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A Study of Green Banking, Green Finance, and Green Investments in India: Promoting Eco-Friendly Sustainable Development

Dr. P.Govindan
Assistant Professor in Commerce, Department of commerce, KS Rangasamy College of Arts and Science (Autonomous), Tamil Nadu, India

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Abstract

This study looks at how green financing, green banking and green investments can help Indias economy grow while keeping the environment safe. The goal is to see how far India has come in using finance, green banking and green investments. It also tries to find out what helps and what stops these efforts. Indias green financing is compared to its climate goals. The study uses a mix of analysis and description to look at data from banks, international groups and policy reports. The findings show that green banking and green financing like bonds and renewable energy financing have helped sustainable development. This is especially true for energy and climate change adaptation. However, there are problems that need to be solved. These include rules that're hard to follow, financial issues, high costs and a limited financial market. To solve these problems India needs a financial and regulatory framework. New financial institutions, like a National Green Finance Institution are also needed for helping sustain development in Indian ecofriendly investments.

Keywords: Green Banking, Green Finance, Green Investments, Eco-Friendly, Sustainable Development, India, Climate Change, NITI Aayog, Clean Energy projects, Green Economy.

Introduction:

The banking industry greatly benefits from green banking. It is about taking environmentally friendly actions. Banks contribute to this by utilizing energy and paper for example. Additionally, they support environmentally friendly projects with financial contributions. These days some banks are considering how their choices will impact the community and the environment. This makes it easier for them to stay safe and take environmentally friendly actions. Banks are encouraged to be more ecologically friendly by government regulations. Green banking benefits the environment. It benefits the banks as well. A growing number of consumers prefer doing business with environmentally conscious banks. This implies that banks can expand and succeed over time with the aid of green banking. The importance of sustainability is being discussed by people all over the world. This is a result of resource depletion and environmental damage. India is a fast-growing nation. It must therefore discover a way to expand without endangering the environment. One way to ensure that money is being used in an environmentally friendly manner is through green finance. India has a chance to act in a way that benefits both the

environment and the economy. The future of our planet greatly depends on green banking and green finance. Green banking is the banking industry future. India will become a more sustainable nation as a result. Green banking will benefit both the environment and India. To ensure that India has a bright future the Indian banking industry must concentrate on banking. Everyone benefits from green banking including the banking industry and the environment.

Green Banking in India:

Money and services that benefit the environment are the focus of green finance. Bonds green loans and investment funds that prioritize society and the environment fall under this category. Green finance facilitates the funding of environmentally beneficial initiatives such as environmentally friendly farming practices and renewable energy sources. In India green finance is crucial because the country urbanization and growth are creating numerous environmental issues. India declared that it will abide by accords such as the Paris Agreement which has facilitated the expansion of green finance. By 2070 India aims to use renewable energy and achieve zero net emissions.

Green Investments in India

India needs a lot of money to accomplish all of this which presents a significant obstacle. To assist with funding the Indian government has created initiatives such as the Smart Cities Mission and the National Action Plan on Climate Change. Additionally the

Securities and Exchange Board of India and the Reserve Bank of India have established regulations to ensure that investors in environmentally friendly ventures are truthful. Despite all of these efforts issues persist. Not everyone can obtain the necessary funds to make investments and the regulations are not uniform.

Methodology:

This study aims to address the following questions: What are the main obstacles and opportunities and how well do green banking green finance and green investments contribute to Indias increased sustainability? This study examines data on Indian finance from the government banks international organizations and scholarly publications. In order to comprehend financial developments such as the quantity of green bonds issued and the amount of money invested in renewable energy the study employs both quantitative and qualitative methods. The study also evaluates Indias performance by comparing it to other nations.

Review of Literature:

The concepts underlying Indian finance have been examined by some scholars including Jangid J Bhardwaj B and Sharma D. Others such as Yadav M and Dahiya S have researched the potential benefits of innovation in finance. According to Nisamudheen and Shareef having policies that support the environment is crucial. Jangid J, Bhardwaj B, Sharma D (2025) examine the intellectual framework of Indian Green Finance. Yadav M, Dahiya S (2025) explore the relationship between innovation and green finance. Nisamudheen, P., Shareef, K.H (2026) emphasize the essential role of integrated policies in achieving sustainable development. Verma, A and Bansal, S (2026) note that green bonds have become a crucial method for raising funds for low-carbon and green initiatives. Rasoulinezhed et al (2022) indicate that the deployment of green energy goals related to energy and the environment. Palanisamy Manigandan et al (2025) argue that to support sustainable economic development, the government should invest in green projects. Kumari D et al (2026) discuss the climate management. Akomea-Frimpong et al (2022) consider the adoption, development, and provision of green finance.

Udeagha, M. C., & Muchapondwa, E. (2023) focus to create green finance products. Sethi L et al (2024) advocate for promoting green investments. Zheng, G et al (2021) highlight that green finance (GF) is receiving considerable attention. Kumar, B et al (2024) identify the potential future consequences of green financing for investments. Sreenu, N (2026) asserts that policymakers should prioritize digital financial inclusion and infrastructure development. Fu, C (2023) stresses the importance of incorporating social equity into green finance initiatives to help achieve sustainable development goals and foster a greener future. Muhammad Atif Nawaz et al (2021) discuss advancements in green financing and its impact on climate change. Hongda Liu et al (2022) recommend that policymakers create effective and energy system-friendly policies to facilitate green finance.

Dutta, A et al (2021) have noted that green investing has garnered significant attention in India recently. Bhatnagar, S., & Sharma, D. (2022) explained challenges green investment. Gajjar, Y. (2021) found that green investments have positive impacts on Indian economy. Sreenu N (2025) points out that green bond's impacts in environment. Katoch, R et al (2025) state initiatives for increase in green investments. Eyraud, L et al (2013) assert that economic growth, interest rates, and fuel prices significantly enhance green

investment. Basu, P (2009) argues that the expansion of forests in India can yield profitable carbon credits.

Sachdeva M et al (2025) provide valuable insights for investors, financial institutions, and regulatory bodies to create targeted strategies for boosting sustainable investments. Zhang, M., & Guo, M. (2024) indicate that green monetary policies and green loans facilitate the flow of investments into green energy resources. Bhatnagar CS et al (2023) analyze the preferences of investors between sin and green investments during a global health crisis. Kwilinski, A. (2024) explores new research opportunities concerning the relationship between green investment and green energy. Kumar. J, C.R., Majid, M.A(2020) emphasize that deploying renewable energy in India is essential for promoting economic development, enhancing energy security, improving energy access, and addressing climate change.

Kharb, R. et al. (2024) suggests to create technological innovation in environmental sustainability. Ghosh, P. et al. (2025) advocate for more environmentally responsible financial decisions. Sohail, M.T. (2023) recommends to promote Research and development activities in environment. Chițimiea, A. et al. (2021) suggest that green initiatives protect global warming. Mahesh, A., and Jasmin, K.S. (2013) promote a large-scale expansion of renewable technologies to build a sustained low-carbon economy. Wang, Y., and Xu, A. (2023) propose to create green finance and investment system.

Xu, Y. et al. (2025) state that climate finance and green energy reduce environmental degradation. Datta, T.K. et al. (2020) discuss a production-inventory system with a hybrid carbon regulation policy. Huo, C. et al. (2025) highlight that climate change and the rapid depletion of environmental resources pose critical threats to world economies. Luo, R., Ullah, S., and Ali, K. (2021) emphasize the adoption of renewable energy sources and the promotion of innovations for energy efficiency to reduce CO2 emissions in Asian economies. Indriastuti, M., and Chariri, A. (2021) discuss importances of green investments and CSR activities. Khalil, M.A. et al. (2023) advocate for green imitative activities protect environment.

Syed, A. A. (2025) explores green investments and development of economy. Dong K et al (2024) discuss the importance of achieving a balance between economic growth and sustainable development. Demirtaş, F et al (2025) note that as awareness of environmental issues increases, both companies and governments are compelled to reassess their environmental policies. Phan TC (2024) emphasizes sustainable business practices by establishing a connection green initiative. Li, X., & Tian, Q. (2024) assert that green investments positively influence enterprises, enhancing climate governance and encouraging companies to consciously meet their environmental responsibilities. Ganda, F. (2025) indicates that green initiatives have positive impacts on protecting environment. Singh, R., & Mishra, V. K. (2024) focus on managing inventory through the integration of green investment technology.

Aliedan, M. M et al (2023) provide education on the fundamentals of green investment. Javed, A et al (2025) aim to achieve ecological sustainability while adequately addressing the transformation of financial development towards sustainability. Haider, S., M et al (2026) work on enhancing the innovative environment while tackling credit market frictions to foster sustainable practices in corporations. Verma S et al (2021) evaluate the financial advantages of green building construction in developing nations. Ogbonna AE et

al (2022) examine how green investments in emerging countries respond to uncertainties in their own markets and the oil market. Ayaz F, Guo M (2026) present empirical findings that demonstrate a strong and statistically significant long-term negative correlation between carbon emissions and sustainable entrepreneurial practices, technological innovation, and green investment. Vaishali Singh et al (2025) emphasize that, given the rising environmental challenges, it is essential to incorporate sustainability into supply chain management to meet global environmental goals. Obaid Ullah et al (2025) analyse the evolving environmental impacts across various stages of development. Morri G et al (2024) examine environment governances' factors in green banking.

Yeow KE, Ng S (2021) suggest improving environment by way ecofriendly green bonds. Jadiyappa N, Krishnankutty R (2022) advocate for investing in ecofriendly technologies. Khah AM, Ahmad M (2025) emphasize adopting ecofriendly practices. Kirikkaleli D (2024) explores create environmental financial innovation in India Tasmeena Tahir et al. (2021) highlight the use of green technologies to enhance environmental quality. Mondal S., Sahu T.N. (2023) analyse corporate green initiatives performance. Katoch R., Peer U.A. (2025) examine green companies stock prices. Park H., Kim J.D. (2020) view green banking create new image for banking sectors.

Singh AB, Tandon P, Jasuja D. (2023) discuss the environmental financial inclusion. Bhatnagar S., Sharma D. (2022) support policy formulation to address challenges in green investments within renewable energy projects. Renju Chandran M.C. et al. (2025) argue that green banking is essential for sustainable finance but that its adoption varies significantly across markets, especially in emerging economies. Bansal S. et al. (2023) acknowledge green bonds as a powerful and useful financial strategy. Tolliver C. et al. (2021) identify green innovation and green finance as two key components of sustainable development. Yiyi Ning et al. (2023) demonstrate that green bond financing can successfully promote energy efficiency and green growth. Sreenu N. (2025) suggests that strengthening green baking system. Pant V., & Pathak P. (2023) discuss the potential for all stakeholders and how India can fulfill its international commitments to reduce greenhouse gas emissions. Sahoo P., Nayak B.P. (2007) focus on financing and green growth success. Gilchrist D et al (2021) suggested need to introduce green loan and green bonds. Liu N. et al. (2020) emphasize that green finance considers social responsibility and environmental protection as central to development.

Mir AA, Bhat AA (2022) examined green banking types and importance. Gidage M, Bhide S (2025) examine how sustainable banking practices influence environmental sustainability performance. Choubey A., & Sharma M. (2022) identify factors influencing green banking. Bukhari SAA et al. (2020) provide a framework or guideline for the banking industry and regulatory authorities to adopt green banking. Sharma R et al (2025) discuss the source of ecofriendly investments. Newton S et al. (2024) analyse the implementation of green banking. Jain A et al (2025) investigate the key factors influencing Indian customers' attitudes and behavioural intentions toward green banking. Goswami A (2024) explores green banking (GB) and sustainability. Jain A et al (2026) discussed green banking reduce cost of services. Kumar J et al (2024) examined green baking performance in developing countries. Murwadji T., & Imamulhadi (2018) discuss green banking models and their implementation. Chandran R et al. (2025) examine benefits of green baking.

The present review of literature regarding green banking, green finance, and green investments in India underscores their pivotal role in facilitating eco-friendly sustainable development and aiding the nation in achieving its long-term climate objectives, including the Net Zero target set for 2070. Research indicates that financial entities such as the RBI, SEBI, IRDAI and PFRDA are crucial in mobilizing climate finance. Nevertheless, existing studies reveal that these regulatory bodies frequently function in isolation, leading to disjointed policies, inconsistent disclosures, and inefficiencies in capital allocation. Academic research also emphasizes the necessity of unified frameworks, such as climate finance taxonomies and ESG disclosure standards, to promote transparency and mitigate regulatory arbitrage.

The literature points out that domestic financial sources, particularly banks and non-banking financial companies (NBFCs), predominantly drive climate finance flows, while substantial institutional investors, including insurance and pension funds, remain underutilized despite their considerable asset portfolios. Furthermore, studies highlight the urgent need to expand bankable green projects, as the scarcity of viable investment opportunities continues to be a significant barrier to scaling green investments. Despite these insights, notable research gaps remain. There is a lack of empirical studies evaluating the effectiveness of coordinated regulatory strategies in India. Additionally, there is insufficient attention given to sector-specific financing challenges in areas such as transport, industry, power, and buildings. Moreover, topics such as risk mitigation, blended finance mechanisms, and capacity-building among financial institutions necessitate further investigation. Consequently, future research should concentrate on integrated regulatory frameworks and innovative financial instruments to enhance India's green finance ecosystem.

Results and Discussions:

The research indicates a notable increase in green finance within India over the last ten years. The issuance of green bonds rose from about US$1.2 billion in 2013 to nearly US$21 billion in 2023, demonstrating enhanced investor confidence and regulatory backing. The capacity for renewable energy has grown swiftly, establishing India as a worldwide frontrunner in clean energy. Investments in solar, wind, and hydropower have played a crucial role in meeting non-fossil fuel energy objectives. Financial investments directed towards climate initiatives have also surged, reaching around US$57 billion per year in recent times. Domestic sources represent the largest share of climate finance, with banks and non-banking financial institutions contributing more than 50% of the total financial flows. Institutional investors, such as insurance and pension funds, possess considerable untapped potential, with their combined assets approaching US$1 trillion.

Green Finance India

The research also emphasizes the distribution patterns across various sectors. Clean energy attracts the largest portion of investments, followed by energy efficiency and sustainable transportation. Nevertheless, emerging technologies like green hydrogen and carbon capture receive minimal funding due to their associated higher risks. Despite advancements, a considerable financing gap persists. India needs around US$22.7 trillion to meet its net-zero target by 2070, with a projected shortfall of US$6.5 trillion based on current circumstances. The results of transformative capacity of finance in green initiatives fostering sustainable development in India. The swift expansion of green bonds and investments in renewable energy illustrates the success of policy support and regulatory frameworks. However, the research points out several significant challenges. Regulatory fragmentation among entities SEBI, RBI and government of reports are results in inconsistencies in data and disclosure standards. This hinders the comprehensive assessment of climate risks and opens avenues for regulatory arbitrage.

Green Banking, Green Finance, and Green Investments in India

The rising cost of capital remains a considerable challenge, particularly for emerging technologies. Compared to developed countries, investors in India demand higher returns for clean energy projects, which indicates the perceived risks and structural inefficiencies involved. The importance of MSMEs is notably significant economic growth, their limited access to finance and technology obstructs their transition to sustainable practices. Initiatives by organizations Indian banking have shown promise but require further expansion. The findings align with global studies that emphasize the need for blended finance, regulatory coherence, and institutional innovation. The proposed establishment of a National Green Finance Institution could be vital in addressing these challenges by providing risk mitigation and facilitating capital mobilization. The limitations of the study include reliance on secondary data and the absence of primary empirical analysis. Future research could incorporate case studies and quantitative modelling to provide deeper insights.

Conclusion:

This research concluded that key impacts on green banking, green finance and green investments for fostering sustainable development in India. Substantial progress has been made in the growth of renewable energy, the mobilization of green finance, and the improvement of policy frameworks. However, to achieve long-term climate goals, including reaching net-zero emissions by 2070, it is essential to address major challenges such as financing gaps, regulatory fragmentation, and limited access to capital for smaller businesses. A cohesive approach that encompasses regulatory alignment, enhanced financial infrastructure, and innovative financial instruments is vital. In future various research will be conducted on specific financial instruments and exploring new models for scaling sustainable investments. By strengthening its green finance ecosystem, India can not only meet its climate commitments but also establish itself as a global leader in sustainable development.

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