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Role of Green Banking in Promoting Sustainable Development in India

Roshan Tople
Assistant Professor, Waghire College of Arts, Commerce and Science, Saswad.
Corresponding Author – Roshan Tople
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Abstract:

Green banking is an environmentally responsible approach that integrates sustainable practices into banking operations, policies, and financial services. It promotes digital banking, paperless transactions, and financing of eco-friendly projects to reduce environmental impact and support sustainable development. However, its implementation faces challenges such as high operational costs, credit risk, reputational risk, and initial investment requirements. The Reserve Bank of India (RBI) and the Government of India play a crucial role in promoting green banking through effective policies and financial incentives. This paper examines the key green banking initiatives, challenges, and recent developments in the Indian banking sector.

Keywords: Green Banking, Sustainable Development, Digital Banking, Green Finance, RBI, Indian Banking Sector.

Introduction:

Sustainable development has become an important concern due to climate change, environmental pollution, resource depletion and social challenges. The banking sector plays a significant role in sustainable development because banks mobilise savings and provide finance to businesses, individuals and infrastructure projects. Therefore, banking decisions can influence the environmental and economic development of a country.

Green banking refers to banking practices that reduce environmental impact and promote environmentally friendly activities. It includes paperless banking, digital services, renewable energy financing, green loans, energy-efficient projects, sustainable agriculture and waste management initiatives.

Green banking is particularly important for India, as the country needs economic growth while also protecting the environment. Banks can support this transition by financing green projects, encouraging sustainable businesses and considering environmental risks while providing loans.

The Reserve Bank of India (RBI) introduced the *Framework for Acceptance of Green Deposits* in 2023 to promote green finance, reduce greenwashing and increase the flow of funds towards eligible green activities. Recent studies have also indicated that green banking practices can improve environmental sustainability and encourage green finance in Indian banks.

Thus, green banking is an important financial approach that can help India achieve economic growth while protecting the environment and promoting sustainable development.

Concept of Green Banking:

Green banking refers to the incorporation of environmental considerations into the products, services, operations and decision-making processes of banks. It is also sometimes referred to as sustainable banking or environmentally responsible banking.

Green banking has two broad dimensions.

Internal Green Banking:

Internal green banking focuses on reducing the environmental impact of banking operations. Major practices include:

- Paperless banking and digital documentation
- Internet and mobile banking
- Electronic statements and communication
- Energy-efficient bank branches
- Renewable-energy-powered offices and ATMs
- Reduction in water and electricity consumption
- Responsible waste management
- Green procurement
- Sustainable employee and office practices

Digital banking can reduce the need for paper, physical documentation and repeated travel to bank branches. However, digitalisation should be considered a complementary component of green banking rather than its entire definition.

External Green Banking:

External green banking concerns the environmental impact of banks' financial decisions. It includes:

- Green loans
- Renewable-energy financing
- Green mortgages
- Sustainable agriculture finance
- Financing energy-efficient infrastructure
- Green bonds
- Green deposits
- Environmental risk assessment
- Sustainable investment
- Climate-related financial-risk management

This dimension is particularly important because the environmental impact associated with the projects financed by banks can be considerably greater than the direct environmental footprint of bank offices.

Sustainable Development and Green Banking:

Sustainable development involves achieving economic and social progress without undermining the ability of future generations to meet their needs. Green banking supports this objective by connecting financial decision-making with environmental sustainability.

The relationship can be understood through three dimensions.

1. **Environmental Sustainability:** Green banking can help reduce environmental degradation by financing renewable energy, energy-efficient technologies, sustainable transportation, waste management and environmentally responsible infrastructure.
2. **Economic Sustainability:** Financing green industries can support innovation, employment, new markets and long-term economic resilience. Banks can also reduce exposure to projects that may become financially vulnerable because of future climate regulation, technological changes or environmental risks.
3. **Social Sustainability:** Sustainable finance can contribute to inclusive development when green investments are directed towards areas such as clean energy access, sustainable agriculture, affordable green infrastructure and environmentally resilient communities. Thus, green banking can contribute simultaneously to environmental protection, economic development and social welfare.

Objectives of the Study:

The major objectives of this research are:

1. To examine the concept and significance of green banking in India.
2. To identify major green banking practices adopted by Indian banks.
3. To analyse the role of green banking in promoting sustainable development.
4. To examine the regulatory initiatives of RBI and SEBI related to sustainable finance.
5. To identify the major challenges faced by Indian banks in implementing green banking.
6. To suggest measures for strengthening green banking in India.

Research Methodology:

The present study is descriptive and analytical in nature.

The research is based largely on secondary data collected from:

- Reserve Bank of India publications and regulatory documents
- Securities and Exchange Board of India permits
- Academic journals and research papers
- Bank annual and sustainability reports
- Government publications
- Reports and publications relating to sustainable finance

The study reviews developments in Indian green banking and synthesises findings from recent academic literature. Particular attention is given to regulatory developments since 2023 and recent empirical studies examining the relationship between green banking and environmental or organisational performance.

The study does not undertake an original primary survey. Consequently, the conclusions should be interpreted as a literature-based and policy-oriented assessment rather than as a new econometric test.

Major Green Banking Practices in India:

Digital and Paperless Banking:

Digital banking is one of the most visible forms of green banking. Internet banking, mobile applications, electronic statements, digital documentation and online transactions can reduce paper consumption and some of the environmental costs associated with conventional branch based banking.

India's rapid expansion of digital payments has created an environment in which banks can provide many services without extensive physical documentation.

Renewable Energy Financing:

Banks can contribute directly to sustainable development by providing credit to solar, wind, small hydro and other renewable-energy projects.

Renewable-energy financing is important because access to capital is a major factor determining the speed at which clean-energy capacity can expand. RBI publications have recognised renewable-energy finance as an important component of sustainable finance and note that renewable-energy projects have been included within the Priority Sector Lending framework subject to applicable conditions.

Green Loans:

Green loans provide financing for activities that generate measurable environmental benefits. Examples include:

- Solar energy installations
- Energy-efficient buildings
- Electric mobility
- Waste-management projects
- Water conservation
- Clean technologies

Green lending allows banks to influence the environmental performance of the broader economy through their credit-allocation decisions.

Green Deposits:

The RBI's 2023 Framework for Acceptance of Green Deposits represents an important development in India's sustainable-finance ecosystem.

Under the framework, regulated entities that choose to accept green deposits are required to follow specified requirements regarding the use of funds and related disclosures. RBI states that green deposits are intended to help augment the flow of credit to green activities and projects and address risks of greenwashing.

The framework applies to specified scheduled commercial banks and deposit-taking NBFCs, subject to the applicability conditions prescribed by RBI. The RBI also clarifies that regulated entities are not compelled to raise green deposits; however, those choosing to do so must follow the framework.

Green Bonds:

Green bonds are debt instruments whose proceeds are intended for eligible environmentally beneficial projects.

SEBI has established disclosure requirements for green debt securities, including disclosure of environmental sustainability

objectives, the process for determining eligible projects and procedures for tracking deployment of proceeds.

Green bonds can therefore help mobilise long-term capital for environmentally sustainable infrastructure and projects.

Environmental Risk Assessment:

Banks increasingly need to consider environmental and climate-related risks while evaluating borrowers and projects.

A project affected by water scarcity, extreme weather, environmental regulation or technological transition may carry higher financial risk. Incorporating such risks into credit assessment can improve the long-term quality of bank portfolios.

ESG and Sustainability Reporting:

Environmental, Social and Governance considerations are becoming increasingly relevant to financial institutions. Sustainability reporting enables stakeholders to evaluate how banks manage environmental and social impacts.

SEBI has also developed ESG-related disclosure and assurance requirements for listed entities and securities markets, contributing to the wider sustainability-information ecosystem in India.

Role of Green Banking in Promoting Sustainable Development:

Mobilising Financial Resources for Green Projects:

One of the most important roles of banks is mobilisation and allocation of financial resources. Green banking directs part of these resources towards projects with positive environmental outcomes.

Instead of financing only conventional economic activities, banks can support renewable energy, clean transportation, sustainable infrastructure and resource-efficient technologies.

Supporting India's Renewable-Energy Transition:

India requires substantial investment to expand clean-energy capacity. Banks can support this transition through loans, project finance and other financial instruments. By increasing access to finance for renewable-energy enterprises, green banking can help accelerate the shift away from carbon-intensive sources of energy.

Reducing Carbon Emissions:

Green finance can indirectly reduce carbon emissions by supporting low-carbon technologies and environmentally sustainable projects.

For example, financing solar power, electric mobility and energy-efficient industrial equipment can reduce dependence on more carbon-intensive alternatives.

Promoting Resource Efficiency:

Green banking encourages businesses to invest in energy-efficient machinery, water-saving systems, waste-reduction technologies and sustainable production processes. This can reduce both environmental impacts and operating costs over the long term.

Encouraging Sustainable Business Behaviour:

Banks can influence borrowers through lending conditions and environmental due diligence. Businesses seeking finance may increasingly have incentives to improve environmental performance when environmental criteria become part of credit assessment. Thus, banks can act as indirect drivers of corporate sustainability.

Supporting Climate-Resilient Economic Growth:

Climate change can create physical and transition risks for businesses and financial institutions. Banks that incorporate climate considerations into risk management can become more resilient. RBI has emphasised the importance of disclosures, data, vulnerability analysis and regulatory and supervisory practices in addressing climate-related financial risks.

Contribution to Sustainable Development Goals:

Green banking can support several Sustainable Development Goals (SDGs), particularly:

- **SDG 7:** Affordable and Clean Energy
- **SDG 8:** Decent Work and Economic Growth

- **SDG 9:** Industry, Innovation and Infrastructure
- **SDG 11:** Sustainable Cities and Communities
- **SDG 12:** Responsible Consumption and Production
- **SDG 13:** Climate Action

Research comparing green banking initiatives in India and Bangladesh highlights the relevance of green finance to SDG 7 and SDG 13, particularly through financing environmentally sustainable activities.

Regulatory Framework for Green Banking in India:

The regulatory environment for sustainable finance in India has developed significantly.

Reserve Bank of India:

The RBI has progressively incorporated climate-related risks and sustainable finance into its regulatory agenda.

In April 2023, RBI introduced the Framework for Acceptance of Green Deposits. Its objectives include developing the green-finance ecosystem, protecting depositors' interests, addressing greenwashing and increasing the flow of credit towards green activities and projects.

RBI has also identified the need for stronger climate-related financial-risk disclosures and scenario analysis. Its publications emphasise the importance of integrating climate risks into governance, strategy and risk-management processes.

Securities and Exchange Board of India:

SEBI has developed disclosure requirements for green debt securities and has subsequently expanded its ESG-related regulatory framework.

Its requirements concerning green debt securities include information about environmental objectives, eligible projects, tracking of proceeds and relevant standards or taxonomies.

SEBI's more recent ESG-related measures have also addressed assurance or assessment and sustainability-related disclosures.

Sovereign Green Bonds:

India has also developed a sovereign green-bond market. RBI publications identify the Sovereign Green Bond framework, introduced in 2022, as an important part of India's sustainable-finance architecture.

The development of sovereign green bonds can contribute to market development by establishing a benchmark for green financial instruments and mobilising resources for eligible public-sector projects.

Empirical Evidence from Recent Studies

Recent research provides evidence that green banking can produce both environmental and organisational benefits.

Thapliyal et al. (2025), using data from 309 banking employees in Uttarakhand, found that green banking practices substantially improve banks' environmental performance and sources of green finance. The study also reported a mediating role for green finance in the relationship between green banking practices and environmental performance.

A 2025 study published in the *International Journal of Productivity and Performance Management* examined green banking, green finance and CSR in Indian banking institutions. Its findings indicated that green banking practices have a significant positive effect on environmental sustainability performance and also influence environmental performance indirectly through green finance and CSR.

More recently, Thapliyal and Gupta (2026) examined 385 employees from four Indian commercial banks and reported significant positive relationships between green banking practices, competitive advantage and organisational performance. The study reported a particularly strong association between green banking practices and competitive advantage.

These findings suggest that environmental responsibility does not necessarily conflict with banking-sector performance. Instead, green banking can potentially improve reputation, competitiveness, operational efficiency and long-term resilience.

Challenges in Implementing Green Banking in India:

Despite its potential, green banking faces several challenges.

Lack of Standardisation: Different financial institutions may use different definitions and criteria for green activities. Recent research has identified the lack of standardised sustainability policies and green-credit frameworks as an important institutional challenge in India.

Greenwashing: Greenwashing occurs when financial products or projects are presented as environmentally sustainable without adequate evidence of genuine environmental benefits.

The RBI's green-deposit framework specifically seeks to address greenwashing concerns through requirements relating to the use of proceeds, disclosures and external review.

High Initial Costs: Green technologies and environmentally sustainable infrastructure can require substantial initial investment. This can create difficulties for small businesses and households that lack adequate financial resources.

Limited Awareness: Many customers and businesses remain unfamiliar with green financial products. Lack of awareness can limit demand for green loans, green deposits and other sustainable financial instruments.

Measurement Difficulties: Measuring the environmental impact of financed projects is complex. Banks require reliable data on emissions, energy consumption, water use and other sustainability indicators.

Climate-Related Credit Risk:

Green projects can involve new technologies and business models with uncertain financial performance. Banks therefore need specialised expertise to assess both environmental and financial risks.

Limited Green-Finance Expertise: Successful green banking requires employees with knowledge of environmental assessment, climate science, sustainable technologies, ESG reporting and climate-risk management.

Digital Divide: Although digital banking can support green objectives, customers without reliable internet access, digital literacy or appropriate devices may not benefit equally from digital financial services.

Findings of the Study:

Based on the review of literature and policy developments, the major findings are:

1. Green banking is becoming an important component of sustainable finance in India.
2. Indian banks are adopting both internal and external green banking practices.
3. Digital and paperless banking can reduce the environmental footprint of routine banking operations.
4. Financing renewable energy and other environmentally beneficial projects provides a more direct contribution to sustainable development.
5. RBI's Green Deposit Framework has strengthened the institutional framework for green finance.
6. SEBI's requirements for green debt securities support greater transparency and accountability in green capital markets.
7. Recent empirical studies indicate positive relationships between green banking and environmental performance.
8. Green banking may also provide competitive and organisational benefits to banks.
9. Greenwashing, lack of standardisation, limited awareness and difficulties in measuring environmental impacts remain major obstacles.
10. Stronger taxonomies, disclosure standards, impact assessment and climate-risk management are necessary for the next phase of India's green-banking development.

Suggestions:

To strengthen green banking in India, the following measures are suggested:

Increase Customer Awareness: Banks should conduct awareness programmes explaining green loans, green deposits and sustainable investment products.

Develop Green Banking Skills: Banks should train employees in:

- Climate finance
- ESG
- Environmental risk assessment
- Green project evaluation
- Sustainability reporting

Improve Environmental Data: A reliable database on emissions, energy consumption and environmental performance should be developed to support lending decisions.

Encourage Green Credit: Banks should develop attractive financial products for renewable energy, electric vehicles, sustainable agriculture and energy-efficient technologies.

Strengthen Monitoring: Banks should regularly monitor the environmental performance of projects financed through green financial products.

Prevent Greenwashing: Independent verification, transparent reporting and impact assessment should be strengthened.

Promote Digital Banking: Banks should continue expanding paperless banking and digital services to reduce environmental impact.

Support Small and Medium Enterprises: Special green-finance products should be developed for MSMEs because smaller businesses may face difficulty in accessing finance for green technologies.

Encourage Public-Private Cooperation: Government agencies, RBI, banks, financial institutions and businesses should work together to develop India's green-finance ecosystem.

Conclusion:

Green banking has emerged as an important mechanism for integrating environmental sustainability into India's financial system. Because banks control a significant portion of the flow of financial resources within the economy, their lending and investment decisions can influence the environmental consequences of economic growth.

The role of green banking extends beyond paperless transactions and energy-efficient branches. Its more significant contribution lies in directing capital towards renewable energy, clean technologies, sustainable infrastructure and other environmentally beneficial activities. Through green loans, green deposits, green bonds, environmental risk assessment and ESG oriented practices, banks can contribute to India's transition towards a more sustainable economy.

The regulatory initiatives of the RBI and SEBI demonstrate that sustainable finance is becoming an increasingly important component of India's financial architecture. RBI's Green Deposit Framework, for example, seeks to mobilise resources for green activities while protecting depositors and reducing greenwashing risks.

At the same time, green banking should not be regarded as a complete solution to India's environmental challenges. Its effectiveness depends on the availability of credible environmental data, appropriate regulatory standards, sufficient green-finance capacity, customer awareness and effective monitoring of environmental outcomes.

Recent empirical research provides encouraging evidence that green banking practices can improve environmental performance and may also strengthen competitiveness and organisational performance.

Therefore, the future of green banking in India depends on moving from isolated green initiatives towards a comprehensive sustainable-finance ecosystem. A clear green taxonomy, stronger climate-risk management, transparent impact measurement, innovative green financial products and coordinated regulatory policies can enable Indian banks to become stronger partners in achieving sustainable development.

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