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The Rise of Green Finance in India: How Public and Private Banks are Leading the Way

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ABSTRACT

This study investigates how Indian Banks have incorporated Environmental, Social and Governance (ESG) criteria into their business models. It provides overview of the different options that banks in India are pursuing in relation to ESG criteria and provides insight into what position banks are taking with respect to adopting ESG Framework. This research investigates and compares how both public and private banks are performing against ESG metric and their comparative ability to implement green finance initiatives. The methodology used in this research is based on a comparative analysis of green finance and Sustainability Initiatives, a review of ESG Reports, Sustainability Reports and the associated ESG information available on Indian banks' websites - the quantitative data from this research will be available for examining the challenges and opportunities of integrating green finance within Indian Banking. The research identifies both challenges and opportunities of integrating green finance and gives insight into how Indian banks view green finance as a key strategic priority. The support received from the RBI and SEBI through regulations has expedited the process of adopting ESG practices. However, due to a lack of knowledge about such products, people have not participated in enough numbers. Therefore, the inclusion of ESG must be done proactively to obtain a competitive advantage to meet India's Net Zero 2070 aspirations. Consequently, this research provides insights for banks, regulators and policymakers to enhance the green finance strategies, increase ESG integration and use technology to create transparency and increase efficiency in the financial system.

INTRODUCTION

The integration of Environmental, Social, and Governance (ESG) criteria into financial operations has become increasingly critical for sustainable development and responsible business practices. Central banks are making efforts to expand their role beyond financial stability and providing for sustainability through the climate-related stress testing of their institutions and the integration of ESG

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risks into regulatory structures and support for the development of green bond markets (Dovlatyan, 2025). There are enormous opportunities and challenges for financial institutions to incorporate ESG into their strategies and operations from data quality problems to regulatory uncertainty and to the need to teach market participants more about the importance of ESG, while also benefiting from innovations in technology that make it easier to optimise their analysis of ESG data (Wang, 2024). Banks that take a proactive approach to ESG can also provide significant support in protecting the environment and improving social welfare and creating a sustainable economy through their effective incorporation of ESG into the banks' lending strategies, risk management processes and stakeholder engagement approaches (Lanjewar *et al*., 2025). A cohesive and structured approach to the integration of ESG creates opportunities for financial professionals to increase performance, mitigate risks, improve their reputations and enhance stakeholder engagement through systematic evaluation and continual improvement (Ireoluwapo *et al*., 2024).

Green financing is growing quickly and becoming extremely beneficial for the sustainable development of Indian banks as a means of achieving the country's Net Zero target by 2070. According to studies, both public and private sector banks are using more green finance products such as green bonds, financing of renewable energy projects and developing a strategy consistent with their environmental, social and governance (ESG) objectives (Asha. N, 2025; Upadhyay & Kurmi, 2025). The way the banks operate will vary from type to type based on their business model and ownership status which will determine what each bank implements in regard to ESG (ownership structure) and how the implementation of ESG will affect financial results. Private sector banks are seeing a negative effect of ESG on their total performance measures, specifically from ESG's impact on the social aspect; public sector banks are seeing an association between ESG environmental scores and certain performance metrics (Jaiwani & Gopalkrishnan, 2025). Announcement of the "Green Zone" by the Reserve Bank of India has encouraged state and that regulatory mandate along with stakeholder pressure has seen increased levels of commitment in implementing ESG. These commitments face obstacles in the form of regulatory restrictions, lack of awareness and financial uncertainties (Asha. N, 2025; Gupta & T.S., 2024). Therefore, to create long-lasting sustainability and positive impacts for all stakeholders, each type of unit needs to develop and then implement specific strategies to promote the success of such initiatives.

The adoption of green financing and sustainable practices has picked up momentum in India as growing number of financial institutions are beginning to integrate environmental issues into their day-to-day operations (S, 2022; Vedula & Tummarakoti, 2025). The growth of sustainable financing has stemmed from a combination of policy incentives, climate change commitments at both the national and international levels and growing investor interest in making ethical investments (Vedula & Tummarakoti, 2025). Areas of opportunity for developing sustainable financial products include growing demand for such products, ongoing support from regulatory authorities and opportunities for companies to enhance their corporate social responsibility programs. Key barriers to the full implementation of sustainable finance include limited consumer knowledge and understanding of sustainable banking and finance, lack of a regulatory framework established for adopting green banking, limited financial resources, and others (S, 2022). Although there is a positive trend in supporting the adoption of sustainable finance in India's banking and other financial sectors, there are still significant barriers in promoting the widest possible adoption of sustainable finance in India (Vedula & Tummarakoti, 2025). Researchers recommend that a comprehensive set of strategies should be developed that address the following areas: policy framework, investment patterns and products, financial instruments to promote the transition to a more environmentally sustainable economy for India.

The existing literature on the performance of Indian banks, especially private and public sector banks, against ESG metrics is limited despite the fact that there is a growing regulatory environment and institutional approach towards supporting the integration of ESG into banking and finance. There is an urgent need for a comparative study examining

the various ways in which the two types of banks integrate ESG into their respective business models, evaluate their current sustainability initiatives and identify both the challenges and opportunities for adopting green finance in India's banking system.

In consideration of these needs, this study will provide an assessment of how ESG criteria are currently being integrated into the business model of Indian banks as well as an assessment of the relative performance of public vs. private sector Indian banks regarding ESG and green finance initiatives. This evaluation will be conducted through an analysis of annually published ESG reports and sustainability reports, and through a review of publicly available information (including websites, press releases, etc.) to determine the role of strategy in banking's use of green finance in India. The conclusion of this study is anticipated to provide both banks and regulatory bodies in India with valuable insights on how to enhance integration, increase transparency through the use of technology and help meet India's long-term climate goals.

LITERATURE REVIEW

Conceptual Framework of ESG and Green Finance

Integrating ESG factors into the banking sector has developed into an essential structure for facilitating sustainable finance with environmental factors determined to be the most significant factor influencing the adoption of green banking operations (Sharma & Bagga, 2025). Sustainable finance is considered an essential part of resolving ESG issues as it directs funding of projects that protects the environment, assists with social inclusion and bolsters corporate governance practices (G & Jambulingam, 2024; Junaedi, 2024). With increasing attention being paid to the effects of ESG factors in making decisions about lending, banks are incorporating such considerations into their investment decisions, risk management practices and financial reporting in order to support a transition to a low-carbon economy through the funding of renewable energy and sustainable infrastructure projects (G & Jambulingam, 2024). Furthermore, sustainable investments can generate similar or better risk-adjusted returns than traditional investments due to their lower operational expenses and improved risk management practices (G & Jambulingam, 2024).

ESG Integration in the Global Banking Sector

The findings of this research indicate that banks' adoption of ESG integration is growing rapidly on a global scale but there are significant variations between developed and emerging economy. Europe has made significant progress in developing standardized reporting systems and creating fairly extensive regulatory frameworks, whereas most emerging economies face a host of issues, such as fragmented governance models and a lack of institutional capacity (Fadiah Abdulrahman M Bagai, 2025). Banks operating in BRICS nations have successfully leveraged international sustainability reporting frameworks such as the Global Reporting Initiative (GRI) as a catalyst for increasing ESG involvement. However, effective regulatory frameworks designed to foster increased ESG activity are also necessary. ESG disclosures improve investor confidence, reduce the cost of capital and help create long-term value for businesses (Pratiwi & Edeh, 2024). The issue of inconsistency in ESG reporting standards and reliability of data across institutions continues to be a concern (Pratiwi & Edeh, 2024). European regulators have acknowledged the significant role banks play in promoting sustainable economic growth, but the disparity in regulatory application remains a challenge (Birindelli *et al*., 2022). Overall, these studies suggest that the creation of common metrics and standardised frameworks would significantly enhance ESG comparability.

Green Finance Initiatives in Indian Banks

The rise of Green Banking in India is a key driver of Sustainable Development. According to Upadhyay & Kurmi, 2025 Indian banks have embraced the use of various financial instruments to support green projects through Green Bonds, Renewable Energy Financing and Innovation in Digital Banking. Research continues to reveal conflicting results about which banking sectors have embraced green finance at a higher rate than others. For

instance, Ch, 2014 found that public sector banks, such as the SBI and Canara Bank, are leading with more green banking efforts than their private sector banks such as ICICI and HDFC. However, in more recent study by Agrawal & Sarin, 2025 have shown the opposite to be true. Public banks such as SBI provide more Inclusive Green Loans while private banks provide more Green Bonds and Sustainable Investment Products. A comparative study has shown that SBI has put forward more into developing innovative green projects than their regional competitors, such as Bangladesh Bank (Rahman *et al*., 2023). Although there is progress being made in the incorporation of sustainability into banking practices, banks continue to face numerous challenges, such as lack of awareness of sustainable business practices, lack of resources to implement sustainable practices, and regulatory restrictions (Agrawal & Sarin, 2025; Upadhyay & Kurmi, 2025).

Regulatory Role of RBI and SEBI in ESG Adoption

The Indian regulatory framework for ESG adoption has developed greatly as a result of various initiatives from the RBI and SEBI. As required by SEBI's new Business Responsibility and Sustainability Reporting (BRSR) framework based on the National Guidelines on Responsible Business Conduct principle, all publicly-listed companies in India are now mandated to adopt the BRSR framework to improve ESG-related reporting and transparency (Dayanandan *et al*., 2024; Sina & Vennila, 2025). However, many challenges still exist with regards to implementing these frameworks as only 28% of banks have completed the full transition to the Task Force on Climate-related Financial Disclosures (TCFD) standards; additionally, while after a period of consultation with the RBI many banking organizations have reported an increase in the overall volume of disclosures, the quality of reporting remains inconsistent (Sina & Vennila, 2025). With the global development of legal infrastructure that supports ESG frameworks, India is also contributing to this ongoing process through recent RBI and SEBI proposed rules (Gossain, 2023). While Indian regulations regarding corporate governance and responsibility continue to evolve so that they enable improved ESG practices, there remain many hurdles that must be overcome to fully realize all the desired goals of the regulations (Varottil, 2023).

Opportunities and Strategic Importance of ESG for Indian Banks

Research has shown disparate results concerning the strategic focus and financial influence of ESG in India's Finance Sector through an ESG integration framework. This is illustrated in the articles by Prasad & Mondal, 2025 who concluded how current-year ESG activities, in comparison to previous year's activities have a greater impact on the bank's financial results in the long run than previous year activities. Their findings indicate that private-sector banks are acting in a more proactive manner than public-sector banks. Conversely, Chipalkatti *et al*., 2025 states that research has not established a direct relationship between return on equity (ROE) and ESG Score within the Indian banking sector, suggesting that at this time, ESG integration has not positively affected the ROE. In addition to this, their research was able to establish evidence that indicated that public sector banks have exhibited practices of "greenwashing" because of earlier periods when they had lower profitability levels when compared to their more recently published financial results. In relation to governance and funding costs, the study by Chipalkatti *et al*., 2025established that increased governance scores reduce cost of capital for private banks, while the amount of social scores has a positive correlation to the amount of credit risks borne by the public sector banks. Thakur & Devi, 2025 find that there will be future research focusing on the evolution of ESG integration, moving from compliance to strategic objectives in banking in India. Their area of future research highlighted cooperative relationship between ESG and fintech firms in supporting digital transformation initiatives regarding sustainable banking practices.

Gaps in Existing Research and Future Directions

Although, there has been a lot of discussion in the literature on ESG and green finance, there have been few comparative studies of public and private owned Indian banks' ESG performance based upon ESG metrics and green finance disclosures. Most of the current literature discusses barriers to

the implementation and growth of green finance from a regulatory and institutional perspective but has not developed a common or comprehensive framework for the adoption of ESG and green finance by financial institutions. Although some of the barriers to public sector banks' implementation of green finance programs (i.e., initial cost, lack of knowledge and slow implementation) are well as there is a lack of actionable studies and solutions. Additionally, long-term evaluations of the impact (long-term economic or environmental benefits) of green finance programs are necessary. The purpose of this research is to fill these gaps by conducting a comparative analysis of public versus private sector banks in India, examining regulatory barriers, institutional responses and the integration and application of sustainability practices in banking operations to measure the effectiveness and viability of green finance practices over time.

1. Research Objectives

1. To evaluate how Indian Banks are implementing Green Finance Policies and Initiatives.
2. To evaluate how Indian Banks are incorporating ESG Factors into their Financial Operations.
3. To compare the Sustainability Performance of Public & Private Banks with regard to their Sustainability Initiatives and ESG Disclosures.
4. To identify the Key Challenges & Opportunities faced by Banks in Implementing Green Financing Strategies.

RESEARCH METHODOLOGY

1. Research Design

This Research will be a comparison and description of how banks across India are introducing ESG into their operations through Green Finance. This Research has used Secondary Data. This Research will also analyse how differently Private Sector Banks and Public Sector Banks do things with respect to Sustainability Strategies, Green Finance Instruments, Compliance with Regulation and ESG Performance.

2. Sample Selection and Selection Criteria

The study purposively selects different major Indian banks representing both the types of ownership structures- Public Sector Banks (PSBs) which are State Bank of India (SBI), Punjab National Bank (PNB), Canara Bank etc and Private Sector Banks (PVSBs)- HDFC Bank, ICICI Bank, Axis Bank etc.

These banks were selected based on their Market significance and asset size, ensuring sectoral representation on the basis of availability and consistency of ESG, sustainability and annual reports and active participation in green finance initiatives, such as green bonds, green deposits, renewable energy financing or EV loans.

3. Data Sources and Time Frame

Secondary data were collected from multiple credible sources to ensure reliability and triangulation including sustainability reports and ESG reports published by banks, annual reports, official disclosures on banks' websites, RBI and SEBI policy documents and circulars

The study covers recent time frame of 4 to 5 years, till 2024 highlighting initiatives taken by different banks in recent years allowing for an assessment of both recent ESG developments and emerging trends in green finance adoption.

ANALYSIS

1. Green Finance and Sustainability Performance

Green finance is now an important component of sustainable development particularly in the banking sector as its application allows for major shift in banking. By incorporating environmental, social and governance (ESG) into their decision-making, banks can take part in sustainability objectives. This shift enables banks to increase their sustainability practices while developing new ways to tackle environmental challenges, stabilize finances and respond to their societal expectations. It allows banks to invest and finance renewable energy, eco-friendly infrastructure and energy-efficient technology at the same time, while addressing issues such as resource depletion, climate change and deforestation. Investing in buildings, infrastructure, and other forms of capital that are reliable, resilient to extreme weather events/ hazards, and environmentally friendly reduces an

individual's or an organization's exposure to the risk of climate change-related financial losses. Additionally, investing in buildings, infrastructure, and other forms of capital that have been funded with the intent of protecting against extreme weather hazards enables better management of future extreme weather conditions such as floods, droughts, winds, wildfires, and more. Also, when banks participate in a climate-resilient project as a part of their overall portfolio of lending activities, banks promote environmentally sustainable practices and therefore, the development of ESG related financing products such as green bonds and ESG-linked loans, creates new revenue streams for banks and encourages innovation in banking services.

2. Regulatory Frameworks Supporting Green Finance

To support green financing, the Government of India has enacted policies, among them RBI and the SEBI encourage banks to integrate environmental sustainability into their operations. Through its Guidelines for Banks, the RBI requires banks to include an assessment of environmental risk as part of their credit evaluation process and ultimately to incorporate this risk into the operational strategy of the bank. The new requirement will enable banks to examine potential strategies for addressing climate-associated risks and vulnerabilities inherent in operating as a financial institution in different geographic areas or "ecosystems" throughout India. SEBI has established a Green Bond Framework that requires issuers of green bonds to disclose their use of proceeds in order to ensure that they are utilizing the funds to support investments in sustainable projects such as renewable energy and infrastructure. The emphasis on these policies adds to the existing link to regulations provided by the National Action Plan on Climate Change (NAPCC) and India's commitments as part of the Paris Agreement's aim towards low-carbon economies through ambitious emission reductions and promoting renewable energy. Indian banks are nowadays using sustainability frameworks internationally such as the Equator Principles and the Task Force on Climate-Related Financial Disclosures (TCFD) to further their efforts to mitigate risks from other ESG considerations and create pathways to attract funding from outside India with green finance which will inevitably link to meeting the objectives of the Government of India and monitoring disclosures.

3. A Detailed Analysis of Indian Banks

Green finance has emerged as a gamechanger for Indian banks. Every public and private sector bank have started taking green finance initiatives seriously. Almost every bank has experience in financing renewable energy projects, ranging from solar, wind and hydropower. This analysis focuses on the performance of both public sector banks and private sector banks. Through this analysis, we can confidently say that green finance has positively affected their financial performance and helped the banks to fulfil its sustainability ethos.

3.1 State Bank of India (SBI)

As a leader of green finance, SBI has made an important contribution in achieving India's sustainability targets. Between 2015 and 2020, SBI financed ₹81,600 crore in renewable energy, making it a star player in sustainable banking. SBI has launched several green finance products including biofuel financing, compressed biogas (CBG) plants under the SATAT scheme and Green Car Loan to reduce interest rates on loans to facilitate clean mobility. While SBI has financed solar rooftops, polyhouse farming and energy-efficient water pumps under PM Kusum Yojana to support sustainable agriculture, it also engaged in corporate social responsibility (CSR) including financing self-help groups (SHGs) mostly by women entrepreneurs to enable financial inclusion and entrepreneurship. SBI has also strengthened its ESG governance by integrating sustainability in its business. SBI has developed ESG tracking systems to calculate carbon emissions as well as to improve transparency in sustainability reporting.

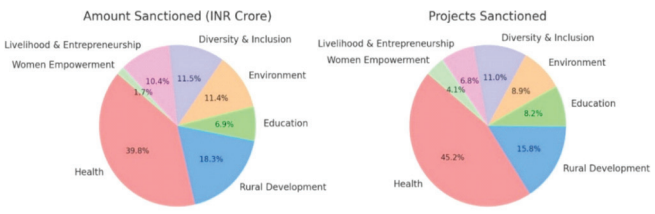


Figure 1: Amount and Number of Projects Sanctioned by SBI in FY24 (based on above table).

Table 1: Summary of Projects Sanctioned by SBI Foundation during FY24.

Theme	No. of Projects Sanctioned	Amount Sanctioned (in INR crore)
Health	66	114.72
Rural Development	23	52.86
Education	12	19.78
Environment	13	33.01
Diversity and inclusion	16	33.12
Livelihood and entrepreneurship	10	30.07
Women Empowerment	6	5.01
Total	**146 Projects**	**Rs. 288.57 Crores**

Source: Compiled data from Sustainability/CSR Reports of SBI

3.2 Axis Bank

Axis Bank was the first Indian bank to have certified green bond issuance in 2016 raising $500 million to fund projects in renewable energy and low-carbon infrastructure. Axis Bank continued to build on their current financing initiatives in solar, wind and hydroelectric power and continue to progress in helping India to transition to cleaner energy sources. In addition to funding renewable energy projects, Axis Bank instituted green deposits that allow customers to invest in environmentally sustainable projects. This bank also claimed to achieve carbon neutrality by 2030 and have recognized climate risk in composite reviews of risk, as factors for its credit assessment. In relation to their own operation's CO_2 emissions, Axis Bank has begun to measure its own CO_2 emissions in order to reduce it and to help support India's Net Zero 2070 target and goals in their financing strategy. The bank continues to develop their sustainable finance portfolio and in 2022 did so again by issuing a further $600 million sustainable bond demonstrating their repeated viability and commitment to their ESG Financing Framework. Overall, the bank is also promoting climatic-resilient agricultural practices, micro-financing sustainable agricultural products and green financing projects related to financing green buildings in our real estate arena sector. The bank has sought the assistance of outside companies such as the International Finance Corporation (IFC) as a partner in developing structured programs of green finance.

Axis Bank has made important progress in supporting the United Nations Sustainable Development Goals through a variety of initiatives and programs. The bank has provided extensive coverage for the government sponsored schemes under the "No Poverty" mandate. With Bharat Banking, Axis Bank reached 4.42 lakh customers under the Pradhan Mantri Suraksha Bima Yojana, 12.81 lakh customers under PM Jan Dhan Yojana, 1.42 lakh under PM Jeevan Jyoti Yojana, 16.86 lakh as sanctioned loans under the MUDRA scheme and 9.92 lakh to customers under the Atal Pension Yojana. By March 31, 2024, the bank had reached 1.7 million households. For "Zero Hunger", the bank implemented health awareness interventions through the Axis Sachetna Financial Literacy Programme and committed ₹100 crores over 5-years to the National Cancer Grid. Axis Bank impacted 0.8 million people in FY 2023-24. The bank supports "Quality Education" by helping Lyzon Friendship School in Manipur, Hummingbird School in Assam, and providing scholarships at Ashoka and Plaksha Universities for 700 students and 51 scholars. In support of "Industry, Innovation and Infrastructure", Axis Bank has ₹18,907 crores of wholesale lending into green elements, and ₹1,04,718 crores of SME advances, growing by 17% year on year. Efforts with "Sustainable cities and communities" is visible where they are providing affordable housing (Asha Home Loans), partnered in urban development, and support for clean transportation, containing a retail lending loan book of ₹13,030 crores with only 5.53% penetration of EVs in fiscal 2024. The Bank even provides targeted loans for fleets of electric vehicles, for the purposes of advancing India's transport and sustainability agenda.

3.3 Bank of Baroda

The Bank of Baroda has taken many challenges in order to integrate sustainability into its banking operations. For instance, in December 2022, the Bank of Baroda launched the second edition of its Green Ride Initiative together with Milind Soman—a eight-day bicycle ride that promotes green transportation and a lifestyle.

The bank has a strong track record of building sustainable infrastructure, with the BCC and BST buildings achieving the IGBC (Indian Green Building Council) rating of gold and silver for its green building standards. In March 2024, Bank of Baroda also launched the 'bob Earth' Green Term Deposit Scheme, which allows customers to invest money in environmentally friendly sustainable projects, while enjoying interest rates of up to 7.15% per annum. The bank has participated in a wide array of sustainability initiatives including the Swachhta Pakhwada campaign through organizing and participating in tree plantation drives, health check-up camps, as well as other programs promoting environmental awareness. The Bank of Baroda has continued to align its operations with India's climate goals by embedding green finance policies into business strategies throughout the business lifecycle.

3.4. Punjab National Bank (PNB)

PNB is committed to environmental sustainability employing different green finance initiatives. In July 2023, the bank-initiated Project PNB PALAASH, an eight-month-long sustainability campaign with objectives around energy conservation, reducing paper wastage, waste management, and being digitally efficient. PNB employees would commit to planting a minimum of two saplings each with the passion of planting trees as part of wider plantation activities. PNB also launched the PNB PALAASH Green Deposit Scheme, where customers can invest in fixed deposit with the exclusive purpose of financing the environmentally sustainable projects.

PNB received the Green Ribbon Champions Award in the category of "Green Banking Initiative of the Year" at the Green Ribbon Awards, held October 2024 for their commitment towards sustainable banking practices. The bank was also moving towards resourcing its carbon footprint to make commitments to the energy-efficient infrastructure i.e. through its carbon footprint towards more inclusive environment, assisting in making greenhouse gas footprint disclosures were part of a more developed ESG disclosures benefits per global clean sustainable environmental practices.

3.5 HDFC Bank

HDFC Bank is ambitiously aiming for carbon neutrality by the fiscal year 2031-32, in alignment with its commitment to green financing and ESG banking practices. HDFC Bank developed a Sustainable Finance Framework that will guide its lending to environmentally sustainable and socially responsible projects. In 2024, the bank raised $300 million by issuing its first sustainable finance bond, and it has used the proceeds to finance green loans, electric vehicles, and affordable housing initiatives. HDFC Bank promotes digital payments to lessen its use of paper and improve operational sustainability. The bank is also investing in AI-driven systems for tracking ESG metrics to enhance transparency in the bank's sustainability reporting.

3.6 Canara Bank

Canara Bank has taken a major step toward supporting the development of green finance in India by introducing several new green banking products and sustainability initiatives including the Canara Green Deposit Scheme, launched in March 2024. The new Canara Green Deposit Scheme is a term deposit scheme which allows both individual and corporate customers to deposit their money into an environmentally sustainable project and receive up to 7.10% interest for their deposits, while contributing their funds toward the development of green energy resources, environmentally sustainable and climate resilient projects and green financing. The Canara Green Wheels auto loan is another green banking product designed to offer flexible financing for clients purchasing electric vehicles, as well as to promote green transportation solutions. Canara Banks work on green finance initiatives reflects the bank's explicit commitment to environmental sustainability, climate change adaptation, and social inclusion. Canara Bank plans to continuously build on the banks ESG policies by incorporating climate risk assessments into their lending risk appetite and increasing their green finance portfolio.

3.7 ICICI Bank

ICICI Bank is making remarkable advances in its sustainable financing activities. The bank's green

financing portfolio reached ₹193.66 billion in March 2024, or 28.3% of its total loan book, which is quite impressive. The bank funds renewable energy projects, green certified real estate developments, and various waste management projects. The bank has also rolled out more than 126 green branches certified by the IGBC and raised greater employee awareness of sustainability practices by running training programs. In 2023, the bank developed a Sustainable Financing Framework to ensure all of its ESG-linked lending is conducted uniformly across all its operations.

3.8 YES Bank

YES Bank is leading the way in green bond issuances, and it was the first Indian bank to issue a green bond in 2015. The bank finances renewable energy projects, sustainability-linked loans and green home financing. Its Sustainable Finance Framework aligns with international ESG standards, ensuring continued leadership in sustainable banking.

3.9 Union Bank of India

UBI has undertaken various initiatives in respect of financing sustainable projects and minimizing its carbon footprint. To uphold its commitment to sustainability goals, UBI allocated ₹7,164 crore for renewable energy projects, as of March 2022, contributing to India's transition to a low-carbon economy. As an initiative to engage the public in the concept of sustainable banking. UBI has introduced the Union Green Deposit Scheme that allows the public to term deposit their money for environmentally friendly projects financed by UBI. Furthermore, UBI has established the Union Green Miles loan program to lend for electric and hybrid vehicles on attractive pricing and simple application terms. While the commitment in financing sustainability projects is well established, UBI has also joined the Partnership for Carbon Accounting Financials (PCAF), becoming the first bank in India to report its ESG thinking, along with other sustainable banking practices, in its annual report as a developed and responsible bank. Moreover, UBI has also supported various projects around IGBC certifications, in addition and on top of financing for green buildings.

3.10 IndusInd Bank

IndusInd Bank has set a goal of achieving carbon neutrality by the year 2032 and dedicated 3% of its total bank portfolio to green and climate finance. They established Green Fixed Deposits with the assurance that customer funds will be intrinsically linked to the United Nations Sustainable Development Goals (SDGs). The bank has also received LEED certifications for the green branches reflecting their commitment and progress to green infrastructure.

4. Key Observations from the Study on Banks and Green Finance Initiatives

4.1 Integration of Green Finance Across Indian Banks

The practice of integrating Green Finance into banking operations is gaining traction across both Public Sector and Private Sector Banks. In addition to establishing early initiatives around Green Finance, such as SBI and YES Banks' green finance programs, other banks are following suit with their own sustainability initiatives over time. While Public Banks appear to focus on Rural Sustainability (e.g., self-helping organizations, renewable energy for agriculture, etc.), Private Banks appear to be focused on developing Structured ESG Frameworks and creating Green Financial Products.

4.2 Diverse Green Finance Initiatives

Public sector banks including SBI, PNB, Canara and UBI are establishing green deposits and financing to support renewable energy sources, EVs and rural infrastructure. As for private sector banks like HDFC, ICICI, Axis and Kotak Mahindra they have started offering Green Bonds or Financing Frameworks, as well as developing Sustainable Finance Frameworks.

4.3 Carbon Neutrality and ESG Commitments

By 2031-32, HDFC Bank intends to achieve net-zero carbon emissions. While AXIS Bank plans to be net-zero by 2030. INDUS IND Bank wants to reach net-zero by 2032. A number of Banks are tracking their carbon footprint, including ICICI and SBI as they incorporate ESG into their lending and credit decisions.

Table 2: Overview of Green Initiatives taken by Indian Banks along with their sustainability goals.

Banks	Sectors	Year started	Year they started green initiatives	Sustainability goal
SBI	PUBLIC	1955	2015	Achieve 100% digital adoption for several services. Expand renewable energy financing.
Bank of Baroda	PUBLIC	1908	2022	Promote eco-friendly transportation and a green lifestyle.
Punjab National Bank	PUBLIC	1894	2023	Implement Project PNB PALAASH for cost-saving and resource conservation.
Canara Bank	PUBLIC	1906	2024	Foster green economy participation through Canara Green Deposit Scheme.
Union Bank of India	PUBLIC	1919	2022	Increase financing for renewable energy projects. Joined the Partnership for Carbon Accounting Financials (PCAF) for transparent carbon tracking.
HDFC Bank	PRIVATE	1994	2021	Achieve carbon neutrality by 2031-32. Increase funding for green projects via sustainable bonds.
ICICI Bank	PRIVATE	1994	2023	Expand its green financing portfolio (₹193.66 billion as of 2024).
Axis Bank	PRIVATE	1993	2016	Achieve carbon neutrality by 2030. Align investments with India's Net Zero 2070 goal.
Kotak Mahindra Bank	PRIVATE	2003	2017	Adopt renewable energy in operations. Obtain green building certifications.
Yes bank	PRIVATE	2004	2015	Promote renewable energy financing and sustainable investments.
IndusInd Bank	PRIVATE	1994	2021	Achieve carbon neutrality by 2032. Increase green and climate finance to 3% of its total portfolio.

Source: The information has been compiled from banks' Sustainability Reports, ESG disclosures, BRSR filings, annual reports, and official press releases for the period 2015–2024.

Table 3: Comparison between Public and Private Banks.

Basis	Public Banks	Private Banks
Focus	Rural sustainability, renewable energy financing	ESG investments, Green Bonds
Strengths	Wider rural reach	Strong regulatory alignment, more green finance products
ESG Integration	Slower ESG adoption	More structured and aligned with global standards
Investors Attraction	Moderate, mostly government backed projects	Higher, due to global ESG fund participation
Green bond issuance	Limited (SBI issued $650M)	Actively issuing (Axis $500M, HDFC $300M, YES Bank was the first issuer)

Source: Author's compilation based on Sustainability Reports, ESG disclosures, BRSR filings, RBI and SEBI publications, and Climate Bonds Initiative (CBI) reports.

4.4 Growing Popularity of Green Bonds and Deposits

Private banks (like Axis Bank, HDFC Bank and YES Bank) are leading the way in terms of financing through green bonds. Public Sector Banks (like SBI Green Deposits, PNB Palaash Green Deposit Scheme and Canara Green Deposits) tend to use deposits as a form of financing for green projects.

4.5 Sectoral Focus for Sustainable Development

For Agriculture, both SBI and PNB are providing credit for Solar Irrigation Systems and Polyhouse Farming. In the Transportation Sector, SBI, UBI and Canara Bank provide financing for Electric Vehicles. In the Health Sector, SBI is providing finance for Oxygen Plants and other medical infrastructure. Affordable Housing is being promoted through Green Home Loans by HDFC and SBI.

4.6 Government and Regulatory Support

The Reserve Bank of India (RBI) and the Securities Exchange Board of India (SEBI) have introduced their respective guidelines to facilitate the adoption of Green Finance by banks and promote them as alternative forms of financing. SEBIs Green Bond Framework and Priority Sector Lending for Renewable Energy have facilitated the alignment of banks with sustainable goals.

FINDINGS

Indian banks have made increasing green financing a key element of their corporate strategy with each type of bank implementing different methods to accomplish this goal. Although private sector banks (such as ICICI Bank) are the most advanced in integrating ESG into decision-making and offering green bonds, public sector banks have been key sources of financing for rural sustainability projects. The RBI and SEBI have facilitated the growth of green finance through regulations, but customer engagement continues to be low due to limited understanding of green finance opportunities. Green finance through banks that have established net zero commitments (such as HDFC Bank) will give them a competitive edge in the race to achieve India's Net Zero 2070. Other findings include that the development of fintech solutions will help simplify sustainability efforts, provide a mechanism for reducing the burden on banks for compliance, and improving the transparency of each company's ESG practices. In the end, the most successful banks will be those that increase their involvement with green finance and incorporate ESG into decision-making processes; thus, enhancing their status in the marketplace, creating trust from stakeholders and making positive contributions toward environmental protection and ensuring long-term profitability.

Challenges and Areas for Improvement

1) Absence or variation in banking institutions methodology or structure for reporting on sustainability creates a lack of standardisation. For example, green financing as defined by banks does not have a consistent or standardized definition across banks.
2) Many members of the public do not have knowledge regarding green deposits. Green deposit length of time for use have limited engagement & involvement. When banking institutions advertise and promote green deposits, this enables greater awareness and engagement on the consumer's part.
3) While most public banking institutions are well represented in the rural market, most public banking institutions had not adopted green financial products (i.e., Green deposit) until just recently because of their legacy non-performing assets and bureaucratic barriers. For example, while both Punjab National Bank and Canara Bank launched green deposit schemes in 2024, private banks such as Axis Bank and HDFC Bank have been issuing green bonds since 2016.
4) Investors require banking institutions to provide evidence that they fund projects with properly defined ESG characteristics; however, this can create a perception of the banking institution as lacking credibility in how they allocate funds for ESG projects. For example, in March 2023, investors questioned ICICI Bank's fiscal responsibility for the impact of their bonds because of the lack of transparency in the reports on ESG projects.
5) The creation of green financing projects entails considerable costs for reporting and monitoring impact as well as for third-party verification of the projects' sustainability. For example, HDFC Bank issued a sustainable finance bond (2024) that included required third-party verification, thereby increasing regulatory compliance and costs.

CONCLUSION

The present study thus highlighted the growing role of green finance in Indian banking systems and the different forms in which they're integrating sustainability within banks. There is significant overlap between the measures that both public and private sector banks are using as well. Public banks will use a green finance approach by focusing on rural sustainability, providing financing on renewable energy and looking at financial inclusion while private banks demonstrated

leadership in green finance by using structured ESG frameworks, developing their own green bond programs, and committing to carbon neutrality.

Future obstacles faced will include lack of ESG standards in reporting, people's awareness being poor, and public banks will be slower in adopting due to a bureaucracy toward sustainability as an agenda. However, it appears the market has turned, and green financing is institutionalized as a priority of the banks in India. The banks are now supporting projects to invest capital to the renewable energy sector, electric mobility market innovations, sustainable infrastructure developments and climate adaptation projects.

The future success of green finance will rest on continued policy support, collaboration between public sector and private sector and the consideration of using fintech solutions to streamline sustainability ambitions and action supported by credible and visible evidence. Thereby Indian banks can support the development of a resilient, sustainable, and climate-sensitive economy.

Implications for Further Studies

Although this study provides a comprehensive overview of the role of green finance in Indian banks, there are many other areas of research that will warrant further consideration. Future research can examine the long-term financial impact that green finance has on bank profitability, credit risk and capital adequacy across multiple periods of economic activity. This will include a comparative study between Indian banks and international banks to help identify useful best practices and regulatory frameworks that to which India can adopt to enhance sustainability performances. Also needed for further research is an examination of customer adoption and awareness about green banking products such as green home loans, electric vehicle financing, and ESG investment funds; this will give banks a level of understanding to better target products, marketing, and adoption of these products. Finally, further research needs to be done on technology (fintech, AI credit risk assessments, blockchain-based green bonds) to assess how technology can aid in enabling transparency, efficiency, and accountability in sustainable banking. Additional research in the above areas will provide financial institutions, regulators, and policymakers the tools needed to refine their strategies in this rapidly evolving field, which will ultimately lead to a better chance of long-term financial gains while simultaneously working towards sustainability and addressing the environmental crisis.

Limitations of the study

- Some banks do not disclose detailed ESG reports or financial allocations to green projects.
- While some banks (e.g., SBI, YES Bank, Axis Bank) have issued green bonds, specific details on total issuance remain limited.
- Lack of uniform ESG reporting across banks makes direct comparisons challenging.

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