Assessing Awareness and Perception of Green Finance and Its Impact on Sustainable Development: A Comprehensive Study in Bangalore City

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A B S T R A C T

Nowadays, Green Finance plays a crucial role in India's sustainable development. Banks and financial institutions offer various funding options, like green bonds, green loans, etc., to support environmentally friendly projects and businesses. Additionally, government initiatives aim to promote Green Finance in the economy. The study primarily focuses on assessing awareness and perception of Green Finance and its impact on sustainable development in Bangalore City. In this research, a questionnaire technique is used, and data were collected from random people, with 60 responses for the study. The study indicates that many individuals are aware of the concept of Green Finance, but it revealed that there is limited awareness regarding the benefits or financial incentives provided by the banks, financial institutions, and government for eco-friendly projects. The study concludes that awareness of the concept of Green Finance is known, but efforts must be taken from the banks, financial institutions, and government bodies to enhance public knowledge. By doing so, such initiatives can encourage individuals and aspiring youths or entrepreneurs to develop innovative, sustainable business ideas that can contribute to the overall development of the economy.

Keywords: Green Finance, Sustainable Development, Renewable Energy, Green Bonds, Government Incentives, Financial Sustainability, Environmental Investments

1. Introduction

Green Finance has become an important part of a financial mechanism to support sustainable development by investing in eco-friendly projects using renewable energy, climate resilience, green infrastructure, and sustainable agriculture. In India, Green Finance has gained significant attention, with initiatives like green bonds, climate funds, and policy-driven financial support for sustainable projects (i.e., providing loans for organic farming, etc.). Karnataka is one of the most progressive states in India regarding economic growth and environmental policies and has a great potential to take maximum advantage of Green Finance, which promotes its impact in sustainable development. The level of awareness and perception of Green Finance among key stakeholders remains a critical factor in determining its effectiveness.

1.1. Importance of the study:

- To identify the gap in awareness and misconceptions about green finance among key stakeholders.

- To assess the impact of green finance on environmental sustainability in Bangalore.

1.2. Definition of Key Terms

- Green Finance: Financial investments and instruments designed to promote environmental sustainability, including green bonds, loans, and incentives.

- Sustainable Development: An approach to growth and human development that aims to meet the need for the present without compromising the ability of future generations.

- Green Bonds: Fixed income or financial instruments used to fund projects that provide positive environmental benefits.

- Government Incentives: Financial benefits provided by the government to encourage investments in sustainable projects, such as subsidies, tax exemptions, and grants.

- Financial sustainability: This means having a reliable revenue stream, controlling costs, and minimizing financial risks to ensure continued operations without relying excessively on external funding or debt.

- Environmental Investments: These refer to the allocation of financial resources into projects, initiatives, or businesses that aim to improve environmental sustainability, reduce ecological harm, and promote the responsible use of natural resources.

1.3. Research Problem:

Even though there is a significant growth of green finance in promoting sustainable development, awareness and understanding of its benefits among the public remains limited. Although the banks, financial institutions, and government bodies in Bangalore offer various incentives, such as green bonds, green loans, green buildings, etc, many individuals are unaware of these opportunities. Even though paperless transactions were encouraged to promote Green Finance on sustainable development, fewer people have not adopted it due to some concern factors such as technological barriers, limited awareness, security concerns, etc. The lack of awareness among them becomes a problem for the adoption of Green Finance among people, which slows the progress toward achieving sustainable goals. Therefore, the study mainly focuses on assessing awareness and perception of Green Finance and its role in impacting sustainable development in Bangalore and identifying the various factors influencing its adoption.

1.4. Research Objectives:

- To analyse the awareness about Green Finance among people in Bangalore.

- To analyse the factors influencing Green Finance among people.

2. Review of literature:

Mathapati, D. C. (2024) study, titled "Sustainable Finance at the Grassroots: Insights from Karnataka's Green Banking Landscape," mainly focused on awareness and perception of green banking in the Vijayapura district, Karnataka. This study used the survey method and interviews with individuals from diverse backgrounds. Overall, the study revealed that awareness levels may vary among different people based on their knowledge of the concept, and it also shows how the role of green banking is promoting environmental sustainability and fostering inclusive growth at the grassroots level.

Shah, R., Gadhavi, D., Chintan, P., & Harshal, M. (2023) focused on "A Study on Customer Awareness: Green Banking." The study examines the level of awareness of green banking among consumers in Ahmedabad, India. Using a survey method, the researchers collected 100 respondents. The findings indicate that while there is a general awareness of green banking concepts among people, banks need to make significant methods to enhance familiarity and promote innovative, eco-friendly initiatives that benefit society.

Nenavath, S., & Mishra, S. (2023) titled "Impact of Green Finance and Fintech on Sustainable Economic Growth: Empirical Evidence from India." The study has primarily focused on how Green Finance and Fintech encourage the development of sustainable economic growth. The study has suggested integrating Fintech with Green Finance by improving environmental disclosures and encouraging the private sector to adopt to boost sustainable growth.

Bhatnagar, M., Taneja, S., & Özen, E. (2022). The study is titled "A Wave of Green Start-ups in India." It primarily focuses on how Green Finance supports sustainable development in India. By referring to case studies and analysis, the study highlights the government initiatives and financial contributions that support green start-ups in adopting sustainable development business models, ultimately contributing to India's environmental sustainability.

Park, H., & Kim, J. D. (2020) study titled "Transition towards Green Banking: Role of Financial Regulators and Financial Institutions." The study primarily focuses on the role of financial institutions and regulators in promoting green finance. The regulatory bodies focus on creating policies that involve less environmental risk in the fiscal system, whereas it focuses on providing loans for green finance projects and encouraging them to adopt eco-friendly practices and manage climate-related risks. The study emphasizes that collaboration is needed to achieve sustainable development and ensure long-term financial stability.

3. Research Methodology:

3.1. Research Design:

A descriptive research method is selected to obtain data for the study.

3.2. Data Collection:

Primary data responses were collected from the public, and secondary data such as research papers, journals, and articles were used.

3.3. *Population and Sample Size:*

Population: The population of the study is the general public in Bangalore, Karnataka.

Sampling Method: Used convenience sampling method based on their willingness to respond to the questionnaire.

Sample Size: A total of 60 responses has been collected.

4. Research hypothesis:

Null Hypothesis(H0): There is no significant awareness about Green Finance among people in Bangalore.

Alternative Hypothesis(H1): There is a significant awareness about Green Finance among people in Bangalore.

Null Hypothesis(H0): There is no significant influence of various factors on the adoption of Green Finance among people in Bangalore.

Alternative Hypothesis(H2): There is a significant influence of various factors on the adoption of Green Finance among people in Bangalore.

5. Data Analysis and Interpretation:

5.1. *Data Analysis:* In this study, SPSS software is used for analysis. Based on the hypothesis, Chi-Square and Multiple Linear Regression Analysis are used.

Chi-square- Used for identifying the awareness about Green Finance among people in Bangalore.

Multiple Linear Regression Analysis- As the sample size is small, instead of factor analysis, multiple linear regression analysis is used to identify the factors influencing the adoption of Green Finance among people in Bangalore.

5.2. *Data Interpretation:*

Chi-Square

H1: There is a significant awareness about Green Finance among people in Bangalore.

For this hypothesis testing, Chi-square analysis is been used. The output table is attached below:

Table 1- Chi-Square test results for Awareness of Green Finance

	Awareness of the concept of Green Finance	Awareness of Green Finance Initiatives in Karnataka	Awareness of Government Incentives for Green Finance in Karnataka
Chi-Square	23.700a	10.900a	**17.100a**
Df	2	2	**2**
Asymp. Sig.	.000	.004	**.000**

Interpretation**:** The results have revealed that Pearson Chi-Square value of 23.700 in the first column, 10.900 in the second column and 17.100 in the third column with a degree of freedom(df) of 2 in all respective cases and a p-value of 0.000 in the first column, 0.004 in the second column and 0.000 in third column which is less than the significance level of 0.05. Since all p-value is less than 0.005 henceforth, reject the null hypothesis and accept the alternative hypothesis. Therefore, it states that "there is a significant awareness about Green Finance among people in Bangalore."

Multiple Linear Regression Analysis

H2: There is a significant influence of various factors on the adoption of Green Finance among people in Bangalore. The output is attached below:

Table 2- Multiple Linear Regression Model Summary for various factors influencing Green Finance adoption

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.426a	.181	.071	.676	**2.030**

a. Predictors: (Constant) Challenges in implementing Green Finance in Karnataka, Awareness of government incentives for Green Finance in Karnataka, Sector perceived to benefit the most from Green Finance, Perceived importance of Green Finance for sustainable development in Karnataka, Sources of Green Finance awareness, Awareness of Green Finance initiatives in Karnataka, Perceived effectiveness of Government incentives for Green Finance.

b. Dependent Variable: Awareness of the concept of Green Finance

Interpretation: As shown in table 2 above, the R value is 0.426, which falls in the range of 0.40-0.59, which indicates a moderate positive relationship between the independent and dependent variables. The R Square is 0.181, or 18.1% of the variability of the dependent variable is explained by the independent variable in the model. The percentage has indicated that the independent factors contribute to knowing individuals' awareness of Green Finance, and a small portion of variation is found due to another factor which have not been included in this model. The adjusted R^2 represents the number of independent factors in the model, providing a more accurate measure of how well the model explains the variability of an individual's awareness of Green Finance. The value of 0.071 or 7.1% indicates that it has a very low proportion of variation in awareness. The value has come down from R^2 to adjusted R^2, indicating that some independent factors have not significantly contributed to this model. The Standard Error of the Estimate value is 0.676, which represents the average distance between the observed values of the dependent variable and the predicted values based on the independent variable. This suggests the model predictions are relatively close to the actual values, even though some deviation exists. The Durbin-Watson statistic checks for autocorrelation residuals. In this, the value is 2, which means there is no significant autocorrelation, suggesting the residuals are independent.

Table 3- ANOVA Results for Multiple Linear Regression Model on various factors influencing Green Finance adoption

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.260	7	.751	1.646	.143[b]
	Residual	23.740	52	.457		
	Total	29.000	59			

a. Dependent Variable: Awareness of the concept of Green Finance

b. Predictors: (Constant) Challenges in implementing Green Finance in Karnataka, Awareness of government incentives for Green Finance in Karnataka, Sector perceived to benefit the most from Green Finance, Perceived importance of Green Finance for sustainable development in Karnataka, Sources of Green Finance awareness, Awareness of Green Finance initiatives in Karnataka, Perceived effectiveness of Government incentives for Green Finance.

Interpretation: The value of F-value is 1.646, mainly used to determine the independent variable collectively explain a significant portion of the variation in the dependent variable. The significance value is 0.143, which is higher than the common significance level 0.05, which means the independent variables do not significantly predict any awareness or adoption of Green Finance. The sum of squares in regression explains the variation shown in this model, and the residual value represents the unexplained variation in the model. The total represents the overall variation in the dependent variable.

Table 4- Multiple Linear Regression Coefficients for various factors influencing Green Finance Awareness

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.290	.526		2.452	.018	.234	2.346
	Awareness of Green Finance Initiatives in Karnataka	.129	.144	.127	.901	.372	-.159	.418
	Sources of Green Finance Awareness	-.010	.035	-.040	-.298	.767	-.081	.060
	Awareness of Government Incentives for Green Finance in Karnataka	-.087	.150	-.081	-.581	.563	-.389	.214
	Perceived effectiveness of government incentives for Green Finance	-.063	.138	-.093	-.459	.648	-.340	.214
	Perceived importance of Green Finance for sustainable development in Karnataka	-.043	.128	-.064	-.333	.740	-.299	.214
	Sector perceived to benefit the most from Green Finance	.221	.098	.331	2.256	.028	.024	.418

Challenges in implementing Green Finance in Karnataka	.007	.027	.033	.250	.803	-.048	.062

a. Dependent Variable: Awareness of the concept of Green Finance

Interpretation: As shown in Table 4, the unstandardized coefficient represents the change in the dependent variable for a one-unit change in the independent variable, and the standardized coefficient indicates the relative importance of independent variables. The significance value of constant and which are the sectors benefits the most from green finance is lesser than 0.05 which represents significant indicating strong influence factor of awareness whereas other independent variables significance level is greater than 0.05 which is insignificant do not significantly influence awareness of Green Finance in this model. The standardized coefficient (0.331) indicates that the factor has the strongest relative impact among all independent variables.

Table 5- Residuals Statistics for Multiple Linear Regression

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.05	2.11	1.50	.299	60
Residual	-1.067	1.902	.000	.634	60
Std. Predicted Value	-1.516	2.054	.000	1.000	60
Std. Residual	-1.580	2.815	.000	.939	60

a. Dependent Variable: Awareness of the concept of Green Finance

Interpretation: The predicted value ranges from 1.05 to 2.11, and the mean value is 1.50 and Std. Deviation value is 0.299, which shows that the range is narrow and suggests limited variability in prediction. The residual value ranges from -1.067 to 1.902, and the mean value is 0.000 and Std. Deviation value is 0.634, which shows that residual values indicate some differences from actual values. The Std. Predicted value ranges from -1.516 to 2.054, and the mean value is 0.000, and Std. Deviation is 1.000, which is expected due to standardization. Std. Residual value ranges from -1.580 to 2.815, and the mean value is 0.000, and Std. deviation value 0.939, the residual value with positive 2 is acceptable within 2.5 and beyond that it's considered as outlier.

Therefore, as the majority factors shown in table 5 have a significance level more than 0.05, it concludes by accepting the null hypothesis and rejecting the alternative hypothesis, which means there is no significant influence of various factors on the adoption of Green Finance among people in Bangalore.

6. Findings:

- The chi-square result has shown the significance level to be less than 0.05, which means accepting the alternative hypothesis that there is a significant awareness of Green Finance among people in Bangalore.

- In multiple linear regression, results have shown a moderate positive relationship between the independent variables and the dependent variables. As the R square has come down to adjusted R square (7.1) it indicates a low adjusted R square and tells that some of the independent variable explains only a small portion of the awareness factor, whereas the other unmeasured independent factor can also influence awareness.

- Therefore, in this case, only the sector that benefits the most from Green Finance is influencing the awareness comparatively more, and other factors do not produce a significant influence. As the majority factor's significance level is greater than 0.05, accepting the null hypothesis, by concluding that various factors do not significantly influence the adoption of Green Finance in Bangalore.

7. Limitation of the study:

In this study, certain limitations are found, such as the data collected through the questionnaire may not be accurate as the respondents might misreport their awareness and perception. Moreover, the study was conducted with a limited time frame and a sample size of 60 respondents, making it difficult for the analysis to interpret the result, and the questionnaire used categorical variables instead of Likert scales, which might not provide actual factors influencing the adoption of Green Finance using categorical variables. The study is also limited to Bangalore and may not reflect the true view of awareness and perception of Green Finance in other regions.

8. Conclusion:

There is a growing awareness of Green Finance among individuals in Bangalore, but many factors have influenced it, making it limited in its adoption. The results of the Chi-Square showed that there is a significant awareness of Green Finance among people in Bangalore. Whereas the multiple linear

regression shows that among all factors, the perception of which sector benefits the most from Green Finance significantly influences awareness, and other factors show a substantial impact on the sample. The increasing awareness about the benefits of Green Finance in specific factors can promote the success of Green Finance, which can further encourage adoption. Banks, financial institutions, and government bodies must increase public outreach and provide access to Green Finance products. By increasing the awareness programs and resolving the problem barriers such as technological concerns, security concerns, and limited knowledge or awareness about it. By doing so, Green Finance can play an important role in driving sustainable development in Bangalore. This can increase the number of individuals and entrepreneurs by contributing to a greener economy, which supports long-term environmental and economic sustainability.

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