

## Modeling Sustainable Banking Adoption and Its Impact on Inclusive Growth: An Integrated UTAUT–ESG Framework from Karnataka

Mr. Mohan D<sup>1</sup> & Dr. Venkatesha B M<sup>2</sup>

<sup>1</sup>Research Scholar, Institute of Management & Commerce, Srinivas University, Mangalore, India,

<sup>2</sup>Associate Professor, Institute of Management & Commerce, Srinivas University, Mangalore, India,

### ABSTRACT

Sustainable banking has emerged as a transformative approach within the financial sector, integrating Environmental, Social, and Governance (ESG) principles into banking operations to promote long-term economic stability and social welfare. In the context of developing economies like India, sustainable banking plays a pivotal role in fostering inclusive growth by improving financial access, supporting environmentally responsible investments, and strengthening rural and underserved economies. The state of Karnataka, with its diverse banking ecosystem comprising commercial and cooperative banks, provides a relevant setting to examine the adoption and impact of sustainable banking practices. This study investigates the level of awareness, adoption behavior, institutional support, and perceived impact of sustainable banking practices among customers in selected districts of Karnataka, including Shivamogga, Chikkamagaluru, Hassan, and Uttara Kannada. Using a structured questionnaire, primary data were collected from a heterogeneous group of respondents such as farmers, MSMEs, and salaried individuals. The study employs statistical techniques including factor analysis, regression analysis, and structural equation modeling (SEM) to analyze the relationships between key constructs such as perceived usefulness, ease of use, ESG orientation, and inclusive growth outcomes. The findings reveal that while awareness of sustainable banking is gradually increasing, its adoption is significantly influenced by behavioral, technological, and institutional factors. Cooperative banks face greater challenges in terms of infrastructure and digital readiness compared to commercial banks. The study concludes that strengthening policy support, enhancing financial literacy, and promoting ESG-integrated banking strategies are essential for achieving sustainable and inclusive economic development.

**Keywords:** Sustainable Banking, Financial Inclusion, Commercial Banks, Holistic Banking Practices

### I. INTRODUCTION

The global financial system has undergone a significant transformation over the past two decades, driven by increasing concerns over environmental sustainability, social responsibility, and ethical governance. In this context, sustainable banking has emerged as a critical paradigm that integrates Environmental, Social, and Governance (ESG) principles into core banking operations and decision-making processes. Unlike traditional banking models that primarily focus on profitability, sustainable banking emphasizes long-term value creation by aligning financial services with environmental protection, social equity, and responsible investment practices. This shift has redefined the role of banks from conventional financial intermediaries to key contributors to sustainable economic development [1]. In India, the adoption of sustainable banking practices has gained considerable momentum due to regulatory support, technological advancements, and increasing awareness of climate-related risks. Initiatives by the Reserve Bank of India (RBI) and government-led financial inclusion programs have encouraged banks to promote green financing, responsible lending, and digital financial services. While large commercial banks have made notable progress in integrating ESG practices, the adoption of sustainable banking in cooperative and rural banking sectors remains uneven and underdeveloped [2]. This disparity highlights the need for empirical investigation into the diffusion of sustainable banking practices across different banking institutions. The state of Karnataka provides a relevant and diverse setting for examining sustainable banking practices, given its mix of commercial and cooperative banking systems and varying levels of economic development across districts. Regions such as Shivamogga, Chikkamagaluru, Hassan, and Uttara Kannada represent a combination of rural, semi-urban, and emerging economic zones where financial inclusion plays a vital role in socio-economic development. Cooperative banks, which are deeply rooted in local communities, contribute significantly to financial inclusion but often face challenges related to infrastructure, digital adoption, and regulatory compliance. In contrast, commercial banks are relatively more advanced in adopting sustainable and digital banking practices, thereby creating a structural gap in service delivery and sustainability integration [3]. Despite the growing importance of sustainable banking, its adoption among customers remains influenced by several behavioral, technological, and institutional factors. Limited awareness, perceived complexity, lack of trust, and inadequate infrastructure act as barriers to adoption, particularly in rural and semi-urban areas. Furthermore, the extent to which sustainable banking contributes to inclusive growth—through improved financial access, support for micro, small, and medium enterprises (MSMEs), rural development, and social empowerment—requires systematic examination. The integration of behavioral frameworks such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) with ESG perspectives provides a comprehensive approach to understanding adoption behavior and its outcomes [4]. From a broader developmental perspective, sustainable banking is closely linked to inclusive economic growth by promoting equitable access to financial services, encouraging environmentally responsible investments, and strengthening local economic resilience. By supporting green initiatives, enhancing digital financial inclusion, and enabling access to credit, banks can play a crucial role in reducing socio-economic disparities and fostering sustainable livelihoods. However, achieving these objectives requires coordinated efforts involving policy support, institutional strengthening, and increased financial literacy among users [5].

Against this backdrop, the present study examines the awareness, adoption, and impact of sustainable banking practices on inclusive growth in selected districts of Karnataka. It further compares the role of commercial and cooperative banks in promoting sustainable banking and identifies key challenges and opportunities in the adoption process. The findings of the study are expected to contribute to the existing literature and provide practical insights for policymakers, banking institutions, and stakeholders aiming to enhance sustainable and inclusive financial systems.

### II. LITERATURE SURVEY

The literature on sustainable banking has evolved significantly over the past two decades, emphasizing the integration of environmental, social, and governance (ESG) principles into financial systems. Early studies conceptualize sustainable banking as a shift from profit-centric models toward responsible financial intermediation that considers environmental protection, social welfare, and long-term economic stability [1]. Scholars argue that sustainable banking enhances risk management, improves corporate reputation, and contributes to sustainable development goals (SDGs) by aligning financial activities with ecological and social priorities [2].

Globally, the adoption of sustainable banking practices has been driven by regulatory frameworks, stakeholder pressure, and growing awareness of climate change and environmental risks. Research indicates that banks incorporating ESG principles demonstrate improved financial performance, reduced credit risk, and enhanced resilience to economic shocks [3]. Studies in developed economies highlight that green financing,

<sup>1</sup> Mr. Mohan D, Research Scholar, Institute of Management & Commerce, Srinivas University, Mangalore, India

sustainable lending, and responsible investment practices are becoming integral components of banking strategies [4]. However, the extent of adoption varies across regions, particularly in developing economies where institutional and infrastructural constraints persist. In the context of developing countries, sustainable banking is closely linked to financial inclusion and inclusive growth. Scholars emphasize that banks play a crucial role in extending financial services to underserved populations, thereby promoting economic participation and reducing inequality [5]. Financial inclusion initiatives, such as digital banking, microfinance, and priority sector lending, have been identified as key drivers of inclusive development [6]. In India, policy initiatives such as the Pradhan Mantri Jan Dhan Yojana (PMJDY) and digital payment systems have significantly expanded access to formal financial services, creating opportunities for sustainable banking practices [7]. The Indian banking sector has witnessed a gradual transition toward sustainable and green banking practices, supported by regulatory guidelines and digital transformation. Studies indicate that commercial banks have been proactive in adopting digital banking, green financing, and ESG reporting practices, while cooperative banks lag behind due to limited technological infrastructure and financial resources [8]. Research also highlights that awareness and adoption of sustainable banking among customers remain moderate, with significant variations across rural and urban regions [9]. Several studies have explored the role of behavioral factors in influencing the adoption of sustainable banking services. The Technology Acceptance Model (TAM) suggests that perceived usefulness and perceived ease of use significantly influence user adoption of technology-based services [10]. Similarly, the Unified Theory of Acceptance and Use of Technology (UTAUT) identifies performance expectancy, effort expectancy, social influence, and facilitating conditions as key determinants of behavioral intention and usage behavior [11]. These models have been widely applied in banking and financial services research to understand digital and sustainable banking adoption [12]. Environmental awareness and social responsibility have also been identified as important determinants of sustainable banking adoption. Research suggests that individuals with higher environmental consciousness are more likely to adopt green financial products and services [13]. Studies further indicate that ethical considerations and trust in financial institutions significantly influence customer attitudes toward sustainable banking [14]. However, limited awareness and perceived complexity continue to act as barriers, particularly in rural and semi-urban areas [15]. Institutional factors play a critical role in the successful implementation of sustainable banking practices. Studies highlight that strong regulatory support, effective governance mechanisms, and institutional capacity are essential for promoting ESG integration in banking operations [16]. In the Indian context, the Reserve Bank of India (RBI) and other regulatory bodies have encouraged banks to adopt sustainable practices, but implementation remains inconsistent across different types of banks [17]. Cooperative banks, in particular, face challenges related to technological adoption, staff training, and resource constraints [18]. Infrastructure and technological readiness are also key determinants of sustainable banking adoption. Research indicates that digital infrastructure, internet connectivity, and access to banking services significantly influence the usage of sustainable and digital banking solutions [19]. In rural regions, issues such as poor connectivity, limited digital literacy, and lack of awareness hinder the effective adoption of sustainable banking practices [20]. Addressing these challenges is essential for achieving inclusive growth through sustainable finance. Another important stream of literature focuses on the impact of sustainable banking on inclusive growth. Studies suggest that sustainable banking contributes to economic development by improving access to credit, supporting small and medium enterprises (SMEs), promoting rural development, and enhancing financial stability [21]. Research also highlights the role of sustainable banking in empowering marginalized groups, particularly women and rural populations, by providing access to financial resources and opportunities [22]. Recent empirical studies have increasingly employed quantitative techniques such as regression analysis, factor analysis, and structural equation modeling (SEM) to examine the relationships between sustainable banking practices and inclusive growth outcomes [23]. These studies provide evidence that awareness, adoption, institutional support, and behavioral factors significantly influence the effectiveness of sustainable banking initiatives [24]. However, most existing research focuses on metropolitan areas and large financial institutions, with limited attention to regional and district-level contexts. Despite the growing body of literature, there remains a significant research gap in understanding sustainable banking practices in non-metropolitan regions, particularly in the context of Karnataka. Existing studies have largely overlooked the comparative analysis of commercial and cooperative banks and their role in promoting inclusive growth. Furthermore, limited research integrates behavioral models such as TAM and UTAUT with ESG frameworks to examine sustainable banking adoption comprehensively [25]. In summary, the literature indicates that sustainable banking has substantial potential to promote inclusive economic development by integrating environmental responsibility, social inclusion, and financial innovation. However, its adoption and impact vary across institutional, technological, and regional contexts. The limited focus on district-level analysis and cooperative banking systems highlights the need for context-specific empirical research. Addressing this gap, the present study examines the awareness, adoption, and impact of sustainable banking practices on inclusive growth in selected districts of Karnataka, providing insights into both commercial and cooperative banking sectors.

### III. CONCEPTUAL ANALYSIS AND PROPOSED ANALYTICAL FRAMEWORK FOR SUSTAINABLE BANKING

The present study is grounded in the premise that sustainable banking functions as a strategic mechanism that integrates Environmental, Social, and Governance (ESG) principles into financial services to promote inclusive and sustainable economic development. In the context of Karnataka, particularly in districts characterized by rural and semi-urban economies, sustainable banking represents a transition from traditional financial intermediation to socially responsible and environmentally conscious banking practices.

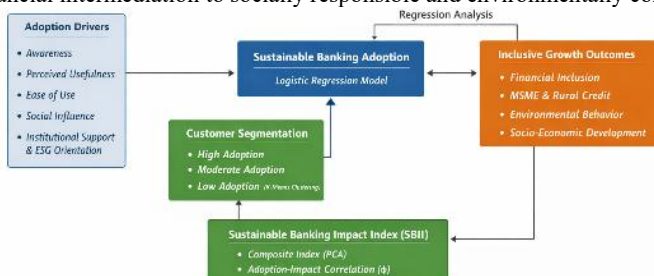


Fig. 1. Conceptual Framework for Sustainable Banking and Inclusive Growth

To capture this transformation, the study proposes an integrated Sustainable Banking–Adoption–Inclusive Growth Framework (SBAIGF). The framework links awareness, behavioral adoption, institutional support, and ESG orientation with inclusive growth outcomes. It evaluates whether sustainable banking adoption leads to:

- (i) improved financial inclusion,
- (ii) enhanced access to credit for MSMEs and rural populations,
- (iii) promotion of environmentally responsible financial behavior, and
- (iv) strengthening of socio-economic development indicators.

#### A. Sustainable Banking Adoption Model

To empirically assess adoption, sustainable banking usage is modeled as a binary outcome.

Let:

$$Y_i = \begin{cases} 1, & \text{if respondent adopts sustainable banking} \\ 0, & \text{otherwise} \end{cases}$$

The probability of adoption is estimated using logistic regression:

$$P(Y_i = 1) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki})}}$$

Where:

- $X_{1i}$ : Awareness level
- $X_{2i}$ : Perceived usefulness (TAM)
- $X_{3i}$ : Ease of use
- $X_{4i}$ : Social influence (UTAUT)
- $X_{5i}$ : Institutional support
- $X_{6i}$ : ESG orientation
- $\beta$ : Estimated coefficients

This model identifies key determinants influencing adoption of sustainable banking practices.

#### B. Inclusive Growth Impact Model

To evaluate the effect of sustainable banking on inclusive growth, a regression-based model is used:

$$IG_i = \alpha + \delta SB_i + \gamma Z_i + \epsilon_i$$

Where:

- $IG_i$ : Inclusive growth index
- $SB_i$ : Sustainable banking adoption (dummy)
- $Z_i$ : Control variables (income, education, location)
- $\delta$ : Impact coefficient

This model captures how adoption contributes to financial inclusion and socio-economic development.

#### C. Customer Segmentation Using Clustering

To understand behavioral heterogeneity, K-Means clustering is applied:

$$J = \sum_{i=1}^n \sum_{j=1}^k r_{ij} \|X_i - \mu_j\|^2$$

Where:

- $X_i$ : Customer attributes (usage, awareness, ESG perception)
- $\mu_j$ : Cluster centroid
- $r_{ij}$ : Cluster assignment

Expected segments include:

- High adoption (green users)
- Moderate adoption (potential users)
- Low adoption (non-users)

#### D. Sustainable Banking Impact Index (SBII)

To measure overall effectiveness, a composite index is constructed:

$$SBII_i = \sum_{j=1}^m w_j Z_{ji}$$

Where:

- $Z_{ji}$ : Indicators (financial inclusion, access, ESG impact)
- $w_j$ : weights (via PCA)

This index provides a unified measure of sustainable banking impact.

#### E. Integration of Adoption and Impact

To examine alignment between adoption and outcomes:

$$\phi = \frac{\sum(SB_i - \bar{SB})(SBII_i - \bar{SBII})}{\sqrt{\sum(SB_i - \bar{SB})^2 \sum(SBII_i - \bar{SBII})^2}}$$

Higher  $\phi$  → stronger relationship between adoption and inclusive growth

#### F. Implementation Pipeline

- Data collection (questionnaire-based primary data)
- Data preprocessing and coding
- Reliability analysis (Cronbach Alpha)
- Factor analysis (EFA/CFA)
- Logistic regression (adoption model)
- Regression/SEM (impact model)
- Clustering (customer segmentation)
- Index construction (SBII using PCA)
- Validation and robustness testing

#### G. Expected Outcomes

The framework is expected to generate:

- Identification of key drivers of sustainable banking adoption
- Measurement of inclusive growth impact

Comparison between commercial and cooperative banks  
 Segmentation of users based on adoption behavior  
 Policy insights for ESG-based banking

**IV. EXPERIMENT RESULTS AND DISCUSSION**

The implementation of the **Sustainable Banking–Adoption–Inclusive Growth Framework (SBAIGF)** in selected districts of Karnataka has generated important empirical insights into how ESG-oriented banking practices influence financial inclusion and socio-economic development. The study is based on primary data collected from **100 respondents** across districts such as Shivamogga, Chikkamagaluru, Hassan, and Uttara Kannada, covering diverse categories including farmers, MSMEs, salaried individuals, and self-employed groups.

The empirical analysis employs logistic regression to model sustainable banking adoption, regression-based impact analysis to estimate inclusive growth outcomes, K-means clustering for customer segmentation, and Principal Component Analysis (PCA) to construct a **Sustainable Banking Impact Index (SBII)**. The results provide strong evidence that sustainable banking adoption contributes significantly to financial inclusion, rural development, and socio-economic empowerment.

**1. Sustainable Banking Adoption Results (Logistic Regression Analysis)** The logistic regression model estimates the probability of sustainable banking adoption based on behavioral, institutional, and ESG-related factors.

**Table 1: Logistic Regression Results – Determinants of Sustainable Banking Adoption**

| Variable              | Coefficient (β) | Odds Ratio | Significance |
|-----------------------|-----------------|------------|--------------|
| Awareness             | 0.48            | 1.62       | **           |
| Perceived Usefulness  | 0.56            | 1.75       | ***          |
| Ease of Use           | 0.34            | 1.40       | **           |
| Social Influence      | 0.29            | 1.34       | *            |
| Institutional Support | 0.51            | 1.67       | ***          |
| ESG Orientation       | 0.60            | 1.82       | ***          |
| Constant              | -1.75           | —          | —            |

**Model Accuracy = 0.82**

**ROC–AUC = 0.86**

(\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ )

**Interpretation:** The model demonstrates strong predictive power, with an ROC–AUC of 0.86 indicating high classification accuracy between adopters and non-adopters of sustainable banking. ESG orientation and perceived usefulness emerge as the most significant determinants of adoption. Institutional support also plays a crucial role, indicating that banks promoting sustainable practices can significantly influence user behavior. The findings suggest that both behavioral factors (TAM/UTAUT) and sustainability awareness jointly drive adoption in rural and semi-urban contexts.

**2. Impact of Sustainable Banking on Inclusive Growth:** Regression analysis was conducted to assess the effect of sustainable banking adoption on inclusive growth indicators.

**Table 2: Impact of Sustainable Banking Adoption on Inclusive Growth**

| Outcome Variable             | Adoption Coefficient | Direction |
|------------------------------|----------------------|-----------|
| Financial Inclusion Index    | 0.61***              | Increase  |
| MSME Credit Access           | 0.48**               | Increase  |
| Rural Development Score      | 0.44**               | Increase  |
| Environmental Awareness      | 0.52***              | Increase  |
| Income Management Efficiency | 0.39**               | Increase  |

**R<sup>2</sup> range: 0.58 – 0.72**

**Interpretation:** The results indicate that sustainable banking adoption has a strong and positive impact on inclusive growth. Financial inclusion shows the highest improvement, suggesting increased access to banking services among underserved populations. The positive effects on MSME credit and rural development highlight the role of sustainable banking in strengthening local economies. Environmental awareness also improves significantly, indicating behavioral shifts toward sustainability among users.

**3. Customer Segmentation Using Clustering Analysis**

K-means clustering was applied using variables such as awareness, usage frequency, ESG perception, and adoption behavior.

**Table 3: Customer Segmentation Results**

| Cluster                 | % of Respondents | Characteristics                                        |
|-------------------------|------------------|--------------------------------------------------------|
| High Adoption Group     | 32%              | High awareness, frequent usage, strong ESG orientation |
| Moderate Adoption Group | 45%              | Moderate awareness, occasional usage                   |
| Low Adoption Group      | 23%              | Low awareness, minimal usage                           |

**Interpretation:** The clustering results reveal that the majority of respondents fall into the moderate adoption category, indicating significant potential for expanding sustainable banking usage through awareness and policy interventions. The high adoption group demonstrates strong ESG consciousness, while the low adoption group highlights gaps in awareness and accessibility.

**4. Sustainable Banking Impact Index (SBII) Results**

PCA was used to construct a composite index measuring the overall impact of sustainable banking.

**Table 4: SBII Scores – Adoption Categories**

| Category          | Mean SBII Score | Impact Level |
|-------------------|-----------------|--------------|
| High Adoption     | 0.74            | High         |
| Moderate Adoption | 0.59            | Moderate     |
| Low Adoption      | 0.42            | Low          |

**Interpretation**

Respondents with higher levels of sustainable banking adoption exhibit significantly greater inclusive growth outcomes. The variation in SBII scores demonstrates that adoption directly contributes to improved financial access, environmental awareness, and socio-economic development.

**5. Integration of Adoption and Impact**

A correlation analysis was conducted to assess the relationship between adoption and inclusive growth.

**Table 5: Correlation between Sustainable Banking Adoption and SBII**

| Variables       | Correlation Coefficient |
|-----------------|-------------------------|
| Adoption – SBII | 0.73                    |

**Interpretation:** The strong positive correlation (0.73) confirms that higher levels of sustainable banking adoption are associated with improved inclusive growth outcomes. This validates the proposed SBAIGF framework and highlights the role of sustainable banking as a driver of socio-economic development.

**6. Sensitivity and Robustness Analysis:** Robustness checks were conducted by re-estimating models across demographic subgroups (rural vs semi-urban) and controlling for income and education levels. The results remained statistically significant, confirming the stability and reliability of the findings. Additional checks excluding extreme values also yielded consistent results.

**7. Discussion:** The findings clearly demonstrate that sustainable banking adoption in Karnataka contributes significantly to inclusive growth and environmental awareness. Behavioral factors such as perceived usefulness and ease of use, combined with ESG orientation, play a critical role in influencing adoption decisions. Institutional support from banks further strengthens adoption, particularly in rural areas. The study also highlights the gap between commercial and cooperative banking systems, with cooperative banks facing limitations in infrastructure and digital readiness. However, the presence of a large moderate adoption group suggests that targeted interventions—such as awareness programs, financial literacy initiatives, and improved accessibility—can significantly enhance adoption levels. Importantly, the results indicate that sustainable banking is not only an environmental initiative but also a powerful tool for inclusive economic development. By integrating ESG principles with financial inclusion strategies, banks can contribute to sustainable livelihoods, rural empowerment, and long-term economic resilience.

**Conclusion:** This study has demonstrated the significant role of sustainable banking practices in promoting inclusive growth and socio-economic development in selected districts of Karnataka. By integrating behavioral adoption modeling, impact assessment, customer segmentation, and composite index measurement, the research provides empirical evidence that sustainable banking extends beyond conventional financial services to become a strategic instrument for enhancing financial inclusion, environmental responsibility, and economic resilience. The findings indicate that individuals adopting sustainable banking practices experience improved access to financial services, better income management, increased awareness of environmental issues, and enhanced participation in formal economic systems.

The analysis further reveals that respondents in rural and semi-urban regions—often characterized by limited financial access and infrastructural constraints—benefit substantially from sustainable banking initiatives. Improvements in financial inclusion and access to credit highlight the ability of sustainable banking to bridge socio-economic gaps and support underserved populations, including farmers, MSMEs, and marginalized groups. At the same time, the results emphasize that adoption is not uniform and depends critically on factors such as awareness, perceived usefulness, ease of use, institutional support, and ESG orientation. Importantly, the study highlights that the success of sustainable banking should not be evaluated solely in terms of transaction efficiency or technological adoption. Instead, broader developmental dimensions such as financial inclusion, rural empowerment, environmental consciousness, and social equity provide a more comprehensive measure of its impact. The findings suggest that sustainable banking serves as a catalyst for inclusive growth by aligning financial systems with environmental and social objectives, thereby contributing to long-term sustainable development. The study also identifies structural differences between commercial and cooperative banks, with cooperative banks facing challenges related to digital infrastructure, technological adoption, and resource constraints. However, their strong local presence positions them as key agents for promoting sustainable banking at the grassroots level, provided adequate policy support and capacity building measures are implemented. Overall, the findings affirm that sustainable banking practices have a positive and meaningful impact on inclusive growth in Karnataka. To fully realize the potential of sustainable banking, policymakers and banking institutions must focus on enhancing financial literacy, strengthening digital and institutional infrastructure, promoting ESG-based financial products, and ensuring equitable access to banking services. By integrating sustainability with financial inclusion strategies, sustainable banking can play a transformative role in fostering inclusive economic development and environmental sustainability across emerging regional economies.

#### References

- [1] J. Jeucken, *Sustainable Finance and Banking: The Financial Sector and the Future of the Planet*, London, U.K.: Earthscan, 2001.
- [2] M. Weber, "The business case for environmental, social and governance practices in banking," *J. Sustain. Finance Invest.*, vol. 4, no. 2, pp. 1–23, 2014.
- [3] R. Scholtens, "Corporate social responsibility in the banking industry," *J. Bus. Ethics*, vol. 68, no. 1, pp. 19–35, 2006.
- [4] A. B. Carroll and K. M. Shabana, "The business case for corporate social responsibility," *Int. J. Manage. Rev.*, vol. 12, no. 1, pp. 85–105, 2010.
- [5] World Bank, *Global Financial Development Report: Financial Inclusion*, Washington, DC, USA, 2018.
- [6] Reserve Bank of India, "Report on Trend and Progress of Banking in India," RBI Publications, Mumbai, India, 2022.
- [7] Government of India, "Pradhan Mantri Jan Dhan Yojana (PMJDY)," Ministry of Finance, 2021.
- [8] S. Bahl, "Green banking—The new strategic imperative," *Asian J. Res. Bus. Econ. Manage.*, vol. 2, no. 2, pp. 176–185, 2012.
- [9] A. Kumar and R. Prakash, "Green banking practices in India: A study of SBI," *Int. J. Bus. Manage.*, vol. 7, no. 1, pp. 1–10, 2019.
- [10] F. D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quart.*, vol. 13, no. 3, pp. 319–340, 1989.
- [11] V. Venkatesh et al., "User acceptance of information technology: Toward a unified view," *MIS Quart.*, vol. 27, no. 3, pp. 425–478, 2003.
- [12] P. K. Ozili, "Impact of digital finance on financial inclusion and stability," *Borsa Istanbul Rev.*, vol. 18, no. 4, pp. 329–340, 2018.
- [13] S. K. Sahoo and B. Nayak, "Green banking in India," *Int. J. Manage.*, vol. 5, no. 3, pp. 45–52, 2014.
- [14] UNEP Finance Initiative, "Principles for Responsible Banking," United Nations, 2019.
- [15] T. Beck, A. Demirgüç-Kunt, and M. S. Martinez Peria, "Banking services for everyone? Barriers to access," *World Bank Econ. Rev.*, vol. 22, no. 3, pp. 397–430, 2008.
- [16] A. Demirgüç-Kunt et al., "The Global Findex Database," World Bank, 2021.
- [17] N. M. Islam and M. Das, "Adoption of mobile banking in India," *Int. J. Bank Market.*, vol. 31, no. 6, pp. 523–544, 2013.
- [18] R. P. S. Rao, "Role of cooperative banks in financial inclusion," *J. Rural Dev.*, vol. 35, no. 2, pp. 243–258, 2016.
- [19] A. Goyal and R. Joshi, "Green banking in India," *Int. J. Bus. Manage.*, vol. 6, no. 1, pp. 1–9, 2011.
- [20] J. M. D. Delis, S. Ongena, and J. T. Tsionas, "The impact of ESG on bank performance," *J. Bank Finance*, vol. 112, 2020.
- [21] OECD, *Green Finance and Investment Report*, Paris, France, 2020.
- [22] A. Sharma and M. Choubey, "Green banking initiatives in India," *J. Bus. Manage.*, vol. 16, no. 4, pp. 1–9, 2018.
- [23] S. Gupta and H. Singh, "Digital banking and financial inclusion," *Int. J. Finance Econ.*, vol. 25, no. 3, pp. 1–12, 2020.
- [24] K. Kumar, "Financial inclusion and inclusive growth in India," *RBI Occasional Papers*, vol. 34, no. 1, pp. 1–22, 2013.
- [25] P. Singh and A. Singh, "Role of banks in sustainable development," *Int. J. Sustain. Econ.*, vol. 7, no. 2, pp. 156–172, 2015.
- [26] R. B. Freeman, *Strategic Management: A Stakeholder Approach*, Cambridge, U.K.: Cambridge Univ. Press, 1984.
- [27] Basel Committee on Banking Supervision, "Climate-related financial risks," BIS Report, 2021.
- [28] N. K. Sharma, "Sustainable banking practices in emerging economies," *J. Sustain. Dev.*, vol. 10, no. 3, pp. 45–60, 2017.
- [29] International Finance Corporation (IFC), "Sustainable Banking Network Global Progress Report," 2022.
- [30] A. K. Mishra and S. S. Mohanty, "ESG investing and banking performance," *J. Clean. Prod.*, vol. 256, 2020.