

# Evolution and Progress of Green Finance in India with Special Reference to Green Bonds

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## ABSTRACT

India, in order to emerge as a global leader, has the requirement to grow the economy in a holistic approach. Sustainable development(SD) is one of the major concerns in monitoring the development of the nation. Promoting sustainable development requires adequate financial resources for investment. In India, over the last decade, green finance has come to the foreground as an initiative to stimulate SD. This study deals with the lineage of Green Finance in India and tries to throw light on the various Green Finance Instruments available in the Indian Financial Market, and assesses the public awareness regarding green finance in India. This study also highlights progress made by green finance, especially with respect to green bonds(GB), as only a few research studies have been carried out on it exclusively. To investigate the progress made, data was gathered from various secondary sources, i.e., from official websites, particularly of RBI and SEBI, and Journals, research articles, and other websites are also referred to. The findings concluded that with increasing awareness of green finance among the public, designing a better information management system and increasing the coordination amongst contributors of Financial System expedites achievement of sustainable growth, as well as research noted various challenges faced in promotion of green finance. The research also reveals that Green Finance has made monumental progress from past decades. As of late 2024 and through 2025, India stands as the eighteenth largest source of aligned GSS+ debt globally and the fourth largest among emerging markets in terms of cumulative green bond issuance.

**Keywords:** Green Finance, India, SEBI, RBI, Green Bonds, Green Loans

## INTRODUCTION

Ecosystems threatened by climate change, which also disturb biodiversity and shake global economic stability, have forced the world to follow those practices necessary for decarbonization of the economy, protection of biodiversity, and SD of economy. United Nations adopted sustainable development goals (SDGs) in 2015, which called for a trillion dollars of annual funding for reducing poverty, inequality, and environmental deterioration. To meet this huge requirement of funds, domestic tax revenues, official development assistance, and Foreign Direct Investment have become inadequate; thus, there is an emergence of innovative financial instruments to channelize the private and institutional capital towards environmental preservation. Such innovative financial instruments are venture capital, green loans, green insurance, green bonds, etc., which are commonly termed as Green Finance.

Sustainable economic growth in recent years has evolved around Green Finance. Environmental degradation is often witnessed due to rapid economic development. Shrinking natural resources, deteriorated environment, or nervous pollution are dangerous to public health or complicate sustainable growth. Hence, nations worldwide are focusing on environmental protection, efficient fund allocation structures, and eco-friendly technologies to balance development and environmental preservation. Thus, it requires a large incentive structure to enhance the fund allocation towards planning and implementation of environmentally sustainable projects. Nations, for

this purpose, plan for optimal allocation of resources to achieve sustainable growth involving a substantial period of time.

Green Finance is the planned activity that funds the schemes with positive environmental impacts. The basic motive is channelising the financial resources to fortify natural resources and transform into a decarbonized economy. Green Finance is the way to eradicate the environmental menace and to open up the opportunities offered by sustainable investments. Funding for energy-efficient establishments, green farming, sustainable energy, and other green projects. In simple terms, green finance refers to acquiring and assigning the funds for eco-friendly projects, assets, and activities (Ikram, Ferasso, Sroufe, & Zhang, 2021). This program aims to conserve natural resources, decrease carbon footprints, or encourage environmentally friendly growth. In addition to energy-efficient projects like green buildings and eco-friendly waste management systems that convert waste into energy, environmentally sustainable projects also include green transportation, which reduces greenhouse gas emissions, and production of energy from renewable sources such as wind, biogas, solar, etc. In order to achieve these objectives, most nations developed formal programs on green finance that involved all parties involved in the economic boom, including governments, corporations, and central banks (RBI Bulletin 2021).

Green Bonds (GB)– These are one of financial instruments covered under green financing. GB are fixed-income securities issued to increase funds for sustainable or eco-friendly projects (Pillai, S.2022). These bonds carry fixed-income generating instruments framed exclusively to aid climate-related, environmentally beneficial projects. GB creates- win situation for both environment and Stakeholders as they are beneficial to environment and also offer a return to their investors. These bonds are assets linked and guaranteed by the issuer's financial statement, so they carry the same credit rating as other debt instruments (Rao & Santoshi, 2021).

## LITERATURE REVIEW

Seema Pillai, 2022, studied emerging trends in green finance and explored concept and scope of Green Finance. The investigation tried to identify opportunities for Indian businesses and also challenges to adopt Green Financing in India. The research investigated that the adoption of green financing in India has various opportunities and also faces several Challenges. Although an Increase in demand for renewable energy and environmental protection provides money-spinning opportunities, lack of awareness or inadequate infrastructure acts as a major constraint. The government, financial institutions, and private sector must work together to promote adoption.

Sheng Xu and Haonan Dong (2023) examined the impact of green finance on economic development and its transmission path using panel data from 30 Chinese provinces and cities between 2009 and 2019. The authors employed the intermediary model and looked at how green finance operates in economically high-quality ways that depend on intermediation path of industrial structure advancement or industrial structure rationalization, moderated effect of environmental regulation. According to the study, both advanced and rationalized industrial structures have a favourable mediation effect, and green financing plays a key role in high-quality economic development. Second, environmental regulation enhances the role of industrial structure upgrading in fostering economic development and positively regulates beneficial effects of green finance development.

Voicaa, Panaitb, and Radulescub 2015 have demonstrated the significance of the private and public participation to adopt green investments, predominantly in Infrastructure, and also these participants create a legal and corporate framework to enhance FDI and FPI in this field. This research presented that improvisation and developments in green financing instruments are blooming year by year, and on the other hand, tech-advancements and novelty in techniques of utilizing green energy and reducing cost of these methods assure a good profitability in contradiction to the fight against carbon emission from fossil fuels.

Adaobi Ndukaji, 2025, in his research article, studied role of GB in sponsoring SD, or also analysed capacity and limitations. The study adopted a combination of issuance and yield as a qualitative analysis of GB with special reference to India, Nigeria, and Brazil. It is evident from the study that GB can reduce the cost of investments for eco-friendly projects, increase investors ' confidence, and mobilize capital for green energy,

climate fortitude, and decarbonized infrastructure. The study reveals that statutory ambiguity, inadequate impact reporting, which has standard norms, and fluctuation in currency value restrict the opportunity for GB to be utilized to the full extent. This restriction deprives stakeholders' participation, decreases confidence, and reduces the ability of GB to succeed in its purpose.

Rao and Santoshi 2021, highlighted the improvements in green finance in India and issuance of GB. Researchers collected data from secondary sources from Government websites, SEBI, and RBI, etc., and concluded that there is monumental development in the field of green finance from 2013 to 2019, and India stood in 4<sup>th</sup> place in GB issuance amount amongst 12 countries studied.

### **Need for the study**

From the literature review, it could be analysed that green finance in India is an emerging issue that fosters SD or decreases carbon footprints. Green bonds, as an instrument of green finance considered a popular source of finance to achieve green development. GB is in an evolutionary stage in India and needs to be popularized to reach the objective of eco-friendly development, along with providing a return to investors.

### **Objectives of the study**

1. To understand genesis of Green Finance in India
2. To assess the progress made by India in the aspect of Green Finance
3. To study public awareness of green finance and green bonds in India.

## **RESEARCH METHODOLOGY**

This investigation depends on secondary sources. Data collected from various Government reports, research articles, reputed journals, or official websites of SEBI and RBI are used for the study.

### **Genesis of Green Finance in India**

#### **Evolution of Green Finance in India**

Intensive degradation of natural resources and deterioration of ecological environment have led to intensified efforts to develop an SD model across the globe. Green Finance is one of such models, and throughout world the advancement of this event is broadly divided into three categories: 1. Increased involvement of international organizations 2. Tread in designing an eco-friendly financial system and 3. advancement in green financial instruments. Even though the footprints of Green Finance can be traced from 1992 with the establishment of United Nations Environment Programme Financial Initiative (UNEP FI), Where as in India the emergence of green finance can be identified from 2007, with a notification issued by RBI on "Corporate social responsibility, SD or Non-Financial reporting- Role of Banks" and then overall advancement in Green Finance can be sorted into Four phases.

**Phase 1: Foundational Stage (2008–2014)** – In the year 2008, goal of National Action Plan on Climate Change (NAPCC) was to lay out a comprehensive policy framework for mitigating effects of climate change. The Renewable Purchase Obligation (RPO) was created by Ministry of Power in 2010, and Renewable Energy Certificates (REC) are used as compensation certificates in the event that the RPO is not met. National Clean Energy Fund (NCEF) was recognized by Government of India in the Finance Bill 2010-11, with the principle of "polluter pays" where a cess on coal produced and imported was levied. This fund was created to finance research and Development in environmental projects, encourage clean energy technologies, and to back up the environmental projects such as Namami Gange. In the same year, Climate Change Finance Unit was set up under Ministry of Finance to coordinate various statutory bodies or institutions in charge of green finance in India. A major move was to make it mandatory to publish business responsibility reports since 2012 for NSE and BSE top 100 listed companies, which made it statutory to disclose the sustainability actions.

**Phase 2: Formalization Stage (2015–2017)** - In the year 2015, SEBI issued a concept paper containing the guidelines for GB for public consultation and opinion building. This paper was basically on globally accepted Green Bond Principles (GBP) framed by International Capital Market Association (ICMA) and stressed the requirement for increased disclosures to distinguish GB from regular debt securities. After receiving public comments, SEBI published final guidelines in the year 2017, which rendered vigorous regulatory compliance for issue or listing of green debt securities in India. This action was with objective to uplift the clean energy market and establish criteria for discourse standards. Another major development in green finance in India is issuance of GB. India’s first GB has been launched by YES Bank in 2015, worth Rs. .1000 crore, and the focus was on solar, wind, and biomass projects. Later, the issuance was followed by the EXIM bank, CLP India, and ReNew Power Ventures, etc. 2015 was an important year as many of the Indian Financial institutions and companies started issuing GB to finance Positive, impactful environmental projects, pointing out a path towards sustainable investment. Another Milestone is issuance of International GB by AXIS Bank in the year 2016, worth \$500 million, listing on London Stock Exchange. This issuance demonstrated the commitment towards sustainable development by a two times over subscription. It was the first US \$ green bonds to be certified by the Climate Bonds Initiative (CBI) standards.

**Phase 3: Expansion Stage (2016–2021)**- The formulation of the stage provided a strong platform in these years to enhance the scope of green finance and also encouraged various institutions to participate in Green Financing. Government Corporation NTPC issued INR 2,000 crores through green masala bonds in 2016 in order to fund solar and wind projects. Indian Railway Finance Corporation (IRFC) made a prominent beginning in December 2017, with \$ 500 million certified green bonds, and its popularity was immense as it was oversubscribed by three times. The issue was allocated to reduce the carbon footprint in the rail network by promoting electrification and power efficiency. In the year 2019, Adani Green Energy became first Indian firm to issue US \$ green bonds worth \$362.5 million in international market, and the funding was to support company’s renewable energy projects and fulfil India’s clean energy goals. Ministry of Corporate Affairs, in the year 2019, issued guidelines for Responsible Business Conduct. Before 2021, the market was basically led by private sector Indian firms, and a small share was contributed by the International Bonds. But, in the year 2021, there was a drastic upward trend observed by getting \$3.6 billion in six months alone in the International Markets, and it reached \$8.3 billion in the fiscal year 2021-22.

**Phase 4: Sovereign Stage (2022–Present)** - Government of India announced issuance of Sovereign GB in the year 2022, which is seen as a demonstration of Government's commitment to climate change and seeking participation from private sector. Indian Government issued its first Green Bonds in 2023, raising INR 16,000 to finance eco-friendly projects. In 2024, India prominently improved its green bond announcements by expanding compliance (SEBI) to include wider ESG debt and introducing systematic frameworks for issuance, compulsion in providing detailed pre- and post-issuance transparency, third-party verification, and aligning generally with global standards like ICMA principles. As of late 2024 and through 2025, India stands as the eighteenth largest source of aligned GSS+ debt globally and the fourth largest between emerging markets in terms of cumulative green bond issuance.

Table 01- Progress of Green Finance in India (Amount INR Crores)

Sector	2019	2020	2021	2022	2023	2024
Renewable Energy	60,000 – 75,000	65,000-80,000	70,000-85,000	80,000-95,000	90,000-11,000	1,00,000-1,25,000
Sustainable transport	8,000-12,000	9,000-13,000	10,000-14,000	12,000-16,000	14,000-18,000	16,000-20,000
Green Buildings	4,000-6,000	4,500-6,500	5,000-7,000	6,000 - 8,000	7,000 - 9,000	8,000 - 10,000
Sustainable	2,000-4,000	2,200-4,400	2,400-4,800	2,600 - 5,200	2,800 - 5,600	3,000 - 6,000

Agriculture						
Water Management	3,000-5,000	3,300-5,500	3,600-6,000	4,000 - 6,500	4,400 - 7,000	4,800 - 7,500
Pollution Control	1,000-2,000	1,100-2,200	1,200-2,400	1,300 - 2,600	1,400 - 2,800	1,500 - 3,000
Other Green Projects	500-1,000	550-1,100	600-1,200	650 - 1,300	700 - 1,400	750 - 1,500
Total	78,500-1,05,000	85,650-112700	92,800-1,20,200	105550-134600	120,300 - 151,800	134,050 - 173,000

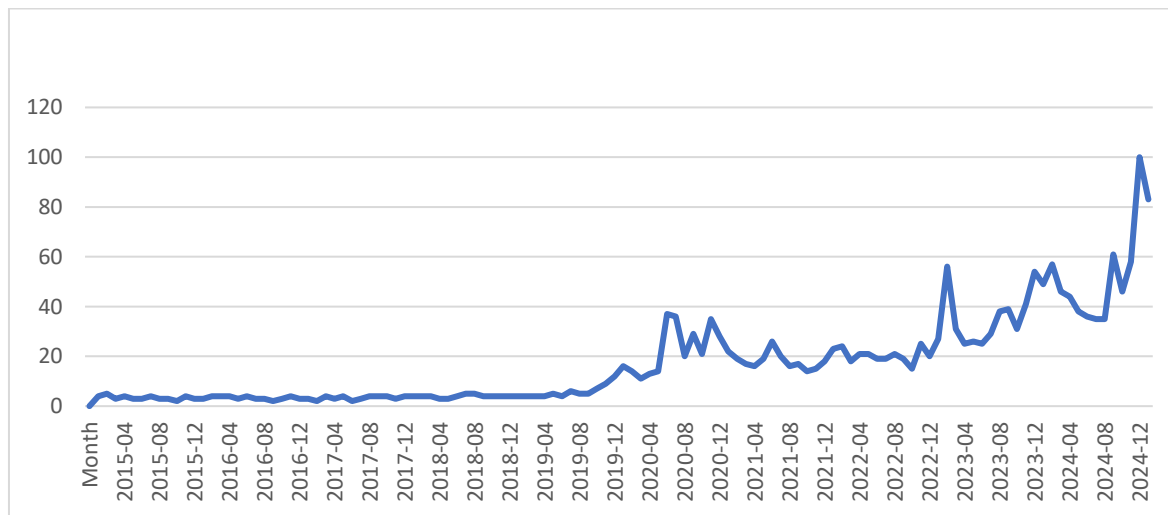
Source- Annual reports from private and Public Sector Banks, RBI Report, Govt. and State-owned corporations, green bonds, etc. (Gurumurthy K H et al. 2025)

Interpretation -It is evident from above table that progress of green finance in India is observing an upward trend, i.e., from the range of Rs. 78,500- 1,05,000 crores in 2019 to 1,34,050 -1,73,000 crores in 2024, which is a steady increase without fluctuation, resulting in enhancing the contribution of the funds for the green projects.

### Public Awareness about Green Finance and Green Bonds in India

Google Trends was used as a measurement tool to assess attention of green finance and Green Bonds in India. Google Trends records the searches made by the Indian Public, which is used for gathering awareness.

Graph Showing Awareness of Green Finance in India



Interpretation – It is shown in the above figure that public interest in Green Finance is increasing year by year.

### Findings

- It is found that green finance in India has emerged as an innovative financial opportunity enabling sustainable development and yielding investors’ return, which can be observed by the genesis of Green Finance
- Green Finance in India is getting greater attention, which can be justified by observing the total Investments made in Green Projects over the years, as shown in Table 01

- As the number of searches regarding green finance is increasing over the years, it can be considered that the awareness about green finance in India is increasing.

## CONCLUSION

Green Finance in India has now become essential for India's overall growth in order to promote environmentally beneficial projects and reduce carbon footprints. In India, Green financing is mainly noticed in the form of Green Bonds, as Govt. of India has made it popular by issuing them. Green finance in India is observing its progressive phase. It is also concluded that awareness among general public is increased in respect of green finance.

## REFERENCES

1. <https://trends.google.com/trends/explore?date=2015-01-01%202025-01-01&geo=IN&q=green%20finance&hl=en-US>
2. Dr. D. Thirumala Rao & G. Santoshi 2021, "A STUDY ON GREEN BONDS IN INDIA – NEED OF THE HOUR" International Journal of Research and Analytical Reviews, December 2021, Volume 8, Issue 4
3. Pillai, S. (2022). - Emerging Trends in Green Financing: Opportunities for Indian Businesses. ShodhKosh: Journal of Visual and Performing Arts, 3(1), 818–826. doi: 10.29121/shodhkosh.v3.i1.2022.4151
4. Xu, S.; Dong, H.- Green Finance, Industrial Structure Upgrading, and High-Quality Economic Development Intermediation Model Based on the Regulatory Role of Environmental Regulation. Int. J. Environ. Res. Public Health 2023, 20, 1420. <https://doi.org/10.3390/ijerph20021420>
5. Mr. Sk Sajit, Miss Somali Deb, Mr. Biki Digar 2024,- Does Green Finance Influence Financial Performance? Evidence from BSE 100 Companies. ESSBC JOURNAL OF BUSINESS STUDIES ISSN: 2583-8563 (Online) Peer Reviewed: Volume: II, Issue: I, January, 2024
6. Die Hu & Christopher Gan - Green finance development and its origin, motives, and barriers: an exploratory study. Environment, Development and Sustainability, Springer.
7. Dr. Gurumurthy K H, Smt. Neelamma K A Sathyanarayana Shetty, Dr. Nagaraju G H - A STUDY ON GREEN FINANCING PROGRESS IN INDIA, SEEJPH Volume XXVI, 2025, ISSN: 2197-5248; Posted:04-01-2025
8. Reports-RBI, SEBI, Banks, and Annual Economic Survey Report