

**Original Article****Advancing a Green Economy in India: Recent Trends and Policy Developments****Santosh Shivaji Patil**

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**Abstract**

*India is undergoing a significant transformation towards a green economy, characterized by substantial investments in renewable energy, adoption of sustainable manufacturing practices, and implementation of innovative policies. This paper examines recent developments in India's green economy, focusing on key sectors such as renewable energy, green finance, sustainable manufacturing, and policy initiatives. The analysis highlights the challenges and opportunities accompanying this transition, providing insights into India's path towards a sustainable and resilient economic future. India's transition towards a green economy represents a transformative phase in its developmental trajectory, integrating environmental sustainability with economic growth. This paper critically examines recent advancements across major domains—renewable energy, green finance, sustainable manufacturing, and policy frameworks. It highlights how initiatives such as the National Green Hydrogen Mission, the Green Credit Programme, and Eco-mark Certification Rules are reshaping India's economic and environmental landscape. The study further explores the expansion of solar and wind energy capacity, the rise of green financial instruments, and the increasing adoption of circular economy practices in industries. While challenges such as energy dependency, infrastructure limitations, and workforce reskilling persist, India's proactive policy measures and financial innovation demonstrate its commitment to achieving a low-carbon, resilient, and inclusive economy. The findings underscore that the green transition is not only an environmental imperative but also a strategic economic opportunity for sustainable national growth.*

**Keywords:** Green Economy, Sustainable Development, Renewable Energy, Green Finance, India**Introduction**

India, one of the world's largest economies, faces the dual challenge of fostering economic growth while ensuring environmental sustainability. The nation's commitment to a green economy is evident in its strategic initiatives aimed at reducing carbon emissions, promoting renewable energy, and encouraging sustainable industrial practices. This paper explores recent trends in India's green economy, emphasizing the multifaceted approach adopted to achieve these objectives.

**Renewable Energy Initiatives****1 Expansion of Solar and Wind Energy**

India has made significant strides in expanding renewable energy capacity. The Gujarat Hybrid Renewable Energy Park, under construction in Kutch district, is poised to become the world's largest hybrid renewable energy park, with a combined capacity of 30 GW from solar and wind sources. As of August 2025, the park has commissioned 1.2 GW of solar capacity and 250 MW of wind capacity, with plans for further expansion (Roy, 2024).

Additionally, the government has allocated ₹500 crore for developing hydrogen highways, promoting the use of green hydrogen as a clean fuel alternative in transportation (Agarwal, 2025).

**2 Green Hydrogen Policy**

India's National Green Hydrogen Mission targets the production of 5 million tonnes of green hydrogen annually by 2030, supported by an associated renewable energy capacity of 125 GW (Khan, 2025).

**Green Finance and Investment****1 Growth in Green Finance**

Green finance in India has expanded significantly, with investments directed towards clean energy, energy efficiency, and sustainable infrastructure.

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The climate finance taxonomy introduced in the Union Budget 2024–25 aims to standardize definitions and classifications, facilitating the flow of capital into green projects (Perwez, 2025).

## **2 Green IPOs**

India's stock market has witnessed a surge in green Initial Public Offerings (IPOs), reflecting investor confidence in sustainable businesses. In 2025, over half of IPO listings showed positive performance, indicating a robust appetite for green investments (Polo, 2025).

## **Sustainable Manufacturing and Circular Economy**

### **1 Green Manufacturing Practices**

Industries in India are increasingly adopting green manufacturing practices to reduce environmental impact. Policy-driven incentives, investment in research and development, and the establishment of carbon pricing mechanisms are key drivers of this transformation (Maldonado-Romo, 2024).

### **2 Circular Economy in Textiles**

The textile industry is exploring circular economy models to minimize waste and promote resource efficiency. Challenges such as supply chain coordination and regulatory compliance hinder widespread adoption, but digital technologies offer potential solutions (Khan, 2024).

## **Policy Initiatives and Regulatory Framework**

### **1 Green Credit Programme**

The Ministry of Environment, Forests and Climate Change launched the Green Credit Programme to incentivize eco-restoration activities. Entities undertaking restoration projects can earn 'green credits,' which can be utilized to meet compensatory afforestation requirements or fulfill Corporate Social Responsibility obligations (Agarwal, 2025).

### **2 Eco-mark Certification Rules**

In October 2024, India introduced Eco-mark Certification Rules, replacing the 1991 scheme. These rules provide labels for products meeting environmental criteria, encouraging manufacturers to produce eco-friendly goods and enabling consumers to make informed purchasing decisions (Roy, 2024).

## **Challenges and Opportunities**

### **1 Energy Demand and Infrastructure**

India faces challenges in meeting rising energy demand, exacerbated by climate change-induced heatwaves. While the country is the third-largest emitter of greenhouse gases, it continues to rely on coal for approximately 70% of electricity generation. The government advocates for a balanced approach, expanding renewable energy sources while maintaining coal-based power to ensure energy security (Khan, 2025).

### **2 Workforce Transition**

Transitioning to a green economy necessitates reskilling and redeployment of the workforce. Policies focusing on education and training are essential to equip workers with the skills required in green sectors (Maldonado-Romo, 2024).

## **Conclusion**

India's journey towards a green economy is characterized by significant investments in renewable energy, adoption of sustainable manufacturing practices, and implementation of supportive policies. While challenges remain, the nation's commitment to environmental sustainability and economic resilience positions it as a leader in the global green transition.

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## **Conflicts of Interest**

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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