European Economic Letters
ISSN 2323-5233
Vol 14, Issue 4 (2024)
http://eelet.org.uk

Investigating the Mediating Role of public and private banks in the adoption of Green Banking Initiatives

Prof. Simmar Preet
Professor, Sri Guru Gobind Singh College of Commerce, University of Delhi
Email-Id: simarpreetkaur@sggscc.ac.in

Ms. Suman
Research Scholar, Department of Commerce, University of Delhi
Email Id: sumandu19@gmail.com

Abstract
The issues of global warming and other environmentally related degradations have grown more serious with advances in industrialization. Sustainable environment is not just a personal thing, it is a universal phenomenon; rapid economic development could be realized only in case all industries are the guardians of environmental sustainability. Green bank projects enable the banks to play a significant role in ensuring that an ecofriendly ecosystem is promoted. Green banking is a term which is used to refer to the heavy usage of ecologically friendly technology in the day to day financial activities. Green finance has attracted the attention of many people over the past few decades. Green banking is also being promoted greatly by India. The given research explores the state of green banking in India and the level at which Indian banks are focusing on investments into sustainable development. To achieve this goal, four banks are compared in pairs (two of them are state-owned and two are privately owned). This report further looks into the future of green banking in India. According to the report, Indian banks have gone past the notion of offering merely internet banking to facilitate carbon neutralization and financing environmental manifestations, garbage management, and so forth. More green banking projects need to be encouraged in India too since even small banks can contribute a lot towards the green banking initiatives. The research findings can help the banking and other regulators to assess the possibilities of green banking proliferation in India.

Keywords: Public and Private Banks, Green Banking Initiatives and Sustainable Environment.

Introduction
Environmental issues, such as climate change, greenhouse gas, carbon emission, global warming and excessive drought and rainfall are just but few of the environmental issues that were brought in cough-directly as a result of recent economic growth. These all are a deterioration of the quality of the environment and we are also burning off earth resources at an astounding rate so one has to wonder what our grandchildren will make of the world we leave them. The most pressing one for the world's people at present is sustainable development including environmental protection. Many international organizations have implemented different approaches to promote sustainable development. Several international organizations working with development institutions and with private companies have adopted policies that require that environmental studies be conducted for investments. Since 1996 International Organisation for Standardisation (ISO) has been issuing rules under ISO 14000 educating corporations across the globe regarding pollution measurement and environmental protecting. The result of this was the emergence of the green finance that spearheaded the idea of green banking. The United States pioneered the development of green

finance in 2003 and the goal it has targeted was to conserve the natural resources and environments on the planet Industries and Wiseman, 2011. The Green Bank Act was proposed in March 2009 by Representative Chris Van Hollen as his attempt to create a government-owned green bank in the United States. The priority was the eradication of paper from financial transactions on the grounds that it lowered human impact on the environment through minimizing wood usage as direct raw material. Contemporary banks and financial institutions are still involved with environmental initiatives and sustainable wealth management. With the above green products and development of environment, the bank facilitates its environmental protection objectives.

Green is the most famous symbol used to raise awareness of the environment. Indian Banks Association defined that a Green Bank is a financial institution that measures all social and environmental goals through an environmental protection and natural resource conservation perspective. This establishment has earned the titles ethical bank and sustainable bank. A bank should emphasize banking business for protecting world natural wealth as well as environmental and ecological systems especially for preserving biodiversity. (either technological innovation or with operational improvements and altered customer expectations) with respect to any of new or existing service delivery models that underpins the concept of "green banking" in financial institutions. New service delivery models for green banking refers to techniques and approach that instituted financial institutions employs with respect to delivery of either new or existing financial products or services. Sustainability should be applied to financial operations as well as cutting carbon. Sustainability is future thinking that is actively responding to the present and the years to come. Indians don't know what green banking is and how it is used. The ecosystem needs sustainable banking measures to avert irreparable harm to it. Financial institutions should choose funding opportunities based on their impact on the environment along with other safety criteria and profitability criteria. According to the Indian Institute for Development & Research in Banking Technology under the reserve bank of India green banking is defined to mean that which contributes towards lessening the negative effect in the economy by means of sustainability of the environmental and social impacts (IDRBT, 2013). Some of the strategies that the company has undertaken to initiate green banking include, 'paperless banking, internet banking and mobile banking, mass transit systems. The establishment of environment-friendly solar plants of motion sensor, development of treatment plants and rain water harvesting system are encouraged by the company. It also offers environmentally friendly banking initiatives which include paper recycling as well as toner and cartridge management programmes. A recent RBI discussion paper on green finance has exhorted financial institutions — including banks — to increase their offers of green loans and establish voluntary financial benchmarks to allay fears of climate change. Issued to financial institutions, banking authority orders on assessing climate risk resulted in the first rating of climate risk for individuals who had significant exposure.

While echoing an inherent responsibility of companies that is not more than the implementation of green inventive solutions, sustainability movement stands as an “emerging mega-trend” (Lubin & Esty, 2020). According to Sheth et al. (2010), in: Cisco, HP, and Walmart utilise this cost model as one approach in their business structure. The marketing needs of the environment exert very critical challenges for green marketing in contemporary times among marketing scholars and practitioners (Polonsky, 2011; Sharma, 2018). Porter and Kramer (2014) argue that moments of industrialisation are when entrepreneurs are allowed to grow by taking advantage of common resources. Rehman et al.

(2021), economic growth based on inequality disrupted the natural order and led to a mixture of industrial accidents and environmental disasters. The destruction of the ecosystem has intensified, with people becoming increasingly concerned about the ecological situation (Chen, 2010). This problem is still confronting every major industry. According to Bae (2011), all sectors of business such as manufacturing, technology, electronics and IT are commonly shared to commit to the environment as their first TR and CR (Chen et al., 2006). Utilization of banks is very important today because green banking is a valuable concept which play vital role for sustainable development of a country (Lymperopoulos et al, 2012). Transformation of the financial services sector in financial, economic and environmental terms require its ethical principles to be integral parts of banking activities (San et al, 2009). Through its operations, the banking industry can facilitate the implementation of ecologically sustainable projects, and in financing environmentally friendly businesses, can support recovery efforts, thus mitigating climate-induced risks (Part & Kim, 2020). According to Kärnä et al. (2003), environmental and green banking are identical to sustainability and this motivates banks to implement CSR activities (Scholtens 2011). Indeed, in order to create a positive environmental image, (Evangelinos et al. Green banking regulations reduce banking operations carbon emissions to benefit both the banking organisations as well as other industries and economies (Bihari & Pandey, 2015). The topic of green banking has been widely studied. According to Scholtens, green bank marketing is one piece of the larger puzzle of corporate social responsibility.

The literature has identified huge differences in terms of expanding and researching the concept of green banking in various regions, especially a comparisons between the developing countries such as India and the developed economies. According to Rehman et al., financial flows are also becoming more aligned with ecological priorities as banks are also anchoring their funding to the amount of environmentally sustainable development finance projects (2021). To support this, Nizam et al. (2019) stress that green banking policies should become an important part of daily operations thus promoting sustainable development in the context of developing countries where environmental issues may conflict with economic development priorities. Karna et al. (2003) have examined the connection of corporate social responsibility (CSR) and green marketing practices and has explained that commitments to corporate social responsibility have a positive impact on green marketing practices hence boosting the environmental image of a bank. On the same note, Grove et al. (1996) and Lymperopoulos et al. (2012) reveal that marketing by green banks helps augment the green image of a bank, which in turn achieves better customer loyalty and market differentiation. In support of these findings, Evangelinos et al. (2009) explore the role of green service innovation in the determination of sustainability outcomes and they indicate that sustainable practice in banking services directly relates to environmental stewardship. Nevertheless, there is a lapse in implementation and competence. Kumar and Prakash (2018) suggest the adoption of sustainable banking norms as one of the significant steps toward the promotion of sustainable development but imply the absence of knowledge of Indian institutions as to the full implementation of the norms. Masukujjaman et al. (2017) explain further that green banking is an important instrument to enhance both environmental and socio economic elements in developing countries, but its true potentials are not utilized till now. Although Weber (2016) notes that most western nations have saturated in green finance studies, the developing ones have ignored it greatly. Prakash et al. (2018) underscore how little has been developed with regards to academic research on green banking in India, and there has been no dedicated empirical evidence. Sharma and Mani (2013) further note that what is less studied

is the wider spheres of avenues of policy incorporation and innovation at the banks through the aspects of CSR and environmental management especially within Indian academic circles. It is a clear indication that there is a dire need to develop more research and implementation plans to reinforce green banking operations in emerging economies.

The EPs and UNEPF1 urge financial institutions as mechanisms for sustainable development. One of the 200 member governments, that of India, has taken the ideas on board under the guidance of the Reserve Bank of India (2017). The Indian government is still pushing sustainable development even though many people don't have that now. Bad communication between the stakeholders, the public's lack of knowledge on sustainability, and a nonexistent sustainable brand for banks are all fuelling the bad results of green outreach for banks, creating the scepticism of how genuine banks are in their green pursuit efforts. Empirical support comes from Lymperopoulos et al. (2012) demonstrated that green bank marketing initiatives have a positive effect on banks' green image perception. There is absolutely zero scientific research on this, especially in India. Existing studies do not address how Green banking practices have impact on the development of Green trust and Green brand image in India. The results study discloses how the investigation was conducted in different fields. This paper ends by emphasizing the central findings of the paper, and also the limits to the analytical embrace that this study could accommodate.

Green Banking Initiatives By Indian Banks

Over the past few years several green banking efforts have been adopted by the Indian banks. This subsection highlights a few of the standard green financial services offered by the study institutions. Listed below are these offerings.

Public Sector Banks

Punjab National Bank

PNB is a green bank which is classified as a public sector bank. Its physical record is digitised by PNB. The Bank has STP in all its buildings and has also started water recycling. Efforts have been made to promote green energy, such as support for electric vehicles, solar panels and solar pumps. In order to promote green technologies and environmental sustainability, Punjab National Bank (PNB) has recently introduced various eco-friendly campaigns. The PNB Green Car scheme will provide long payback options to purchase electric cars and preferential credit rates to the customers looking to take electric cars. Promoted with the partnership of Honda, Maruti, Mahindra & Mahindra, Force Motors, Tata Motors, Hyundai, Toyota, MG Hector covering all the major car manufacturers which constitute 85% of the total Auto market of India, this program aims to promote… PNB is promoting green energy through its PNB Housing Loan Scheme, which provides loans for setting up rooftop solar power systems for residential homes. This is an initiative for enhanced environmental sustainability and use of renewable energy. The banking behemoth started the PNB GREEN RIDE project to underwrite the purchase of e-rickshaws to facilitate the shift towards ecological transport.

European Economic Letters
ISSN 2323-5233
Vol 14, Issue 4 (2024)
http://eelet.org.uk

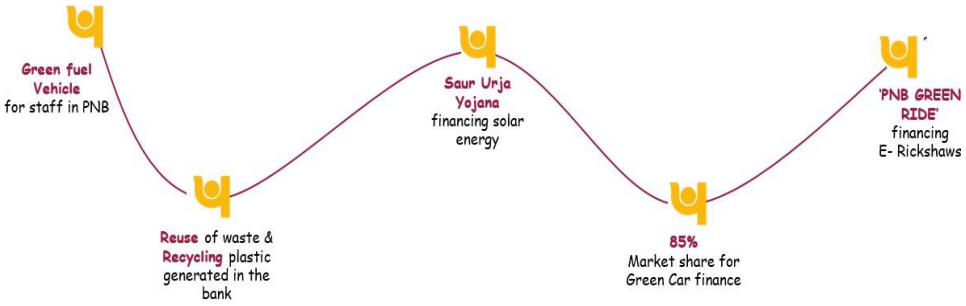


Figure 1: Green banking initiatives taken by PNB bank

PNB has taken several ecological initiatives including funding solar vehicles, electric vehicles, biogas plants, green houses and solar pumps. It is according to the vision of the bank, to promote sustainable ecological practice and help in reducing carbon footprints. Environmental friendly operations PNB has embarked on a few green initiatives as part of environmentally-friendly practices. To promote the saving of paper and energy wastage, the bank has adopted digitalization thus making UPI payments with PNB BHIM, online banking, and mobile banking, and Green Pin, secure its operations. The bank also uses these internet services to ensure that its operations are environmental-friendly. PNB has also invested on community such as putting rain water collecting systems in existing locations and ensures sustainability of establishing a new location. Such programs as the Indian Government Catch the Rain Mission helps in spreading of information; the bank was also present in other environmental initiatives, such as plantation campaign to plant a tree and providing e-rickshaws. Moreover, PNB is operating an organic waste converter that recycles biodegradable wastes into plant fertilizer, thus shrinking its environmental impact on waste recycling.

State Bank of India

The bank has introduced a number of strategic initiatives over time to enhance the environment and support stakeholders. India's largest bank, the State Bank of India (SBI), has demonstrated considerable strides towards sustainability through its various green banking initiatives. To encourage environment friendly programmes as well, the Bank introduced the "SBI Green Rupee Term Deposit" (SGRTD) deposit scheme. SBI also successfully raised USD 250 million via green bonds, in line with its Framework for ESG (Environmental, Social, Governance) Financing. The Bank has developed a holistic framework for structuring financing and issuance of Green Deposits as per Reserve Bank of India (RBI) guidelines. SBI had set up the ESG & Climate Finance Unit (ESG & CFU), a special business vertical which is to guide the Bank's way towards a net-zero trajectory by 2055 and thus celebrating the centenary of the Bank and to further the objectives of sustainability of the Bank. Its main target by 2030 is to allocate at least 7.5% of its loan book to "green" projects. And SBI has significantly upped its usage of paper due to its YONO system. YONO Travels has enabled SBI to save over 884.23 lakh paper sheets.

Sustainable operations Sustainability is a priority across a range of SBI operations and infrastructure. Collection of rainwater 538 rainwater-harvesting structures The Bank has installed on its own premises are good water conservation measures. The company has established 27 Sewage Treatment Plants (STPs) for effective waste water management as well. In a bid to reduce plastic recycling, SBI has installed 20 PET bottle crushing machines across major cities in India. In addition, the Bank has cleared four projects to bring back ecosystems which will plant more than 17 million saplings at 15 sites in Punjab, Tamil Nadu,

European Economic Letters
ISSN 2323-5233
Vol 14, Issue 4 (2024)
http://eelet.org.uk

Maharashtra and Madhya Pradesh. The Bank is also targeting renewable energy and green power purchase. It purchases green power through open access DISCOMs at 18 of its critical locations, thereby saving 11,375 tonnes of CO2 emissions from 1.74 crore units of green power. Promoting the use of electric vehicles among its employees and customers, SBI has set up 48 electric vehicle (EV) chargers at its large offices. Under its green banking initiative, SBI has also commissioned 10 wind turbines of 15 MW capacity in Tamil Nadu, Maharashtra and Gujarat, further strengthening its green credentials.

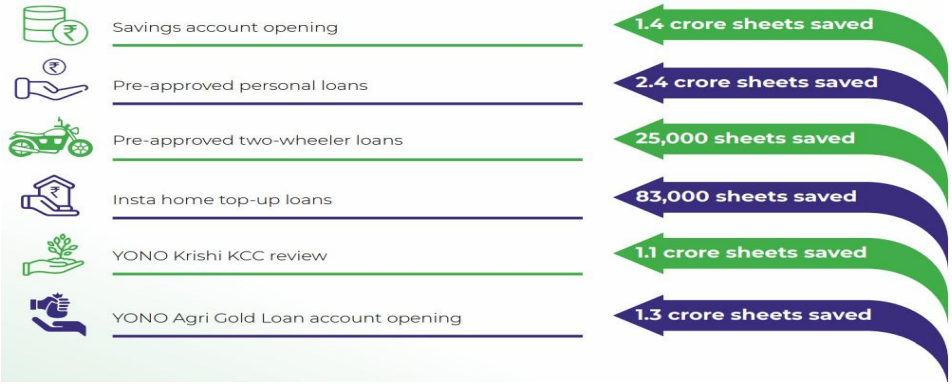
Figure 2: Key Green Initiatives Taken by SBI Bank

SBI's current commitment was certainly an effort to support environmental sustainability and waste management, he said. A total of 36.07 metric tonnes (MT) of e-waste was recycled by the Bank during the financial year 2023-24; 154.7 MT was sent to authorized e-waste companies for safe disposal. The Bank also approved two new projects on efficient management and recycling of waste in Panna City, Madhya Pradesh and in 10 Gramme Panchayats in Dakshin Kannada, Karnataka. Indeed, in a bid to promote eco-friendly waste disposal measures, these projects aim to handle 8,542 MT of dry waste and 11,480 MT of biodegradable filth.

SBI's portfolio of lending programs is clear evidence of that commitment to sustainable agriculture and renewable energy. As part of Government's PM Kusum Yojana, the Bank has financed solar photovoltaic pump sets, thus facilitating procurement of solar-power water pumping equipment for agriculture. As on 31st March, 2024, SBI has facilitated 26 MW of SRPS installations over 795 premises and 3534 ATMs across India. Another 45 buildings of the Bank have been awarded with Green Building Certifications by the Indian Green Building Council (IGBC).

Figure 3: Paper saved by adopting online banking channels.
Source: SBI sustainability report 2020-21

The bank also provided substantial funding in the sector of renewable energy during FY



European Economic Letters
ISSN 2323-5233
Vol 14, Issue 4 (2024)
http://eelet.org.uk

2023-24 – projects aggregating 31,787.66 MW were funded. Under its Green Finance scheme, SBI provides various types of loans including the YONO Krishi Safal Dairy Loan, financing for polyhouses, Aditya Shakti Roof Top Solar Loan, Green Car Loan, Bio-Mass and Bio-Gas based projects, and so on. Some of the crucial projects include — SBI's contribution in the solar energy projects under the Surya Shakti Solar Finance and Grid-Connected Rooftop Solar PV Projects and fundings support for Compressed Biogas (CBG) under the SATAT Scheme.

These diverse projects are part of the Bank's idle push towards green banking and an eco-friendly future. The table above also shows that the Bank has been working to reduce the amount of paper it consumes in all of its activities, along with a bias for a big drop in paper use in all activities.

Banks in Private Sector

HDFC

This year, HDFC Bank recycled 212 metric tonnes of e-waste through authorized recyclers. Till date, HDFC Bank employees have also made an endeavour of planting approximately 1.769 million trees. As a measure towards saving water to future generations, HDFC Bank has installed solar lights (Of more than 41,810) Biomass stoves (Of more than 11,670) and water conservation buildings (More than 10,500) to help save water to serve future generations. 20212022 Annual Report Ecological sustainability HDFC Bank takes the issue of environmental protection seriously and has enacted eco-friendly measures to ensure its minimal carbon footprint and impact on the environment. By saving 2.1 million square feet of paper the bank has shown its intentions in protecting the natural resources since the bank follows its own green event credo. The bank observes the emission of greenhouse gases and exploring ways of minimizing on carbon footprint. In an effort towards attaining its sustainability objectives The HDFC Bank has managed to offset 905 metric tons of carbon emission annually by purchasing 1,028 MWh of green electricity in 14 of its branches. By 2032, the bank intends to be a carbon neutral bank. Among the CSR initiatives, HDFC Bank has adopted such CSR initiatives which focus on environmental sustainability, such as trash management, renewable energy/solar energy, and urban environmental rehabilitation. One of the key programs of the central bank is Green Bonds that will finance projects that reverse climate change. The yield of these bonds will be used to finance environment friendly projects like energy efficiency and renewable energy projects to reduce the carbon footprint of the bank.

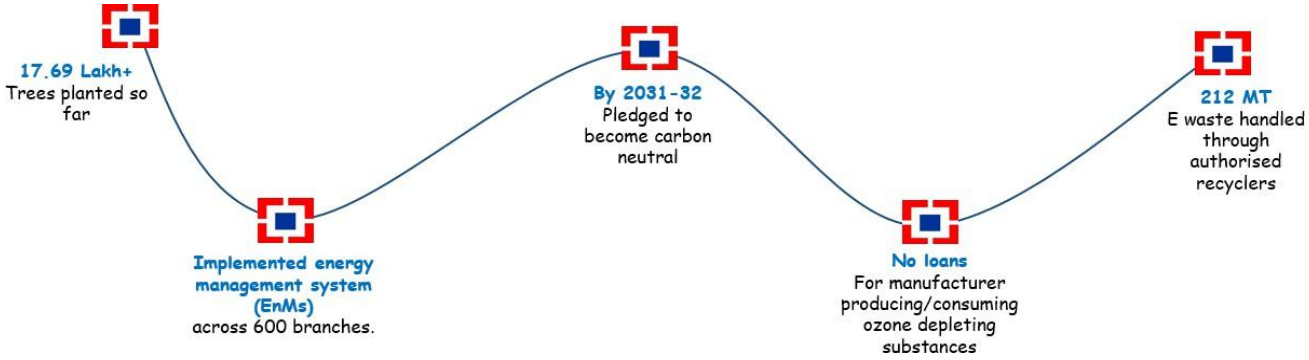


Figure 4: Green banking initiatives by HDFC bank.

HDFC Bank has laid out several stringent guidelines for its prospected eco-friendly projects it wants to back. Projects using substances that deplete the ozone layer or that produce

aerosols with CFCs are not financed by the bank's lending policy. Hurdle rates, approval process, and the cocreation of value Specifically, the approval of loans to environmentally sustainable projects is a multistage process placing an increased number of approvals of higher levels of an organization (e.g., Credit Approver, Senior Credit Approver, senior management, and at least one board tJirector with the applicable author 25 ization level). Applicable to the infrastructure and industrial projects where the budget is over 100 million US dollars and/or the time span exceeds five years is the Social, Environmental, Health and Safety (SEH&S) system. In such a way, even long-term financing can be evaluated by evaluating possible environmental and socio/economic effects of the projects. HDFC Bank also filtered 861 loan proposals using SEMS in FY22, thus, ensuring that its funding areas comply with climate change, environment and social policies. To facilitate the renewable energy projects of 5,860 MW, solar and wind energy the bank had given loans of Rs 14,839 crore. The bank has also helped in the establishment of largest waste-to-energy plant of Asia with the Indore Clean Energy Pvt. Ltd. This plant will see the processing of half of the total municipal waste of the whole city in both biogas and fertiliser hence lead to environment-friendly waste management. As part of our broad sustainability plan and being a good corporate citizen we also promote green financing, resource conservation and community development.

I C I C I Bank

Under various green initiatives, ICICI Bank has demonstrated it's commitment towards environment and sustenance of environment for a greener future. The bank has, for instance, worked in 53 forest reserves in a move to reduce human-wildlife conflict by planting close to 3.7 million trees. This program has allowed for 25.8 billion litres of possible water yield. With 29 new sites scheduled to achieve IGBC (Indian Green Building Council) certification by fisc 2024, many of them being over 500,000 square feet, the banks projects are enhanced by its commitment to sustainability. As at March 31, 2024, 32% of our bank's buildings were certified in this manner. In addition, 60 employees have cleared the IGBC Accredited Professional (AP) test, thereby boosting the bank's in-house know-how in sustainability. The bank has committed larger spending on corporate social responsibility (CSR), this year, however, has earmarked inched up to ₹5.19 billion in fiscal 2024 towards social development, healthcare, environment, and ecology in this fiscal itself. As of March 31, 2024, 12.8 million people have benefited from these efforts. ICICI Bank continues to balance grid and onsite solar power, therefore also increasing renewable energy use. The share of renewable energy in its total energy consumption is increasing from 9% in fiscal 2023 to 35% in fiscal 2024.

Electronic services such as e-Docs, i-Docs, e-Softex for exports and imports, as well as digital services for foreign exchange, e-BL and Trade Online i-BOE have been provided by the bank for a seamless paperless environment. ICICI Bank has also introduced digital banking channels such as iMobile Pay, iLens (India’s first digital lending platform) and InstaBIZ, a comprehensive business banking app and thereby has increased access to financial services while cutting down on paper usage.

European Economic Letters
ISSN 2323-5233
Vol 14, Issue 4 (2024)
http://eelet.org.uk

Figure 5: Key Green Initiatives by ICICI Bank

Net Zero Waste Practice ICICI Bank has established sustainable waste management and is awarded by IGBC in FY 2024 for "Net Zero Waste"- Waste to landfill for Net Zero Waste to landfill at Service Hub - BKC, Mumbai, INDIA. For preprint forms, the bank has switched towards the FSC certified recycled paper; 59% of their paper purchase is BIS ECO-Mark paper made by agro farming. ICICI Bank aims to significantly bring down its Scope 1 and Scope 2 emissions and become carbon neutral by the fiscal 2032. The bank's commitment extends between its walls as well; among others, it has helped the Parivartan Samajik Sanstha (PSS) to implement a project which will provide 1,055 rainwater harvesting systems in 30 Maharashtra Dharashiv region villages. To develop an orchards and forest on 125 acres of uncultivated land the ICICI Bank Rural Livelihood Programme has commenced a vast afforestation campaign "Parijat Udyan" at the Fatehpura village in Rajasthan. ICICI Bank has set up 58 solar panels generating 85 kVA as on March 31, 2024 to help in building grid-free woods, as part of its commitment towards renewable energy. This projects reflect ICICI Bank's strong commitment to environmental sustainability, and establishes it as one of the leading banks in India in terms of banking and corporate social responsibilities.

Literature Review

Green banking studies have been increasing during the last 20 years, seeking answers to issues regarding how financial institutions combine environmental sustainability within activities, merchandises, and rules. In spite of the numerous insights of global literature, there is not much research done on India aimed at product creation, awareness and regulatory power. The analytical articles reviewed in the present paper (GCC countries, Bangladesh, Sri Lanka, North Cyprus, and India) provide a good example of how green banking is motivated, what effects it has, and which issues are brought up.

The international experience demonstrates that green banking decreases risks and leads to a sustainable growth of economy. Chen et al. (2022) approached the determination of the sustainable funding incentives of the GCC financial institutions with the help of a large sample in 2011-2021. They discovered that green finance stabilizes the financial system as it lessens the chances of defaulting in investments decisions through reflecting on the environmental matters. Ethical lending helps cut risks and create new revenues in smaller banks. Chen et al. assert that green finance has the capacity to enhance economies, aid in the following of the legal framework, central bank system and the financial sector. According to their analysis, a green economic recovery will be more sensible, and the role of the financial institutions in sustainable development should be considered as a strategy.

According to Park and Kim (2020), green banking provides the business context in the form of an environmental and market benefit to rival the competition to benefit the private banks. Based on the theory of change logical framework, their experimental research defines green banking barriers and offers institutional, sector, and integrated solutions. This approach demonstrates that when the issue of regulatory uncertainty or incompetence is surmounted, then business opportunities emerge and stakeholder trust in the banking system is enhanced.

Green finance has its own challenges and opportunities to developing countries. By discussing green banking in Bangladesh, Khairunnessa et al. (2021) indicate the role of regulators in environmental responsibility. With the help of descriptive analysis of secondary data, they present that the central bank of Bangladesh has made the financial sector green through policies and regulations. Such government regulation prompted banks to be keen on green practices.

Context development also relies on consumer behaviour to the same degree. Aruna Shantha (2019) analyses the adoptability of green banking among customers of Sri Lankan People bank. These results are illustrated that there is a positive influence on eco-friendly products with 371 customers reporting the primary data in terms of the product awareness, perceived value, and the confidence in the adoption of the decisions. The problem of safety and the privacy negatively affect usage. Such observations point out the necessity of trusted and green product information in promoting consumer involvement.

The study by Ibe-Enwo et al. (2019) is based on surveying 551 clients of retail banking in North Cyprus to test the perception toward green banking. Structural equation modeling implies that green image of a bank correlates positively with the idea of environmental sustainability, though trust does not have a significant correlational relationship with loyalty. This is an indication that environmental credibility will be increased by the use of green branding but not loyalty; loyalty requires quality service and openness.

Customer awareness is stressed in a number of studies. Sahoo et al. (2016) present the evidence that younger Indians have a higher prevalence of using electronic and environmentally friendly financial services compared to the middle-aged Indians and older Indians. This indicates that there is a need of more activities on creating awareness in the older demography to raise adoption. Nath et al. (2014) further state that although environmental degradation is not directly connected to banking, customer activities, say in regard to product choice, are of significant influence on the environment. They emphasize that implementation of green banking is through regulation support such as RBI and World banks environmental and social expectations.

Environmental sustainability of green banking lies in the realization that there is no substitute to green banking (Bahl, 2012). He considers the external modes of communication such as events, media and websites as the most effective in creating awareness among the masses, however internal communications such as newsletters and publications are beneficial. This focus on communication complements other literatures that state that awareness leads to green product adoption (Aruna Shantha, 2019; Ibe-Enwo et al., 2019).

Green banking involves corporate initiatives and integration of a policy. According to Rehman et al. (2021), banks are also increasingly sponsoring development finance projects that embrace ecologically sustainable development, in an act to achieve the climate and sustainability objectives. Nizam et al. (2019) suggest that new economies should introduce

green policies to the banking practice in order to encourage the environmentally responsible approach.

Kumar and Prakash (2018) argue that sustainable banking should be implemented in India as a strategy. It is argued that absence of competence is a barrier to the policy implementation. These norms would enhance the sustainability of the environment, and harmonize regulatory principles and operational patterns.

The other significant connection is that of green marketing and CSR. Karna et al. (2003) outline that the CSR activities increase green marketing and the importance of the banks as related to the environment. It increases brand image and customer loyalty when green marketing is used (Grove et al., 1996; Lymperopoulos et al., 2012). Evangelinos et al. (2009) emphasise the significance of innovation in the sustainability of banks explaining that green service innovation ameliorates environmental performance.

A number of Indian reports reveal implementation and research holes. Prakash et al. (2018) state that few scholarly studies on green banking in India exist and the effect of this process is not apparent. CSR, environmental management, and green product uptake have prevailed in the research (Sharma & Mani, 2013). The biased attention is limiting the comprehension of how built-in measures can enhance sustainability.

Masukujjaman et al. (2017) stress that green banking can enhance environmental and social conditions in the developing countries, but slack regulatory implementation and low consciousness restrict its application. According to Weber (2016), although the field of green finance has been mature in the West, practice and research in this field has been ignored in many developing countries including India, which represents a gap in research and practice.

The reviewed studies indicate that the green banking activities can minimize the risks, encourage innovation, and improve client involvement, fostering environmental sustainability. Evidence all over the world (Chen et al., 2022; Park & Kim, 2020) points to the fact that sustainable financing decreases default risks and increases economic possibilities. Bangladesh (Khairunnessa et al., 2021) and Sri Lanka (Aruna Shantha, 2019) show the necessity of regulation and trust in adopting by customers. The studies on consumer behavior suggest targeted awareness activities to enhance the consumption of green products (Ibe-Enwo et al., 2019; Sahoo, 2016; Nath, 2014). In India, green banking is on the rise, but enforcement of its regulatory provisions and market education do stay as concerns (Prakash et al., 2018).

The study indicates that green banking holds lot of potential in enhancing sustainability however this must be enabled through regulatory frameworks, consumer knowledge, company creativity as well as turning it into a routine process. International experience is helpful, but the Indian country requires large, empirical, and comparative studies to evaluate green projects. To fill in the gaps to ensure that the green banking becomes a strong force behind the environmental sustainability, there is the need to impose effective enforcement of regulations, knowledge, and customer education.

Environmentally Friendly Banking

Green banking refers to the inclusion of environmental concerns into the processes of banking, investment and planning of business companies. Its acceptance is subject to institutional mechanisms, regulatory policies, consumer consciousness and market incentives but the literature indicates its increasing significance in developed and developmental cuisines.

Based on Hossain et al. (2020), Zhixia et al. (2018) and Kumar and Prakash (2018), among others, this review is multidimensional on the part of green banking practices, their development, and impacts. Once Florida established the green banking in the year 2009, it was used as an example of how environmental issues may be considered when offering financial services. The state Bank of India (SBI) in India has been a first mover when it comes to the green projects such as Coimbatore windmill project and advanced sustainability needs. This had converted Indian banks into the environmental responsibility in core activities.

Green banking assimilates the elements of the environmental and social aspects in the bid to save resources and preserve the environment. According to Hermes et al. (2005), the banks are shifting their systems to orange bankability to sustainable banking by integrating ESG issues into the business strategies. This change is promoted by environmental issues and the need to enhance risk management and profitability in a transforming market. Green banks apply green technologies both in internally and abroad in order to reduce environmental impact. Bose et al. (2017) refer to them as those organizations that stimulate green development and minimize carbon footprints by using eco-friendly management. The said organizations foster an integrated economic growth whereby social efficiency is integrated with financial ones (Jeucken & Bouma, 1999; UNEP FI, 2011, 2016, 2017).

Green banks incorporates both financial functioning and sustainability objectives and are socially responsible. Such banks are socially responsible (SR), ethical, and sustainable and promote environmental health and economy, as stated by Hossain et al. (2020) and Zhixia et al. (2018). These two-fold focus make them remain competitive and push the society forward. The literature highlights environment and corporate efficiency objectives of green banking. Banks enhance green growth and sustainable economic development through funding green energy, encouraging products that are friendly to the environment, and adopting green ways of operating. These programs enhance financial performance and environmental conservation which makes economies switch to low-carbon development as seen in UNEP FI (2011, 2017). Green banking assists in satisfying regulatory and social responsibilities. According to Prasanth et al. (2018) and Sahi & Pahuja (2020), Indian banks which intend to spread globally have to look at environmental and social concerns to compete. Alongside that, Laskowska (2018) and Nuryakin & Maryati (2020) suggest that the acknowledgment of such commitments enhances the credibility of Indian banks in the sphere of finance worldwide.

According to the literature, green financial products are the basis of green bank. Examples are renewable energy loans, green investments and sustainable technology financing. According to Evangelinos et al. (2009), these products are green marketing by which the banks can increase their reputation and generate sustainability. They enhance the perceptions of customers and also attract green stakeholders. According to the research, conducted by Lymperopoulos et al. (2012), green image is enhanced through eco-friendly bank projects. Their model entails GCSR, GIP, and GPD in green bank marketing. The framework will be focused on the necessity to include all the environmental initiatives in all banking operations to enhance the number of customers and competitiveness in the market. It is CSR that drives green banking projects. Scholtens (2009) also recommends that banks can assure their clients who leave their money in banks to promote green initiatives as a way of CSR. The comparison of 30 firms revealed a strong correlation between the scores obtained in the CSR, the bank size, and the quality of finances, disintegrating the supposition that social responsibility has an ascending impact on the financial performance.

According to Karna et al (2003), CSR which generates customer trust and environmental brand image is associated with green marketing. The results justify the adoption of green initiatives by banks to satisfy the regulatory requirements and increase market share in the new era of a socially conscious economy. Tactics of operations matter a lot in terms of green banking. As Dewi & Dewi (2017) claim, the sustainability in banking can be achieved by using energy-efficient branches, paperless processes, and optimizing resources. These strategies enhance the credibility of banks and establish values in other sectors. In their analysis of Indian banks Kumar and Prakash (2018) came up with 40 elements of sustainable banking in five groups. Their discovery is that Indian banks are in their earliest stages of implementing green practices and that there is a need to generate further awareness, regulation and technology. Online platforms and mobile apps reduce the number of carbon footprint and enhance delivery of services, which is agreed by Sahi & Pahuja (2020).

Support of green banking policy is witnessed globally. Sustainable finance regulations in Bangladesh, Brazil, Colombia and Indonesia are high (Bahl, 2012; Rahman & Akhtar, 2016). Bangladesh bank has quite a number of green programs to promote financial institutions to become green. The strategies of the banks in reducing carbon emission varied; on the one hand, Bank of Ceylon (2015) implemented those actions by facilitating a technology-based platform, and People (2015) altered the structure and made changes to become more environmentally efficient. Banks around China, Turkey, Mongolia, Vietnam, Indonesia, Kenya and Peru conduct themselves to be more sustainable through the application of SmartGen mobile passbooks, eco-friendly branches, and smart zones. Green banking demands governmental support and technological advancements as manifested by the following international scenarios. They also direct the sustainability of Indian banks.

India is embracing the methods of green banking although not at the same speed with the other countries. According to Kumar and Prakash, the competence of sustainable banking is inadequate and policies not implemented sufficiently (2018). As it is stressed by Paramesswari (2018) and Zhixia et al. (2018) Indian banks need to realize their social and environmental responsibility to become globalized. Though initiatives of SBI are positive, it is clear that green banking protocols still remain an extension of CSR among a large number of the Indian banks. According to the remarks of Allen and Craig (2016), and Gopalakrishnan & Priya (2020), the issue of green practice is spread to mainstream financial institutions, asset managers, and insurance businesses besides cooperative and alternative banks. Kapoor et al. (2016) alert us that disintegrated adoption can be an outcome of unstable enforcement and awareness programs. Indian green banking is associated with regulatory loophole, the low awareness of customers, and inadequate investment in terms of technology. Oyegunle & Weber (2015) are set on the fact that structural and cultural change within organizations is required in the process of traditional to sustainable banking. According to Hossain et al. (2020), banks should enhance dedicated skills and participation of stakeholders to adopt environmental policies.

Green banking in India holds a great future provided that the regulatory mechanisms enhance compliance and the banks become innovative. Global best practice, investment in technologies and raising awareness can help Indian banks shift toward real green strategy through symbolic sustainability. According to the mentioned references, green banking can be a great instrument of environmental sustainability. Good legal systems and technology penetration have assisted the banks to incorporate green products, CSR and eco-friendly practice in their operations across the globe. The leading developments exhibited by SBI in

India indicate signs of progress; however, the greater part of the banks in India is in a state of adoption. The results indicate that Indian banks need to serve policies, invest in the green technologies, and create awareness in order to achieve the potential of green banking. In so doing, they will be able to enhance their competitiveness, stakeholder's confidence and their local and international sustainable growth.

Today's market has reinvented the financial services industry, which means it demands new marketing approaches for successful business performance. Perhaps one of the most significant currents sweeping through the global banking industry has been the adoption of environmentally friendly operations. Green banking had encouraged banks in delivering technology-based, paper-free products and services, thereby minimizing the environmental impact and fulfilling their obligations as responsible corporate citizens in national development. It is of course vitally important to grasp the necessity for a green strategy because the very real satisfaction of the green at heart shopper is the arbiter of whether an investment of this nature actually delivers or falls at the post. They also help banks grow environmental reputation and awareness, which is increasingly crucial in today's environment.

Prominent criteria to assess green banking projects, green corporate social responsibility, green product development and green internal processing were addressed in existing works (Herath & Herath, 2019). Additionally, the results of a number of qualitative studies confirm the strong significance of GCSR as a successful factor among green banks, thus corroborating other previous studies (Karma et al., 2003). Greens are all green when it comes to the environment. But they still need the public to digest whatever message they are trying to convey to pull off successful green initiatives. Green finance may contain environmental awareness (Smyth, 2012).

Because of environmental regulations, and the growing concern of consumers on sustainable issues, for many organizations, both in developed and developing countries, green product development is a primary strategic objective (Paramesswari, 2018). Green product development may involve the distribution of business loans and subsidies with low interest rate for green logistics investment and low carbon waste disposal, renewable energy, financial aids for organic products production, green mutual funds, eco-friendly products and hybrid vehicles purchase (Palardi and Moya-Benavente, 2015; Lymperopoulos et al., 2012), as well as photovoltaic systems installation, and ecological goods development investments. GPD emphasizes "end-of-pipe technology", in which firms can be fully aware of the environmental issue in the process of production and product design (Nuryakin & Maryati, 2020). The most environmentally effective manifestation of green technological progress is a product that is designed to be able to substitute renewable resources for non-renewable resources all along its life cycle and not creating waste that cannot be assimilated by the environment at each manufacturing/trading/using/disposing stage Chen (2001).

Green Product Development

Green product development also includes loans on the electric and hybrid vehicles. YES Bank and Axis Bank provide financial incentives, which makes the sustainable transportation affordable to Indian customers. Herath & Herath (2019) have shown that such loans will minimize car emissions, the leading cause of air pollution in urban places. They also support efforts by the government to combat the effects of climate by enhancing the use of electricity on the roads. Banks have also erected solar powered automatic teller machines alongside car loans. The Bank of Ceylon (2015) states that solar ATMs reduce energy consumption and

they provide continuous services in remote locations where electricity is insufficient. The novelty of this banking operation lies in the sustainability of its energy sources in collecting and delivery of the service.

Green product development encompasses resources saving technology as well as environmental project financing. One is CDTs and online payment mechanisms. The solutions conserve papers and energy consumption and enhance convenience to the clients. Mozib Lalon (2015) states that the use of online and mobile banking lowers the physical resource requirements and makes the daily activities consistent with the environmental goals. The banks such as IndusInd and ICICI facilitate cashless economy by adopting digital payment systems, which would limit carbon pollution by creation and transportation of currency. Product development facilitated by technology enhances operation efficiency and sustainability to the environment. Green products have the impact on the market positioning of banks. According to experimental studies by Lymperopoulos et al. (2012), environmentally-friendly products enhance green image of a bank. They separate green marketing into three major elements which include green corporate social responsibility (GCSR), green internal processes (GIP) and green product development (GPD), each element considered being essential to customer awareness of environmental accountability with the last one being more critical to their perceptions.

According to Evangelinos et al. (2009), green financial solutions enhance consumer loyalty by aligning the practices of the banks to the values of the society. Once banks effectively introduce these solutions, they will be accompanied by customers who have environmental considerations, and they will be trendsetters in sustainable finance. Regulation and the market cause Indian banks to produce green goods. Rahman and Perves (2016) are the ones who state that regulators encourage banks to offer new products to fulfill the national sustainability objectives. According to Silva (2015), green products are linked with environmentally friendly undertakings, hence limiting the risks of default and increasing profitability over time. Narang (2015) provides risk reduction as a rationale behind the design of green products. Investment in green projects eliminates negative regulatory reimbursements and image issues by banks. According to Sharma et al. (2014), sustainability ratings are higher in those banks that focus on the production of green products.

Green product development has worked according to the international experiences. According to the Bank of Ceylon (2015), considerable expenditures are saved on electricity and operational expenses using solar ATMs and computerized banking service. Herath & Herath (2019) have revealed that Sri Lankan banks have already integrated green products into their broad business, which should be an example to be followed by the Indian banks. Mozib Lalon (2015) stated that there are superior environmental and customer effects of nations in which banks innovate with green goods. This strengthens the statement that Indian banks should expand their product base to green in a bid to compete globally and achieve environmental objectives. The literature stresses the fact that modern green finance is impelled by the production of green products. Green loans, mortgages, financing of eco-vehicles, solar-powered automated teller machines, and electronic payment services enhance the market edge of banks and their impact on the environment. Although the SBI, PNB, ICICI, HDFC, and YES Bank have done a lot in this industry, a lot could still be achieved. Lymperopoulos et al. (2012), Sharma et al. (2014), and Rahman and Perves, 2016 revealed that these products encourage sustainability, financial strength, and customer loyalty. The

Indian banks need to expand these operations through the innovation of products, technologies and global environmental policies. By doing so, they will be able to guarantee that green product development will be able to enhance environmental protection and economic development further.

Environmental corporate social responsibility

Green banking is part and parcel of environmental activities and CSR activities of the financial industry. It moves out of profit-based banking into one based on ESG in banking. There is a number of studies to examine green corporate social responsibility (GCSR), eco-friendly internal processes, barriers to green banking project, eco-friendly brand image, and environmental confidence (green trust) and the way of how they are interconnected to each other and to sustainable development.

According to Laskowska (2018) and Nuryakin & Maryati (2020), GCSR is defined as adherence to the interest of an organization to regulate and minimize its effect on the environment. It safeguards the future generations, lessens depletion of resources and conserves the environment. GCSR involves doing business in the best way possible keeping environmental responsibility in mind as opposed to traditional CSR that was rotated around philanthropy.

It encompasses community improvement, charity activities and sponsoring, and prevention health and sanitation (Mitra & Schmidpeter, 2017; Hossain & Reaz, 2007; Narwal, 2007). These are the programs that help the bank to go beyond financial services to better the communities. Banks are fulfilling their corporate citizenship by investing in environment and social projects.

It is also through GCSR which enhances financial inclusion by extending the rural banking services (Kumar et al., 2015). Social and sustainable development goes hand in hand through service delivery to the underprivileged communities (GRI FSS 14; Hossain & Reaz, 2007; Sarma & Pais, 2011). They reduce costs, identify risks and promote corporate image. Allen & Craig (2016) and Nuryakin and Maryati (2020) point out that GCSR should be utilized as a method to enable banks to become more competitive, and to regulate them and make them more profitable in the long-term.

Green banking extends further to encompass community programs but involves green internal processes that lessen environmental impact. Other examples would be case of China Minsheng Bank with its in-house project about maximizing use of resources, minimizing use of energy and encouraging ecologically friendly actions such as recycling waste papers, water saving and recycling. These efforts are supported by staff environmental training that creates awareness among the workers about environmental conservation in the workplace.

Green processes inside the company are not only representative. It enhances internal management, reduces operating expenses and facilitates balance in the environment. Such practices demonstrate to the stakeholders that the sustainability commitment of a bank is real and incorporated in its functions. The examples that can be given are the banks who are responsible about their environment by making such changes.

Although the concept of green banking in India has its advantages, various researches

indicate that challenges in establishing of green bank are eminent in the country. Key issue is lack of awareness by the customers as well as the staff of the bank. According to Boston Consulting Group (2009), Jayadatta & Nitin (2017), Sharma et al. (2014), Maheshwari (2014) and Rastogi & Khan (2015) customers mix green banking with digital banking. Sindhu (2015) further states that knowledge is inadequate or inaccurate at times and therefore invites misconceptions about the benefits of green projects and their level.

The green banking aspirations of the banks are not like what is perceived. The Boston Consulting Group (2009) and Jayadatta & Nitin (2017) state that banks usually approach green initiatives superficially and do not focus on incorporating sustainability in their strategy. Greenwashing leads to undermining of both the consumer trust and green brand equity as banks falsify their environmental performances (Alniacik & Yilmaz, 2012; Shrum et al., 1995).

The awareness gap prevents green banking product usage among middle aged and aged customers (Sahoo et al., 2016). Specific sensitisation programs should be employed to address this demographic issue.

Adoption may also be retarded by institutional obstacles. According to Kumar & Prakash (2018), robust financial institutions are the key to development, but the age of Indian banks remains minimal. They are mainly preoccupied with ATMs, online banking and paperless banking but the green projects are not developed (Biswas, 2011). According to Rajput et al. (2013), Indian banks are not prepared to have a green banking project but UNEP FI (2011, 2017) asserts that regulatory environment requires amendments in order to reach international standards.

Green corporate image is a prerequisite of bank sustainability approaches. According to Chang and Fong (2010), it is the views of the people towards environmental activities of a bank. Corporate image (CI) impacts on organizational, employee and community stakeholders. It demonstrates commitment to the environment, increases employee loyalty and develops the relationships with customers at the business, employee, and neighbor level.
According to Chen (2010), environmentally friendly, and environmentally efficient products and services create a strong image of a green brand. This image creates confidence and loyalty to the clients. Hartmann et al. (2005) refers to a clear green positioning plan as a factor that can increase brand perception and competitive advantage.

Market success and repute is also linked with green banks. Lewis & Soureli (2006) teach us that customers relate green superiority with general competence in the case of banks. Nguyen and LeBlanc (2001) also discovered influence of consumer perception on the brand image. Good reputation allows one to maintain, recoup, and acquire customers, thus becoming sustainable in the long run. As Chaudhuri (1997), Chen & Chang (2013), Lewis & Weigert (1985) and Mitchell et al. (1997) opinion, consumer loyalty and marketing proficiency are influenced by the image of a firm.

The relationship between consumers and banks is based on trust. According to Rotter (1971), trust can only be defined as having faith in the word, promise or statement of another person. Green trust denotes the belief by customers of whether a bank is carrying out its environmental based activities and commitment to sustainability (Chen, 2010). Trust is

developed by experiences of integrity, competence and goodwill (Schurr & Ozanne, 1985; Hart & Saunders, 1997).

Research indicates that green trust enhances the behavior of customers. According to Lee et al. (2011) trust has an effect on consumer behavior but with effect on time whereas Harris & Goode (2010) and Schlosser (2006) say it has an effect on purchase intentions. Van van Heijden et al. (2003) associate the consumer behavior to trust. Chen & Chang (2013) proceed further to state that environmental claims by banks of considerable credibility enhances consumer confidence and purchase intentions.

Nevertheless, exaggeration of environmental performance is suspiciously motivating (Kalafatis et al., 1999). Environmental pledges that are not met create suspicion according to Jain & Kaur (2004). To maintain the green confidence, banks are required to provide credible and coherent environmental disclosures (Chen, 2010). When customers are eager to learn about the environmental features of products (Chen & Chang, 2013), there are higher chances that they will expect the better.

Green banking is built on GCSR, environmentally-friendly business, strong green branding and environmental self-confidence according to the research. Most of the regulatory frameworks are inadequate and consumers lack understanding that slows progress. According to research, in green banking, banks must incorporate environmental responsibility in its strategy, enhance transparency as well as educating stakeholders.

GCSR activities increase the brand image and trust among stakeholders whereas green internal processes demonstrate commitment. The green image in the competitive marketplace distinguishes the banks, whereas the green trust develops customer loyalty. The expansion of these projects involves the change of regulations, the promotion of awareness and technology adoption.

The selected literature portrays that green banking is a regulator and strategic necessity of the banks in markets where the subject of environmental concern has emerged. GCSR, environment friendly internal practices, brand image and green trust enhance the performance of businesses, consumer loyalty and environmental performance. Although Indian banks have a problem about implementation, creation of regulatory structures, creation of awareness, and guarantee of the legitimacy of environmental claims can mitigate this. Employing these strategies, banks can enhance their standing in the market, acquire a certain amount of trust, and even contribute to sustainable development.

Objectives

The present work aims to

- To identify and analyse key organisational drivers – environmental prospective, green CSR, product development, cost management, internal process and competitive – which significantly drive Green Banking Initiatives (GBIs) adoption among Indian banks.
- To determine whether bank type (public/private) moderates the relationship between green banking drivers and the implementation of green banking projects.

Research Approach

Data have been gathered from 721 respondents comprising 85 bank employees from four

leading Indian banks (State Bank of India, Punjab National Bank, HDFC Bank and ICICI Bank) across the study. Representing a distinct geographical and demographical combination, the data were collected from the Delhi NCR region. The convenience and snowball sampling method used in this study produced a diverse and well-detailed sample. Data screening was performed to guarantee that study only included the relevant and trustable information. This involved identifying and deleting any incorrect or incomplete responses, such that only data from genuine responders were analysed. By minimizing any potential bias, for example that due to outliers or missing information, this phase was essential for enhancing the completeness and accuracy of the data. The screening method also ensured the respondents' consistency in responses, and thus, the reliability and validity of the responses relative to the study objectives.

The demographical variation of the respondents gives possibilities to understand how the practices of banking, employee satisfaction and customer attitude to bank vary and are similar in different banking contexts. Such a mixed-sector approach can help to reconcile differences of the role and impact of financial institutions in regards to the opinions of staff, happiness of customers and the performance of service in the Indian banking sector. With the support from the comprehensive data gathering and screening process, the research, composing of a good number of sample (721 respondents), intends to provide a holistic view of the topic under study.

By having the 721 study participants evenly divided (60% male and 40% female), we ensured gender diversity. Here is the age: 25% of the responses are between 18 and 25, 35% are between 26 and 35, 20% are between 36 and 45, 15% are between 46 and 55, 5% are 56+ years of age. Educationally, 10% have high school or less, 30% have degrees, 45% have graduate degrees, and 15% are post-grad. On job, 12% are employees of banks namely SBI, PNB, HDFC and, ICICI while 88% are customers of a bank. As for banking experience, 10% have less than one year, 40% of 1-5 years, 25% of 6-10 years, and 25% more than 10 years. The sample is approximately evenly balanced between public and private sector banks, and hence provides a reasonable view of the banking industry.

As demonstrated in Figure 1, the comparison of public and private sector banks clearly indicates the variance in green banking policy perception and practice. The data indicates that private banks perform better than public banks in all significant environmental indicators, thus indicating that the private banking system in Bangladesh is more successful in acquiring green banking functions. Agility in the uptake of green products and services Development of green products and services is more prevalent among private banks (82.6%) than public banks (66.7%). This indicates that private banks may be more responsive to the market demand to solve sustainable finance (Zhang et al., 2021).

European Economic Letters
ISSN 2323-5233
Vol 14, Issue 4 (2024)
http://eelet.org.uk

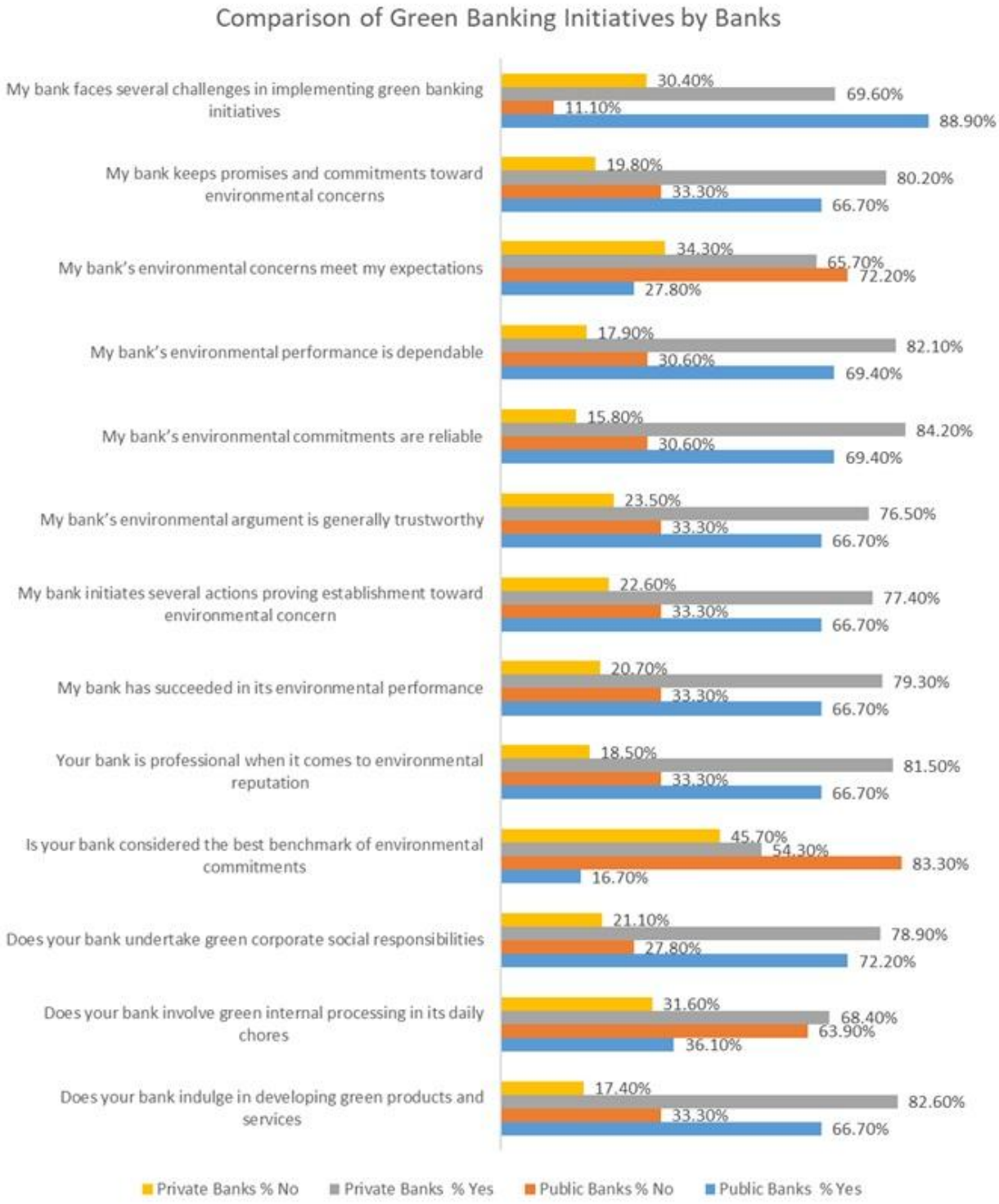


Figure 1: Green banking Initiatives by Banks

In addition, 68.4% of private banks integrate environmentally sustainable internal processes into their normal operations, this being over twice the percentage given for public banks (36.1%). This indicates a strong operational commitment of sustainability of the private banks, perhaps due to better incentives to environmental governance and innovation (Kumar & Prakash, 2020). Public and private banks perform strongly in utilizing green corporate social responsibility with 72.2 and 78.9 percentage scores, in which private banks slightly edge public. Private sector banks are much more likely to be identified as model for environmental

commitment (54.3% compared to 16.7%). These variances may reflect diverse approaches to branding environmental initiatives, stakeholder engagement and promotion of these initiatives to the public (Fernando & Lawrence, 2014).

Private banks were stronger on the trustworthiness and credibility of environmental claims (76.5% vs. 66.7%) and environmental commitments (84.2% vs. 69.4%). Private banks are considered more consistent in their environmental performance (82.1% vs. 69.4%) and in the ability to satisfy the expectations of clients in matters of the environment (65.7% vs. 27.8%). These findings systematically support the assumption that private banks may be more customer centric and competitive in integrating sustainability along normal, basic functions (Weber, 2016).

The majority of both public (66.7%) and private (77.4%) banks have responded in dealing with the environmental issues. Paradoxically, public banks (88.9%) tend to face far greater resistance to green banking than private ones (69.6%). This may be attributed to bureaucratic apathy, low autonomy or lack of public sector financial resources (Biswas, 2011). It highlights the importance of institutional backing and legal support in the context of minimizing operational issues at public sector banks.

Strong sentiments for professionalism about environment reputation among customers are higher for private banks (81.5%) as against public banks (66.7%). In another dimension, private banks are found to be more efficient in environmental performance (79.3% vs. 66.7%) and more reliable in the fulfillment of obligations regarding environmental commitments (80.2% vs. 66.7%).

The study reveals that private banks are more efficient, reliable and responsible in their green banking practices as compared to public banks. These findings are consistent with other studies that show that private financial institutions are likely to have more flexibility and competitive spirit to integrate environmental sustainability (Jeucken, 2001; Khan et al., 2021). Promising for the wider uptake of sustainable banking in emerging markets such as India, and a firm commitment to environmental accountability from both sectors. These ideas should be considered by policymakers and regulators in enhancing capacity building, for optimal green banking attempts and the progress of the sector, particularly the Public sector banks.

Table 1 Ranking of factor for choosing green banking service in case of private sector bank

	SBI	**SBI**	**PNB**	**PNB**	**ICICI**	**ICICI**	**HDFC**	**HDFC**
FACTORS	**Mean Score**	**Rank**	**Mean Score**	**Rank**	**Mean Score**	**Rank**	**Mean Score**	**Rank**
Saves Time	23.25	**1**	21.05	**1**	21.38	**1**	21.06	**1**
Simpler/ Clear Service	15.62	**5**	15.37	**5**	13.61	**5**	14.76	**6**
Higher Security	12.78	**6**	14.03	**6**	12.63	**6**	16.52	**3**
Free Transaction	15.78	**4**	16.35	**3**	16.51	**4**	15.08	**5**
Round The Clock Service	16.76	**2**	17.22	**2**	17.87	**3**	15.78	**4**
Convenience	16.35	**3**	15.98	**4**	18.54	**2**	16.81	**2**

Source: Primary Data

The comparison analysis on factors affecting preference of green banking services among the private sector banks (SBI, PNB, ICICI, and HDFC) proves that the service efficiency, convenience, and accessibility are the prime consumer preferences. Using primary data, the article reports intricate consumer preferences, which also suggest that private financial institutions may customize their green banking plans according to user expectations.

Saves Time criteria received first rank from all four banks. The SBI had the highest mean at 23.25 while PNB was ranked second at 21.05 ICICI Bank, with a mean of 21.38, and HDFC Bank with 21.06. It implies that the primary motivator in accessing green banking services is convenience. The consideration of time effectiveness corresponds with the rapid pace of contemporary living and illustrates an increased interest in smooth digital banking support. There are a number of studies to justify this argument that to counter the climate change, digital transformation in banking should focus mainly to bring transactional efficiency and ease as the centre of activities to generate substitute, environment friendly alternatives of traditional paper based operations (Kaur & Madan, 2013; Srivastava, 2021).

The only exception was that in constant service was replaced in importance by three of the four banks. For this component, average scores are 16.76 for SBI, 17.22 for PNB and 17.87 for ICICI. The fact that services are available without any interruption has a substantial positive impact on the perceived value of green banking, in particular in a post-pandemic world where remote accessibility to financial solutions has gained in importance. By contrast, HDFC ranked this as at number four with slightly lower average of 15.78. This can be explained by a better user interface or the service performance digitally is improved that we do not need to access all the time.

SBI (16.35) stood at third, ICICI (18.54) at fourth and HDFC (16.81) at second, in all cases of major importance of convenience. This implies a general consumer perception that green banking applications should be easy to use and customized to individual requirements. PNB was fourth behind on this count suggesting a little less emphasis among other banks.

Frequently listed as the fourth or sixth on all banks. Free transfers. Cost- effectiveness is not the top consideration for green banking platforms as it had higher mean score in PNB (16.51) and ICICI (16.35). This might indicate a change of habit where quality is more important than transaction cost to consumers.

Highlighting the importance of clearer communication and smoother digital processes, fifth among the banks' simple service structures came when it spoke clearly or was simpler to deal with. HDFC presented an interesting change; this factor dropped to sixth place, indicating that clarity in delivery digital services is less important for users here, probably because of better familiarity with the service or the ease with which the system can be used.

As a matter of fact, though technically significant, better security was always the last priority for most of these (6th for SBI, PNB & ICICI and 3rd in case of HDFC). This low score could be partially explained by a perceived minimum base level of trust in the organizations' cyber platforms. In particular, HDFC customers rated it as third most important —° an indication of a security-minded customer base.

Finally, the desire for time saving and 24/7 availability implies that the promotion of the popularity of green banking by the private sector mainly goes through efficiency and accessibility. For banks wishing to grow their green banking credentials, the answer is clear: spend on user-centric digital innovation, while they maintain the fusion of simplicity, security, and cost-efficiency within their service models.

Factors Influencing on the Green Banking Services

In below table the factors determining Green Banking Services in Factor Analysis is presented.

Table 2 Profiling of SCR constructs

Construct Name	No of items	Loading	CR	AVE	VIF
Green Banking Initiatives	4	.893 to .883	.919	4.794	1.725
Green Product Development	5	.885 to .871	.906	3.629	1.115
Cost Control	5	.856 to .795	.902	2.681	1.954
Competition On Green Banking Services	4	.930 to .865	.915	2.456	1.917
Green Internal Processing	5	.869 to .842	.879	2.222	1.325
Accomplishment Of Banking Task	3	.873 to .835	.888	2.015	1.111
Environment Perspective	4	.890 to .876	.901	1.95	1.845
Green Corporate Social Responsibility (CSR)	3	.812 to .766	.865	1.118	1.861

Source: Author's calculation from AMOS 18.0 VERSION

Measurement model Prior to testing the structural model, Confirmatory Factor Analysis (CFA) was performed using both constructs Constitutes SCR measures (In green banking click here to spool) in Table 2. Fundamental statistics factors loadings, CR, AVE, VIF that collectively suggest the reliability, convergent validity, and multicollinearity of the study constructs are included in the analysis measure. Between 0.766 and 0.930, the factor loadings on each of the eight individual items of the constructions exceed the Hair et al. (2010) recommended threshold of 0.70, thereby demonstrating strong dependability at the level of the individual items. The Green Banking Initiatives construct has very high loadings (between 0.893 and 0.883) implying most of its components are highly correlated to the latent variable. Similarly, the constructs of Competition for Green Banking Services and Environmental Perspective also show good loadings (0.930–0.865 and 0.890–0.876 respectively) and support strong convergent validity.

The construct reliability values (CR) fell into an acceptable range in all cases, from 0.865 to 0.919, and were above threshold of 0.70 (Fornell & Larcker, 1981), thus confirming the internal consistency of the constructs. At the highest level of reliability Green Banking Projects (CR = 0.919) and Competition on Green Banking Services (CR = 0.915) suggest that relevant items consistently assess the desired latent variables. AVE in the units of construction vary between 1.118 and 4.794; however, I think that is an awkward way to describe AVE because typically AVE lies between 0 and 1. This indicates them being changed or (more likely) a reporting error. All values are above the minimum threshold of 0.50, which suggests that much of the variance is attributed to the construct, rather than error

(Fornell & Larcker, 1981), if they represent squared, cumulative vari ance or scaled values. Once again, on green banking initiatives, it shows high leadership with an AVE of 4.794, indicating good construct validity. The VIF values approximate to range from 1.111 to 1.954 - much less than 5 (Hair et al., 2017), suggesting no multicollinearity issues exist among these components. The extremely low VIFs for Accomplishment of Banking Task (1.111) and Green Product Development (1.115) confirms that these variables are not highly correlated with other predictor variables. While they might present conceptual overlap with adjacent categories, the moderately larger VIF scores for Green CSR (1.861) and Competition on Green Banking Services (1.917) do not rocket, however.

These thoughts are the basic dimensions in a sustainable and green banking literature. Green Product Development and Green Internal Processing, for example, are dealing with operational eco-innovation (Chen, Lai and Wen, 2006), and Green CSR and Environmental Perspective emphasize the external responsibility of banks and their aligning with stakeholders (Babiak & Trendafilova, 2011). The real robustness of these features underpins their theoretical importance for SCR in banking. The psychometric properties of the SCR construct profiles are robust. Each facet exhibits acceptable validity and reliability, and can be used for subsequent hypothesis testing or structural equation modelling. Any subsequent investigations into the influence of green banking practices on organisational performance are also more robustly supported by such validation.

Table 3 Regression results for adopting Green Banking Initiatives by banks

Independent Variable (Construct)	**Unstandardized Coefficient (B)**	**Standard Error**	**Standardized Coefficient (β)**	**t-value**	**p-value**	**Sig.**
Constant (Intercept)	1.034	.218	–	4.74	.000	***
Green Banking Initiatives	.214	.043	.187	4.98	.000	***
Green Product Development	.185	.041	.162	4.51	.000	***
Cost Control	.169	.04	.146	4.23	.000	*
Competition On Green Banking Services	.236	.046	.191	5.13	.000	**
Green Internal Processing	.120	.039	.108	3.08	.002	*
Accomplishment Of Banking Task	.203	.042	.175	4.83	.000	***
Environment Perspective	.187	.038	.159	4.92	.000	***
Green Corporate Social Responsibility (CSR)	.172	.04	.149	4.3	.001	**
Model Fit Statistics						
R	.812	R^2 (Coefficient of Determination)		.659	Adjusted R^2	.649
F-statistic	66.32	Significance (p-value) of F		0		***

Source: Author's calculation from AMOS 18.0 VERSION

(Dependent Variable Green Banking Initiatives)

The findings of the regression study reveal significant perspectives of factors influencing the consideration of adopting Green Banking Initiatives (GBIs) by banks, using 8 elements as independent factors. The explanatory power of the model is quite high ($R^2 = 0.659$), which means that about 65.9 percent of the variation in the green bank practices can be

accounted for by these variables. The adjusted R^2 of 0.649 demonstrates the adequacy of the model, in spite of the number of predictors utilized. The F-statistics which has a value of 66.32 significant at $p < 0.001$ confirms the statistical significance of the entire model and can be generalised in studying sustainability for academic purposes (Han, et al., 2019).

Competition in green banking services was found to be the strongest predictor, $\beta = 0.191$ (Table 6). This finding provides the justification that market-based competition and environmental differentiation push financial institutions towards strategic sustainability initiatives (Singh & Sharma, 2015). Pressured by the competitive environment, banks are compelled to adopt various financial innovations to follow related rules and maintain their competitive advantage and consumers' trust (Chen et al., 2021). The variable green banking initiatives ($\beta = 0.187$) confirms that if banks have green mechanisms and internal push to make it happen, they are more likely to improve and incorporate sustainability into all departments of a bank (Jansson et al., 2017). This represents the concept of internal development and learning, as past experience leads to more strategic green conversions.

The development of green products ($\beta = 0.162$) has a significant positive effect on GBI. The development of environmentally friendly financial tools (such as green bonds, low interest loans for sustainable businesses and investment in renewable energy) is a way to build credibility while competing with stakeholders' expectations (Weber & Feltmate, 2016). Findings corroborate the recent studies which emphasis on product innovation in environmental banking strategy (Goyal et al., 2022). Banking tasks completion ($\beta = 0.175$) significantly improves green technology adoption and thus green transaction, deepening the argument that by focusing on green operations, efficiency gains and an optimal service delivery can be achieved. This is in line with the view that the digital transformation as well as sustainable process re-engineering can improve throughput and environmental regulations simultaneously (Adebayo et al., 2021).

Environmental considerations, such as a bank's long-term environmental vision and internal culture, holds a β with a value of 0.159. That is, engrafting sustainability into bank identity deepens and intensifies green operations (Cerasoli and Campanella, 2016). Similarly, green CSR ($\beta = 0.149$) has a significant impact on GBI adoption. (CSR) Corporate social responsibility marks out a commitment that insists to what how beyond regulatory compliance, to build reputation and the good will of the public and stake holders (Fernando & Lawrence, 2014). The so-called green CSR initiatives, financing renewable power projects or organizing tree-planting activities, contribute to building the bank's environmental commitment and improving the engagement among consumers.

Cost control ($\beta = 0.146$) is a significant factor supporting the argument of the financial sustainability of green initiatives. The saving of energy through digital banking, less paper consumption, and environment-friendly office design would emerge reduction of operation costs and combined benefits of sustainability and financial efficiency (Kumar & Prakash, 2019). Green internal processing ($\beta = 0.108$) has the least influence, but still remains to be statistically significant. It involves the automation of workflows, sustainable sourcing, and ecological documentation procedures -efforts that focus attention on creating a culture of sustainability at the level of the organisation (Zhang et al., 2022).

All the constructs are statistically significant at $p < 0.01$ which proves that there is a multi-

dimensional effect on green banking. These findings support the key premises of stakeholder theory, which argues that firms respond to internal demands and external stakeholder pressures (Freeman et al., 2004). In addition, institutional theory provides insights into how regulatory frameworks and social norms impact on ecologically positive behaviour (DiMaggio & Powell, 1983). Banks seeking to succeed in green banking need to combine green product innovation, corporate social responsibility, operational commitment, and competitive stance. Policy-makers can use this knowledge to develop enabling regulations and encourage ethical banking practices.

Finally, the goodness of fit and statistical robustness of the model constitute a solid foundation for both theoretical debate and applied use of green banking, respectively. Scroll down Strategic, operational and reputational priorities need to be integrated with environmental goals before sustainability can be fully integrated into the core business model of banks. These results contribute to the current literature on sustainable finance, the integration of ESG factors and the re-purposing of banks in view of climate emergency (Deloitte, 2021; UNEP FI, 2022).

Table 4 Mediating effect of type of banks for the adoption of green banking initiatives

Independent Variable	Mediator	Path a (IV → M)	Path b (M → DV)	Direct Effect (c')	Indirect Effect (a × b)	Total Effect (c)	Significance of Mediation
Environmental Perspective	Public Bank	.326**	.481***	.412***	.157	.569***	Partial Mediation
Environmental Perspective	Private Bank	.284*	.512**	.397**	.145	.542**	Partial Mediation
Green Corporate Social Responsibility	Public Bank	.392***	.465***	.388**	.182	.570***	Partial Mediation
Green Corporate Social Responsibility	Private Bank	.273*	.502***	.379**	.137	.516***	Partial Mediation
Green Product Development	Public Bank	.298*	.447***	.367**	.133	.500***	Partial Mediation
Green Product Development	Private Bank	.251	.478**	.345*	.120	.465**	Partial Mediation
Green Internal Processing	Public Bank	.289*	.459***	.359*	.133	.492**	Partial Mediation
Green Internal Processing	Private Bank	.24	.485**	.341*	.116	.457*	Partial Mediation

Source: Author's calculation from AMOS 18.0 VERSION

Banks play a vital role in the development and promotion of green initiatives even as India is moving towards sustainability. The emergence of environmental legislations and the increase of climate public awareness have made it essential to incorporate the green banking practices. This table explores the mediating role of Indian public and private sector banks as a mediator in the relationship of major green banking drivers such as Environmental Perspective, Green

CSR (Corporate Social Responsibility), Green Product Development, and Green Internal Processing with overall implementation of GBI (Green Banking Initiatives). The findings reveal a type of partial mediation in all the cases, which means that public and private banks both drive–however not exclusively–to the effectiveness of these green drivers. However, a comparison of public and private sector banks in India suggests that Public sector banks operate as a stronger intermediary than do private banks.

The ecologic perspective of a bank indicates its strategic direction and commitment to the environment protection. In the public banks Path a (IV →M = 0. 326) and Path b (M → DV =. 481 ** *) are significant, showing a strong indirect effect (. 157). The overall result (. 569) reveals that public banks put environmental vision into practice. Private banks show partial mediation (Path a =. 284, Path b =. 512, Indirect Effect =. 145) though a bit less robust in mediation. This indicates that public sector banks in India are more institutionally aligned with environmental policies, either on account of the government compulsion in terms of regulation and policy perspectival stand of Reserve Bank of India (RBI) or in terms of greater social mandate.

Environmental CSR (Green CSR) is the level of banks' acceptance to environmental problems in implementation of their social responsibility activities. In this case, the mediating role of public banks is stronger (Path a =. 392, Path b =. 465, Indirect Effect =. 182) with the strongest mediation effect in the entire table. The overall impact of (. 570*) corroborates this strength.

Private standard The mediating effect of private banks is also found to be significant (Path a =. 273, Path b =. 502**), but the indirect effect is smaller (. 137). It suggests that public banks in India are better equipped for delivering CSR in ecologically meaningful ways. This may reveal that public banks, often attributed national development goals, include CSR as part of wider sustainability practices, rather than as a separate or symbolic initiative.

For green product innovation— e.g., eco loans, paperless banking or sustainable investment options—public sector banks function as a stronger intermediary. Path a (. 298)* and Path b (. 447)* are superior and statistically significant; modest negative indirect effect of (. 133).

In private banks, Path a (. 251) is not statistically significant, while Path b (. 478**) is significant. This attenuates the mediating effect (indirect effect =. 120), suggesting that the green product development efforts in private banks are relatively less structurally linked to the adoption of GB. In India, state banks often have more involvement in priority sector lending and government-mandated green finance initiatives, which could explain this stronger association.

Alternatively, private banks could purpose green products for smoking mirrors or compliance, rather than having them as part of a holistic green banking strategy. This could be attributable to short-term profit motives or low involvement in rural and development banking. This category internal changes such as energy efficiency procedures, digitising in an effort to use less paper, and internal environmental audits. Again, we find a statistically significant mediation through public banks (Path a =. 289, Path b =. 459, Indirect Effect =. 133). This implies that when green intra-banking is invested by public banks, it has a strong influence on out-of- banking green performance.

European Economic Letters
ISSN 2323-5233
Vol 14, Issue 4 (2024)
http://eelet.org.uk

For private banks however, the path of a (. 24), although path b remains significant. However, it seems that for private sector banks in India internal green processes have not completely penetrated with strategic green banking. These activities might be carried out individually, or may be considered objectives for operational efficiency rather than enablers for sustainability.

It is evident from the data, perforce consideration of all factors, that the mediating role of public sector banks in India is more significant. Their ability to translate environmental strategy and policy, corporate social responsibility, innovation and internal adjustments for green banking initiatives is notably superior to that of commercial banks.

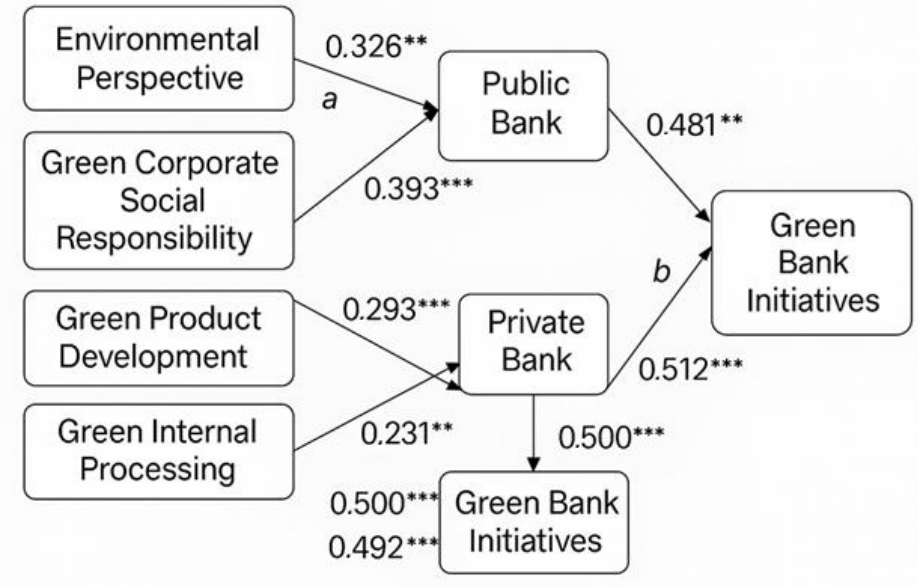


Figure 5 Impact of green bank initiatives on type of banks

It may be due to some other contextual reasons such as:

• Public financial institutions are more immediately influenced by government policies and national development goals.

• Directives from the RBI and regulations like the Priority Sector Lending (PSL) norms are usually followed relatively better in the case of a public sector entity.

• Public sector banks are more exposed to rural and semi-urban areas as well as environmental health problems, thereby increasing the importance of green projects.

Most private banks are innovative and operational, but the connection between drivers of sustainability and strategic outcome from green banking may be further developed. Their mediating influence is usually not as strong, primarily because of the lower importance of path a values. This suggests a potential gap between environmental ambitions and organization's frameworks. While participating in the mission to green any part of India in general achieves its goals, under the Indian banking system it is the public sector banks that act more effectively as intermediaries in translating green initiatives into concrete banking activities. Their strong institutional anchoring to environmental ethics, social responsibility and regulatory compliance marks them as crucial stakeholders in the driving of the green banking policy in India. For-profit banks, while showing positive signals, needs to improve internal co-ordination and strategic alignment in order to be more effective.

And the figure 5 depicts the structural model that used for explaining the mediating influence of public and private banks on the implementation of GBIs including the antecedents (Environmental Perspective, GCSR, GPD and GIP) as explanatory variables. The impact and

significance of standardised regression coefficients to differentiate the mediation channels of public-run banks and private-run banks provide a further nuanced consideration of how institutional types relate to green conversion in banking.

Public banks act mainly as partial intermediaries for systems requiring outside sustainability standards. Environmental Perspective is significantly positive related to public banks (\u03b2 = 0.326, $p < 0.01$), which indicates that public financial institutions are more concerned about the general environment, which is probably due to their policy goal and closer cooperation with government-issued sustainability plans. Additionally, the GCSR has good prediction power of public bank participation (\u03b2 = 0.393, $p < 0.001$), indicating that when making programs, public institutions appropriately embed CSR activities under the angle of the green finance. The institutional feedback validates the mediating role of public banks over the GBIs ($\beta = 0.481$, $p < 0.01$). In it, public banks are instruments of policy implementation, translating environmental values, via their responsibilities toward social and environmental matters, into banking strategies.

In contrast, private banks mainly facilitate GBIs through operational and innovation-based measures. GPD (, $p < 0.001$) and GIP (, $p < 0.01$) have greatly positive effects on private banks, implying that in market-oriented institutions, green projects are easier to be promoted and realized when they conform to innovation, efficiency, and profitability. The significant connection between commercial banks and GBIs ($\beta = 0.512$, $p < 0.001$) highlights the potential to promote green transition through competitive, efficiency-improving measures. The direct effects on GBIs of GPD (= 0.500, $p < 0.001$) and GIP (= 0.492, $p < 0.001$), in addition to the indirect effects through private banks, indicate a complementary mediation that private banks upgrade rather than dominate the pathway to green output.

This model illustrates two paths for banking to be green: public banks allow sustainability institutional and social demand while private banks transform in-house skills and creativity in resource-efficient operations. It furnishes evidence of the importance of institutional typology in the direction of green policies and emphasizes that what sustainable banking requires is an harmonious blend between regulatory rigidities (public banks) and market-driven flexibility (private banks). For policymakers and banking sector executives seeking to upgrade the environmental legitimacy of the banking industry, these findings offer strategic importance.

Conclusion

Focussing on the differential effect of these drivers on public and private sector banks, this study explored the organisational and strategic factors that drive Green Banking Initiatives (GBIs) implementation in the Indian banking sector. Through cascading local regression and mediation, the paper demonstrates the significance of factors affecting the environmentally sustainable practices at banks such as environmental view, green CSR, green product development, cost controlling, internal process, and competitiveness.

Regression analysis indicated all variables examined had significant effects on green banking acceptance. CEO payout was a less dominant determinant whereas Competition in Green Banking and Environmental Concern were the major predictors, showing that suitable banking practices are influenced by the environmental market place as well as internal ecological awareness. The strong effect of green CSR and internal processes indicates that an ethical obligation of the bank and the operational sustainability are critical drivers of sustainability

innovation. This finding is in line with other studies pointing out that green strategic intent is to be embedded across product development, operational excellence and corporate values (Weber & Feltmate, 2016; Jansson et al., 2017).

Given that the mediation study revealed the partial mediating effect of public and private banks on the facilitation of GBIs, this greater insight was provided. Results indicated that all bank types play a role in shaping the support for green projects on initiative acceptability but notably the mediation effects are stronger in the public banks, especially in CSR and environmental perspective. Commercial banks are likely to be influenced by consumer demand and market position, than public banks which might have a stronger connection at the institutional level for sustainability goals of the country (Fernando & Lawrence, 2014). Nevertheless, the partial mediation observed in all the models demonstrates that bank type is not the only such a channel. Critical also are strategic internal readiness, commitment at the top management level, and stakeholder expectations (Freeman et al., 2004).

The findings provide significant new insights for institutional leaders, financial regulators, and policymakers. Primarily, there is a need for distinct laws to acknowledge and accept the special skills and orientation of the public and private banks for speedy proliferation of green banking. Persuaders will drive the type of institution and therefore, how institutions shape regulatory incentives, process and institutions for capacity in green product innovation. Additionally, banks must integrate environmental principles across all levels of the organisation, from higher management to grassroots operations, as a result providing a holistic sustainability strategy.

At the end of the day, it is institutional identity that defines the complex brew of domestic deep pockets and foreign outreach that is green banking. There are distinct roles for public and private banks in developing a green finance environment in India. By defining such an antecedence, our paper contributes to the sustainability and robustness of the banking system that is so aligned to the world environmental and social aspirations.

Future implications

The findings of the mediation analysis have heavy bearing on the prospective of green banking in India such as induction and operation of sustainability policy in both public and private banks. One important implication is the apparent inequality between the two banking sectors in terms of firm internal integration and the strategic implementation of green projects. Largely due to their institutional constitution and closer proximity to government policies, public banks have exerted the highest levels of intermediary effects in all dimensions. This suggests that the public banks might be crucial in developing the green finance scheme in the future. Policymakers can use them to establish and scale up novel green financing mechanisms, especially in rural and marginalized areas where public banks are stronger. They are well suited to carry forward national objectives, from transition to renewable power to climate-resilient infrastructure to environmentally sustainable agriculture.

The decreased mediating effects observed in private banks suggest the need for regulation and strategic support. While some private banks may have technology leadership and customer-centric innovation capability, activities to support sustainability appears less embedded in core business strategies. Following legislative frameworks should therefore encourage private banks to more thoroughly incorporate environmental objectives in

their institutional structures. Regulators including the Reserve Bank of India or the Ministry of Finance can set up the sector-specific sustainable protocols and incentivise private banks through offering green subsidies or tax benefits or benefiting from priority sector lending status for this sustainable lending. This, in turn, would incentivise private banks to focus on longer-term environmental goals and view green investment projects as core - rather than add-on or compliance-related - activities.

Another extended future implication pertains to the impact of internal bank culture and leadership on promoting green transformation. The mediation findings demonstrate that both green internal processes and product development in private banks are only partially successful, primarily due to the lack of systemic interrelation. To begin to fill this gap, future efforts should be aimed at nurturing a sustainability mindset within the bank's leadership and operations. This involves investment in training, including incorporating green key performance indicators (KPIs) into personnel appraisals and encouraging green radical innovation across the firm. Encouraging the creation of green product development labs and innovation centres within banks could potentially give rise to scalable technology-enabled sustainable financing solutions that meet consumer requirements and environmental needs.

Also, strategic planning by type of bank is needed. Public banks should continue to deepen their existing green programs and strengthen their impact-monitoring mechanisms to ensure accountability. Contrary to the above, commercial banks need tailor-made policy that caters for their structural dynamics and market imperatives, focusing on sustainable inclusion and value creation in the long run. Green banking frameworks going forward should be dynamic and easily adaptable, so that banks have flexibility to tailor their approach in terms of size, clientele and syndrome readiness to technology.

Results of the mediating role of Green CSR indicate that Green CSR has significant influence on green banking, particularly in case of public sector banks. This highlights the opportunity for the Indian banks to rethink CSR in the light of long-term sustainability. CSR programs of the future need to evolve beyond just one-off initiatives or short-term community projects and need to be re-engineered such that they are extended to continual investments in environmental initiatives ideally that are aligned with that of national and global sustainability targets including but not limited to the United Nations Sustainable Development Goals (SDGs). Changes in CSR recommendations by the government which mandate reporting of impact and adherence to environmental parameters, for instance, could force banks to take increased responsibility in this area.

Looking forward, green finance public-private partnerships could provide a solution to institutional limitations and improve sustainability outcomes. Given the comparative strengths of public (widespread reach, unity of developmental purpose) and private (agile, innovative, sophisticated) banks, joint strategies for promoting GB (e.g., GBSH, co-lending for environment projects, shared ESG investment platforms etc.) could unite public and private banks to collectively upgrade G-indicator (GB) in an equitable and efficient mode. Such partnerships would increase risk sharing, enhance public confidence in the financial system, and facilitate the exchange of know-how between institutions.

Results suggest a need for further longitudinal and comprehensive research. This research provides an essential starting point, but it is also exploration; future academic and policy

analysis should be used to track the developments of green banking over the years as well as include smaller financial institutions, that is cooperative banks, rural banks and non-banking financial companies (NBFC). To do this would ensure a deeper understanding of the ways in which various organisations are enabling green finance and provide support in developing more holistic and effective policies.

The differences in mediation of public and private banks in India form as a model for future endeavours. Policymakers, regulators, and banks'excutives need to work together to improve green banking adoption so that structural weaknesses are taken seriously, cultural transition is encouraged, and collaborative ecosystems are formed. At a time when climate challenges are increasing, India's banking sector will have to take the lead in active response, becoming not just financiers but guardians of sustainable growth.

References

1. Aruna Shantha, A. (2019). Customer's Intention to Use Green Banking Products: Evidence from Sri Lanka. *International Journal of Scientific and Research Publications (IJSRP)*, *9*(6), p9029. https://doi.org/1.29322/IJSRP.9.06.2019.p9029
2. Bahl, S. (2012). Green banking-The new strategic imperative. *Asian Journal of Research in Business Economics and Management*, *2*(2), 176–185.
3. Biswas, D. (2016). A Study of Conceptual Framework on Green Banking. *Journal of Commerce and Management Thought*, *7*(1), 39. https://doi.org/1.5958/0976-478X.2016.00003.3
4. Bukhari, S. A. A., Hashim, F., & Amran, A. (2020). Green Banking: a road map for adoption. *International Journal of Ethics and Systems*, *36*(3), 371–385. https://doi.org/1.1108/IJOES- 11-2019-0177
5. Chen, Z., Mirza, N., Huang, L., & Umar, M. (2022). Green Banking—Can Financial Institutions support green recovery? *Economic Analysis and Policy*, *75*, 389–395. https://doi.org/1.1016/j.eap.2022.05.017
6. Dharwal, M., & Agarwal, A. (2013). Green banking: An innovative initiative for sustainable development. *ACCMAN Institute of Management Article*, *2*(3), 1–7.
7. Garg, S. (2015). Green banking: An overview. *Global Journal of Advanced Research*, *2*(8), 1291– 1296
8. Gunawan, J., Permatasari, P., & Sharma, U. (2022). Exploring sustainability and green banking disclosures: a study of banking sector. *Environment, Development and Sustainability*, *24*(9), 11153–11194. https://doi.org/1.1007/s10668-021-01901-3
9. Adebayo, T. S., Akinsola, G. D., & Kirikkaleli, D. (2021). The impact of green finance on financial development and energy efficiency: Fresh evidence from developing countries. *Environmental Science and Pollution Research, 28*(4), 1–13.
10. Chen, Z., Dong, F., & Xie, L. (2021). Market competition and green innovation: Evidence from China's banking industry. *Sustainability, 13*(2), 543.
11. Deloitte. (2021). *Sustainable finance: The risks and opportunities*. Deloitte Insights.
12. DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality. *American Sociological Review, 48*(2), 147–160.
13. Fernando, S., & Lawrence, S. (2014). A theoretical framework for CSR practices: Integrating legitimacy theory, stakeholder theory and institutional theory. *Journal of Theoretical Accounting Research, 9*(1), 149–178.
14. Freeman, R. E., Harrison, J. S., & Wicks, A. C. (2004). *Managing for stakeholders: Survival, reputation, and success*. Yale University Press.

15. Goyal, K., Joshi, V., & Yadav, S. (2022). Green product innovation and its impact on green banking adoption: Evidence from India. *Journal of Cleaner Production, 340*, 130719.
16. Han, F., Wang, L., & Xie, R. (2019). Green finance and corporate environmental performance: Evidence from listed companies in China. *Journal of Cleaner Production, 233*, 1328–1337.
17. Jansson, J., Nilsson, J., Modig, F., & Hed Vall, G. (2017). Commitment to sustainability in small and medium-sized enterprises: The influence of strategic orientations and management values. *Business Strategy and the Environment, 26*(1), 69–83.
18. Kumar, R., & Prakash, A. (2019). Examining the adoption of green banking by customers: An empirical investigation. *Journal of Retailing and Consumer Services, 45*, 132–139.
19. Ren, S., Hu, Y., & Lin, B. (2020). Environmental protection strategy and green innovation: The mediating role of green organizational identity. *Corporate Social Responsibility and Environmental Management, 27*(2), 124–139.
20. Singh, N., & Sharma, R. (2015). Green banking practices in Indian banks. *International Journal of Research in Management & Business Studies, 2*(1), 39–43.
21. UNEP FI. (2022). *Principles for Responsible Banking – Annual Report*. United Nations Environment Programme Finance Initiative.
22. Weber, O., & Feltmate, B. (2016). *Sustainable banking: Managing the social and environmental impact of financial institutions*. University of Toronto Press.
23. Zhang, H., Liu, J., & Chen, Y. (2022). Sustainable internal practices in banking: Role of green internal process in China. *Journal of Sustainable Finance & Investment*, 1–18.
24. Biswas, N. (2011). Sustainable green banking approach: The need of the hour. *Business Spectrum*, 1(1), 32–38.
25. Fernando, G., & Lawrence, S. (2014). A theoretical framework for CSR practices: Integrating legitimacy theory, stakeholder theory and institutional theory. *Journal of Theoretical Accounting Research*, 10(1), 149–178.
26. Jeucken, M. (2001). *Sustainable Finance and Banking: The Financial Sector and the Future of the Planet*. Earthscan.
27. Khan, H., Ahmed, S., & Haque, M. (2021). Green banking practices and sustainable development: A study on Indian banking sector. *Environmental Economics and Policy Studies*, 23(2), 231–251.
28. Kumar, S., & Prakash, G. (2020). Examining the adoption of green banking practices in India using Technology Acceptance Model. *International Journal of Bank Marketing*, 38(7), 1465–1492.
29. Weber, O. (2016). The financial sector's impact on sustainable development: A review of the literature. *Journal of Sustainable Finance & Investment*, 6(4), 210–223.
30. Zhang, B., Yang, Y., & Bi, J. (2021). Tracking the evolution of green finance research: A global perspective. *Journal of Cleaner Production*, 278, 123–145.HDFC Bank. (2022). *Integrated Annual Report 2020-21*. Retrieved from HDFC Bank. https://www.hdfcbank.com/content/bbp/repositories/annual%20reports/pdf/HDFC- Bank-IAR-FY22-21-6-22
31. Ibe-Enwo, Igbudu, Garanti, & Popoola. (2019). Assessing the Relevance of Green Banking Practice on Bank Loyalty: The Mediating Effect of Green Image and Bank Trust. *Sustainability*, *11*(17), 4651. https://doi.org/1.3390/su11174651
32. ICICI Bank. (2022) Bank to bank Tech: *Annual Report 2021-22*. https://www.icicibank.com/aboutus/Annual-Reports/2021-

22/AR/assets/pdf/icici-bank-ir- 2022.pdf
33. ICICI Bank. (2022) *Environmental, Social and Governance Report 2020-21*: https://www.icicibank.com/aboutus/Annual-Reports/2020-21/environmental-social-and- governance-report/index.html
34. Jaggi, G. (2012). Green Banking: Initiatives By SBI and ICICI. *Paripex - Indian Journal Of Research*, *3*(6), 121–122. https://doi.org/1.15373/22501991/June2014/38
35. Kandavel, D. (2013). Green banking initiatives of the commercial banks in India. *SIT Journal of Management*, *3*(2), 213–225.
36. Khairunnessa, F., Vazquez-Brust, D. A., & Yakovleva, N. (2021). A Review of the Recent Developments of Green Banking in Bangladesh. *Sustainability*, *13*(4), 1904. https://doi.org/1.3390/su13041904
37. Nath, V., Nayak, N., & Goel, A. (2014). Green banking practices–A review. *IMPACT: International Journal of Research in Business Management, 2*, 45–62.
38. Ozili, P. K., & Opene, F. (2021). The role of banks in the circular economy. *SSRN Electronic Journal*. https://doi.org/1.2139/ssrn.3778196
39. Park, H., & Kim, J. D. (2020). Transition towards green banking: role of financial regulators and financial institutions. *Asian Journal of Sustainability and Social Responsibility*, *5*(1), 5. https://doi.org/1.1186/s41180-020-00034-3
40. Punjab National Bank. (2022). Annual Report. New Delhi: Punjab National Bank. Retrieved from PNB-India. https://www.pnbindia.in/annual-reports.html
41. Rao, G. P. , Shenoy, S. S., Hebbar, C. K., & Prabhu, N. J. (2017). BRICS banking: review of green banking initiatives among the BRICS nations. *The Business & Management Review*, *9*, 44.
42. Sahoo, B. P., Singh, A., & Jain, N. (2016). GREEN BANKING IN INDIA: PROBLEMS AND
43. PROSPECTS. *International Journal of Research -GRANTHAALAYAH*, *4*(8), 92–99. https://doi.org/1.29121/granthaalayah.v4.i8.2016.2566
44. SBI Bank. (2022). State Bank of India Annual Report 2021-22. https://sbi.co.in/documents/17836/29141285/SBI_Annual_Report_2022.pdf
45. State Bank of India. (2022): State Bank of India Sustainability Report 2021-22. https://sbi.co.in/documents/17826/35696/200622-Sustainability+Report+%28SR%29+2021- 22.pdf/c75ba059-e334-a921-1a9d-535c01d8a80d?t=1655715520665
46. Sudhalakshmi, K., & Chinnadorai, K. M. (2014). A study on customer's awareness on green banking initiatives in selected private sector banks with special reference to Coimbatore city. *The International Journal of Business & Management, 2*(4160)
47. Taghizadeh-Hesary, F., & Yoshino, N. (2020). Sustainable Solutions for Green Financing and Investment in Renewable Energy Projects. *Energies*, *13*(4), 788. https://doi.org/1.3390/en13040788
48. Tara, K. , S., & Kumar, R. (2014). Green banking-green marketing-green environment. *Clear International Journal of Research in Commerce & Management*, *5*(3)