**A study of customer awareness on green capital as a sustainable energy with a special reference to selected private sector banks.**

**Author: Vidya Sasikumar Nair, 23MCOM49, M.Com Student,**

**Kristu Jayanti College:** [**nairvidu26@gmail.com**](mailto:nairvidu26@gmail.com)

**Co-Author: Dr. Madhu Druvakumar, Head of Department of Commerce PG,**

**Kristu Jayanti College:** [**madhumalathi@kristujayanti.com**](mailto:madhumalathi@kristujayanti.com)

**Kristu Jayanti College (Autonomous), Bangalore – 560077.**

**I. Abstract**

This study seeks to evaluate the green capital advancement roles played by selected private sector banks operating in India and also this study evaluates private sector banks through their investment behavior along with their lending approaches and financial policies which drive sustainability standards. It analyzes the green lending methods because it seeks to determine how banks integrate environmental aspects into their financing strategies. Green finance transparency together with efficiency and accountability improve markedly through the implementation of blockchain and digital platform technologies. The implementation of these technologies enables users to monitor the environmental effect of their investments in addition to providing better stakeholder involvement capabilities.

**Keywords:** Green Capital, Sustainable Finance, Private Sector Banks, Regulatory Framework

**II. Introduction**

Green capital refers to financial assets or investments directed toward projects and technologies that contribute to environmental sustainability. This can include renewable energy projects such as solar, wind, and hydropower; energy efficiency initiatives; carbon reduction and offset schemes; and investments in sustainable agriculture or waste management. The goal of green capital is to align financial practices with environmental objectives, providing the necessary funding to accelerate the transition to a more sustainable and resilient economy. The rise of green finance has been driven by both regulatory pressures and market demand. International

agreements such as the Paris Agreement have placed stringent obligations on countries to reduce their carbon footprints, and financial institutions are increasingly being seen as key players in the effort to meet these targets. In addition, there is growing recognition that investments in unsustainable industries pose long-term financial risks due to regulatory changes, resource depletion, and shifting consumer preferences. As a result, banks are increasingly seeking ways to integrate green finance into their operations to reduce these risks while tapping into new growth opportunities presented by the renewable energy sector.

**III. Review of Literature**

Varsha Gupta and Sanjeev Chaddha’s (2023) study, India requires green funding now more than ever to combat climate change. Studies prove how big capital investments are necessary for decarbonization and renewable energy undertakings, the challenges and gaps in getting to net-zero, and the necessity of innovative funding models.

Tiwari Sadhana (2023) explain that green bonds are society’s most important financial instrument to finance sustainable activities, fight global warming, and preserve the environment. More Investors are seeking out socially responsible fixed income and this only underlines the need to provide more space and inclusion for GREEN BONDS in Indian and global markets.

Dr. G. Nedumaran & Akhila K.H. (2023) In this article, the authors stress the importance of green banking in reduction of carbon emissions and sustainable development of environmentally friendly businesses as a middle link. It shows how important government involvement is, and offers a guideline for how banks can effectively implement sustainable green banking business models.

Manoj Kumar Sahoo, M.D. (2023**)** This paper aims to analyze the applicability of the green accounting techniques in Indian commercial banks, considering how they can assist in risk management of financial effects of environmental obligations. The use of ‘green’ banking is highlighted as to how banking organizations require incorporating environmental compliance into their systems to conform to the increasing regulations and seal the deal on environmental consciousness.

Neha Bansal, Sanjay Taneja, and Ercan Ozen (2023) noted that green financing is important. Research points out the positive outcomes of sustainable finance to lower global warming and preserve the environment, especially natural resources; the importance of the effective delivery of green strategies by banks to provide better outcomes for the environment is also highlighted in the literature.

**IV. Research Methodology**

**Research Gap**

SBI, HDFC, and ICICI banks lack the understanding of successfully integrating green capital into their investment portfolios, according to the study. As global financial institutions ramp up their financing for sustainable energy in developing and transition countries, Indian banks appear to be lacking in data on. Many studies don’t analyze if it’s profitable and safe to really switch the investment to green. The impact of these long-term investments is also experienced by the banks and their bottom line.

**Statement of the problem**

The focus is on how and how much SBI, HDFC, and ICICI can adopt and promote green capital to support sustainable energy initiatives. As big financial institutions they have the challenge of moving away from their previous investment strategies and instead focus on renewable energy projects. Necessary as this shift is to align with global sustainability goals and to address climate change, it entails balancing financial profitability with environmental responsibility.

**Objectives**

To analyze the customer awareness in green banking initiatives.

**Hypothesis of the study**

H0: There is no significant awareness among customers regarding green banking initiatives.

H1: There is a significant awareness among customers regarding green banking initiatives.

**Data Collection methods**

In this study, primary data is collected through questionnaire which will be filled by 120 respondents and secondary data is collected from various articles and books.

**Sampling**

Population: The study will focus on SBI, HDFC and ICICI employees and customer for the sustainable energy.

Sample Size: 120 respondents.

**Research Instrument**

Questionnaire: Questionnaire will be distributed to employees and customers involved in green finance. To gather quantitative data on perceptions, experiences, and the effectiveness of these three bank’s green finance.

**Sampling Type**

The study uses the purposive sampling method to select participants who are knowledgeable in green capital and sustainable energy financing. This includes senior officials, project managers and sustainability experts from SBI, HDFC and ICICI. Purposive sampling is well suited for this research because it puts a lot of emphasis on the quality of the information collected from the participants and not the quantity

**Area of study**

The study focuses on Green Capital as a sustainable energy source, exploring its implementation and impact within selected private sector banks in India. The research examines the banks' Green Capital initiatives, energy efficiency measures, and sustainable financing practices. It also analyzes the benefits, challenges, and future prospects of Green Capital in the Indian banking sector

**Scope of the Study**

This paper examines green capital that involves financing of sustainable energy projects that are energy-efficient, wind, and solar by SBI, HDFC, and ICICI in India. It determines financial and social feasibility or profitability.

**Limitations of the study**

* The study focuses only on SBI, HDFC, and ICICI, excluding other banks that may contribute significantly to green finance.
* Some important information may be private or unavailable, making the study less detailed.
* It is hard to accurately measure how much green finance helps in sustainable energy projects**.**
* Government policies and banking regulations keep changing, which may affect the study’s findings over time.

**V. Analysis and Interpretation**

**Regression**

Regression is a statistical approach to examine the connection between dependent variables and one or more independent variables. This statistical software provides different regression types which range from linear to logistic and multiple regression for data analysis based on research goals.

**Table 4.1 Analysis of customer banking services**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Coefficients | | | | | | |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | 1.081 | .340 |  | 3.182 | .002 |
| Are you aware of the concept of green banking? | .016 | .181 | .009 | .088 | .930 |
| Which of the following green banking services have you heard about? (Select all that apply) | -.058 | .059 | -.093 | -.981 | .329 |
| How did you come to k2w about green banking initiatives? | .061 | .085 | .073 | .710 | .479 |
| How would you rate your k2wledge about your bank's green banking policies? | -.103 | .116 | -.095 | -.888 | .376 |
| Have you availed of any green banking services from your bank? | .234 | .164 | .145 | 1.426 | .156 |
| Do you think green banking contributes to environmental sustainability? | .145 | .083 | .167 | 1.750 | .083 |

**Interpretation**

The above table is analysis of customer green banking awareness so two hypothesis exist regarding this matter where null hypothesis indicates no awareness exists but alternative hypothesis suggests it does. All significance values in the table exceed 0.05 which proves there is no statistically significant impact from the predictors. Research for Awareness of green banking (p = 0.930), knowledge of green banking services (p = 0.329), sources of awareness (p = 0.479) and knowledge of bank policies (p = 0.376) shows no evidence to support rejecting null hypothesis. The data shows that customers do not demonstrate significant awareness about green banking initiatives since the p value (p = 0.083) is near the threshold but not compelling enough evidence.

**VI. Findings, suggestion and conclusion**

**Findings**

* The results from regression analysis revealed that all significance values surpassed the threshold of 0.05 thus demonstrating no statistical evidence that customers possess broad knowledge regarding these initiatives.
* The banks must enhance their distribution of green banking educational materials to improve consumer awareness about such initiatives.

**Suggestion**

* Financial institutions need to create specific programs that will spread information about green banking initiatives through social media channels alongside email marketing and branch promotional materials.
* Customer participation in workshops along with webinars about green banking benefits will enhance their knowledge base.
* Education institutions should join forces with banks to promote green banking knowledge toward younger students.
* User-friendly digital banking programs that simplify mobile application interfaces as well as online banking management systems enable higher acceptance rates.

**Conclusion**

Green banking plays a crucial role in promoting sustainable financial practices, yet its success depends on customer awareness together with adoption and effectiveness for sustainable financial practice promotion. The research analysed these domains using SBI as well as HDFC and ICICI as examples. Information based on the study reveals green banking demonstrates substantial potential for sustainability yet customers show limited awareness about it while adoption faces multiple obstacles that affect its effectiveness apart from particular variables. This research established that people understand very little about the green banking programs banks offer. The p-values of 0.930 for awareness combined with 0.329 for green banking services knowledge and 0.479 for sources of awareness and 0.376 for bank policy awareness measured above 0.05 to indicate these factors had no significant impact on customer comprehension. The measurement of overall awareness reached a p-value of 0.083 yet remained insufficient to establish high awareness levels. Data shows that customers demonstrate inadequate knowledge about green banking benefits together with availability of these services. Low customer awareness of green banking demonstrates that banks must implement better marketing approaches to spread awareness coupled with educational initiatives supported by specific customer-targeted awareness programs. Customer adoption of green banking services becomes less likely when their environmental awareness is not supported by enough knowledge about green banking options.

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