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GOVERNING GREEN: AN ANALYSIS OF INDIA'S REGULATORY ARCHITECTURE FOR SUSTAINABLE FINANCE

Prantik Ray[1]
Research Scholar, Amity University, Chhattisgarh, India
Professor, XLRI – Xavier School of Management, Jamshedpur, India.

Disha Sharma[2]
professor, Amity University, Chhattisgarh, India.

ABSTRACT

Green finance is a critical catalyst for a sustainable transition with the dual mandate of developing economically and reducing climate change. India, which has very ambitious Nationally Determined Contributions (NDCs) under the Paris Agreement and aims to reach Net Zero emissions by 2070, has made a strong emphasis on developing a strong green finance ecosystem. This paper describes the dynamic regulatory framework governing green finance in India. It applies a doctrinal and analytical approach to deconstruct the major legal and regulatory tools that are used to define this landscape. The article follows the path of development of the early principles to the complex, multi-dimensional systems that have been developed by the two key financial regulators in the country, namely the Securities and Exchange Board of India (SEBI) and the Reserve Bank of India (RBI).

The paper will concentrate on three critical spaces: the entire framework of Green Debt Securities (GDS) by the SEBI, with its highly important amendments in 2023, which made it mandatory to have third party verification and extended the taxonomy to include blue and yellow bonds; the landmark framework of Green Deposits by the RBI, which will move retail savings into green projects; and the strategic deployment of Sovereign Green Bonds by the Government of India to create a benchmark yield curve. The paper also examines how greenwashing can be combated by employing better disclosure systems, such as the Business Responsibility and Sustainability Reporting (BRSR) framework, to build trust among investors.

The results show that although India has achieved a lot in building a progressive and strong regulatory environment, there is still a long way to go. They are the provision of consistency in defining what is meant by green projects, secondary market liquidity of green instruments, institutional capacity in verifying and reporting impact, and financing the transition of hard-to- abate sectors. The paper concludes by giving certain policy recommendations to address these barriers, saying the future of the Indian green finance market is in better enforcement of the regulations, innovative financial product development, and fair and equitable transition.

Keywords: Green Finance, Green Bonds, Sustainable Finance, SEBI, RBI, India, Climate Finance, Environmental Regulation, Greenwashing, Sustainable Development Goals (SDGs), Green Deposits, Sovereign Green Bonds.

1. Introduction:

The Imperative for Green Finance in India

The climate change is a significant challenge of the 21 st century. Scientists have agreed that the world economy should be decarbonized much faster than before to avoid the catastrophic climate consequences, the latest expression of which is the Intergovernmental Panel on Climate Change (IPCC, 2023) report. Such a transition would involve an epic shift of capital, out of carbon- intensive, extractive, industries, into sustainable, restorative and climate-resilient activities. That is when the concept of green finance appears as a particularly important one at the intersection of finance, climate science, and public policy. Green finance refers to any financial activity, structured, be it loans, debt products, insurance, investment, to ensure that a favorable environmental outcome is achieved (UNEP, 2016).

The situation of India is very high stakes. Being the most populous country and one of the rapidly developing leading economies in the world, the policy of its development has huge implications in the global context. The country is at a trilateral dilemma of satisfying energy security, economic growth, and climate pledges. India has submitted ambitious Nationally Determined Contributions (NDCs) under the Paris Agreement including reducing the emissions intensity of its GDP by 45 percent by 2030 compared to 2005 and achieving about 50 percent of cumulative electric power installed capacity on the basis of non-fossil fuel-based energy resources by 2030. In COP26 in Glasgow, Prime Minister Narendra Modi also declared that India will strive to reach the Net Zero emissions by 2070 (Government of India, 2021).

The targets will need a massive investment that has never been witnessed before. On projection, the total amount of green finance demands in India will never fall below 2.5 percent of the GDP per annum by the year 2030 (RBI, 2023). A different report estimates the total climate investment requirement in India to be USD 1.3 trillion with a huge deficit in transition finance in certain sectors such as steel and cement which alone will require USD 650 billion (MUFG & Climate Bonds Initiative, 2025). This amount of capital mobilization cannot be done using the government funds, but it needs the extensive and active involvement of the private capital markets.

This need has triggered an immense transformation in the financial regulation of India. A simple crude argument has evolved into a complicated and multidimensional regulatory system to channel capital to sustainable investments. The main research question that will be addressed in this paper is the following: How has the regulatory architecture of green finance in India developed, and what are its main characteristics, advantages, and outstanding issues?

This requirement has provoked an enormous change in the financial regulation of India. A crude argument has turned into a complex and multidimensional regulatory framework to direct capital towards sustainable investments. The central research question that will be answered in the present paper is the following one: how has the regulatory system of green finance in India evolved, and what are its key features, strengths, and unresolved challenges?

2. Literature Review: Global Context and Theoretical Underpinnings

The Indian regulatory framework of green finance has not come out of the blue. It is guided by best practices across the globe, international standards and an emerging literature on the dynamics of sustainable investing.

2.1. Global Standards and the Rise of Green Bonds

The European Investment Bank introduced the idea of green bond in 2007, although the market started to develop seriously after the creation of the Green Bond Principles (GBP) by the International Capital Market Association (ICMA). The GBP also offer voluntary process guidelines that suggest transparency and disclosure and encourage integrity in the emergence of the green bond market (ICMA, 2021). They are founded on four fundamental elements: Use of Proceeds, Process of Project Evaluation and Selection, Proceeds Management and Reporting. In combination with the GBP, the Climate Bonds Standard and Certification

Scheme, administered by the Climate Bonds Initiative (CBI), offers a more detailed, science-based taxonomy of assets and projects that qualify to be financed through the green bond market. These international standards have played a key role in establishing a universal language between issuers and investors and consequently lowering the transaction costs as well as establishing a liquid and cross-border market. In December 2024, the world GSSS (Green, Social, Sustainability, and Sustainability- Linked) bond market was USD 6.2 trillion, and it was the moment when they became a mainstream form of asset (World Bank, 2025).

2.2. The 'Greenium': Pricing Advantage or Myth?

One of the main controversies in the green finance literature is whether there is a “greenium”, or pricing premium of green bonds, and how large it is, which would translate to a lower cost of capital to issuers. The theoretical argument is that an ever-growing population of serious ESG (Environmental, Social, and Governance) investors creates surplus demand in green instruments, pushing the prices up and squashing the yields compared to equivalent, but non-green, so-called “vanilla” bonds.

There is conflicting empirical evidence on the greenium. Other papers report a statistically significant, but small negative premium on green bonds (Ehlers & Packer, 2017; Zerbib, 2019). As an example, Baker et al. (2018) identified the existence of a small premium in the US municipal bond market. Nevertheless, other research studies do not identify a significant pricing difference or indicate that the premium is highly sensitive to market conditions, as well as issuer credibility and bond characteristics (Tang & Zhang, 2020). More recently, in June 2024 a Dominican Republic green bond was launched, at around 15 basis points lower than a vanilla bond 2024 (World Bank). The implication of such difference is that the direct, consistent pricing advantage cannot be promised and the “green” label can hold potential advantages in some cases.

2.3. Signaling Theory and Information Asymmetry

In addition to the pricing discussion, green bonds are increasingly studied in terms of the signaling theory (Spence, 1973). The issuance of a green bond can serve as an expensive signal (and, therefore, credible) in information-asymmetric financial markets, where the issuers understand their liabilities and capabilities more than investors (Cui et al., 2020). Companies that make the

choice of subjecting themselves to the rigorous disclosure, verification, and reporting nature of a green bond are projecting the message that they are committed to being environmentally sustainable.

There are some advantages that this signal can bring. It can attract "sticky" capital from long-term institutional investors with ESG mandates. It has the potential to improve the reputation of a firm, create brand equity, and the relationship with the customers, employees, and the regulators. As per the recent reports dedicated to the study of emerging markets, such non-financial advantages are likely to be more influential, including a superior corporate image and stakeholder relations, than the direct financial pricing benefits (Frecautan, 2022). Moreover, the commitment to ESG principles may result in the enhanced performance in stock markets and corporate financial performance in general as the commitment to ESG principles is commonly associated with the improved risk management and a more long-term-oriented corporate strategy (Tang & Zhang, 2020; MDPI, 2025).

2.4. The Challenge of Greenwashing

Greenwashing has emerged as the biggest challenge of the very success of green finance. Greenwashing refers to the practice of inaccurate or deceptive reporting of the environmental record of a product, service or investment in order to capitalize on the emerging market demand in the sustainable products (Delmas & Burbano, 2011). In the case of green bonds, this may include funding projects of marginal or dubious environmental merit or not monitoring and reporting on the use of proceeds in a way that gives an accurate picture.

Greenwashing undermines the investor confidence, wastes capital and discredits the whole market. It changes the green finance as a positive change instrument into a marketing process. It is consequent, therefore, that one of the key functions of green finance regulation is to provide effective mechanisms of transparency, verification and accountability in minimizing this risk. This is the main dilemma that regulators in India and across the globe are trying to alleviate.

3. Methodology

The research methodology adopted in this research article is doctrinal and analytical. The doctrinal method implies an orderly analysis of the authoritative sources of law and regulation. The analysis is centered on the following review of:

1. Circulars, regulations and notifications of Securities and Exchange Board of India (SEBI), mainly SEBI (Issue and Listing of non-convertible securities) regulations,2021, and amendments thereof.
2. In particular, Reserves Bank of India (RBI) issued frameworks and guidelines including the Framework on Acceptance of Green Deposits of April 2023.
3. Sovereign Green Bond issuance and government publications and press releases of India climate policy

The analytical component implies synthesis of the data which is available in secondary sources (academic journals, reports published by multilateral development banks (e.g. World Bank, IFC reports), industry publications (e.g. Climate Bonds Initiative). In this way, the letter of the law can be understood as a whole, as well as its practical application, its correspondence to the international standards, and its efficiency in reaching the goals stated in it.

4. Analysis: The Pillars of India's Green Finance Regulation

Regulatory framework of green finance in India is not a single structure but a network of structures based on multiple pillars. This has been an intended evolution, early voluntary guidelines have evolved to a more formalized and stronger architecture.

4.1. The Genesis: Early Steps by SEBI

In 2017, SEBI, which regulates the capital markets in India, made the initial official move by coming out with a circular on the “Disclosure Requirement of issuance and listing of Green Debt Securities”. This was the first framework, which established the green debt securities, outlined eligible projects (based on ICMA Green Bond Principles), and established disclosure requirements on the part of issuers. Even though, this framework was a major step in the right direction, it was largely based on 'disclose-only' framework where the investor was left to judge the authenticity of the green claims. The SEBI (Issue and Listing of Non-Convertible Securities) Regulations, 2021 ("ILNCS Regulations") in turn are based on this circular.

4.2. Pillar 1: SEBI's Modernized Framework for Green Debt Securities (2023 onwards)

In an attempt to respond to the necessity to be more rigorous and to combat the rising risk of greenwashing, SEBI revisited its framework in February 2023 and amended it considerably. These shifts are a paradigm shift of purely disclosure-based regime to one that makes emphasis in verification and accountability.

1. **Expanded Definition and Taxonomy:** The rewritten rules broadened the meaning of a green debt security. Importantly, an issuer may now utilize the proceeds to fund their own projects as well as to on-lend to other organizations to finance green projects as long as the issuer ensures the requisite tracking and disclosures. Another type of thematic bonds that were introduced in the framework are

2. **Blue Bonds:** For sustainable water management and marine sector projects.

3. **Yellow Bonds:** For solar energy generation and associated infrastructure. This expanded taxonomy provides greater clarity and facilitates the channeling of funds to specific environmental objectives.

The 'Comply or Explain' Mandate for Third-Party Verification: This is the reform that will occur most probably. The 2023 framework mandates issuers of GDS to appoint an independent

third-party reviewer/certifier to pre-issuance review of project eligibility and processes of the issuer. This is a mandatory requirement that will be made on a comply or explain basis after two years, or April 1, 2023 (Vinod Kothari Consultants, 2023). An entity during this transition period has to either follow the provision or in case of inability to do so, has to provide a reason to the non- compliance in the annual report and give an explanation of the action being taken to reach complete compliance. This staggered system is a trade-off between the wish to have market discipline and the facts of building capacity to offer verification services in India. It is a direct solution to the issue of greenwashing as it provides an external validation of what issuers can say.

Enhanced Disclosures and Reporting:

The system improves the post issuance reporting. Issuers are required to issue annual reports on utilization of proceeds which should be audited by a statutory auditor. They must also give qualitative and quantitative performance indicator of the environmental impact of the projects being funded. This goes beyond monitoring the use of funds to monitoring of real environmental results.

A Broader ESG Framework:

SEBI's ambitions extend beyond just green bonds. It has also introduced a framework for Social Bonds, Sustainability Bonds, and Sustainability-Linked Bonds (SLBs) (ESG Today, 2025). This comprehensive approach ensures that as the sustainable debt market in India diversifies, it does so within a consistent and credible regulatory structure, preventing regulatory arbitrage between different types of thematic bonds.

4.3. Pillar 2: The RBI's Framework for Green Deposits (2023)

Whereas SEBI is in charge of the capital markets, the banking system, which comprises a huge amount of public savings is under the domain of RBI. To utilize this source, the RBI has achieved a breakthrough in April 2023 by introducing a Framework on Acceptance of Green Deposits that was to be implemented on June 1, 2023 (Drishti IAS, 2023).

Objective and Applicability:

The main aim of the framework is to establish a structured avenue of the depositors to invest their savings in environmentally sustainable projects. It is imposed on Scheduled Commercial Banks (together with Small Finance Banks but not on Regional Rural Banks) and all Non-Banking Financial Companies (NBFCs) which accept deposits. Green Deposits can be provided by Regulated Entities (REs) as interest bearing deposits over a fixed term, where the proceeds are targeted at green finance.

End-Use and Eligible Activities:

The framework has a long list of green activities and projects that are eligible which aligns with international taxonomies on a broad basis. These are renewable energy, energy efficiency, clean transportation, climate change adaptation and sustainable water and waste management. More importantly, the framework clearly **excludes** the projects that include fossil fuel mining, nuclear power production, and some of the other contentious fields. This is an express exclusionary criterion and is an effective indicator of intent and has the effect of rejecting the funding of projects that are not in line with a low-carbon transition.

Governance, Transparency, and Reporting:

There must also be a strong governance over Green Deposits in the RBI framework. REs should possess a Green Deposits Board Policy and Financing Framework that should indicate how the proceeds will be utilized and managed. They should also have a Third-Party Verifier to give assurance on how the proceeds are handled and the effects of the projects on the environment. A report of how funds have been allocated annually has to be published on the RE site. This reflects the focus on third-party verification of SEBI, which makes it one of the pillars of the green finance policy in India.

4.4. Pillar 3: Sovereign Green Bonds and State-Level Signaling

The green bond market of FY 2022-23 presented a landmark move by Government of India. The sovereign green bonds with the face value of INR 477 billion (approx. USD 5.8 billion), issued by the end of 2024, had a few strategic objectives (MUFG & Climate Bonds Initiative, 2025).

To begin with, it reflected the firmness with which the government intends to hold its climate goals, and this gave great credibility to the national green finance market. Second, it also enabled the development of a benchmark green yield curve. This offers a crucial benchmark to corporate issuers as they will be able to better price their own green bonds and uncertainty is minimized. Third, it received a lot of attention by foreign institutional investors, which assisted in deepening and diversifying the Indian debt investor base. Finally, the proceeds of the bonds are utilized in emergency governmental undertakings in fields like renewable energy and green infrastructure which have direct backing to the climate goals of the nation.

4.5. Pillar 4: The Business Responsibility and Sustainability Reporting (BRSR) Framework

The support of the green instruments-specific rules lies in the wider movement towards transparency in corporate ESG issues. SEBI has required 1,000 listed companies (in terms of market capitalization) to provide Business Responsibility and Sustainability Report (BRSR) on a yearly basis. BRSR is a highly comprehensive system of disclosure under which companies are supposed to provide their performance in regard to nine main principles of responsible business conduct like environmental protection, stakeholder engagement, and ethical governance.

In July 2023 SEBI proposed “BRSR Core”, a subset of BRSR on the basis of key performance indicators where assurance is required. This move to mandatory reporting on specific ESG actions is a significant step towards making sustainability data more reliable and comparable and, as a result, enabling investors to more conveniently integrate ESG factors into their decision-making and hold companies accountable on their environmental performance.

5. Discussion: Challenges and the Road Ahead

Despite the remarkable progress in establishing a comprehensive regulatory framework, India's green finance market faces several significant challenges that must be addressed to unlock its full potential.

5.1. The Definitional Dilemma: What is "Green"?

The development of a comprehensive, science-based and country-specific Green Taxonomy is still in progress, even though SEBI and the RBI have published lists of activities that can be considered green. Green finance market is reliable and has a clear and consistent taxonomy. It adds transparency to issuers, investors, and verifiers and is the most powerful weapon against greenwashing. The most important issue is to design a taxonomy which will be globally compliant to meet the foreign funds but will be designed as per the Indian economic and developmental background. What about natural gas that is frequently viewed as a transition fuel? How would the taxonomy allow large scale renewable energy projects and smaller scale community-based adaptation projects?

5.2. Deepening the Secondary Market and Enhancing Liquidity

The Indian green bond primary issuance market is developing strongly, whereas the secondary one is rather illiquid. The existence of a healthy secondary market is essential to the discovery of prices and enables investors to gain and lose positions with relative ease which further stimulates activity on the primary market. The liquidity measures may involve the creation of green bond indices, the promotion of market-making among the financial institutions, and possibly, a drop in the minimum ticket size of investments to attract more retail investors. The platforms are also facilitating the access of corporate bonds, but at the same time, retail investors are at the initial phase of interest in corporate bonds because of perceived complexity and risk (The Economic Times, 2025).

5.3. Building Institutional Capacity for Verification

It is a good and much-needed change in the regulatory environment that is shifting towards the use of mandatory third-party verification. It however places a huge burden on qualified and independent verifiers who are well versed in finance and environmental science. India must develop a pool of such experts quickly and have a transparent accreditation and oversight system to verify agencies so that the quality and integrity of their assessments are guaranteed. The comply or explain phase allows time to develop this capacity but regulators, educational institutions and industry bodies must push this.

5.4. Financing a "Just Transition"

India still has a large share of its economy and workforce reliant on carbon heavy industries such as coal, steel and cement. These communities cannot be abandoned in the process of successful green transition. This involves the funding not only of the dark green projects such as solar farms but also the decarbonization of these hard to abate sectors. It is at this point that transition finance kicks in. Although the framework developed by SEBI has transition bonds, the main challenge is to develop clear criteria and guardrails of such instruments. The framework should also be strong in such a way that the financing results in a realistic and ambitious transition pathway, but not just the continuation of the life of carbon-intensive assets.

5.5. Data, Disclosure, and Impact Measurement

Though the BRSR framework has enhanced corporate disclosure, there are still issues regarding the availability of the data, its quality, and comparability of ESG. Moreover, reporting should shift the emphasis of reporting beyond merely monitoring how the proceeds are used to quantifying the actual environmental impact of the projects that were funded. This involves the creation of standardized measurement and techniques of impact evaluation (e.g., tones of CO_2 emissions avoided, cubic meters of water saved). Devoid of any credible measurement of impact, green finance threatens to be a financial accounting exercise, rather than a truly green tool of environmental change.

6. Conclusion and Policy Recommendations

In a comparatively short time, India has been able to build an impressive and sophisticated green finance regulatory architecture. The initiatives of SEBI, RBI and the central government have been in tandem to formulate a system that not only matches the global best practices but also responsive to the local issues. The Indian regulators have made the right steps toward the development of a credible and vibrant sustainable finance market by focusing on third-party verification, broadening the taxonomy of green instruments, and making use of sovereign issuance. But we’re not even a mile in yet. The change to a Net Zero economy is a marathon, not a sprint and the regulatory framework will need to keep developing. In order to overcome the difficulties and capitalize on the existing momentum, one should take into account the following policy recommendations:

1. **Finalize and Implement a National Green Taxonomy:** A comprehensive, science-based and legally required National Green Taxonomy should be developed as quickly as possible by the government. This taxonomy is supposed to have clear lines and standards for eligibility, directions concerning transition activities, and a clause of doing no significant harm to have a holistic approach toward sustainability.

2. **Incentivize Secondary Market Liquidity:** Regulators can think about green bond market maker incentives. It may also assist in the concentration of liquidity by the establishment of a special trading platform or segment on the stock exchanges where GDS trading is carried out.

3. **Establish a National Accreditation Body for Verifiers:** To guarantee quality and independence of third-party verification, a national body must be put in place to accredit and regulate verifiers. This body might be able to impose minimum standards of qualification, a code of conduct and have periodic reviews.

4. **Promote Innovation in Financial Instruments:** Although green bonds are prevailing, regulators are encouraged to promote innovation in other aspects, including blended finance structures, green asset securitization, and insurance policies that cover the climate risks.

5. **Focus on Capacity Building:** There will be a huge capacity-building process required in the financial ecosystem. This comprises the training of bankers, asset managers and corporate executives on ESG risk assessment, and those professionals that can act as independent verifiers.

Conclusively, the regulatory framework on green finance in India is a testimony to the fact that India is on a path to a sustainable future. It plays a key role in the process of achieving a harmonized economic growth and environmental management. Not only will the success of such a framework help in establishing whether India can achieve its climate objectives, but it will also prove critical to other emerging economies following a similar trajectory. Not an easy one is the future, yet the foundation is firm and the direction of the movement is clear.

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