



## GREEN BONDS: A SUSTAINABLE INVESTMENT OPPORTUNITIES

## Commerce

**Dr.P.N.Harikumar** Associate Professor & Head, Post-graduate Department of Commerce, Catholicate College, Pathanamthitta, Kerala, India, 689645.

**Dr.Susha D** Associate Professor & Head, Research and Post-graduate Department of Mathematics, Catholicate College, Pathanamthitta, Kerala 689645, India.

## ABSTRACT

A popular Native American Proverb says “We do not inherit the earth from our ancestors; we borrow it from our children.” The statement by itself indicates the significance of going green and thereby becoming environmentally conscious citizens. Off late, corporate enterprises have also started realizing the growing importance of being an ecologically cognizant and mindful organisation. The pursuit of this has forced business entities to issue financial instruments which are tailor made to suit this obligation of theirs. In line of this the concept of green bonds had attained prominence in European and American economies. A green bond in generic terms is like any other bond but with one key difference: the money raised by the issuer is earmarked towards financing ‘green’ projects, i.e. assets or business activities that are environment-friendly. Such projects could be in the areas of renewable energy, clean transportation and sustainable water management. Although this idea is relatively new-fangled for Indian corporate houses but ever increasing environmental issues back here have provided a firm impetus to the idea. This research paper strives to study the concept of green bonds, how have green bonds fared in other countries where they are in prevalence and what are the pertinent challenges coupled with recommendations for its smooth operation in a country like India.

## KEYWORDS

Green Bonds, Solar & Wind Projects, Renewable Energy, Credit Ratings, Listings, Green Bonds Principles

## Introduction

An estimated USD 6-7 trillion in annual investment will be needed globally over the next 15 years to meet the demand for green investment in sectors such as environmental remediation, energy efficiency, clean energy, clean transportation and green buildings, in order to facilitate the global transition to an environmentally sustainable and low-carbon economy. Rising climate change concerns exacerbate the need to fund this transition to a low carbon economy as soon as possible. As of now there is no internationally acknowledged definition with regard to Green Bonds. But, a paper released by PACE-D[1] (Partnership to Advance Clean Energy- Development) in December 2014 defined Green Bonds: “Green Bonds are standard, fixed-income financial instruments (bonds) where the proceeds are exclusively utilized for financing climate change mitigation or adaptation related projects or programmes.”

Private sector investment in low-carbon infrastructure needs to be scaled up significantly to meet climate change goals, including in clean energy. According to the IEA, in order to limit the temperature increase to 2°C, investment would need to increase by a factor of three for “low-carbon” power generation, and by a factor of eight for energy efficiency. Cumulative investment in energy supply and energy efficiency globally will need to reach USD53 trillion by 2035 in a 2 degree scenario.

Currently, most green debt investment is financed through bank credit. However, the bond market, which provides about 1/3 of total financing for corporates globally, has yet to play a comparable role in green financing. OECD estimated that labelled green bonds issued globally in 2015 represented less than 1% of total US bond issuance alone and less than 0.2% of debt securities issued globally. Thus, the potential for scaling-up the green bond market is tremendous.

India has set an ambitious target of generating 100GW of energy from solar and 60GW from wind energy sources by 2022. As of March 31, 2016, the corresponding figures stood at 6.76GW and 26.7GW respectively. Unfortunately, renewable energy is more capital intensive than coal and financing this push will require \$160 billion (INR 11 trillion) of capital-\$120 billion as debt and \$40 billion as equity. To put this number in perspective, the Government of India’s gross borrowing for FY17 is budgeted at INR 6 trillion. This number is more than four times the country’s annual defence spending.

## Review of Literature

1.) Saurabh Roy (2016) argues that only a quarter of the cost of Greenfield renewable energy projects is usually financed by promoter’s equity; the remaining is usually financed through bank

loans. Currently, most renewable projects are financed by bank commercial loans at 11-12 per cent interest per annum. The Indian banking sector is currently going through a balance sheet adjustment where the RBI has forced banks to come to terms with their non-performing assets. In such a phase, banks are unlikely to be able to finance the additional requirements of the renewable sector, which is a gap green bonds may be able to bridge by increasing the investor base of renewable projects and raising money from the markets rather than depending on banks.

2.) I. Shishlov, R. Morel & I. Cochran (2016) are of the view that Despite its rapid growth in the past few years, the green bonds market is now facing two major challenges. The first challenge is to avoid market implosion by ensuring environmental integrity of green bonds. The second challenge is to enhance the environmental impact of green bonds by growing the pipeline of underlying low-carbon projects, for example by bringing them tangible financial benefits. In this light, the governments may decide to provide targeted public support – for example, through tax incentives, credit enhancement or capital requirements– to those green bonds that finance priority areas in line with climate and sustainability objectives. Such support will nevertheless have to be weighed against more conventional climate policies that improve the economics of low-carbon projects.

3.) International Capital Market Association Report (2016) clearly outlines that the Green Bond Principles (GBP) are voluntary process guidelines that recommend transparency and disclosure and promote integrity in the development of the Green Bond market by clarifying the approach for issuance of a Green Bond. The GBP are intended for broad use by the market: they provide issuers with guidance on the key components involved in launching a credible Green Bond; they aid investors by promoting availability of information necessary to evaluate the environmental impact of their Green Bond investments; and they assist underwriters by moving the market towards expected disclosures which will facilitate transactions. The GBP recommend a clear process and disclosure for issuers, which investors, banks, investment banks, underwriters, placement agents and others may use to understand the characteristics of any given Green Bond. The GBP emphasize the required transparency, accuracy and integrity of information that will be disclosed and reported by issuers to stakeholders.

4.) Green Bonds: Country Experiences, Barriers and Options Report (2016) lay emphasis upon the idea that many medium-and long-term green projects with steady cash flows are good candidates for financing by the bond market. However, the bond market, which currently provides about one third of total financing for corporates globally, has

yet to play a comparable role in green financing. The potential for scaling-up the green bond market is tremendous. In the short term this will depend on policy, market and institutional barriers constraining its development being addressed; in the longer term the primary constraint is the slow pace of development of climate change mitigation and adaptation investments by governments. Underlying challenges include the underdevelopment of a domestic institutional investor base; underdevelopment of the credit rating system; lack of benchmark yield curves; lack of risk-hedging instruments and insufficient market liquidity. Many of these fundamental challenges, if addressed in a synchronized way, can be immediately beneficial to the development of local currency green bond markets.

5.) Arundhati Bose (2016) is of the opinion that raising finance through issuance of Green Bonds has a host of advantages. These range from development of positive public relations due to display of commitment towards development and sustainability of the environment to having cost benefits by attracting a strong mass as consumers. Also, some investors tend to invest simply because the host of environmental benefits associated with it. Normal bonds fail to tap these investors. A wide investor base may also act as a pricing advantage and in turn lowering project costs. With increasing concern for the environment, issuance of Green Bonds is a notion that is likely to appeal to investors due to the positive environmental implications. Though framed wholly on the basis of the Green Bond Principles, the initiation to regulate issuance of Green Bonds is a welcome step. This will be a move towards aiding India to develop and yet be on a low carbon-emitting path. The developed countries have already begun acting on this path and achieving success at desired rate.

**Objectives of the Study**

- 1.) To expound the notion of green bonds.
- 2.) To analyse the green bonds scenario globally.
- 3.) To get a view of green bond circulation in India.
- 4.) To throw light on the challenges in the growth of green bonds.
- 5.) To come up with recommendations for smoother operation of green bonds.

**Research Methodology**

Methodology is of paramount significance in any research related activity and research design presents the blueprint of the work being conducted. In this context the present research paper follows an exploratory research design. The authors have made an extensive literature survey and have adequately gone through different kinds of literature like financial journals, investment related blogs and websites available on varied platforms. Investment Advisors and Financial Experts of a definite calibre have also been consulted as the concerned subject is still in its nascent stage from the perspective of business research. The views and insights of almost all the experts have been inducted in the paper at different junctures.

**Practical Implications**

The study clearly presents a deep insight on the concept of green bonds which is still a very new idea for researchers and investors equally. This paper will be useful to all investors particularly the retail investors and fellow researchers in better tracking the utilities of considering green bonds as an integral part of their investment and research decisions respectively along with the shortcomings and eventualities of them.

**Originality/Value**

All efforts have been made by the authors to ensure that facts and ideas put forth in the research paper are original and have been included only after extensive content analysis. The study also gives a perspective on how investors perceive green bonds as an investment instrument and risks associated with it. Therefore the paper in general will prove to be a value addition by expanding the knowledge base of such investors and becoming more decisive with their decision making.

**The Global Green Bond Market Scenario**

The green bond market emerged in 2007-08 with the first few issuances by Multilateral Development Banks. From 2007-2012, the market mainly featured issuance of green bonds by so called Sovereign Supranational and Agency (SSA) actors such as the European Investment Bank, IFC and World Bank, along with a few local government funding agencies, municipalities and national development banks. With growing market appetite for such bonds there was increasing diversification of issuers and investors

participating in the green bond market. 2013 and 2014 saw more active participation from private sector issuers, including corporates and banks, supported by the launch of the GBP. Annual issuance of labelled “green bonds” rose from just USD 3 billion in 2012 to USD 47.8 billion in 2015 with issuance occurring in 14 of the G20 markets. Annual green bond issuance continues to grow rapidly and current estimates for 2016 range from USD 72 to USD 100 billion.

**Table 1: Labelled Green Bonds by Issuing Countries as of 30 August 2016**

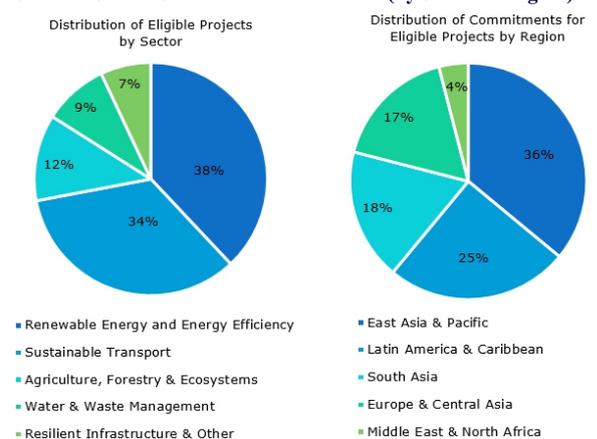
List of Countries	Green Bonds Issuance (as a percentage of total bond market)
Supranationals	23%
United States	19%
France	12%
China	10%
Germany	9%
Netherlands	8%
Sweden	4%
Canada	2%
India	2%
Norway	1%
Rest of the World	10%

**Source: CBI/HSBC (2016)**

Some 45% of labelled green bond proceeds in 2015 were allocated to renewable energy, with low carbon buildings being the second biggest use of proceeds. Green bonds for low carbon buildings were represented across all the issuer types: development banks, corporates entities and municipalities. In the past year, labelled green bonds use of proceeds has also diversified, with more green bonds issued to finance sustainable water, transport and waste projects.

The World Bank has issued 100 green bonds in 18 currencies raising the equivalent of US\$8.4 billion. As of June 30, 2014, proceeds of these bonds have been allocated to 77 green bond eligible projects with commitments totaling US\$13.7 billion. These projects have been selected based on defined green bond eligibility criteria and span a range of sectors across the world:

**Chart 1: Global Green Bonds distribution (by Sector & Region)**



**Source: World Bank Report on Green Bonds**

**Green Bond Circulation in India**

2015 was the year India entered the green bond market, with a total of USD 1.1 billion of green bonds issued from a handful of pioneer issuers (Yes Bank, Export-Import Bank of India, CLP Wind Farms and IDBI). SEBI’s statement included an explicit mention that SEBI sees the green bond market as a key tool to help raise the finance needed to meet the ambitious targets of India’s Intended Nationally Determined Contribution (INDC) as established for COP21 -essentially India’s climate change action plan. Such a viewpoint from SEBI demonstrates the potential for other countries to utilize the green bond market in order to meet INDCs.

There are humungous developmental tasks at hand in the form of

infrastructural projects. The finance for these projects have been traditionally been supported by banks, NBFCs and Financial Institutions but are not sufficient to meet the needs and do capacity addition. Thus there is a need to explore new opportunities of getting finance. Corporate bonds have been aiding in bridging the needs.

India's Intended Nationally Determined Contribution (INDC) document puts forth the stated targets for India's contribution towards climate improvement and following a low carbon path to progress. A preliminary estimate suggests that at least USD 2.5 trillion (at 2014-15 prices) will be required for meeting India's climate change actions between now and 2030. In this regard the document talks about the introduction of Tax Free Infrastructure Bonds of INR 50 billion (USD 794 million) for funding of renewable energy projects during the year 2015-16.

A concept paper on the issuance of Green Bonds had been issued by SEBI on 3 December 2015 for soliciting comments from public by 18 December 2015. It is expected that the existing regulations for issuance of corporate bonds, SEBI (Issue and Listing of Debt Securities) Regulations, 2008 along with disclosure in the offer document the additional information about the Green Bonds on the basis of the Green bond Principles, 2015, are apt to regulate the bonds effectively.

**Table 2: Prominent Green Bonds Issuer in India thus far**

Issuer	Amount	Issue Date	Tenure	Purpose
Yes Bank	1000 crore	Feb-15	10 years	To fund solar, wind and biomass projects
IFC (Yes Bank)	315 crore	Aug-15	5 years	To fund solar, wind and biomass projects
CLP India	600 crore	Sep 15	3, 4 & 5 years	To fund solar and wind projects
PNB Housing Finance	500 crore	Apr 16	5 years	To fund green residential projects
Hero Future Energies	300 crore	Feb 16	3 & 5 years	To fund wind holding entity and portfolio

**Source: Self compiled from various databases**

Challenges facing Green Bonds

**1.) Lack of Awareness of the Benefits of Green Bonds:** For some countries a lack of knowledge of existing international standards is an important barrier. In addition, in some countries there is a lack of understanding of the potential benefits of the green bond market amongst policy makers, regulators, as well as potential bond issuers and investors. Some finance professionals may simply not have heard of green bonds. In these cases global green bond market participants, for example supranational organizations and MDBs, can communicate the benefits of green bonds to these various groups.

**2.) Costs of Meeting Green Bond Requirements:** The verification of the "green bond" status and the monitoring of use of proceeds by issuers for green purposes are performed mainly by second opinion or third party assurance providers (such as accountancy firms and specialized research agencies). However, many potential issuers still do not have the knowledge of how such a verification process may work. In some markets, the relatively high cost of obtaining a second opinion or third party assurance (ranging from USD 10-100k) is also a barrier for some small issuers. Some issuers have also complained about the high costs of managing disclosure requirements.

**3.) Low Credit Rating of Potential Green Bond Issuers:** Infrastructure companies in India do not have a very good credit history to command the highest rating. In addition, apart from the biggest names in the power generation sector, viz., NTPC and Tata power, no other company has the credit rating to be able to issue bonds in the capital markets. Because of the nature of the business, power generation is very capital intensive and relies heavily on debt for funding, which further hampers new companies from being able to raise debt in the capital markets.

**4.) Lack of Green Bond Ratings, Indices, and Listings:** Green credit ratings, which incorporate environmental information in the ratings of the bonds, can help the market evaluate the alignment of green bonds with international guidelines and standards such as the

GBP and the CBI Standard, and may also help investors understand the impact of environmental factors in the overall risk profile of issuers. Green bond indices can guide bond investors to invest in green bonds that meet their criteria. This can result in increased fund flows that can also help reduce funding costs for green issuers. Green Bond listing criteria implemented by stock exchanges can have similar benefits. However, as of now, only a relatively small number of rating agencies, index companies and stock exchanges have promoted such green products and policies.

**5.) Lack of Local Green Bond Guidelines:** For a variety of reasons, some countries may need to develop their local currency green bond markets. For example, in countries where capital investment is not fully open, the local green bond markets will rely on local investors. In other countries, the priorities of their environmental challenges (e.g., air and water pollution being the top priorities) are somewhat different from other countries that focus on controlling greenhouse gas emissions, such as the case is in China with regards to air pollution. In such countries policy incentives may be used to support the local green bond market. In some of these markets they may require additional definitions and disclosure than the Green Bond Principles require for particular categories. For these countries, the first barrier is the lack of local definitions and disclosure requirement for green bonds.

### Recommendations for a Robust Green Bond Market

**1.) Clear Specifications and Monitoring for Green Bonds:** SEBI, in December 2015, came out with a concept paper for issuance of green bonds in India, which stated that no additional regulations are required for issuing green bonds in India. However, government incentives cannot operate in grey areas where the definition of green is "voluntary". If the Government of India decides to provide an incentive for green bonds, the definition of "green" must be standardised.

**2.) Promoting the Integrity of Green Bonds:** The key to green bond market development is effective market education on the benefits of green bonds (for sustainable development, for issuers, and for investors) as well as the awareness of international green bond standards and disclosure requirements. Promotional efforts can be organized by government agencies, regulators, market associations, financial institutions, development agencies, rating agencies, second opinion and third party assurance providers.

**3.) Regulatory changes in IRDA & PFRDA:** A couple of regulatory changes by PFRDA and IRDA will go a long way in creating a market for debt in India. We note a few regulations that hamper the growth of a bond market in India and which may be relaxed. But, we do not recommend that the IRDA mandates insurance companies to invest in areas if they choose not to. These companies handle public money and should choose the risk they are willing to take and should not be burdened with additional risks.

**4.) Retail Tax Incentive for Green Bonds:** To mobilise retail savings the government can include or create a new category for green bonds on the lines of infrastructure bonds which receive an exemption under Sec 80CCF, which will help Indians save more while directing money towards renewable energy.

**5.) Providing Technical Assistance for Green Bond Market Development:** Technical assistance for developing local currency bond markets, in areas such as the development of benchmark yield curves, ratings, risk mitigation mechanisms. The objective of local green bond standards should be to ensure that while the national agenda is met, these local green bond rules do not create unnecessary barriers or transaction costs for cross-border green capital flows.

### REFERENCES

- Bultheel, C., R. Morel, H. Hainaut, M. Deheza, I. Shishlov, V. Depoues, and B. Leguet. 2015. "COP21 – a Successful 'end of the Beginning.'" Climate Brief #38. I4CE - Institute for Climate Economics. [http://www.i4ce.org/download/climatebrief\\_cop21/](http://www.i4ce.org/download/climatebrief_cop21/).
- Ceres. 2015. "A Statement of Investor Expectations for the Green Bond Market." <http://www.ceres.org/files/investor-files/statement-of-investor-expectations-for-green-bonds>.
- Claquin, T. 2015. "Green Bonds – a Promising Tool for Climate Finance." Private Sector & Development, Proparco Magazine, no. 22: 6–9.
- Friends of the Earth. 2015. "Issue Brief: Green Bonds." [http://libeloud.s3.amazonaws.com/93/3b/c/4880/Green\\_Bonds\\_Fact\\_Sheet.pdf](http://libeloud.s3.amazonaws.com/93/3b/c/4880/Green_Bonds_Fact_Sheet.pdf).
- G20 Green Finance Study Group 2016. "Green Bonds: Country Experiences, Barriers and Options" available at Green Bonds/6 Green\_Bonds\_Country Experiences\_Barriers and Options.pdf
- Green Bond Principles 2016. "Voluntary Process Guidelines to Issue Green Bonds." Available at Green Bonds/GBP-2016-Final-16-June-2016.pdf.

- 7.) KPMG. 2015. "Gearing up for Green Bonds." [https:// www. kpmg.com/ Global/en/ IssuesAndInsights/ArticlesPublications/sustainable-insight/ Documents/ gearing-up-for-green-bonds-v2.pdf](https://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/sustainable-insight/Documents/gearing-up-for-green-bonds-v2.pdf).
- 8.) Majhi, P.R. & Khatua, P.K. 2015. Research Methodology, Himalaya Publishing House, New Delhi, ISBN-978-93-5097-375-2.
- 9.) Roy, S. 2016. "Discussion Paper on Green Bonds" available at Green Bonds/Discussion Paper - Green Bonds Edited-SR.pdf
- 10.) Shishlov, I., and V. Bellassen. 2015. "Review of the Experience with Monitoring Uncertainty Requirements in the Clean Development Mechanism." Climate Policy, 1–20.
- 11.) Shishlov I., Morel R. & Cochran I. 2016. "Beyond transparency: unlocking the full potential of green bonds." Institute for Climate Economics, available at Green%20Bonds/I4CE\_Green\_Bonds.pdf
- 12.) The Economist. 2014. "Spring in the Air. Bonds Tied to Green Investments Are Booming," March 22. <http://www.economist.com/news/finance-and-economics/21599400-bonds-tied-green-investments-are-booming-spring-air>.