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TO STUDY THE ROLE OF GREEN FINANCE IN PROMOTING SUSTAINABLE DEVELOPMENT

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Abstract:

Green finance plays a vital role in promoting environmental sustainability by directing funds toward eco-friendly projects and low-carbon development. Financial instruments such as green bonds, green loans, and ESG-linked investments support initiatives that reduce carbon emissions, improve resource efficiency, and encourage sustainable practices. Growing concern about climate change has increased investor interest in projects aligned with environmental goals. Green loans offer favorable financing terms for activities that generate clear environmental benefits, while green bonds ensure transparency and accountability in the use of funds. ESG-linked investments assess environmental, social, and governance factors to manage long-term risks and returns effectively. In India, the government's commitment to achieving net-zero emissions by 2070, along with regulatory support and bond issuance, has accelerated the growth of sustainable finance. This trend is especially visible in renewable energy, clean transportation, and energy-efficient sectors. The study examines the growth, sectoral distribution, challenges, and regulatory framework of green finance in India and suggests measures to strengthen its role in achieving sustainable development goals.

Keywords: *Green Finance, Green Bonds, Renewable Energy, Sustainable Development*

Introduction:

The green bond market is really taking off. It is a help for people who want to fund projects that are good for the environment. Because of climate change and other environmental problems investors and people who make policies are starting to care more about finance. So companies are putting money into things like renewable energy and low-carbon technologies. The green bond market is a way for companies to show that they care about the environment and about being responsible. By selling bonds companies can say that they are committed to environmental and social principles and to governing themselves in a responsible way. The green bond market is becoming an important tool for sustainable development. Environmental Social Governance performance or ESG performance is really important when we think about how well a company will do financially in the long run. People who invest money are now very interested in something called bonds.

They like bonds because they help investors make money and also do good things for the environment at the same time. When a company issues bonds it shows that the company really cares about what it is doing and wants to do things the right way. This helps investors trust the company and feel good about putting their money into it which is good for the company and the market in general. ESG performance and green bonds are becoming more important to investors and companies. Companies that do well with ESG performance and issue green bonds are seen as responsible and good to invest in.

Green Bond:

Green bonds are like bonds but the money from them can only be used for things that are good for the environment, such as renewable energy, clean transport or buildings that do not waste energy. The people who issue these bonds have to keep track of how the money is being spent and tell everyone about it. The ICMA Green Bond Principles help with this by focusing on four things: what the money is used for which projects are chosen, how the money is managed and how the progress is reported. Green bonds are important because they help make sure that the money is really being used for Green projects.

The green bond market in India is really taking off. It is expected that the total amount of bonds will be around 55 to 56 billion US dollars by the year 2024. The Government of India and the Reserve Bank of India have also issued bonds. These include a thirty year bond that was issued in the year 2025. This is helping to create a green bond market that will be around for a time. The green bond market in India is getting a lot of support from the Government of India and.

Green Loan:

Green loans are a type of loan that people use to pay for things that're good for the environment like solar panels and electric vehicles and homes that use less energy. These loans have to follow rules like the ICMA principles to make sure the money is being used for things that help reduce emissions or save water and other resources. In India, banks and other financial companies offer loans to help the country achieve its goals for being more sustainable and taking care of the environment with green loans.

These green loans are different from loans because the money has to be used for green projects that are verified. Green loans usually have interest rates and the terms are flexible. They may also need environmental checks to be done. The time you have to repay the loans depends on the green project you are doing.

Loan Provide Institute Like

1. State Bank of India (SBI)
2. State Bank of India (SBI)
3. Bank of India
4. HDFC Bank
5. ICICI Bank
6. YES Bank

Eligibility:

People or companies with green projects can apply for a loan. The people who give out the loans will look at the credit score of the green project owners, how much money they make, what their plans are for the project and sometimes they will also check for special certificates. There are government programs like PM-KUSUM that can help people who are borrowing money for the time, with their green projects.

Interest rates (2025)

1. IREDA solar loans: ~8.65–9.65%.
2. SBI green car loans: ~8.90% onward.
3. Canara and PNB start around 9.20%.

ESG- Linked Investments:

ESG-linked investments combine environmental, social, and governance factors with financial returns. Money is directed toward companies or projects that follow sustainable and responsible practices. In India, this market is growing due to SEBI rules, the 2070 net-zero goal, and rising investor interest India's debt market that is good for the environment is now over fifty five point nine billion United States Dollars. This is because of government plans like the Production Linked Incentive scheme and rules that make companies tell us about what they're doing to be more responsible. The Securities and Exchange Board of

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India is also making companies tell us more about what they're doing by the year 2025.

People who are not investors can put their money into products that are good for the environment and society through apps that sell mutual funds or through brokers. They do not need a lot of money to start. These investments help with problems like climate change and bad governance. They also help companies grow in a way.. The good thing is that the money people get back from these investments is similar to what they would get from traditional investments. India's sustainable debt market and these investments are really good, for everyone.

Like invest for ESG Linked :

1. **ESG mutual funds:-** Like SBI Magnum Equity ESG Fund and Aditya Birla Sun Life ESG Fund, which invest mostly in high-ESG-rated companies.
2. **ESG bonds:-** Green, social, and sustainability-linked bonds; for example, L&T issued India's first listed ESG bond in 2025.
3. **ESG indices and ETFs:-** Track ESG-compliant stocks for easy retail investment.

Review of Literature :

1. Nenavath, S. (2022). Impact of fintech and green finance on environmental quality protection in India: By applying the semi-parametric difference-in-differences (SDID). Nenavath (2022) examines how fintech development and green finance contribute to improving environmental quality in India, using the semi-parametric difference-in-differences (SDID) method, and finds that increased green financial activities and fintech adoption significantly reduce environmental degradation by promoting cleaner technologies and sustainable investments. Renewable Energy, 195, 195-208.
2. Ozili, P. K. (2022). Green finance research around the world: a review of literature. provides a comprehensive global review of green finance literature, highlighting key themes, trends, instruments, challenges, and policy implications, and emphasizes the growing role of green finance in supporting sustainable development, climate change mitigation, and environmentally responsible economic growth across countries. International Journal of Green Economics, 16(1), 42-65.
3. Rasoulinezhad, E., & Taghizadeh-Hesary, F. (2022). Role of green finance in improving energy efficiency and renewable energy development. Rasoulinezhad and Taghizadeh-Hesary (2022) analyze the role of green finance in enhancing energy efficiency and promoting renewable energy development, concluding that increased access to green financial instruments significantly supports clean energy investments, reduces energy intensity, and accelerates the transition toward sustainable energy systems. Energy Efficiency, 15(4), 1-21

Research Methodology:

This study follows a descriptive research design to examine how green finance supports sustainable development in India. Both primary and secondary data are used.

Primary data are collected through a **structured questionnaire** from bank officials, investors, students, and academicians to assess awareness, perceptions, benefits, and challenges of green finance. Secondary data are obtained from **RBI, SEBI, Government of India, World Bank reports**, research journals, books, and authentic websites.

Analysis of Distribution of Green Bond Proceeds in India :

- **Sector Wise Distribution of Growth of Green Bond Market in india**

Sector	Percentage
Renewable Energy	62%
Low Carbon Transport	18%
Energy Efficiency	9%

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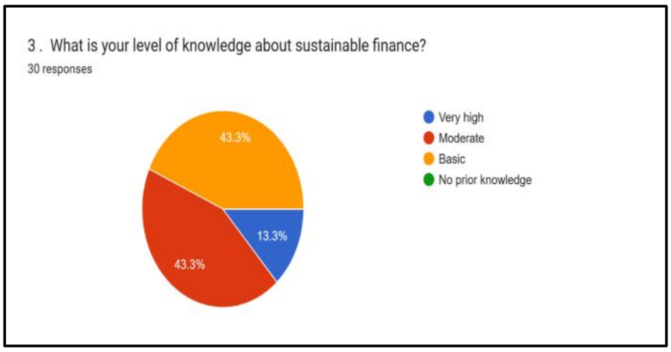
Water Management	6%
Waste Management	3%
Sustainable Land Use	2%

Objectives:

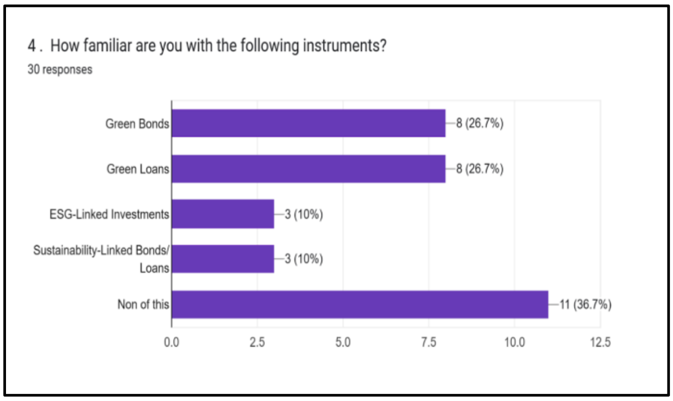
- To study green bonds, green loans, and ESG-linked investments in India.
- To analyse the use of green bond proceeds across sectors, including renewable energy, clean transport, and energy efficiency projects.
- To examine the impact of green finance on environmental sustainability and its contribution to low-carbon and resource-efficient development.

Data Interpretation:



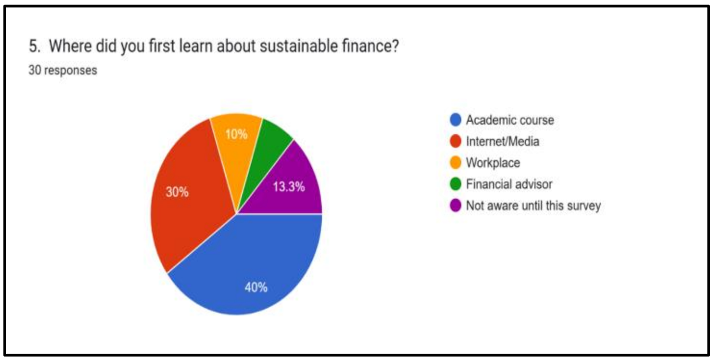
Interpretation:

The chart shows that most respondents have basic (43.3%) or moderate (43.3%) knowledge of sustainable finance, while only 13.3% have very high knowledge, and none reported having no prior knowledge, indicating general awareness but limited advanced understanding.



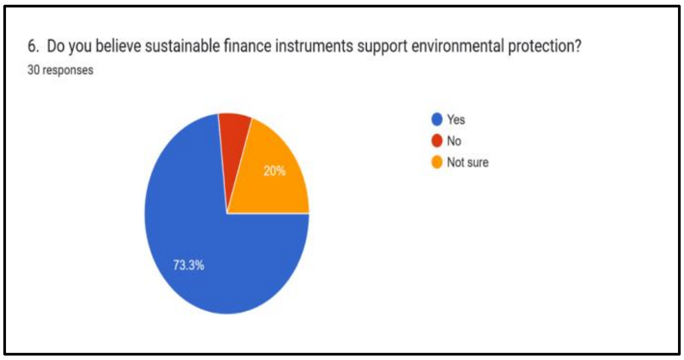
Interpretation

The chart indicates that respondents are most familiar with green bonds and green loans (26.7% each), while awareness of ESG-linked investments and sustainability-linked instruments is low (10% each), and a significant 36.7% are not familiar with any of these instruments, showing limited overall awareness.



Interpretation:

The chart shows that most respondents first learned about +sustainable finance through academic courses (40%), followed by the internet/media (30%), while fewer learned from the workplace (10%) or financial advisors, and 13.3% were not aware of it until this survey, indicating education as the main source of awareness.



Interpretation:

The chart indicates that a strong majority of respondents (**73.3%**) believe sustainable finance instruments support environmental protection, while **20% are unsure** and only a **small proportion disagree**, showing overall positive perception.

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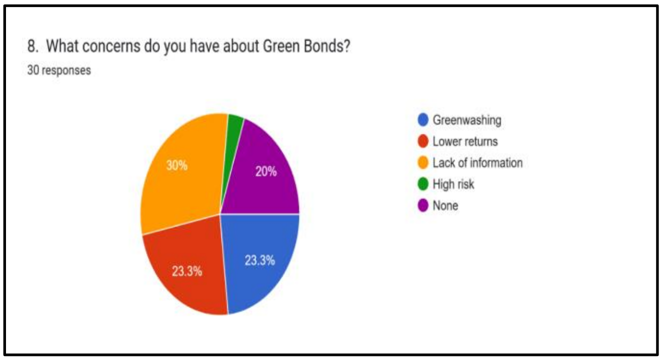
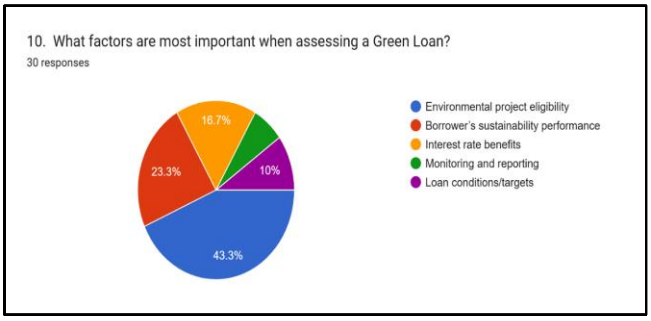


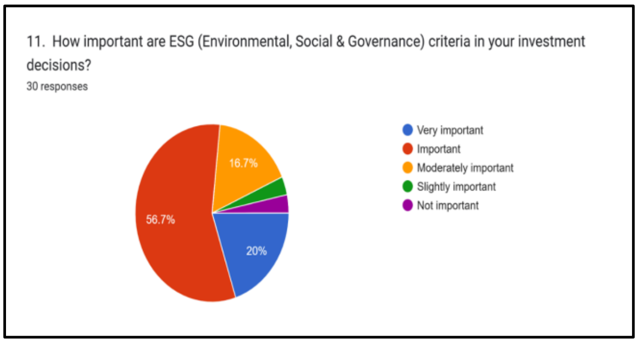
Interpretation:

The chart shows that the main concern about green bonds is lack of information (30%), followed by greenwashing and lower returns (23.3% each), while 20% have no concerns and only a small proportion perceive high risk, indicating awareness gaps rather than risk fear.



Interpretation:

The chart shows that environmental project eligibility (43.3%) is the most important factor when assessing a green loan, followed by borrower's sustainability performance (23.3%) and interest rate benefits (16.7%), while monitoring, reporting, and loan conditions are considered less important by respondents.



Interpretation:

The chart indicates that ESG criteria are considered important or very important by the majority of respondents (76.7%), while 16.7% view them as moderately important, and only a small proportion consider them slightly or not important, showing strong ESG consideration in investment decisions.

Findings:

1. **Rapid growth of green finance instruments:** Green bonds, green loans, and ESG-linked investments have become key tools for financing sustainable and environmentally friendly projects.
2. **Shift toward low-carbon investments:** Rising environmental and climate concerns are driving investments toward renewable energy, clean transport, and energy-efficient projects.
3. **Transparency and accountability:** Green bonds provide clear reporting on fund utilization, ensuring that proceeds are used for environmentally beneficial activities.
4. **Targeted financing through green loans:** Green loans enable businesses and projects with verified environmental benefits to access favorable financing options.
5. **Integration of ESG factors:** ESG-linked investments help manage environmental, social, and governance risks while supporting long-term financial returns.
6. **Policy support in India:** Strong regulations, sovereign green bonds, and India's 2070 net-zero target have significantly boosted the adoption of sustainable finance.
7. **Sectoral impact:** Green finance is predominantly supporting renewable energy, clean transportation, and energy efficiency, contributing to a low-carbon economy.

Suggestions :

1. Strengthen regulatory frameworks: Governments and regulators should provide clear guidelines and

standards for green finance to increase investor confidence.

2. Promote awareness and capacity building: Financial institutions, businesses, and investors should be educated about the benefits and mechanisms of green finance instruments.
3. Expand sectoral coverage: Encourage green finance to support additional sectors, such as water management, sustainable agriculture, and waste management.
4. Enhance transparency and reporting: Ensure that issuers of green bonds and loans provide accurate reporting on environmental outcomes to maintain trust.
5. Encourage ESG integration: Businesses and investors should integrate ESG considerations into decision-making to reduce risks and promote sustainability.
6. Provide incentives: Tax benefits, subsidies, or recognition awards can motivate adoption of green finance practices.
7. Support innovation in financial products: Develop new green financial instruments tailored for small and medium enterprises (SMEs) and emerging green technologies.
8. Monitor impact on sustainability goals: Track the contribution of green finance toward India's net-zero 2070 target and Sustainable Development Goals (SDGs) for continuous improvement.

Conclusion :

Green finance plays a vital role in promoting sustainable development in India by supporting environmentally responsible projects through green bonds, green loans, and ESG-linked investments. The growing awareness of climate change, supportive government policies, and increasing investor preference for sustainability have significantly expanded the green bond market. Most investments are directed toward renewable energy, low-carbon transport, and energy efficiency, reflecting India's strong commitment to reducing carbon emissions and achieving its net-zero target by 2070. Although challenges such as lack of awareness, high verification costs, and greenwashing exist, improved transparency, financial literacy, and strong policy support can address these issues. Overall, green finance is a powerful tool for environmental protection, economic growth, and long-term sustainable development.

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