Mediating role of Green Finance in Transforming Banking Activities to Environmental Performance

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Abstract: *This study probes the impact of green banking initiatives on green financing and the influence of Private Commercial Banks on environmental performance in India. It scrutinizes the interplay between green banking activities and environmental performance with green financing acting as a catalyst. 1290 responses were gathered from PCBs (Private Commercial Banks) as primary data through snowball sampling technique and Smart-PLS software was utilized to examine the structural relationships among the variables, The study's empirical results indicate a positive and significant relationship between green banking activities and the environmental performance of PCB's are compared within India. Additionally, green financing was found to bridge the*

relationship between green banking activities and the bank's environmental performance. Further, the study found the expansion of green banking in India brings several benefits, including increasing banks' competitiveness, and reducing carbon footprints ultimately contributing to economic growth which is sustainable and results in the progress of the nation.

***Keywords**: Environmental Performance, Green Banking, Green Finance, Smart PLS, Sustainable Development.*

Introduction

The changing climate conditions, increased levels of pollution, and release of injurious gases, and chemicals by humans have caused negative impacts on the ecosystems through increased global warming. The last 20 years showed a substantial growth in the number of natural disasters like droughts, hurricanes, and sea-level rise that caused havoc on our ecosystem. Hence, the protection of the planet is of great importance (Nawaz *et al*., 2020). India being one of the most populated countries on the globe and an emerging nation with huge potential for investment and growth should be more proactive in protecting the environment (Bose *et al.*, 2020). Increased temperature, irregular weather patterns, and gain in global warming have led the country to think about various environmental sustainability projects (Zhixia *et al.*, 2018). Due to the adverse impacts of an increased global sea temperature on ecosystems and economic stability, India is often considered one of the countries to be suffering most from a changing climate (Uddin *et al*., 2019). These changes compelled the country to implement sustainable and forward-looking actions to prepare them for the environmental challenges. In this context, green banking has become one of the critical strategies that would make a financial policy and practice be equated with environmental sustainability. (Mir and Bhat, 2022). The practices of socially and environmentally responsible businesses are globally recognized as the standard of green banking. By integrating green banking, eco-friendly projects will be given priority for funding (Uddin *et al*., 2019).

'Green Banking' is a rapidly growing concept in India as banks strive to position themselves as sustainable and environmentally responsible institutions. Green banking is a worldwide initiative aimed at revolutionizing the banking sector by creating innovative and sustainable business models (Jeucken and Bouma, 1999). However, despite the growing attention to this subject, there is no precise definition or clarity on the activities and products that constitute green banking, such as green loans and green assets. This ambiguity poses a challenge in categorizing green assets and identifying green investment opportunities (Mir and Bhat, 2022).

Indian banks should proactively participate in the development of green banking in India (Mohd and Kaushal, 2018). Until now, the Reserve Bank of India (RBI) and the Indian government have taken some positive steps toward developing green rating agencies to evaluate green loans, funds, and other financial offerings, and also have laws and policies that foster green banking practices (Sharma and Choubey, 2021). The banking sector plays a vital role as an intermediary, promoting investments that are socially and environmentally responsible, to maintain harmony between economic and social progress, as well as environmental conservation. (Zhixia *et al*. 2018).

For sustaining future growth, banks must adopt long-term goals and execute green strategies and frameworks. India has integrated green banking into its broad range of sustainable development efforts by encouraging the design of green structures (Rahman *et al.,* 2023). Financial institutions have a vital role in the economy by providing funding for diverse operations, which can have significant effects on the overall economy and contribute to mitigating

environmental risks (Li and Gan, 2020). By adopting a "green policy" and supporting the adoption of clean technology among their clients, these institutions can significantly contribute to promoting a cleaner environment. Therefore, financial institutions must adopt a strategy on an extended period basis to mitigate the ecological impact of their users or plans in order. This aids in promoting sustainability, reducing costs, and fostering the growth of new businesses (Weber and ElAlfy, 2019).

The progress of Green Banking in India is confronted by challenges encountered by the banking sector during their daily operations. This prevents them from attaining economic growth that is sustainable (Sofat and Sharma, 2021). While considering the confronts and prospects of green banking in the country, major obstacles include reputational risk, diversification problems, startup issues, credit risks, and high operational costs (Jameaba, 2023). Another recent research done by Sharma and Choubey (2021) on "initiatives of green product development and green banking issues in the Indian banking industry", found that customers and bank employees are ignorant of "green banking products", leading to barriers like identifying target markets, securing funding, and overcoming key barriers. Moreover, Murugan (2021) found few significant blockades to the acceptance of green initiatives by banks, comprising decreased customer confidence in green products and services, resistance to adopting new technologies and methods, inadequate comprehension of Green Banking products and technologies, insufficient training, and education of banking personnel on Green Banking practices, high initial implementation costs, and technical barriers. Even though, those who are well educated and good in technological advancements seem to fear adopting green initiatives of banks (Mir and Bhat, 2022).

In a nutshell, the various barriers that the Indian banking sector has in growing green banking include reputational risk, diversification concerns, start-up problems, credit risk, high operational cost, and lack of staff education and knowledge about green banking operations. These barriers are holding back the progress of green banking in a growing nation like India, where the necessity of sustainable economic development is highlighted. Green banking refers to a model of banking working in places favorable to the environment and serves as a way to boost environmental sustainability and conservation (Ling et al., 2020).

The above review of literature has brought to the forefront several research areas to be looked into, which include the establishment of the connection related to green banking activities and the funding sources with the environmental performance of the bank. It also examines how green financing acts as an intermediary between green banking practices and the environmental performance of the banks. The study also attempts to examine major benefits and barriers related to the adoption of green banking practices according to commercial banks in India.

Review of Literature and Theoretical Framework

Green Banking

Green Banking is one of the most significant areas that deals with meeting the policies of the environment and the practices of financial institutions toward achievement, both socially and economically (Yadav and Pathak, 2014). The term "Green Banking" was first coined by Triodos Bank, a Dutch bank in 1980, and it was implemented in Florida in the year 2009. The SBI, being the biggest commercial bank in India, actively indulged in establishing and executing a better level of sustainability practice and started the process of "Green Banking". Taking the primary step was SBI, which launched a wind farm project in Coimbatore in the year 2015 (Suresh and Bhavna, 2015). Green Banking, according to H. et al., 2020, is the practice of banks playing a responsible role in society by considering mutual inner and outer environmental sustainability aspects. The fundamental push at the heart of any business, therefore, remains the profit motive, which has so far been an ever-

consistent agent of change and that has propounded the ideals of speedy innovation and motivation (Bose *et al.*, 2017). By adopting green practices, banks can remain competitive and sustainable while differentiating themselves from their competitors (Rajput *et al*., 2013). According to a study by (Barhate and Tamboli, 2016), green banking also encourages the use of ATMs and other digital or electronic mediums to conduct financial operations. Green banking in India holds a promising future for both banks and their clients as it promotes the adoption of sustainable economic development principles. In the words of Bang *et al.*, (2023), "Banking technology plays a significant role in green banking innovation and the economy.". Therefore, it can be said that proper implementation of green banking can provide a mutually beneficial environment for banks, industries, and the economy, ultimately resulting in a prosperous future (Nitin and Jayadatta, 2017).

Green Banking Programmes in India

The concept of 'green banking' can potentially provide a competitive edge to the banking industry by influencing their strategic decision-making process, as the industry has a substantial role in economic growth (Dipika, 2018). Indian banks have been noticing a rising trend towards green banking practices over recent years and have consequently made significant changes to their operational strategies (Kapoor, *et al.,* 2016). The Indian banking industry has successfully adapted to the evolving landscape, overcoming numerous hurdles which include shifts in customer preferences, technological advancements, and regulatory reforms. In India, 'Green Banking' is a recent phenomenon, and several banks have started taking steps towards implementing green banking policies. For instance, the State Bank of India, which was the first green bank in India, and the Punjab National Bank have adopted measures to minimize emissions and energy consumption (Kumar and Prakash, 2019). Ultimately, Green Banking is a futuristic and innovative approach that promotes long-term sustainability and can provide significant benefits to the banking industry and the economy (Rahman *et al.,* 2023).

Green Finance

Green finance comprises financial products, investments, and policies that facilitate sustainable development, endorse environmentally conscious initiatives, and cultivate a more regenerative or sustainable economy. (Mohd and Kaushal, 2018). The concept of green finance extends beyond investments as it encompasses a wider scope of elements (Huang *et al.*, 2023). Green finance in the banking sector means sorting out financial products and services that keep environmental sustainability in mind during the lending process, as well as in risk management and post-monitoring activities. However, the objective is to promote low-carbon technologies, environmentally responsible investments, and sustainable industries and businesses (Cheung and Hong, 2020). The main objective of green finance is to increase financial flows from all sources that lead to the realization of long-term Sustainable Development Goals. The three essentials are better management of environmental and social risks, seizing opportunities that bring promising returns with environmental benefits, and increasing accountability (Sachs, 2020). Green finance supports green growth, reducing greenhouse gas emissions and air pollutant emissions (Chowdhury *et al*., 2013). According to the World Bank and European Union Commission on Green Finance, several initiatives merged environmental, social, and governance criteria into investment policies within the financial industry. In the words of Hooda and Yadav, (2023), in moving to a low-carbon economy and sustainable development green finance plays a major role. By doing so, it encourages more sustainable economic activities and projects that lead to long-term investments. This movement is now being driven by asset managers, institutional investors, and regulators worldwide (Wang *et al.*, 2022). Therefore, this study defines green finance as funding environmentally aware

projects, not limited to energy efficacy, recyclable products, renewable energy, subsequent energy and waste management techniques, and green industry development projects that are successful in actuality. The ultimate objective is to foster sustainable business practices (Desalegn and Tangl, 2022).

Environmental Performance

The term Environmental Performance (EP) refers to the commitment of an organization to the sustainability and protection of the natural environment, involving water, air, soil quality, and other multi-dimensional aspects (Lober, 1996). The very term 'Environmental Performance' involves the impacts of the operations and products or services of an organization on the environment including resource consumption, waste, and emission of greenhouse gases (Ilinitch *et al.*, 1998). A business's environmental performance is based on the impact its strategic activities have on the natural environment (Walls *et al.*, 2011). Due to the demand for environmental performance information, vast numbers of measures have been developed by regulatory organizations, watchdog organizations, businesses, business press, and businesses themselves to capture different dimensions of environmental performance (Correia, 2019). This has made the organizations, businesses, and countries for that matter, where these banks operate adapt to sustainable activities or practices. A recent study by Aslam and Jawaid (2022) proved the fact that Green Banking and Green Finance both have a significant impact on banks' operational, environmental, and financial performance in a positive way. In this light, the continuous endeavor by a bank to minimize both energy and carbon footprints during operations and create a culture of training and guidance among employees for paper conservation and saving energy becomes highly important in improving environmental performance. Such measures have significant importance in promoting sustainable development in the long run. (Xie *et al.*, 2020).

Resource-Based View Theory

In this era of competition in the banking sector, RBV may help in analyzing a broad range of resources along with how the capabilities can create such a highly intense environment in the banking industry. This theory came into light by Birger Wernerfelt in 1984 (Wernerfelt, 1984) whereas later, it was refined and developed by Jay B. Barney in 1991 (Barney, 1991). The RBV theory asserts that organizational competitive advantage over rivals is derived from the efficient use and deployment of inimitable and valuable resources (Zahra, 2021). In this Indian banking industry context, green finance can be perceived as a critical resource that goes on to allocate funds to sustainable projects or eco-friendly initiatives (Rahman et al., 2023). This includes the practice of embedding green finance mechanisms into banking operations, thus making the sector evolve to become a novel asset that defines the whole resource portfolio of an institution and enhances its competitive advantage in the long term (Abuatwan, 2023). It is, therefore, presumed by this theory that through the strategic use of green finance, banks would contribute not only to the environmental sustainability of a country but also be seen as environmentally friendly, thereby further increasing its resource-based competitive strength in the dynamic financial landscape (Tashtamirov, 2023). Concretely, the current study pays attention to the integration of Green Banking practices and the availability of Green Financing alternatives as two critical resources that affect the overall environmental performance of banks. In this context, Green Banking practices and their sources of Green Financing are considered two important resources that can be used by the banks to gain a new competitive advantage. The theoretical conceptual framework is depicted in fig.1.

Research Gap

Much research has been carried out in recent years to investigate the progress of green banking as well as green financing. The corresponding benefits and challenges at the global level were also studied (Mir and Bhat, 2022). However, most of these studies have concentrated on the execution of Green Banking methods (Asim Ali

Bukhari *et al.*, 2019), the development of GB activities in the Indian economy (Tara *et al.*, 2015), challenges and benefits of GB (Chandran and Sathiyabama, 2022), implementation and environmental sustainability of GB (Zheng *et al*., 2021), and sustainable banking (Rout and Sahoo, 2021). There isn't much research that has investigated how success in the Indian banking sector and green banking practices are related in India (Mir and Bhat, 2022). Nonetheless, there is a dearth of research in the current literature that investigates how these practices impact the performance of banks related to the Indian environment, specifically by the mediating role of green financing. Therefore, it is imperative to conduct a comprehensive investigation and analysis of this issue in India.

Objective of the Study

Based on the above literature, the following research objective has been framed.

- "To ascertain how Green Finance influences as a mediating role on Green Banking Activities and Environmental Performance of Private Commercial Banks in the Indian context".

Research Hypothesis

Promoting a sustainable environment can be achieved by encouraging green banking practices at a policy level, which involves backing green projects through funding. This approach is beneficial to both individual businesses and the industry. The practices such as minimizing the use of paper, fuel consumption, and carbon emissions make the banks in reducing practices that are adversely affecting the environment but promoting environmental benefits (Wang *et al.,* 2022). On the other hand, green finance is a contemporary finance trend that focuses on environmental improvement as the genesis of creating social and economic benefits. The emphasis placed on social responsibility and the preservation of the environment makes it an agent for sustainable economic development. Moreover, green financing for green banking activities can help to lower banks' internal and external carbon footprint (Xu and Gao, 2022).

On the same note, green finance also seeks to encourage a harmonious way of economic development, ecological safety, environmental stability, and sustainable growth of the economy. While a business practice and its products could be an indication of the environmental performance of a company, the best way that green efficiency can be determined is through effective material utilization (Tung, et al., 2014). The environmental performance aspect involves the carrying out of activities that will guarantee the conservation of natural resources with a long-term production result within good business (Zhou, et al., 2020). Some of the well-used indexes, rankings, and scores on the environment to assess the impact a company has on the environment include the intensity of emissions. Therefore, the objective of green finance is to achieve a harmonious balance among economic development, environmental sustainability, and ecological protection for the sustainable economic development of a country (Kumar et al., 2023). Hence, it can be summarized that the roles of Green Banking practices are essential in enhancing bank's green financing and environmental performance, which would ultimately lead to sustainable economic development of the country (Zhu *et al.*, 2020).

Green finance, according to Zheng et al. (2021), must assume a very important role for PCBs in India; there are four sources of green financing recognized by them based on their views. Initiatives include investment in waste minimization, green establishments, green or environment-friendly brick manufacturing, and reprocessing of reusable material, and products thereby rendering better performance by banks and sustainable economic development keeping environmental concerns at the core. In another study by Rahman et al., (2023), they also confirmed a positive relation between green banking practices and bank's green financing. GB practices help to reduce activities that negatively impact the environment in various ways, such as saving paper, energy, and funding green projects, cutting down the usage of fuels, and reducing carbon emissions. The other most

important ways in which banks enhance their GB practices include training their staff on environmental issues, creating green buildings, financing green projects, and using solar and wind power to the best. In a study to establish the factors that influence banks' environmental performance, Miah et al., (2018) found out that the credit rating score relates positively to banks' environmental performance. The tenure of the bank does not have any significant effect. Sharmila and Arulrajah (2017) conducted a research paper on the impact of green banking practices on the environmental performance of banks in Sri Lanka. They concluded that the results showed remarkable improvement and a positive effect on the environmental performance of the banks. Besides, the environmental performance of the banks was determined by day-to-day activities and staff involvement concerning the environment, policies, and practices.

Another study conducted by (Jain and Sharma, 2023), stated that green initiatives integrated by banking institutions helped develop the bank's environmental performance. Environmental training for employees, energy-efficient practices, green financing, green projects, and green policies are the various green banking activities that positively influence the bank's environmental performance.

The conceptual perspective of the Resource Based View stresses that competitive advantage is achieved through the possession and deployment of valuable, rare, and inimitable resources. In the present context of research, the adoption of Green Banking practices, sources of Green Financing, and the overall environmental performance of banks are considered key resources. Having all of that information, it can be deduced that Green Banking Activities are the independent variable, sources of Green Financing are the mediating variable, and the Bank's Environmental Performance is the dependent variable. Therefore, this current research is of high significance among the available literature because it seeks to establish the link between green financing and its role in mediating the relationship between Green Banking activities and the Environmental Performance of Banks in a developing economy like India.

Consequently, the following research hypotheses have been formulated based on a thorough review of the relevant prior studies in connection with the theoretical background base of Resource Based View theory (Birger, 1984; Barney, 1991). Green Banking practices, such as integrating eco-friendly technologies or sustainable business processes, can be examined as valuable and possibly rare resources (S. Pawar and Munuswamy, 2022). Banks that successfully implement these practices may find that they have a competitive advantage over rivals in terms of improved environmental performance since these practices contribute them a distinct set of capabilities (Farida and Setiawan, 2022). Accordingly, the following hypothesis is formed.

H1: The adoption of Green Banking practices positively affects the environmental performance of banks.

Green banking implementation is the act of acquiring and allocating resources that strategically ensure environmentally friendly business operations while also assuring sustainable finance (Zhang et al., 2022). If resource management is done effectively, this may enhance the bank's ability to access and utilize green finance options, which would give it a competitive advantage with a unique resource bundle (Park and Kim, 2020). Based on these points, the following hypothesis has been formulated:

H2: The implementation of GB practices has a considerable impact on the accessibility and utilization of green financing options.

Diverse sources of green finances are valuable resources that improve a bank's general resource portfolio, according to Fu et al. (2023). Through this, the bank can enrich the availability and utilization of these resources, thereby enhancing environmental performance and creating a connection between improved performance and green finances.

H3: The application and accessibility of green financing sources have a positive impact on the environmental performance of banks.

The effective use of green financing mechanisms is one way to see how green banking practices provide significant value and impact (Chen *et al.*, 2022). A competitive advantage is fostered by the interplay between different resources, including green financing systems and green banking practices, which in turn influences the overall bank's environmental performance (Ashraf, 2023). Thus, the following hypotheses are derived.

H4: The association between green banking practices and the environmental performance of banks is significantly influenced by the presence and effective use of green financing mechanisms.

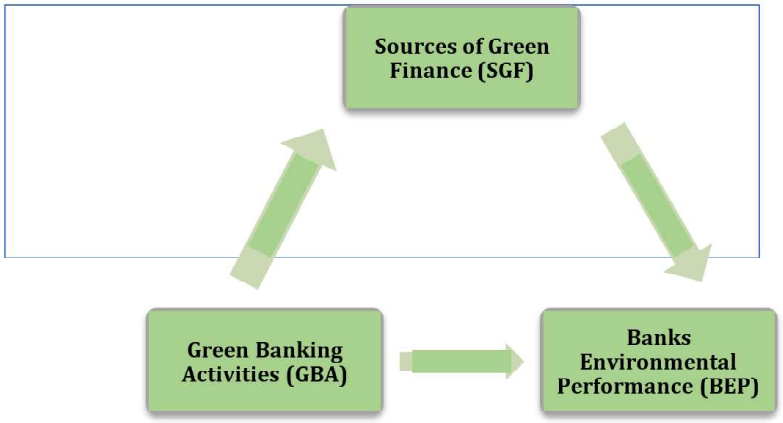

Figure 1: Conceptual – Theoretical Framework

Research Methodology

The study was conducted among 1290 bank employees of selected Private Commercial Banks. A quantitative research study was conducted to evaluate our models. The primary aim of the study was to determine the impact of Green Banking initiatives on the ecological efficiency of financial institutions. A structured questionnaire was formulated based on the previous scales and studies conducted on the above-said area. To achieve this goal, both online and offline voluntarily and confidentially. The questionnaire was aimed at employees of PCBs and those using banking transactions both online and offline mode. Online data was collected through Google Forms and offline data was collected with the help of bankers. The data was collected using a snowball sampling technique. Cochran's formula was used to calculate the sample size and the results stated that 1033 samples were adequate for study. Out of 1600 questionnaires distributed we received 1354 responses. After discarding the incomplete and duplicate responses, 1290 samples were chosen for the study which indicates a response of 80.62%.

For assessing and verifying the proposed theoretical models, PLS-SEM, (Partial Least Squares structural equation modeling) was utilized to estimate the parameters and conduct tests. (Sarstedt and Cheah, 2019; Ringle, C. M, *et al*., (2022).

Analysis and Results

Table 1 illustrates the outcomes of the demographic survey. The results indicate that 48% of the participants were male, while 52% were female. Furthermore, 57.9% had graduated, 28.9% had a master's degree or post-graduation,

5.8% held a PhD, and 7.4% had a professional degree. Nearly 20.5% have a work experience of less than 1 year, 12.7% have a work experience of 1 to 2 years, 15.6% have experience of 2 – 3 years, and 16.6% have an experience between 3 – 5 years. 34.6% of the respondents have experience above 5 years. 38.8% of the employees are private employees, 28.9% are Government servants, 15.9% are working in a public limited company, 4.9% are doing business and 4.9% are self-employed.

Table 1: Socio-Economic Data of Respondents

Variables	Classifications	No. of Respondents	%
Sex	Men	619	48
	Women	671	52
Education	Bachelors	747	57.9
	Masters	373	28.9
	PhD	75	5.8
	Professional	95	7.4
Experience	Less than 1 Year	264	20.5
	1 to 2 years	164	12.7
	2 - 3 years	201	15.6
	3 - 5 years	214	16.6
	Above 5 years	446	34.6
Profession	Private Employee	501	38.8
	Government Servant	373	28.9
	Public Ltd. Company	205	15.9
	Business	63	4.9
	Self-Employment	89	6.9
	Others	59	4.6

Note: N=1290, **Source:** Field Survey

Survey Instrument

Based on the literature survey, researchers identified three main variables: namely, Sources of green financing, the Bank's environmental performance, and Green Banking activities. The initial survey included 14 variables, consisting of 7 items related to Green Banking activities, 3 items related to the Bank's environmental performance, and 4 items related to Sources of green financing. The Likert scale employed in the questionnaire consisted of five points, ranging from Strongly Agree to Strongly Disagree.

Model Measurement

During the evaluation of the measurement model, items GBA2, GBA4, GBA6, and BEP3 were eliminated due to low outer loadings. The list of variables selected along with their code is given in Table 2. All remaining observed variables had an outer loading above 0.5, which is deemed significant according to (Hulland, 1999), and all loadings were above 0.7, indicating well-defined variables with satisfactory reliability. Cronbach's alpha values were measured to assess the one-dimensionality and reliability of the scale of items, and values above 0.7 were considered reliable. Here all values are greater than 0.7 (Nunnally, 1978). The composite reliability (CR) of the scale was evaluated to test its internal consistency. The reliability of indicators was measured using CR, with possible values ranging from 0 to 1. Adequate consistency is indicated when CR > 0.7, according to (Gefen, Straub, and Boudreau,

2000). In this study, all values exceeded 0.7, indicating good consistency. The convergent reliability of the scale was evaluated using the Average Variance Extracted (AVE) method, which measures the proportion of variance explained in the factor analysis. AVE values range from 0 to 1, and values greater than 0.5 are considered acceptable, according to (Bagozzi and Yi, 1988). Table 3 below shows that all AVE values exceeded 0.5. The study used Variance Inflation Factor (VIF) to check multicollinearity and VIF less than 5 implies no multicollinearity. In our study the VIF ranges from 1.349 to 2.503 which is less than 5 hence there is no collinearity between variables.

Table 2: List of Selected Variables

Code	Variables	References
GBA1	- Banks use energy-efficient Systems and methods.	Risal, N. and Joshi, S.K. (2018), Zheng *et al* (2021)
GBA3	- Banks focus on eco-friendly loans for various projects.	
GBA 5	- Establishes greener bank branches	
GBA 7	- Banks try their maximum not to allow customers to visit branches to conduct transactions.	
SGF 1	- The bank invested more in the renewable energy sector.	Akter,*et al* (2018), Zheng *et al* (2021)
SGF 2	- Invested more in energy efficiency projects.	
SGF 3	- The bank has invested more in recyclable products.	
SGF 4	- Bank focused on waste management and eco-friendly projects.	
BEP 1	-The bank's environmental performance reduces energy consumption.	(Shaumya and Arulrajah, 2017), Nithya Kala, Vidyakala and S, J. (2020).
BEP 2	- Reducing Carbon emissions in the atmosphere.	

Source: Secondary Data

Table 3: Factor loadings, Validity, reliability constructs, and multicollinearity

Code	Loadings	Cronbach's alpha	Composite reliability	Average Variance Extracted (AVE)	Variance Inflation factor (VIF)
BEP1	0.907	0.740	0.884	0.793	1.569
BEP2	0.873				1.569
GBA1	0.722	0.768	0.852	0.591	1.391
GBA3	0.796				1.708
GBA5	0.846				1.828
GBA7	0.701				1.349
SGF1	0.812	0.876	0.915	0.730	1.891
SGF2	0.862				2.347
SGF3	0.862				2.169
SGF4	0.880				2.503

Source: Field survey

Table 4 depicts the discriminant validity and values in bold indicate the square root of AVE which is shown diagonally. The root of AVE should be greater than all other correlation constructs and it's satisfied. The discriminant validity was also observed by using the HTMT values (Table 5) and values below 0.9 proving discriminant validity (Henseler *et al.,* 2015). Hence all values are less than 0.9 hence the scale is valid.

Table 4: Discriminant validity (Fornell – Larcker criterion)

Variables	BEP	GBA	SGF
BEP	**0.890**		
GBA	0.692	**0.769**	
SGF	0.784	0.721	**0.854**

Source: Field survey

Table 5: Discriminant validity (HTMT)

Variables	BEP	GBA	SGF
BEP	-		
GBA	0.732	-	
SGF	0.824	0.761	-

Source: Field survey

Hypothesis testing

The structural equation modelling was tested using a bootstrapping model and the test results are given in Table 6 below. Both direct and indirect relationships were tested. The results indicate that all the relationships were positive, implying that an increase in one variable would increase the other (where $0 < \beta < 1$). The first hypothesis test results state that green banking activities (GBA) have a significant influence on the Bank's Environmental Performance (BEP) ($\beta = 0.264$, t value = 2.939, p-value <0.001) hence the hypothesis is supported. H2 test results also show a positive significant relationship between green banking activities (GBA) and have significant influence on the Source of Green financing (SGF) ($\beta = 0.721$, t value = 15.295, p value <0.001) hence hypothesis is supported. H3 test results state that the Source of Green financing (SGF) has a significant influence on the Bank's Environmental Performance (BEP) ($\beta = 0.594$, t value = 7.009, p-value <0.001) hence hypothesis is supported. Henceforth all the hypotheses were supported.

Table 6: Direct relationships

Hypothesis	Beta coefficient (β)	Std Deviation	T	P value	Results
H1 - GBA -> BEP	0.264	0.09	2.939	0.000*	Supported
H2 - GBA -> SGF	0.721	0.047	15.295	0.000*	Supported
H3 - SGF -> BEP	0.594	0.085	7.009	0.000*	Supported

Source: Field survey

To examine the mediating role, indirect effects were analysed between Green Banking Activities (GBA) and the Bank's Environmental Performance (BEP) while taking the Source of Green Financing (SGF) as a mediator. The findings of the analysis indicate that there is a significant positive indirect effect that is mediated by SGF ($\beta = 0.428$, t value = 6.116, p value <0.001). Therefore, the hypothesis is supported (Table 7).

Table 7: Indirect relationships

Hypothesis	Beta coefficient (β)	Std Deviation	T	P value	Results
H4 - GBA -> SGF -> BEP	0.428	0.070	6.116	0.000*	Supported

Source: Primary data

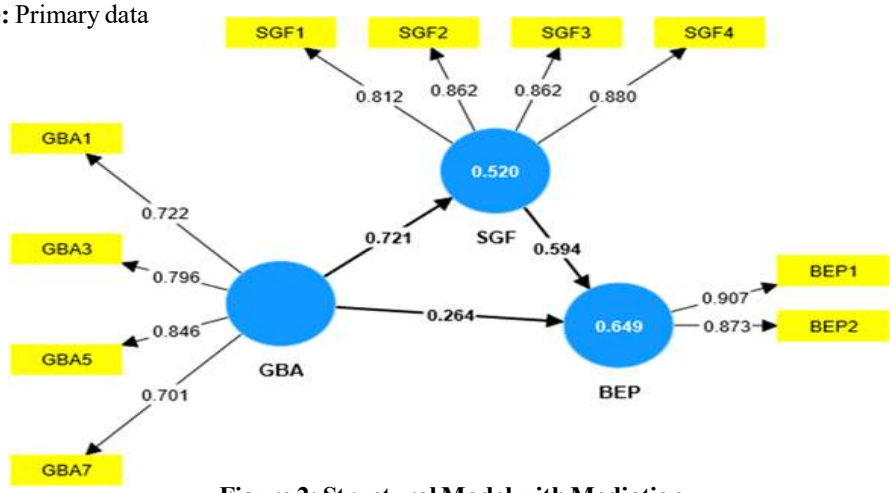

Figure 2: Structural Model with Mediation

Conclusions and Implications

Over the last 20 years, a growing interest has been witnessed in green banking and green financing among researchers, academics, and experts across countries both developed and developing. This study seeks to analyze the green banking initiatives, which are considered to have an impact on the ecological performance of financial institutions; at the same time, it probes into the potential mediating role played by green finance. Primary data was collected through structured questionnaires from selected bankers, and the Smart PLS technique was applied for the assessment of the research model. Various model fit indices validated and verified that the general research model was appropriate. Findings of the study supported Hypothesis 1: With Green Banking practices, the environmental performance of banks becomes positive. Consistent with earlier studies, these findings suggest that green banking activities are one of the prominent improvements in the environmental performance of banks (Risal and Joshi, 2018). Therefore, it is a constructive influence on the betterment of the environmental performance of banks. On the other hand, the results of the study supported the second hypothesis: GB activities have a statistically significant and positive impact on green financing. This has far-reaching implications since green financing is crucial for the attainment of sustainable development goals and the reduction in environmental degradation. The findings indicate more emphasis on promotion and investment in GB activities if indeed the nation is to achieve sustainable and green growth. Further, the results in this regard showed a strong positive association of environmental performance with banks' green financing, which was stable with some earlier conducted studies by Zhang et al., (2022), and Jain and Sharma, (2023). This article is novel since it seeks to establish the mediating influence that green financing would have on the direct link between green banking activities and environmental performance. The importance of this study is in presenting the complexity of mechanisms based on BEP through the impacts of green banking activities. This study has

confirmed Hypothesis 4, that an effective association between green banking practices and the environmental performance of banks is significantly influenced by the presence and effective use of green financing mechanisms. In generating such an important result, more insight is provided in an area where literature has already been developed, casting further light on the underlying mechanisms driving a positive impact of green banking activities on environmental performance by the banks.

Managerial Implications

The implications for the managerial study such as green banking practices must be strategically implemented and assimilated into the normal course of the banking institutions' operations. An example is the policy and practice of lending and investment in practices that are 'eco-friendly'. They should adopt investment in green financing mechanisms such as developing and financing financial products that support environmentally sustainable initiatives and creating funds for green projects (Agrawal *et al.*, 2023). Banks need to align their strategies that align with sustainable development goals. By highlighting green banking activities, they contribute not only to ecological preservation but also to broader social and economic sustainability goals (Sengupta *et al.*, 2023). Apart from the above, proper training and education must be provided to the bank staff for the effective implementation of sustainable banking practices in day-to-day activities (Azizzadeh *et al.*, 2022). Collaborating with green and sustainable organizations and partnerships with such institutions will also help in the effective implementation of green banking activities (Julia and Kassim, 2020).

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