



## Climate finance and viksit bharat: Bridging India's sustainable growth

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### Abstract

Climate finance plays a pivotal role in India's journey toward becoming a "Viksit Bharat" (Developed India) by 2047. As the country strives for rapid economic growth while addressing climate change challenges, mobilizing adequate financial resources for sustainable development becomes crucial. This paper explores the significance of climate finance in bridging the gap between India's developmental aspirations and environmental responsibilities. It highlights key funding mechanisms, policy frameworks, and international cooperation necessary to support green initiatives, renewable energy transitions, and climate resilience. By integrating climate finance into national development strategies, India can achieve sustainable economic growth while meeting its net-zero commitments and fostering a resilient, low-carbon future.

**Keywords:** Climate finance, viksit bharat, energy, sustainable growth, carbon

### Introduction

India stands at a crucial juncture in its developmental journey, striving to achieve the vision of *Viksit Bharat*—a developed and self-reliant nation by 2047. As the country pursues rapid economic growth, sustainability remains a key challenge. Climate change poses significant risks to infrastructure, agriculture, and overall economic stability, making climate finance an essential tool in ensuring resilient and sustainable development.

Climate finance refers to investments and funding mechanisms aimed at supporting climate adaptation, mitigation, and green initiatives. This includes contributions from public, private, national, and international sources to fund renewable energy projects, climate-resilient infrastructure, and low-carbon technologies. For India, leveraging climate finance effectively can drive economic expansion while addressing environmental concerns, ensuring that growth does not come at the cost of ecological degradation.

The Indian government has already taken significant steps, such as launching the National Adaptation Fund for Climate Change (NAFCC) and strengthening the role of institutions like the Indian Renewable Energy Development Agency (IREDA). However, the gap between required and available funds remains a major challenge. India needs approximately \$10.1 trillion in climate finance to achieve net-zero emissions by 2070, highlighting the urgency of mobilizing global investments and enhancing domestic funding strategies.

A well-structured climate finance framework will be instrumental in driving India's transition to a green economy. By integrating sustainability into economic planning, India can ensure a future where development aligns with environmental responsibility. This approach will not only help in mitigating climate change impacts but also generate employment, attract global investments, and position India as a leader in green innovation.

As India marches towards *Viksit Bharat*, bridging the sustainable growth gap through effective climate finance policies will be a defining factor. The synergy between economic development and climate action will shape India's global standing, ensuring long-term prosperity while safeguarding the environment for future generations.

### Objectives of the study

- To access the funding sources and mechanisms for green finance in Viksit Bharat.
- To evaluate the policy and regulatory frameworks in the green finance and the society.

### Review of Literature

- Climate finance refers to the financial resources mobilized to support climate change mitigation and adaptation efforts. According to the UNFCCC (2015), climate finance is essential for developing economies to transition toward low-carbon growth. Reports from the World Bank (2020) highlight the growing role of green bonds, sustainable investment funds, and concessional financing in bridging financial gaps in climate action.
- Stadelmann *et al.* (2013) emphasize the importance of climate finance in reducing the vulnerabilities of developing economies, highlighting the need for equitable resource distribution. The OECD (2021) further discusses how developed nations have fallen short of their \$100 billion per year climate finance commitment, leading to financial constraints in emerging economies
- India has taken significant steps in mobilizing climate finance through both domestic and international sources. According to the Reserve Bank of India (2022), green finance in India has gained momentum with the issuance of sovereign green bonds and private sector participation.
- A study by Ghosh *et al.* (2019) points out that India's renewable energy financing remains a challenge due to high upfront capital costs and policy uncertainties. The NITI Aayog Report (2021) emphasizes that India requires an estimated \$10.1 trillion in investment to achieve net-zero emissions by 2070.
- The linkage between climate finance and sustainable development is well-documented. UNDP (2020) underscores that financial flows directed towards climate-friendly infrastructure can accelerate India's progress toward the Sustainable Development Goals (SDGs).

- Research by Shukla *et al.* (2018) highlights that investments in green energy, electric mobility, and sustainable agriculture can enhance economic resilience while ensuring long-term environmental sustainability. The International Energy Agency (IEA, 2021) argues that without adequate climate finance, India's energy transition goals could be delayed, impacting its commitment to the Paris Agreement.
- The *Viksit Bharat* vision aims for a developed India by 2047, integrating economic growth with sustainability. Literature suggests that green finance mechanisms such as sovereign green bonds, carbon markets, and blended finance are critical for India to achieve this vision (Chakraborty & Mishra, 2023).
- A report by NITI Aayog (2023) outlines the necessity for Public-Private Partnerships (PPP) and international collaborations to bridge the financial gap in green infrastructure. Furthermore, Banerjee *et al.* (2022) highlight the role of technological innovations like green hydrogen, carbon capture, and digital finance in supporting India's sustainability agenda.

### Funding Source in Green Finance

India's vision of *Viksit Bharat 2047* requires substantial investments in green finance to ensure sustainable economic growth while addressing climate challenges. This analysis explores the funding sources and mechanisms available for mobilizing green finance in India.

#### 1. Domestic Funding Sources

##### a. Green Bonds

India has emerged as a key player in the green bond market, with initiatives led by the RBI and SEBI to promote sustainable investments. Example: The Sovereign Green Bond Framework (2022) aims to fund clean energy and climate-resilient projects.

##### b. Public Sector Investments

**Government Schemes and Budget allocations:** Programs such as the National Adaptation Fund for Climate Change (NAFCC) and Faster Adoption and Manufacturing of Electric Vehicles (FAME) promote green investments. **State-Level Initiatives:** Some states have set up climate resilience funds to finance renewable energy and adaptation projects.

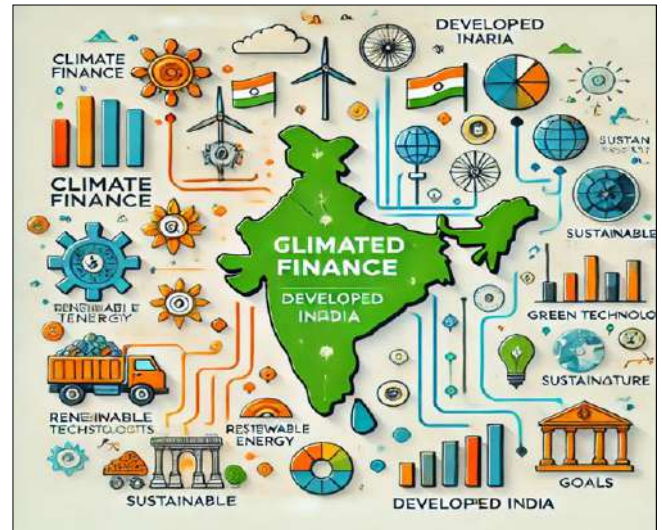
##### c. Private Sector & ESG Investments

**Corporate Sustainability Bonds:** Large Indian corporations are increasingly issuing green and sustainability-linked bonds.

**Environmental, Social, and Governance (ESG) Investments:** The growing focus on ESG compliance is driving private investments into green projects.

##### d. Banking & NBFCs

The Reserve Bank of India (RBI) has included renewable energy in Priority Sector Lending (PSL), encouraging banks to finance clean energy projects. Non-Banking Financial Companies (NBFCs) like IREDA (Indian Renewable Energy Development Agency) play a crucial role in financing clean energy ventures.



## 2. International Funding Sources

### 1. Multilateral Development Banks (MDBs)

Institutions like the World Bank, Asian Development Bank (ADB), and International Finance Corporation (IFC) provide loans and grants for climate-resilient infrastructure. Example: The Green Climate Fund (GCF) supports India's low-carbon development projects.

### 2. Foreign Direct Investment (FDI) in Green Projects

- The Indian government has relaxed FDI norms for renewable energy, electric vehicles (EVs), and sustainable infrastructure, attracting global investors.

### 3. Carbon Markets & Climate Funds

India is developing a Carbon Trading Market, allowing companies to trade carbon credits and generate finance for emission reduction projects. Global funds such as the Climate Investment Funds (CIFs) provide concessional financing to emerging economies like India.

### 3. Public-Private Partnership (PPP) Models

PPPs are playing a vital role in funding large-scale green infrastructure projects like solar parks, smart cities, and sustainable transport. Example: Rewa Ultra Mega Solar Park (Madhya Pradesh), a successful PPP-driven renewable energy project.

### 4. Challenges in Green Finance Mobilization

**High Capital Costs** Green projects often require long-term financing, leading to financial constraints. **Regulatory Uncertainty** Frequent policy changes can impact investor confidence. **Limited Access to Global Funds** Complex application processes and eligibility criteria hinder access to international climate funds.

### 5. Strategic Recommendations

Strengthen the domestic green bond market by offering tax incentives to investors. Enhance regulatory frameworks to encourage ESG compliance in the private sector. Expand public-private partnerships to mobilize large-scale green investments. Improve India's participation in global carbon markets to attract more funding.

## Key Policies Governing Green Finance in India

### 1. National-Level Policies

#### a. National Action Plan on Climate Change (NAPCC) (2008)

Framework for India's climate change mitigation and adaptation strategies. Includes missions on renewable energy, sustainable agriculture, water conservation, and energy efficiency.

#### b. Sovereign Green Bonds Framework (2022)

Issuance of sovereign green bonds to raise funds for clean energy and climate-resilient infrastructure. Aligns with global standards such as the Green Bond Principles (GBP).

#### c. RBI's Green Finance Initiatives

Inclusion of Renewable Energy in Priority Sector Lending (PSL) – Encourages banks to provide credit for solar, wind, and small hydropower projects. Climate Risk and Sustainable Finance Guidance (2023) – Directs financial institutions to integrate climate risk assessments into their lending practices.

#### d. SEBI's ESG Disclosure Norms

Mandates the top 1,000 listed companies to report on Environmental, Social, and Governance (ESG) factors. Encourages corporate investments in green and sustainability-linked bonds.

#### e. Energy Conservation (Amendment) Act, 2022

Introduces a carbon credit trading mechanism to promote emission reductions. Strengthens regulations on industrial energy efficiency.

### 2. International Agreements and Compliance

India's policies are influenced by international commitments such as:

- **Paris Agreement (2015):** India pledged to achieve net-zero emissions by 2070 and increase renewable energy capacity to 500 GW by 2030.
- **Task Force on Climate-related Financial Disclosures (TCFD):** Encourages businesses to disclose climate-related risks in financial reporting.
- **Global Carbon Market Participation:** India is working to integrate carbon trading mechanisms into global markets.

### Societal Impact of Green Finance Policies

#### 1. Renewable Energy Adoption

Government incentives have driven solar and wind energy expansion, providing clean electricity to rural and urban areas. Programs like PM-KUSUM help farmers adopt solar-powered irrigation systems, reducing dependency on fossil fuels.

#### 2. Green Jobs and Economic Growth

Investments in green industries have created employment in sectors such as electric vehicles (EVs), sustainable agriculture, and waste management. Example: India's EV sector aims to generate 50 million jobs by 2030.

#### 3. Financial Inclusion and Green Credit

Microfinance institutions (MFIs) and rural banks are extending green credit to small businesses, promoting sustainable entrepreneurship. Women-led self-help groups

(SHGs) benefit from financing for solar lighting, clean cooking, and eco-friendly enterprises.

### Challenges in Policy Implementation

#### 1. Regulatory Gaps and Uncertainty

- Frequent policy changes and lack of clarity on green taxonomy (what qualifies as a "green" project) create confusion for investors.

#### 2. Limited Access to Green Finance

- **SMEs and rural enterprises** face difficulty in securing green financing due to **lack of collateral and awareness**.

#### 3. Greenwashing Risks

- Some corporations falsely claim "green" credentials to attract ESG investments without actual sustainability efforts.

#### 4. Underdeveloped Carbon Markets

- India's carbon credit trading system is still evolving, limiting the monetization of carbon reductions.

### Recommendations for Strengthening Green Finance Policies

#### 1. Strengthening Regulations and Green Taxonomy

Establish a clear, government-backed taxonomy defining eligible green finance activities. Expand SEBI's ESG norms to ensure deeper sustainability reporting and prevent greenwashing.

#### 2. Enhancing Public-Private Partnerships (PPPs)

Encourage joint financing models where government incentives attract private capital into green projects. Expand municipal green bonds for financing sustainable urban development.

#### 3. Improving Financial Accessibility

Develop low-interest green credit lines for MSMEs and startups working on sustainable solutions. Strengthen green microfinance for rural communities.

#### 4. Scaling Up Carbon Markets

Implement a national carbon pricing mechanism to attract investment in emission-reducing technologies. Integrate Indian carbon credits with global markets to enhance monetization opportunities.

### Conclusion

A robust green finance ecosystem is essential for achieving Viksit Bharat 2047. By leveraging domestic, international, and private sector funding mechanisms, India can accelerate its transition toward a sustainable and resilient economy. India has made significant progress in policy and regulatory frameworks for green finance, but challenges remain in scalability, financial access, and transparency. Strengthening regulations, expanding carbon markets, and ensuring financial inclusion will be key to mobilizing green investments for a sustainable and socially inclusive Viksit Bharat.

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