

Green Governance in India: A Review of Environmental Policy Measures

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Abstract

Environmental policies in India reflect a multifaceted approach to addressing ecological challenges through a combination of legislative action, institutional mechanisms, and public engagement. With a growing population, rapid industrialization, and increasing environmental degradation, India has been proactive in formulating comprehensive policies that aim to ensure ecological sustainability while balancing socio-economic development. Landmark legislations such as the Environment Protection Act (1986), the Water (Prevention and Control of Pollution) Act (1974), and the Air (Prevention and Control of Pollution) Act (1981) form the legal backbone of the country's environmental governance. These acts have empowered regulatory institutions like the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) to enforce environmental standards and monitor compliance. In addition to legal instruments, India has launched several national-level missions to address critical environmental concerns. The National Action Plan on Climate Change (NAPCC), with its eight core missions, represents a strategic framework to promote renewable energy, enhance energy efficiency, and protect natural ecosystems. Community-centered initiatives such as Swachh Bharat Abhiyan and Namami Gange reflect the government's efforts to engage citizens in sanitation and river rejuvenation efforts, highlighting the importance of behavioral change and local participation. Equally significant is the role of educational institutions in fostering environmental awareness. Through curriculum integration, workshops, campus sustainability practices, and community outreach, schools and universities have become key platforms for cultivating environmentally responsible citizens. This paper critically reviews India's major environmental acts, missions, and awareness campaigns, analyzing their implementation, challenges, and long-term impact. It also emphasizes the need for continuous policy innovation and public education to strengthen environmental stewardship. By offering a holistic overview, this review contributes to a deeper understanding of India's environmental policy framework and its evolving role in sustainable development.

Keywords: Environmental Protection Acts, Swachh Bharat Abhiyan, Namami Gange, NAPCC, Environmental Awareness.

1. INTRODUCTION

India, a country known for its diverse ecosystems and rich biodiversity, faces significant environmental challenges due to rapid industrialization, population growth, urban expansion, and unsustainable exploitation of natural resources. The urgency to address air and water pollution, deforestation, biodiversity loss, and climate change has propelled the Indian government to adopt a comprehensive legal and policy framework aimed at protecting and preserving the environment (**Sharma & Gupta, 2021**). Environmental governance in India is grounded in a blend of constitutional mandates, legislative acts, national missions, and international commitments, all of which work together to promote sustainable development and ecological security.

The roots of India's environmental policy can be traced back to the Stockholm Conference of 1972, which served as a global call to action for environmental protection (**Khoshoo, 1984**). Following this landmark event, India enacted several pivotal laws, such as the Wildlife Protection Act (1972), the Water (Prevention and Control of Pollution) Act (1974), and the Air (Prevention and Control of Pollution) Act (1981). These legislative measures were later consolidated under the umbrella of the Environment Protection Act (1986), introduced in the aftermath of the Bhopal Gas Tragedy (**Government of India [GoI], 1986**). This act empowered the central government to regulate environmental pollution comprehensively and laid the foundation for institutional mechanisms like the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) (**CPCB, 2022**).

India's environmental policies are not confined to legislative boundaries; they have evolved into multi-dimensional national missions and flagship programs. The **National Action Plan on Climate Change (NAPCC)**, launched in 2008, represents a strategic shift in climate governance by integrating environmental sustainability into energy, agriculture, urban planning, and water management (**NITI Aayog, 2022**). With eight core missions, including the National Solar Mission, Green India Mission, and National Mission on Sustainable Habitat, NAPCC addresses both mitigation and adaptation to climate change. These missions emphasize energy efficiency, afforestation, biodiversity conservation, and knowledge-based policy-making (**UNEP, 2019**).

Simultaneously, mass mobilization initiatives like **Swachh Bharat Abhiyan (Clean India Mission)** and **Namami Gange** have engaged citizens directly in environmental action. These programs focus on sanitation, waste management, and river rejuvenation, making environmental stewardship a participatory and community-centered endeavor (**Ministry of Jal Shakti, 2021; MoHUA, 2019**). The integration of such initiatives into national policy frameworks demonstrates a holistic approach that combines top-down regulations with bottom-up citizen engagement. Another critical pillar of India's environmental strategy is **environmental education and awareness**, particularly through educational institutions. By embedding environmental studies in school and university curricula and promoting extracurricular activities like Eco Clubs, India is nurturing an environmentally conscious generation (**UNESCO, 2023**). This aligns with global trends in Education for Sustainable Development (ESD), as advocated by organizations such as UNESCO. Despite these significant advances, the effective implementation and enforcement of environmental policies remain a challenge due to institutional bottlenecks, lack of coordination, insufficient funding, and limited public awareness (**Sharma, 2020**). However, the Indian government continues to revise and innovate its policies to respond to emerging ecological threats and socio-economic realities.

This paper aims to analyze India's environmental policy framework by exploring key legislative acts, national climate missions, community-driven initiatives, and awareness programs. It seeks to understand

the impact of these policies, identify areas of success, and highlight opportunities for strengthening environmental governance in India's journey toward sustainable development.

2. KEY ENVIRONMENTAL ACTS IN INDIA

India's environmental legislation dates back to the early 1970s. The table below summarizes the major acts and policies along with their objectives and associated leadership.

Table 1. Major Environmental Acts and Missions in India

Sr. No	Name of the Act/Mission	Enactment Date	Implementation	Prime Minister	Key Objectives	References
1	Wildlife Protection Act	09 Sep 1972	09 Sep 1973	Indira Gandhi	Protection of wildlife, prohibition of illegal trade, formation of national parks	MOEFCC (2023)
2	Water (Prevention & Control of Pollution) Act	23 Mar 1974	01 Apr 1974	Indira Gandhi	Water quality control, formation of CPCB/SPCB	CPCB (2022)
3	Air (Prevention & Control of Pollution) Act	29 Mar 1981	16 May 1981	Indira Gandhi	Control of industrial/vehicular pollution	Sharma & Gupta (2021)
4	Environment Protection Act	23 May 1986	19 Nov 1986	Rajiv Gandhi	Air/water/soil protection, hazardous substances regulation	GoI (2020)
5	National Forest Policy	07 Dec 1988	1988 onwards	Rajiv Gandhi	Forest conservation, community involvement (JFM)	Forest Survey of India (2022)
6	National Action Plan on Climate Change (NAPCC)	30 Jun 2008	2008 onwards	Manmohan Singh	8 Core Missions to address climate change	NITI Aayog (2022)
7	Swachh Bharat Abhiyan	02 Oct 2014	02 Oct 2014	Narendra Modi	ODF targets, solid waste management, awareness	MoHUA (2019)

8	Namami Gange	Jun 2014	Jul 2014	Narendra Modi	Ganga rejuvenation, sewage treatment, river conservation	Jal Shakti Ministry (2021)
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3. NATIONAL MISSIONS AND FLAGSHIP PROGRAMS

3.1 National Action Plan on Climate Change (NAPCC)

The National Action Plan on Climate Change (NAPCC), launched by the Government of India in 2008, indicates a pivotal step in India's approach to combating climate change while ensuring sustainable development. It emphasizes both mitigation and adaptation strategies, integrating ecological sustainability across water, agriculture, energy, and knowledge sectors (NITI Aayog, 2022). The plan comprises eight core missions that serve as sector-specific programs to address key environmental concerns. These missions not only tackle emissions and enhance energy efficiency but also focus on protecting biodiversity, conserving water resources, and promoting climate-resilient agriculture. For example, the National Solar Mission aims to reduce dependence on fossil fuels, while the Green India Mission promotes afforestation to improve ecosystem services. The NAPCC aligns India's environmental policy with its international commitments under the Paris Agreement, contributing significantly to global climate goals (UNEP, 2019). Each mission under NAPCC is administered by relevant ministries and supports state-level climate action plans, making the strategy both centralized and decentralized in execution. The integrative design of these missions ensures a coordinated approach to climate resilience, addressing vulnerabilities across India's diverse ecological and socio-economic landscape.

Table 2. The Eight Core Missions under NAPCC

Sr. No	Name of the Mission	Key Focus Area
1	National Solar Mission	Promote solar energy
2	National Mission on Enhanced Energy Efficiency (NMEEE)	Improve industrial energy efficiency
3	National Water Mission (NWM)	Conserve water and enhance distribution
4	National Mission for a Green India	Afforestation and biodiversity conservation
5	National Mission on Sustainable Habitat	Urban waste management and transport
6	National Mission for Sustaining Himalayan Ecosystem	Preserve fragile mountain ecosystems
7	National Mission on Sustainable Agriculture (NMSA)	Climate-resilient farming practices
8	National Mission on Strategic Knowledge for Climate Change	Scientific research and policy development

3.2 Swachh Bharat Abhiyan

Swachh Bharat Abhiyan (SBA), started on October 2, 2014, by Prime Minister Narendra Modi, is one of India's most impactful nationwide cleanliness and sanitation campaigns. The primary objective of the mission is to eliminate open defecation and improve solid waste management across rural and urban

regions. The campaign adopts a multifaceted approach involving infrastructural improvements, policy reform, and community participation (MoHUA, 2019). The goal of the program is the construction of individual household latrines, public toilets, and community sanitation complexes, especially in rural areas. Additionally, SBA promotes solid waste management practices such as segregation at source, composting, and decentralized waste processing (MoUD, 2017). A crucial component of the mission is the behavioral change it fosters through widespread awareness campaigns, school programs, and citizen engagement, empowering communities to take ownership of local cleanliness drives. To finance the initiative, the Government of India introduced the **Swachh Bharat Cess**, a levy of **0.5% on all taxable services**, to generate dedicated funds. By 2019, the mission aims to achieve an Open Defecation Free (ODF) India, aligning with Sustainable Development Goals like clean water and sanitation. The mission's success depends not only on infrastructure but also on sustained public participation and behavioral transformation (UNICEF, 2021).

Table 3. Key Components of Swachh Bharat Abhiyan

Sr. No	Component	Objective
1	Toilet Construction	Eliminate open defecation in rural/urban areas
2	Solid Waste Management	Promote waste segregation and eco-friendly disposal
3	Behavioral Change Campaigns	Increase public awareness on hygiene and sanitation
4	Swachh Bharat Cess	Mobilize financial resources through tax funding

3.3 Namami Gange Programme

The Namami Gange Programme, launched in 2014 by the Government of India under the Ministry of Jal Shakti, is a flagship initiative aimed at cleaning and rejuvenating the River Ganga and its tributaries. Recognized as a centrally sponsored scheme, the programme was allocated ₹20,000 crores for implementation over five years (2015–2020), later extended due to its ongoing success (Ministry of Jal Shakti, 2021). Its objectives include pollution abatement, biodiversity conservation, and sustainable water resource management. One of its major interventions is the construction of sewage treatment plants (STPs) to prevent untreated waste from entering the river. In addition, activities such as river surface cleaning, afforestation along riverbanks, and biodiversity monitoring (especially of species like the Gangetic dolphin) support ecological restoration (NMCG, 2020). Public awareness and community involvement are key pillars, with campaigns and education initiatives promoting citizen engagement. The Ganga Gram Initiative promotes sustainable sanitation and waste management in villages along the river, creating model pollution-free settlements. Furthermore, the programme emphasizes industrial effluent regulation, mandating zero liquid discharge from polluting units. Namami Gange exemplifies a holistic river rejuvenation model that integrates technological solutions with grassroots participation and strict policy enforcement (CAG, 2020).

Table 4. Key Components of Namami Gange Programme

Sr. No	Component	Objective
1	Sewage Treatment Plants (STPs)	Prevent discharge of untreated sewage into the Ganga
2	River Surface Cleaning	Remove floating waste and pollutants
3	Afforestation	Stabilize riverbanks and restore green cover

4	Biodiversity Conservation	Protect aquatic species like the Gangetic dolphin
5	Ganga Gram Initiative	Develop sustainable, clean villages along the river
6	Industrial Effluent Monitoring	Enforce zero discharge and compliance from industries

4. WILDLIFE CONSERVATION INITIATIVES

India's commitment to wildlife conservation extends beyond statutory protections to include visionary and targeted programs that address species-specific ecological concerns. Among the most iconic of these is Project Tiger, launched in 1973 under the leadership of Prime Minister Indira Gandhi, which aimed to halt the alarming decline of the Bengal tiger population. Through the establishment of protected reserves, anti-poaching measures, and habitat preservation, the project has grown to encompass over 50 tiger reserves across the country, becoming a global model for big cat conservation. Complementing this, Project Elephant, initiated in 1992, focuses on the protection of Asian elephants by securing migration corridors, minimizing human-elephant conflict, and ensuring the welfare of elephants in both wild and captive settings. These initiatives have not only led to an increase in the population of flagship species but have also contributed to the broader conservation of India's forest ecosystems and biodiversity hotspots. By integrating scientific research, community involvement, and policy enforcement, these programs play a pivotal role in maintaining ecological balance and conserving keystone species that support entire habitats (WWF India, 2020). Together, they reflect India's holistic approach to preserving its unique wildlife heritage.

Table 5. Key Wildlife Conservation Programs in India

Project	Year Launched	Primary Objective
Project Tiger	1973	Conserve Bengal tigers by curbing poaching and protecting habitats
Project Elephant	1992	Safeguard elephants, protect corridors, and mitigate human-animal conflict

5. ROLE OF EDUCATION IN ENVIRONMENTAL POLICY AWARENESS

Educational institutions play a vital role in promoting environmental awareness and reinforcing policy understanding among students. By incorporating environmental topics into formal curricula and through informal outreach, institutions can instill values of sustainability, conservation, and responsible citizenship from an early age. Environmental education fosters not only theoretical knowledge but also practical skills through experiential learning such as field visits, and active community participation. These efforts ensure that future generations are not only informed about environmental challenges but are also prepared to actively contribute to solutions. Integrating national policies like the Environment Protection Act, the National Action Plan on Climate Change (NAPCC), and flagship programs like Swachh Bharat Abhiyan into academic discourse reinforces their relevance and application. The role of schools, colleges, and universities extends beyond the classroom through eco-friendly campus practices, environmental clubs, and community engagement initiatives. Together, these strategies contribute to the cultivation of environmentally conscious individuals who support and uphold sustainable development goals (UNESCO, 2023).

5.1 Curriculum Integration

Environmental Science/Environmental Education is now a mandatory component of education at various levels, from primary school to university programs (NEP, 2020). Topics covered include biodiversity,

climate change, pollution control laws, and sustainable development practices. This inclusion ensures that students are exposed to core environmental concepts as part of their academic development.

5.2 Activities and Workshops

Institutions frequently organize guest lectures, field visits to national parks, industrial sites, and polluted zones, providing hands-on exposure to real-world environmental issues. Special observances such as Earth Day (April 22nd), World Environment Day (June 5th), and Biodiversity Day (May 22nd) are celebrated to raise awareness and encourage student involvement in ecological campaigns.

5.3 Green Campus Initiatives

Green Campus initiatives include the installation of solar panels, implementation of waste segregation systems, composting, and rainwater harvesting. Institutions also commemorate days like Plastic Bag Free Day (July 8th) and Water Day (March 22nd) to promote sustainable campus culture and encourage environmentally friendly behavior among students and staff.

5.4 Outreach and Community Engagement

Student bodies such as eco club, National Service Scheme (NSS), and National Cadet Corps (NCC) actively participate in awareness rallies, cleanliness drives, seed bombing and plantation campaigns. Collaborations with environmental NGOs and participation in local and national-level awareness programs enhance experiential learning and civic engagement. These outreach initiatives instill responsibility and leadership skills among students while promoting community-level action for environmental sustainability.

6. CONCLUSION

India's environmental policies reflect a comprehensive and evolving approach to addressing pollution, conservation, and climate change. Legislative acts, national missions, and educational efforts are collectively moving the country toward sustainable development. However, successful outcomes rely heavily on strict enforcement, public participation, and continuous awareness. Institutionalizing environmental education and fostering citizen engagement are critical for achieving long-term goals.

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