



7 PM COMPILATION

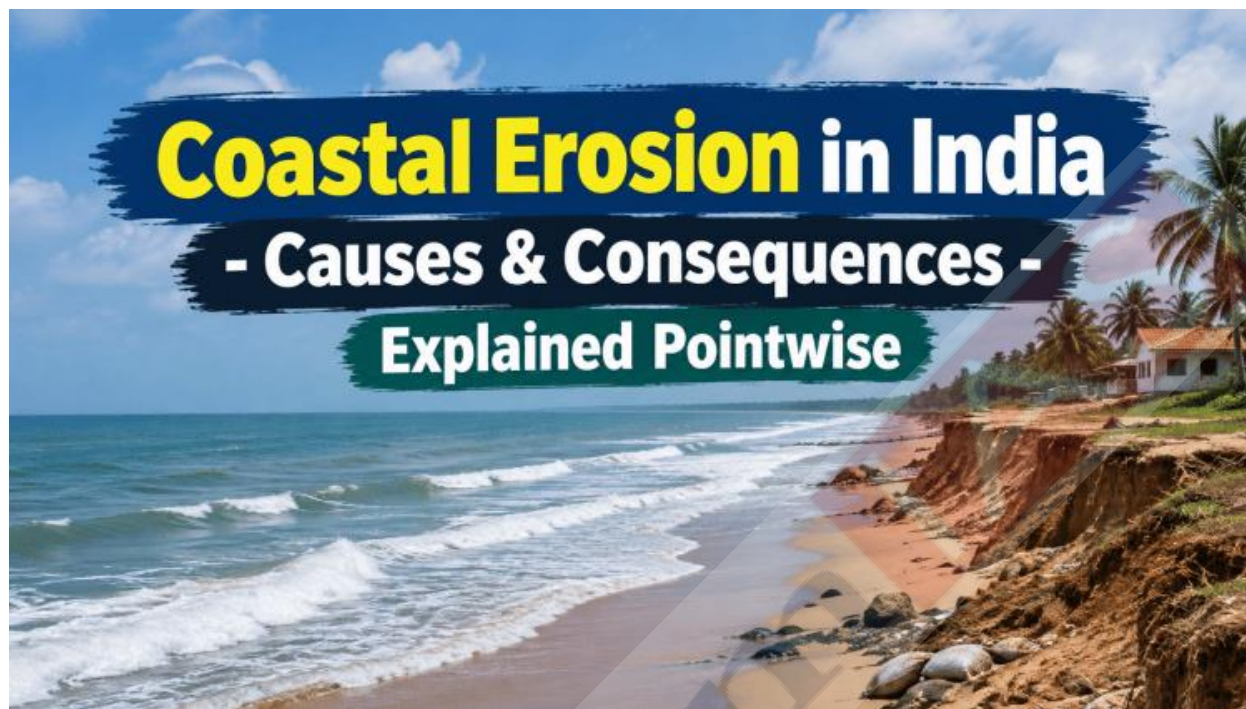
3rd and 4th week August, 2026

Features of 7 PM compilation

- ❖ Comprehensive coverage of a given current topic
- ❖ Provide you all the information you need to frame a good answer
- ❖ Critical analysis, comparative analysis, legal/constitutional provisions, current issues and challenges and best practices around the world
- ❖ Written in lucid language and point format
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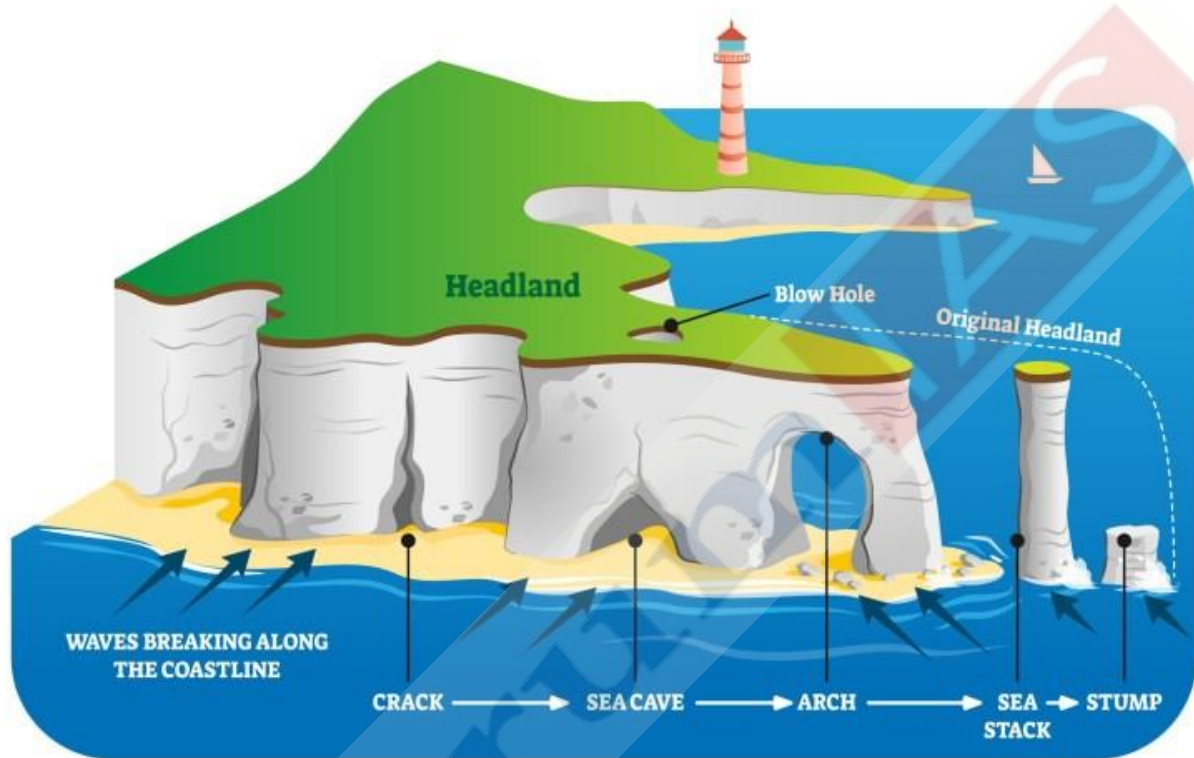
Coastal Erosion in India – Causes & Consequences – Explained Pointwise

Recently, in response to a question raised in the **Rajya Sabha**, the Union Minister for Ports, Shipping and Waterways stated that **about 28% of Odisha's 564-km coastline is experiencing erosion**, based on a study by the **National Centre for Coastal Research (NCCR)**. The NCCR monitors long-term shoreline changes along India's coastline.

What is coastal erosion?

- Coastal Erosion refers to the **loss of land, long-term removal of sediment and rocks along the coastline** due the **action of sea-waves, currents, tides and other impacts of storms**.
- It involves wearing away and redistributing solid elements of the shoreline as well as sediment. Erosion occurs when the material being removed, for deposition elsewhere, exceeds the rate of supply finally resulting in the **landward shifting of the shoreline**.
- **Key processes involved:**
 1. **Hydraulic action:** The force of waves striking the coast compresses air in cracks and crevices of rocks, weakening and eventually breaking them apart.
 2. **Abrasion (corrasion):** Waves carry sand, pebbles, and rock fragments that grind against cliffs and shorelines, wearing them down like sandpaper.
 3. **Attrition:** Rock fragments and sediments carried by waves collide with each other, breaking into smaller, smoother particles over time.
 4. **Corrosion (solution):** Chemical weathering where seawater dissolves soluble rock materials like limestone and chalk.
 5. **Longshore drift:** Waves approaching at an angle move sediment along the coast, redistributing material and altering shoreline shape.

COASTAL EROSION



What is the extent and spatial distribution of coastal erosion in India?

- India has a **7,517-km coastline**, including the mainland and islands. Coastal erosion is a major concern because of rising sea levels, cyclones, changing sediment flows and human interventions along the coast.
- According to the **National Centre for Coastal Research (NCCR)** assessment for **1990-2018**, about **6,907 km** of India's mainland coastline was analysed. The findings show:

Shoreline status	Share of mainland coastline
Eroding	33.6%
Accreting	26.9%

Stable	39.6%
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● **Spatial Distribution:**

Eastern Coast	Eastern coast has relatively higher vulnerability. Approximately 38% of the shoreline is eroding. ○ West Bengal: particularly vulnerable, with about 60.5% of its analysed coastline experiencing erosion. ○ Odisha: around 28.3% was under erosion. ○ Andhra Pradesh: around 28.7%. ○ Tamil Nadu: around 42.7%. ○ Puducherry: about 56.2%.
Western Coast	Western coast is relatively stable. Approximately 30% of the shoreline is eroding, with more than 48% remaining stable due to rocky headlands and Deccan basalt configurations. ○ Kerala is among the most affected major coastal states, with approximately 46.4% of its coastline showing erosion. ○ Gujarat: about 27.6%. ○ Maharashtra: about 25.5%. ○ Karnataka: about 23.7%. ○ Goa: about 19.2%.

- Thus, nearly **one-third (33.6%)** of India's mainland coastline experienced varying degrees of erosion during 1990-2018.

What are the major causes of coastal erosion in India?

Natural Causes	1. Wave Action: Strong waves continuously remove and transport beach sediments, particularly during monsoons and storms. 2. Cyclones and Storm Surges: The Bay of Bengal and Arabian Sea experience intense tropical cyclones. High-velocity winds and destructive storm waves attack areas well above the normal high-tide line, causing massive shoreline retreat in West Bengal, Odisha, and Tamil Nadu. 3. Sea-Level Rise: Rising sea levels along the Indian coast (estimated at ~1.7 mm/year on average, and higher in deltaic regions) submerge low-lying areas, particularly in the Sunderbans (West Bengal) and parts of Kerala. 4. Tides and Longshore Currents: Tidal movements and longshore currents redistribute sediments along the coastline, causing erosion in some locations and accretion in others. 5. Changes in Sediment Supply: Natural changes in river discharge and sediment transport can disturb the coastal sediment balance.
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Anthropogenic Causes	1. Construction of Ports, Harbours and Jetties: Coastal structures interrupt natural longshore sediment movement, often causing accretion on one side and erosion on the other. 2. Construction of Dams on Rivers: Construction of dams on major peninsular and Himalayan rivers (e.g. Godavari, Krishna, Mahanadi, Ganga) trap up to 70–80% of riverine sediment that would naturally reach the sea, thus, reducing the sediment supply to beaches and deltas and increasing erosion. 3. Beach Sand Mining: Excessive extraction of sand removes an important source of coastal sediment and weakens the natural resilience of beaches especially in Kerala & Tamil Nadu. 4. Dredging: Dredging of ports, navigation channels and tidal inlets can remove sediments from the littoral zone and disturb the natural sediment budget. 5. Unplanned Coastal Development: Urbanisation, tourism infrastructure, roads and other construction can destroy dunes, mangroves and other natural barriers that protect the coastline. 6. Destruction of coral reefs: Reef degradation (Gulf of Mannar, Lakshadweep) removes natural wave-breaking barriers that would otherwise protect shorelines.
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What are the major impacts of coastal erosion in India?

1. **Loss of Coastal Land:** Coastal erosion causes progressive retreat of the shoreline, resulting in the loss of coastal land. It threatens low-lying settlements, particularly in densely populated coastal regions, while increasing the risks of inundation, displacement and loss of productive land. For e.g. the submersion of **Satabhaya village in Kendrapara (Odisha)** and the rapid shrinking of **Ghoramara, Mousuni, and Sagar Islands in the Indian Sundarbans (West Bengal)**.
2. **Loss of Livelihoods:** Coastal erosion threatens the livelihoods of fishing and farming communities by reducing access to beaches, fishing grounds and agricultural land. Damage to coastal infrastructure, aquaculture and tourism further affects incomes, while displacement forces communities to seek alternative sources of employment. For e.g. In Kerala, fishers lose direct access to the sea, forcing them to commute to distant, congested commercial harbors.
3. **Damage to Infrastructure:** Coastal erosion undermines roads, bridges, ports, railway lines, power infrastructure, houses and other public assets located near the shoreline. For e.g. National and State Highways (such as the East Coast Road in Tamil Nadu and sections of NH-66 in Kerala/Karnataka) face periodic collapse during monsoon swell waves and cyclones.
4. **Displacement of Coastal Communities:** Coastal erosion causes gradual loss of homes & agricultural land, forcing fishing and coastal communities to relocate. Such displacement can lead to loss of livelihoods, social networks, cultural identity and economic security, creating challenges of rehabilitation and resettlement.
5. **Salinity Intrusion:** Shoreline retreat and sea-level rise can facilitate the intrusion of seawater into groundwater and agricultural land, affecting drinking water and crop productivity. For e.g. Coastal populations in states like Tamil Nadu and Andhra Pradesh face acute shortages of potable drinking water, forcing local panchayats to rely on water tankers or expensive desalination.
6. **Loss of Coastal Ecosystems:** Coastal erosion damages mangroves, coral reefs, sand dunes, beaches and wetlands, leading to habitat loss and declining biodiversity. For e.g. coastal erosion flattens and

shrinks the mass-nesting beaches (*arribada*) of vulnerable **Olive Ridley turtles** at Rushikulya, Gahirmatha, and Devi river mouths in Odisha.

7. **Economic Losses:** Coastal erosion causes substantial economic losses by damaging houses, roads, ports, tourism infrastructure and agricultural land. NCSCM estimates that around **100 sq km of beach/coastal land has been lost**, while annual economic losses associated with erosion have been estimated at around **₹1,000 crore** in protection and mitigation-related costs.
8. **Impact on Tourism:** Coastal erosion leads to the loss and degradation of beaches, dunes and scenic landscapes, reducing the attractiveness of coastal destinations. It can damage tourism infrastructure, increase maintenance costs, and adversely affect local businesses and employment dependent on tourism.

What measures has the government taken to address coastal erosion in India?

1. **Shoreline Mapping and Monitoring:** The **National Centre for Coastal Research (NCCR)** monitors shoreline changes using satellite imagery, remote sensing and field surveys to generate the **Shoreline Change Atlas of India**. It has mapped vulnerable stretches and provides technical support to coastal States/UTs.
2. **Shoreline Management Plans:** NCCR assists States in preparing **Shoreline Management Plans (SMPs)**. These plans identify high-, medium- and low-erosion zones and recommend site-specific protection measures rather than a uniform approach.
3. **Coastal Regulation Zone (CRZ) Notification, 2019:** The **CRZ framework** regulates development along vulnerable coastal stretches. It provides for **No Development Zones (NDZs)** in specified areas and seeks to protect ecologically sensitive areas such as mangroves and coral reefs.
4. **Demarcation of Hazard Lines:** The government has delineated a **hazard line** along India's coast, considering shoreline changes, flooding and sea-level rise. It is used for disaster management, land-use planning and adaptation measures.
5. **Disaster Risk Financing:** The 15th Finance Commission recommended **₹1,500 crore** under the **National Disaster Mitigation Fund (NDMF)** for structural and non-structural measures to mitigate coastal and river erosion. **₹1,000 Crore** allocated under the **National Disaster Response Fund (NDRF)** dedicated to the **resettlement and rehabilitation** of populations displaced by coastal and river erosion.
6. **Ecosystem-Based Adaptation (Soft Engineering):**
 - a. **MISHTI Scheme (2023-2028):** The Mangrove Initiative for Shoreline Habitats & Tangible Incomes targets the restoration and afforestation of ~540 sq. km of mangrove buffers across 11 coastal states and 2 UTs by converging MGNREGS, CAMPA funds, and local community stewardship.
 - b. **Bio-Shield Plantations:** State forest departments systematically plant shelterbelts of *Casuarina equisetifolia*, *Pandanus*, and sand-binding creepers to stabilize coastal dunes and reduce wind-wave impact.

What should be the way forward?

1. **Adopt Integrated Coastal Zone Management (ICZM):** ICZM promotes coordinated management of coastal resources by balancing economic development, environmental conservation and livelihood security. It integrates land-use planning, disaster risk reduction, ecosystem protection and community participation to ensure sustainable and climate-resilient development along India's vulnerable coastline.
2. **Prepare and implement Shoreline Management Plans:** Develop science-based, site-specific plans using shoreline-change data, sediment dynamics, hazard mapping and stakeholder inputs. These plans

should guide suitable protection measures while balancing coastal development, ecosystem conservation and community livelihoods.

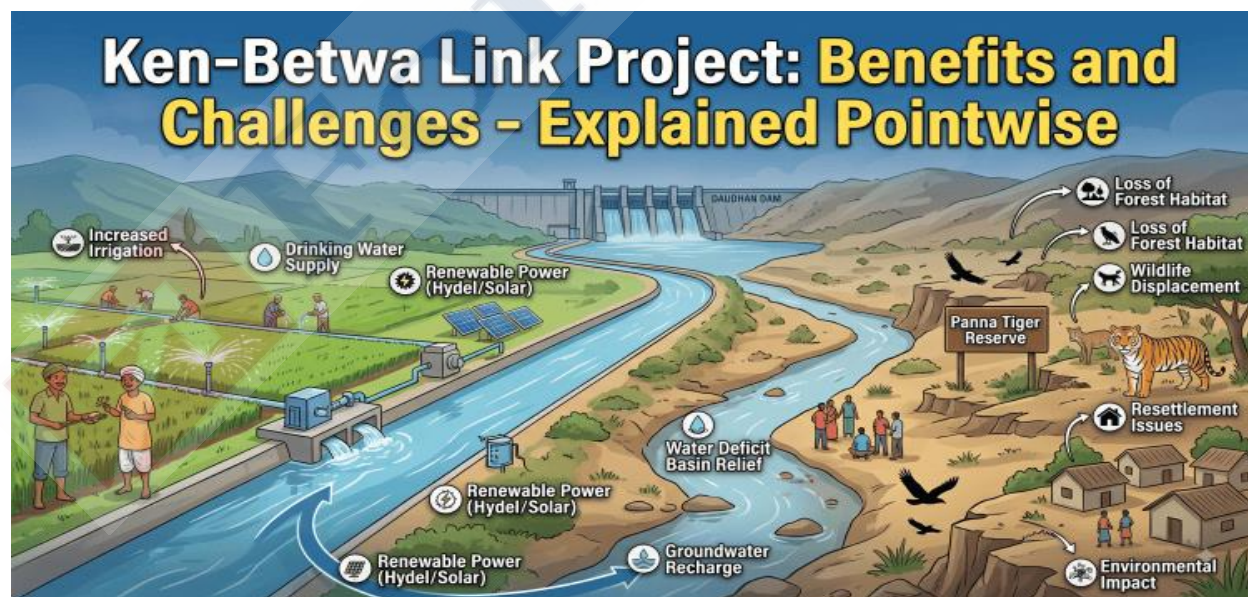
3. **Strengthen Coastal Regulation:** Strictly enforce Coastal Regulation Zone (CRZ) norms, prevent unplanned construction in vulnerable areas, regulate sand mining and coastal activities, and integrate hazard-line mapping into land-use planning to reduce long-term erosion risks.
4. **Improve Climate Resilience:** Integrate sea-level rise, cyclones, and storm surges into coastal planning, infrastructure design and disaster management. Also strengthen the early-warning systems, ecosystem-based adaptation and climate-resilient livelihoods.
5. **Prioritize Nature-Based Solutions (NbS):** Restore mangroves, coral reefs, sand dunes, wetlands and coastal vegetation as natural barriers. For e.g. Expand mangrove and shelterbelt afforestation, particularly in the Sunderbans, Godavari-Krishna delta, and Kerala because mangroves are more cost-effective and self-sustaining than seawalls.
6. **Community-Centred Approach:** Involve coastal communities, particularly fishermen, in planning and decision-making, while providing livelihood support, disaster preparedness, insurance and rehabilitation assistance.

Conclusion: Coastal erosion in India is both an environmental and developmental challenge. We need to shift from reactive protection to integrated coastal management, combining nature-based solutions, resilient infrastructure, scientific planning and community participation, to build climate-resilient and sustainable coastal regions.

UPSC GS-3: Environment

Read More: [The Indian Express](#)

Ken-Betwa Link Project: Benefits and Challenges – Explained Pointwise



The Ken-Betwa Link Project is a 'flagship' project of the Government and 'it is critical for the water security and socio-economic development of Bundelkhand region'. The project was approved in December 2021 by the Union Government. The Ken-Betwa Link project is expected to cost INR 44,605 crore. While the project is

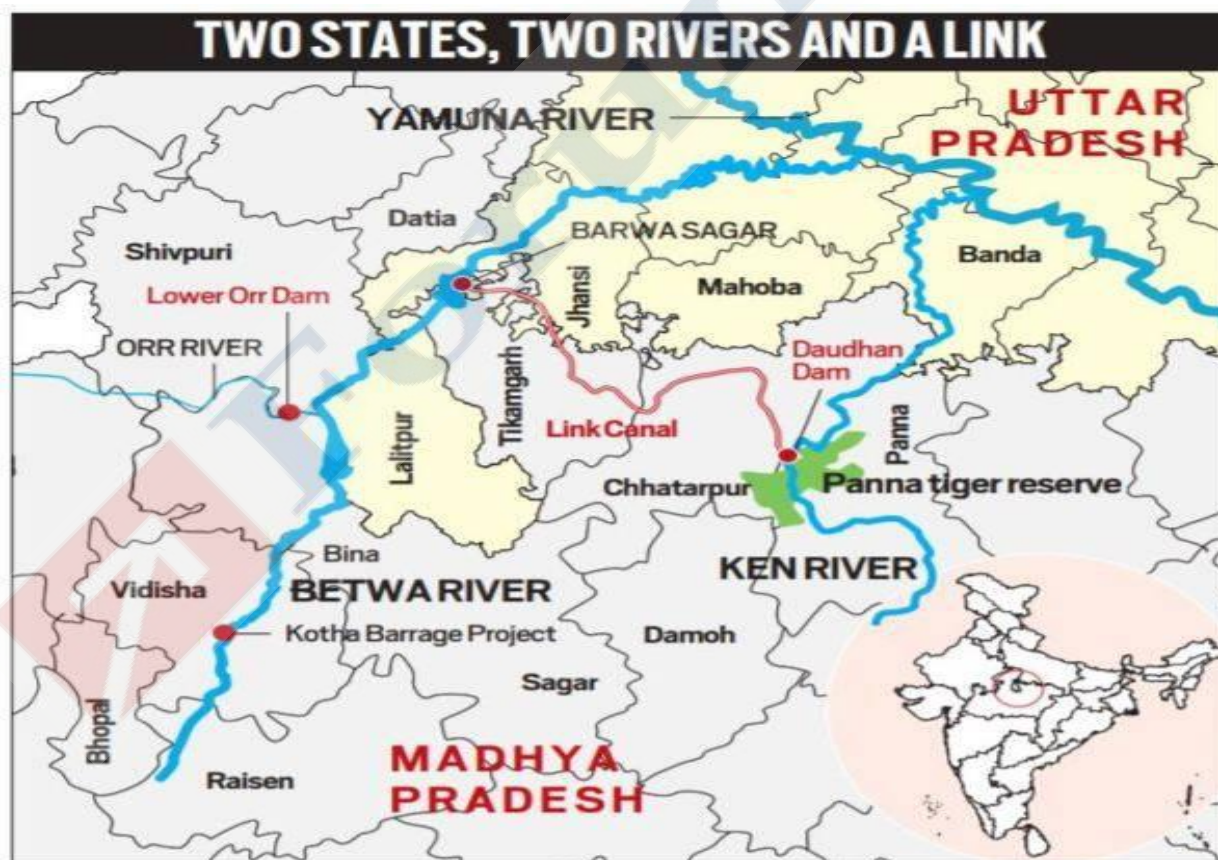
expected to benefit the local population, however, the tribal communities in Madhya Pradesh's Panna and Chhatarpur districts have recently protested, citing displacement, inadequate compensation, livelihood losses and concerns over their cultural and forest rights. The protests, including 'Chita Andolan' and 'Jal Satyagraha', highlight the need to balance developmental objectives with **equitable rehabilitation & tribal rights**.

What is the Ken-Betwa Link Project?

- The Ken-Betwa Link Project (KBLP) is the first project under the **National Perspective Plan for interlinking of rivers**. Under this project, water from the Ken river will be transferred to the Betwa river. Both these rivers are tributaries of river Yamuna.

Read More: [Interlinking of Rivers Project in India – Explained, Pointwise](#)

- The Ken-Betwa Link project was conceptualised in the 1980s. However, the water-sharing agreement could not be reached between the States of Madhya Pradesh and Uttar Pradesh. The work on the project was originally slated to begin in 2015 but got delayed. The project got a fresh push in 2020-21, with the Union Government making a revised deal with the two states (Madhya Pradesh and Uttar Pradesh).



Source: Indian Express

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- The Project has two phases.
 1. Under **Phase-I**, **Daudhan Dam** complex (along with Low and High Level Tunnels) and **Ken-Betwa Link Canal and Powerhouses** will be completed. The Daudhan Dam will be built on the Ken river within the Panna Tiger Reserve. The dam will generate 103 MW of hydroelectric power.
 2. Under **Phase-II**, there are 3 components. Under this, **Lower Orr dam, Bina Complex Project** and **Kotha Barrage** will be constructed.
- This project will benefit people across the districts of MP and UP i.e. Tikamgarh, Panna and Chhatarpur districts in MP and Jhansi, Banda, Lalitpur and Mahoba districts in UP.
- A Special Purpose Vehicle (SPV) called **Ken-Betwa Link Project Authority** (KBLPA) will be set up to implement the project.

What are the benefits of Ken-Betwa Link Project?

1. **Expansion of Irrigation:** The project is expected to provide irrigation to **10.62 lakh hectares** across Madhya Pradesh and Uttar Pradesh, reducing dependence on monsoons, improving agricultural productivity, enabling crop diversification and enhancing farmers' incomes.
2. **Drinking Water Security:** The project will provide about **194 MCM of drinking water annually to nearly 62 lakh people** in Madhya Pradesh and Uttar Pradesh, improving access to reliable water supplies in water-stressed Bundelkhand.
3. **Drought Mitigation:** The Ken-Betwa Link Project will provide assured water to drought-prone **Bundelkhand**, reducing dependence on erratic monsoons, improving irrigation, strengthening water security, supporting agriculture and livelihoods, and enhancing resilience against recurring droughts.
4. **Hydropower and Renewable Energy:** The project is expected to generate **103 MW of hydropower and 27 MW of solar power**, contributing to clean energy generation, reducing dependence on fossil fuels and supporting regional energy security.
5. **Agricultural Development:** Assured irrigation can increase cropping intensity, promote crop diversification, improve agricultural productivity and reduce dependence on erratic monsoons. This can enhance farm incomes, strengthen rural livelihoods and contribute to greater food security in Bundelkhand.
6. **Employment Generation:** The project is expected to create employment during construction and subsequently through expanded irrigation, agriculture, fisheries and allied activities, thereby strengthening rural livelihoods, stimulating local economies and improving income opportunities in Bundelkhand.
7. **Reduction in Distress Migration:** By providing assured irrigation, drinking water and livelihood opportunities, the Ken-Betwa Link Project can improve rural incomes and employment in Bundelkhand, thereby reducing distress migration caused by recurring droughts and water scarcity.
8. **Potential Model for River Interlinking:** As the first major river-linking project under implementation, the Ken-Betwa project can provide valuable lessons on inter-State cooperation, water-sharing mechanisms, environmental management, rehabilitation and the feasibility of future river interlinking projects.

What are the challenges associated with the Ken-Betwa Link Project?

Environmental	1. Ecological Impact on Panna Tiger Reserve: The proposed Daudhan reservoir would submerge about 9,000 hectares, including 4,141 ha of the core and 1,314 ha of the buffer of Panna Tiger Reserve. This could fragment wildlife habitats and affect tiger, vulture and other wildlife populations. 2. Loss of Forest Cover: Large-scale diversion of forest land and tree felling could reduce biodiversity, carbon sequestration and ecosystem services. The project therefore creates a difficult balance between water security and ecological conservation. 3. Impact on Riverine Ecosystems: Alteration of the natural flow of the Ken River may affect downstream ecosystems, including the Ken Gharial Sanctuary. Changes in flow and sediment regimes can affect aquatic biodiversity. 4. Hydrological Uncertainty: The assumption that the Ken is a surplus basin while the Betwa is a deficit basin is questionable, raising concerns about the long-term availability of transferable water. Climate change could further increase uncertainty in river flows and rainfall patterns.
Political	1. Inter-State and Water-Sharing Issues: Although Madhya Pradesh and Uttar Pradesh have agreed on the project, future disputes over water allocation, especially during drought years, could emerge. 2. Wildlife (Protection) Act, 1972: Clearances faced legal challenges regarding Section 35(6), which restricts the destruction or diversion of wildlife habitats in National Parks unless deemed necessary for the “improvement and better management of wildlife”.
Social	1. Displacement and Rehabilitation: The Daudhan reservoir is expected to affect 10 villages and around 1,913 families, according to government estimates. Tribal families in Chhatarpur and Panna districts have protested against displacement. Ensuring fair compensation, timely rehabilitation and restoration of livelihoods remains a major challenge. 2. Impact on Local Livelihoods: Displacement and changes in forests, agricultural land and river ecosystems can affect communities dependent on farming, forests and other natural resources.
Economic	1. Economic Viability: The project involves an investment of roughly ₹45,000 crore. Questions have been raised about whether the expected irrigation and economic benefits justify the substantial financial and ecological costs.

What should be the way forward?

1. **Ensure time-bound Rehabilitation & Resettlement:** Provide fair compensation, alternative land where appropriate, livelihood restoration and long-term support to all Project Affected Families. Move beyond monetary compensation to livelihood-based rehabilitation for displaced Gond and Kol tribal

families i.e. land-for-land where possible, skill training, and priority access to the very irrigation benefits the project promises.

2. **Strengthen ecological safeguards:** Strictly implement the Environmental Management Plan and the **Integrated Landscape Management Plan (ILMP)** for the Panna landscape, with continuous monitoring of tigers, gharials, vultures and other biodiversity.
3. **Adopt adaptive water management:** Continuously monitor rainfall, river flows, groundwater levels and climate variability, and dynamically adjust water allocation and releases to ensure equitable distribution, drought resilience and sustainable use of transferred water.
4. **Promote water-use efficiency:** Complement the project with micro-irrigation, watershed development, rainwater harvesting and groundwater recharge to reduce water wastage, improve irrigation efficiency, enhance drought resilience and ensure sustainable utilisation of transferred water. Pair large-scale transfers with the restoration of Bundelkhand's historic Chandela and Bundela era tanks, check dams, and local stepwells (*baolis*).
5. **Ensure inter-State cooperation:** Establish transparent mechanisms between Madhya Pradesh and Uttar Pradesh for equitable water sharing, data exchange, dispute resolution and coordinated reservoir management, particularly during droughts and periods of water scarcity.
6. **Use technology-based monitoring:** Deploy GIS, remote sensing, satellite imagery and real-time hydrological monitoring to assess water availability, track environmental impacts, monitor project implementation and enable timely corrective measures, ensuring efficient and sustainable management of the project.
7. **Greater Panna Landscape Council (GPLC):** Empower the GPLC and the Ken-Betwa Link Project Authority (KBLPA) with independent technical and ecological oversight to ensure compliance with clearance conditions.
8. **Create a model for future river-linking:** Lessons from KBLP should inform future projects regarding hydrological assessment, environmental clearance, inter-State consensus, rehabilitation and benefit-sharing. The government itself envisages the project as an important model for resolving inter-State water issues.

Conclusion: According to the Government, the Ken-Betwa project can address the issues related to water scarcity in the region. Irrigation and hydropower projects will contribute to prosperity of the region. However, there are legitimate environment & social concerns vis-a-vis benefits of the project. The Government should address these concerns and ensure that the adverse impacts on the local population and biodiversity are minimized.

UPSC GS-3: Environment

Read More: [The Hindu](#)

Mines and Minerals (Development and Regulation) Amendment Bill, 2026 – Provisions, Significance & Concerns – Explained Pointwise



The **Mines and Minerals (Development and Regulation) Amendment Bill, 2026**, recently passed by Parliament, seeks to reform India's mineral governance by restricting unregulated State-level levies on mineral rights and mineral-bearing lands and creating a more predictable fiscal regime. However, its curbs on State levies raise concerns over fiscal federalism, State autonomy and revenue loss.

What are the key provisions of the Mines and Minerals (Development and Regulation) Amendment Bill, 2026?

1. **Restrictions on State Taxes and Cesses:** States will not be able to impose taxes, cesses or levies on mineral rights or mineral-bearing lands freely. Such levies can be imposed only subject to conditions or restrictions prescribed by the Central Government.
2. **Central regulation of mineral-bearing lands:** The Bill expands the regulatory framework under the MMDR Act to explicitly cover mineral-bearing lands, strengthening the Centre's role in mineral governance.
3. **Expanded Rule-Making Powers:** Section 13 is amended to empower the Central Government to frame rules specifying the precise conditions, limits, and parameters under which States may impose future mineral-related levies.

4. **Retrospective treatment of unpaid State levies:** Certain unpaid or unrecovered State levies relating to mineral rights/mineral-bearing lands from before the amendment are treated as invalid. However, amounts already collected are not to be refunded.
5. **Uniformity and fiscal predictability:** The Bill aims to reduce differences in mineral taxation among States and provide greater certainty about mining costs. The government argues that this will encourage investment, increase domestic mineral production and reduce import dependence.
6. **Retention of Minor Mineral Powers:** The regulatory and revenue authority of State Governments over minor minerals (such as sand, gravel, marble, and granite) remains intact and unaffected by these provisions.
7. **Focus on mineral security:** The reform is also linked to strengthening India's domestic mineral supply, particularly for industries dependent on minerals needed for energy transition, technology and strategic sectors.

What is the significance of the MMDR Amendment Bill, 2026?

1. **Unified National Market:** Minerals are geographically concentrated in a few states (such as Odisha, Jharkhand, and Chhattisgarh) but are essential nationwide. A standardized fiscal ceiling prevents price distortions and high interstate logistics costs, fostering a single domestic mineral market.
2. **Promotes investment in the mining sector:** Restricting unpredictable state-level taxes, cesses and levies can make the cost of mining more predictable. This may encourage domestic and foreign investment in the mining sector.
3. **Creates a more uniform taxation framework:** Different state-level levies can increase the cost of minerals and create disparities across states. The amendment seeks to prevent such fragmentation and establish greater uniformity in mineral taxation.
4. **Critical & Strategic Mineral Supply:** India's transition toward clean energy, advanced manufacturing, and defense depends on critical minerals (such as lithium, cobalt, nickel, and rare earths). Removing excessive state-level cess prevents domestic extraction from becoming commercially unviable compared to global imports.
5. **Reduces import dependence:** Higher domestic mineral production can reduce India's dependence on imported raw materials and strengthen Atmanirbhar Bharat.
6. **Improves ease of doing business:** A predictable fiscal regime reduces uncertainty regarding the long-term economics of mining projects, potentially improving the ease of doing business.
7. **Addresses the post-MADA judgment situation:** The amendment follows the Supreme Court's 2024 **Mineral Area Development Authority (MADA) v. SAIL judgment**, which recognised states' power to tax mineral rights while holding that royalty is not a tax. Thus, the Bill represents an important development in the Centre-State relationship over natural resources.

What are the major concerns associated with the MMDR Amendment Bill, 2026?

1. **Erosion of fiscal autonomy of States:** The Bill restricts States from imposing taxes, cesses or levies on mineral rights and mineral-bearing lands except within parameters prescribed by the Centre. This could reduce the taxing powers and financial autonomy of States, particularly mineral-rich States.
2. **Impact on State revenues:** States such as **Jharkhand and Odisha** depend significantly on mineral-related revenues. These States bear many of the environmental, social and infrastructural costs of mining. Restricting their ability to impose additional levies could affect their resources for infrastructure, welfare and development of mining-affected regions.
3. **Concerns over cooperative federalism:** Mineral taxation involves the constitutional distribution of powers between the Union and States. Greater central control may create Centre-State tensions and weaken the spirit of cooperative federalism.

4. **Retrospective invalidation of certain levies:** The Bill seeks to invalidate certain unpaid or unrecovered past state levies. This raises concerns about retrospective legislative intervention and the treatment of liabilities that had arisen under the earlier legal framework.
5. **Excessive centralisation:** The Centre would have substantial authority to prescribe the conditions and restrictions governing State mineral levies. This could shift mineral governance from a shared federal framework towards greater central control.
6. **Post-MADA judgment concerns:** The Supreme Court's 2024 Mineral Area Development Authority v. SAIL judgment recognised the States' power to tax mineral rights. The Bill's restrictions on this power therefore raise questions about the legislative response to a Constitution Bench judgment and the balance between judicial interpretation and legislative power.

What should be the way forward?

1. **Mineral Taxation Council on the GST Model:** Establish a joint Centre-State consultative forum or utilize the Inter-State Council (Article 263) to determine taxation bands, royalty revisions, and cess caps collaboratively, rather than relying on unilateral Central executive notifications under Section 13.
2. **Ensure a fair revenue-sharing mechanism:** If States lose some revenue-raising powers, there should be an appropriate mechanism to compensate or share the gains from increased mining activity. This is particularly important for mineral-rich States that bear the environmental and social costs of mining.
3. **Maintain fiscal predictability without excessive centralisation:** Uniformity in taxation is desirable, but the framework should avoid unnecessarily restricting legitimate State fiscal powers. Clearly defined and transparent criteria should govern any restrictions imposed by the Centre.
4. **Strengthen District Mineral Foundation (DMF):** A greater share of mining-related benefits should reach local communities affected by mining through effective utilisation of DMF funds. This can ensure that mining-led growth translates into local development.
5. **Promote sustainable mining:** Faster clearances and greater investment should not come at the cost of forests, biodiversity, water resources and livelihoods. Strong environmental monitoring, mine-closure plans and ecological restoration should accompany mining reforms.
6. **Build consensus on federal concerns:** Given the constitutional and federal dimensions of mineral taxation, wider consultation with States, industry and affected communities would improve the legitimacy and durability of the reform. The issue is especially significant after the Supreme Court's 2024 MADA v. SAIL judgment recognising States' power to tax mineral rights.

Conclusion: The MMDR Amendment Bill, 2026 seeks to balance mining-led economic growth and mineral security with a more predictable fiscal regime. However, its success will depend on maintaining a balance between national uniformity and the fiscal autonomy of resource-rich States.

UPSC GS-2: Governance

Read More: [Indian Express](#)

Surrogate Advertising – Explained Pointwise



Regulatory authorities recently issued show-cause notices to prominent celebrities for endorsing surrogate products like flavored cardamom that indirectly promote banned pan masala. This crackdown highlights intensifying legal scrutiny on celebrity accountability, misleading advertisements, and public health compliance in India.

What is surrogate advertising?

- **Surrogate advertising** refers to the indirect promotion of products whose direct advertising is prohibited or restricted, such as **alcohol and tobacco**.
- Companies advertise another product, such as **soda, music CDs, mineral water or lifestyle products**, using the same brand name, logo or imagery to maintain and promote the original brand.

Why is it used by certain companies?

1. **Bypassing Direct Advertising Bans:** Many jurisdictions prohibit direct TV, print, and digital advertising for “sin goods” like liquor, cigarettes, and betting platforms. Surrogate ads allow companies to maintain brand visibility without technically violating direct marketing laws.
2. **Building and Maintaining Brand Recall:** Even if sales cannot be directly driven through television or billboard ads, keeping the brand top-of-mind ensures consumer loyalty when buyers visit retail counters e.g. “Bagpiper” soda, “Royal Stag” music CDs.
3. **Reaching New and Younger Demographics:** Lifestyle-oriented surrogate campaigns (music festivals, sports sponsorships, casual snacks) introduce the brand identity to broader audiences who might not yet be direct consumers.
4. **Creating Brand Extensions:** It provides a legal avenue to sponsor high-profile events (such as cricket leagues, concerts, and award shows) under the guise of sodas, apparel, or music labels.

What are the major concerns associated with surrogate advertising in India?

1. **Circumvention of advertising bans:** Surrogate advertising enables companies to indirectly promote restricted products such as alcohol and tobacco. For e.g. liquor brands may advertise mineral water or music events using the same brand name and logo.
2. **Undermining Public Health Goals:** Direct ad bans on alcohol and tobacco products are meant to curtail addiction, non-communicable diseases, and oral cancers. Surrogate campaigns dilute these restrictions by keeping the underlying hazardous products socially visible and culturally normalized.
3. **Influence on children and youth:** Campaigns frequently sponsor prime-time sports broadcasts (like cricket leagues) and youth festivals under harmless labels (e.g. packaged water, music labels, or sports analysis portals). This exposes minors and young adults to brand identities tied directly to restricted substances.
4. **Endorsement Dilemmas:** High-profile actors, athletes, and influencers are regularly hired to promote surrogate extensions (such as silver-coated elaichi). This leverages public trust to glamorize product lines that are fundamentally tied to harmful substances or unregulated gambling.
5. **Normalizes and glamorizes substance use:** By associating liquor/tobacco brands with sports, music, and lifestyle content, these ads implicitly link drinking/smoking with success, masculinity, celebration, and social status.
6. **Social costs:** Surrogate advertising may indirectly increase alcohol and tobacco consumption, imposing wider social costs such as addiction, road accidents, domestic violence, liver diseases and cancers, while increasing healthcare expenditure and reducing overall economic productivity.
7. **Ethical concerns:** Surrogate advertising exploits legal loopholes to indirectly promote harmful products, prioritising profits over public welfare. For e.g. alcohol brands promoting soda, music CDs or packaged water may encourage brand recall and indirectly influence consumption.

What are the existing legal and regulatory mechanisms to control surrogate advertising in India?

1. **Consumer Protection Act, 2019 & CCPA Guidelines (2022):**
 - a. Under Section 18 of the Consumer Protection Act, the **Central Consumer Protection Authority (CCPA)** notified the Guidelines for Prevention of Misleading Advertisements and Endorsements for Misleading Advertisements (2022).
 - b. Section 6 explicitly bans surrogate or indirect advertising across all media (TV, print, digital, social media) for restricted products.
 - c. The CCPA can impose penalties up to ₹10 lakh for initial violations and up to ₹50 lakh for subsequent offenses on manufacturers, advertisers, and endorsers, alongside banning non-compliant celebrity endorsers for up to 3 years.
2. **Cigarettes and Other Tobacco Products Act (COTPA), 2003:**
 - a. Section 5 prohibits all forms of direct and indirect advertising of tobacco products.
 - b. Under the COTPA Rules (Rule 2), promoting any non-tobacco product using the same brand name, logo, or trademark as a tobacco product is legally classified as an indirect/surrogate advertisement and is prohibited.
3. **Cable Television Networks (Regulation) Act, 1995 & Rules, 1994:** Advertising Code explicitly prohibits broadcast advertisements promoting cigarettes, tobacco products, alcohol, or other intoxicants.
4. **Food Safety and Standards (Advertising and Claims) Regulations, 2018:** Enforced by FSSAI, these regulations prevent misleading claims and the indirect promotion of restricted dietary/intoxicant goods under food categories.

5. **Ministry of Information & Broadcasting (MIB) Advisories on Betting:** MIB has issued strict advisories under the IT (Intermediary Guidelines and Digital Media Ethics Code) Rules instructing TV channels, OTT platforms, and digital publishers to refrain from hosting surrogate ads for illegal offshore betting platforms (such as disguised “sports news” portals).
6. **Advertising Standards Council of India (ASCI) Code:** ASCI is a self-regulatory body that issues specific guidelines for surrogate advertising. ASCI enforces criteria to distinguish genuine brand extensions from surrogate marketing via its **Brand Extension Guidelines**. The brand extension (e.g. packaged water, soda, snacks) must be produced in commercial quantities and show genuine sales/distribution relative to the ad spend.

What measures should be taken to effectively regulate surrogate advertising in India?

1. **Give statutory backing to ASCI guidelines:** Convert ASCI’s self-regulatory code into a legally enforceable framework (similar to how SEBI regulations have legal force), with real penal consequences, such as fines, ad bans, license suspension, rather than mere reprimands.
2. **Strengthen legal provisions:** Clearly define surrogate advertising in law and explicitly prohibit indirect promotion of prohibited products. Establish uniform standards across television, print, digital media and social media, with stringent penalties for violations.
3. **Ensure stricter enforcement:** Regulatory authorities should impose substantial penalties on companies, advertisers and media platforms violating surrogate advertising norms. Swift investigation, removal of misleading advertisements and consistent prosecution can create stronger deterrence and improve compliance.
4. **Adopt a broader definition:** Regulations should cover indirect brand promotion through events, sponsorships, influencer marketing, social media campaigns and digital content, preventing companies from circumventing restrictions by promoting prohibited products under seemingly legitimate brand extensions.
5. **Strengthen monitoring:** Regulatory agencies should use AI, data analytics and digital surveillance to identify surrogate advertisements across television, print, social media and influencer platforms, ensuring timely detection, removal and action against violators.
6. **Increase public awareness:** Public awareness campaigns should educate consumers about surrogate advertising, its deceptive nature and associated health risks. Media literacy programmes can help people identify indirect promotion of prohibited products and make informed consumption choices.
7. **Promote responsible advertising:** Encourage companies and advertising agencies to follow ethical standards, avoid misleading brand extensions, and ensure transparency in promotional content. Industry self-regulation, ethical guidelines and responsible celebrity endorsements can further strengthen consumer protection.
8. **Stricter Celebrity & Endorser Accountability:** Strictly enforce the Consumer Protection Act provisions regarding multi-year bans and compounding fines for celebrities and social media influencers who knowingly promote surrogate products or mirror gambling websites.

UPSC GS-2: Governance

Read More: [The Hindu](#)

Manual Scavenging – Reasons & Solutions – Explained Pointwise

The Ministry of Social Justice has recently proposed expanding the scope of the **NAMASTE Scheme** from towns and cities to rural areas as well. Under the proposal, the scheme would also cover **drain cleaners and workers engaged in sewage treatment plants (STPs) and faecal sludge treatment plants (FSTPs)**.

Throughout history, the society has undergone profound changes in power dynamics and political ideals that have transformed individual lives as well as the idea of the collective. But the modernizing forces have been biased against the marginalized sections including Dalits. This is testified by the continued existence of manual scavenging despite the same being prohibited by a Statutory Act and Supreme Court order. Keeping this in mind, a plethora of steps are desired to make India completely free from manual scavenging.

What is the meaning of manual scavenging?

- It is defined as ‘the removal of human excrement from public streets and dry latrines, cleaning septic tanks, gutters and sewers’.
- Manual scavengers usually use hand tools such as buckets, brooms and shovels. The workers have to move the excreta, using brooms and tin plates, into baskets, which they carry to disposal locations sometimes several kilometers away.
- The International Labour Organization (ILO) distinguishes three forms of manual scavenging: **(a)** Removal of human excrement from public streets and dry latrines, **(b)** Cleaning septic tanks, and **(c)** Cleaning gutters and sewers.

What is the extent of manual scavenging in India?

- Although the practice was banned under the Prohibition of Employment of Manual Scavengers Act, 2013, the inhumane exercise continues.
- According to the Government:
 - >57,000 workers were engaged in hazardous cleaning nationwide but only 16,791 PPE kits were supplied.
 - Less than 14,000 had received health cards & only 837 safety workshops had been conducted in 4,800 ULBs.
 - **97% of manual scavengers are Dalits.** The breakdown of numbers reveals that 42,594 manual scavengers belong to Scheduled Castes, 421 belong to Scheduled Tribes and 431 belong to Other Backward Classes. However the **number may be grossly underreported.**
- The Socio-Economic Caste Census of 2011 had identified 1,80,657 manual scavengers (does not include urban India) with highest number of them in rural Maharashtra.
- The **Safai Karmachari Andolan (SKA)** estimates the number of manual scavengers to be around 1.2 million.

Read More: [Manual scavenging has gone underground in India: WHO](#)

What is the need to eliminate manual scavenging?

1. **Dehumanizing Activity:** Article 21 of the Constitution guarantees 'Right to Life' with dignity. The practice of manual scavenging lowers an individual's self esteem in society and is considered as a dehumanizing activity.
2. **Emboldens the concept of purity & pollution:** Caste structure continues to reinforce inequality as a basic value based on the concept of purity and pollution. The allocation of labor is one of its prime manifestations. As per the notion, the alleged lower class must engage in inhuman occupations like manual scavenging.
3. **Social Stigma and Exclusion:** Those engaged in manual scavenging face extreme social stigma, untouchability, and ostracization. This affects not only the workers but also their families, impacting their access to education, housing, and other basic necessities, trapping them in intergenerational poverty and marginalization.
4. **Severe Health Hazards and Fatalities:**
 - **Exposure to Toxic Gases:** Workers are exposed to highly toxic and noxious gases like hydrogen sulfide (H₂S), methane (CH₄), carbon monoxide (CO), and sulfur dioxide (SO₂) in confined spaces like sewers. These gases can cause immediate asphyxiation, unconsciousness, and death.
 - **Pathogen Exposure:** Direct contact with human waste exposes them to a multitude of dangerous pathogens, bacteria, viruses, and parasites, leading to severe infections, skin diseases, respiratory illnesses, eye infections, gastrointestinal disorders, and long-term chronic health issues.
 - **Lack of Safety Gear:** Most manual scavengers work without proper protective gear, further exacerbating their vulnerability to these hazards. Fatalities due to asphyxiation or poisoning in sewers are tragically common. According to the *Safai Karamchhari Andolan*, at least 472 people have died cleaning human excreta during the last five years.
5. **International Commitments:** India is party to UN declaration on Human rights, **Occupational Safety and Health Convention** etc., which prohibit continuance of practices like manual scavenging.

What steps have been taken towards elimination of manual scavenging?

1. **Prohibition of the Employment of Manual Scavengers Act 2013:** The law intends to eliminate insanitary latrines and prohibits employment as manual scavengers. It also prohibits hazardous manual cleaning of sewer and septic tanks.
2. **Prevention of SC/ST Atrocities Act, 1989:** It became an integrated guard for sanitation workers as more than 90% people employed as manual scavengers belonged to the Scheduled Caste. This became an important landmark to free manual scavengers from designated traditional occupations.
3. **Self-Employment Scheme for Rehabilitation of Manual Scavengers (SRMS):** The scheme launched by the Ministry of Social Justice and Empowerment aims to rehabilitate manual scavengers and their dependents in alternative occupations, in a time bound manner.
4. **National Action for Mechanized Sanitation Ecosystem (NAMASTE) Scheme:**
 - NAMASTE is a Central Sector Scheme designed to eliminate hazardous manual cleaning of sewers and septic tanks, ensure occupational safety and dignity, and provide social security and rehabilitation support to sanitation workers.
 - Launched by the **Ministry of Social Justice and Empowerment (MoSJE)** in collaboration with the **Ministry of Housing and Urban Affairs (MoHUA)** the scheme aims to **eradicate manual scavenging** and promote **mechanized cleaning of sewers and septic tanks**, ensuring the safety, dignity, and well-being of sanitation workers.
5. **Supreme Court order, 2014:** It made it mandatory for the Government to identify all those who died in sewage work since 1993 and provide Rs. 10 lakh each as compensation to their families.
6. **National Commission for Safai Karmacharis (NCSK):** It is a statutory body established under the National Commission for Safai Karmacharis Act 1993. The main aim of the commission is to promote and safeguard the rights of the Safai Karmacharis.
7. **National Safai Karmachari Finance and Development Corporation (NSKFDC):** It is building capacity at the local government level, providing mechanized desludging trucks and financial assistance to sanitation workers.
8. **Swachh Bharat Mission:** It led to the construction of toilets with on-site sanitation systems like septic tanks and pits.
9. **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** It has led to the development of infrastructure such as sewerage networks, sewerage treatment plants across 500 cities.

Why is the practice still prevalent?

1. **Government Apathy:** Both the Central and State Governments are notorious for hiding the problem. Many **contradictions** are found in government data itself. In a reply to a question in Parliament, the government said that there is no report of people currently engaged in manual scavenging and no death has been reported due to the practice in five years. However, in a reply to another question, the Ministry of Social Justice and Empowerment recognised 66,692 manual scavengers.
2. **Social Prejudice:** Even when manual scavengers get an education and a degree, the burden of caste is heavy. Ambedkar had observed that *"in India, a man is not a scavenger because of his work. He is a scavenger because of his birth irrespective of the question whether he does scavenging or not"*.
3. **Misrepresentation using Contractors:** According to some well-researched media reports, the Indian Railways, the army, and urban municipalities remain the biggest bodies that still have workers engaged in manual scavenging. They either find ways to outsource such work to contractors so as not to be held directly accountable or liable or simply misrepresent such workers as 'sweepers'.

4. **Half hearted Rehabilitation:** The Government scheme provides for one-time cash assistance of Rs 40,000, skill development training, and capital subsidy for self-employed projects. But the lack of a reliable database makes these efforts futile.
5. **Poor implementation of laws:** There have been next to no serious legal proceedings against people and organisations accused of engaging workers for manual scavenging.
6. **Existence of insanitary latrines:** According to the 2011 Census, there are more than 26 Lakh insanitary latrines in the country. The existence of insanitary latrines creates a demand for manual scavenging and keeps sustaining the practice.

What should be the way forward?

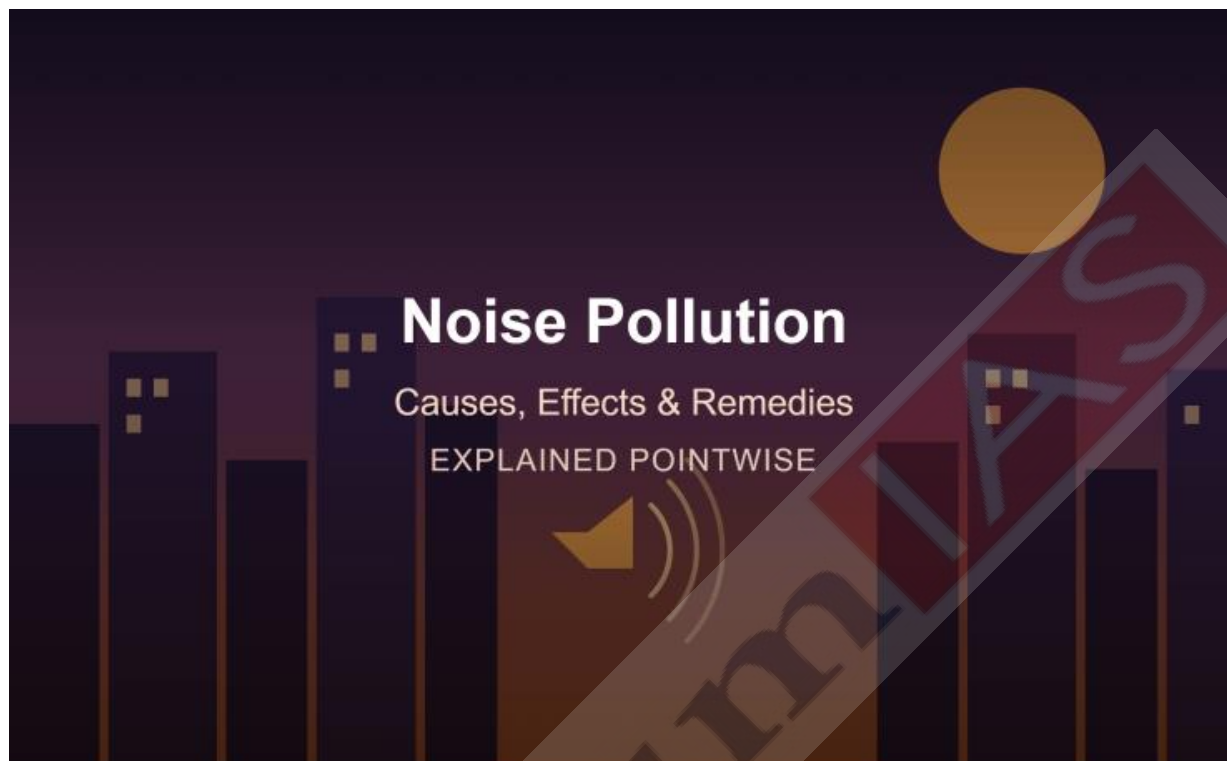
1. **Strict Implementation of Existing Laws:** The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013, must be strictly enforced. This includes prosecuting those who employ manual scavengers, not just the workers themselves.
2. **Identification and Survey:** Conduct regular, comprehensive, and accurate surveys to identify all individuals currently engaged in or vulnerable to manual scavenging.
3. **Accountability of Municipalities and Contractors:** Hold urban local bodies, government departments, and private contractors directly accountable for employing manual scavengers or for conditions that necessitate manual scavenging. Penalties should be severe enough to act as a deterrent.
4. **Mandatory Mechanization:** Make it mandatory for all sanitation work, especially sewer and septic tank cleaning, to be mechanized. This includes procuring and deploying sufficient numbers of modern suction and jetting machines, robotic cleaners, and other appropriate technologies.
5. **Financial Assistance and Skill Development:** Provide adequate financial assistance for immediate relief and offer skill development training programs (e.g., driving, plumbing, electrical work, computer skills, tailoring) that enable those engaged in manual scavenging to transition to dignified alternative livelihoods.
6. **Technological solutions:** The government should look for [technological solutions](#) to reduce the prevalence of manual scavenging e.g. a bandicoot robot can be used. It goes inside the manhole and mimics all the actions of a human scavenger. Tamil Nadu has launched a pilot project that includes sewer robots to clean over 5000 manholes.
7. **Public Awareness Campaigns:** Launch sustained, high-impact public awareness campaigns to sensitize society about the inhumane nature of manual scavenging and its link to caste discrimination. These campaigns should challenge prejudices and promote dignity of labor. Collaboration with public spirited individuals like Bezwada Wilson and organizations like *Safai Karmachari Andolan* (SKA) is desired. It would help in better formulation and implementation of policies for the manual scavengers. Their strength can also be **leveraged for bringing an attitudinal change** in society.

Read More: [NHRC recommends measures against manual scavenging](#)

Conclusion:

Manual scavenging is regarded as inhuman and a violation of the basic human rights. This practice is prevalent and needs collaborative efforts of government, civil society and every individual to end it.

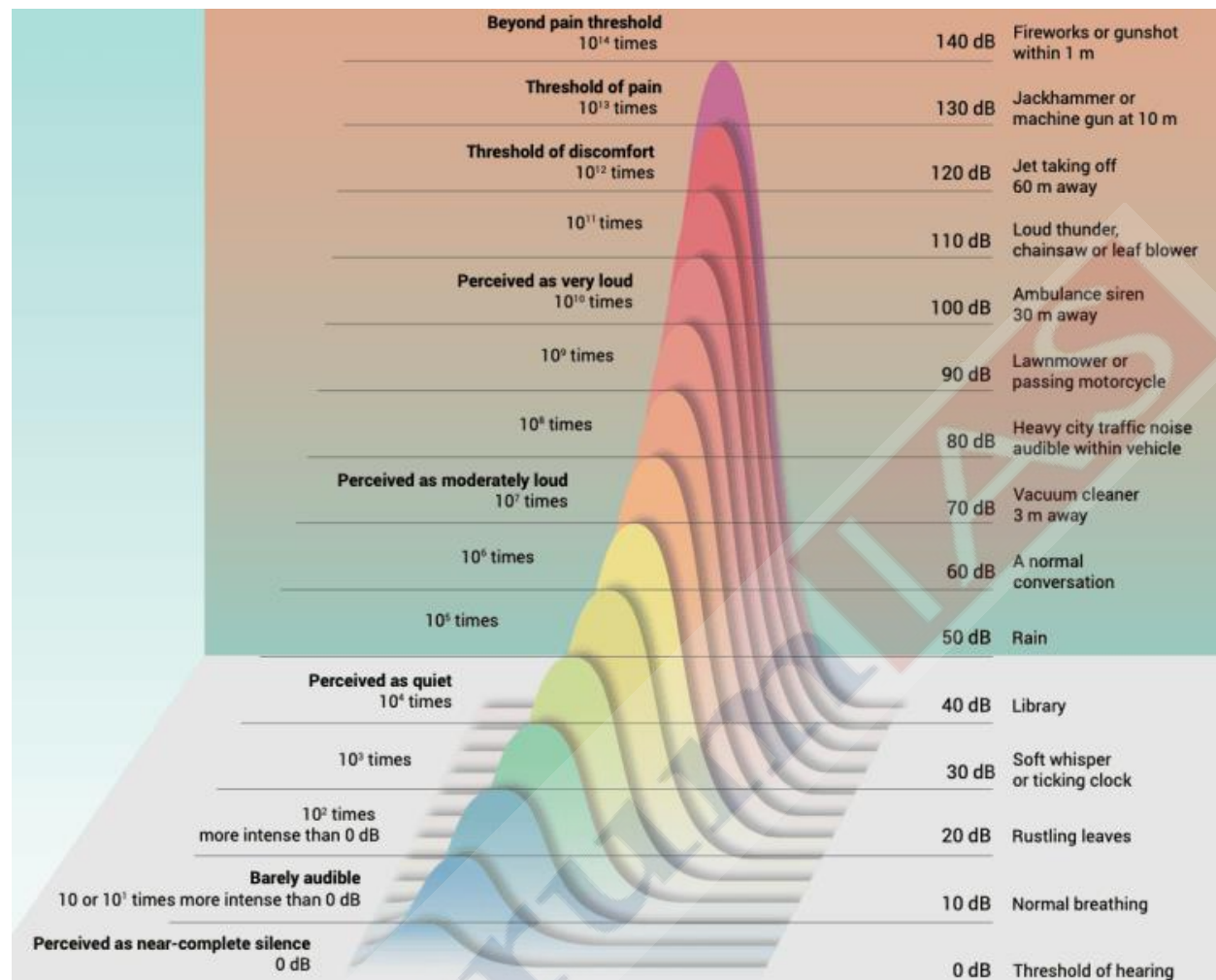
Read More: [The Hindu](#)
UPSC GS-2: Social Justice

Noise Pollution – Causes, Effects & Remedies – Explained Pointwise

Noise pollution, an often-neglected environmental and public health concern, has gained renewed attention following the recent Patna High Court verdict directing strict regulation of DJs, loudspeakers and pressure horns. The ruling highlights the urgent need to balance social celebrations and individual freedoms with citizens' right to a peaceful and healthy environment.

What is Noise Pollution?

- Unwanted sounds are classified as noise. When noises are too loud and persist too long, they become noise pollution. **Noise pollution** is generally defined as **regular exposure to elevated sound levels** that may lead to **adverse effects in humans or other living organisms**.
- **Decibels (dB)** are the units of measure for indicating the intensity or loudness of a sound. It is a unit for expressing the relative intensity of sound on a logarithmic scale. Since it is a logarithmic scale, even small difference in decibel level indicates orders-of-magnitude difference in intensity of sound e.g., a 60-dB, or 6-bel, sound, such as normal speech, is six powers of 10 (i.e., 10^6 , or 1,000,000) times more intense than a barely detectable sound, such as a faint whisper, of 1 dB.



Source: UNEP Frontiers, 2022

- According to the **World Health Organization**, sound levels less than **70 dB** are not damaging to living organisms, regardless of how long or consistent the exposure is. Exposure for more than **8 hours** to constant noise beyond **85 dB** may be hazardous.

Summary of recommended noise exposure limit (World Health Organisation - 1980)

Environment	Recommended Maximum level	Effects
Indoor / Domestic Night	35dB	Increased awakening at higher levels
Indoor / Domestic Day	45dB	Speech communication deteriorates at higher levels
Community / Urban Night	45dB	Difficulty in falling asleep at higher level
Community / Urban Day	55dB	Annoyance increases at higher levels
Industrial / Occupational	75dB	Predictable risk of hearing impairment at higher levels

Source: WHO, Vikaspedia

What are the major causes of noise pollution?

1. **Transportation:** A large number of vehicles on roads, airplanes flying over houses, underground trains etc. produce heavy noise. Rapid growth in two-wheelers, cars, and commercial trucks creates continuous road traffic noise. According to the Frontiers Report, across the European Union, at least 20% of citizens are currently exposed to road traffic noise levels that are considered harmful to health.
2. **Industrial Activities:** Many industries use big machines like compressors, generators, exhaust fans, grinding mills etc., which produce a large amount of noise. The 114 dB measurement in Moradabad was an average of measurements reported from a factory in an industrial zone.
3. **Construction Activities:** Construction of roads, metro networks, buildings, and other infrastructure involves heavy machinery and equipment. Rapid urban redevelopment, metro rail construction, and flyover building involving pile drivers, pneumatic drills, heavy earthmovers, and concrete mixers operating in close proximity to residential zones.
4. **Social Events:** Noise is at its peak in most of the social events like marriage, parties, pub, disco or place of worship etc. People normally flout rules set by the local administration and create nuisance in the area. Extensive use during festivals (like Diwali) and celebrations, generating peak impulsive noise well beyond 120 dB.
5. **Poor Urban Planning:** Inadequate zoning and the absence of effective buffer zones often result in noise-generating activities being located near residential areas.
6. **Diesel Generators (DG Sets):** Frequent use of uncanopied or poorly maintained backup power generators in commercial markets, housing societies, and small businesses during power fluctuations.

Why are the major harmful impacts of noise pollution?

1. **Noise-Induced Hearing Loss (NIHL):** Prolonged exposure to sound above 85 dB damages the delicate hair cells within the cochlea, which cannot regenerate. Experts believe that regular exposure to over 85 dB for an 8-hour day or longer can cause permanent hearing damage.
2. **Sleeping Disorders:** Loud noise can hamper sleeping patterns and may lead to irritation and uncomfortable situations. Even when noise does not fully awaken a person, ambient sounds above 40-45 dB fragment REM and deep slow-wave sleep, leading to daytime fatigue, impaired immune function, and mood disorders.

3. **Chronic Health Problems:** Noise pollution is a risk factor for the development of cardiovascular and metabolic disorders such as elevated blood pressure, arterial hypertension, coronary heart disease and diabetes. A conservative estimate indicates that long-term exposure to environmental noise contributes to 48,000 new cases of ischemic heart disease and causes 12,000 premature deaths annually in Europe.
4. **Productivity Loss:** High levels of noise causes extreme discomfort to workers that adversely impacts their mind and reduces their productivity. This in turn enhances cost of production.
5. **Ecological & Wildlife Impacts:**
 - Traffic and other urban noises disturb and endanger the survival of other species. For instance, acoustic signals are used in a variety of communication contexts by animals like territory defense, warning of danger, locating or attracting a mate, and caring for offspring. However these functions are severely hindered by noise pollution.
 - Many species **tend to adapt** to the pollution by **altering their behaviour** e.g., modifying their signals by **switching their vocal frequency** or **altering their vocalization timing**. However, these adaptations can have unintended consequences (like altered vocalization patterns may be considered less attractive by potential mating partner, therefore affecting reproductive success). These consequences might eliminate them from their habitats, with possible significant ecological implications.
 - Low-frequency shipping noise and naval sonar disrupt echolocation and long-distance vocalizations in marine mammals (cetaceans), often leading to mass strandings and altered migration routes.

What steps have been taken to tackle noise pollution?

1. **Central Pollution Control Board (CPCB):** It is mandated to track noise levels, set standards as well as ensure, via the State units, that sources of excessive noise are controlled. The agency has a monitoring system (**National Ambient Noise Monitoring Network (NANMN)**) where sensors are installed in major cities and few cities have the facility to track noise levels in real time.
2. **Noise Pollution (Control and Regulation) Rules, 2000:** Enacted under the **Environment (Protection) Act, 1986**. The rules define ambient noise levels for various areas like residential, industrial or commercial places during the day and night time.

Note: According to the Rule 3(5) of The Noise Pollution (Regulation and Control) Rules, 2000, an area comprising **not less than 100 metres** around Hospitals, Educational Institutions and Courts may be declared (*by the State Government*) as silence area/zone. There are restrictions on certain activities in the **Silence Zones** like blowing of horns, bursting of sound-emitting fire crackers or use of sound-emitting construction equipment during night time among others.

3. **Air (Prevention and Control of Pollution) Act, 1981:** Noise was explicitly incorporated into the definition of "air pollutant" via a 1987 amendment.
4. **Restriction on Sound Systems:** A nationwide ban on loudspeakers and public address systems between 10:00 PM and 6:00 AM (with strictly limited exemptions for designated cultural events).
5. **NGT Noise Mapping Mandate:** The National Green Tribunal directed CPCB and SPCBs to map acoustic hotspots, mandate sound limiters on sound amplifiers, and equip police departments with calibrated sound level meters.

6. **Source Reduction in Machinery:** Mandatory acoustic enclosures/canopies for commercial Diesel Generator (DG) sets and industrial machinery.
7. **Green Belts ("Green Mufflers"):** Planting multi-tier dense tree buffers (e.g., Neem, Ashoka, Tamarind) along arterial roads, railways, and industrial perimeters, which can attenuate ambient sound by 10-15 dB.

What are the concerns in tackling noise pollution?

1. **Narrow meaning of Sound:** Policy makers think of sound only in terms of discomfort, such as transport and industrial noise, rather than investigating how to promote sounds that provide comfort. Natural sounds such as flowing water, birdsong, the wind in the trees etc. are soothing sounds that should be promoted.
2. **Jurisdictional Fragmentation & Lack of Ownership:** Enforcement is split between local police, municipal corporations, transport departments, and State Pollution Control Boards (SPCBs). Police often treat noise as a low-priority public nuisance rather than a serious environmental pollutant.
3. **Corruption:** Prevalence of corruption is a key reason due to which industries and commercial establishments keep on disrespecting environmental norms. They prefer paying a bribe rather than investing huge amounts of money on sound reduction technologies.
4. **Low Penal Deterrence:** Penalties and fines historically remained too low to serve as an effective deterrent, leading to widespread non-compliance until heavier graded fines were pushed by tribunal interventions.
5. **Non-Conforming Mixed Land Use:** Rapid, haphazard urbanization means small-scale fabrication units, auto repair shops, banquet halls, and commercial markets directly border residential areas, rendering strict zoning enforcement impractical.
6. **High Urban Density & Road Congestion:** Dense arterial roads run within meters of high-rise residential complexes. High vehicle density, stop-and-go traffic, and bottlenecked intersections amplify ambient engine and tire noise.
7. **Cultural Normalization of High-Decibel Events:** Loudspeakers, high-output DJ systems, and firecrackers are deeply entwined with religious festivals, weddings, and political rallies. Enforcement during these events often faces public resistance or political sensitivity.
8. **Habitual Honking Culture:** Honking is treated as an involuntary driving habit rather than an emergency warning signal, aggravated by a lack of lane discipline and widespread illegal aftermarket modifications (pressure horns).

What are the ways to reduce the Noise Pollution?

1. **Soundscape Approach:** The focus should be on adopting novel approaches towards noise pollution. For instance, the UNEP Frontiers 2022 recommends adopting a **soundscape approach**. Under this, experts try to look at the issue of urban acoustic environments more holistically, taking a listener-centered perspective. Soundscape planning aims to deliver pleasant acoustic environments that enhance appreciation of places by people.
2. **Green Cover:** Focus should also be placed on **enhancing green cover**. Vegetation in urban environments can absorb acoustic energy, diffuse noise and reduce street amplification. Apart from this, they help in amplifying natural sounds by attracting urban wildlife. This includes measures like tree belts and 'green roofs'.
3. **Pathway interventions:** Pathway interventions are engineering solutions that **obstruct the path of noise** from source to receiver by creating a barrier. Both traditional and innovative materials, made from recycled materials such as plastic and car tyres, have proved effective. For instance, Fiberglass

from decommissioned wind turbine blades in Denmark have shown a barrier effect reduction of traffic noise levels by 6-7 dB.

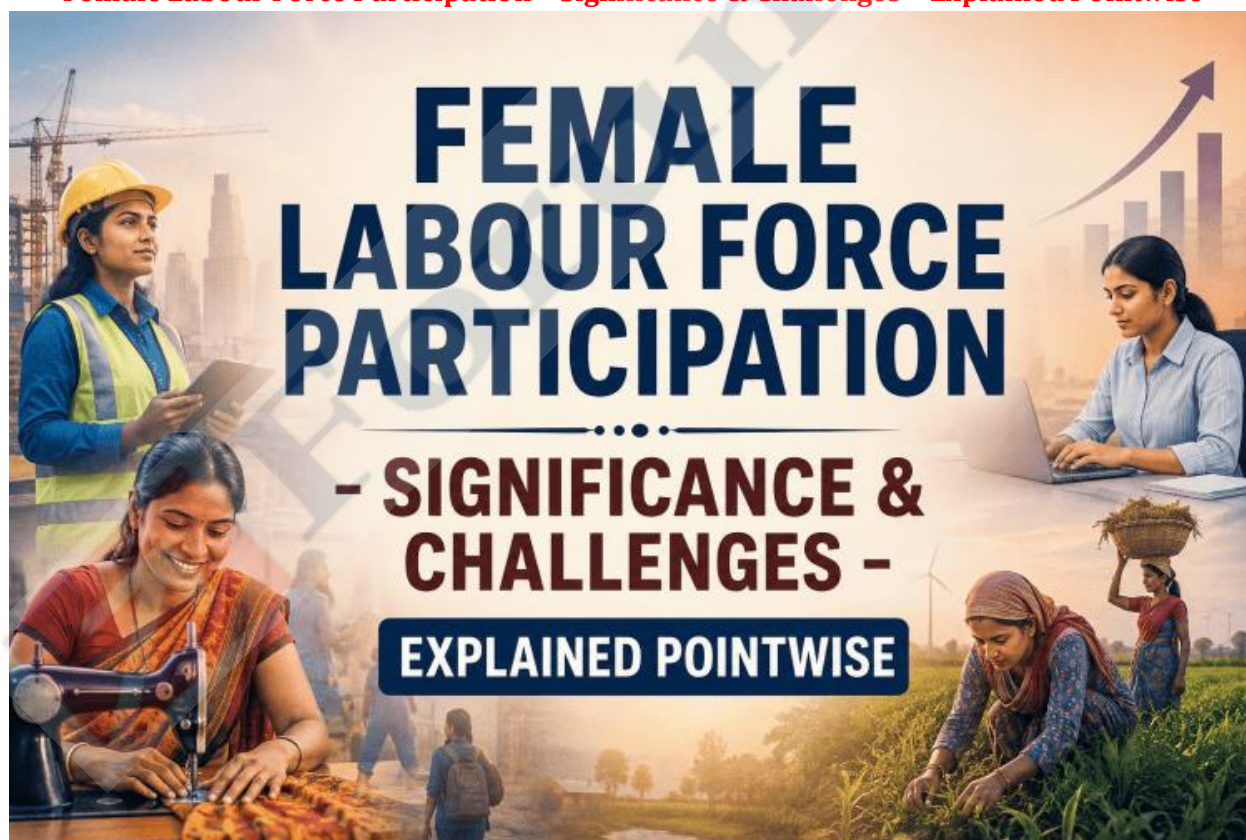
4. **Expansion of Real-Time Micro-Grids:** Expand CPCB's National Ambient Noise Monitoring Network (NANMN) to tier-2/tier-3 cities and establish micro-monitoring stations at sensitive urban hotspots.
5. **Single-Window Nodal Agency:** Establish dedicated Environmental Enforcement Cells within municipal bodies to eliminate the jurisdictional vacuum between local police, transport authorities, and SPCBs.
6. **Empowering Field Enforcement:** Ensure strict implementation of noise standards and impose effective penalties for repeated violations. Equip traffic police and beat constables with calibrated Type-1/Type-2 digital sound level meters and train them to collect legally robust acoustic evidence for swift penalization.

Conclusion: Noise pollution is a major environmental problem and is cited as a crucial factor causing risk to health across all age and social groups. Its magnitude and extent is more visible in urban regions, hence a greater focus should be given to them keeping in mind the SDG 11 that calls for creating sustainable cities and communities.

UPSC GS-3: Environment

Read More: [The Hindu](#)

Female Labour Force Participation – Significance & Challenges – Explained Pointwise



India's Low Female Labour Force Participation rate is a big threat to India's Demographic Dividend. India still has not cracked the code of getting women to work in time. Any further delay in improving the female labour

force participation in productive sector, will be detrimental to India's dream of becoming a developed nation by 2047.

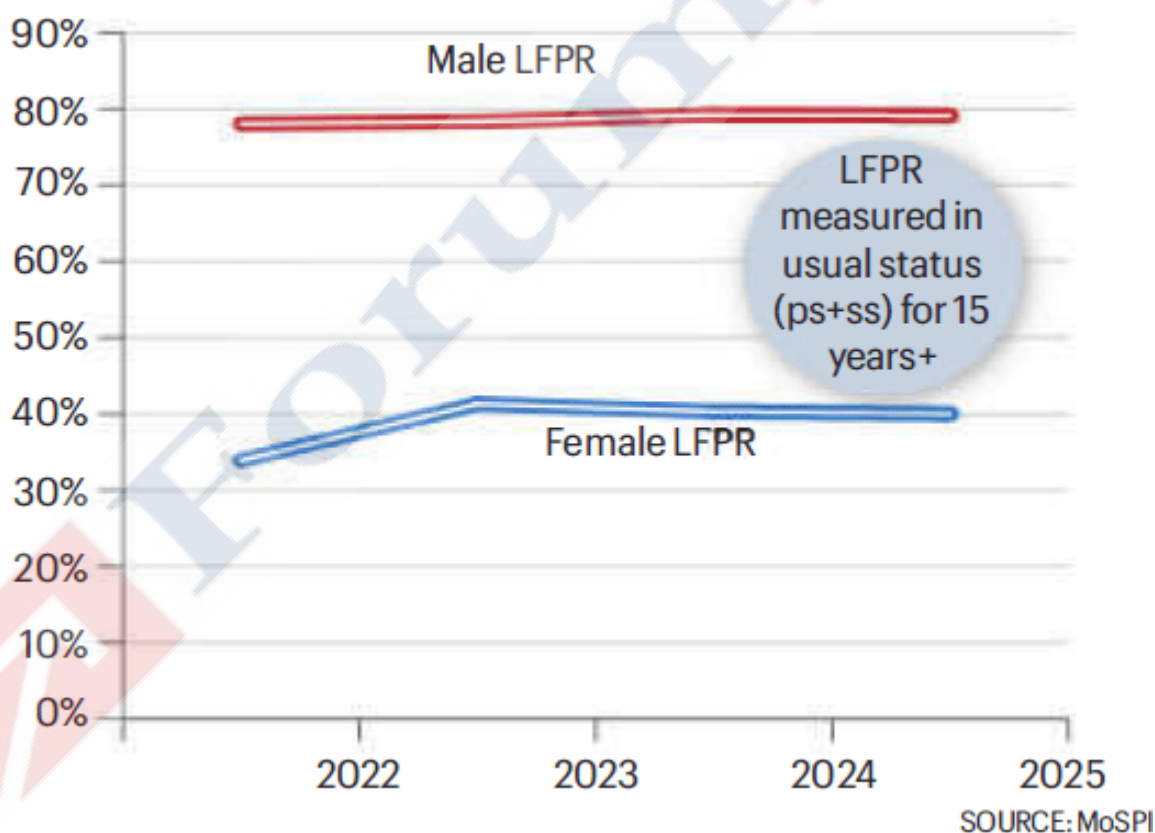
What is Female Labour Force Participation Rate (FLFPR)?

- Female Labour Force Participation Rate is a ratio of the number of women who are part of the labour force to the number of women in the working age (greater than 15 years of age).
- A woman is considered to be a part of the labour force if she is either employed or actively looking for work.

FLFPR trend in India:

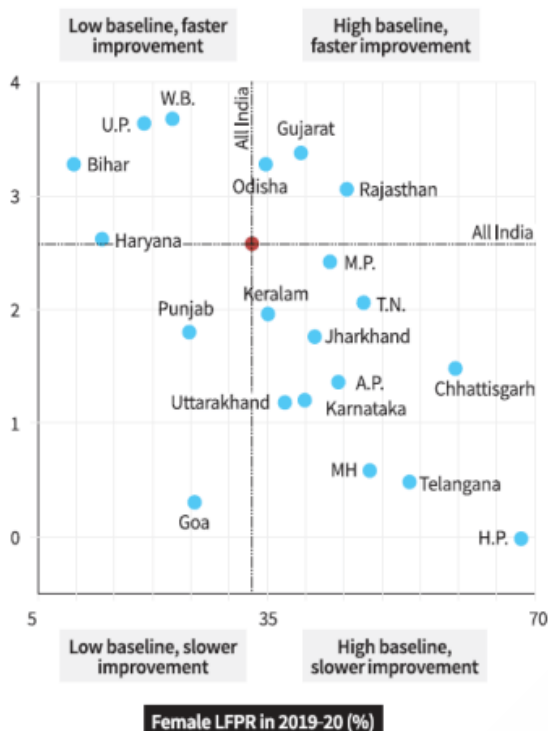
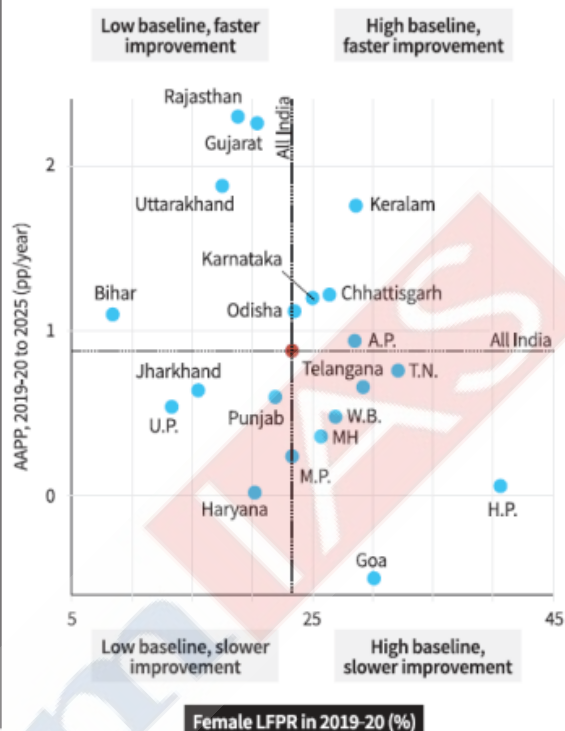
1. According to the PLFS 2025, the Female Labour Force Participation Rate (FLFPR) is consistently increasing in India. The FLFPR has risen from 30% in 2019-20 to **40%** in 2025. The increase was more pronounced in rural areas, where the FLFPR increased from 33% to 45.9%, as compared to urban areas where it increased from 23.3% to 27.7%. However, it still remains well below the **global average (49%)** & emerging market peers like **Brazil (53%)** & **Vietnam (69%)**.

● Female LFPR has risen to half that of men...



Source: MoSPI

2. State-wise Trend:

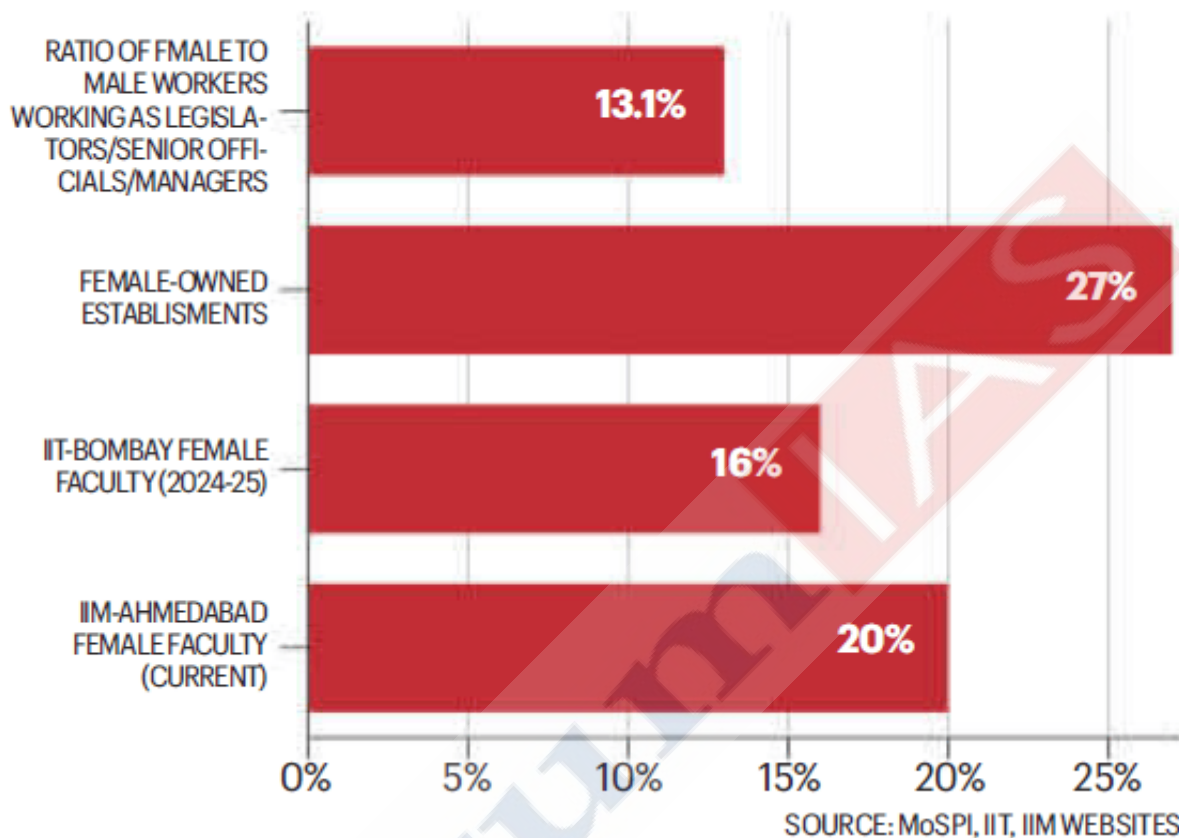
Chart 3: Baseline (2019-20 LFPR) and AAP relation for rural FLFPR**Chart 4:** Baseline (2019-20 LFPR) and AAP relation for urban FLFPR

Source: The Hindu

3. Glass Ceiling:

- While the FLFPR is rising, their presence in senior positions in various spheres is much lower.
- Female representation is low in business decision making as well. According to MoSPI's Annual Survey of Unincorporated Sector Enterprises, the share of female-owned proprietary establishments stood at **27%** in 2025.
- According to PLFS, for every 100 males working as legislators, senior officials, and managers in 2025, there are **only 13 females** in similar high positions.
- While nearly all of India's leading firms have a woman as a director on their boards, **77%** had only 1-2 women as directors.
- Only **7%** of BSE200 & **5%** of NSE500 board chairpersons are women. Without achieving a critical mass (30% according to research), their presence at top risks being symbolic rather than substantive in India's corporate governance landscape.

• But in positions of power, women lag behind



Source: Indian Express

4. The simple average of the FLFPR of the five southern Indian states (Tamil Nadu, Karnataka, Telangana, Andhra Pradesh, Kerala) is 13% lower than the five northern states of Himachal Pradesh, Rajasthan, Chhattisgarh, Madhya Pradesh and Jharkhand. This defies the conventional belief that southern states, with high literacy and women empowerment indices, will have high FLFPR.
5. There are **only four states** (Assam, Bihar, Haryana and Delhi) with an FLFPR of **less than 25%**. Delhi has the lowest at 14.8%.
6. According to the World Bank, Indian women's participation in the formal economy is among the lowest in the world. Only some parts of the Arab world perform worse than India in terms of FLFPR.

What are the reasons for low Female Labour Force Participation rate in India?

1. **Unpaid care and domestic work:** Women bear a disproportionate burden of childcare, household chores and eldercare, leaving limited time for paid employment. A survey cited by the Economic Survey found that about **55% of women** outside paid work cited household and childcare duties as barriers.
2. **Time Poverty:** Indian women spend an average of **363 minutes per day** on unpaid domestic work, compared to just **123 minutes** for men. This "time poverty" is the single largest barrier to formal employment.
3. **Patriarchal social norms:** Traditional perceptions often consider men as primary earners and women as homemakers, discouraging women's participation in paid employment.

4. **High Degree of Informalisation:** According to a 2018 study by the International Labour Organisation (ILO), more than 95% of India's working women are informal workers. The absence of social security net in the informal sector discourages women from participating in the labour force.
5. **Gender Pay Gap and Glass ceiling:** According to the Economic Survey 2018, India has one of the largest gender gap in median earnings of full-time employees. Such discriminatory practices at workplace adversely affects FLFPR.
6. **Pink Jobs:** The societal notions about 'gendered occupations' limit the role of women to specific job profiles like nursing, teaching, gynaecologist etc. There are tangible and intangible barriers to entry of women in multiple professions like heavy engineering, law enforcement, armed forces etc.
7. **Increase in Household Income (U-Shaped Curve):** As male household incomes rise in growing economic classes, families often prioritize social status over a second income, resulting in women voluntarily exiting the workforce.
8. **Safety Concerns:** High incidents of violence against women at workplace as well as in public places discourages women to work in the night like their male counterparts. Further, instances of sexual harassment at workplace induces women to opt out of labour force.
9. **Educated Unemployment:** Women are going for higher education, as seen in Gross Enrolment Ratio (GER) of secondary education. The lack of availability of jobs that match the high female education levels also contributes to the low FLFPR.
10. **Legally sanctioned restrictions:** Many States continue to restrict women's participation in hazardous jobs in factories and commercial establishments for e.g. women are not allowed to work on stone-cutting machines, shop floor of boilers, etc.
11. **Political Vacuum:** The current Lok Sabha has only 14.4% women, despite women constituting around 50% of Indian population. The lack of gender perspectives inhibits formulation of a comprehensive policy that encourages women participation in economic activities.

What is the significance of enhancing Female Labour Force Participation?

1. **Economic Boost:** Estimates by the International Monetary Fund (IMF) suggest that achieving gender parity in the workforce could boost India's Gross Domestic Product (GDP) by up to 27%. Furthermore, expanding FLFPR is vital for India to maintain a high annual GDP growth trajectory as it aims for *Viksit Bharat* (developed nation status).
2. **Poverty Reduction:** Women's earnings improve household income diversification, reduce poverty, and would also help in breaking the intergenerational poverty cycles. It helps to tackle the phenomenon of feminisation of poverty, which is a result of highly informalised work performed by women.
3. **Improvement in Social Indicators:** Encouraging more women to enter the formal workforce will improve indicators like Infant Mortality Rate (IMR), Maternal Mortality Rate (MMR).
4. **Self Confidence and Dignity:** Financial independence increases a woman's agency, bargaining power within the family, and voice in critical decisions such as family planning and financial investments.
5. **Demographic Dividend Utilisation:** With a young population, India needs all hands to capitalize on its demographic dividend. Excluding women undermines productivity gains and risks a demographic burden instead. With India's population growth slowing, women's participation is vital to sustaining the labor supply required for the "Make in India" and services-led growth models.
6. **The "Multiplier Effect":** Studies consistently show that women invest a larger portion of their income (up to 90%) into their children's education, nutrition, and healthcare compared to men. This helps lift families out of poverty and creates a healthier, better-educated future workforce.

7. **Social Norms Shift:** Rising FLFP challenges patriarchal norms, normalizes working women, and encourages policy changes like better childcare, safe transport, and workplace flexibility, creating a virtuous cycle.
8. **Returns on Female Educational Attainment:** India has achieved significant parity in secondary and tertiary education enrollments. Higher FLFPR ensures that public and private investments in women's education translate into direct economic output rather than underutilized talent.
9. **Fiscal & Demographic Balance:** It expands the tax base, reduces dependency ratios, and supports social security systems. It also addresses labor shortages in sectors like manufacturing and care economy.
10. **Global Commitments:** Improving FLFPR is related to achievements of **SDG 1** (No Poverty), **SDG 5** (Gender Equality), **SDG 8** (Decent Work and Economic Growth) and **SDG 10** (Reduced inequalities).

What steps have been taken by the Government to enhance Female Labour Force Participation?

Mission Shakti	Mission Shakti is the flagship initiative designed to support women throughout their life cycle. It is divided into two sub-schemes: 1. Sambal (Safety & Security): Includes One Stop Centres (OSC) for legal and medical aid, the 181 Women Helpline, and Nari Adalats (women's collectives) to facilitate gender justice. 2. Samarthya (Empowerment): Focuses on economic independence: a. Sakhi Niwas (Working Women Hostels): Provides safe, affordable, and conveniently located accommodation for women moving to urban nodes for work. b. Palna (Anganwadi-cum-Crèche): A national crèche scheme that provides childcare facilities in or near workplaces (including Anganwadis) to reduce the "double burden" on working mothers.
Skill Development	● PM Kaushal Vikas Yojana (PMKVY): Nearly 45% of the candidates trained under this national skill development program are women. ● 30% reservation for women in all Industrial Training Institutes (ITIs). ● NAVYA initiative is a pilot program to equip adolescent girls with vocational training in non-traditional job roles. ● Swavalambini program aims to cultivate an entrepreneurial mindset among female students in higher education. ● Women Entrepreneurship Platform (WEP): A NITI Aayog initiative that acts as a one-stop portal for women to access mentorship, funding, and networking.

Economic & Entrepreneurship Incentives	● Lakhpati Didi Scheme: Aimed at empowering 3 crore (30 million) rural women to earn an annual income of at least ₹1 Lakh through micro-enterprises and skill training. ● Drone Didi: A specialized initiative to train 15,000 SHG women as drone pilots for agricultural purposes (pesticide spraying, crop monitoring), integrating women into high-tech rural jobs. ● Pradhan Mantri MUDRA Yojana (PMMY): These schemes provide collateral-free micro-loans up to ₹10 lakh. Notably, over 68% of Mudra loan beneficiaries are women, helping them start or scale small businesses. ● Stand up India: The scheme facilitates bank loans for setting up a new enterprise in manufacturing, services, agri-allied activities, or the trading sector by SC/ST/Women entrepreneurs. It provides bank loans between Rs10 lakh and up to Rs1 crore. ● Women Entrepreneurship Platform (WEP): A NITI Aayog initiative offering incubation, mentorship, funding support, and network access for tech and non-tech women-led startups.
Safety & Dignity at Work	● Sexual Harassment of Women at Workplace Act, 2013 (POSH): The Act was enacted to protect women from sexual harassment at their place of work. The Act ensures mandatory internal complaints committees across formal workplaces to create safe work environments. ● SHe-Box Portal: 'SHe-Box' portal provides a centralized online system to file complaints related to workplace sexual harassment.
New Labour Codes	● Code on Wages (2019): Equal pay for equal work; no gender discrimination in recruitment or wages. ● Code on Occupational Safety, Health and Working Conditions (OSH) 2020: Women are now legally permitted to work night shifts and in all sectors (including underground mining and heavy machinery), provided their consent is given and the employer ensures safety and transportation. ● Maternity Benefits: The Maternity Benefit Act (amended) provides 26 weeks of paid leave and mandates crèche facilities for establishments with 50+ employees. It proposed an option to work from home after this period, on mutual agreement with the employer.
Anganwadi centres under the ICDS	They provide maternal and child nutritional security, a clean and safe environment, and early childhood education. Thus, they facilitate the ability of women to re-enter work post-childbirth.

National Food Security Act (NFSA), 2013	Apart from providing affordable food, it entitles pregnant and lactating mothers to a cash transfer of at least Rs 6,000 . This is done to break the compulsion for early returning to work.
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What should be the Way Forward?

- Strengthening the “Care Economy”:** The single largest barrier to female participation remains “time poverty” due to the disproportionate burden of unpaid domestic work. The care economy can be addressed by following:
 - Child Care Subsidies:** Child-care subsidies should be provided to free up mothers’ time to enter the labour force, which would have significant implications in increasing female employment.
 - Universal Childcare:** Scaling the **Palna** scheme beyond Anganwadis into urban industrial clusters and IT hubs.
 - Elder-Care Infrastructure:** As India’s demographic shifts, elder care is becoming a new domestic burden. Developing a regulated professional caregiving industry can simultaneously reduce women’s domestic load and create new jobs.
 - Normalizing Paternity Leave:** Moving toward “Gender Neutral Parental Leave” to shift the societal expectation that caregiving is solely a female responsibility.
- Expand National Crèche Infrastructure:** Institutionalize public-private partnerships to scale quality child-care centers near job hubs and rural Anganwadis, reducing the disproportionate burden of unpaid care work on women.
- Removal of the legally sanctioned legislation:** States should review legislations like the Factory Act, Shops and Establishment Act etc. and liberalise the restrictions on women. The best practices from well performing States can be adopted across all States for e.g. **Andhra Pradesh and Telangana are the only two states that allow women to work in all processes in all establishments.**
- Creation of Self Help Groups:** The focus should be on creation of more Self Help Groups. They are of immense reliance and drastically enhance women participation as seen in case of **Kudumbashree model of Kerala.**
- Formalizing the Gig Economy:** Leveraging the **e-Shram** portal (which now has over 54% female registration) to provide social security and health benefits to women in the gig and platform economy (e.g., beauty services, digital tutoring).
- Safety Infrastructure:** Implement women-centric policing and improve lighting in public spaces to reduce dependency on costly private transport (the ‘Pink Tax’).
- Returnships:** Create “returnship” programmes specifically for women re-entering the workforce after a career break due to caregiving.
- Strengthen women’s entrepreneurship:** Move beyond access to credit towards market linkages, technology, mentoring, business formalisation and procurement opportunities for women-led enterprises.
- Change Social Norms:** Challenge traditional gender roles that confine women to unpaid domestic and caregiving work. Promote shared household responsibilities, encourage women’s employment through community awareness, engage men and local institutions, and create supportive social environments that recognise women’s economic contribution.

Conclusion: There is a need to take multiple steps to augment the female labour force participation in India in order to realise the numerous social and economic benefits that accrue from greater presence of women in the workforce. It can help India move from women-centric development to women-led development.

Read More: [The Hindu](#)

UPSC Syllabus- GS 3 Inclusive Growth, GS 1 Women empowerment, GS 2 Vulnerable sections of the society

India-Russia Relations – Significance and Challenges – Explained Pointwise



Ahead of the two upcoming meetings between Prime Minister Narendra Modi and Russian President Vladimir Putin, India's External Affairs Minister met President Putin to discuss key areas of bilateral cooperation, including energy, fertilisers, nuclear power, and high technology. The visit highlights the strategic importance of India-Russia relations and India's commitment to further strengthening the partnership. In this article, we will analyse the significance of India-Russia relations, the challenges this relation faces and the way forward for further strengthening of the relation.

What is the history of India-Russia Relations?

Russia has been a longstanding and time-tested partner for India. Development of India-Russia relations has been a key pillar of India's foreign policy. It is pertinent to look at the historical development of India-Russia relations.

India and Russia (formerly the Soviet Union) have had a longstanding and strategic relationship since the establishment of formal diplomatic ties in April 1947, just months before India's independence. The relationship has evolved over the decades, with periods of both cooperation and tension.

Early Years (1947-1955)	- India established diplomatic relations with the Soviet Union (USSR) in 1947, soon after gaining independence. - Initial relations between the newly Independent India and Soviet Union were negligible due to ideological differences. - Soviet Union under Stalin viewed India's independence movement with suspicion. However, this began to change in the 1950s, with key visits by Indian PM Nehru to Moscow in 1955 and Soviet leader Khrushchev to India later that year. - The steel plants at Bhilai and Bokaro were direct outcomes of these visits.
Cold War Era (1955-1991)	- India and the Soviet Union developed a strong strategic, military, economic and diplomatic relationship during the Cold War. - The Soviet Union became a major supplier of arms and military equipment to India, strengthening its defense capabilities. It played a crucial role in various conflicts, including the 1962 Sino-Indian War and the 1971 Indo-Pak War. - The Treaty of Peace, Friendship and Cooperation signed in 1971 was a key milestone in India-Russia relations. It included a security provision for mutual consultations in the event of a threat to either country.
Post-Cold War (1991-2000)	- Post Cold War and the dissolution of the Soviet Union in 1991, India-Russia relations weakened due to economic challenges and the changing global landscape. - The Treaty of Friendship and Cooperation signed in 1993 attempted to revive ties between India and Russia. However, the cooperation in most areas declined.
Phase of Strategic Partnership	- Signing of the 'Declaration on the India-Russia Strategic Partnership' in 2000 elevated the India-Russia ties to a new level. This strategic partnership has enhanced cooperation in political, security, defense, trade, economy, science, technology and culture. - High-level engagements like the annual India-Russia Summit have further strengthened the relationship.

What are the areas of Cooperation between India and Russia?

1. **Geopolitical Cooperation:** India and Russia have close geopolitical cooperation:
 - a. Engagement of India and Russia in regional forums like BRICS, SCO and the G20.
 - b. India refrained from adverse voting in the UN, and disregarded Western threats of sanctions on its energy imports from Russia.
 - c. India and Russia champion the establishment of a multi-polar world order.
 - d. Strong condemnation of terrorism in all its forms and all terrorist "safe havens" by both the Countries.

2. Defense Cooperation:

- a. **Military Hardware and Technology Transfers:** Russia is a major defense equipment supplier to India:
 - Licensed production of T-90 tanks and Su-30 MKI aircraft in India.
 - Agreements for the supply of S-400 Triumf mobile surface-to-air missile systems, MiG-29K aircraft, Kamov-31 helicopters, and upgrade of MiG-29 aircraft.
 - Joint development and production of military platforms like the BrahMos supersonic cruise missile.
 - Establishment of Indo-Russia Rifles Private Limited (IRRPL) to produce AK-203 rifles in India under “Make in India”.
- b. **Joint Military Exercises:** Tri-service military exercise ‘INDRA’, Avia Indra joint air force exercise.
- c. **Institutionalized Mechanisms for Defense Collaboration:** Establishment of India-Russia Inter-Governmental Commission on Military Technical Cooperation (IRIGC-MTC) at the apex level; and 2+2 Dialogue mechanism involving the Defense and Foreign Ministers in 2021.

3. Economic Cooperation: India and Russia share close economic relations. These are explained below:

- a. **Trade and Investment:** The bilateral trade between India and Russia stands at around \$65 billion. India’s imports of Russian crude at discount has surged in after the invasion of Ukraine led to the oil sanctions by the U.S. and Europe.
- b. **Cooperation in the Russian Far East:** India provides financial and personnel assistance to develop the resource-rich but sparsely populated Russian Far East region bordering China. A 5-year program of cooperation in the Far East for 2021-2025 is being finalized between NITI Aayog and Russia’s Ministry for Development of the Far East.
- c. **Close Business Cooperation:** India and Russia have both institutionalised CEO’s Forum. Indian companies invest in Russia, especially in natural resources such as coal, fertilizers, hydrocarbons, minerals, rare earth metals.
- d. **Banking and Financial Links:** India and Russia have explored on deepening banking and financial links such as ruble-rupee trade; and collaboration between financial institutions like SBI and VTB Bank.

4. Scientific and Research Cooperation: Since the cold war era, Russia has been a major scientific and research partner of India.

- a. **Civil nuclear energy Cooperation:** India and Russia jointly developed Kudankulam Nuclear Power Plant (KKNPP). India and Russia have jointly signed agreements on the construction of 12 nuclear power plants in India during the coming decades.
- b. **Space relations:** Russia and India have signed an agreement to train Indian astronauts for India’s first manned space mission (Gaganyaan). C-DAC and GLONASS have signed the agreement for cooperation in technologies based on satellite navigation.
- c. **Health:** India approved Russian Vaccine Sputnik V under emergency use authorization.

5. Diaspora and Cultural Relations: India and Russia have a deep diaspora and cultural relation. The following are the areas of engagement between India and Russia.

- a. **Respect for languages and Culture:** Hindi, and other languages such as Tamil, Marathi, Gujarati, Bengali, Urdu, Sanskrit and Pali are taught in Russian Institutions. Organizations like the Indian Cultural Centre in Moscow and the Indian Students’ Association promote Indian culture and heritage in Russia.
- b. **Indian Diaspora:** The Indian diaspora in Russia is estimated to be around 30,000-40,000, which consists of mostly professionals, students and businesspeople.

- c. **Extension of line of Credit for Russian Far East:** India has extended \$1 billion as a line of credit for the development of the Russian Far East.

What is the significance of India-Russia Relations?

1. **Geopolitical:** Deepened strategic partnership with India holds a lot of geopolitical importance for India.
 - a. **Russian support on critical Issues:** Russia supports India's demand for permanent seat in the UNSC. It has also supported India's stand on the Kashmir Issue.
 - b. **Counterbalancing Chinese Aggression:** Russia can help in defusing rising tensions with China.
2. **Defence and Security Cooperation:**
 - a. Russia still remains a critical defense supplier for India with 60-70% of India's defense equipment estimated to be of Russian and Soviet origin. Though India has diversified its defense imports from countries like US, France, it still cannot alienate Russia especially in the face of Chinese aggression at the border.
 - b. S-400 and other advanced systems bolster India's air defense capability, even at the cost of friction with the US under CAATSA.
 - c. Unlike many Western partners who often place strict end-user constraints, Russia has historically shared sensitive defense technologies, including nuclear submarine leasing, supersonic cruise missile systems (BrahMos), and licensed indigenous manufacturing capabilities.
3. **Economic and Connectivity Opportunities:**
 - a. Projects such as the **International North-South Transport Corridor (INSTC)** and the **Chennai-Vladivostok Eastern Maritime Corridor** can improve India's connectivity with **Russia, Central Asia and Europe**. Greater connectivity can diversify India's trade routes and strengthen economic engagement with Eurasia.
 - b. Cooperation in quantum computing, semiconductors, and rare earths offers India alternative technology and critical-mineral supply chains, reducing dependence on China for rare earth elements specifically.
4. **Energy Security:**
 - a. Russia is an important source of **crude oil and other energy resources** for India.
 - b. Indian investments in Russian oil and gas projects help diversify India's energy supplies.
 - c. Cooperation in **civil nuclear energy**, particularly the **Kudankulam Nuclear Power Plant**, further strengthens India's long-term energy security.
5. **Strategic Balancing:**
 - a. Smooth India-Russia relations offers India a better bargaining chip in negotiations with the western powers. It also offers India to strategically balance and align with the powers according to its national interest. **For e.g.** PM Modi's visit is taking place when leaders of the 32 nations in the North Atlantic Treaty Organisation (NATO) gather in Washington DC to celebrate 75 years of the anti-Russia military alliance.
 - b. Close India-Russia relations provides New Delhi the opportunity to offset the Chinese advantage in Eurasia.

What are the Challenges in the relation?

1. **Deepening of India-US relations:** The India-US relations is rapidly deepening especially in the defense sector, which is exemplified in the India-US nuclear deal in 2008, US emerging as the top arms

supplier to India by overtaking Russia and India-US Foundational agreements such as LEMOA, COMCASA, BECA. Due to these developments, Russia changed their decades-old policy and started supplying China with weapon systems like Sukhoi 35 and the S-400 missile defence system.

2. **Russia's growing dependence on China:** Moscow and Beijing have forged the closest possible ties in their history. This has generated fears that Russia will become a subordinate partner given the growing economic, demographic and technological asymmetry between them. This could jeopardize Moscow's neutrality on Sino-Indian tensions.
3. **Russia's increased engagement with Pakistan:** Russia has been increasing its economic and defence cooperation with Pakistan, like conduction of bilateral exercise Friendship. The RCP axis (Russia, China, Pakistan) will be detrimental to India's national interest.
4. **Trade Imbalances:** Even though the bilateral trade between the two nations has increased in the face of crude oil imports, there is considerable trade imbalances between India and Russia. Of the total trade of \$65 billion, India's exports constitute less than \$5 billion.
5. **Defense Delays:** There have been considerable delays in the delivery of military spares and big-ticket weapon systems like the S-400 Triumf surface-to-air missile systems, to India due to the Ukraine War.
6. **Connectivity Project Implementation Gaps:** INSTC and the Chennai-Vladivostok Maritime Corridor remain long-term infrastructure ambitions with significant implementation challenges which involve multiple transit countries (e.g. Iran for INSTC), sanctions exposure, and financing hurdles – limiting their near-term impact on trade diversification.
7. **Ukraine Crisis:** The continuing Russia-Ukraine war has put India into a diplomatic tightspot. India has been facing significant criticism for not condemning the invasion and continuing energy and economic cooperation with Moscow.

What Should be the Way Forward?

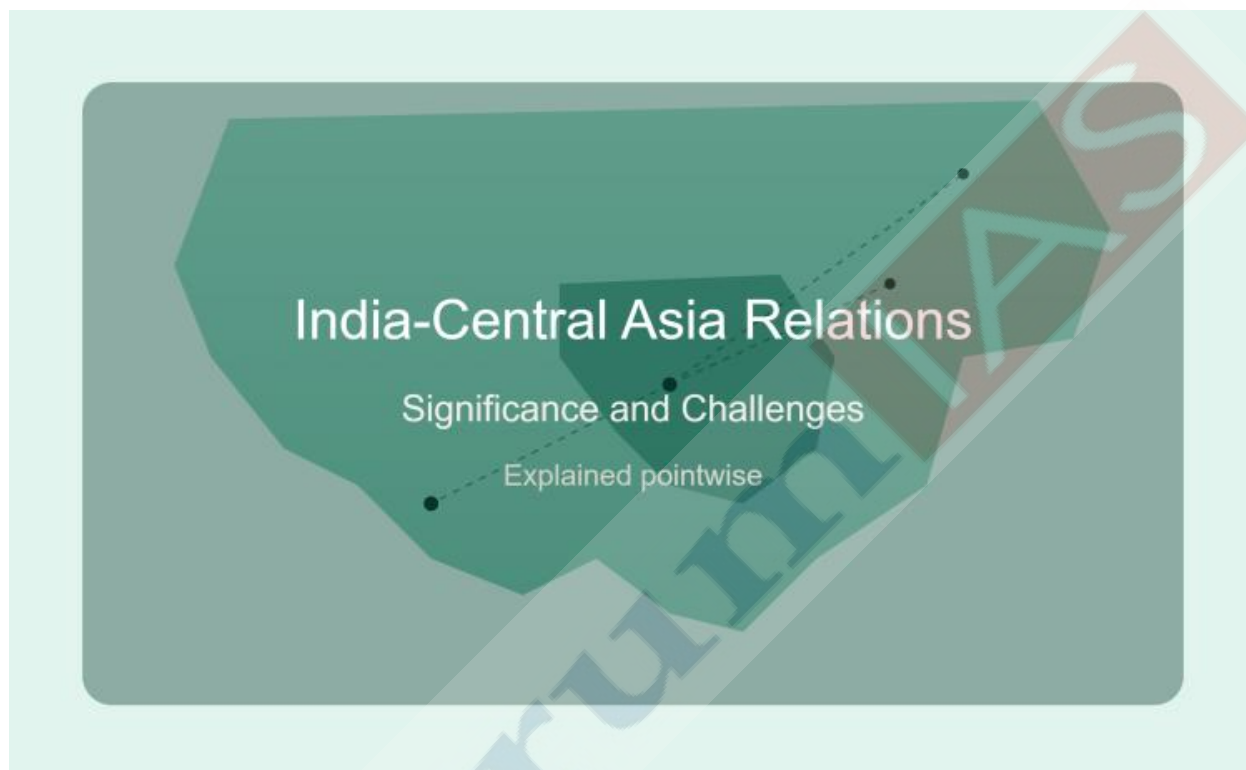
1. **Neutral Player in the resolution of Ukraine Crisis:** India must continue to maintain its positioning as a neutral player that could be a mediator between the two sides in the resolution of the Ukraine Crisis. India must continue to appeal to both sides to 'abide by the international rules and conventions'.
2. **Conclude the India-EAEU FTA:** Prioritize finalizing the Free Trade Agreement with the Eurasian Economic Union to move beyond an energy-dominated trade basket and unlock the 300+ identified export products. The FTA will help in reducing the tariff and non-tariff barriers & expanding the access to Central Asian and Russian markets.
3. **Addressing defense supply chain shocks:** India and Russia must explore setting up joint venture partnerships to address the shortage of critical defense spare parts.
4. **More diplomatic and financial investments:** India and Russia must invest more diplomatic and financial resources to finish the pending works for the International North-South Transport Corridor. Both sides should expedite discussions on the Free Trade Agreement with the Eurasian Union for better trade and commerce.
5. **Enhanced focus on Eurasia:** India and Russia have to explore their opportunities in the Eurasian region. India can study the possibility of expanding Russia's idea of 'extensive Eurasian partnership' involving the EAEU (Eurasian Economic Union) and China, India, Pakistan, and Iran.
6. **Unequivocal message to the Western countries:** India must send unequivocal message to the West that Russia occupies a pivotal place in India's strategic calculations. It must be conveyed that the West needs India just as much as India needs the West.

Conclusion: India should modernise and diversify its long-standing partnership with Russia by strengthening economic and technological cooperation while preserving strategic autonomy. A balanced, pragmatic and future-oriented approach can help India-Russia relations remain resilient amid changing geopolitical realities.

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UPSC Syllabus- GS 2 International Relations- India's Relation with Developed Countries

India-Central Asia Relations – Significance & Challenges – Explained Pointwise



Prime Minister Narendra Modi is set to visit Central Asia this week for a bilateral visit to Uzbekistan and to attend the SCO Summit in Kyrgyzstan. As global geopolitics undergoes significant shifts, Central Asia is gaining strategic importance for India. The region is balancing ties with Russia, China and the US, while India seeks to leverage its historical, cultural and security linkages to advance its economic and strategic interests.

Central Asia Region:

Central Asia

- **Location:** Situated in the central part of the Eurasian continent, bordered by **Russia** to the north, **China** to the east, **Iran** and **Afghanistan** to the south, and the **Caspian Sea** to the west.
- **Member States:** Consists of five landlocked countries:
 1. **Kazakhstan** — Astana – World's largest landlocked country
 2. **Kyrgyzstan** — Bishkek – Mountainous land dominated by the Tian Shan mountain range
 3. **Tajikistan** — Dushanbe – High-altitude terrain home to the Pamir Mountains
 4. **Turkmenistan** — Ashgabat – Dominated by the Karakum Desert
 5. **Uzbekistan** — Tashkent – Most populous country in the region
- **Climate:** Predominantly continental and semi-arid to arid, featuring hot summers and severe, cold winters.
- **Energy resources:** Kazakhstan, Turkmenistan and Uzbekistan possess significant oil and natural-gas resources.
- **Water resources:** The **Amu Darya** and **Syr Darya** are crucial transboundary rivers.

How have India-Central Asia relations evolved?

Ancient & Medieval Periods	- Trade along the Silk Route and the spread of Buddhism created strong cultural and intellectual links. - Many medieval Indian rulers, including the Mughals, came from Central Asia, deepening these historical ties.
Post-1991 (Post-USSR)	- Five Central Asian nations became independent. India quickly established diplomatic relations (1991–92). - Engagement was limited in the 1990s but increased from the 2000s
Key Milestones	2012: India launched its “Connect Central Asia” Policy in 2012, marking a more proactive approach towards the region. 2015: Indian PM visited all five Central Asian Republics (CARs) in one trip, signaling strategic intent. 2017: India became a permanent member of the Shanghai Cooperation Organisation (SCO), strengthening multilateral engagement. 2020: India-Central Asia Business Council established to promote trade and investment. 2022: The establishment of the India-Central Asia Dialogue (2019) led to the inaugural India-Central Asia Summit in 2022. The five Central Asian presidents participated, and the Delhi Declaration provided a roadmap for cooperation in trade, connectivity, development partnership, security, culture and technology. 2025: The 4th India-Central Asia Dialogue in 2025 reflected the broadening agenda: greater trade and investment, digital payments, banking connectivity, INSTC, Chabahar, pharmaceuticals, IT, agriculture, energy, textiles, capacity building and cooperation on Afghanistan and counter-terrorism.

What is the significance of the Central Asian Region for India?

- Geostrategic Significance:** Situated at the heart of Eurasia, Central Asia acts as a land bridge connecting Europe and Asia. Its stability is crucial for India’s extended neighbourhood policy, particularly amid China’s Belt and Road Initiative (BRI) and Russia’s regional influence.
- Energy and Mineral Security:** The region is rich in hydrocarbons, uranium, and rare earth elements. Kazakhstan is a leading uranium producer, and Uzbekistan has significant uranium reserves. Turkmenistan’s natural gas reserves are vital for India’s energy diversification strategy. Initiatives like the TAPI pipeline, though stalled, reflect India’s long-term energy engagement.
- Security Cooperation:** Terrorism, drug trafficking, and radicalization are shared concerns, especially following the Taliban’s return to power in Afghanistan. Joint efforts in counterterrorism, intelligence sharing, and military exercises (DUSTLIK, KAZIND) enhance regional security collaboration.
- Trade and Investment Potential:** Bilateral trade between India and Central Asia reached around \$1.7 billion in 2023, up from \$500 million in 2010, with pharmaceuticals leading exports and Kazakhstan as the main source of imports. Since 2010, India has invested about \$1.5 billion in the region, mainly in coal, oil, and gas, though investment from Central Asia to India remains limited.

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5. **Cultural and Soft Power Influence:** India has strong cultural and spiritual ties with Central Asia through shared Sufi and Buddhist heritage. It promotes its soft power using cinema, cuisine, yoga, and traditional medicine, while initiatives like Project Mausam strengthen cultural and maritime connections in the region.

What initiatives has India undertaken to strengthen its relations with the Central Asian countries?

1. **Connect Central Asia Policy (2012):** India launched the policy to strengthen political, economic, cultural and strategic ties with the five Central Asian republics. It focuses on connectivity, energy cooperation, trade, capacity building, education, technology and people-to-people contacts.
2. **India-Central Asia Dialogue (2019):** A Foreign Ministers-level institutional mechanism was established to promote cooperation in political, economic, security, cultural and development-related spheres.
3. **India-Central Asia Summit (2022):** India institutionalised a leaders-level summit mechanism, along with regular meetings of Foreign Ministers, Trade Ministers, Culture Ministers and National Security Council Secretaries to set long-term cooperation priorities across trade, security, and technology.
4. **Connectivity and Trade Corridors:**
 - **International North-South Transport Corridor (INSTC):** Launched with Iran and Russia in 2000, now expanded to include Central Asian countries, facilitating cargo movement and reducing trade costs.
 - **Chabahar Port:** India has invested in developing the Shahid Beheshti Terminal at Chabahar Port in Iran, providing a sea-to-land transit link to bypass Pakistan and connect directly with Central Asian markets.
 - **Ashgabat Agreement:** India, along with all five Central Asian Republics, is a party to this agreement, promoting multi-modal transport networks to enhance connectivity.
 - **TAPI Pipeline:** India remains involved in discussions around the **TAPI Gas Pipeline** (Turkmenistan-Afghanistan-Pakistan-India) and joint exploration efforts in the Caspian Sea basin.
5. **Economic and Technological Collaboration:**
 - **Trade and Investment:** Bilateral trade between India and Central Asia reached approximately \$1.7 billion in 2023, with potential for growth in sectors like pharmaceuticals, information technology, and agriculture.
 - **Development partnership:** India has offered a **\$1-billion Line of Credit** for priority projects in connectivity, energy, IT, healthcare, education and agriculture, besides High Impact Community Development Projects.
 - **India-Central Asia Business Council (ICABC):** Established in 2020 to strengthen business-to-business linkages, investment and trade, particularly involving SMEs.
 - **Digital Public Infrastructure:** India has offered assistance in developing **Digital Public Infrastructure (DPI)** based on India Stack and agreed to establish an **India-Central Asia Digital Partnership Forum**.
 - **Capacity Building:** Through the Indian Technical and Economic Cooperation (ITEC) program, India offers training and scholarships in various fields, enhancing human resource development in Central Asia.
6. **Defence and Security Cooperation:**
 - **Strategic Partnership Agreements (SPA):** Signed with Kazakhstan, Tajikistan, and Uzbekistan to deepen defence and trade ties.

- **Joint Military Exercises:** India conducts regular bilateral exercises focused on counter-terrorism and mountain warfare, including **KAZIND** (Kazakhstan), **DUSTLIK** (Uzbekistan), and **KHANJAR** (Kyrgyzstan).
 - **NSA-Level Consultations:** Institutionalized dialogue on counterterrorism, Afghanistan, and regional stability.
 - **Multilateral Engagement:** India leverages platforms like the Shanghai Cooperation Organization (SCO), Conference on Interaction and Confidence-Building Measures in Asia (CICA), and DAKSHIN (Global South knowledge exchange) to maintain continuous engagement with Central Asian countries.
7. **Science, Innovation & Critical Minerals:**
- **Rare Earth Forum:** The first India-Central Asia Rare Earth Forum was held in September 2024 in New Delhi, focusing on joint exploration and cooperation in critical minerals.
 - **Space Technology Cooperation:** Collaborations in space technology and innovation enhance strategic and economic ties between India and Central Asia.
8. **Cultural Diplomacy:**
- **Youth Exchange Programs:** India hosted the **3rd Central Asian Youth Delegation** from 22nd to 28th March 2025, fostering youth collaboration and cultural exchange.
 - **Cultural Centers and Initiatives:** Promotion of Indian cultural centers, Sanskrit chairs, and youth exchange programs strengthen people-to-people connections.

What are the challenges facing India-Central Asia relations?

1. **Geography and Connectivity:** India has no direct land border with Central Asia and depends on third countries for access. Transit through Iran's Chabahar port is subject to geopolitical disruptions, US sanction regimes on Iran, and regional instability. The International North-South Transport Corridor (INSTC) faces operational bottlenecks due to missing rail links, fragmented customs processes, and banking limitations tied to sanctions on Iran and Russia.
2. **Low Trade Volumes:** Bilateral trade is around \$1.7 billion in 2023, far below China's \$100 billion with the region. High logistics costs, tariff barriers, and banking challenges restrict growth.
3. **Chinese Dominance:** China has emerged as Central Asia's major economic and infrastructure partner. China's Belt and Road Initiative (BRI) and CPEC investments in Central Asia are faster and larger, overshadowing India's presence.
4. **Afghanistan instability:** Political instability, terrorism and humanitarian concerns in Afghanistan create security risks and complicate India's connectivity with the region.
5. **Russia-Ukraine conflict:** The conflict has disrupted established trade and connectivity routes and complicated the geopolitical balance in Central Asia, where Russia remains an important security partner.
6. **Stalled Energy Infrastructure:** Trans-regional projects designed to supply energy to South Asia, such as the TAPI (Turkmenistan-Afghanistan-Pakistan-India) gas pipeline, remain largely stalled due to security issues and geopolitical friction along the transit route.
7. **Low Private Sector Awareness:** Indian private companies often view Central Asia as a high-risk market due to unfamiliar legal/bureaucratic environments, language barriers (Russian/Turkic dominant), and opaque regulatory frameworks.
8. **Limited People-to-People Links:** Compared with India's relations with some other regions, cultural, educational, tourism and business exchanges with Central Asia remain relatively underdeveloped.

9. **Financial and Banking Gaps:** Lack of direct banking channels hampers trade, remittances, and currency conversion. Joint financial working groups are still in early stages.

What should be the way forward?

1. **Enhance Connectivity:** Make INSTC and Chabahar Port fully operational, develop multimodal transport corridors, digitize customs processes, and encourage full participation of Turkmenistan and Uzbekistan to strengthen regional links. Institutionalize Chabahar Port within the broader INSTC architecture, encouraging Central Asian states to utilize dedicated Indian terminal facilities (like the Shahid Beheshti Terminal) for their maritime trade.
2. **Institutionalize Summit Diplomacy:** Regularize the **India-Central Asia Summit** at fixed intervals (not ad hoc) to maintain momentum and ensure follow-through on commitments. Strengthen NSA-level and Foreign Ministers' Dialogue mechanisms for continuous security and connectivity coordination. Expand diplomatic footprint by opening more embassies, consulates, and cultural centers to match engagement depth with China/Russia.
3. **Secure Energy and Minerals:** Resume TAPI pipeline discussions once Afghanistan stabilizes, collaborate on rare earth exploration, and ensure long-term uranium supply agreements with Kazakhstan to support India's energy and strategic needs.
4. **Strengthen Financial and Trade Links:** Create a joint financial connectivity group, promote rupee settlements and digital payments, and enhance business-to-business engagement through the India-Central Asia Business Council (ICABC).
5. **Negotiate a Preferential Trade Agreement (PTA):** Fast-track PTA negotiations with the **Eurasian Economic Union (EAEU)** and targeted bilateral trade deals with key partners like Kazakhstan and Uzbekistan to lower tariff bottlenecks.
6. **Promote Digital Cooperation:** Share India Stack and digital governance solutions, roll out pilot Digital Public Infrastructure (DPI) programs, and deepen collaboration through the India-Central Asia Digital Partnership Forum.
7. **Develop Human Capital:** Expand ITEC scholarships, vocational training, and medical fellowships, while supporting Indian university campuses and joint research initiatives to build skills and promote innovation.
8. **Enhance Security Cooperation:** Institutionalize NSA-level consultations, conduct joint training in counterterrorism and cybersecurity, and use platforms like SCO and bilateral mechanisms to address regional security challenges.
9. **Deepen Cultural and Trade Ties:** Strengthen cultural centers, Sanskrit chairs, and youth exchange programs, hold regular Culture Ministers' Meetings, and expand trade and investment in sectors like IT, pharmaceuticals, tourism, and energy.
10. **Adopt a balanced geopolitical approach:** India should maintain constructive relations with **Russia, China, Iran and Central Asian republics** while safeguarding its own strategic autonomy and regional interests.

Conclusion: India must move beyond a predominantly security-oriented engagement towards a **comprehensive partnership based on connectivity, commerce, energy, technology and human capital** to establish itself as a reliable long-term partner for Central Asia.

Read more: [Indian Express](#)

UPSC Syllabus- GS 2: International Relations

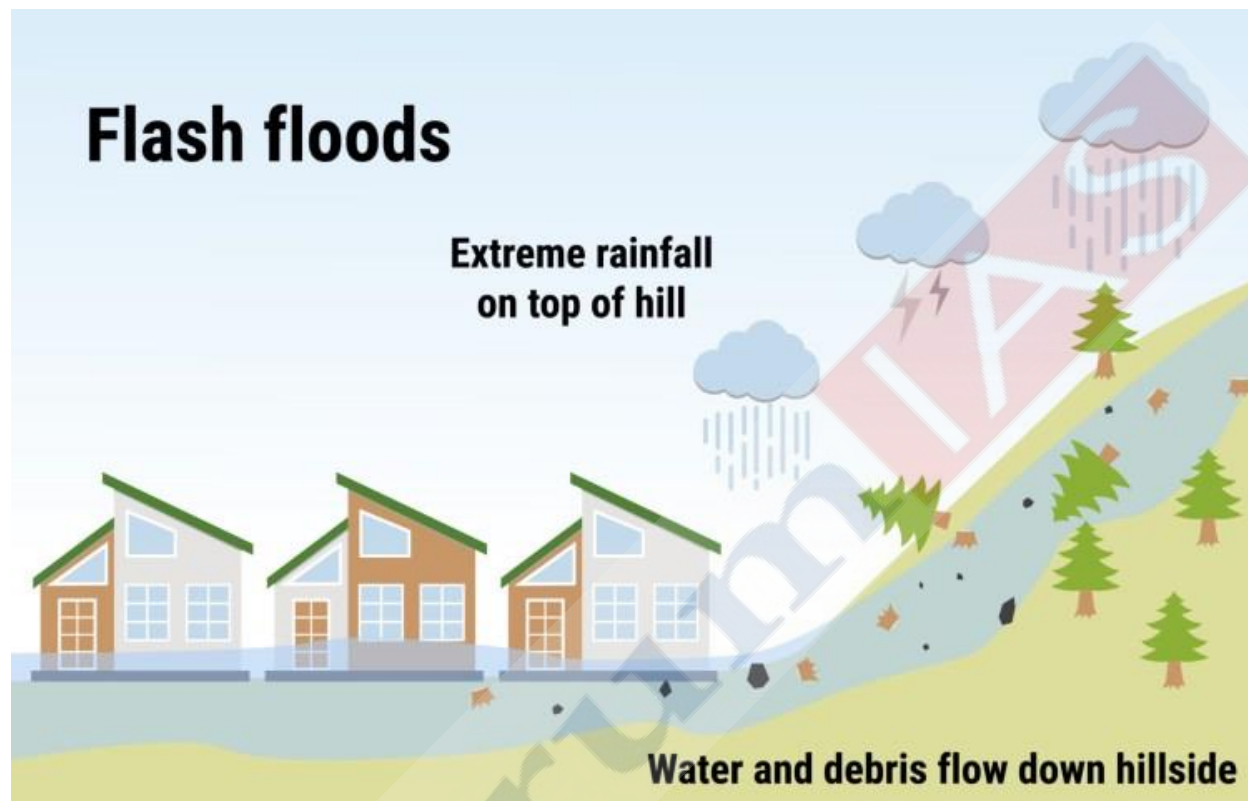
Flash Floods – Causes, Consequences & Mitigation Measures – Explained Pointwise

The devastating flash floods in Nepal, triggered by an ice-rock avalanche likely from a glacier collapse, highlight the urgent need for action. Over 160 lives were lost, with more than 800 missing, and transboundary rivers like the Trishuli (Gandak) threaten downstream regions in India. The disaster underscores the need for cross-border early warning networks, nature-based solutions, and climate-resilient infrastructure to mitigate future Himalayan flood risks.

What is Flash Flood?

- According to IMD, flash floods are sudden and rapid floods that occur typically within minutes or a few hours of intense localized rainfall over a short duration or other intense water accumulation events.
- Unlike standard river flooding that develops over days, flash floods give little to no advance warning and pack tremendous destructive power.
- Key characteristics of flash floods:
 1. **Rapid onset:** Water levels rise very quickly, often with little to no warning
 2. **Short duration:** Unlike riverine floods that develop over days, flash floods peak and recede fast
 3. **High velocity:** The water moves with great force and speed, making them particularly destructive and dangerous.
 4. **Localized:** Often confined to a specific area, such as a valley, urban drainage system, or dry riverbed.

- Flash floods are a significant and growing threat in Indian subcontinent, particularly in the Himalayan region and parts of central and western India. While traditionally associated with the heavy monsoon season, recent studies and events suggest that their frequency and intensity are increasing, partly due to climate change and human-induced factors.



What are high risk zones in India?

The Himalayan Mountain Belt (Extreme Risk)	Steep terrain, fragile slopes, and sudden, high-intensity cloudbursts make the Himalayan region the most prone to rapid, destructive flash flooding and Glacial Lake Outburst Floods (GLOFs). North-Western Himalayas: Jammu & Kashmir (Jhelum Basin), Himachal Pradesh (Beas, Sutlej, and Ravi Basins), and Uttarakhand (Alaknanda and Bhagirathi Basins) e.g. 2013 Kedarnath disaster, 2021 Chamoli disaster. North-Eastern Himalayas: Sikkim, Arunachal Pradesh, and North Bengal e.g. 2023 Teesta flash flood.
River Basins and Coastal Slopes (High Risk)	Western Ghats & Konkan Coast: High-altitude slopes in Maharashtra, Goa, Coastal Karnataka, and Kerala e.g. Idukki, Wayanad, Malappuram – 2018 floods, 2024 Wayanad landslide-flash flood.

	● Central & Peninsular River Basins: Upper and middle catchments of the Narmada, Tapi, Mahanadi, Krishna, and Godavari rivers across Madhya Pradesh, Gujarat, Odisha, and Maharashtra.
Urban Centres	Densely populated metro areas face severe urban flash floods due to loss of natural soil absorption, encroached natural drainage channels, and outdated storm-water drains during sudden cloudbursts. ● Major Urban Hotspots: Mumbai, Chennai, Bengaluru, Delhi-NCR, Hyderabad, and Pune.

How flash floods are different from normal floods?

	Normal Floods	Flash Floods
Speed & Duration	Normal floods are a much slower, more gradual process. They can take days or even weeks to develop and can last for extended periods.	Flash floods are incredibly fast, occurring within a very short period, typically less than six hours after the causative event. They build up and dissipate quickly.
Causes	Normal floods are generally caused by prolonged, widespread rainfall over a large area, or by snowmelt over a long period.	The primary cause is intense, heavy rainfall in a short amount of time, such as from a slow-moving thunderstorm or a cloudburst. Other triggers include dam or levee failures, sudden glacier melt (GLOFs), or debris jams. The ground simply cannot absorb the immense volume of water quickly enough.
Area of impact	Normal floods typically affect a much larger geographic area , following the course of a river system. The flooding is widespread and can inundate entire floodplains, farmlands, and multiple towns.	Flash floods are often localized and can affect small-scale areas like urban streets, dry creek beds (washes), or mountain canyons.

Risk & Warning	Normal floods come with much more lead time, allowing authorities to issue warnings and for residents to prepare or evacuate safely. While property damage can be extensive, the risk to human life is generally lower than with a flash flood. The water in a normal flood rises gradually and is often slow-moving.	Flash floods are considered the most dangerous type of flood because of the little-to-no warning time. This leaves people with very little time to evacuate, leading to a higher number of fatalities. The water in a flash flood is a fast-moving, destructive torrent. It can carry a significant amount of debris.
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What are its causes?

NATURAL CAUSES	1. Cloudbursts: This is the most common and devastating cause, especially in the Himalayan states. A cloudburst is an extreme rainfall event where a large amount of rain (over 100 mm) falls over a small area in a very short time, typically less than an hour. The steep slopes of the Himalayas cause this water to rush downhill with immense force, triggering flash floods and landslides. 2. Intense Monsoon Rains: The Indian monsoon, which delivers most of the country's rainfall between June and September (80% of annual rainfall in just 3 months), is a major trigger. Intense, short-duration rainfall events can overwhelm the capacity of rivers and drainage systems, leading to rapid flooding. 3. Geological Fragility: The Himalayas are young, tectonically active mountains with fragile geology. Heavy rain and seismic activity can easily destabilize slopes, leading to landslides and debris flows that can block river channels. When these natural dams fail, they release a sudden surge of water, causing a flash flood downstream. 4. Topography: Areas with steep terrain, such as canyons and mountains, are highly susceptible to flash floods. Gravity pulls the water downhill at a high velocity, and it can gather in low-lying areas, turning a small creek into a raging river in minutes. 5. Glacial Lake Outburst Floods (GLOFs): A GLOF is a sudden and fast-flowing flood that happens when the dam (usually made of ice or moraines) holding back a glacial lake suddenly fails – causing huge amounts of water to rush downstream. 6. Wildfires: Recently burned areas are at high risk. The fire-scorched soil becomes hydrophobic (water-repellent), preventing it from absorbing rain and leading to rapid runoff. 7. Saturated or Parched Soil: Soil that is already soaked from previous rains cannot absorb more water. Conversely, extremely dry, hard-baked soil acts like concrete, causing rain to run straight off the surface.
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ANTHROPOGENIC CAUSES	1. Deforestation: The cutting down of trees reduces the soil's ability to absorb water, increasing surface runoff and the risk of flash floods. 2. Unplanned Development: Unchecked construction, particularly in hazard-prone areas like riverbeds and floodplains, has increased vulnerability and amplified the damage from flash floods. 3. Urbanization and Concrete Surfaces: In cities, concrete and asphalt surfaces prevent water from soaking into the ground. This creates a high amount of runoff that can quickly overwhelm storm drains and cause streets to flood. 4. Poor Drainage: In urban areas, a lack of proper and maintained drainage systems, combined with a high percentage of impermeable surfaces like concrete, leads to rapid water accumulation and urban flash floods. 5. Dam Failure: The sudden and catastrophic failure of a man-made dam or a natural ice or debris dam can release a massive amount of water in a very short time, causing a destructive flash flood downstream.
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What are its consequences?

1. **Loss of Life:** Flash floods are among the deadliest natural disasters. The sheer force of the water can easily sweep away people, vehicles, and even entire buildings. The lack of warning and the speed of the water leave little chance for escape, especially for the elderly, children, and those with disabilities e.g. Kedarnath 2013: ~6,000 deaths; Chamoli 2021: ~200 deaths.
2. **Destruction of Infrastructure & Property:** Flash floods can completely destroy homes, commercial buildings, and critical infrastructure like bridges, railway tracks, power lines & telecommunication networks e.g. Chamoli 2021 destroyed the Rishiganga and damaged Tapovan-Vishnugad hydel projects.
3. **Agricultural Damage:** They can devastate agricultural lands, washing away fertile topsoil, destroying crops, and killing livestock. This can lead to food shortages and severe financial losses for farmers, impacting the entire local and regional economy.
4. **Erosion and Landslides:** The powerful flow of a flash flood can cause severe soil and bank erosion, carving out new channels and destabilizing hillsides, which can lead to more landslides and debris flows.
5. **Habitat Destruction:** The sudden and violent change in water flow can destroy natural habitats, uprooting trees, and killing plant and animal life. Aquatic life is killed off by the sudden surge of sediment, which clogs fish gills, and by the abrupt change in water temperature and oxygen levels.
6. **Water Supply Contamination:** Floodwaters inundate sewage treatment plants and overwhelm septic systems. Raw sewage mixes with the floodwater, contaminating drinking water wells and municipal supplies. This often leads to outbreaks of waterborne diseases.

What are the various initiatives taken to address the issue of flash floods?

1. **Flash Flood Guidance System (FFGS):** The IMD has implemented the South Asia Flash Flood Guidance System (SASIAFFGS) in collaboration with other South Asian countries. This system provides real-time guidance and threats 6 to 24 hours in advance down to a 4km x 4km watershed resolution across India, Nepal, Bhutan, Bangladesh, and Sri Lanka.

2. **InSAR Landslide & Flood Monitoring:** Advanced satellite monitoring (like InSAR) tracks ground movement and water accumulation along high-risk routes, such as the Himalayan Char Dham highway network.
3. **GLOF Early Warning Systems:** India is deploying pilot early-warning systems at high-risk glacial lakes (e.g. South Lhonak and Shako Cho in Sikkim) in collaboration with Swiss experts, following the 2023 Sikkim GLOF disaster. There are 56 at-risk glacial lakes identified in India.
4. **AI-Driven Forecasting:** IMD have integrated AI and machine learning models into their systems to provide 7-day advance predictions and more accurate flood simulations. This is part of a larger “Mission Mausam” initiative to modernize weather forecasting.
5. **Multi-Hazard Systems:** Ministry of Earth Sciences has developed a comprehensive Multi-Hazard Early Warning System (MHEWS). It integrates observational networks and a GIS-based Decision Support System (DSS) to monitor hazards like cyclones and heavy rainfall.
6. **Sachet App:** NDMA’s multi-hazard early warning mobile application (launched 2023), available in 12 Indian languages, disseminating real-time disaster alerts including flash flood warnings.
7. **C-FLOOD (Unified Inundation Forecasting System):** Launched by the Jal Shakti Ministry in 2025. It is a web-based platform providing 2-day advance inundation forecasts up to village level, integrating flood modeling outputs from national and regional agencies as a decision-support tool for disaster management authorities. Currently covers Mahanadi, Godavari, and Tapi basins, with plans to expand.

What should be the way forward?

1. **Strengthen Early Warning Systems and Real-Time Monitoring:** Expand the use of Doppler radars, satellite imagery, and artificial intelligence for accurate, real-time prediction and tracking of flash floods.
2. **Expand C-FLOOD nationwide:** Scale the Unified Inundation Forecasting System beyond Mahanadi, Godavari, and Tapi to cover all major river basins, especially flash-flood-prone Himalayan catchments.
3. **Strict enforcement of hill-state building codes:** Strict enforcement of hill-state building codes can prevent construction in hazard-prone zones, regulate slope cutting, ensure structural safety, and minimise disruption of natural drainage, thereby reducing flash-flood risks and losses.
4. **Afforestation and Watershed Management:** In the Himalayas and other hilly regions, large-scale afforestation and soil conservation projects help the ground absorb more water, which reduces surface runoff and the risk of landslides.
5. **Improved Drainage Systems:** In urban areas, improving and expanding drainage networks is crucial to handle intense rainfall. This includes clearing and prohibiting encroachments on natural storm-water drains (*nallahs*), wetlands, and floodplains. Incorporate permeable asphalt, rain gardens, and bioswales into urban bylaws to allow rain to sink into the ground rather than running off concrete.
6. **Community-Based Disaster Management:** The National Disaster Management Authority (NDMA) and State Disaster Response Force (SDRF) work with communities to train volunteers in search and rescue operations, first aid, and basic emergency response.
7. **Mock Drills:** Conducting regular mock drills helps communities practice evacuation procedures and ensures that residents and first responders are prepared to act quickly when an event occurs.

Conclusion:

With rapidly increasing intensity & frequency of flash flood events across the country, India needs to immediately adopt mitigation & adaptation measures to prevent further loss of lives & property. Authorities need to identify new potential flash flood hotspots & take measures like building climate-resilient infrastructure to limit the limit of extreme weather events.

Read More: [The Indian Express](#)
UPSC GS-3: Disaster Management

Shared Himalayan Disaster Management – Need & Way Forward – Explained Pointwise



The recent flash floods in Nepal highlight how Himalayan disasters can rapidly cross borders, affecting downstream communities and infrastructure. Such events underline the need for joint early-warning systems, real-time data sharing, coordinated rescue operations and basin-level disaster management among Himalayan countries.

Why are Himalayan disasters becoming more frequent and intense?

The increasing frequency and destructive intensity of disasters in the Himalayas such as landslides, flash floods, debris flows, and Glacial Lake Outburst Floods (GLOFs), are happening because of convergence of factors like **geology, accelerating climate change, and unregulated anthropogenic pressure.**

Geological Fragility	1. Young, Tectonically Active Fold Mountains: The Himalayas were formed by the ongoing collision of the Indian Plate driving northward into the Eurasian Plate at roughly 4-5 cm per year. This active tectonics creates high seismic stress, severe faulting, and inherently fragile, fractured rock formations prone to mass wasting. 2. Extreme Topography: Steep slopes and narrow river gorges amplify the velocity and kinetic energy of water, rock, and ice rushing downslope. 3. Weak, unconsolidated rock strata: Much of the terrain consists of loose sedimentary and metamorphic rock highly susceptible to erosion and slope failure.
Climate-Driven Amplification	1. Glacier Retreat and Glacial Lake Formation: As glaciers melt rapidly, they leave behind unstable terrain and create new glacial lakes, often dammed by weak moraines. For e.g. in the Eastern Himalayas, South Lhonak Lake expanded by 45.5% between 2016 and 2023. This massive increase in water volume significantly raises the risk of catastrophic Glacial Lake Outburst Floods (GLOFs). 2. Rising Temperatures & Permafrost Melting: Increasing temperatures are melting high-altitude permafrost, which helps keep mountain slopes stable. Its melting weakens rocks and can trigger sudden rockfalls, landslides and avalanches, even without earthquakes. 3. Shift from Snow to Rain at Higher Altitudes: Rising temperatures are pushing the snowline higher, causing more precipitation to fall as rain instead of snow. This increases surface runoff, soil erosion and landslides, especially on unstable glacial slopes. 4. More Intense Rainfall: The region is experiencing a shift in precipitation patterns with a reduction in the number of rainy days but a significant increase in the intensity of extreme rainfall events. This leads to more powerful cloudbursts and flash floods.
Anthropogenic Factors	1. Slope Destabilization from Linear Infrastructure: Construction of highways and railway tunnels involves cutting hills, which can weaken slopes, disturb underground water flow, and cause erosion. Poor muck disposal and inadequate retaining structures can further increase the risk of landslides. For e.g. in Uttarakhand, a notable increase in landslides has been observed following road expansion projects under the Char Dham Pariyojana. 2. Hydropower in High-Risk Areas: Building dams, barrages and tunnels in narrow Himalayan valleys increases the risk of flash floods, landslides and dam-related disasters, putting infrastructure and local communities at risk. 3. Unplanned Urbanization & Land Subsidence: Towns like Joshimath show the risks of unplanned construction in ecologically fragile areas. Building on old landslide zones, poor drainage and excessive water infiltration can cause land subsidence and structural damage.

What are the major challenges in managing disasters in the Himalayan region?

1. **Extreme Inaccessibility of High-Altitude Zones:** Many disaster triggers, such as high-altitude ice-rock avalanches, originate in remote areas that are practically impossible for humans to reach or equip with extensive monitoring infrastructure. For e.g. the 2026 mudslide at the **Gyirong Port** was triggered by a glacier collapse high in Nepal, far from any ground-based observation.
2. **Limited Cross-Border Collaboration:** The Himalayas are a transnational region, but disasters don't respect borders. A lack of formal, operational frameworks for sharing critical data and warnings between countries is a major weakness. The 2026 disaster at Gyirong Port starkly illustrated this: while Nepal's hydrological agency sent over 6,00,000 warning texts, the information was not effectively coordinated with downstream communities in China, and vital information about upstream hazards was not shared.
3. **Ineffective Early Warning Systems:** Existing early warning systems often fail to provide adequate notice. The extreme speed of high-altitude events, like the 50 meters per second debris flow at Gyirong Port, can give a community as little as 20 minutes to react. Many systems are based on historical data and are not designed for the "unimaginable" events now occurring due to climate change.
4. **Underestimation of Systemic Risk:** There is a persistent failure to recognize how different risks interconnect. The region's fragile geology, steep slopes, and extreme weather mean that a single event, such as an avalanche, can trigger a cascade of disasters such as landslides, dam failures, and massive floods that have catastrophic impacts.
5. **Fragmented Responsibility and Governance:** Responsibility for disaster management is often scattered across multiple agencies and levels of government, leading to poor coordination, bureaucratic delays, and a lack of clear accountability. For e.g. field execution requires coordination among an array of agencies such as NDMA, SDMA, Border Roads Organisation, Central Water Commission, Geological Survey of India, Armed Forces, and local district administrations – which can lead to delayed clearance protocols during sudden events.

Why do Himalayan disasters require cooperation among neighbouring countries?

1. **Transboundary Nature of Himalayan River Systems:** Major river systems (the Indus, Ganga, and Brahmaputra/Yarlung Tsangpo) originate in the Tibetan Plateau and high Himalayas before flowing across multiple national territories. A high-altitude slope failure, rock-ice avalanche, or Glacial Lake Outburst Flood (GLOF) originating in the Tibetan Plateau or upper Nepal rapidly transforms into debris flow or flash flood across lower riparian valleys in India or Bangladesh.
2. **Shared Glacial and Cryosphere Systems:** Many potentially dangerous glacial lakes lie in Tibet (China) or Nepal but pose GLOF risk to downstream Indian states (Sikkim, Himachal Pradesh, Uttarakhand). India cannot install monitoring sensors or conduct surveys on glaciers/lakes located in neighboring sovereign territory, creating information blind spots. On the other hand, China has historically been reluctant to share full hydrological data, especially during periods of bilateral tension, restricting India's early warning capacity.
3. **Common Seismic and Geological System:** The Himalayan seismic belt runs continuously through Pakistan, India, Nepal, Bhutan, and China. Large earthquakes (such as the 2015 Nepal earthquake) generate regional ground motion, liquefaction, and secondary hazards like widespread co-seismic landslides that disrupt cross-border transport corridors, river channels, and trade routes. Coordinated regional seismological networks are necessary to map fault-slip deficits, and accurately assess the "seismic gap" across national borders.
4. **Western Disturbances & Monsoon Systems:** Synoptic weather systems that cause extreme precipitation events such as Western Disturbances interacting with the Indian Summer Monsoon, traverse thousands of kilometers across Central Asia, Pakistan, India, China, and Nepal. Tracking and

forecasting these convective storms requires unified radar networks and open atmospheric data sharing.

5. **Limitations of Bilateral MoUs:** While bilateral agreements exist for seasonal hydrological data sharing (such as between India and China for the Brahmaputra and Sutlej, or India and Nepal for shared tributaries), they often cover only specific monsoon windows, lack sub-hourly real-time automated telemetry during crisis events, and are vulnerable to diplomatic friction.

What are the existing mechanisms for cooperation among Himalayan countries to manage and reduce the impact of transboundary disasters?

1. **ICIMOD (International Centre for Integrated Mountain Development):** A regional knowledge platform involving Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan. It promotes shared research on the Hindu Kush Himalaya, but has no binding enforcement power.
2. **The SAARC Agreement on Rapid Response to Natural Disasters (2011):** This legally binding regional framework describes principles, standard operating procedures, and standby arrangements for emergency response assistance among SAARC member states. However, its focus has been largely on **response** (post-disaster), rather than the **prevention and early warning** that are critical for proactive risk reduction.
3. **India-China Expert-Level Mechanism (ELM):** Established in 2006, under which China shares hydrological data (water levels, discharge, and rainfall) for key upstream stations on the Yarlung Tsangpo/Brahmaputra and Sutlej rivers during the high-monsoon season to aid downstream flood forecasting in India. However, during bilateral standoffs, data exchanges can be delayed, suspended, or selectively throttled (e.g. the suspension of India–China data sharing following the 2017 Doklam standoff).
4. **India-Nepal Joint Committees:** Joint frameworks, such as the Joint Committee on Water Resources (JCWR) and Joint Committee on Inundation and Flood Management (JCIFM), facilitate exchange on flood control infrastructure (e.g., Koshi and Gandak barrages) and transmission of upstream water levels.
5. **India-Bangladesh Joint Rivers Commission (JRC):** Operates protocols for sharing water-level, rainfall, and discharge data across 54 transboundary rivers (notably the Teesta, Ganga, and Brahmaputra) to support Bangladesh's Flood Forecasting and Warning Centre (FFWC).
6. **India-Bhutan Joint Expert Teams:** Focus on river management and flood forecasting, especially for transboundary rivers flowing into the Brahmaputra valley (e.g., Manas, Sankosh, and Wangchu).

What should be the way forward for developing an effective regional framework for shared Himalayan disaster management?

1. **Establish a Himalayan Disaster Management Framework:** Create a dedicated regional organisation for the Himalayas, inspired by models like the Alpine Convention and ICPR (International Commission for the Protection of the Rhine), to coordinate disaster management, environmental protection and risk reduction across the Hindu Kush Himalaya region. Formulate a binding charter that treats hydro-meteorological, seismic, and glacial hazard data as public humanitarian goods rather than classified strategic assets.
2. **Strengthen Real-Time Data Sharing:** Establish near-real-time exchange of hydrological data (river levels, discharge) and cryosphere data (lake conditions, ice-dam formation, avalanches) between upstream and downstream nations. Replace rigid “monsoon-only” data-sharing calendars with 365-day, automated telemetry agreements to capture winter ice-rock avalanches, unseasonal post-monsoon cyclonic surges, and pre-monsoon convective cloudbursts.

3. **Develop a Regional Early-Warning System:** Develop a common early-warning system using satellites, weather radars, river sensors and glacier monitoring to provide timely alerts about floods, GLOFs, landslides and cloudbursts, enabling faster evacuation and coordinated disaster response.
4. **Joint Monitoring of Glaciers and Glacial Lakes:** Himalayan countries should jointly monitor glacier retreat, glacial lake expansion and GLOF risks using satellites, remote sensing and ground-based sensors, enabling timely warnings and coordinated preventive action.
5. **Promote Basin-Level Cooperation:** Himalayan rivers cross national borders, making joint river-basin management essential. Countries should share hydrological data, coordinate dam operations, improve flood forecasting, and jointly manage floods, GLOFs and other water-related disasters.
6. **Conduct Joint Disaster Response Exercises:** Conduct routine trilateral and regional simulation drills among civil protection forces (such as India's NDRF, Nepal's Disaster Management Division, and counterparts in Bhutan and Bangladesh) focusing on high-altitude debris-flow extraction, rope rescue, and hazardous material containment.
7. **Leverage Existing Platforms:** Formalize and strengthen the role of existing regional bodies like the International Centre for Integrated Mountain Development (ICIMOD). The newly launched Hindu Kush Himalayan Disaster Risk Reduction (DRR) Hub, with its secretariat at ICIMOD, is a key institutional vehicle for fostering this collaboration.

UPSC GS-3: Disaster Management

Read More: [Indian Express](#)

Hard Power & Soft Power – Significance & Challenges – Explained Pointwise



In his 80th Independence Day address on 15 August 2026, Prime Minister Narendra Modi introduced the concept of '**Sapt Dhara**' (**seven streams of strength**) as a strategic framework to accelerate India's journey towards **Viksit Bharat by 2047**. One of these seven streams is **India's Soft Power**, highlighting the importance of culture, heritage, tourism and the creative economy in enhancing India's global influence. In this context, let

us understand the concepts of **Hard Power and Soft Power**, and their significance in advancing national interests.

What are Hard Power and Soft Power?

- Hard Power and Soft Power are foundational concepts in international relations, used to describe the different ways nations exert influence over others to achieve their foreign policy objectives. They represent contrasting ways a nation achieves its strategic goals on the global stage.
- These concepts were popularized by political scientist **Joseph Nye** in the late 1980s. He defined power as “the ability to influence the behavior of others to get the outcomes you want.”
- Soft power and hard power are public diplomacy tools that communicate the nation’s competitive identity and advantage to the world.

Hard Power:

- Hard power is the use of coercive means – primarily military force, economic sanctions, or direct threats — to influence or control the behavior of other countries.
- Hard power is linked with the possession of certain tangible resources, including population, territory, natural resources, economic and military strength, among others.
- Hard power is time-effective and generating hard power requires much less time as its resources are tangible.
- **Key Tools of Hard Power:**
 1. **Military Force (The Stick):** The threat or actual use of violence, intervention, or overwhelming military capability e.g. Deploying troops to a border; imposing a naval blockade; invasion.
 2. **Economic Sanctions (The Stick):** Restricting trade, freezing assets, or imposing financial penalties to cause economic pain e.g. Cutting off access to global financial systems (SWIFT); tariffs; banning exports of critical technology.
 3. **Economic Aid (The Carrot):** Offering large monetary incentives, loans, or favorable trade deals conditional on a country adopting certain policies e.g. The U.S. **Marshall Plan** post-WWII, which provided reconstruction funds to European nations contingent on economic and political alignment.
- **Examples:**
 1. The United States using its Navy to keep shipping lanes open in the Strait of Hormuz.
 2. Financial sanctions imposed by Western nations on Russia following its invasion of Ukraine to choke off revenues and trade.
 3. China’s assertion of its territorial claims in East and South China Seas.
 4. China threatening tariffs on Australian goods to influence Australian foreign policy.
- **Importance of Hard Power:**
 1. **Absolute Defense of Sovereignty and Territorial Integrity:** The primary responsibility of any nation-state is protecting its borders, resources, and citizens from external aggression. Hard power provides the physical capability to deter invasions, defend airspace, and secure maritime borders.
 2. **Deterrence Against Aggression:** The visible strength of a nation’s armed forces or economy can prevent aggression or hostile actions by adversaries, protecting sovereignty and allies through deterrent capability.

3. **Crisis Response:** Hard power enables a nation to respond to immediate threats or crises, such as terrorism, invasions, or nuclear proliferation, when negotiation or persuasion fails.
 4. **Enforcement of International Law and Freedom of Navigation:** Global trade and international stability depend on open supply chains and secure sea lines of communication (SLOCs). Navies and military alliances are required to combat piracy, protect trade routes (such as the Strait of Malacca or the Red Sea), and maintain open access to international waters.
 5. **Strengthens Bargaining Position:** Economic and military strength gives states weight at the negotiating table. A militarily/economically weak state has limited ability to resist pressure.
 6. **Shielding Soft Power:** Soft power cannot survive without the protection of hard power. Historical precedent demonstrates that soft power assets, like thriving economies or open societies, are quickly dismantled when faced with unchecked military aggression.
- **Limitations of Hard Power:**
 1. **Breeds Resentment:** Use of force or sanctions often creates deep-seated resentment and backlash, fueling nationalism or radicalism and sometimes prolonging conflicts e.g. anti-American sentiment after the Iraq War.
 2. **Damages Relationships:** Frequent reliance on coercion can strain alliances, isolate states diplomatically, and encourage counter-alliances among rivals.
 3. **High Economic and Human Costs:** Military interventions or large-scale sanctions are expensive, can lead to casualties, infrastructure destruction, humanitarian crises, and years of economic burden.
 4. **Economic interdependence limits coercive options:** Deep trade and supply chain interdependence make full-scale economic coercion (sanctions) costly to the sanctioning state itself, not just the target.
 5. **Limited Effectiveness for Complex Problems:** Hard power alone cannot solve transnational or long-term challenges (e.g. terrorism, climate change, global pandemics) which require cooperation and shared solutions.
 6. **Opportunity cost:** Resources spent on hard power capability building could otherwise fund soft power assets (education, culture, diplomacy) with more durable long-term returns.
 7. **Legal and Ethical Issues:** Military and economic coercion can violate international law (e.g. UN Charter norms), cause civilian harm, or contravene human rights, damaging legitimacy and leading to global condemnation.

Soft Power:

- Soft power is the ability to shape the preferences and actions of others through attraction and persuasion, rather than coercion. It works through cultural appeal, diplomatic engagement, ideals, and positive international reputation.
- Soft power is persuasive power deriving from attraction and emulation and grounded on intangible resources like tourism, culture, and heritage.
- It is the ability to get what you want through attraction rather than coercion, as used in hard power.
- The importance and relevance of soft power is growing as more of humanity becomes connected. This dramatically enhanced presence everywhere on the globe has the potential to generate a surge of global opinion.

- Soft power is useful in complex situations and helps a nation to achieve difficult outcomes. For e.g. India received a nuclear waiver in 2008 despite not being a member of NSG because of its history of non-alignment and strong political ideals.
- **Key Tools of Soft Power:**
 1. **Culture and Arts:** The global appeal and dissemination of a country's popular culture, intellectual property, and values e.g. The global appeal of Hollywood, K-Pop, Bollywood, American universities, or international restaurant chains.
 2. **Political Values:** The attraction of a nation's political ideals, such as democracy, human rights, the rule of law, and civil liberties e.g. A country becoming a model for democratic transitions in its region.
 3. **Foreign Policy:** The moral authority and perceived legitimacy of a nation's actions on the world stage e.g. Providing humanitarian aid during a disaster; spearheading global health initiatives; mediating peace talks.
 4. **Public Diplomacy:** Directly communicating with foreign publics through exchanges, broadcasting, and social media e.g. Educational exchange programs like the Fulbright scholarship; state-funded news agencies.
 5. **Disaster Diplomacy & Humanitarian Assistance:** Sending immediate emergency relief, vaccines, or search-and-rescue teams to nations in crisis e.g. **Operation Dost:** India deploying search-and-rescue teams and field hospitals to Turkey following severe earthquakes.
- **Examples of Soft Power:**
 1. **Incredible India Campaign:** It is an international tourism campaign initiated by the government to promote India as a popular tourist destination using India's heritage like images of the Himalayas, the Taj Mahal, yoga and multiplicity of colorful religious and cultural traditions etc.
 2. **International Day of Yoga:** Prime Minister Modi's effort to have the United Nations declare the International Day of Yoga on June 21 each year is a major step in the right direction.
 3. **K-Culture:** South Korea's global influence skyrocketed through "K-culture" – K-pop (BTS), K-dramas (*Squid Game*), and Korean beauty products. These make people around the world love South Korea, making them more likely to support Korean brands, invest in Korea, and view Korean foreign policy favorably.
- **Importance of Soft Power:**
 1. **Cost-Effective Influence:** Unlike maintaining military installations or sustaining economic sanctions, soft power leverages existing assets, such as culture, education, tech innovation, and values, to achieve diplomatic goals at a fraction of the cost.
 2. **Long-term Influence:** Soft power builds relationships and global influence that endure beyond immediate crises. It creates networks of friendship, trust, and cooperation that are less likely to be undermined by shifts in government or policy.
 3. **Fills gaps where hard power is constrained:** For countries like India with resource constraints vis-à-vis China, soft power offers an alternative avenue of influence, especially in the immediate neighborhood (Nepal, Bhutan, Sri Lanka, Bangladesh).
 4. **Builds Moral Leadership and Legitimacy:** By projecting values like democracy, human rights, scientific achievement, or cultural richness, states can inspire voluntary alignment and standard-setting e.g. US influence in the postwar period; India's use of yoga and Gandhi as global icons.

5. **Enables Multilateral Cooperation:** Soft power facilitates multilateralism, coalition-building, international aid, and climate or peace initiatives by creating positive-sum dynamics, rather than zero-sum rivalries.
 6. **Supports Economic and Security Interests:** A positive international image and relationships built on attraction can indirectly support a nation's economic and security interests by opening markets, ensuring stable alliances, and shaping agendas e.g. Japan's global reputation for quality and reliability; EU's standards-setting power.
 7. **Strengthens Diaspora and People-to-People Ties:** India's ~32 million-strong diaspora acts as informal cultural ambassadors and economic bridge. It helps in attracting remittances, investment, and lobbying influence in host countries like the US.
- **Limitations of Soft Power:**
 1. **Ineffective Against Coercion:** Soft power alone is often insufficient in emergencies or conflicts where hard security, coercion, or immediate compliance are required e.g. deterrence of aggression.
 2. **Vulnerability to Credibility Crises:** Perceived hypocrisy, such as promoting democracy while violating it domestically or abroad, can erode soft power quickly. Reputational damage is hard to repair.
 3. **Cultural or Value Misalignments:** Cultural exports or values that seem attractive in one society may be irrelevant, misunderstood, or seen as imperialistic in another, limiting the universality of soft power.
 4. **Slow Impact:** Soft power operates gradually, often over years or decades, whereas global challenges (wars, pandemics, terror) may demand immediate response.
 5. **Difficult to Measure and Control:** Soft power relies heavily on non-state actors, such as private media, universities, tech platforms, and civil society. Governments cannot easily control these assets, and private actions can quickly undermine official state diplomacy.
 6. **Asymmetric Vulnerability:** Open, democratic societies generate strong soft power through free press and cultural freedom, but this openness makes them vulnerable to foreign disinformation campaigns, cyber influence, and political manipulation by authoritarian states.

Features	Hard Power	Soft Power
Meaning	Ability to influence others through coercion or incentives .	Ability to influence others through attraction and persuasion .
Nature	Coercive	Persuasive
Major instruments	Military force, sanctions, economic pressure, financial incentives	Culture, values, diplomacy, education, media and international cooperation
Timeframe	Short-term, Immediate Results	Long-term, Sustainable Influence

Cost	Extremely expensive	Relatively cheap
Risk	High risk of resentment, backlash, and costly retaliation.	Low risk; builds mutual understanding and legitimacy.
Ideal Use	Crisis, conflict, national security	Long-term influence, global leadership
Examples	Balakot strike, nuclear deterrence, Operation Sindoor	Yoga diplomacy, Bollywood, ICCR, diaspora, G20 "Vasudhaiva Kutumbakam"

However, hard power and soft power are not mutually exclusive; rather, they are complementary. This has given rise to the concept of **Smart Power**, which refers to the strategic combination of hard and soft power to effectively advance national interests.

The Rise of Smart Power:

In modern international relations, few nations rely exclusively on one form of power. Instead, the concept of Smart Power has emerged. The concept was popularised by **Joseph Nye**, who argued that countries should combine coercive capabilities with the power of attraction rather than relying exclusively on either approach.

- Smart power is defined as the capacity of an actor to combine elements of hard power and soft power in ways that are mutually reinforcing such that the actor's purposes are advanced effectively and efficiently.
- Smart power draws from both hard and soft power resources. It is an approach that underscores the necessity of a strong military, but also invests heavily in alliances, partnerships, and institutions.
- Smart Power uses hard power to create a secure environment where soft power can flourish, and uses soft power to make hard power look legitimate.
- Examples:
 - **India's Neighborhood First policy:** Combines hard security cooperation (defense pacts, counter-terrorism coordination) with soft power tools (Buddhist circuit diplomacy, lines of credit, disaster relief).
 - **HADR (Humanitarian Assistance and Disaster Relief) missions:** Use military/naval assets (hard power infrastructure) to deliver goodwill and soft power simultaneously (e.g. Operation Rahat, Vande Bharat Mission, COVID vaccine diplomacy).

Smart Power = Hard Power + Soft Power + Strategic Use

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