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MINI REVIEW

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Post-pandemic shift towards sustainability in Indian banking regulations: Implications for agricultural and rural finance

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ABSTRACT

Purpose: In the context of rapid technological advancement and escalating environmental concerns, sustainability has emerged as a critical necessity rather than a voluntary choice. In recent years, several global financial institutions have introduced sustainability-oriented policies. In line with Indias commitment to achieve net zero emissions by 2070, the Reserve Bank of India (RBI) introduced a series of sustainability-and climate-focused policy measures after that the COVID-19 pandemic. Against this background the present study examines the evolution of RBI's post pandemic sustainability initiatives and analyses their reflection in their green lending performance of the National Bank of Agricultural and Rural Development (NABARD), with a specific focus on rural and agricultural finances.

Methodology: The study adopts a descriptive and analytical research design based on secondary collected from RBI and NABARD annual reports, policy documents, and official publication for the period 2022-2024. Trend analysis, percentage analysis, descriptive statistics, and a composite index constructed using minimum-maximum normalisation are employed to examine patterns in green lending without establishing causal relationships.

Findings: The findings indicate that NABARD's green lending amount remained stable during 2022-2023 and increased in 2024 while the number of green projects finance remained unchanged. This suggests a rise in financing intensity per project rather than an expansion in project coverage. However, the share of green lending in NABARD's total lending portfolio showed a marginal decline over the study period, indicating that green finance continues to constitute a relatively small component of overall rural and agricultural credit. The composite index reflects a consistent improvement in green lending performance, reaching its highest level in 2024.

Significance: The study highlights the gradual alignment between RBI's Sustainability-oriented regulatory framework and NABARD's green financing practices in the post pandemic period. The findings provide policy relevant insights for strengthening the integration of sustainability objectives within mainstream rural and agricultural finance in India.

KEY WORDS

RBI; Sustainability; Green finance; NABARD; Environmental risk

ARTICLE HISTORY

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Introduction

Today sustainability has become a most crucial thing for mankind as today signs of global warming and climate change are clearly visible thus its poses' dangers to coming generations therefore embracing sustainability has become a necessity. Many global institutions and governments have started making policies for environmental sustainability. Many Nations have proclaimed global commitments having a vision of net zero emissions. similarly, India has also announced net zero emissions by 2070. Since Then, RBI has been engaged in making policies for banking and finance to embrace sustainability frameworks.

In recent years RBI through various policy initiatives and have increasingly emphasis on sustainability, climate-responsiveness financing, and environmental risk management. NABARD (National Bank for Agricultural and Rural Development) had played a crucial role towards embracing sustainability polices and Agri-Rural finances. NABARD green lending initiatives include proving fund to renewable projects, climate resilient agriculture, water conservation, and rural infrastructure development. Period of 2022-2024 is crucial to study as most of the climate related polices were made during this time.

This study analyses the suggestion of sustainability polices made by RBI suggests on NABARD Green Lending and rural and agricultural credit growth. This study aims to empirically assess whether RBI Sustainability Framework has influenced green financing activities.

Literature Review

Institutional credit and sustainable agricultural practices in India

Several studies have highlighted the critical role of access to institutional credit in promoting sustainable agricultural practices and improving rural livelihoods in India in a study on Odisha farmers how limited access to fair and inclusive credit systems constrains lower agricultural productivity particularly among small and marginal farmers [1]. The paper clearly stated an urgent intervention in credit system as there was biasness between rich farmers and small / medium farmers. Thus the study underscores an essential intervention of Institutional bodies to ensure for fair credit system leading farmers to adopt for sustainable practices. Complementing this perspective, have analysed structural challenges faced by the small

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agricultural industries despite having a record production in food materials [2]. This study emphasises the need for policy driven support in form of skill development scientific farming methods and improved market access to transform agriculture into a viable sustainable economy activity. These studies collectively establishes that sustainability in agriculture is closely linked to access to institutional finances and support policy frameworks.

Role of NABARD, SHGs and social banking in sustainable rural finance

A significant body of literature focused on the role of development of finances institutions and community based financial models in fostering sustainable rural development. Further analysed how SHG model in Gujarat demonstrates that NABARD's role extends beyond credit provision to include social and development objectives such as women empowerment income generation and assets creation [3]. By replacing informal and exploitative credit sources. SHGs have facilitated financial inclusion and contributed to sustainable livelihood outcomes. Similarly analysed how SHG (Self Help Group) banking model helped rural development aligning with formal bank NABARD [4]. SHG works on an autonomous functioning process which prioritizes internal savings and capital before accessing to external bank credit. This programs effectively include those women's and poor's people who cannot have access to these banks. Giving an idea how social movement can help to engage many farmers towards savings and leading farmers towards sustainable development has analysed about self-help group and bank linkage programme helping rural farmers for sustainable farming author encourages for socio economic causes like rural savings enhancing [5]. It makes one more thing clear about making rural people self-reliant as it will be a viable path towards long term sustainability in the Indian context. Present study collected data showing a positive suggests of SHG-BLP highlighting the importance of integrating financial inclusion with capital building ensure success for rural development.

Green financing, digital innovation, and sustainability-oriented thinking

Choudhary examines the role of digital microfinance are bridging the gap of financial inclusion while supporting the idea of environmental sustainability [6]. The study, investigates how emerging technologies like AI driven credit score also play a role in lowering transaction cost and analysing risk before green lending. Najeeb Uddin & Ahmed, analyse about the contribution of developing watershed project initiated by NABARD towards sustainable economic development. Methodology of this condition analysis a case study of water shed project of Ambuja cement in Himachal Pradesh. This research study analyses a symbiotic link between this two and one cannot exist without other. It also urged NABARD to work not just a financing institution but also maintaining these sustainable projects. The authors further argue that NABARD's role should extend beyond financing to include ongoing monitoring and maintenance of sustainability-oriented development project.

Objectives of the study

1. To examine the trend in NABARD's Green Lending for rural and agricultural development during (2022-2024).
2. To analyse RBI's Sustainability -related policy initiatives relevant to rural and agricultural finance.
3. To examine the alignment between RBI's sustainability-related policies and NABARD's Green Lending trends.
4. To assess changes in NABARD's green lending patterns during the post-pandemic period.

Research Methodology

Research design

The present study adopts a descriptive and analytical research design to examine trends in green lending by the NABARD within the context of sustainability-related policy initiatives introduced by the Reserves Bank of India during the post-pandemic period. The study focuses on identifying observable patterns and policy alignment rather than establishing statistical causality.

Nature of study

The Study is based entirely on secondary data collected from reliable sources and authoritative sources.

The primary sources

- RBI annual reports.
- NABARD annual report.
- NABARD's status of agriculture and rural finance reports.
- RBI
- Government of India publications.

Period of the study

The Analysis covers a three years post pandemic period from 2022 to 2024, a phase during which major sustainability and climate related policy initiatives were introduced within India's financial framework.

Variables considered

The key variables analysed in the study include.

- NABARD's Green Lending Amount.
- Number of Green Projects Financed by NABARD.
- Share of Green Lending in NABARD's total rural and agricultural lending.
- Rural and Agricultural Credit Growth Rate.
- Total NABARD Refinancing.

Method of analysis

Given the macro Level nature of the Data and the limited time series period, the study employs descriptive statistics, trend analysis, percentage analysis and comparative assessment as the primary analytical tools, visual trend analysis charts are used to illustrate year wise movements in green lending indicators.

In addition, a composite green lending performance index is constructed using normalised values of selected indicators, namely green lending amount, number of green projects financed, and the share of green lending in total NABARD lending. Equal weights are assigned to each indicator to ensure objectivity and avoid subjective bias. The composite index provides a holistic assessment of NABARD's green financing performance over the study period.

Limitations of the study

1. Findings are limited to the Indian context and NABARD's institutional framework.
2. Data limitations of the study is purely based on secondary data no primary data was collected for this research study.
3. Time limitation current research study does measure long term suggests green lending by NABARD on environment.

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Analytical Approach

The study follows a policy oriented analytical approach, interpreting green lending trends in relation to the evolution of RBI's sustainability and climate-risk policy framework. The analysis is confined by identifying trends, patterns and policy alignment and does not attempt and does not attempt to establish causality or conduct inferential statistical testing. The composite index was constructed using Minimum-Maximum normalization with equal weighting of selected green lending indicators to enable relative performance comparison across years.

Scope of the Study

1. The study focuses on sustainability related policies issued by the RBI and their reflection in NABARD's Green Lending trends.
2. The present study covers a post pandemic period of three years (2022-2024).
3. The study emphasizes green and sustainability-oriented lending initiatives rather than total credit Disbursement.
4. The analysis is limited to rural and agricultural development finance in India.

Data Analysis and Interpretation

Table 1. Illustrates RBI sustainability policies and their key focus.

Year	RBI sustainability policy	Key focus
2022	RBI discussion paper on climate risk	Climate risk in financial system
2023	Framework for green finance	Sustainable green lending
2024	RBI ESG & climate stress testing guidelines	Monitoring climate exposure

Data sources complied and calculated by the author based on RBI's annual report and NABARD annual report (2022-2024).

Above table clearly highlights the progressive evolution of RBI's Sustainability actions taken after post pandemic aiming to integrate climate and environmental risks into the Indian Financial System. The actions were taken in wake of announcement of net zero emissions by 2070 commitment by India.

Table 2. Illustrates NABARD green lending performance financing green projects.

Year	NABARD Green Lending Amount
2022	1,852.60
2023	1,852.60
2024	1,971.56

Data sources complied and calculated by the author based on RBI's annual report and NABARD annual report (2022-2024).

Table 2 presents the year-wise trend of NABARD's green lending amount during the post pandemic period from 2022-2024. The data show that green lending remained unchanged during 2022-2023, followed by an increase in 2024. This pattern indicates a gradual strengthening of NABARD's financial commitment towards sustainability-oriented projects.

The increase in the lending amount. Despite no change in green lending amount, despite no change in project numbers. Suggest a focus on enhancing funding intensity per project rather than expanding the number of green projects financed.

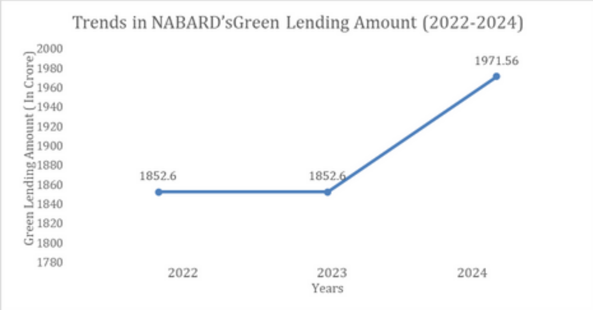

Figure 1. Trend in NABARD's green lending amount during the post pandemic period (2022-2024).

Figure 1 indicates that NABARD's Green Lending remained stable during 2022-2023 and increased moderately in 2024, suggesting a gradual strengthening of sustainability-oriented financing.

Table 3. Illustrates the share of green lending in NABARD's Total Lending during the study period.

Year	Share of Green Lending in Total NABARD Lending
2022	0.24%
2023	0.23%
2024	0.22%

Data Sources Complied and calculated by the author based on RBI's Annual Report and NABARD Annual Report (2022-2024).

Table 3 illustrates the share of green lending in NABARD's total lending portfolio during 2022-2024. The data indicate a marginal decline in the proportional share of green lending over the study period. This suggest that while NABARD's overall rural and agricultural lending expanded, green finance continued to constitute a relatively small component of total credit disbursement. The findings highlight the need for stronger integration of sustainability objectives within mainstream rural and agricultural finance.

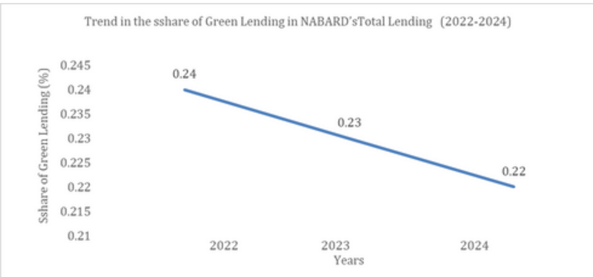

Figure 2. Trend in NABARD's Green Lending amount during the post pandemic period (2022-2024).

Figure 2 shows a marginal decline in share of green lending over the study period, indicating that green finance remains a limited component of NABARD's overall rural and agricultural credit.

Table 4. Illustrates the descriptive value of variables of NBARD and RBI.

Variable	Mean	Standard. Deviation	Minimum	Maximum
NABARD green lending (In Cr)	1892.253333	68.68158802	1852.6	1971.56

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Share of green lending	0.23	0.01	0.22	0.24
Rural and agri credit growth	14.79333333	1.078950107	13.6	15.7
Total NABARD refinancing	297745.8933	258787.9217	2.68	468593

Data sources complied and calculated by the author based on RBI's annual report and NABARD annual report (2022-2024).

From the above analysis, it can be clearly seen that overall descriptive statistics indicate that NABARD's green lending and its share in total lending remained stable and consistent, while rural and agricultural credit growth showed healthy and sustained expansion. Although total refinancing exhibited variability, the stability in green lending suggesting a focused long term commitment policy towards sustainable and climate-friendly rural finance in the post-pandemic period (Table 4).

Table 5. Composite index.

Years	Share of Green Lending in Total NABARD Lending	NABARD Green Lending Amount	No of Green Projects	Composite Index
2022	0	0	1	0.33
2023	0.5	0	1	0.5
2024	1	1	1	1

Data sources complied and calculated by the author based on RBI's annual report and NABARD annual report (2022-2024).

The composite green lending performance index indicates a consistent improvement in NABARD's green financing performance during the post-pandemic period (Table 5). The index value increased from 0.33 in 2022 to 0.50 in 2023 and reached its highest level in 2024. This upward trend reflect a gradual strengthening of green lending intensity, driven primarily by increased financing volumes rather than expansion in the number of projects financed.

Findings

1. The analysis of RBI's sustainability initiatives indicates a clear progression in policy during the post-pandemic period, moving from climate risk identification (2022) to green finance frameworks (2023) and structured ESG and climate stress testing guidelines (2024). This reflects a gradual strengthening of sustainability-oriented regulatory oversight within the Indian financial system.
2. NABARD's Green lending amount remained stable during 2022-2023 and increased in 2024, indicating a gradual enhancement in financial commitment towards sustainability-oriented projects rather than abrupt expansion.
3. Despite the increase in green lending amount, the number of green projects financed by NABARD remained unchanged throughout the study period. This suggests that the growth in green financing was driven primarily by higher funding intensity per project rather than an increase in project count.
4. The share of green lending in NABARD's total lending portfolio exhibited a marginal decline from 0.24% in 2022 to 0.22 in 2024. This indicates that although green lending volumes increased, overall rural and agricultural credit expanded at a relatively faster pace, limiting the proportional share of green finance.
5. Trend analysis confirms a positive movement in absolute green lending amounts alongside a declining proportional share, highlighting that green finance remains a relatively small but stable component of NABARD's total lending operations.
6. Descriptive statistics reveal that NABARD's Green lending and its share in total lending exhibited low variability, indicating stability and consistency in green finance allocation, in contrast , rural and agricultural credit growth displayed comparatively higher variability, reflecting broader expansion in rural finance activities.
7. The composite green lending performance index shows a consistent improvement over the study period increasing from 0.33 in 2022 to 0.50 in 2023 and reaching its highest value of 1.00 in 2024. This reflects a strengthening of NABARD's overall green lending performance during the post-pandemic period.
8. Overall, the findings suggest a gradual alignment between RBI's sustainability-oriented regulatory initiatives and NABARD's green lending practices. However, the limited share of green lending within total credit highlights the need for deeper integration of sustainability objectives within mainstream rural and agricultural finance.

Conclusions

In conclusion, it can be clearly stated that suggests of RBI's sustainability policies on NABARD's green lending for rural and agricultural development during the post pandemic period (2022-2024). These findings clearly indicate that progressive RBI's sustainability initiatives have shown a steady progressive role in strengthening the green finance ecosystem in rural and agricultural management. NABARD green lending has shown a steady growth in absolute terms, reflecting growing institutional commitment towards financing environmentally rural projects. Overall, the study concludes that while NABARD has made commendable progress in green financing further policy alignment and targeted incentives and scaling mechanism are required to enhance role of green financing in achieving India's long term sustainability goals and net zero objectives. This research also contributes valuable insights into the intersection of central banking sustainability policies and rural development finance, particularly in the post pandemic context.

Policy Implications

1. The gradual improvement observed in NABARD's green lending performance suggest that sustainability-oriented regulatory initiatives can provide an enabling environment for green finance in rural and agricultural development. Strengthening coordination between policy directives and implementation frameworks can further enhance the effectiveness of such initiatives.

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2. The relatively limited share of green lending in NABARD's overall credit portfolio indicates the need for targeted policy incentives to mainstream sustainability considerations within rural and agricultural finance. Introducing sustainability-linked credit products and refinancing mechanisms could accelerate the scale-up of green lending.
3. Given the observed increase in financing intensity per project, policy measures may focus on supporting high-suggests green projects through improved appraisal, monitoring, and the capacity building mechanisms. This would help ensure long-term environmental and economic benefits from green investments.
4. Policymakers may also consider developing standardized reporting and monitoring frameworks for green lending outcomes to enhance transparency, accountability, and consistency in sustainability-oriented rural finance.

Disclosure Statement

The authors do not have any conflict of interest.

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