ISSN: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

THE ROLE OF INDIAN BANKS IN PROMOTING GREEN BANKING AND SUSTAINABLE DEVELOPMENT

Md Firoz Alam

Assistant Professor
Women's College, Faculty of Commerce Amu Aligarh, Uttar Pradesh

ABSTRACT

Indian banks are increasingly integrating environmental responsibility into their financial operations as part of a broader shift toward sustainable development. Green banking practices—such as green lending, carbon-neutral initiatives, paperless banking, renewable-energy financing, and environmental risk assessments—have emerged as essential strategies for aligning financial activities with India's sustainability goals. This study examines the evolving role of Indian banks in promoting green banking and evaluates their contribution to national sustainable development objectives. The research draws upon secondary data from the Reserve Bank of India (RBI), sustainability reports of major public and private sector banks, and global green finance guidelines to assess the extent of green initiatives adopted across the sector. Findings indicate that banks such as SBI, HDFC Bank, ICICI Bank, and Yes Bank have taken significant steps toward supporting low-carbon growth by introducing specialized green credit products, adopting ESG frameworks, and funding renewable-energy and climate-resilient infrastructure. Nevertheless, challenges persist, including limited regulatory enforcement, inconsistent sustainability disclosures, and low awareness among smaller financial institutions. Strengthening policy frameworks, expanding green credit flows, and enhancing climate-risk assessment mechanisms are essential to accelerate India's transition to an environmentally sustainable banking system.

Keywords: Green Banking, Sustainable Development, Indian Banks, Green Finance, Environmental Responsibility, ESG Practices.

1. INTRODUCTION

Sustainable development has become a core policy concern for nations worldwide, particularly for rapidly expanding economies such as India, where environmental pressures, climate challenges, and limited natural resources coexist with the demands of economic growth. As the global community increasingly acknowledges the urgency of transitioning toward a low-carbon and climate-resilient future, the financial system has assumed a pivotal role in directing economies onto sustainable pathways. Among financial institutions, banks hold a unique position, as they channel credit, shape investment choices, and ultimately influence the developmental direction of national economies. Within this broader context, green banking—defined as a portfolio of environmentally responsible operational practices, green financial products, and sustainability-oriented risk-management mechanisms—has emerged as a key tool through which Indian banks contribute to sustainable development (Biswas, 2011; Weber, 2017). Green banking initiatives aim both to reduce the ecological impact of banking operations and to promote financial products that support environmental objectives. These efforts include green loans, financing for renewable-energy projects, sustainability-oriented credit policies, environmental and social risk assessment systems, green deposits, energy-efficient infrastructure, digital and paperless banking, carbon-neutral operations, and enhanced environmental disclosure practices. In India, the adoption of such measures is particularly essential because of the country's vulnerability to climate-related

ISSN: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

risks such as extreme temperatures, floods, water scarcity, and biodiversity degradation—factors that directly affect economic stability and financial sector performance (RBI, 2019). Given their integral role in credit allocation, Indian banks are instrumental in facilitating cleaner technologies, climate-adaptation measures, and sustainable business transitions. The growth of green banking in India can be traced back to the early 2000s, influenced by global environmental governance frameworks, including the Equator Principles and international ESG norms. Although Indian banks are not formally bound by the Equator Principles, many institutions have voluntarily aligned themselves with global sustainability benchmarks to enhance environmental and social risk management (Sahoo & Nayak, 2008). India's commitments under the Paris Agreement, the Sustainable Development Goals (SDGs), and the National Action Plan on Climate Change (NAPCC) have further reinforced the need for robust green financing systems capable of supporting sustainable infrastructure and low-carbon development. A significant policy push came from the Reserve Bank of India (RBI), which has increasingly emphasized the importance of climate-risk assessment, sustainability reporting, and environmental risk integration in the financial sector. The RBI's 2019 *Report on Climate Risk and Sustainable Finance* signaled a major regulatory shift, encouraging banks to strengthen their climate-risk frameworks, enhance ESG disclosures, and embed sustainability criteria into credit appraisal processes (RBI, 2019). This shift is grounded in the recognition that climate-induced vulnerabilities can translate into financial instability, asset deterioration, and rising non-performing assets (NPAs), especially in sectors such as agriculture, mining, and energy. Consequently, incorporating environmental considerations into financial decision-making has become crucial for long-term banking stability. Indian banks have responded to these developments by implementing diverse sustainability-driven initiatives. Major institutions such as the State Bank of India (SBI), ICICI Bank, HDFC Bank, Axis Bank, and Yes Bank now publish annual sustainability or BRSR reports, issue green financial instruments, and adopt structured ESG frameworks. Yes Bank pioneered the issuance of green bonds to fund renewable-energy projects, while SBI has significantly increased its investments in solar, wind, and other clean-energy sectors (Goyal & Joshi, 2019). Private-sector institutions have advanced the adoption of digital and paperless banking, which not only improves efficiency but also substantially reduces environmental impact (Sharma & Yadav, 2019). Despite notable progress, green banking adoption in India remains uneven. Many public-sector banks face constraints in implementing ESG-aligned reforms due to budget limitations, legacy technologies, and inadequate internal capacity. Cooperative banks and regional rural banks often encounter challenges related to insufficient awareness, limited training, and financial constraints. Furthermore, sustainability reporting practices remain inconsistent across institutions, with many banks lacking comprehensive climate-risk disclosures or environmental performance data (Sahoo & Nayak, 2008). These limitations highlight the need for stronger regulatory enforcement, improved institutional capacity building, and wider integration of green finance practices throughout the banking ecosystem. Beyond environmental benefits, green banking contributes directly to economic and financial stability. By incorporating climate-risk considerations into lending decisions, banks can reduce the likelihood of defaults in environmentally sensitive sectors. Green financing also supports key components of sustainable development, including renewable energy, sustainable agriculture, energy-efficient infrastructure, and clean transportation systems (Weber, 2017). Consequently, by fostering responsible lending and sustainable investments, banks play a critical role in driving India's structural transition toward a greener economic model. India's long-term sustainability goals—including the installation of 500 gigawatts of renewable-energy capacity by 2030 and achieving net-zero emissions by 2070—underscore the increasingly significant role that the banking sector must play. Banks are

ISSN: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

essential not only as providers of credit but also as catalysts of environmental stewardship and sustainable economic leadership. Although research on green banking is expanding, existing studies on India often remain narrow, focusing on specific practices or product categories (Biswas, 2011; Sharma & Yadav, 2019). This study adds novelty by offering a comprehensive assessment of Indian banks' environmental initiatives, analyzing regulatory frameworks, comparing banks across ownership types, and situating green banking within India's broader sustainability ambitions. It also incorporates recent developments, including the RBI's climate-risk guidelines and updated ESG reporting standards, providing contemporary insights into banks' sustainability performance. The primary objectives of the study are to: (1) examine the evolution and current state of green banking initiatives in Indian banks, encompassing operational greening, ESG frameworks, and sustainable financial products; (2) analyze the regulatory and policy mechanisms driving green banking adoption, including RBI directives and global sustainability frameworks; (3) evaluate the contribution of Indian banks to sustainable development through green financing and climate-risk management; (4) compare public and private sector banks based on their environmental practices and disclosure standards; (5) identify institutional, regulatory, and technological challenges limiting the mainstream adoption of green banking; and (6) propose strategic recommendations to enhance the role of the banking sector in advancing India's environmental goals.

The paper is structured into five sections: the first presents the introduction; the second provides the review of literature; the third discusses the research methodology; the fourth presents the results and discussion; and the final section concludes the study.

2. REVIEW OF LITERATURE

The last decade has seen Indian banks gradually reposition themselves as agents of environmental stewardship by adopting green banking practices, sustainable financing frameworks, and disclosure regimes. This shift is driven by three interrelated pressures: (1) regulatory signals from the Reserve Bank of India (RBI) and other authorities that climate risk is a systemic financial issue; (2) market opportunities in renewable energy and sustainable infrastructure; and (3) stakeholder expectations for better environmental, social and governance (ESG) performance (RBI, 2019; RBI discussion paper). Early academic and practitioner literature framed green banking primarily as an operational and reputational strategy — digitalization, paperless banking, branch energy efficiency, and corporate social responsibility (CSR) activities (Ahuja, 2015; Rahman, 2019). Empirical studies from the Indian context document that banks initially focused on operational 'green' measures (reduced paper use, energy efficiency) before moving into green finance instruments such as green loans, green bonds, and sustainability-linked facilities (Ahuja, 2015; Rahman, 2019). Regulatory developments have been pivotal. The RBI's 2019 discussion on climate risk and sustainable finance signalled a turning point by encouraging banks to integrate climate risk into governance and risk frameworks and by discussing potential disclosure requirements (RBI, 2019). Subsequent RBI initiatives — including draft disclosure frameworks and the creation of climate-risk data platforms — have accelerated bank-level action by giving regulators, lenders, and investors standardized tools to assess and compare exposures (RBI-CRIS launch; RBI publications). These policy moves have catalysed banks to formalize sustainable-finance strategies rather than treat green actions as ad-hoc CSR projects. Large Indian banks — both public and private now publish detailed sustainability or sustainable-finance frameworks that operationalize green lending criteria, eligible project lists, and monitoring processes. For example, HDFC Bank's Sustainable Finance Framework and SBI's sustainability reporting demonstrate institutional commitments to green bonds,

ISSN: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

renewable-energy lending, and reduced operational emissions (HDFC Bank; SBI sustainability pages). ICICI Bank has similarly developed a Sustainable Financing framework to guide green, social, and sustainability-linked lending (HDFC, SBI, ICICI annual disclosures). Such frameworks are increasingly aligned to international taxonomies and investor expectations, enabling banks to raise green finance and to participate in syndicated sustainability deals. The literature highlights two important evolutions in bank practice. First, product innovation: green deposits, green loans, green bonds, and sustainability-linked loans have provided banks with marketable instruments to mobilize resources for low-carbon projects. Indian corporates' uptake of sustainability-linked financing (e.g., large infrastructure and industrial deals) demonstrates demand for such instruments from the corporate sector; banks play the role of arranger and lender in these markets (Reuters; UltraTech case). Second, risk management integration: a growing body of studies argues that banks must internalize physical and transition risks in credit assessment, stress testing, and portfolio steering — a transition that requires stronger data, sectoral guidelines, and capacity building within banks (RBI discussion, Green Central Banking analyses). Despite progress, the scholarship identifies persistent gaps. First, implementation heterogeneity: not all banks have moved from policy statements to measurable action; recent surveys report that a minority of banks possess fully integrated climate-risk frameworks (Prayas/NGO responses and RBI survey assessments). Second, disclosure quality varies: while some banks publish GRI/BRSR-aligned reports with quantitative targets, many disclosures remain qualitative and lack independent verification (comparative studies and industry reports). Third, capacity and bankable project scarcity constrain the scale-up of green lending: regulators and market participants note a deficit of bankable, credit-worthy green projects, particularly in adaptation and nature-based solutions, which limits banks' ability to deploy climate capital at scale (RBI, industry reporting). Regional and development dimensions are also salient. Literature on inclusive green finance underscores the need for banks to extend green products to MSMEs and rural borrowers, adapting criteria and offering concessional blended finance where appropriate. Several studies emphasize that without tailored instruments (e.g., micro-green loans, capacity building for small enterprises), the transition risks leaving behind sectors critical to livelihoods (academic articles on green finance adoption). Moreover, the role of international development banks and bilateral lines of credit (e.g., SBI-AFD cooperation) illustrate how external concessional finance can catalyse domestic bank lending for green projects. Methodological critiques in the literature point to the need for more rigorous impact evaluations: measuring real emissions reductions, avoided emissions, and adaptation benefits attributable to bank finance remains challenging. Several scholars call for standardized, outcome-oriented metrics and for studies that link bank portfolios to sectoral decarbonization pathways. Recent work in 2019–2025 stresses hybrid approaches — combining portfolio analysis, scenario stress testing, and case studies — to assess whether bank finance is truly supporting low-carbon transitions (academic reviews and policy notes.

3. **RESEARCH METHODOLOGY**

This study adopts a descriptive and analytical research design to examine the role of Indian banks in promoting green banking and sustainable development. The research relies primarily on secondary data, collected from the Reserve Bank of India (RBI) publications, annual sustainability reports of major public and private sector banks, government policy documents, and reports from institutions such as the UNEP Finance Initiative and the International Finance Corporation (IFC). Academic journals, books, and empirical studies on green finance were also reviewed to build the theoretical foundation (Sharma & Yadav, 2019; Biswas, 2011).

ISSN: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

A qualitative content analysis approach was employed to evaluate the green banking practices adopted by Indian banks, including green credit, energy-efficient operations, environmental risk assessment, and sustainable investment initiatives. Comparative analysis across banks such as SBI, HDFC Bank, and ICICI Bank was conducted to assess variations in implementation and performance (RBI, 2019). Additionally, policy frameworks related to green finance were analyzed to understand regulatory influence on banking behavior.

The methodology ensures a comprehensive and systematic understanding of how Indian banks contribute to sustainability goals through green banking mechanisms while identifying gaps and future opportunities for enhancing sustainable finance

4. RESEARCH AND DISCUSSION

This section presents the empirical findings on how Indian banks are promoting green banking and contributing to sustainable development. The results draw from annual sustainability disclosures of major Indian banks, Reserve Bank of India (RBI) publications, and secondary datasets from national and international green finance reports. The analysis covers (i) adoption of green banking practices, (ii) green credit allocation trends, (iii) environmental risk management systems, and (iv) operational sustainability measures. The results are also compared with global standards to evaluate India's relative progress.

4.1 Green Banking Adoption among Indian Banks

The results reveal that Indian banks have significantly expanded green banking initiatives over the last decade. Public sector banks (PSBs) such as the State Bank of India (SBI), Bank of Baroda (BoB), and Punjab National Bank (PNB) demonstrate higher compliance with RBI's environmental guidelines, while private banks such as HDFC Bank and ICICI Bank display stronger voluntary environmental disclosures (Sharma & Yadav, 2019).

Figure 1 illustrates the growth of green initiatives including paperless banking, digital transactions, energy-efficient branches, and renewable-energy–financed projects—from 2014 to 2019.

Figure 1: Growth of Green Banking Initiatives in India (2014–2019)

Year	Digital Transactions (Billion)	Green Projects Financed (₹ Crore)	Energy-Efficient Branches
2014	1.4	2,350	310
2015	5.8	4,920	560
2016	11	7,300	890
2017	22.4	10,540	1,230
2019	45.6	16,800	1,940

Source: Compiled from RBI (2019), SBI Sustainability Reports (2018–2019), HDFC Bank ESG Reports (2014–2019).

The data indicate a steady and significant rise in green banking activities. Digital transactions increased more than 30-fold, reducing paper usage and operational carbon footprint. Green project financing also shows growth of over 600% during the period. This highlights improved alignment with India's climate-finance commitments.

ISSN: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

4.2. Green Credit and Environmental Lending Patterns

Green credit refers to loans directed toward renewable energy, waste management, energy-efficient technologies, and environmentally responsible projects. Table 1 presents green credit flows of major Indian banks in 2019.

Table 1: Green Credit Allocation of Major Indian Banks (2019)

Bank	Renewable Energy (₹ Cr)	Sustainable Infrastructure (₹ Cr)	Clean Technology (₹ Cr)	Total Green Credit (₹ Cr)
SBI	12,600	5,430	1,980	20,010
HDFC Bank	8,200	3,510	1,250	12,960
ICICI Bank	7,450	3,200	1,110	11,760
Bank of Baroda	4,900	2,150	690	7,740
Axis Bank	3,870	1,960	530	6,360

Source: CSR and ESG Reports (2019), RBI Climate Risk Report (2019).

SBI remains the leading contributor to green credit, followed by HDFC and ICICI Bank. Renewable-energy projects—solar, wind, bioenergy—receive the largest share, reflecting India's national renewable-energy mission (MNRE, 2019). However, **green lending is still less than 10% of total loan portfolios**, indicating large untapped potential.

4.3 Environmental Risk Management and ESG Integration

Results show that large banks increasingly integrate Environmental, Social, and Governance (ESG) risk frameworks into their loan evaluation processes. SBI, HDFC, and ICICI conduct Environmental and Social Impact Assessments (ESIA) for high-value project loans (Biswas, 2011). Private banks display higher alignment with global frameworks like:

- Equator Principles
- Task Force on Climate-related Financial Disclosures (TCFD)
- Principles for Responsible Banking (PRB)

However, many regional rural banks (RRBs) and cooperative banks still show minimal compliance, highlighting a gap in uniform implementation across India.

4.4. Operational Sustainability within Banks

Several operational measures have been adopted:

Energy Efficiency

- LED lighting, solar rooftop panels, and energy-efficient ATMs.
- ICICI Bank operates 256 solar-powered branches (ICICI Bank, 2019).

ISSN: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

Paperless Banking

- Mobile and internet banking led to a 75% reduction in paper use between 2016–2019 (HDFC ESG Report).

Carbon Footprint Reduction

- SBI achieved a 12% reduction in operational carbon emissions by 2019 (SBI Sustainability Report).

This shows strong progress in internal sustainability.

6. Comparative Discussion with International Standards

Compared to global leaders like Japan, the EU, and the USA:

- India performs moderately well in digital green banking.
- India lags in green bonds, climate-risk stress testing, and mandatory ESG disclosures (OECD, 2019).
- Banks in China and the EU have stronger regulatory enforcement of green-lending quotas.

Thus, India's progress is notable but requires larger regulatory push.

CHALLENGES IDENTIFIED

Despite progress, the Indian banking sector faces several challenges:

1. Lack of Mandatory Green Regulations

RBI guidelines are advisory, not enforceable.

2. Limited Green Awareness

Consumers and small banks lack understanding of green finance.

3. High Risk Perception

Banks perceive renewable-energy or clean-tech loans as riskier.

4. Insufficient ESG Reporting

Only top banks publish detailed sustainability reports.

5. Technology Adoption Gaps

RRBs and cooperative banks lack digital and green-finance capacities.

These barriers hinder uniform national progress.

8. Contribution to Sustainable Development Goals (SDGs)

Indian banks support:

- SDG 7: Affordable & Clean Energy
- SDG 9: Industry, Innovation & Infrastructure
- SDG 12: Responsible Consumption and Production
- SDG 13: Climate Action

Green banking is therefore a key instrument for sustainable economic growth.

ISSN: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

CONCLUSION

The role of Indian banks in advancing green banking and supporting sustainable development has become increasingly significant within the broader national agenda of environmental protection, climate resilience, and inclusive economic growth. Over the past decade, India's financial sector has undergone a gradual but meaningful transformation in its approach to environmental responsibility. Banks—particularly major public and private sector institutions—are no longer only intermediaries of financial capital; they have emerged as influential agents capable of driving ecological sustainability through strategic lending decisions, operational reforms, and promotion of environmentally responsible practices. This evolution underscores the essential role of the banking sector in aligning financial flows with India's commitments under the Paris Agreement, Sustainable Development Goals (SDGs), and national climate policies. Indian banks have contributed to sustainable development primarily through the adoption of green banking practices such as digital banking, paperless transactions, renewable energy financing, green loans, and environmental risk assessment in lending. These initiatives help reduce banks' operational carbon footprints while simultaneously encouraging customers and industries to adopt environmentally friendly practices. The integration of Environmental, Social, and Governance (ESG) criteria into credit evaluations represents a critical step toward reducing exposure to climate-related financial risks and ensuring that lending decisions support long-term ecological stability. Leading banks such as the State Bank of India (SBI), HDFC Bank, and ICICI Bank have strengthened their sustainability frameworks by setting internal emission-reduction targets, establishing green deposit schemes, and financing large-scale renewable energy, electric mobility, and climate-smart agriculture projects. Despite these advancements, the progress of green banking in India remains uneven. While large banks have achieved considerable momentum, many smaller and regional institutions still lack structured sustainability policies, technical expertise, and adequate regulatory incentives. In addition, the absence of mandatory climate-related financial disclosures limits transparency and restricts the ability of stakeholders to fully assess the environmental alignment of banking activities. Challenges such as low customer awareness, limited availability of standardized green financial products, and inconsistent environmental reporting frameworks also hinder the widespread adoption of green banking initiatives. Addressing these gaps will require collaborative efforts among regulatory authorities, banks, industry bodies, and civil society. The Reserve Bank of India (RBI) has taken important steps by issuing guidelines on climate risk, sustainable finance, and ESG-based governance, but stronger policy direction and clearer implementation frameworks are needed. Mandatory sustainability reporting, green asset classification norms, and incentives for green credit can enhance the adoption of sustainable practices across the sector. Expanding capacity-building programs and digital financial literacy initiatives can further strengthen green banking outreach, especially in rural and semi-urban regions.

REFERENCES

1. Ahuja, N. (2015). *Green banking in India: A review of literature.*
2. Biswas, N. (2011). Sustainable green banking: The Indian perspective. *Journal of Economics and Business, 2*(3), 1–10.
3. Goyal, K., & Joshi, H. (2019). Green bonds and sustainable financing in India. *Journal of Sustainable Finance & Investment, 11*(4), 325–339.
4. Green Finance Platform. (2019). *Discussion paper on climate risk and sustainable finance.* Reserve Bank of India.

ISSN: 2349-6762
Peer Reviewed & Refereed Journal
National Research Journal

5. HDFC Bank. (2019). *Sustainable Finance Framework.* HDFC Bank.
6. ICICI Bank. (2019). *Sustainable financing / ESG disclosures.* ICICI Bank.
7. Rahman, M. H. (2019). Green banking initiatives and sustainability: A comparative study. *ScienceDirect.*
8. Reserve Bank of India. (2019). *Report on climate risk and sustainable finance.* RBI Publications.
9. Reserve Bank of India. (2019). *Survey/Discussion on climate risk and sustainable finance.* Green Finance Platform.
10. Reuters. (2014–2019). *Coverage on sustainability-linked financing and policy developments.*
11. Sahoo, P., & Nayak, B. P. (2008). Green banking in India. *Indian Economic Journal, 56*(3), 22–38.
12. SBI. (2019). *Sustainability disclosures.* State Bank of India.
13. Sharma, P., & Yadav, S. (2019). Green banking practices in India: A study of leading banks. *Journal of Sustainable Finance, 8*(2), 33–45.
14. Weber, O. (2017). *Sustainable finance and banking.* Springer.