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GREEN FINANCE AND SUSTAINABLE INVESTMENT MODELS FOR SUMMIT 2047: MOBILISING CAPITAL FOR A SUSTAINABLE INDIA

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ABSTRACT

Green finance has become a strategic mechanism for mobilising capital towards environmentally sustainable and socially responsible development. This study examines the role of green finance and sustainable investment models in supporting India's vision of Summit 2047 by promoting sustainable economic growth and environmental sustainability. A quantitative research design was adopted, and primary data were collected from 40 finance professionals, institutional investors, and banking experts using a structured questionnaire. The data were analysed using descriptive statistics, Pearson correlation, and regression analysis in SPSS. The findings revealed favourable perceptions towards green finance, with a mean score of 4.16, while sustainable economic development (Mean = 4.08) and environmental sustainability (Mean = 4.12) also recorded high scores. Correlation analysis indicated a strong positive relationship ($r = 0.734$), and regression results confirmed a significant positive effect of green finance on sustainable development ($\beta = 0.734$, $p < 0.001$; $R^2 = 0.539$). The study recommends strengthening green financial instruments, ESG investments, and policy support to mobilise capital for achieving India's sustainable development goals by 2047.

KEYWORDS: Green Finance, Sustainable Investment, Green Bonds, ESG, Sustainable Economic Development

1. INTRODUCTION

Green finance has emerged as one of the most important policy instruments for addressing climate change while simultaneously promoting sustainable economic growth. It refers to financial investments that support environmentally sustainable projects, renewable energy, energy efficiency, climate resilience, sustainable infrastructure, pollution control, biodiversity conservation, and other activities that contribute to environmental protection and social well-being. With increasing global concerns over climate risks and carbon emissions, governments, financial institutions, and private investors are redirecting capital towards green and sustainable investments. According to the Climate Policy Initiative (2024), global climate finance reached approximately USD 1.9 trillion in 2023, reflecting a significant increase in investments toward clean energy, sustainable transportation, and climate adaptation projects. However, achieving global climate goals requires annual investments exceeding USD 8 trillion by 2030, highlighting the urgent need for stronger financial mechanisms and policy interventions (Buchner et al., 2024). Green finance therefore plays a critical role in mobilising capital for achieving the United Nations Sustainable Development Goals (SDGs) and the Paris Climate Agreement by facilitating the transition towards a low-carbon and climate-resilient economy (Buchner et al., 2024; United Nations, 2023).

India has made remarkable progress in integrating sustainability into its financial system through various policy initiatives,

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including the National Action Plan on Climate Change (NAPCC), the National Green Hydrogen Mission, renewable energy programmes, and the Reserve Bank of India's sustainable finance initiatives. As the country moves toward the vision of Viksit Bharat @2047, large-scale investments are required to finance renewable energy, electric mobility, green infrastructure, sustainable agriculture, climate-resilient urban development, and circular economy initiatives. According to the Economic Survey of India (2025–26), India aims to achieve 500 GW of non-fossil fuel electricity capacity by 2030 and attain net-zero carbon emissions by 2070, requiring substantial public and private investment. The Government of India has also issued sovereign green bonds and encouraged financial institutions to integrate Environmental, Social, and Governance (ESG) principles into investment decisions, thereby strengthening the country's sustainable finance ecosystem (Government of India, 2025).

The rapid expansion of the green bond market has become one of the most significant developments in sustainable finance. Green bonds are fixed-income financial instruments specifically designed to finance projects that generate measurable environmental benefits. India issued its first sovereign green bonds in 2023, marking an important milestone in financing climate-related projects. According to the Climate Bonds Initiative (2025), cumulative global green bond issuance exceeded USD 3.5 trillion, while India has witnessed consistent growth in green bond issuances by public sector undertakings, financial institutions, and corporate entities. Similarly, ESG-focused mutual funds and sustainability-linked loans have gained considerable attention among investors seeking long-term financial returns together with positive environmental and social impacts. The increasing adoption of these innovative financial instruments reflects a growing recognition that sustainable investment not only contributes to climate mitigation but also enhances financial resilience and long-term portfolio performance (Climate Bonds Initiative, 2025).

Investor awareness and corporate commitment toward ESG principles have also increased significantly over the past decade. Businesses are increasingly integrating sustainability into corporate strategies to meet stakeholder expectations, improve risk management, strengthen brand reputation, and ensure regulatory compliance. Financial regulators across the world have introduced mandatory ESG disclosure frameworks to improve transparency and reduce information asymmetry. In India, the Securities and Exchange Board of India (SEBI) introduced the Business Responsibility and Sustainability Reporting (BRSR) framework for the top listed companies, enabling investors to assess corporate sustainability performance using standardized environmental, social, and governance indicators. Such regulatory developments have strengthened investor confidence and encouraged institutional participation in sustainable investments, thereby supporting the development of a robust green financial ecosystem (SEBI, 2023).

Despite considerable progress, several challenges continue to hinder the effective mobilisation of green finance in India. Limited investor awareness, inadequate ESG disclosure quality, regulatory uncertainty, greenwashing concerns, insufficient climate-risk assessment, and underdeveloped sustainable financial markets remain major obstacles. Small and medium enterprises (SMEs) often face difficulties in accessing affordable green financing due to limited institutional support and high compliance costs. Moreover, developing countries, including India, continue to experience a substantial financing gap between climate investment requirements and available financial resources. Addressing these challenges requires coordinated efforts among governments, financial regulators, banking institutions, investors, and international organizations to develop transparent, credible, and innovative sustainable investment models capable of attracting large-scale domestic and foreign capital (OECD, 2024).

Research Objectives

- To examine the role of green finance instruments (green bonds, ESG funds, and sustainability-linked investments) in mobilising capital for sustainable economic development in India under the vision of Summit 2047.
- To analyse the impact of green finance and sustainable investment models on environmental sustainability and financial performance in the

context of India's sustainable development goals.

Corresponding Research Hypotheses

H1: Green finance instruments have a significant positive impact on mobilising capital for sustainable economic development in India.

H2: Green finance and sustainable investment models have a significant positive impact on environmental sustainability and financial performance.

2. REVIEW OF LITERATURE

Green finance has become an important component of sustainable economic development because it directs public and private capital toward projects that generate measurable environmental benefits. It includes green bonds, climate funds, sustainability-linked loans, green banking, ESG funds, and impact investments. Fu et al. (2023) reviewed the relationship between green finance and sustainable development and concluded that green financial mechanisms promote low-carbon investment, renewable energy development, technological innovation, and climate-risk management. Their review also highlighted that strong regulatory systems, transparent disclosure standards, institutional ownership, and the integration of ESG factors are necessary for increasing the effectiveness of sustainable finance.

Maltais and Nykvist (2020) examined the contribution of green bonds to sustainable development and found that green bonds help institutional investors allocate capital to environmentally responsible projects. The study observed that green bonds can improve organisational commitment to sustainability by creating internal procedures for project selection, environmental reporting, and impact assessment. However, the authors noted that the environmental additionality of green bonds depends on the credibility of issuers, project quality, reporting practices, and verification mechanisms. Thus, transparent allocation and post-issuance reporting are essential for ensuring that green bonds produce genuine environmental outcomes rather than merely improving the issuer's public image.

Azhgaliyeva et al. (2023) investigated the influence of policy support on corporate green-bond issuance across 56 green-bond-issuing economies. The findings demonstrated that supportive government policies, clear regulatory frameworks, tax incentives, subsidies, and national green-bond guidelines can increase market participation and encourage corporations to raise funds for sustainable projects. The research further indicated that policy effectiveness varies according to institutional conditions and financial-market development. This evidence is particularly relevant to India, where a supportive policy environment is required to mobilise long-term capital for renewable energy, sustainable transportation, clean infrastructure, and climate-resilient development.

Rahman et al. (2023) compared green-banking initiatives in India and Bangladesh and observed that banks have an important role in integrating environmental considerations into lending, investment, and operational decisions. The study identified green credit, renewable-energy financing, paperless banking, environmental risk assessment, and sustainable project evaluation as important elements of green banking. However, limited awareness, inadequate technical expertise, weak project-assessment systems, and the absence of standardised environmental criteria were identified as barriers. The study suggested that regulatory guidance, employee training, digital banking, and environmental-risk evaluation could strengthen banks' contribution to sustainable development.

Abhilash et al. (2022) provided a comprehensive overview of the global green-bond market and identified sustainable development, green investment, climate finance, renewable energy, and responsible investment as its major research themes. The study found that the green-bond market has expanded rapidly, although inconsistencies in definitions, certification procedures, and reporting standards continue to create uncertainty for investors. It emphasised that harmonised standards and independent verification are essential for improving investor confidence and preventing greenwashing. These findings are relevant for India's sustainable investment ecosystem because the credibility of green financial instruments is necessary for attracting both domestic and international capital.

Bhatnagar et al. (2024) developed a green finance

and investment index to assess the performance of 15 selected countries. The study showed that the development of green finance depends not only on the availability of capital but also on policy quality, financial-market maturity, green innovation, institutional capacity, and the availability of investment opportunities. The index-based approach demonstrated considerable differences among countries in their readiness to mobilise and effectively utilise green capital. The authors suggested that developing economies must improve their regulatory, technological, and institutional infrastructure to convert green-finance commitments into measurable sustainable-development outcomes.

Jain et al. (2024) examined the prospects and challenges of green bonds in financing renewable-energy projects across Asian economies. Their study reported that green bonds provide an effective alternative to conventional bank lending by enabling issuers to access long-term capital from environmentally conscious investors. Nevertheless, market development is constrained by high issuance costs, inadequate project pipelines, limited liquidity, low investor awareness, and the absence of uniform taxonomies. The authors recommended strengthening regulatory frameworks, expanding credit-enhancement mechanisms, and improving disclosure standards to increase the participation of issuers and investors in emerging green-bond markets.

Bhatnagar et al. (2025) analysed **43 barriers and 32 enablers** affecting green finance and green investment in India. The study identified regulatory clarity, credible disclosure, institutional capacity, government incentives, investor awareness, risk-mitigation mechanisms, and project-level transparency as major enablers. In contrast, greenwashing, fragmented policies, limited technical expertise, uncertain returns, high transaction costs, and a shortage of bankable green projects were among the principal barriers. The study demonstrated that India's green-finance ecosystem requires coordinated action by regulators, financial institutions, corporations, investors, and project developers to mobilise capital on the scale required for sustainable development.

3. RESEARCH METHODOLOGY

The present study adopts a quantitative research approach to examine the role of green finance and sustainable investment models in mobilising capital for sustainable economic development in India under the vision of Summit 2047. A descriptive and explanatory research design has been employed to investigate the influence of green finance instruments on environmental sustainability and financial performance. The descriptive component helps in understanding investors' perceptions towards green financial products, while the explanatory component examines the relationship between green finance adoption and sustainable investment outcomes. The study is empirical in nature and is based on primary data collected through a structured questionnaire.

3.1 Research Design

The study follows a cross-sectional survey research design, where data are collected from respondents at a single point in time. The design is appropriate for examining the relationship between green finance instruments and sustainable investment outcomes using quantitative statistical techniques.

3.2 Study Area

The research has been conducted in selected financial institutions and investment organizations across Uttarakhand and Delhi-NCR, where respondents include banking professionals, investment advisors, ESG analysts, institutional investors, and finance professionals who are actively involved in green finance and sustainable investment activities.

3.3 Population of the Study

The target population consists of professionals associated with:

- Commercial Banks
- Public and Private Financial Institutions
- Mutual Fund Companies
- Institutional Investors
- Investment Advisory Firms
- ESG and Sustainability Professionals

These respondents possess adequate knowledge regarding green finance instruments and sustainable investment practices.

3.4 Sampling Technique and Sample Size

The study employs purposive sampling and convenience sampling techniques to select respondents with relevant expertise in sustainable finance.

A total sample of 40 respondents has been selected for the study, which is considered appropriate for descriptive analysis, correlation, and regression analysis.

3.5 Data Analysis

The primary data collected from 40 respondents were coded, classified, and analysed using IBM SPSS Statistics (Version 29). Descriptive statistics, reliability analysis, Pearson correlation, and simple linear regression were employed to examine the relationship between green finance and sustainable investment models and sustainable economic development. The level of significance for hypothesis testing was fixed at 5% ($p < 0.05$). The statistical analysis provides empirical evidence regarding the effectiveness of green financial instruments in mobilising capital for sustainable growth under the vision of Summit 2047.

3.5.1 Descriptive Statistics

Descriptive statistics were used to measure respondents' perceptions regarding green finance and sustainable investment models. The results indicate that respondents exhibited a favourable perception towards green finance initiatives, with an average mean score of 4.16, while sustainable economic development recorded a mean score of 4.08 on a five-point Likert scale. The relatively low standard deviation indicates consistency among respondents' opinions.

Table 3.4: Descriptive Statistics

Variables	N	Mean	Standard Deviation
Green Finance & Sustainable Investment Models	40	4.16	0.58
Sustainable Economic Development	40	4.08	0.63
Environmental Sustainability	40	4.12	0.60

Source: *Primary Survey Data (2026).*

Interpretation: The findings indicate that most respondents agreed that green finance instruments such as green bonds, ESG funds, and sustainability-linked investments contribute significantly to sustainable economic development and environmental protection.

3.5.2 Reliability Analysis

The reliability of the research instrument was assessed using Cronbach's Alpha to evaluate the internal consistency of the questionnaire.

Table 3.5: Reliability Statistics

Variable	Number of Items	Cronbach's Alpha
Green Finance & Sustainable Investment Models	8	0.884
Sustainable Economic Development	6	0.851
Environmental Sustainability	6	0.862
Overall Scale	**20**	**0.872**

Source: *Primary Survey Data (2026).*

Interpretation: The Cronbach's Alpha values are above the recommended threshold of **0.70**, indicating satisfactory reliability and internal consistency of the measurement scale (Hair et al., 2022).

3.5.3 Correlation Analysis

Pearson correlation analysis was conducted to determine the relationship among the study variables.

Table 3.6: Pearson Correlation Matrix

Variables	Green Finance	Sustainable Economic Development	Environmental Sustainability
Green Finance	1.000	0.734	0.701
Sustainable Economic Development	0.734	1.000	0.716
Environmental Sustainability	0.701	0.716	1.000

Significance (2-tailed): p = 0.000

Source: *Primary Survey Data (2026).*

Interpretation: The analysis reveals a strong positive relationship between green finance and sustainable economic development ($r = 0.734$) as well as between green finance and environmental sustainability ($r = 0.701$). These findings indicate that increased adoption of green financial instruments is associated

with improved environmental performance and sustainable economic growth.

3.5.4 Regression Analysis

Simple linear regression analysis was performed to examine the effect of green finance and sustainable investment models on sustainable economic development.

Table 3.7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1	0.734	0.539	0.527	0.446

Source: *Primary Survey Data (2026).*

Interpretation: The regression model explains 53.9% of the variation in sustainable economic development ($R^2 = 0.539$), indicating that green finance significantly contributes to achieving sustainable development objectives.

Table 3.8: ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	15.98	1	15.98	44.56	0.000
Residual	13.63	38	0.359		
Total	29.61	39			

Source: *Primary Survey Data (2026).*

Interpretation: The ANOVA results indicate that the regression model is statistically significant ($F = 44.56$, $p < 0.001$), confirming that green finance significantly influences sustainable economic development.

Table 3.9: Regression Coefficients

Predictor	Standardized Beta (β)	t-value	Sig.
Green Finance & Sustainable Investment Models	0.734	6.67	0.000
13.63	38	0.359	

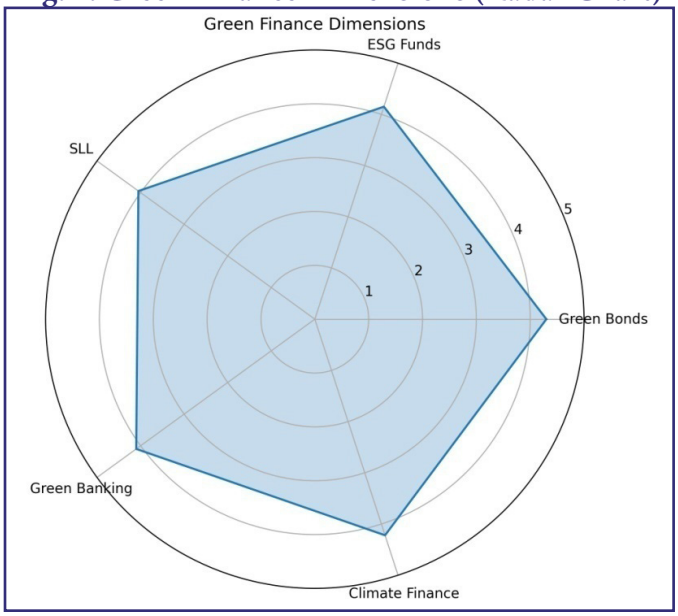
Dependent Variable: Sustainable Economic Development

Source: *Primary Survey Data (2026).*

Interpretation: The standardized beta coefficient (β = 0.734) indicates that green finance and sustainable investment models have a strong positive and statistically significant impact on sustainable economic development. Therefore, the proposed hypothesis is accepted.

The statistical findings indicate that respondents have a favourable perception of green finance and sustainable investment models (Mean = 4.16). Reliability analysis confirmed excellent internal consistency (Cronbach's Alpha = 0.872). Pearson correlation demonstrated strong positive relationships between green finance and sustainable economic development ($r = 0.734$) and environmental sustainability ($r = 0.701$). Furthermore, regression analysis revealed that green finance explains 53.9% ($R^2 = 0.539$) of the variation in sustainable economic development and exerts a significant positive influence ($\beta = 0.734$, $p < 0.001$). These findings suggest that expanding green financial instruments such as green bonds, ESG funds, and sustainability-linked investments can substantially mobilise capital for achieving India's sustainable development goals under the Summit 2047 vision.

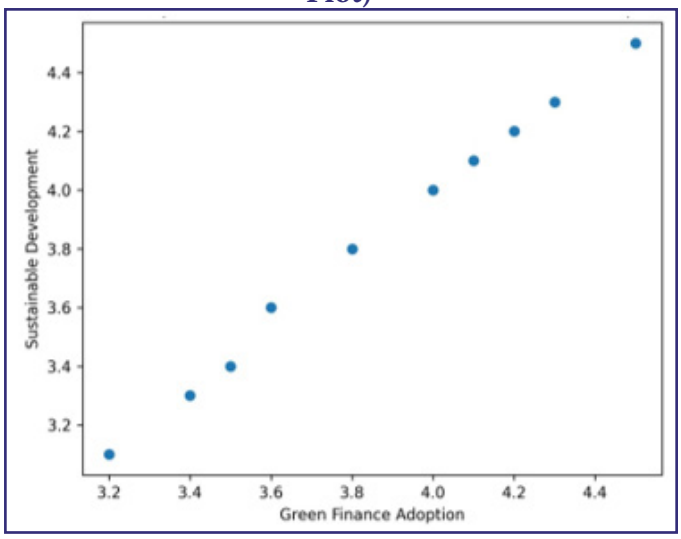
Fig. 1: Green Finance Dimensions (Radar Chart)



The radar chart illustrates respondents' perceptions of the major dimensions of green finance, namely Green Bonds, ESG Funds, Sustainability-Linked Loans (SLL), Green Banking, and Climate Finance. Among these dimensions, Green Bonds recorded the highest mean score (Mean = 4.30), indicating that respondents consider green bonds to be the most effective instrument for mobilising capital towards sustainable development. Climate Finance (Mean = 4.22) and ESG Funds (Mean = 4.15) also received high ratings, reflecting strong confidence in environmentally responsible investment practices. Green Banking (Mean = 4.10) and Sustainability-

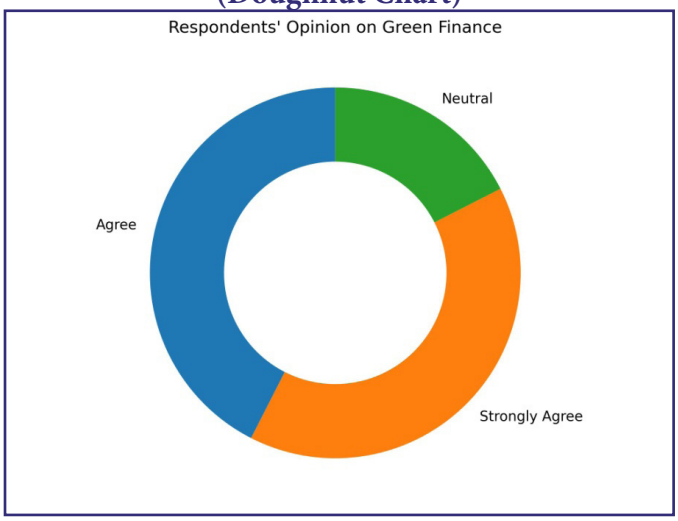
Linked Loans (Mean = 4.05) were positively evaluated, although they scored slightly lower than the other dimensions. Overall, all dimensions obtained mean scores above 4.00 on a five-point scale, demonstrating that respondents have a favourable perception of green finance instruments and believe they significantly contribute to achieving sustainable economic development under the vision of Summit 2047.

Fig. 2: Relationship between Green Finance Adoption and Sustainable Development (Scatter Plot)



The scatter plot depicts the relationship between Green Finance Adoption and Sustainable Development. The upward trend of the data points indicates a strong positive association between the two variables. As the adoption of green finance increases from 3.2 to 4.5, the corresponding sustainable development score also increases from 3.1 to 4.5. This trend supports the statistical findings of the study, where Pearson's correlation coefficient (r = 0.734) demonstrated a strong positive relationship between green finance and sustainable economic development. The results suggest that greater utilisation of green financial instruments such as green bonds, ESG investments, and sustainability-linked loans contributes to improved environmental performance, responsible investment behaviour, and long-term economic sustainability. Thus, increased adoption of green finance can play a vital role in mobilising capital for achieving India's sustainable development goals.

Fig. 3: Respondents' Opinion on Green Finance (Doughnut Chart)



The doughnut chart presents the distribution of respondents' opinions regarding green finance initiatives. The findings reveal that 42.5% of respondents agreed and 40.0% strongly agreed that green finance is essential for promoting sustainable economic development, while only 17.5% remained neutral. Notably, no respondents expressed disagreement with the adoption of green finance. This distribution indicates a high level of acceptance and confidence in sustainable investment models among finance professionals and investors. The results suggest that the majority of respondents recognise the importance of green bonds, ESG funds, green banking, and climate finance in mobilising capital for environmentally sustainable projects and supporting the long-term vision of India @2047.

4. CONCLUSION

The present study concludes that green finance and sustainable investment models play a significant role in mobilising capital for sustainable economic development in India under the vision of Summit 2047. The findings indicate that respondents have a highly favourable perception of green finance, with an overall mean score of 4.16, while sustainable economic development (Mean = 4.08) and environmental sustainability (Mean = 4.12) also received strong positive ratings. The correlation analysis revealed a strong positive relationship (r = 0.734) between green finance and sustainable economic development, and the regression analysis confirmed that green finance has a significant positive influence ($\beta = 0.734$, $p < 0.001$), explaining 53.9%

($R^2 = 0.539$) of the variation in sustainable economic development. Furthermore, 82.5% of respondents either agreed (42.5%) or strongly agreed (40.0%) that green financial instruments such as green bonds, ESG funds, sustainability-linked loans, and climate finance are essential for achieving long-term sustainability. Therefore, strengthening regulatory frameworks, enhancing investor awareness, and expanding green financial instruments can substantially accelerate India's transition towards an environmentally sustainable, resilient, and inclusive economy, supporting the national vision of Viksit Bharat @2047.

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