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Adoption of Green Finance in Bhutanese Commercial Banks: Challenges, Opportunities, and Strategies

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Abstract
This study examines the institutional challenges, emerging opportunities, and strategic solutions related to the adoption of green finance in three Bhutanese commercial banks. Despite Bhutan's strong environmental policies and the introduction of the Green Finance Roadmap (2020) by the Royal Monetary Authority, the uptake of green finance within commercial banking remains limited. Using a qualitative phenomenological approach, semi-structured interviews were conducted with key banking professionals engaged in green finance operations. Thematic analysis identified four central themes: institutional and regulatory shortcomings, financial and market-based constraints, potential growth areas for green finance, and the need for coordinated strategic support.Major barriers include the absence of binding green finance policies, limited technical expertise, high perceived risks, and insufficient market incentives. However, the study also highlights significant opportunities in sectors such as mini-hydropower, solar energy, electric mobility, and sustainable housing, particularly when supported through blended finance models and international donor partnerships.The study offers practical recommendations, including the development of a national green taxonomy, implementation of concessional financing tools, and targeted capacity-building initiatives. These findings aim to support both academic research and evidence-based policymaking by offering actionable insights into how Bhutanese commercial banks can accelerate the integration of green finance and contribute to national sustainability objectives.
Keywords:Green Finance, Sustainability, Bhutanese Commercial Banks, Green Finance Challenges, Green Finance Opportunities, Green Finance Roadmap

Introduction

Green finance has become an essential part of financial systems worldwide, incorporating environment, social, and governance (ESG) factors into banking and investment activities (Alharbi et al., 2023). Green finance refers to financing projects and initiatives that have positive environmental impacts such as reducing greenhouse gas emissions and promoting renewable energy. Commercial banks have a prominent role in funding green projects by providing green loans, sustainability-linked bonds, and financial instruments dedicated to climate risk (Gilchrist et al., 2021). Bhutan's development philosophy of Gross National Happiness (GNH), constitutional commitment to preserving 60% forest cover, and carbon-negative status provide a strong foundation for adopting sustainable financial practices. In alignment with these values, the Royal Monetary Authority (RMA) introduced the Green Finance Roadmap (GFRM) in 2020 to guide financial institutions toward greener operations and enhance the capacity of the financial system to support climate-resilient growth ((Alliance for Financial Inclusion [AFI], 2020). Despite these initiatives, Bhutan's green finance ecosystem remains nascent compared to global advancements.

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Commercial banks in Bhutan play a pivotal role in resource mobilization and investment allocation, making them essential actors in transitioning toward a sustainable economy. Although the GFRM provides strategic direction for green financial products, improved disclosure standards, and climate-risk assessments, adoption among financial institutions has been uneven. Bhutanese banks continue to rely heavily on conventional lending portfolios, with limited development of green loans, sustainability-linked financing, or standardized environmental risk-screening mechanisms (Poudel, 2024). Preliminary initiatives exist in institutions such as BOBL, BNBL, and DPNBL, however these efforts are fragmented and lack a cohesive institutional strategy. Furthermore, earlier studies have discussed Bhutan's environmental commitments broadly but have not adequately examined how commercial banks interpret, operationalize, or experience green finance within the national regulatory environment. This gap underscores the need for a focused inquiry into the determinants shaping green finance adoption in Bhutan's banking sector. Despite Bhutan's strong policy orientation towards sustainability and the introduction of the GFRM in 2020, the uptake of green finance among commercial banks remains significantly low. The absence of binding regulatory mandates, limited technical capacity, lack of standardized green investment taxonomies, and weak financial incentives have hindered the integration of sustainability into core banking operations (Dolkar, 2024). Bank managers continue to perceive green investments as high-risk due to long project horizons, uncertain returns, and limited market demand, leading to cautious lending behavior (Gilchrist et al., 2021). Structural constraints including inadequate manpower skilled in environmental risk assessment and the small size of Bhutan's green project market further restrict financial institutions from scaling up green finance portfolios (Poudel, 2024). This creates a critical disconnect between national sustainability goals and the operational realities of Bhutan's commercial banks. The problem, therefore, is the persistent low adoption of green finance among commercial banks due to institutional, regulatory, and market-based barriers, which has not been sufficiently examined in existing literature. To address this problem, the present study investigates the determinants of green finance adoption in Bhutanese commercial banks, focusing specifically on institutional capacity, regulatory frameworks, perceived investment risks, and market readiness as the key variables shaping banks' engagement with green financial practices. Guided by a conceptual framework that links regulatory direction, institutional capabilities, managerial perceptions, and market conditions to the level of green finance adoption, the study aims to generate evidence that clarifies how these interconnected factors influence decision-making within Bhutan's major banks. A better understanding of these relationships is essential for strengthening the effectiveness of national policies, improving institutional preparedness, and unlocking opportunities for sustainable investment. The study therefore provides an important analytical foundation for the development of targeted policy recommendations, bank-level strategies, and future research on Bhutan's emerging green finance ecosystem.

Research Objectives

1. To identify the institutional challenges faced by BOBL, BNBL, and DPNBL in adopting green finance;
2. To examine the opportunities for green finance implementation in Bhutanese commercial banks; and
3. To assess potential strategies to enhance green finance adoption in Bhutan's commercial banking sector.

Research Questions

1. What are the institutional challenges that limit green finance implementation in BOBL, BNBL, and DPNBL?
2. What opportunities do advancing green finance initiatives offer to these commercial banks?
3. What strategic initiatives can Bhutan's commercial banks implement to enhance green

finance adoption?

Literature Review

Green finance has emerged as a critical mechanism for embedding environmental sustainability within financial systems, particularly through climate-responsible lending and investment practices. Commercial banks play a central role in advancing green finance by channeling funds toward renewable energy, eco-friendly businesses, and green infrastructure development. In countries such as China, India, and Bangladesh, the introduction of mandatory green finance policies has significantly increased banking sector involvement in sustainable development initiatives. These countries have demonstrated how regulatory mandates can mobilize financial institutions to actively participate in environmental transitions (Rahman et al., 2024).

In contrast, green finance adoption in Bhutan remains limited. The Royal Monetary Authority (RMA) introduced the GFRM in 2020, aiming to encourage the integration of sustainability into the country's banking operations. Despite this initiative, structured green financial instruments and risk management systems are still underdeveloped among Bhutanese banks (AFI, 2020; Poudel, 2024). Key commercial institutions such as BOBL, BNBL, and DPNBL have begun exploring green finance opportunities, but institutional, regulatory, and financial limitations continue to hinder full-scale adoption (Zangpo, 2022).

Several barriers constrain the integration of green finance into core banking activities, with financial risk and profitability concerns being among the most pressing. Green investments are often perceived as commercially unviable due to long repayment horizons, uncertain returns, and ambiguous policy frameworks (Gilchrist et al., 2021). In developing economies, including Bhutan, banks remain reluctant to finance such ventures due to heightened risk perceptions, volatility in market demand, and limited return on investment (Muganyi et al., 2021). These concerns discourage banking officers from proactively developing sustainability-linked lending portfolios (Poudel, 2024).

Institutional capacity limitations also pose significant challenges. Many commercial banks in developing countries lack the technical expertise needed to evaluate and manage climate-related financial risks. Training in green finance remains insufficient, making it difficult for bank executives to structure or assess sustainability-aligned financial products (Rahman et al., 2024). Although BOBL has established a green finance division, it continues to face difficulties in designing instruments based on climate resilience. Other banks, such as BNBL, DPNBL, Bhutan Development Bank Limited (BDBL), and T-Bank, have yet to set up specialized units, further restricting the sector's ability to scale sustainable financing programs (Zangpo, 2022).

Another key issue is the lack of a robust regulatory framework. While Bhutan's GFRM provides strategic guidance, it does not mandate specific targets for green lending or offer tangible incentives to financial institutions. Unlike countries such as Bangladesh and India, which have imposed binding requirements-such as allocating a minimum percentage of total lending to green projects, Bhutan's voluntary approach leaves banks without regulatory pressure to prioritize sustainability (AFI, 2020; Rahman et al., 2024). The absence of formal enforcement mechanisms or government-backed guarantees results in low institutional motivation to internalize environmental goals (Volz, 2018).

International experience suggests that comprehensive policy frameworks are essential to promote the growth of green finance. Regulatory incentives such as green credit programs, tax breaks, and risk-sharing facilities can de-risk environmental investments and improve banks' willingness to finance sustainable initiatives (Alharbi et al., 2023; Gilchrist et al., 2021). Many countries have adopted these tools, with varying degrees of success. For instance, Bangladesh mandates 5% of all loans be directed toward green projects (Hossain, 2018); China has developed a green bond market and a carbon credit system (Ozili, 2024); and the European Union enforces strict ESG reporting requirements (UNEP, 2021). Bhutan, in contrast, still re-

lies on non-binding guidelines, leading to weak implementation of green finance practices. A comparative summary (see Table 1) highlights Bhutan's regulatory lag in this regard.

Table 1 Comparative Green Finance Regulations: Bhutan vs. Other Countries

Country	Green Finance Policy	Effectiveness
Bangladesh	5% of total lending portfolio mandated for green projects (Hossain, 2018)	Increased green loan access
China	Government-backed green bonds and carbon credit systems (Ozili, 2024)	Active bank funding in renewables
EU	Strict ESG disclosure norms for financial institutions (UNEP, 2021)	Rapid growth of sustainable investment funds
Bhutan	Voluntary Green Finance Roadmap with no mandates (RMA, 2020)	Limited implementation among commercial banks

To accelerate green finance adoption, Bhutan may need to move beyond voluntary guidelines and introduce binding mandates, tax incentives, concessional credit lines, or risk guarantees to encourage private sector participation.

While there is a growing global body of literature examining the role of commercial banks in green finance, most research focuses on advanced economies where policy frameworks are mature and institutional capacities are strong. There is limited empirical research on how banks in Bhutan engage with green finance or overcome localized institutional and regulatory constraints (Gilchrist et al., 2021; Poudel, 2024). Although regional literature on South Asia emphasizes policy design and regulatory incentives, Bhutan's specific contextcharacterized by non-binding frameworks and low institutional readinessremains underexplored (Rahman et al., 2024).

The lack of empirical studies on the perceptions and experiences of Bhutanese banking professionals represents a major research gap. Without insights into how these professionals view green finance risks, regulatory uncertainty, or institutional capacity, it is difficult to design practical interventions or effective policies (Muganyi et al., 2021). Moreover, the absence of mandatory green finance targets leaves banks without clear operational guidance, further stalling progress toward sustainable financial systems.

In light of these gaps, this study seeks to explore the institutional, financial, and regulatory challenges facing Bhutanese commercial banks in their adoption of green finance. By engaging directly with banking professionals responsible for sustainability practices, this research provides valuable insights into the barriers and opportunities for green lending in Bhutan. The findings aim to inform national regulators, bank managers, and policymakers in developing a more supportive ecosystem for green finance in the country.

Methodology

This study adopted a qualitative phenominological research approach, which is appropriate to the exploration of institutional, regulatory, and strategic matters facing green finance adoption in Bhutanese commercial banks. Qualitative research is also appropriate when exploring complex financial and policy matters, further, it allows in-depth exploration of experiences, perceptions, and institutional barriers (Creswell & Poth, 2018). Phenomenology is employed since it aims at understanding participants' subjective experience and institutional realities, which are essential in examining commercial banks' perceptions and uptake of green finance policies (Merriam & Tisdell, 2016).

The study was grounded on semi-structured interviews to collect in-depth perspectives from the banking officials working in BOBL, BNBL, and DPNBL. The use of open-ended questions allowed response freedom from participants in order to provide details on important institutional and policy related issues that would not emerge with the help of structured surveys. Semi-structured interview is flexible, it enabled the participants to freely articulate their opinions while ensuring the basic research themes are addressed (Merriam & Tisdell, 2016).

Because green finance in Bhutan is still in its early development phase, this research approach guarantees participants' narratives give a detailed explanation of the issues as well as opportunities in the sector.

Participants and procedures

Although there are five commercial banks in Bhutan, this research focused on BOBL, BNBL, and DPNBL. T-Bank was not included in the

sample because, at the time of this research, they stated that they have not launched or initiated any green finance products or services via calls and the same was known from their website. Also, the exclusion of Bhutan Development Bank (BDBL) was because during the data collection period they withdrew from participating in the research as they stated that they have not implemented any green products or initiatives in the organization so far. Since the main objective of this research was to analyse the institutional challenges, opportunities, and strategic solutions involved in the adoption of green finance, the banks: BOBL, BNBL and DPNBL were chosen and the earlier two banks were excluded as the banks were of without relevant initiatives which contradicts with the research scope or provide meaningful insight into the adoption process.

A total of seven banking employees from BOBL, BNBL and DPNBL were selected. The selection was done through snow balling to ensure that the participants were a key professionals and had a first-hand experience working with green finance while it was not possible in BNBL due to it having limited green finance officials and we made use of purposive sampling to interview the one participant of the bank.

The study population was not predetermined beforehand and interviews were carried out on a referral basis until sufficient data to fulfil the research objectives was gathered and we interviewed seven banking professionals from three commercial bank. This enabled a broad range of opinions to be captured. The interviews were continued until the data saturation point was attained, when no new facts were learned, and the information gathered was complete and representative of industry experience.

Table 2 Sample and Population

Role	Number of Participants	Gender	Number of Participants	Total
Top-level employee	4	Male	4	4
Mid-level employee	3	Female	3	3
Total	**7**		**7**	**7**

Table 3 Details of Participants

Sl. No	Bank	Male	Female	Total
1	Druk PNB Bank Limited	2	1	3
2	Bank of Bhutan Limited	1	2	3
3	Bhutan National Bank Limited	1	0	1
Total		**4**	**3**	**7**

Data Analysis

This research used Reflexive Thematic Analysis (RTA) as suggested by Braun and Clarke (2006, 2020) to examine the qualitative data gathered from in-depth semi-structured interviews with green finance experts of BOBL, BNBL, and DPNBL. Reflexive Thematic Analysis is a method of identifying, examining, and documenting patterns (themes) in qualitative data (Braun & Clarke, 2006). It is a way of analysing qualitative data by looking for patterns or themes that emerge from what participants say. It is a flexible and powerful method that helps to uncover meaningful insights while staying true to people's experiences and perspectives. It is particularly useful when a research project aims to discover themes and concepts embedded throughout the qualitative data. RTA does not require a predefined conceptual framework, as it is an approach that allows themes to be generated inductively from the data (Braun & Clarke, 2006).

According to Braun and Clarke (2006), there are six phases: Familiarizing oneself with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report.

Six-Phase Process Thematic Analysis

To ensure a rigorous and systematic approach, we followed Braun and Clarke's six phase thematic analysis framework that is:

1. Familiarization with the Data

We immersed ourselves in the dataset by reading and re-reading all transcripts multiple times. During this phase, we took detailed

notes on initial ideas, recurring expressions, and possible patterns. This step allowed us to develop a thorough understanding of participants' perspectives and ensured that subsequent analysis remained grounded in the data. We familiarized ourselves with the data during the transcription process by reading through each transcript minimum of three full times. This iterative engagement helped us develop a deeper understanding of the content and supported the early identification of emerging themes.

2. Generating Initial Codes

We systematically coded the data using deductive approach, labeling meaningful segments of text that were relevant to the research questions. Each code captured the essence of a specific idea or experience expressed by participants. We maintained a coding log to track emerging concepts and ensure consistency across the dataset. In the second step of Braun and Clarke's thematic analysis framework, we conducted initial coding individually to maintain openness to diverse perspectives and avoid premature consensus. Following this, we came together as a research team to compare, discuss, and consolidate our individual codes into a shared set of group codes. This collaborative approach strengthened the depth and consistency of our coding process and ensured that emerging interpretations were grounded in the data.

3. Searching for Themes

We began by revisiting all the coded data and looking for meaningful patterns across the dataset. Our goal at this stage was to organize scattered codes into coherent, broader themes that aligned with the research objectives.

For example, when multiple participants mentioned the absence of policies, staff training issues, and lack of clarity on what qualifies as a green project, we grouped these under a single theme: "Institutional and Regulatory Gaps." These codes weren't isolated statements, they pointed to a deeper, shared institutional problem.

4. Reviewing and Refining Themes

In accordance with Braun and Clarke's Phase 4: reviewing themes, we refined and consolidated the initial codes into a coherent and meaningful thematic structure. This process was aimed to ensure internal consistency within each theme, clear distinctions between themes, and the retention of interpretive richness. The final thematic framework accurately represents participants' insights into the current landscape of green finance in Bhutan's commercial banking sector.

5. Defining and naming

We finalized the themes by providing clear definitions and concise names that captured their core meaning. To enhance clarity and authenticity, we selected illustrative quotes from participants that best exemplified each theme and its significance. This step will be discussed further in Data Analysis and Findings.

6. Producing the Report

We organized the final themes into a coherent narrative that effectively communicated key findings. The report was structured to show how each theme related to the research questions and contributed to understanding the adoption of green finance policies.

Trustworthiness in Qualitative Research

Table 4 Trustworthiness

Criteria	Sub-Criteria	Description
Credibility (Internal Validity)	Member Checking	For double checking firstly we sent the coded transcription to all the participants via WhatsApp. Secondly after generating findings and interpretations we also sent a copy of the interpretation to all the participants to ensure double checking where some changes were made in the acronyms of the terms.
	Prolonged Engagement	We spent sufficient time to familiarize with the experiences and context of the participants. In-depth interviews were deployed rather than short discussions where we conducted semi structured interviews for about an hour each with the participants. It gave room for follow-up interviews when further clarification was necessary.
	Researcher Positioning	With prior knowledge in green finance through literature review, we entered the study with a strong belief in its importance. We remained open to participant perspectives, even when they diverged from expectations.
Transferability (External Validity)	Thick Description	The rich thorough descriptive information about the research setting, study participant, description of the study and results are provided in this study where the readers can make good judgements about the proximal similarity of the study contexts and their own environments.
	Sampling and	Semi-structured interviews were conducted

Criteria	Sub-Criteria	Description
	Participants	with 7 key participants from three commercial banks (BOBL, BNBL, and DPNBL). Participants included senior management and credit officers.
Dependability (Reliability)	Analytical Approach	Thematic analysis was conducted using Braun & Clarke's six-phase framework. Transcripts were manually coded line-by-line. Codes were then grouped into categories and refined into themes through iterative team discussions.
	Limitations and Bias Mitigation	The study was limited to three banks due to access constraints, which limits generalizability. To reduce bias, data were independently reviewed by multiple researchers, and discrepancies were resolved through consensus.
	Audit Trail and Documentation	An audit trail was maintained documenting all research decisions from interview protocols to coding frameworks and theme development. All transcripts, coding notes, and memos are archived and available upon request.
Confirmability (Objectivity)	Two-Phase Thematic Analysis Approach (Nowell et al., 2017).	Phase 1: Individual Analysis The interview transcripts were reviewed individually and identified the initial codes on our own. This helped to ensure a range of perspectives and avoids biasness from group pressure. Phase 2: Collaborative Group Analysis After independent coding, we came together as a research team to contrast, discuss, and integrate the themes which were coded independently. Discrepancies in theme interpretation were dealt with by discussion and consensus, it left space for reflexivity and methodological rigor.
	Reflexivity (Researcher Bias Control)	We kept a reflexive journal noting down personal assumptions and potential biases. It ensured findings were based on participant responses, rather than on our pre-existing beliefs. When we had a personal view on green finance adoption by the banks, we ensured that the view did not influence data interpretation.
	External Audit	The research is based on the opinion of academic advisors or finance professionals. It assisted in avoiding possible misinterpretation and providing objectivity. Where an external reviewer pointed out that an emerging theme is not dealt with, the researcher returned to the data to confirm nothing has been overlooked.

Results

This section presents the results gathered from the semi-structured interview data, and they are presented in three parts.

Part 1

The part answers the research question: What are the institutional challenges that limit green finance implementation in BOBL, BNBL, and DPNBL?

Gaps in Internal Systems and Capabilities

A key barrier lies within the banks' own structures, policies, and practice. The participants highlighted the absence of binding green finance policies and taxonomies, with one stating, "Right now, from RMA there is no such green finance policy, not only RMA, the other banks [also lack it]" (P7). Another added, "There is no mandatory requirement" (P6). Even existing frameworks were described as "insufficient" lacking "unified green taxonomy". According to P5, "There are minimum requirements, procedures, and frameworks which we have to adhere to, but it still lacks precision and teeth". Another remarked, "We don't have a standard taxonomy yet. Other countries have defined lists of green activities, renewables, waste management, etc., but in Bhutan, it is still evolving" (P4).

The banks also did not have the required technical capacity either. In this regard, one participant acknowledged, "There is no technical expert capacity building… it is a new term" (P7). Therefore, to strengthen green finance capacity in these banks, the participants emphasized a need for "training so as to familiarize them with all required knowledge and skills" (P6).

In addition, the banks were also poorly staffed with no dedicated department spearheading this green finance projects. This poor staffing and human capacity, in some cases, have, therefore, led to multi-tasking resulting in poor outcomes. While the banks currently "consider forming specialized units, this consideration remains a work in progress" (P7).

Finally, defining what constitutes a 'green' project was described as challenging. This difficulty was partly due to poor understanding it. P6 questioned, "Should a new construction installed with solar panels [be called green finance project]? Or should use of "non-GMO, no pesticides, sustainable irrigation …[on farms]" also be understood as green finance.

Financial and Market Barriers

Banks face capital constraints, risk concerns,

and limited borrowings. The high cost of green projects was noted: “Green financing, basically infrastructure financing, these are hydro, these are solar, these are wind power... and now these all are capital intensive, very, very intensive. They need a huge capital” (P2). Another said, “Our capital does not allow this lending as per our Single Lending Benchmark (SLB). Because when it comes to green projects, the fund needed will be billions. And we won’t have the financial capacity to lend those huge amounts” (P5).

Repayment risks were highlighted: “It is risky because what if they don’t pay… for other loans we have housing loans, hotel loans… there’s repayment” (P7).

Collateral challenges were also raised, especially for electric vehicles (EVs): “For electric vehicles the only issue is that there is no collateral” (P1). The risk of vehicles being sold undermines loan recovery: “If we give the loan by having the car as the only collateral… what people do is they sell the car to second, third party… it’s very difficult to recover” (P1).

Participants noted the lack of concessional financing: “So that has come now the only thing is… when people talk about green financing, people expect a concessional loan… the bank is not able to provide that” (P6). Another confirmed, “Main thing is we need fund, at a subsidy rate… if it comes at subsidy rate, we can lend to customers at low interest rate” (P7).

Customer demand was generally low due to awareness and infrastructure issues: “We didn’t take up because nobody came to us seeking any finance” (P1). “There’s not much demand for green finance… the ones who demand, we finance them” (P2). Concerns about risk were common: “Many clients are not sure if investing in green technologies is worth the risk. There are fewer guarantees of returns and support if anything fails” (P5). For EVs, poor infrastructure was a deterrent: “There were no adequate charging facilities, so drivers were not confident… infrastructure was centered in Thimphu only” (P5).

Part 2

This part answers the second research question: What opportunities exist for advancing green finance initiatives in these commercial banks?

Opportunities for Green Growth

Participants identified promising sectors including mini-hydropower, solar energy, electric vehicles, and eco-friendly housing. One remarked, “Mini-hydro is coming up” with their bank already committing Nu. 1.8 billion, expecting projects to spread across dzongkhags (P3). The potential of green agriculture and eco-paper production was also mentioned as part of a broader green economy: “It’s a larger picture… all these little attributes matter” (P6).

Electric vehicles stood out as a viable entry point: “If things can be done like this [blended finance], then why not?” referring to the EV taxi financing model (P7). The tripartite model was praised for bridging affordability and risk gaps.

Alignment with Bhutan’s Gross National Happiness (GNH) and international commitments was emphasized as a key strength: “GNH weaves together environment, economic development, and inclusiveness,” making green finance an “ethical imperative” (P4).

Part 3

This part answers the third research Question: What strategic initiatives Bhutan’s commercial bank can implement to enhance green finance adoption?

Moving Forward with Strategic Support

Strategic capacity building, policy clarity, financing innovation, and government engagement were identified as priorities. Participants shared progress such as forming ESG teams: “We have formed a separate ESG team. They are working on developing an SOP for green loans and looking into capacity building” (P6). External training support was also acknowledged: “Support from Luxembourg to train Bhutanese bank staff was critical” (P7).

Policy improvements were urged: “We need to have a taxonomy for the country for the bank to implement green financing very smoothly and successfully” (P3). Integration into credit appraisal was underway: “We are trying to in-

tegrate green financing into our normal credit appraisal processes" (P5).

Financing innovations like donor guarantees were seen as vital: "Guarantee instrument was also used, by Druk Holding Investment-Global Environment Facility DHI-GEF, to back up some portion of the loan" (P7). Access to international climate funds was a goal: "We are trying to get accreditation for direct access to GCF… now we are developing the action plan" (P6).

Criteria	Sub-Criteria	Description
		and consensus, it left space for reflexivity and methodological rigor.
	Reflexivity (Researcher Bias Control)	We kept a reflexive journal noting down personal assumptions and potential biases. It ensured findings were based on participant responses, rather than on our pre-existing beliefs. When we had a personal view on green finance adoption by the banks, we ensured that the view did not influence data interpretation.
	External Audit	The research is based on the opinion of academic advisors or finance professionals. It assisted in avoiding possible misinterpretation and providing objectivity. Where an external reviewer pointed out that an emerging theme is not dealt with, the researcher returned to the data to confirm nothing has been overlooked.

Theme	Sub-Themes	Key Findings (Summary)
Theme 3: Opportunities for Green Growth	3.1 Growth potential in green sectors	Emerging opportunities in mini-hydro, solar farms, eco-paper, and green agriculture align with Bhutan's context.
	3.2 EVs as a viable entry point	Successful blended-finance EV taxi model shows strong uptake when risks and costs are shared.
	3.3 Alignment with national values and global commitments	Green finance aligned with GNH, SDGs, and Paris Agreement, creating a supportive national narrative.
Theme 4: Moving Forward with Strategic Support	4.1 Staff training and capacity building	Banks forming ESG teams, providing training, and partnering with international institutions.
	4.2 Policy and credit system enhancements	Need for taxonomy, standardize credit tools, and integration of green criteria into loan appraisals.
	4.3 Financing innovation and donor partnerships	Blended finance, guarantees, and GCF accreditation key for scaling green lending.
	4.4 Government support and public awareness	Tax incentives, subsidies, and public awareness campaigns essential for driving demand.

Government incentives and public awareness were highlighted as crucial: "If green projects are provided with tax holiday or other forms of incentive, then definitely, yes" (P4). Another noted, "Awareness among the public, clients, and even our bank staff is very important. Not many people understand green finance" (P1).

Discussion

This phenomenological study explored the institutional, financial, and strategic environment surrounding green finance adoption in Bhutanese commercial banks. From the analyses of seven semi-structured interview transcriptions, four themes emerged: Gaps in internal systems and capabilities, financial and market barriers, opportunities for green growth, and moving forward with strategic support

Gaps in Internal Systems and Capabilities

The findings show that Bhutanese banks struggle with internal constraints, such as the absence of enforceable green finance policies, technical and human resource limitations, and a lack of standardized taxonomies and green lending criteria. The theme "Gaps in Internal Systems and Capabilities" illustrates a lack of institutional readiness, a challenge consistent with global findings (Rahman et al., 2024; Gilchrist et al., 2021).

Financial and Market Barriers

This theme revealed systemic disincentives including the high capital intensity of green projects, limited collateral options, low borrower demand, and a lack of concessional lending mechanisms. These findings reflect broader concerns raised in emerging markets literature (Muganyi et al., 2021; Volz, 2018). The insights suggest that even if internal systems are improved, market risks and financial constraints will continue to hinder green lending in Bhutan.

Opportunities for Green Growth

Despite institutional and market limitations, Theme 3, "Opportunities for Green Growth," identifies promising sectors such as mini-hydro, solar energy, electric vehicles, and

eco-housing. These align with Bhutan's GNH framework and national development goals. Success stories like the Global Environment Facility – Electric Vehicle (GEF-EV) Taxi project illustrate the viability of blended finance and donor-backed innovation.

Moving Forward with Strategic Support

Theme 4 provides a roadmap for green finance development, including recommendations for capacity building, regulatory development, financial innovation, and public engagement. These are well-supported by global studies (Alharbi et al., 2023; Gilchrist et al., 2021) and closely reflect the aspirations of bank staff.

Strength of the Methodology

Applying a qualitative phenomenological approach, enriched by semi-structured interviews, allowed participants to openly share their lived experiences uncovering insights that quantitative methods might not capture. Purposive and snowball sampling ensured informed participation, while thematic analysis of Braun and Clarke offered systematic pattern identification. Quality was reinforced through member checking, reflective note-keeping, and informed consent. This combination of ethical rigor and methodological transparency strengthens the credibility and depth of our findings.

Recent Developments

Recent sector-wide developments provide a timely backdrop to our analysis:

On March 5, 2025, the government initiated an inquiry into the delayed delivery of 27 EV taxis under the green transport initiative.

On March 8, 2025, BOBL reported 81 EV loans in default totaling Nu 8.86 million, largely due to supply chain delays.

On May 29, 2025, the government committed to expanding EV charging infrastructure from 75 current stations to achieve a 1:15 vehicle-to-station ratio, targeting over 16,000 EVs by 2030, and mandated Bhutan Power Corporation to lead implementation. These measures align with Bhutan's ambition to leverage hydropower and reduce fossil fuel reliance.

These developments reinforce that, while demand-side enthusiasm exists, persistent operational and market challenges must be addressed to unlock green finance potential.

Limitations, Recommendations, and Conclusion

Limitations of the Study

Scope and Generalizability

This study focused on three Bhutanese commercial banks (BOBL, BNBL, and DPNBL), excluding other financial institutions like T Bank due to its limited green finance engagement and BDBL, which declined participation. This partial institutional representation introduces potential bias and limits the generalizability of findings across Bhutan's entire financial ecosystem. Future research should broaden this scope by including a more diverse range of banking and regulatory entities and employing quantitative methodologies to validate qualitative insights and assess demand side dynamics.

Exclusion of Regulatory Bodies

Key regulatory institutions such as RMA, the National Pension and Provident Fund (NPPF), and the Ministry of Finance were not involved. Their omission restricts analysis of macro level influences on green policy formulation and implementation, thereby limiting comprehension of systemic enablers and barriers.

Time and Resource Constraints

Resource constraints curtailed the ability to engage with a larger and more varied stakeholder group, including extended interviews or surveys. Consequently, the study may not fully capture the comprehensive range of experiences and perspectives necessary to deepen its findings.

Limited Participant Pool and Sampling

Due to limited accessibility and purposive sampling, especially at BNBL, the study relied on a relatively small sample size. While snowball sampling helped identify knowledgeable respondents, the limited pool may have reduced thematic saturation and the overall depth of insight.

Recommendations

Recommendations to Policy Makers

Establish National Green-Finance Policy & Standardized Taxonomy

The government should establish a national green finance policy aligning with the climate

goals and the 13thfive-year plan. Along with the policy the government must also establish a green taxonomy mirroring frameworks like European Union (EU) or Association of Southeast Asian Nations (ASEAN) taxonomies but tailored to Bhutan's context. In creating the policy and taxonomy, it's important to involve key organizations such as the RMA, Ministry of Finance(MoF), environmental agencies, and the banks themselves. Their input will make the policy more useful and easier to put into practice.

Creating Supportive Financing Models for Green Projects

Bhutan should introduce concessional and blended financing models. These models combine public funds such as government budgets or international donor support with private investment. The goal is to reduce the financial risk for banks and make green lending more appealing. In addition, issuing green bonds can attract investors who are interested in supporting Bhutan's sustainable development goals. These financial tools will help make green investments more accessible and practical, both for banks and borrowers.

Raising Public Awareness and Engaging the Private Sector

The government and financial institutions should run nationwide education campaigns and should incentivize businesses through tax relief, dedicated fast-track approvals for green projects and public private partnerships. Initiatives such as innovative green finance forums and certification programs can foster innovation and sustainability leadership.

Recommendation to Financial Institutions

Building Institutional Capacity with Training

Banks should introduce regular training programs for staff at all levels. These training sessions should cover essential topics such as environmental and climate risk analysis, evaluation of green loan proposals, sustainable finance models, and ESG principles. By developing in-house expertise and creating focused teams, banks can effectively support and expand green financing across the country.

Establishing Dedicated Green Finance Teams

Forming a separate Green Finance department or specific green finance team would centralize expertise, improve product development, and ensure consistent project evaluation. Banks should adopt tools like evaluation checklists and integrate environmental risk into their standard credit process.

Recommendation to Regulators

Reforming the Banking Regulations

To promote green finance in Bhutan, the RMA should update its banking rules to encourage banks to support eco-friendly projects. This can be done by offering benefits such as lower capital or reserve requirements for green loans. For example, banks in countries like Bangladesh and China receive regulatory incentives when they finance green sectors like renewable energy or energy-efficient buildings (Dikau & Volz, 2021). RMA can also ask banks to report the environmental impact of their loans using global standards like the Task Force on Climate-related Financial Disclosures (TCFD, 2017).

Conclusion

This study delivers a layered understanding of green finance adoption by Bhutanese commercial banks. While there is growing awareness and interest, structural and financial barriers continue to hinder implementation. Internally, banks require clearer policies, trained human resources, and dedicated units. Externally, they face the high cost of green investments, limited financial support, and low borrower demand. Nevertheless, sectors like mini hydro, solar, EVs, and green housing exhibit high potential particularly when supported by blended finance mechanisms.Key lessons from the EV taxi project underscore the transformative value of subsidies and strategic partnerships. To transition green finance from a peripheral consideration to a fundamental component of Bhutan's development model, coordinated action is essential. Banks must build capacity and formal structures; regulators need to revise policies; and the government should empower institutions through public education,

blended instruments, and regulatory incentives. Collectively, these measures position Bhutan's financial sector to not only drive economic growth but also deliver on its Gross National Happiness and sustainability objectives paving the way toward a resilient, green future for the nation.

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