

## Green Initiatives by the Indian Government: Policies, Strategies, and Impacts

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*Citation: Saxena, R. (2025). Green Initiatives by the Indian Government: Policies, Strategies, and Impacts. International Journal of Global Research Innovations & Technology, 03(03), 169–173. <https://doi.org/10.62823/ijgrit/03.03.8014>*

### ABSTRACT

India, as one of the most populous and rapidly developing nations, faces the pressing challenge of balancing economic growth with environmental sustainability. This paper evaluates the key green initiatives launched by the Indian government aimed at mitigating climate change, promoting renewable energy, and enhancing ecological conservation. These initiatives are critical for achieving sustainable development in line with global commitments, including the Paris Agreement (Bansal & Goyal, 2018). By examining various policies such as the National Action Plan on Climate Change (NAPCC) (Bansal & Goyal, 2018), the Green India Mission (Sharma & Tripathi, 2019), the promotion of electric mobility (Rao & Sharma, 2021), and renewable energy policies (Patel et al., 2020), this paper analyzes their objectives, effectiveness, and challenges. The study finds that, while significant progress has been made, gaps remain in implementation, financial resources, and public awareness that need to be addressed for a more sustainable future.

**Keywords:** *Green Initiatives, India, Climate Change, Renewable Energy, NAPCC, Electric Mobility, Environmental Conservation, Sustainable Development.*

### Introduction

India's development trajectory is closely linked to its environmental challenges, exacerbated by rapid population growth and industrialization (Bansal & Goyal, 2018). As the nation continues to grow, it must address these environmental concerns while striving for economic progress. Recognizing this, the Indian government has introduced several initiatives aimed at achieving environmental sustainability, mitigating climate change, and conserving resources (Sharma & Tripathi, 2019). Key programs such as the National Action Plan on Climate Change (NAPCC) (Bansal & Goyal, 2018), the Green India Mission (Sharma & Tripathi, 2019), and policies promoting renewable energy and electric mobility (Patel et al., 2020; Rao & Sharma, 2021) are central to these efforts. This paper explores the objectives, strategies, and outcomes of these green initiatives, providing a comprehensive overview of India's commitment to achieving a sustainable and resilient future.

### Objective of the Study

The primary objectives of this study are as follows:

- To assess the effectiveness of green initiatives implemented by the Indian government.
- To examine the impact of the National Action Plan on Climate Change (NAPCC) and other key programs.
- To identify challenges faced during the implementation of these policies.
- To explore the economic, social, and environmental benefits derived from these green initiatives.
- To provide recommendations for enhancing the effectiveness and scalability of these initiatives.

## Methodology

This study adopts a qualitative research approach, drawing on a comprehensive review of government reports, policy documents, journal articles, and case studies. The research is based on secondary data, analyzing the effectiveness of green policies and their outcomes. Key sources include government publications, reports from renewable energy bodies, and academic articles from environmental and policy journals. The analysis is structured around the implementation of four major green initiatives in India: NAPCC, the Green India Mission, renewable energy development, and electric mobility.

## Hypotheses

The study tests the following hypotheses:

- H<sub>1</sub>:** The Indian government's green initiatives have significantly reduced carbon emissions.
- H<sub>2</sub>:** The promotion of renewable energy policies has accelerated the development of India's green energy sector.
- H<sub>3</sub>:** Public awareness and education campaigns have played a critical role in the success of green initiatives, particularly in rural areas.
- H<sub>4</sub>:** Financial and institutional barriers have hindered the full-scale implementation of green initiatives.

## Literature Review

The review of literature explores the various green initiatives undertaken by the Indian government, highlighting their goals, outcomes, and challenges.

### National Action Plan on Climate Change (NAPCC)

Launched in 2008, the NAPCC is a comprehensive framework to address climate change through eight missions. These missions focus on solar energy, energy efficiency, sustainable agriculture, water conservation, and ecosystem protection. According to Bansal and Goyal (2018), NAPCC plays a central role in India's climate change strategy but faces challenges in coordination and resource allocation.

### Renewable Energy Expansion

India has made significant strides in expanding its renewable energy capacity:

- **Record Additions:** In the first half of 2025, India installed a record 22 GW of renewable energy capacity, marking a 56% increase from the previous year. This included 18.4 GW of solar energy, 3.5 GW of wind, and 250 MW of bioenergy (Green Review, 2025).
- **Cumulative Capacity:** By August 2025, India's total installed renewable energy capacity reached 123.13 GW, with 93.9 GW from ground-mounted solar, 20.85 GW from rooftop solar, and 5.12 GW from off-grid solar (Ministry of New and Renewable Energy [MNRE], 2025).
- **Non-Fossil Fuel Milestone:** India achieved 50% of its installed electricity capacity from non-fossil fuel sources by July 2025, surpassing its 2030 target by five years (Reuters, 2025).

### Green India Mission & Forest Conservation

- **Forest Cover Increase:** According to the India State of Forest Report 2023, India's forest and tree cover increased by 1,445.81 square kilometers from 2021 to 2023, reaching a total of 827,356.95 square kilometers, which is 25.17% of the country's geographical area (Press Information Bureau [PIB], 2023).
- **Afforestation Efforts:** Between 2015–16 and 2020–21, the Green India Mission facilitated afforestation and tree plantation across 11.22 million hectares, with significant contributions from states like Andhra Pradesh and Telangana (Civils Daily, 2023).

### Electric Mobility (FAME Scheme)

- **FAME-II Scheme:** Launched in April 2019 with an outlay of ₹10,000 crore, the FAME-II scheme aims to promote electric and hybrid vehicles through demand incentives. The scheme supports 7,000 e-buses, 500,000 e-three-wheelers, 55,000 e-four-wheeler passenger cars, and 1 million e-two-wheelers (Department of Heavy Industry, 2023).
- **Market Growth:** In 2024, electric vehicles accounted for over 50% of three-wheelers, about 5% of two-wheelers, and 2% of cars sold in India (India Brand Equity Foundation [IBEF], 2024).

- **Infrastructure Development:** Under FAME-II, ₹839 crore has been allocated for setting up EV public charging stations, and the PM E-DRIVE scheme has earmarked ₹2,000 crore to expand charging infrastructure nationwide (IBEF, 2024).

#### **Swachh Bharat Abhiyan (Clean India Mission)**

- **Sanitation Improvements:** As of September 2025, over 12 crore toilets have been constructed across the country, leading to a significant reduction in open defecation and improved sanitation facilities (PIB, 2025).
- **Village Sanitation:** By March 2025, over 5.64 lakh villages out of 5.86 lakh had declared themselves Open Defecation Free (ODF) Plus. Additionally, over 5 lakh villages have implemented solid waste management, and more than 5.2 lakh have adopted liquid waste management (DD News, 2025).

These developments showcase India's ongoing commitment to environmental sustainability and the success of its green initiatives. Through these efforts, the country is making significant progress towards a low-carbon economy and a more sustainable future.

#### **National Action Plan on Climate Change (NAPCC)**

The NAPCC's eight missions outline a strategy to reduce India's carbon intensity and promote sustainable development. Bansal and Goyal (2018) note that, while the NAPCC has set ambitious goals, limited financial resources and lack of coordination between state and central governments impede full implementation.

#### **Green India Mission**

The Green India Mission aims to restore 5 million hectares of degraded forests and increase the nation's forest cover. Sharma and Tripathi (2019) emphasize that the mission has made positive strides in enhancing forest cover, but urbanization and illegal logging remain significant threats.

#### **Promotion of Renewable Energy**

India has rapidly expanded its renewable energy capacity, especially solar and wind power. Patel et al. (2020) report that India is now one of the world's leading solar markets, but the sector faces challenges related to land acquisition, financing, and regulatory hurdles.

#### **Electric Mobility Initiatives**

The FAME program provides incentives for the adoption of electric vehicles. Rao and Sharma (2021) suggest that electric mobility could play a crucial role in reducing urban air pollution and reliance on fossil fuels, but the success of this initiative hinges on the development of charging infrastructure and the affordability of EVs.

#### **Swachh Bharat Abhiyan (Clean India Mission)**

The Swachh Bharat Abhiyan aims to improve sanitation facilities and promote waste management practices across India. Kumar and Singh (2017) highlight that, while the initiative has improved cleanliness and sanitation, its long-term success depends on continued community participation and improvements in waste management infrastructure.

#### **Analysis and Discussion**

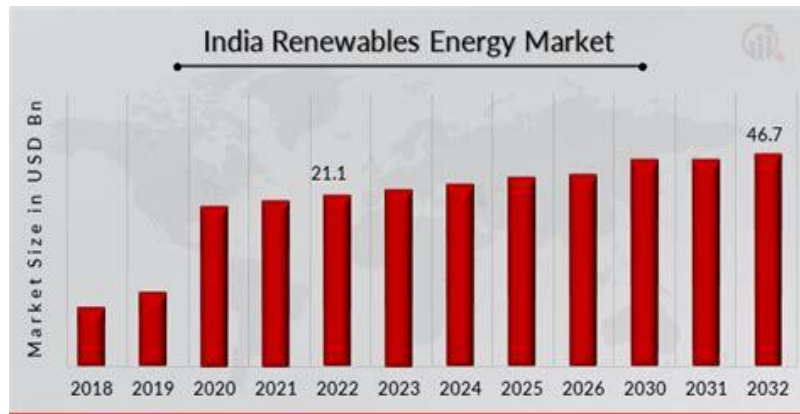
India's green initiatives have shown considerable promise but face challenges in achieving full-scale success. Programs like NAPCC and the Green India Mission have contributed to reducing carbon emissions and enhancing forest cover, but financial constraints, lack of coordination, and inadequate public awareness hinder their potential. Similarly, India's renewable energy sector has grown rapidly, but regulatory delays and financing challenges must be addressed for long-term sustainability. Electric mobility initiatives hold great promise but require infrastructure development and price reductions to be more effective.

#### **Findings and Discussion**

- **Renewable Energy Expansion**

India has made substantial progress in expanding its renewable energy capacity. According to the Ministry of New and Renewable Energy (2025), India's total renewable energy capacity reached **123.13 GW** by August 2025, with substantial contributions from solar (93.9 GW), wind (5.11 GW), and biomass (0.92 GW). In FY 2024-25 alone, India added a record **29.52 GW** of renewable energy capacity

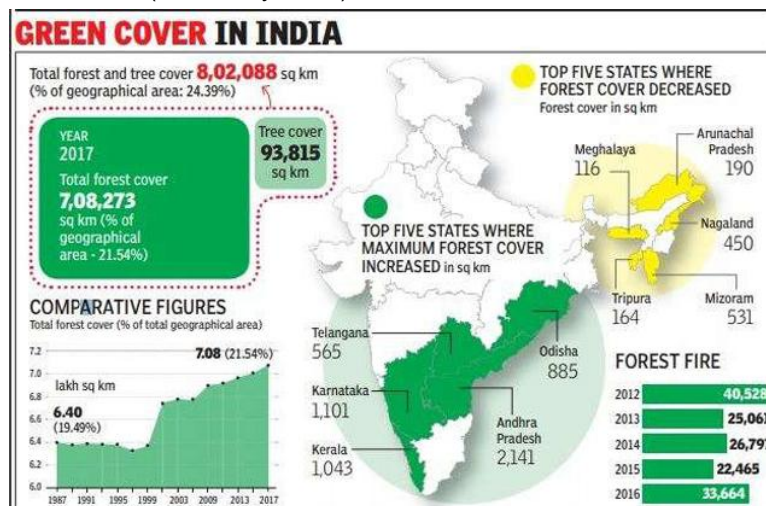
(PIB, 2025). Solar energy has particularly flourished, growing from **2.82 GW** in 2014 to **110.9 GW** in 2025, marking an increase of over 39 times (PIB, 2025).



Source: Ministry of New and Renewable Energy (MNRE), Press Information Bureau (PIB)

- **Green India Mission (GIM)**

The Green India Mission has contributed to the restoration of forest cover and biodiversity. According to the India State of Forest Report (2023), India's forest cover increased by **1,445.81 square kilometers**, reaching a total of **827,356.95 square kilometers** or **25.17%** of the country's geographical area. Afforestation efforts under the GIM have contributed to planting across **11.22 million hectares** of land between 2015 and 2021 (Civils Daily, 2023).



Source: <https://wisdomiasonindia.wordpress.com/2018/07/09/article-indias-forest-cover-what-data-shows/>

- **Electric Mobility and the FAME Scheme**

India has seen a growing adoption of electric vehicles (EVs), supported by the FAME-II scheme. As of 2025, over **56.75 lakh EVs** have been registered across the country (PIB, 2025). The FAME-II scheme has provided incentives for over **14.35 lakh e-two-wheelers**, **1.65 lakh e-three-wheelers**, and **22,644 e-four-wheelers**, promoting cleaner mobility solutions. In addition, the development of EV charging infrastructure has received a significant boost, with **8,885 charging stations** installed by 2025 (IBEF, 2024).

- **Swachh Bharat Abhiyan (Clean India Mission)**

The Swachh Bharat Abhiyan has successfully improved sanitation infrastructure across India. As of 2025, over **12 crore toilets** have been constructed under this initiative, significantly reducing open defecation (PIB, 2025). Moreover, the mission has led to over **95%** of households having access to toilets, with **39.9%** of households practicing waste segregation (DD News, 2025).

## Conclusion

India's green initiatives are crucial for its transition to a sustainable and low-carbon economy. While considerable progress has been made, the implementation of these initiatives is hindered by financial, institutional, and public awareness challenges. Strengthening coordination among stakeholders, ensuring adequate funding, and raising public awareness, especially in rural areas, are critical to overcoming these barriers. By addressing these issues, India can further its efforts toward environmental sustainability and achieve its climate goals.

## Suggestions

- **Enhance Financial Support:** Increased investment is needed to overcome financial barriers and support the scaling up of green initiatives.
- **Improve Coordination:** Strengthening the coordination between state and federal governments will ensure better implementation of policies and programs.
- **Public Awareness Campaigns:** Focused efforts to increase public awareness, especially in rural areas, will foster greater community participation.
- **Develop Infrastructure:** Continued investment in electric vehicle infrastructure and renewable energy projects will ensure the long-term success of these initiatives.

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