised since **2006** due to opposition and long approval processes.
- **Climate Change:** Erratic rainfall, unseasonal rains and long dry spells affect cotton growth.
- **Low Profitability:** Rising **input costs** (seeds, fertilizers, pesticides).
- **Monocropping & Poor Crop Rotation:** Continuous cotton cropping without rotation → **soil nutrient depletion** and **pest buildup**.

UPSC PYQ

Q. "The crop is subtropical in nature. A hard frost is injurious to it. It requires at least 210 frost-free days and 50 to 100 centimeters of rainfall for its growth. A light well-drained soil capable of retaining moisture is ideally suited for the cultivation of the crop." Which one of the following is that crop? (2020)

- (a) Cotton
- (b) Jute
- (c) Sugarcane
- (d) Tea

Answer: A

Source:

- [Indian Express - Cotton](#)

News in Shorts

Article - 311

- In a recent judgement a SC bench has clarified that Article 311(1) does not mandate appointing authority's approval to **initiate** disciplinary proceedings against a state employee.
- **For dismissal**, appointing authority's approval will be required.

About Article - 311

- It provides safeguards to civil servants against arbitrary dismissal, removal or demotion by the government. It includes civil posts under both Union and State.
 - **Article 311 (1):** Members of Civil service cannot be dismissed or removed by any authority subordinate to the appointing authority.
 - **Article 311 (2):** Members of Civil Service can be dismissed, removed or reduced in rank after according him/her a reasonable opportunity of being heard post an inquiry.

Source:

- [Live Law - Article 311](#)

Kancha Gachibowli

- It is a 400-acre land parcel within the University of Hyderabad (UoH) campus area in Gachibowli, Hyderabad.
- It is an **undisturbed green zone**, home to rich biodiversity and has remained untouched for over **20 years**.
- **Issue of ownership:**
 - According to students and university community Kancha Gachibowli is part of the university's original campus land, granted in 1974.
 - The **government denies this claim**.
 - Recently Telangana govt. has decided to auction the land and clear the forest area.

Source:

- [The Hindu - Kancha Gachibowli](#)

UGC (Recognition and Grant of Equivalence to Foreign Qualifications) Regulations, 2025

- Recently UGC has notified guidelines to streamline and formalise the process of recognizing foreign educational qualifications (degrees/diplomas/certificates) for use in India.
- It replaces the existing system managed by the **Association of Indian Universities (AIU)**.

About Equivalence Certificate

- An **equivalence certificate** is an official document that **certifies** that a **foreign educational qualification** — such as a degree, diploma, or certificate — is **comparable in academic level and value to an Indian qualification**.
- A foreign qualification (degree/diploma/certificate) is eligible for equivalence if:
 - The awarding institution is recognised under the laws of its home country.
 - The programme's admission norms (credits, thesis, internship, etc.) are **comparable** to similar Indian qualifications.
 - The student must have completed the course as per the **norms of the foreign institution**.
 - Qualifications from **offshore campuses** of foreign institutions can also be recognised.

Source:

- [Indian Express - Equivalence Certificate](#)

Technology and Innovation Report 2025

- Recently **UNCTAD** (United Nations Conference on Trade and Development) has released Technology and Innovation Report 2025.
- It evaluates how countries are prepared for and investing in frontier technologies, including AI, robotics, IoT etc.

About India's Performance

- India has ranked **10th** worldwide in private Artificial Intelligence investments.
- It received **\$1.4 billion** in AI funding in 2023.
- **India & China** are only developing countries with significant AI investments.
- **Frontier Technologies Readiness Index (2024):**
 - India has ranked **36th** out of 170 countries, improving from 48th in 2022.

Source:

- [News on Air - Tech & Innovation report](#)

Wat Pho temple

- During his recent visit to Thailand, Prime Minister Narendra Modi visited Wat Pho Temple.

About Wat Pho Temple

- It is a buddhist temple located in **Rattanakosin Island, Bangkok**.
- It was built in the 16th century as a monastery and was restored in **1788** by **King Rama-I**, who established Bangkok as the capital of Thailand.
- The temple is famous for the **gigantic Reclining Buddha statue**, it depicts **Buddha entering Parinirvana**.

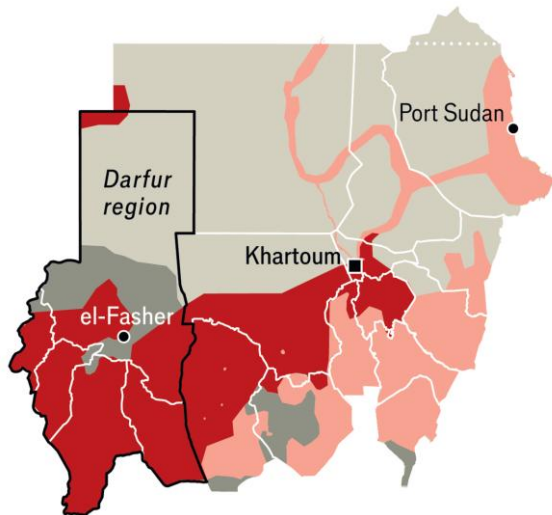


Source:

- [PIB - Wat Pho](#)

Places in News

El-Fasher



- It is the **capital of North Darfur**.
- It serves as a key military and logistics base in Darfur.
- It is an important centre for humanitarian operations, including UN peacekeeping missions (UNAMID).
- Currently under **siege by the paramilitary Rapid Support Forces (RSF)**.
- Currently El-Fasher remains the **only regional capital not under RSF control**.

Source:

- [The Hindu - El-Fasher](#)

Ream Naval Base

- Recently Cambodia and China jointly inaugurated the renovated Ream Naval Base in **Sihanoukville, southwestern Cambodia**. It was **upgraded with Chinese assistance**.



- It is located on Cambodia's southern coast, near the Gulf of Thailand.
- It's in proximity to the **disputed South China Sea**, a region where **China claims nearly all territorial waters**.
- It is capable of docking large naval vessels & **warships**.

Source:

- [The Hindu - Ream Naval Base](#)

Editorial Summary

Police Torture and (Un)Accountability

Context

Recently, **Common Cause (NGO)**, in collaboration with the **Lokniti Programme** of the **Centre for the Study of Developing Societies (CSDS)**, released a comprehensive report on police torture and (un)accountability.

UN Definition of Torture (as per the United Nations Convention Against Torture, 1984 — Article 1)

- Torture means **deliberately causing severe physical or mental pain** to someone by a **government official** for purposes such as **obtaining information, punishment, intimidation, coercion, or discrimination**.
- **Note:** It **excludes** pain and suffering arising only from, inherent in, or incidental to **lawful sanctions**.

What are the Nature of Police Violence and Torture in India?

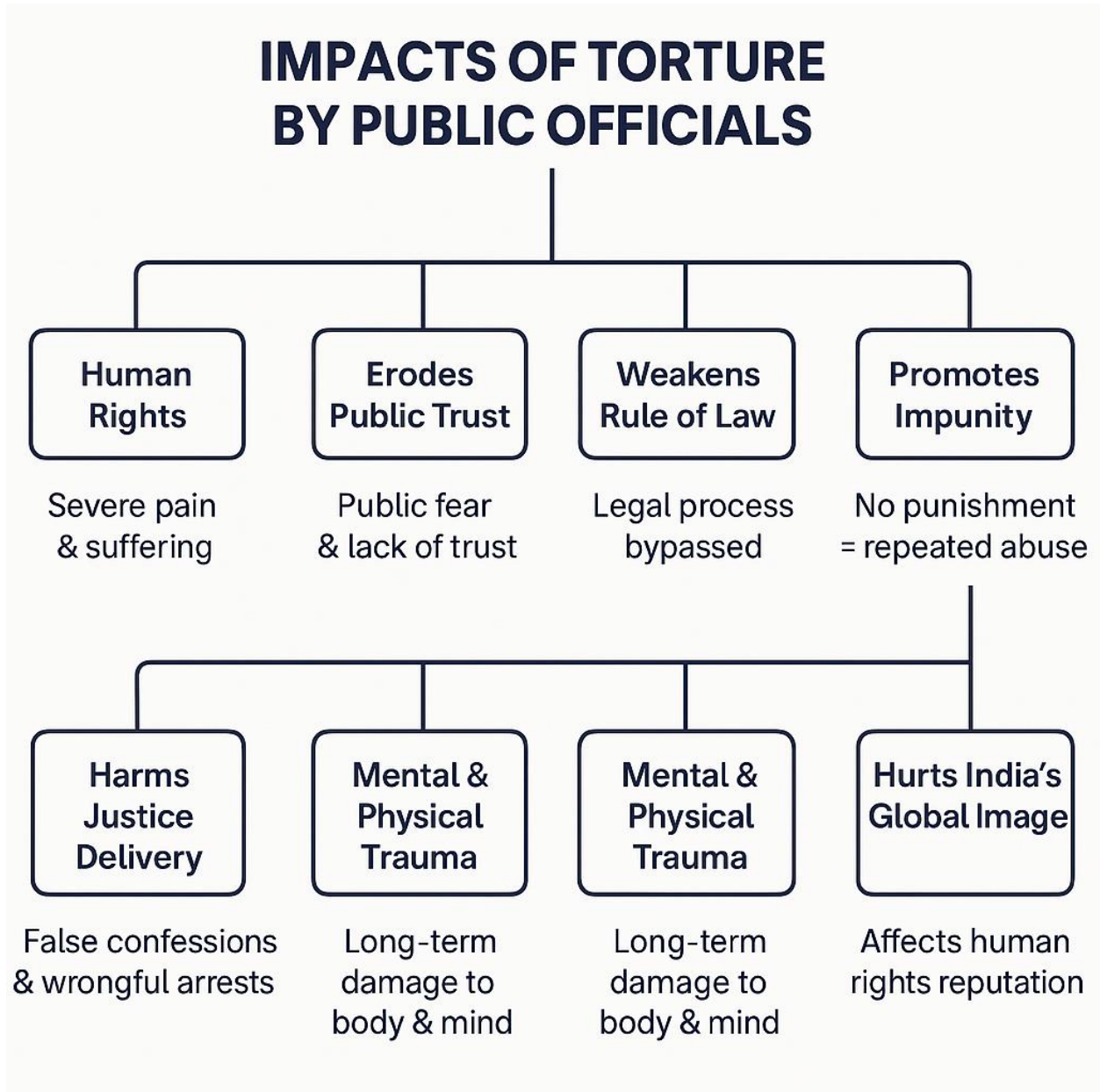
- **Widespread Acceptance of Tough Methods:** 55% of police personnel believe it is important to use "tough methods" to instill fear.
 - 30% justify third-degree methods for serious crimes; 9% even for petty offences.
- **Justification of Extra-Legal Actions:** 22% prefer killing dangerous criminals over legal trial.
 - One in four justify mob violence in sexual harassment and child-lifting cases.
- **Disproportionate Targeting of Marginalised Groups:** Victims largely include Adivasis, Dalits, Muslims, illiterate individuals, and slum dwellers.
- **Lack of Legal Oversight & Accountability:** Procedures of arrest often not followed; in some states, only 41% report "always" following procedure.
 - Near-zero convictions for custodial deaths between 2018–22 despite multiple reported cases.

Underlying Causes and Contributing Factors

- **Colonial Legacy of Policing:** Continued use of colonial-era mindset of control, coercion, and fear.
- **Lack of Accountability Mechanisms:** No effective punishment or deterrent for custodial torture or deaths.
 - Discrepancies in data and lack of transparency (e.g., different agencies reporting different custodial death figures).
- **Political & Institutional Pressure:** Pressure from politicians and senior officers to deliver "**quick results**" leads to shortcuts and coercion.
- **Inadequate Training:** Lack of training in human rights and modern interrogation techniques..
- **Passive Role of Judiciary and Medical Examination:** Magistrates often act as "**silent spectators**," not questioning or documenting custodial abuse.
 - **MLE** is usually conducted by **non-specialist doctors** like eye specialists, anesthesiologists, or general physicians, which undermines the integrity of the findings.

- **Medico-Legal Examination (MLE):** This is a **mandatory medical examination** done when a person is taken into police custody, produced before a magistrate, or alleges torture or abuse.
 - **Who Should Conduct It?** → A government doctor trained in forensic medicine (e.g., forensic pathologist, medico-legal officer)

- **Public Support for Quick Justice:** Public disillusionment with the slow judicial process leads to societal tolerance of police excesses.
- **No Standalone Law Against Torture:** India has **not ratified the UN Convention Against Torture.**
 - Absence of a specific anti-torture law enables continued impunity.



Way Forward

- **Legal and Policy Reforms:** India must ratify the Convention and enact specific anti-torture legislation to criminalize custodial violence as a distinct offense.
- **Amend Laws and Guidelines:** Update the **Police Act, 1861**, and enforce Supreme Court directives like those in the **D.K. Basu case** to ensure transparency in arrests, detentions, and interrogations.
- **Accountability Mechanisms:** Establish independent oversight bodies to investigate allegations of police abuse and ensure prosecution of guilty officers.
- **Training and Capacity Building Human Rights Training:** Incorporate human rights laws into police training curricula to sensitize officers about the illegality and immorality of torture.

- **Modernized Policing Techniques:** Equip police with tools for non-violent interrogation methods, forensic science, and technology-driven crime investigation.
- **Depoliticization of Police:** Implement measures like empowering State Security Commissions to reduce political interference in policing.
- **Workload Reduction:** Address manpower shortages and improve working conditions to reduce stress that often leads to violent behavior.
- **Community Policing Grassroots Engagement:** Adopt community policing models that bridge trust gaps between police and citizens.
 - Initiatives like **Kerala's Janamaithri Suraksha Project** can be scaled nationwide.
- **CCTV Surveillance in Police Stations:** Install night-vision cameras as mandated by the NHRC to monitor custodial practices and deter torture.
- **Victim Protection Laws:** Enact robust victim and witness protection legislation to encourage reporting of torture cases without fear of retaliation.
- **Cultural Change Shift Police Culture:** Address the moral justification many officers hold regarding torture through systemic changes in institutional values and community engagement.

Source: [Indian Express: Human Rights and Wrongs](#)



Rising Household Debt

Context

Household debt has surged dramatically in the years after the pandemic.

Trends in Household Debt

- **Rapid Growth Post-Pandemic:**
 - Household debt rose from **36.6% of GDP in June 2021** to **42.9% in June 2024**.
 - Historically, it hovered around **33% between 2015–2019**.
- **Widespread Across Income Segments:**
 - Credit growth not limited to affluent groups — even low-income households increased borrowing.
- **Sharp Rise in Personal and Unsecured Loans:**
 - **Banks' personal loans** grew by **75%** (Mar 2021–Mar 2024).
 - **NBFCs and HFCs' retail credit** rose by **70%**.
 - **Unsecured personal loan books** grew sharply: **Banks: 82%, NBFCs: ~130%**.
- **More Loans, More Borrowers:**
 - High number of live loans: Many borrowers have **3+ loans**.
 - **11%** of borrowers with **small-ticket personal loans (<₹50,000)** are **overdue**.
 - Borrowers with **4+ active loans** nearly at **6%**.

Underlying Causes

- **Inadequate Income Growth:** Between Mar 2021–Mar 2024:
 - **Disposable income** grew by only **43%**, vs **credit** growth of **70–75%**.
 - **Consumption** rose by **49%**, indicating credit was used to bridge the gap.
- **Low Job Creation and Wage Growth:** Structural issues in employment and productivity are forcing households to borrow to maintain living standards.
- **Pandemic Aftermath:** Households turned to borrowing during and after COVID-19 to sustain consumption.
- **Easy Availability of Credit:** Aggressive lending by **NBFCs, MFIs, and banks**, especially in unsecured segments.
- **Failed or Ineffective Initiatives:**
 - **RBI's Temporary Tightening (Nov 2023):** Raised risk weights on consumer credit and bank exposure to NBFCs.
 - Impacted credit growth **but was short-lived** due to concerns about slowing consumption.

Impacts of Rising Household Debt

- **Reduced Future Consumption:** Larger debt servicing eats into **disposable income**, reducing ability to spend.
- **Higher Defaults & Stress Signs:** Rising **delinquencies** in NBFC portfolios: gold loans, vehicle loans, unsecured credit.
 - Increasing **write-offs** by banks of retail unsecured loans.
- **Overdependence on Credit-Driven Growth:** Private consumption is being artificially propped up by credit, not income.
- **Financial Vulnerability in Low-Income Groups:** Poorer households rely more on **unsecured loans** for **essential consumption**, leading to **greater financial fragility**.

What Needs to Be Done

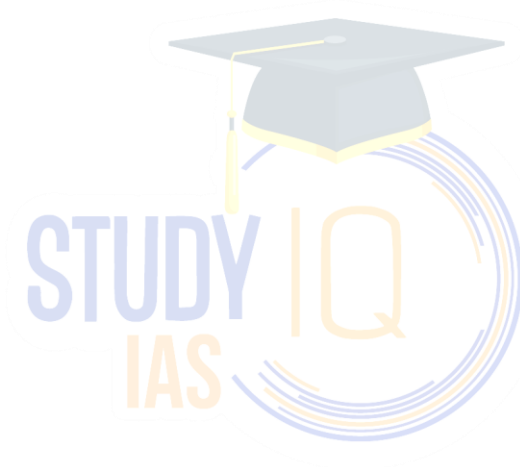
Short-Term Policy Measures:

- **Calibrated Monetary Easing:** Rate cuts + liquidity easing to be **paired with caution** on unsecured credit expansion.
- **Strengthen Credit Monitoring:** Tighten norms on multiple lending by MFIs & NBFCs.
- **Improve Financial Literacy:** Awareness on responsible borrowing and debt management.

Medium to Long-Term Structural Measures

- **Enhance Income Growth:** Focus on **employment-intensive sectors** (manufacturing, MSMEs, services).
 - Encourage **formal job creation**.
- **Regulate Informal Credit Channels:** Expand RBI oversight over NBFC-MFIs and introduce **better credit risk profiling**.
- **Credit-Linked Asset Building:** Redirect credit toward **productive use:** education, skill development, entrepreneurship.
- **Revamp Social Security Nets:** Ensure **basic income support** and employment guarantees reduce credit dependency.

Source: [Indian Express: Living With Debt](#)



Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) And India

Context

The 6th Summit of the Heads of State/Government of the member States of BIMSTEC) was held in Bangkok, Thailand.

About BIMSTEC

BIMSTEC

The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation.

MARITIME RESEARCH CENTER
FOUNDATION FOR UNDERWATER DOMAIN AWARENESS

NIR TECHNOLOGIES
DHWANI

OBJECTIVE

To accelerate the economic growth and social progress in the sub-region through joint endeavors in a spirit of equality and partnership.

MAIN SECTORS OF COOPERATION

Trade & Investment, Transport & Communication, Energy, Tourism, Technology, Fisheries, Agriculture, Public Health, Poverty Alleviation, Counter-Terrorism & Transnational Crime, Environment & Disaster, Management, People-to-People, Contact, Cultural Cooperation, Climate Change.

6 JUNE 1997
is the establishment date of **BIMSTEC**.

FACTORS

- BIMSTEC has headquarters in **Dhaka, Bangladesh**.
- BIMSTEC countries house **1.73 billion** people
- BIMSTEC has combined GDP of **\$ 4.4 trillion**.
- The current Secretary General of the **BIMSTEC** is Ambassador **Tenzin Lekphell** from **Bhutan**.

BIMSTEC comprises of 7 Member Countries.

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Challenges in India–BIMSTEC Relations

- **Economic Disparities:** Wide economic gap among member countries, with India as the dominant economy.
 - Smaller nations like Bhutan and Nepal face constraints in funding and execution of joint projects.
 - Trade imbalances persist; non-tariff barriers (NTBs) and restrictive trade policies — notably raised by Bangladesh — hamper equitable trade.
- **Connectivity and Infrastructure Gaps:** Inadequate transport and communication networks limit regional integration.
 - Key projects such as the Kaladan Multi-Modal Transit Transport Project face delays due to logistical and operational hurdles.
 - Inefficient customs and border management worsen connectivity issues.
- **Institutional Limitations:** BIMSTEC's institutional framework remains weak; the secretariat in Dhaka is under-resourced and understaffed.
 - Poor implementation and monitoring of regional initiatives due to administrative inefficiencies.
 - Slow progress on key agreements like the BIMSTEC Free Trade Agreement reflects these shortcomings.
- **Political Instability:** Unstable political situations in countries like Myanmar affect regional cooperation and project continuity.
 - Frequent government changes disrupt long-term planning and implementation of BIMSTEC agendas.
 - Border-related tensions (e.g., India–Myanmar) strain bilateral and regional ties.
- **Security Threats:** Maritime security risks in the Bay of Bengal from piracy, smuggling, and illegal fishing activities.
 - Rise in cyber threats requires joint cybersecurity frameworks and coordination.
- **Environmental Vulnerabilities:** Frequent natural disasters such as cyclones and rising sea levels threaten coastal member states.
 - Countries like Bangladesh and Sri Lanka are especially at risk, highlighting the need for joint disaster management efforts.
- **Geopolitical Challenges:** China's increasing strategic and economic presence in countries like Myanmar, Bangladesh, and Thailand undermines India's influence.
 - India's strained relationship with China complicates its leadership aspirations within BIMSTEC.
- **Uneven Member Engagement:** Some member countries prioritize other regional groupings like ASEAN or SAARC over BIMSTEC.
 - Fragmented participation leads to inconsistent commitments and diluted regional focus.

India's Efforts and the Way Forward

- **Centre of Excellence Initiatives:** India has proposed specialized BIMSTEC centres for disaster management, sustainable transport, traditional medicine, and agricultural innovation.
- **BODHI Program:** Launched to support capacity building and human resource development across member countries.
- **Connectivity Boost:** Promoting infrastructure development through multi-modal transport corridors and regional energy grids to enhance physical and energy connectivity.
- **Cultural Diplomacy:** Strengthening people-to-people ties through cultural events like the BIMSTEC Games and music festivals to foster regional identity and cooperation.

Source: [Indian Express: Reaching Out](#)