



Building India's Ecological Resilience

This editorial is based on “[Revamped Green India Mission: A matter of vulnerable ecosystems and livelihoods](#)” which was published in The Indian Express on 19/06/2025. The article brings into focus the revised Green India Mission, which shifts from plantation efforts to comprehensive ecological restoration in vulnerable areas like the Western Ghats and Himalayas. Its success depends on balancing ecological security with sustainable livelihoods for local communities.

For Prelims: [Revised Green India Mission](#), [National Action Plan on Climate Change](#), [EIA Notification 2006](#), [Forest Conservation Act \(1980\)](#), [Wildlife Protection Act \(1972\)](#), [National Adaptation Fund for Climate Change](#), [Forest Conservation Amendment Act 2023](#), [Invasive species](#)

For Mains: Current Mechanisms of Environmental Governance in India, Key Environmental Threats India is Facing.

India's [revised Green India Mission](#) represents a critical **shift from plantation-focused approaches to comprehensive ecological restoration**, targeting vulnerable landscapes like the **Western Ghats, Aravalli range, and Himalayas**. These biodiversity hotspots face mounting pressures from deforestation, illegal mining, unregulated development, and climate-induced disasters, as starkly demonstrated by the **Wayanad landslide**. The success of the revamped mission will ultimately depend on **creating sustainable livelihood opportunities for local communities while strengthening ecological security**—a balance that has eluded previous conservation initiatives.

What are the Current Mechanisms of Environmental Governance in India?

- **Ministry of Environment, Forests, and Climate Change (MoEFCC):** The **MoEFCC** is the principal government body responsible for formulating policies and ensuring the enforcement of environmental laws.
 - The [National Action Plan on Climate Change \(NAPCC\)](#) and other key initiatives like the **Swachh Bharat Mission** fall under the MoEFCC's jurisdiction.
- **National Green Tribunal (NGT):** The **NGT** is a specialized body for the fast and effective disposal of cases relating to environmental protection and conservation of forests and wildlife.
 - Established in 2010, the **NGT operates as a quasi-judicial forum to handle environmental disputes** and has the power to provide relief and compensation to those affected by environmental damage.
- **Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs):** The **CPCB** is the national authority for regulating pollution control measures in India.
 - It works in tandem with **SPCBs**, which are responsible for monitoring environmental

pollution at the state level.

- **These boards set pollution standards, conduct regular inspections, and enforce compliance** with laws related to air, water, and noise pollution.
 - They play a crucial role in ensuring industries, municipalities, and other entities adhere to environmental norms.
- **Environmental Impact Assessment (EIA) Process:** The [EIA Notification 2006](#), administered by MoEFCC, is a critical mechanism in India's environmental governance.
 - It mandates that **any major industrial project or infrastructure development, which may significantly affect the environment**, undergoes an assessment process before approval.
 - However, the system has faced criticism for weak enforcement and lax monitoring in some cases.
- **Forest Advisory Committee (FAC) and Forest Conservation Act (FCA)**
Implementation: The **FAC**, operating under the MoEFCC, is tasked with recommending the approval or rejection of proposals for the diversion of forest land for non-forest purposes.
 - Under the [Forest Conservation Act \(1980\)](#), the government controls the diversion of forest land for industrial, infrastructure, or mining purposes.
- **Wildlife Protection Act (1972) and the National Board for Wildlife (NBWL):** The [Wildlife Protection Act \(1972\)](#) provides the legal framework for the protection of wildlife and their habitats in India.
 - It empowers the government to establish **Protected Areas (PAs)** such as national parks and wildlife sanctuaries.
 - The **NBWL** is responsible for overseeing the management of these areas and recommending policies to safeguard wildlife.
- **Climate Change Mitigation and Adaptation Mechanisms:** India has institutionalized **climate change governance** through various mechanisms.
 - The [National Adaptation Fund for Climate Change \(NAFCC\)](#) and the **National Action Plan on Climate Change (NAPCC)** form the core framework for India's climate adaptation strategy.
 - Additionally, state governments are encouraged to create **State Action Plans on Climate Change (SAPCC)** to ensure region-specific climate resilience strategies.

What are the Key Environmental Threats India is Facing?

- **Air Pollution and Public Health Crisis:** India's air quality continues to deteriorate, affecting public health and exacerbating climate change.
 - Poor air quality leads to premature deaths, with respiratory and cardiovascular diseases on the rise. The **IQAir 2023 report** ranks **Delhi** as the **world's most polluted capital**, with PM2.5 levels exceeding WHO guidelines by 10 times.
 - In **2021**, air pollution caused **1.26 million deaths**, highlighting the urgency of stringent measures for air quality control.
- **Water Scarcity and Pollution:** Water stress in India has reached alarming levels due to over-extraction, pollution, and poor management.
 - Nearly **600 million people** face **severe water stress**. By the end of March 2025, the water levels in **India's 161 major reservoirs fell below 40% of their capacity**, with 65 of these **reservoirs** having less than 50% of their capacity remaining.
 - The **2025 State of India's Environment** report revealed that **70% of India's water resources are contaminated**, compounding the water crisis and threatening food and health security.
- **Deforestation and Biodiversity Loss:** India's rapid deforestation continues to impact biodiversity and ecosystem services.
 - The country lost **1.49 million hectares** of forest between 2013-2023, contributing to habitat destruction and climate change.
 - Recent reports highlighted that **natural forests** are 40 times more effective than plantations in sequestering carbon, but **95% of the lost forests were natural**, underscoring the devastating loss of biodiversity and carbon sequestration capacity.
- **Climate Change and Extreme Weather Events:** India is increasingly vulnerable to extreme

weather events like **floods**, **heatwaves**, and **cyclones**, exacerbating **socio-economic vulnerabilities**.

- In 2024, India experienced extreme weather events on 322 out of 366 days and **2.09 million hectares** of crops were damaged.
- The **2021 UNICEF report** estimated that **17 out of 20 Indians** are vulnerable to **hydromet disasters**, highlighting the need for better adaptation strategies.
- India's coastal ecosystems, including the **Lakshadweep** and **Andaman Islands**, are home to critical coral reef systems that are deteriorating due to **climate change** and **pollution**.
 - For instance, in Andaman, the **bleaching is up to 83.6% and has happened due to the impact of the El Nino event**.
- **Diversion of Forest Land for Non-Forest Purposes:** Unchecked infrastructure development is degrading critical ecosystems and contributing to land-use changes.
 - The **Forest Conservation Amendment Act 2023**, for example, redefined forests to facilitate easier diversion for development, undermining **Forest (Conservation) Act, 1980** protections and Supreme Court's judgement in **Godavarman Case**.
 - The diversion of **29,000 hectares** of forest land in 2023 alone for highways and mining further strains India's ecological balance.
 - The **Parsa East & Kanta Basan** coal mine project, which involved cutting **15,000 trees** in **Chhattisgarh**, **exemplifies the ongoing conflict between development and conservation**, leading to a degradation of wildlife habitats and increased human-animal conflict.
- **Waste Management and Pollution:** The mismanagement of waste is a significant issue, with India generating **62 million tonnes** of waste annually, but only **20%** being processed.
 - In **2022-23**, **4.14 million tonnes** of plastic waste were recorded, despite a partial ban, underlining the failure in waste disposal systems.
 - The **rise in e-waste by 73% over 5 years further complicates the pollution crisis**, especially in urban slums where waste is often processed without safety measures.
- **Human-Wildlife Conflict:** As forests shrink due to infrastructure projects, **human-wildlife conflict** is on the rise.
 - For instance, **elephant attacks** claimed 6,015 human lives in the twelve years between 2012-13 and 2023-24.
 - These incidents underscore the urgent need for better land-use planning and wildlife corridor conservation to mitigate conflict and ensure both human and animal welfare.
- **Soil Degradation and Desertification:** Soil degradation, exacerbated by deforestation and overuse of chemical fertilizers, is turning fertile lands into deserts, impacting agriculture.
 - The **Aravalli range's** degradation has brought the **Thar Desert** closer to the **National Capital Region**, worsening air pollution.
 - **60% of India's 160 million hectares of arable land is considered 'distressed soil'**, threatening food security and economic stability for millions of farmers (WEF).
- **Invasive Species and Ecosystem Disruption:** The introduction of **invasive species** is threatening native biodiversity across India.
 - In **2023**, studies from the **Indian Council of Agricultural Research** found that **invasive species** are outcompeting local plants and reducing forest regeneration, leading to the degradation of forest ecosystems and the extinction of endemic species.
 - **Lantana camara** and **Eucalyptus trees**, for instance, have replaced native flora, reducing biodiversity and disrupting ecosystems.

What Measures India Can Adopt to Enhance Environmental Conservation and Sustainability?

- **Strengthen and Enforce Environmental Laws:** India needs to overhaul and strictly enforce its existing environmental laws.
 - This includes revisiting amendments that have diluted protections, such as the **Forest Conservation Amendment Act 2023**, and reintroducing rigorous safeguards for forests, wildlife, and biodiversity.
 - By improving the accountability of regulatory bodies, the country can ensure effective legal enforcement to **curb illegal mining, deforestation, and pollution, while promoting**

sustainable development.

- **Promote Circular Economy Practices:** A shift towards a **circular economy** can significantly reduce waste, enhance resource efficiency, and support sustainability.
 - By incentivizing **recycling, upcycling**, and the use of **biodegradable materials**, India can reduce its dependency on landfills and foster sustainable production systems.
 - This includes revamping policies around **plastic waste management**, encouraging industries to adopt closed-loop systems, and strengthening the recycling infrastructure to handle **e-waste, plastics, and other non-biodegradable materials**.
- **Decentralize Water Management and Improve Conservation:** To address India's water crisis, decentralizing water management is essential.
 - This involves empowering local communities to manage water resources through **rainwater harvesting** and **water use efficiency** programs.
 - Additionally, protecting and restoring **watersheds, wetlands**, and **natural aquifers** can help increase water retention and availability.
 - States should **promote local water bodies and lakes to act as community-driven hubs** for water conservation, reducing over-reliance on unsustainable groundwater extraction.
- **Encourage Sustainable Agricultural Practices:** India must transition to **sustainable farming** that reduces dependency on chemical fertilizers and pesticides.
 - This can be achieved through the promotion of **organic farming, agroforestry**, and the use of **bio-based pesticides**.
 - Introducing **crop diversification** and enhancing soil health through **green manure** and **composting** will help restore soil fertility and reduce environmental degradation.
 - Additionally, incentivizing farmers to adopt **precision farming technologies** can minimize resource use and increase productivity sustainably.
- **Invest in Renewable Energy and Energy Efficiency:** To reduce reliance on fossil fuels, India must significantly invest in **renewable energy sources** such as **solar, wind, and hydropower**.
 - This includes increasing the share of **green energy** in national grids and improving **energy storage** solutions.
 - Along with increasing renewable capacity, policies must incentivize **energy efficiency measures** in industries, buildings, and urban spaces, encouraging the adoption of **LED lighting, smart grids**, and energy-efficient appliances across sectors.
- **Restore and Protect Critical Ecosystems:** Focus must be placed on the **restoration of degraded ecosystems** like the **Aravalli Range, Western Ghats, and Himalayas**, which are vital to India's ecological security.
 - This includes reforestation and afforestation programs that emphasize native species, soil conservation techniques, and improved management of **protected areas**.
 - By prioritizing **biodiversity corridors** and ensuring buffer zones around critical habitats, India can **mitigate the effects of habitat fragmentation, protect endangered species**, and strengthen ecosystem resilience against climate change.
- **Foster Green Urbanization and Sustainable Cities:** India needs to adopt **sustainable urban planning** models that incorporate **green infrastructure** like **urban forests, green rooftops, and rain gardens** to manage stormwater and reduce the urban heat island effect.
 - Emphasizing **sustainable transport** systems such as **public transit, bicycle lanes, and electric vehicles (EVs)** will reduce carbon footprints in cities.
 - Additionally, integrating **circular economy principles** into urban waste management, such as **composting** and **waste-to-energy** technologies, can reduce landfill waste and improve air quality.
- **Integrate Climate Change Adaptation into National Planning:** Climate change adaptation must be a core element of India's **national development framework**.
 - This includes mainstreaming **climate-resilient infrastructure** in sectors like agriculture, water resources, and urban development.
 - Adapting to climate change requires innovative solutions like **climate-smart agriculture, flood-proofing** cities, and **improving disaster response systems** to reduce vulnerability in high-risk areas.
 - Incorporating **climate risk assessments** into urban planning and disaster preparedness will ensure better adaptation to extreme weather events.
- **Promote Eco-Tourism and Conservation Education:** India should leverage its rich natural

heritage by promoting **eco-tourism** models that contribute to conservation while benefiting local communities.

- This can be achieved by establishing **sustainable tourism practices** that limit environmental degradation and support **local conservation efforts**.
- Moreover, incorporating **environmental education** into the school curriculum and promoting **public awareness campaigns** will help create a more eco-conscious society, empowering citizens to actively engage in sustainability efforts.

▪ **Enhance Governance and Accountability in Environmental Management:** Effective environmental governance requires the integration of **transparent decision-making processes** and **data-driven accountability mechanisms**.

- Strengthening the role of **environmental watchdogs**, such as the **National Board for Wildlife** and the **Forest Advisory Committee**, will ensure that environmental clearances are granted only after comprehensive assessments.
- Additionally, establishing robust **monitoring and evaluation frameworks** for key environmental policies will promote long-term sustainability and the efficient use of resources.

Conclusion:

India's path to environmental sustainability hinges on a balanced approach that **integrates robust governance, sustainable practices, and inclusive growth**. By prioritizing the restoration of ecosystems, fostering circular economies, and ensuring equitable livelihoods for local communities, India can drive a future where **3Ps: profit, people, and planet coexist harmoniously**. A holistic and actionable environmental strategy will ensure long-term resilience and shared prosperity for all.

Drishti Mains Question:

Q. Examine the current mechanisms of environmental governance in India and their effectiveness in addressing key environmental threats. How can these mechanisms be strengthened to ensure sustainable development?

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q1. Which of the following can be threats to the biodiversity of a geographical area? (2012)

1. Global warming
2. Fragmentation of habitat
3. Invasion of alien species
4. Promotion of vegetarianism

Select the correct answer using the codes given below:

- (a) 1, 2 and 3 only
- (b) 2 and 3 only
- (c) 1 and 4 only
- (d) 1, 2, 3 and 4

Ans: (a)

Q2. Biodiversity forms the basis for human existence in the following ways: (2011)

1. Soil formation

2. Prevention of soil erosion
3. Recycling of waste
4. Pollination of crops

Select the correct answer using the codes given below:

- (a) 1, 2 and 3 only
- (b) 2, 3 and 4 only
- (c) 1 and 4 only
- (d) 1, 2, 3 and 4

Ans: (d)

Mains

Q. How does biodiversity vary in India? How is the Biological Diversity Act, 2002 helpful in the conservation of flora and fauna? (2018)

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