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IMPACT OF ENVIRONMENTAL CONSIDERATIONS UNDER ESG ON BANKS – HOW TO REDUCE CARBON FOOTPRINTS BY DIGITIZATION/AUTOMATION OF PROCESSES.

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1. ABSTRACT

This research aims to explore the impact of Environmental factor under Environment, Social, and Governance (ESG) on banks and to investigate the potential for automation of processes to reduce the carbon footprint of banks. The expected outcome of this research is to provide banks with practical recommendations on how to reduce their carbon footprint through automation and to contribute to the understanding of the relationship between ESG and banks, as well as the potential of automation to mitigate environmental risks.



KEYWORDS: ESG, Environment, Social and Governance, Carbon footprint, automation.

2. INTRODUCTION

Sustainable development and environmental preservation are global priorities, emphasizing the 3 R's: Reduce, Reuse, and Recycle, to combat climate change, pollution, and greenhouse gas emissions. Banks have a vital role in optimizing their carbon footprint, aligning with the ESG framework to measure their impact. ESG considerations in banking encompass environmental, social, and governance aspects, ensuring energy and resource conservation, fair labor practices, and risk management. Integrating ESG strategies enhances trust, financial performance, and risk mitigation, driven by consumer and investor demands for transparency. The banking technology sector is pivotal in driving change and promoting sustainability in the industry.

3. LITERATURE REVIEW

Various literature and case studies/articles has been studied as a part of this research to understand the progress so far made under ESG aspects and challenges faced by the organizations. Some important studies are shown in chronological order.

Dr. Namita Rajput, Ms. Ruchika Kaura, and Ms. Akanksha Khanna (2013) focused on Indian banks' response to environmental turbulence and their adoption of green banking practices. They found that only a small group of banks in India are leading in addressing climate change and carbon footprints. **IDRBT (2013)** emphasized the importance of greening processes, products, services, and infrastructure in banking operations. They provided recommendations for banks to adopt environmentally friendly practices.

Shri. M. Rajeshwar Rao, Deputy Governor, Reserve Bank of India (2021), highlighted the global understanding of climate change's systemic impacts on the financial system. He stressed the joint responsibility of tackling climate risk in the financial sector and integrating green finance into lending decisions.

R. El Khoury, N. Nasrallah, and B. Alareenib (2021) investigated the impact of ESG on bank financial performance in the Middle East, North Africa and Turkey (MENAT) region. They found that while investment in ESG initially creates value, it becomes disadvantageous in the long run. Governance had limited impact on market financial measures. **CRISIL ESG Gauge (2021)** reported a positive relationship between ESG scores and financial returns in 70% of academic studies. **The Task Force on Climate-Related Financial Disclosures (2021)** recommended organizations to assess and disclose the financial impact of climate-related risks and opportunities in short, medium, and long terms. **Lanouar Charfeddine and Montassar Kahia (2021)** examined the effects of ICT and renewable energy consumption on environmental quality in the MENA region. They found that ICT use negatively impacts environmental quality, while renewable energy consumption improves it. **Dr. Vivek Sharma, Dr. Priyank Kumar Singh, Mr. Gopalan Ramachandran, and Dr. Shweta Rani (2022)** highlighted the role of technology in green banking activities of private sector banks in India. Technology enabled online services, cost optimization, paperless operations, and increased efficiency in green banking. **Reserve Bank of India (RBI) Discussion Paper on Climate Risk and Sustainable Finance (2022)** discussed strategies to address climate change, promote green financing, and ensure systemic stability. It proposed a climate-related financial disclosure framework aligned with TCFD. **Ajaz Akbar Mir and Aijaz Ahmad Bhat (2022)** reviewed green banking practices and emphasized their benefits for banks, industries, and the environment. They highlighted the importance of considering environmental data in credit and investment decisions. **Elisa Menicucci and Guido Paolucci (2022)** investigated the impact of ESG dimensions on bank performance in Italy. They found that ESG policies negatively affect operational and market performance, but certain aspects like emission and waste reductions have positive impacts.

Overall, the literature indicates the growing recognition of environmental concerns in the banking sector, the need for green banking practices, and the potential impact of ESG factors on financial performance. However, there are challenges in implementation, governance, and the long-term effects of sustainability initiatives.

4. RESEARCH GAPS

While reviewing the above literature, it was found that in most of the studies, Green Banking under environment is studied in detail and very few elaborated research is done on the current trends and practices adapted by financial institutes under ESG, progress made so far under it & challenges faced in its implementations.

5. SCOPE OF THE RESEARCH

This research proposal aims to examine the impact of Environmental factor under Environment, Social, and Governance (ESG) framework on banks and to explore ways in which automation of processes can be used to reduce the carbon footprint of banks. The research will focus on analyzing the current practices of banks in terms of their ESG performance and identifying areas where automation can lead to significant carbon emission reductions.

6. RESEARCH METHODOLOGY:

The study is analytical in nature and based on the Secondary data collected from Bank's websites, Bank's BRSR and Annual Reports, RBI guidelines/discussion papers/ survey, etc. to gain an understanding of the current state of ESG and its impact on banks, as well as the potential for automation to reduce carbon emissions in the banking sector.

7. DATA COLLECTION AND ANALYSIS:

The secondary data is collected from the report of the survey on climate risk and sustainable finance by RBI in Jul-2022 and Business Responsibility and Sustainability (BRSR) Report of 6 private banks and State Bank of India.

7.1 The Sustainable Finance Group (SFG) in the Department of Regulation (DoR), Reserve Bank of India (RBI), carried out a survey in January 2022 to assess the status of climate risk and sustainable finance in leading scheduled commercial banks. The survey covered 34 leading scheduled commercial banks comprising 12 public sector banks, 16 private sector banks and 6 leading foreign banks in India.

Key findings of the survey summarized as below:

7.1.1 ESG Practices in the Banking Sector

- Public sector banks (PSBs) are lagging behind in various ESG criteria, including risk management, governance, climate-related financial disclosure, human resource capacity building, and internal green initiatives.
- Most banks do not have a separate business unit or vertical for sustainability and ESG-related initiatives.
- Banks recognize climate change risks but lack strategies for managing these risks effectively.
- Many banks have introduced green products such as rooftop solar and electric vehicles.

7.1.2 Transition to Low-Carbon Exposure

Most banks have committed to reducing their exposure to high-carbon emitting/polluting businesses in the coming years.

7.1.3 Sustainable Finance

- Banks have recognized the potential risks associated with climate change.
- Some banks have integrated ESG and climate risk aspects into their credit evaluation processes.
- Banks provide sustainable finance options such as loans for purchasing solar panels and green miles.

7.1.4 Moving towards a Low-Carbon Environment in Banking Operations

- Most banks have either taken some measures or have plans to decrease the absolute carbon emissions arising from their operations and increase the proportion of renewable energy in their total sourced electricity
- A few banks have either announced time-bound plans or plan to come up with a roadmap over the next 12 months to become carbon-neutral.

7.1.5 Climate-Related Financial Disclosures

- Most banks have not aligned their climate-related financial disclosures with any internationally accepted framework.

7.2 Secondary Data collected from different Bank's ESG reports, Sustainability and Business Responsibility, Annual Reports to get the insights on the different ESG practices and initiatives followed by them specifically under Environment aspects of the three pillars of ESG.

The ESG principles and practices adopted by following banks has been studied as a part of the research (Data as of 31, March 2022 is taken for this research):

- Kotak Mahindra Bank
- Axis Bank
- HDFC Bank
- SBI
- ICICI Bank

- Federal Bank
- Yes Bank

The key points of the study is summarized and categorized under these parameters:

- ESG Policy of the Banks
- Sustainable Finance/Responsible Banking
- Energy Management
- Waste and Water Management
- Paperless Banking (Digitization)

- **ESG Policy of the Banks**

Most of the banks covered under survey have separate ESG policy in place and separate vertical is there to look after ESG related functions. All the Banks covered under survey are voluntarily disclosing the BRSR report. SBI has Climate Change and Risk Policy, Renewable Energy Policy are in place apart from other policies.

- **Sustainable Finance/Responsible Banking**

Some of the Banks like Kotak Mahindra and ICICI Banks has Incorporated ESG and climate risk aspects as a part of the credit evaluation process. Kotak Mahindra Bank Instituted an ESG Management Systems Plan (EMSP) and other ESG evaluation frameworks to identify, review and manage the ESG risks in their credit portfolio. **Axis Bank** put in place an '**ESG Policy for Lending**' in 2015, integrating environmental and social risk assessment into the credit appraisal mechanism. **SBI** has devised ESG risk rating model to assess the ESG risks of corporate borrowers. SBI's foreign branches have been extending ESG-related loans and sustainability grid –linked pricing. **ICICI Bank** is having a **Social and Environmental Management Framework (SEMF)**, incorporating analysis of Environmental and Social Risk Assessment into the overall credit appraisal as a part of the credit assessment. **Federal Bank has established an Environmental and Social Management System (ESMS) Policy** to guide Bank to actions in profiling all financing through the E&S risk lens. **Yes Bank has instituted an Environment and Social Risk Management System (ESMS)** to assess and mitigate environment and social (E&S) risks of its financing activities, through this policy, the Bank integrates environmental and social risks into its overall credit risk assessment framework,

All the banks are providing sustainable finance like green miles and loans for purchasing solar panels. Kotak Mahindra Bank, Axis Bank, SBI, ICICI Bank, and Yes Bank have implemented robust ESG management systems to evaluate and manage environmental, social, and governance risks in their credit portfolios. They prioritize green financing, with significant investments in renewable energy projects, electric vehicles, and climate-conscious initiatives. These banks actively integrate sustainability and ESG considerations into their lending policies, demonstrating their commitment to responsible banking and environmental conservation.

- **Energy Management and Conversation:**

Most banks, including Yes Bank, SBI, Kotak Mahindra Bank, Axis Bank, and HDFC Bank, have adopted Centralized Energy Management Systems (CEMS) and IoT-based monitoring to optimize energy consumption. Yes Bank was the first in India to use the Science Based Targets initiative (SBTi) methodology to measure and report its financed emissions. Axis Bank's CEMS resulted in annual electricity savings of ~38.86 lakhs units, while HDFC Bank's energy management system saved ~48.81 lakh units in FY22, with plans for further expansion to 1,500 branches. These banks are leading the way in sustainable practices and emission reductions.

- **Waste Management:**

Banks, including Kotak Mahindra Bank, Axis Bank, HDFC Bank, SBI, ICICI Bank, and Yes Bank, are actively addressing waste generation in their operations. They focus on stationary waste, organic waste from canteens, e-waste, construction waste, plastic waste, and scrap metal. Kotak Mahindra Bank reuses or recycles about 75% of waste at large offices, bans single-use plastic, and installs organic waste converters. Axis Bank composts food/wet waste and uses it in landscaping, while HDFC Bank and SBI are phasing out single-use plastic. ICICI Bank composts organic waste and uses recycled paper and toners. Yes Bank uses 100% recycled paper (A4) for all internal operations nationwide. These initiatives reflect the banks' commitment to responsible waste management and sustainability.

- **Water Management:**

Most of the banks covered under survey are using rainwater harvesting. Banks are using recycled water for the purpose of landscaping at its offices.

- **Paperless Banking:** All the banks covered under survey are using and promoting paperless banking and digitization & automation of processes in most of their operations to reduce carbon foot print.

- **Kotak Mahindra Bank** has **introduced end-to-end eSignature and eStamping of documents**, these solutions help the Bank to send all requirement documents to customer electronically and get e-signed and stamped by the customer and send it back to the Bank. This brings speed and reduces customer physical touch points and seamlessly process the documentation.

- **Axis Bank Digital Initiatives:**

Axis Bank has demonstrated a remarkable digital transformation, with 91% of financial transactions by individual customers being digital, and mobile banking transaction volumes growing at 97% YoY as of March 2022. Their self-developed application, Saksham, streamlines financial transactions and customer services with AI and OCR-based technologies, resulting in reduced time lag and paper usage. Incorporating biometric-based authentication and eKYC, Saksham enables paperless and automated requests. The bank's innovative Branch of the Future (BoF) initiative offers virtual branch visits, further reducing paper usage during request processing. Through these initiatives, Axis Bank has achieved an estimated paper savings of ~14 lakhs pages annually and ~1.1 million sheets of paper saved per month through BoF.

- **SBI's Environment-Friendly Initiatives:**

SBI has undertaken several environment-friendly initiatives to promote digital banking and reduce paper consumption. Using the mobile banking app Yono for various services has significantly saved water consumption by 378,54 m³, avoided 2503.83 MT of paper waste, and reduced 38,237.81 tCO₂e of GHG emissions. The introduction of Green Channel Counters (GCCs) at retail branches facilitated over 27,81,30,000 digital transactions, saving 445 MT of paper, 39,746.81 m³ of water, and 4,000 tCO₂e of GHG emissions. These efforts showcase SBI's commitment to sustainability and ecological conservation.

- **ICICI Bank's Digital Initiatives:**

ICICI Bank embraced various digital initiatives, including E-Sign for loan documents, Express Agri App for digital application sourcing, and contactless credit appraisals using satellite data for 2000 villages. They also digitized corporate salary processing and adopted E-KYC and E-Statements. As a result, the bank saved approximately 12 million A4 papers, equivalent to saving 1,400 trees and six million liters of water. Their InstaBIZ App offered instant and paperless overdrafts, video KYC for account opening, and digital payment collections for merchants. These initiatives demonstrate ICICI Bank's strong commitment to digitization and resource conservation.

➤ **Federal Bank's Digital Initiatives:**

Federal Bank has embraced extensive digitization to streamline its processes and enhance customer experience. They have implemented various digital solutions, such as GoNoGO for auto loan sourcing, digital onboarding with KYC, and AI-based lending and credit card origination systems, leading to a significant reduction in paper consumption and processing time. Their Fed-e-Studio smart branch handles most retail banking transactions digitally, and the Digital Loan Repository System stores application data and documents digitally, eliminating the need for physical copies. The bank's digital outward remittance platform, Fed-e-Remit, enables customers to transfer funds abroad without visiting branches. Through these initiatives, the bank achieved 88% of transactions done digitally, saving approximately 93.75 lakh sheets of paper and 132.25 lakh liters of fuel, while also optimizing energy consumption.

➤ **HDFC Bank's Eco-Friendly Initiatives:**

HDFC Bank has taken significant steps towards sustainability and digitization. By shifting to electronic payments for electricity bills, they have eliminated paper usage for about 50,000 Demand Drafts annually. Additionally, the bank is transitioning to recycled paper wherever paper use is unavoidable. They have also introduced digital loan options for shares, mutual funds, and car loans, providing customers with end-to-end digital processes. The bank's Virtual Relationship Management approach ensures customer-centric engagement through remote and digital platforms, enhancing relationships and reducing costs effectively.

➤ **Yes Bank's Sustainable and Digital Initiatives:**

Yes Bank has made significant efforts to digitize paper-based processes, resulting in substantial paper savings and energy conservation. Their VAHAN Robotics platform reduced the turnaround time for vehicle registration certificates, saving around 75,473 A4 sheets of paper. (equivalent to avoiding 10.41 GJ energy consumption) The YES UDAAN initiative introduced paperless banking, avoiding 64,845 A4 sheets of paper, (equivalent to avoiding 8.95 GJ energy consumption) and their E-Statement of Accounts and IT Certificates saved close to 2,51,668 sheets (Equivalent to avoiding 41.47 GJ energy consumption). The Loan in Seconds platform saved 37,13,490 sheets (equivalent to avoiding 512.30 GJ energy consumption) and SeVA (Service Value Added) reduced paper usage by about 52,831 sheets. (equivalent to avoiding 7.29 GJ energy consumption) Additionally, the YES PDD application digitized post-disbursement documents, saving over 90,289 sheets (equivalent to avoiding 12.53 GJ energy consumption). Through these efforts, Yes Bank has exemplified its commitment to sustainability and digital innovation.

Key findings and observations from the data collected as above from BRSR and annual report of the Banks:

- Most of the banks covered under survey have separate ESG policy in place and separate vertical is there to look after ESG related functions. All the Banks covered under survey are voluntarily disclosing the BRSR report.
- Some of the Banks like Kotak Mahindra and ICICI Banks has Incorporated ESG and climate risk aspects as a part of the credit evaluation process.
- All the banks are providing sustainable finance like green miles and loans for purchasing solar panels.
- All the banks and organization covered under survey are using Waste Management and Water Management.
- Most of the Banks are using IoT and Centralized Energy Management System to monitor the energy consumption and optimize the energy and electrical consumption.
- All the banks and organization covered under survey are using and promoting paperless banking and digitization & automation of processes in most of their operations to reduce carbon foot print.

8. RECOMMENDATIONS & SUGGESTIONS:

Based on the analysis of the secondary data, the following recommendations are suggested to reduce the carbon footprint of banks through automation of processes:

8.1 Energy Management/Operational Efficiency:

- Installation of Occupancy sensor-based lighting / /motion sensor across offices at common area to reduce the electricity consumption and hence save the carbon emissions.
- Implement rooftop solar panels in large buildings and replace diesel generators with solar UPS.
- Deploy centralized energy management modules with auto controls in branches/offices. Banks can use automation to optimize their energy usage, including lighting, heating, and cooling systems. By using sensors and data analytics, banks can identify energy wastage and implement measures to reduce their carbon footprint
- Implement IoT-based monitoring systems for energy consumption and resource optimization.
- Switch to renewable energy sources for powering operations and use energy-efficient and renewable energy-powered ATMs.
- Construct green buildings with energy-efficient features.
- Auto- scaling and auto scheduling of applications hosted in on-premise cloud for efficient usage of resources.
- To promote eco-friendly practices in IT, modernizing applications is crucial. This involves enhancing scalability by adjusting server numbers and specifications based on workload, reducing emissions by powering servers only when needed. Additionally, making applications smaller and more efficient, such as using container, serverless, and event-driven architectures, significantly reduces energy consumption, promoting a greener and more sustainable IT ecosystem.
- Implement waste management and water management systems.

8.2 Automation of Processes:

- Adopt straight-through processing from loan origination to disbursement to reduce paper usage and physical visits.
- Enable cash receipt and withdrawal through green card swipe machines.
- Adopt digital document management systems and automate loan documentation processes using digital document execution (DDE).
- Implement intelligent branch automation solutions for processing transactions.
- Automate customer onboarding processes using digital tools.
- Offer remote deposit capture to eliminate the need for physical visits to deposit cheques.
- Promote digital currencies to reduce the need for cash withdrawals.
- Enable cardless cash withdrawal using mobile phones and biometric authentication.
- Utilize digital marketing and communication tools.
- Enhance customer support processes through AI-based and AI-assist services.

9. GENERAL RECOMMENDATIONS/SUGGESTIONS TO REDUCE CARBON FOOTPRINT IN BANK'S IT OPERATIONS

Banks could decrease emissions from their buildings, branches, data centres, etc., as also their financed emissions (i.e. greenhouse gas emissions associated with a bank's loans and investments) They could also increase the proportion of renewable energy in their total sourced electricity. There are several ways that the banking industry can reduce its carbon footprint in its information technology (IT) operations:

1. Energy-efficient data centers: Data centers are major consumers of energy, so it's important to ensure that they are as energy-efficient as possible. This can be achieved through the use of energy-efficient servers and other IT equipment, virtualization and use of low-power servers, banks as well as through the implementation of energy-efficient cooling and ventilation systems.

2. Renewable energy: Banking institutions can reduce their carbon footprint by using renewable energy sources to power their data centers and other IT operations. This can include solar, wind, and hydroelectric power.

3. Virtual meetings and telecommuting: Encouraging the use of virtual meetings and telecommuting can help to reduce the carbon footprint associated with travel. This can be achieved through the use of videoconferencing and other virtual collaboration tools.

4. Paperless operations: Banking institutions can reduce their carbon footprint by transitioning to paperless operations. This can be achieved through the use of digital documents and online banking systems.

5. Recycling and waste reduction: Proper recycling and waste reduction practices can help to reduce the carbon footprint of IT operations. This can include the recycling of old computers and other electronic equipment, as well as the use of recycled materials in new equipment.

10. CHALLENGES AND BENEFITS OF ESG REPORTING:

ESG reporting faces methodological data issues, lack of standardization, evolving reporting requirements, and difficulty in quantifying the impacts of ESG measures. This can lead to investor skepticism and make it challenging to compare corporate sustainability performance. However, embracing ESG practices offers various benefits. It can reduce costs, improve the value proposition by fostering innovation, enhance brand reputation, and attract investment from socially and environmentally conscious investors. Higher ESG scores correlate with improved financial performance, making it a strategic and financially rewarding investment for banks.

11. CONCLUSION:

Changing regulations and growing demand for sustainable investment have driven banks to adopt ESG reporting, promoting transparency in environmental, social, and governance risks. By disclosing progress in these areas, banks attract investors, mitigate risks, and generate sustainable long-term returns. ESG reporting reveals opportunities to reduce carbon emissions and enhance efficiency, especially in India, where renewable energy adoption and energy-efficient practices are crucial for sustainability and economic development. Harmonizing global political, regulatory, and reporting systems and addressing challenges like greenwashing are necessary for effective ESG implementation. Embracing responsible profit generation with a focus on the environment, social aspects, and governance, banks play a vital role in driving climate action. The research highlights the potential for automation to reduce the banking sector's carbon footprint, aligning with ESG principles and supporting the shift to a low-carbon economy.

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