

Green Bonds: India's Path to Sustainable Finance



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Abstract

This paper will examine Green Bonds' significance in addressing climate change and promoting sustainable development. It further explores the growth of the Green Bond market globally and in India, highlighting the government's efforts to issue sovereign green bonds. It also discusses the framework and regulations governing Green Bonds in India and the challenges this market encounters. It emphasizes the need for tax incentives, lower interest rates, and standardization to promote growth. This paper discusses about the potential of Green Bonds as a sustainable way to raise capital for green infrastructure projects and contribute to India achieving its sustainable goals.

Methodology

This paper is based on review and analysis of relevant literature, publications, reports, and news articles. These sources have been used to understand the concept of green bonds, history, growth, market potential and limitations, and their role in addressing the problem of climate change. It also relies on analyses of the policies, regulations, frameworks, and guidelines established by the Securities and Exchange Board of India (SEBI) that promote green bond issuance and ensure transparency. The paper also makes an attempt to examine issuances of green bond in India, including sovereign and corporate green bonds, to understand their impact on sustainable development and the challenges issuers face. Identifying major challenges and limitations of the green bond market in India and providing recommendations to overcome these challenges, such as tax incentives, lower interest rates, and standardization of green bond practices have also been attempted. Attempts have also been made to discuss the future of India's green bond market and its role in achieving the country's environmental and global sustainability goals.

Introduction

One of the most significant challenges faced by humanity is in the form of climate change, whose impact threaten the existence of various species, including human beings. Addressing this problem of climate change requires global cooperation and substantial financial commitments by countries and other international organizations in developing climate change resilient infrastructure. Several mechanisms have been introduced to tackle the same, including green bonds.

Green Bonds: Definition and Purpose

Green bonds are debt instruments issued by companies, governments, or multilateral organizations (World Bank, International Finance Corporation) to raise capital for climate or environmental-related projects. As the 'green' colour suggests, these bonds aim to finance projects that help energy efficiency and conservation, sustainable agriculture, and implementing environmentally friendly technologies to mitigate climate change and environmental problems. These bonds are similar to that of a conventional bond. One significant difference is that a green bond comes with an end-use restriction. After it is issued, it can only be used to finance green projects or projects that will help fight climate change (Jalan, 2022)¹.



Source: The World Bank

Growth and Evaluation of Green Bonds

Green bonds are crucial in facilitating the transition to a low-carbon and sustainable economy. Though the market only took off in 2013, the first green bond was issued in 2007.

Early on, the market expanded because these bonds had a restricted concentration on low-carbon assets that were simpler to identify and report. Since then, the market has developed and diversified considerably. Various issuers, industries, environmental goals, and labels have successfully been developed in versions of the green bond

¹ Jalan, T. (2022). Green Bonds. Scripbox. <https://scripbox.com/pf/green-bonds/#:~:text=Such%20bonds%20are%20helpful%20in,part%20of%20its%20priority%20sector.>

format, demonstrating the market's preparedness and demand for further diversity and complexity. Investors have the chance to get more solid, long-term earnings that can withstand climatic shocks. According to the Climate Bonds Initiative, the annual issuance of bonds could cross \$1 trillion in 2023.

Impact of the Pandemic on Green Bonds

The COVID-19 pandemic has made it clear that global-scale disasters without timely mitigation and planning can have a profound economic and social impact. With the onset of COVID-19, the global green bond market declined issuance in the first half of the year 2020². Major reasons for this were the capital-intensive nature of such investments and the high-risk and low-return features led to a reduction. However, as per reports³, factors like growing concern over breakdown of GDP and rising unemployment, raised awareness to support sustainable bond market, which increased the demand for green, social and sustainability bonds globally. Therefore, the issuance of green bonds in the second half of 2020 increased. Compared to the US and European countries, green financing isn't that accessible. The reason for this is the dominance of commercial banks and venture capital dominating the finance industry in the continent, especially in Southeast Asia (Nguyen et al., 2022)⁴.

Green Bond Markets in Europe

According to a European Parliament Research Service (EPRS) report titled European Green Bonds, the European Union is the largest and most developed green bond market globally. *"The green bond market, both globally and at the EU level, grew by an average of 50% per year in the period 2015-2020. Nevertheless, it represented only 3 to 3.5% of overall bond issuance in 2020 (Spinaci,2022, pp 2)"*⁵. EU is the global leader in this market with 48 % of global issuances in 2020 being denominated in euros, and 51 % of the global volume of green bonds being issued in the EU (Spinaci,2022, p. 2).

² Global Green Bond Market: Size & Forecast with Impact Analysis of COVID-19 (2021-2025). Research and Markets, 2023. <https://www.researchandmarkets.com/reports/5414959/global-green-bond-market-size-and-forecast-with>

³ Global Green Bond Market: Size & Forecast with Impact Analysis of COVID-19 (2021-2025). Research and Markets, 2023. <https://www.researchandmarkets.com/reports/5414959/global-green-bond-market-size-and-forecast-with>

⁴ Nguyen, A. V., Hoang, T. G., Nguyen, D. T., Nguyen, L. T. T., & Doan, D. T. H. (2022). The Development of Green Bond in Developing Countries: Insights from Southeast Asia Market Participants. *The European Journal of Development Research*, 35(1), 196–218. <https://doi.org/10.1057/s41287-022-00515-3>

⁵ Spinaci, S. (2022, January). European Green Bonds. European Parliament Research Services. Retrieved July 8, 2023, from [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/698870/EPRS_BRI\(2022\)698870_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/698870/EPRS_BRI(2022)698870_EN.pdf)

The Framework in Europe for Governing the Green Bond Market aims at ensuring transparency and credibility. The EU introduced guidelines and standards to clarify what constitutes a green bond and avoid greenwashing (Spinaci,2022, p. 6). These guidelines align with international standards and frameworks such as the Green Bond Principles and the Climate Bonds Standard.

The taxonomy regulations introduced by the EU classify sustainable economic activities and guide investors in identifying sustainable investment opportunities. This has been crucial in shaping this market (Spinaci,2022, p. 11). European Investment Bank has been the leading issuer of green bond financing projects across renewable energy and climate adaptation (Spinaci,2022, p. 7). Institutional investors are including green bonds in their investment strategies, leading to an increased investor demand for the same. This increased demand has fuelled the liquidity and attractiveness of the European green bonds market.

Current Scenario of Global Green Bonds Market

The global green bonds market is expected to grow at a CAGR of 9.7% from 2022 to 2030 and reach an expected value of \$ 914.4 billion by 2030 from \$ 436 billion in 2022. During this period, the Asian Pacific region is said to grow the fastest. This shows the awareness of the investors in the region and the need to make sustainable investments. The volatile markets, increasing interest rates, and geopolitical uncertainty raised the cost of borrowing, therefore making the green bond issuance in the fourth quarter of 2022 to levels similar to that of the pandemic (Global Green Bond Issuance Poised for Rebound in 2023 Amid Policy Push, 2023)⁶. The global green bonds market has witnessed significant growth in 2023. Investor demand and the adoption of standardization and transparency frameworks will contribute to the market's positive outlook.⁷

Green Bonds in India

Climate change is expected to affect everyone, but developing countries are at a higher risk. Its potential effects on temperature, precipitation patterns, sea levels, and the frequency of weather-related disasters put agriculture, food, and water supplies in danger. It is essential to link capital markets and investors with environmental projects

⁶ Global green bond issuance poised for rebound in 2023 amid policy push. (2023, January). S&P Global Market Intelligence. <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/global-green-bond-issuance-poised-for-rebound-in-2023-amid-policy-push-73931433>

⁷ Global State of the Market Report 2022. (2023, May 18). Climate Bonds Initiative. <https://www.climatebonds.net/resources/reports/global-state-market-report-2022>

to direct funding towards sustainable development (Contributors, 2022)⁸. In recent times, there's been a strong push towards using money for projects that help the environment and fight climate change. However, just relying on regular banks might not be enough to get all the money needed. There is a need for new and creative ways to get funds beyond the usual methods. One way is by using "Green Bonds". These special bonds provide money for projects that are good for the environment. Although many countries have been successful with green bonds, India, despite having the potential, hasn't been able to raise much money through these kinds of bonds.

India, whose stature as an economic powerhouse has been on the rise since the last decade, is one of the countries affected by extreme weather events. In the year 2023, the country witnessed the hottest month of February since 1901. Being the world's most populous country, India's carbon emissions directly impact global emissions (Hussain & Dill, 2023)⁹. Finance Minister Nirmala Sitharaman announced in the budget for FY23 that the government will be issuing green bonds. *"As a part of the government's overall market borrowings in 2022-23, sovereign Green Bonds will be issued for mobilising resources for green infrastructure. The proceeds will be deployed in public sector projects which help reduce the economy's carbon intensity"* (Moneycontrol.com, n.d.)¹⁰. India's incorporation of these bonds into the country's financial strategy against climate change will not only contribute to its mission following the Paris Agreement but also encourage other countries to raise private capital for environmental priorities, highlighted by Farah Imrana Hussain, Head, the World Bank Sustainable Finance and ESG (environmental, social and governance) Advisory Services. These bonds play a crucial role in bridging the funding gap for sustainable projects, as they provide a unique opportunity for investors to support environmentally friendly initiatives while earning returns.

To promote green funding, authorities said the government had chosen projects totalling ₹25,000 crores that will be paid for with the revenues from sovereign green bonds issued in the current fiscal year and the following one. Most projects selected for green financing are in the clean transport and renewable energy sectors. India's

⁸ Contributors, E. (2022, March 15). Decoding green bonds: India market and how to invest in it. The Economic Times. <https://economictimes.indiatimes.com/markets/bonds/decoding-green-bonds-india-market-and-how-to-invest-in-it/articleshow/90230488.cms?from=mdr>

⁹ Hussain, F. I., & Dill, H. (2023, June 24). India incorporates green bonds into its climate finance strategy. World Bank Blogs. <https://blogs.worldbank.org/climatechange/india-incorporates-green-bonds-its-climate-finance-strategy#:~:text=The%20largest%20green%20bond%20issuer,eq%2020%20million%20in%202021>

¹⁰ Moneycontrol.com. (n.d.). Explainer: What is the Indian government's green bonds programme? Moneycontrol. <https://www.moneycontrol.com/news/business/economy/explainer-what-is-the-indian-governments-green-bonds-programme-9845671.html>

sovereign green bonds demonstrate its commitment to increasing renewable energy output and lowering carbon intensity.

For the financial year 2023, the government allocated Rs 16,000 crore for green bonds. Following the RBI calendar, the government planned to issue bonds in two tranches of Rs 8,000 crore each in two auctions in January and February 2023 (Moneycontrol.com, n.d.). The bonds will be issued in 5 and 10 years of maturity and traded like other government bonds (Moneycontrol.com, n.d.).

History of Green Bonds in India

India entered this green bond market in 2015, with YES Bank issuing the country's first green bond. The issuance of this bond was in the form of a green masala bond (Pandey & Pandey, 2023)¹¹. Since then, the market for green bonds has expanded to include several public sector organizations, state-owned corporate banks, state-owned financial institutions, corporations, and the banking industry. Entry of a sovereign into the green bond market shows support for low-carbon growth initiatives and encourages private sector participation.

Types of Green Bonds in India

In India green bonds are categorised based on issuers of green bonds. Basically, two types of bonds are issued: (i) Sovereign Green Bonds- issued by the government, and (ii) Corporate Green Bonds- issued by the companies for their projects. For instance, the green bonds issued by the Ghaziabad Nagar Nigam in 2021 is a sovereign green bond and it met SEBI's description of green bonds as the funds were utilized towards "a tertiary treatment plant at Indirapuram to generate industrial grade water" (Law, 2021).¹² They were the first civic body to issue such bonds, with the Indore Municipal Corporation doing the same in 2023 by issuing \$87 million worth of bonds (Hussain & Dill, 2023).

In case of corporate bonds, it is observed that several Indian corporates have raised capital by having their bonds listed on the stock exchange or through the foreign bond markets. JSW Energy Limited's subsidiary, JSW Hydro Energy Limited, raised \$707 million through the international bond market to repay debt in existing hydro-energy

¹¹ Pandey, R., & Pandey, R. (2023). How green bonds can take India closer to meeting its climate goals and deepen investor interest. ThePrint. https://theprint.in/macrosutra/how-green-bonds-can-take-india-closer-to-meeting-its-climate-goals-and-deepen-investor-interest/1336721/#google_vignette

¹² Law, A. (2021, October 12). Role Of Green Bonds In India's Climate Change Goals. mondaq.com. <https://www.mondaq.com/india/climate-change/1120414/role-of-green-bonds-in-indias-climate-change-goals>

projects (Law,2021). These bonds are listed on BSE's India International Exchange (India INX) at the International Financial Services Centre (IFSC) of the Gujarat International Finance Tech City (GIFT City) (Law, 2021).

The Government of India received technical assistance from the Sustainable Finance and ESG Advisory Services of the World Bank to set up the sovereign green bond program. Through this program, the World Bank is attempting to use its experience to assist emerging nations in raising private finance to fill significant financing gaps for sustainable development. India and the World Bank Group are collaborating to raise as much money as possible for the green economy (World Bank Group, 2023).¹³ In this regard, the Rewa Ultra Mega Solar Power Project in Madhya Pradesh, one of the world's largest solar power plants, combines a World Bank loan for infrastructure, IFC funding in the local currency, and advisory services to establish public-private partnerships (World Bank Group, 2023).

SEBI's Green Bond Framework

In line with the World Bank definition, SEBI defines green bonds as those bonds which finance green projects. The following sectors are eligible as green projects according to SEBI *"(i) renewable and sustainable energy (wind, solar etc.), (ii) clean transportation (mass transportation), (iii) sustainable water management (clean and/or drinking water, water recycling etc.), (iv) climate change adaptation, (v) energy efficiency (efficient and green buildings), (v) sustainable waste management (recycling, waste to energy etc.), (vi) sustainable land use (including sustainable forestry and agriculture, afforestation etc.) and (vii) biodiversity conservation"* (Law, 2021).

The framework the government released with the union budget of FY23 is based on the International Capital Market Association's listed guidelines for issuing green bonds. These voluntary guidelines ensure transparency and disclosure. The framework includes investments in renewable energies (solar, wind, hydro) and urban mass transportation, including metros, green buildings, and other pollution prevention projects. The framework excludes non-renewable projects of fossil fuels and nuclear power (Pandey & Pandey, 2023).

The SEBI-issued framework intends to ensure that green bond issuers give accurate and transparent data regarding the usage of proceeds. It is mandated by the standards that an independent third-party verifier be appointed to evaluate the environmental

¹³ World Bank Group. (2023). From India to Indonesia, Green Bonds Help Countries Move Toward Sustainability. World Bank. <https://www.worldbank.org/en/news/feature/2023/04/10/from-india-to-indonesia-green-bonds-help-countries-move-toward-sustainability>

impact of the projects financed by green bonds (Law,2021). This system has boosted investor confidence and played a crucial role in drawing domestic and foreign investors to India's green bond market. Before SEBI released this mandate, YES Bank followed the global standards for these bonds. Yes Bank's green bond, listed on the BSE in 2015, was classified as a green bond based on the Green Bond Principles, 2014, a voluntary procedure guideline for issuing green bonds (Law,2021).

Constraints in the Indian Green Bond Market

The high cost of issuance of green bond is one of the major challenges that India faces. The issuance cost of these bonds is higher than other bonds that public or private organizations issue. It is also found that for public sector enterprises, these costs are lower than the private sector. Further, small and medium-sized private sector enterprises find it very difficult to finance green initiatives through the bond market as the issuance cost keeps rising (Law,2021).

Green bond financing is still primarily targeted at established infrastructure sectors like the energy industry and has yet to significantly impact less conventional industries like reforestation, climate change technology, etc. While it is noticed that unconventional industries still need subsidies, corporate social responsibility programs, and bank financing, but adequate attention to address this challenge is lacking.

There is room for Indian regulators to implement policies providing private enterprises access to more funds for funding climate change activities.

India's green bond issuance needs more qualified green projects. Although the country has a large pipeline of sustainable projects, many face development, finance, and bankability challenges. Investors cannot evaluate new projects' environmental effects or financial sustainability (Manglunia, 2023).¹⁴

The Sovereign Green Bond as well face some limitations as they are restricted to raising capital for a green infrastructure project in the public sector only, neglecting the private sector green infrastructural projects. Additionally, these bonds alone will not be able to satisfy the needs of the Indian green bonds market.

Overall, though corporate bonds can also play a potentially crucial role, but they also have their set of restrictions. Lower cost of capital is crucial for this. A concept

¹⁴ Manglunia, A. (2023, July 6). Unlocking full potential of green bonds in India. *The Economic Times*. <https://economictimes.indiatimes.com/markets/bonds/unlocking-full-potential-of-green-bonds-in-india/articleshow/101541808.cms>

popularised UN termed Greenium, which refers to the financial benefits the green bond issuers receive due to demand from environmentally conscious investors, could be very useful. Green bonds often command a premium, offering issuers a lower capital cost than conventional bonds. This Greenium can incentivize more issuers to enter the green bond market, facilitating the flow of capital towards sustainable projects.

It is not a long-term realistic approach to rely entirely on investors' willingness to accept lower yields to promote environmental conservation (Dubey, 2023). The government must offer tax incentives and lower interest rates to make lower yields more viable. However, it is observed that investors in green bonds are prohibited from making direct financial contributions to ongoing projects (Dubey, 2023)¹⁵. Developers must first obtain domestic loans to fund their projects before refinancing them using bond proceeds. This strategy, nevertheless, depends on the issuer having a pricing advantage, which is only sometimes the case and can deter the issuing of green bonds.

Another issue is that green bonds in India are predominantly denominated in the local currency, the Indian Rupee, and are primarily held by domestic banks, insurers, and the Reserve Bank of India. By issuing in the local currency, nations reduce their debt in foreign currencies while creating investments and income in the same currency. As a result, issuers have less interest in the Indian market since most issuers prefer issuing green bonds in US dollars, hindering foreign investment from entering the Indian green bond market. RK Gurumurthy, Head-Treasury of Dhanlaxmi Bank, said a stable currency would undoubtedly attract significant interest from foreign portfolio investors (Kumar,2023)¹⁶.

The compliance regulation regarding corporate bonds was introduced in February 2023. SEBI has introduced the Revised Disclosure Requirements for Issuance and Listing of Green Debt Securities to increase compliance and provide openness about using proceeds. These criteria include publishing a statement on practices for doing due diligence about the materially adverse effects of investment choices (Dubey, 2023). Green bond issuers must also include specified disclosures in their annual reports, which an impartial third-party certifier or reviewer will review. However, no laws currently govern the standardization and certification of Corporate Green Bonds in the Indian legal system. Standardization gives the bond credibility and encourages

¹⁵ Dubey, S. S. T. (2023, May 11). Issuance of Green Bonds in India: Protecting the Environment at the Expense of Commercial Prudence? IRCCL. <https://www.irccl.in/post/issuance-of-green-bonds-in-india-protecting-the-environment-at-the-expense-of-commercial-prudence>

¹⁶ Kumar, B. K. R. (2023, January 26). India Inc may step up rupee-denominated green bond issuances in FY24. <https://www.thehindubusinessline.com/money-and-banking/india-inc-may-step-up-rupee-denominated-green-bond-issuances-in-fy24/article66436494.ece>

the issuance of green bonds with improved specifications that adhere to the established norms (Dubey, 2023).

Investor interest in green bonds and market liquidity is required. Despite growing interest from institutional and retail investors, the Indian market is thin and undeveloped. Investors might be concerned about the risk-return profile, transparency, and innovation of green bonds compared to conventional fixed-income products. Expanding the investor base, transparency, standardized reporting, and independent third-party verification can increase investor confidence and market liquidity (Manglunia, 2023).

Role of Exchanges in India in Accelerating the Green Bonds Market

Exchanges can play a crucial role in the overall development of green bonds globally as they provide regulated and transparent markets, giving investors the confidence to buy bonds that can be traded. This allows both issuers and investors access to a much larger investor base for the green bonds market. One of the barriers to this market is its low liquidity, making it challenging to match potential buyers and sellers. Exchanges improve liquidity by providing access to a wide range of investors. Creating a separate index for green bonds will help them quickly discover and improve visibility.

LuxSE was the first exchange to list a green bond in 2007 and took a further step forward by launching the Luxembourg Green Exchange (LGX) in September 2016. This was the first platform dedicated to green securities. The platform makes green bonds visible and ensures their adherence to transparent and robust criteria. LuxSE has also opened a window dedicated to social and sustainable bonds.

In 2019, India INX (India International Exchange) unveiled its Green Listing and trading platform. The platform of India INX is established as per International Capital Market Association (ICMA) Green Bond Principles and Climate Bonds Initiative. It provides a platform for issuers to raise capital through green bonds and offers access to international investors. From this perspective, this pact with the Luxembourg Stock Exchange, one of the largest and most popular destinations for listing Green and sustainable bonds by issuers worldwide, provide opportunities for dual listing, enhancing visibility and increasing secondary market trading in green.

The MoU with the LuxSE allows to list and trade green bonds on both the INX platform and the Luxembourg Stock Exchange, which is the largest green bond listing platform and has exceptional governance standards. *“The MoU also encompasses other*

areas of mutual interest in Green bonds and ESG space. It is one of the few initiatives the two Exchanges have deliberated on to encourage more green funding, which is in line with the Government of India initiative of sustainable development. Currently, the two Exchanges are working with a large Indian issuer to enable dual listing on Luxembourg Stock Exchange” (India INX-India International Exchange.¹⁷

Under this association, the State Bank of India (SBI) listed their green bonds worth \$650 million simultaneously on the India International Exchange and the Luxembourg Stock Exchange in 2021. This listing was a step towards a collaborative effort between the two countries. *“The listing of green bond with the Luxembourg Stock Exchange will open up new avenues for market development and fundraising opportunities in the green bond space”* (Trust of India & Business Standard, 2021)¹⁸.

In India, creating separate green bond indices by stock exchanges has further contributed to the market's growth. In 2023, NSE Indices, a subsidiary of the National Stock Exchange (NSE), launched India's first sovereign green bond indices to track the performance of green bonds issued by the government. Two indices have been introduced- Nifty India Sovereign Green Bonds Jan 2028 and Nifty India Sovereign Green Bonds Jan 2033(Nagaraj, 2023)¹⁹. The years at the index's end signify their maturity dates of 31st January 2028 and 31st January 2033. Both indexes will have a base value of 1000 points.

Creating separate indices for green bonds allows investors to track the performance of these bonds and compare them against industry benchmarks, thereby allowing investors to make informed investment decisions. This helps promote transparency, encourage liquidity, and provide market participants with reliable indicators of green bonds. These indices will serve as a benchmark for asset managers, providing efficient access to India's green bond market.

The aim is to use the proceeds to fund a 60 MW ground-mounted captive solar photovoltaic project in the Khargone district in Madhya Pradesh. NSE also listed its first green bonds from Indore Municipal Corporation on its platform this year.

¹⁷ India INX-India International Exchange IFSC Ltd, GIFT City, SEZ, Listing. (n.d.).

<https://www.indiainx.com/static/gsmgreen.aspx>

¹⁸ Press Trust of India & Business Standard. (2021, November 22). SBI lists \$650-mn green bonds on India INX, Luxembourg Stock Exchange. www.business-standard.com. https://www.business-standard.com/article/finance/sbi-lists-650-mn-green-bonds-on-india-inx-luxembourg-stock-exchange-121112201177_1.html

¹⁹ Nagaraj, B. (2023). NSE Launches India's first Sovereign Green Bond Indices. [Mercomindia.com](http://www.mercomindia.com). <https://www.mercomindia.com/nse-launches-sovereign-green-bond-indices>

Many urban infrastructure bonds can be classified as green bonds because the funds mainly go towards energy, transportation, water management, and eco-friendly initiatives. Green municipal bonds will attract foreign investors who focus on funding projects prioritizing environmental, social, and governance factors (By BL Mumbai Bureau, 2023)²⁰.

One notable example of the role of stock exchanges in green bonds in India is the listing of REC Limited, a power finance company with \$750 million in green bonds on international stock exchanges at Gujarat International Finance Tech City (GIFT City) (Anand, 2023)²¹. This listing demonstrates the increasing global recognition and attractiveness of green bonds.

REC Limited's issuance of Green bonds reaffirms its position as a highly successful and regular participant in global financial markets. Additionally, it represents the inaugural Green Bond offering by an Indian company after India's G20 leadership (Anand, 2023). The Green Bond issuance by REC is poised to contribute to India meeting its Amrit Kaal commitments towards its climate action plan and energy transition with a focus on green projects. This listing also takes the total bond issuance on India International exchanges to over \$51.7 billion, with the total medium-term notes worth over \$ 73 billion, making GIFT IFSC a sustainable finance global hub (India, n.d.)²².

In conclusion, stock exchanges play a crucial role in facilitating the growth of green bonds by providing platforms for listing, trading, and tracking these instruments. The listing of green bonds on international stock exchanges, such as REC Limited's bonds at GIFT City, shows the global appeal of these bonds. Creating separate green bond indices by Indian exchanges, like the NSE's sovereign green bond indices, adds credibility to the market. Developing a robust ecosystem within stock exchanges contributes to the overall growth and sustainability of the green bonds market in India.

²⁰ By BL Mumbai Bureau. (2023, February 21). *NSE lists first green bond*.

<https://www.thehindubusinessline.com/markets/nse-lists-first-green-bond/article66535972.ece>

²¹ Anand, S. (2023, May 3). REC lists \$750 million green bonds on international stock exchanges at GIFT City | Mint. *Mint*. <https://www.livemint.com/market/stock-market-news/rec-lists-750-million-green-bonds-on-international-stock-exchanges-at-gift-city-11683123536660.html>

²² India, N. (n.d.). *Corporate communications*. NSE India. <https://www.nseindia.com/resources/nse-exclusive-primary-listing-of-green-bonds-of-usd-750-million-of-rec-limited-at-gift-ifsc-stock-exchanges>

Profiles of Green Bond Issuers in India²³

Yes Bank issued the first infrastructure bond with a maturity period of 10 years. The proceeds from these infrastructure bonds were utilized for energy-related projects. Axis Bank's bond was listed on the London Stock Exchange and was the first green bond within its \$5 billion Medium Term Note (MTN) program. The proceeds were used towards green energy and infrastructure projects (Kumar,2022).

Hero Future Energies, a leading renewable energy company, made significant strides in the overseas market. In March 2021, Hero Future Energies successfully listed Asia's first certified green bond on the London Stock Exchange, raising \$250 million. The issuance garnered strong investor interest, with orders worth \$1.5 billion, highlighting the appetite for green investments (Moneycontrol,2021)²⁴. This landmark demonstrated the company's global recognition and investor confidence in its green energy projects. This enabled Hero Future Energies to attract significant investment for expanding its renewable energy portfolio.

Mufin, an Electric vehicle financing firm, raised \$7 million through a green bond issuance led by Symbiotics Investments. The funds will support Mufin's green projects on environmental sustainability and renewable energy. This successful green bond issuance reflects the growing interest in sustainable finance and highlights Mufin's commitment to promoting green initiatives. The investment will enable Mufin to accelerate its efforts in the renewable energy sector while contributing to India's sustainable development goals (Press Trust of India & Business Standard, 2023)²⁵.

India's Green Bond Market Growth and Potential

India's green bond market has witnessed rapid growth in recent years, reflecting the country's commitment to sustainability. As of 2021, India was the second largest green bond issuer after China in Asia, accounting for nearly 10% of the region's total issuance

²³ Kumar, S. (2022). Critical Assessment of Green Financing Initiatives In Emerging Market: A Review of India Green Bond Issuances. www.abacademies.org.

<https://www.abacademies.org/articles/critical-assessment-of-green-financing-initiatives-in-emerging-market-a-review-of-indias-green-bond-issuances-15135.html#r28>

²⁴ Moneycontrol. (2021, March 19). Hero Future Energies' first green bond issuance in overseas market fetches orders worth \$3 billion. Moneycontrol.com. Retrieved July 18, 2023, from <https://www.moneycontrol.com/news/business/hero-future-energies-first-green-bond-issuance-in-overseas-market-fetches-orders-worth-3-billion-6668441.html>

²⁵ Press Trust of India & Business Standard. (2023, February 15). Mufin raises \$7 million in green bond from Symbiotics Investments. www.business-standard.com. https://www.business-standard.com/article/companies/mufin-raises-7-million-in-green-bond-from-symbiotics-investments-123021501509_1.html

(Contributors, 2022). According to the World Bank, Indian green bond issuances reached \$21 billion in February 2023, and the private sector was responsible for 84% of the total. India's largest green bond issuer is the Greenko Group, which funds hydro, solar, and wind power projects in several Indian states with its green bond proceeds (Hussain & Dill, 2023). However, India's market share in the global context is still relatively modest. Green bond issuances could touch 8-10 per cent of overall corporate bond issuances in India in a few years (Kumar, 2023). To further bolster its position, the government must create a conducive environment by introducing tax incentives, encouraging institutional investors' participation, and developing a robust secondary market for green bonds.

Conclusion and Way Forward

India issuing its first sovereign green bonds is an important stepping stone for the country in order to achieve its decarbonization and sustainability objectives. However, the inaugural issuance of these bonds corresponds to only 1% of the government's gross borrowing for the current fiscal year. India should look at *"developing a detailed green taxonomy could further support the decarbonization effort by helping companies and investors identify projects that meet sustainability criteria"* (Center on Global Energy Policy at Columbia University SIPA, CGEP, 2023b)²⁶. In order to compete with other nations, it should increase the percentage of green bonds denominated in the local currency.

In order to ensure the viability of green bonds to become a source of funding for India, it needs to attract foreign investors. Developed countries offer a range of tax incentives and carbon credits to promote sustainable practices and combat climate change. Some governments offer voluntary carbon offset programs where firms or individuals can buy Verified Emission Reduction (VERs) (Manglunia, 2023). Eliminating or reducing tax rates for foreign investors can be one of the approaches that could be employed. The tax rates are expected to rise to 20% from 5% in July (Ohri & Acharya, 2023)²⁷. Reducing the tax rate on green bond coupons has significantly boosted demand. For instance, there was an oversubscription over five times when the Indian Renewable Energy Development Agency Limited issued tax-free bonds in 2016. A similar

²⁶ Center on Global Energy Policy at Columbia University SIPA, CGEP. (2023b, March 30). India Integrates Green Bonds Into Its Decarbonization Strategy - Center on Global Energy Policy at Columbia University SIPA | CGEP %. <https://www.energypolicy.columbia.edu/india-integrates-green-bonds-into-its-decarbonization-strategy/>

²⁷ Ohri, N., & Acharya, S. (2023, February 4). Foreign portfolio investors in India to pay higher tax on debt securities. Reuters. <https://www.reuters.com/world/india/foreign-portfolio-investors-india-pay-higher-tax-debt-securities-official-2023-02-04/>

approach could attract international investors (Center on Global Energy Policy at Columbia University SIPA, CGEP, 2023b).

With the launch of issuing green bonds, India is at the cusp of change. This could be the beginning of an essential aspect of the country's strategy for financing its decarbonization objectives. The state of Maharashtra announced it will raise \$650 million through green bonds by 2024. Many states are already actively pursuing the green agenda. The regulatory authorities and the government of India have taken numerous steps to promote green funding.

Given that this is a relatively new market, several barriers still exist. The main obstacles to expanding the green bond market in India are the absence of an appropriate governmental framework, lack of diversified investment options, and absence of incentives for investors and issuers. Additionally, for India to meet its environmental objectives and significantly contribute to the global green bond market, efforts must be made to develop and regulate this market through standardization and certification.

About VeK

VeK is a policy advisory and research firm, distinguished by its data-driven approach to analyse policy and regulatory developments in India and globally.

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