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A Study of Green Bond Market in India: A Critical Review

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Abstract. An upcoming and a novel area in finance is Green Bonds. It comes under the broader head of Green Finance. Green Bonds use their proceeds in environmentally friendly projects. They signify Socially Responsible Investing (SRI) through investing in Energy Efficiency, Green Infrastructure, Renewable Energy and Water Improvement. The world landscape is on a drastic change and world temperatures are rising. Science evidences that climate change is rough and there is a pressing need to gear up to save the world. Academicians around the globe are putting efforts in various fields including the financial sector. And green bonds are one of the profound ways to stabilize the current environmental picture.

The study will analyse green bonds from a comprehensive viewpoint. First the paper will talk about the current scenario of Green Bonds in India. The study will also accentuate the future prospects of green bonds. And finally, it will feature the practical suggestions in the Indian context.

Key Words: (1) Green Bonds, (2) Climate Awareness Bond (3) Socially Responsible Investing, (4) Green Bond Principles, (5) Low Carbon and Climate Resilient

1. Introduction

Green bonds are debt securities that use their proceeds for environmentally responsible investing. This includes investment in sustainable and renewable energy, water conservation, climate adaptation, aquatic conservation and waste management among others. The use of the funds is the criteria that differentiates green bonds from regular bonds. Globally they are regulated by the guidelines provided by Green Bond Principles (GBP) given by ICMA (International Capital Market Association). SEBI, in India, has also delivered guidelines on the same lines as GDP.

1.1 A Deep Association

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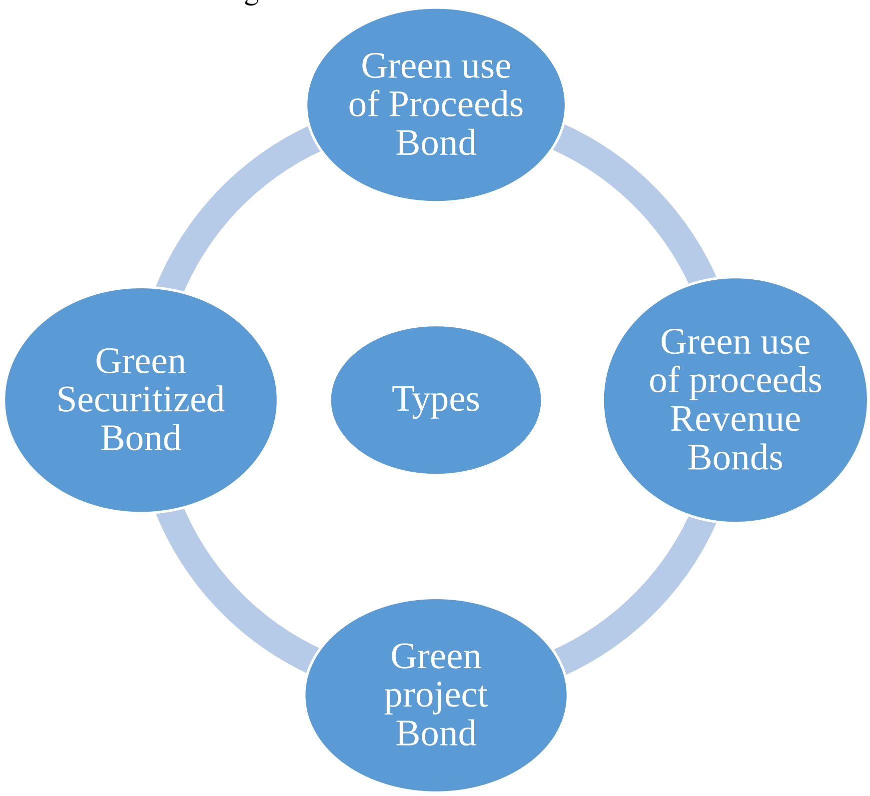
Climate change is authentic and is happening at a very fast pace. 97% of climate change has been caused by human activities, as confirmed by climate scientists. The rising air and ocean temperatures, retreating glaciers, shocking forest fires are some of the evidences by nature that this change is real. Due to ever increasing carbon emissions, the main challenge now remains to keep the global temperature rise below 1.5° C. The UNFCCC (United Nation Framework Convention on Climate Change) 2019, showed the kneeling curve of CO2 levels in the atmosphere. The data is devastating as the CO2 level has risen from 359 ppm in 1995 to 408 ppm in 2019.
The 2030 Agenda on Sustainable Development talks about the essentiality of climate change. In the latest Paris Agreement (2017), it has been agreed by businesses, people and governments to the burning need of investing in green future. Therefore, financial actors are coming up with requited solutions. One of the novel ways, surely in India, is green bonds. The main ambition of Green Investment is to focus on developing economies with the potential to have investment options in line with Low Carbon and Climate Resilient (LCR) development (CPI, 2012). The funding of LCR projects through bonds is not very new, but since 2007, a designated market for such bonds has surfaced labelled as ‘green’. This labelling differentiates a regular bond from a green bond.

1.2 A Brief History
It all started in 2007 by European Investment Bank when they issued pound 600 M Climate Awareness Bond (CAB) and still remains the largest green bond issuer with about pound 23.5 Billion across 11 currencies till 2017. Global green bond issues have risen to USD 40 Billion.
Green bonds issuance is towering all around the globe. It has reached USD 167.3 Billion in 2018 which is shows a 3% rise from the previous year. The U.S., China and France remain the leaders of green bond issuance in the year 2018. Fannie Mae remains the global leader with USD 20.1 B from U.S. Industrial Bank Co. from China issued $9.6 Billion followed by Republic of France with $ 6 Billion Issue.

1.3 Pathway to India
In India, INR 1000Cr green bonds entered the financial world in 2015 with Yes Bank followed by INR 600 Cr issuance by CLP India. The first internationally certified green bond issue being Axis Bank Limited with USD 500 Million issue. This market has risen to INR 50000Cr by 2018.In 2016, SEBI launched Green Bond Guidelines followed by major issuances in the bond market. As of 2018, SBI issued $650 Million from green bonds market and they received over subscription for this issue, power producers like Renew Power and Greenko have been other players among many to tape green finance in India. Greenko issued USD 950 M recently. It is expected that the green bond issuance in India will cross USD 200 Billion mark. It rose to USD 198 B in 2018. Kerala Industrial Infrastructure Fund Board (KIIFB) is planning to raise USD 250 Million which would be the first issuance by a government entity. The pressure to be green on businesses is growing day by day, since only two Indian companies were in the top 200 and 10 in the top 500 green companies of the world in 2016. Out of 149 nations, India positions at 110 in fulfilling Sustainable Development Goals (SDG). The SDG Bond Framework that came in 2018 vividly separates environmental projects and social projects which helps investors to invest accordingly.

Types of green bonds in India`

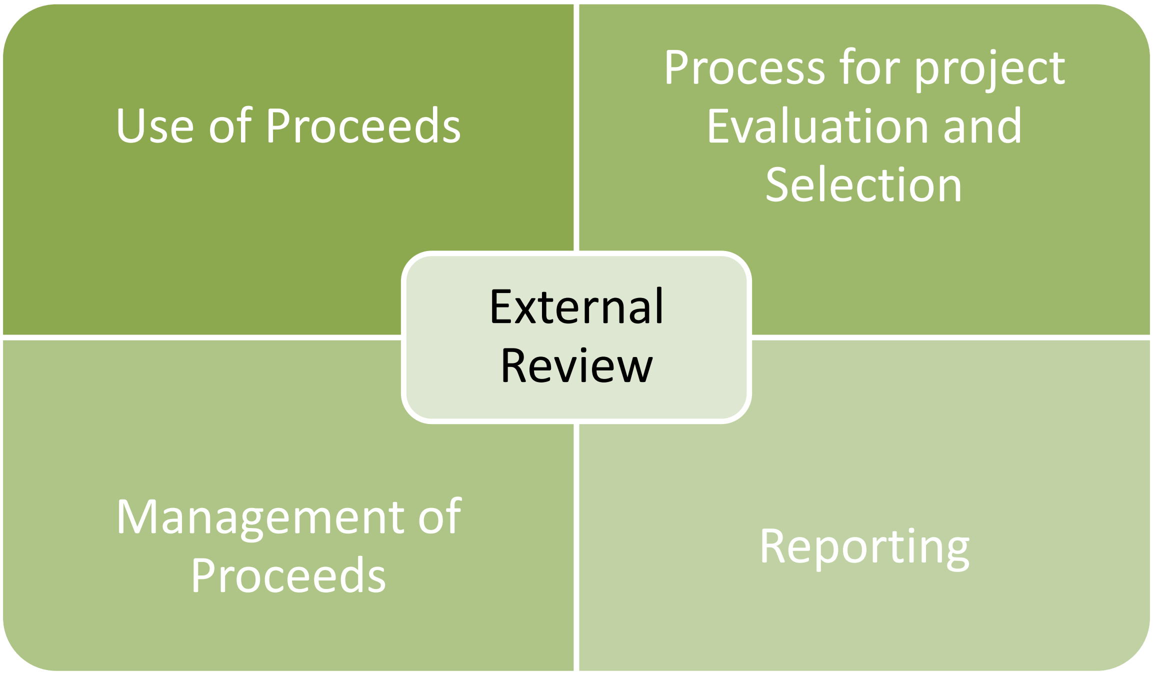


1. Green use of proceeds bond- It is a standard recourse debt obligation where the proceeds are transferred to the account for the use in the project. If there are pending proceeds of the investor then the issuer needs to inform the investor regarding the appropriate use of the unused proceeds.
2. Green Use of Proceeds Revenue Bonds- It is a non-recourse debt obligation bond where the proceeds can go to related or unrelated Green project. Again the proceeds will be credited to the project account. Also the issuer needs to inform regarding the use of the unused proceeds of the allocated amount.
3. Green Project Bond – Here the investor has a direct risk and the proceeds will be used for one or multiple green projects with or without recourse debt obligation.
4. Green Securitized Bond- Here the bond is collateralized by one or more projects and the repayment is done through the cash flows generated by the project itself.

1.4 Green Bond Principles

The green bond market in India is governed by green bond principles. These are voluntary guidelines that escort the issuance of green bond and ensure that the green bond market work with full transparency, disclosure and reporting (Guidelines, Green, & March, 2015).

The four building blocks of GBP are:



First is the use of Proceeds. It refers to the use of the proceeds from the green debt bond. It specifies the green project where the funds shall be utilized. The green project includes projects that have a sustainable impact on the environment like energy efficiency, green buildings, water improvement, aquatic biodiversity etc. the second building block is process for project evaluation and selection. The process explains about the objectives of the green project, how this project is appropriate to the green definition as prescribed and the social impact associated with it.
Next, we have management of proceeds. The proceeds are credited to the sub-account and the use of the pool can be traced. If the proceeds are not fully utilized for the time being then issuer should mention the temporary placement of such funds. Finally reporting, the GBP expect that the issuer should clearly mention the up-to date information regarding the allocations of the funds, the progress of the green project and any other information that is necessary for the bond holder or the public to know. Annual reports should be prepared and all relevant data regarding the project should be mentioned.
And with this a latest addition (2018) is External Review. It pertains to the check on the working of the project parallel with the four core components of the GBP. This check is done by an institution independent from the issuer who has knowledge in the related field. The institution verifies the blueprint, provides with a certification and also gives scoring/rating to the project. (ICMA - International Capital Market Association, 2018).

2. Review of existing literature

The attraction towards green bonds have increased due to the increased awareness about the climate issue[1]. This has been evidenced by various other studies, vanRenssen[2], who claim that the investment in green bonds have become tenfold between the years 2010 to 2014. Timbers et al. [3] emphasised that 84% of the private capital requirement of the climate funding can come through green bonds alone. According to Hart & Ortiz [4], institutional investors have played a major role in the current progress of these bonds. It has been comprehended that there is a growing interest in real estate financing by green bonds in particular. Renneboog, Ter Horst, and Zhang [5] find that there is a major section of people who are ready to accept lower returns only to fulfil their social objectives.
Richardson [6] was of the view that finance has become a cornerstone in this Socially Responsible Investing movement that now has been existing for a while. It is now seen as a discipline to keep the

environment under a check. Nordhaus [7]; Eichholtz et al.[8], Stern [9]comprehended that there is a dire need to reduce greenhouse gas emissions to reduce global warming. Enkvist et al. [10] in his paper spoke about the McKinsey report that suggested that the real estate sector has a great potential in doing so. Horsch [11] said that even after recognising the importance of green bonds in the recent past, they have not been defined clearly which forms a big drawback to their right usage.

Mathews and Kidney[12] suggested that there has been a lot of speculation on the precise label i.e. to call such bonds as climate bonds or green bonds. But various authors in their studies have solved the problem and they continue to be called green bonds following what World Bank has been calling them since their issuance, Read [13].

One of the major concerns according to Tripathi [14] under this field is that of standards. Lucent standards are not present and even if standards and rules have been established, they are not being followed with strict conduct. They, if and when followed, with vigour will make the financial scenario more transparent and will help to keep green wash activities under a check. Lyon and Maxwell [15] gave a very broad definition of green wash activities. They were of the view that the information asymmetry about the companies' environmental efforts can be called as green wash. They reveal information only about the positive environmental impact, keeping the negative effect to themselves. Therefore, Bowen and Arragon-Correra [16] define it as giving a more favourable image of the company than it really is. Here Green Bond Principles come to help. According to ICMA [17], they are the guidelines for issuing green bonds and they promote transparency and disclosure of all information regarding the issuance of green bonds. They provide pathway to the effective working of green bond market and helps in building trust of investors in the working of green bonds in India.

3. Objectives of the study

Objectives of a study helps in clarifying the aims of the field under consideration. The objectives have been formed to give a vivid depiction of green bonds in India. This shall be done with the help of SWOC analysis. Next the study will take into account the future prospects. Finally, the study will only be partially complete without the suggestions, which forms the final objective. Hence the objectives of this study are threefold.

1. To delve into the current scenario of green bonds
2. To probe the future prospects in Indian context
3. To furnish practical suggestions in this field.

4. Research methodology

Höst et al. (2006) suggests that the aim of the research define the type of research design. The research design of the study is descriptive. The data has been collected from various secondary sources like websites, Journals, various Articles and Published Reports.

5. Data presentation and interpretation.

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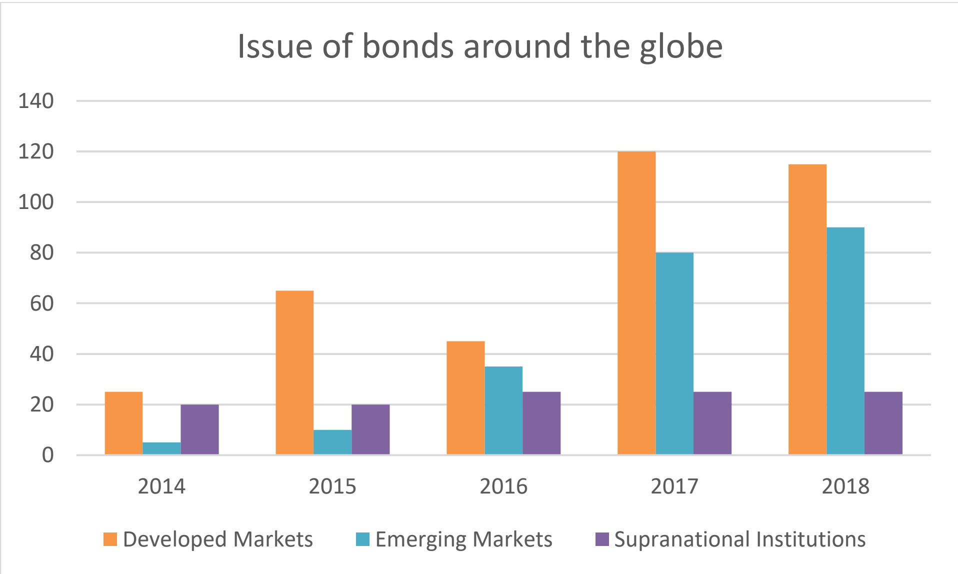
SWOC ANALYSIS			
STRENGTH	WEAKNESS	OPPORTUNITY	CONCERN
(1)Diversification in portfolio (2) Risk reduction (3)Favourable Company image (4)Energy efficient projects (5)Reducing Carbon footing	(1)Lack of Awareness (2)Lack of faith in use of proceeds (3)Choice of disclosure (4)Measuring issues (5)Dynamic rules and regulations	(1)USD 2.3 Trillion required till 2030 (2)Over-subscription (3)Ethical needs of people (4)People Tolerant Of additional Costs (5)175 GW power by 2022	(1) Green wash activities (2)Lack of transparency (3)high hedging costs (4)Low sovereign credit rating (5)Concentration on Limited Sectors

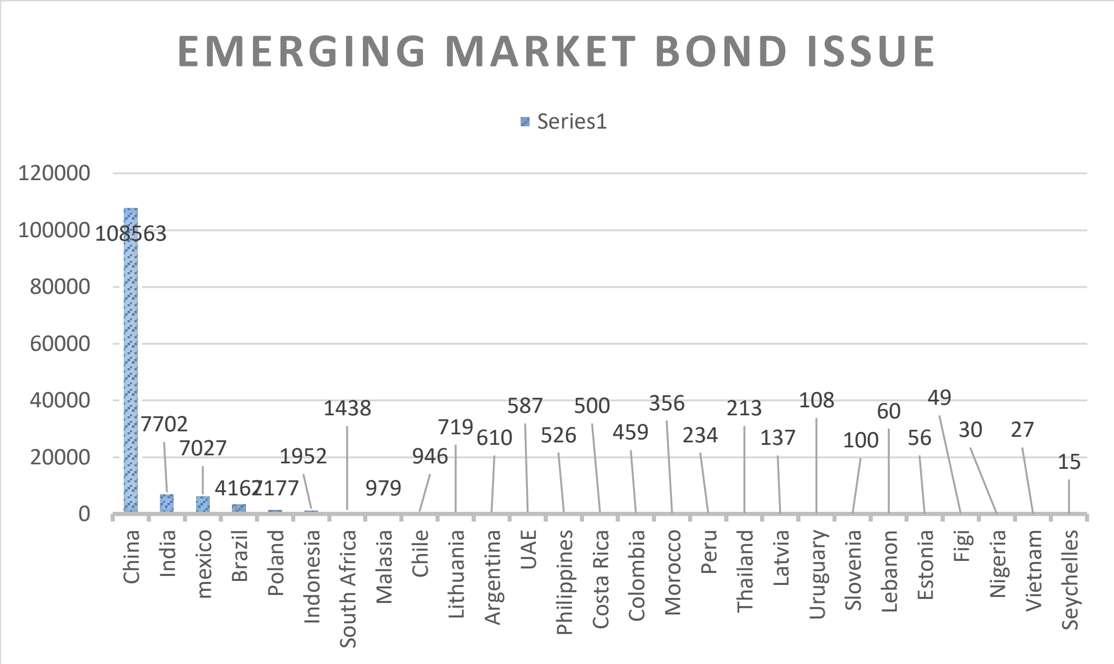
Source: Author's Compilation

The SWOC analysis shown here talks about bridging the weaknesses and concerns to strengths and opportunities. The biggest opportunity is the need for USD 2.3 Trillion by 2030 to meet the SDGs. Also people's need to bear additional costs to fulfill their ethical needs lead to the over-subscrition of green bonds. But still, there remains a need to work on the major concerns. Green wash activities is like termite that can kill the concept of green growth. Lack of credit ratings of green bonds is also one of the concern areas to work upon.



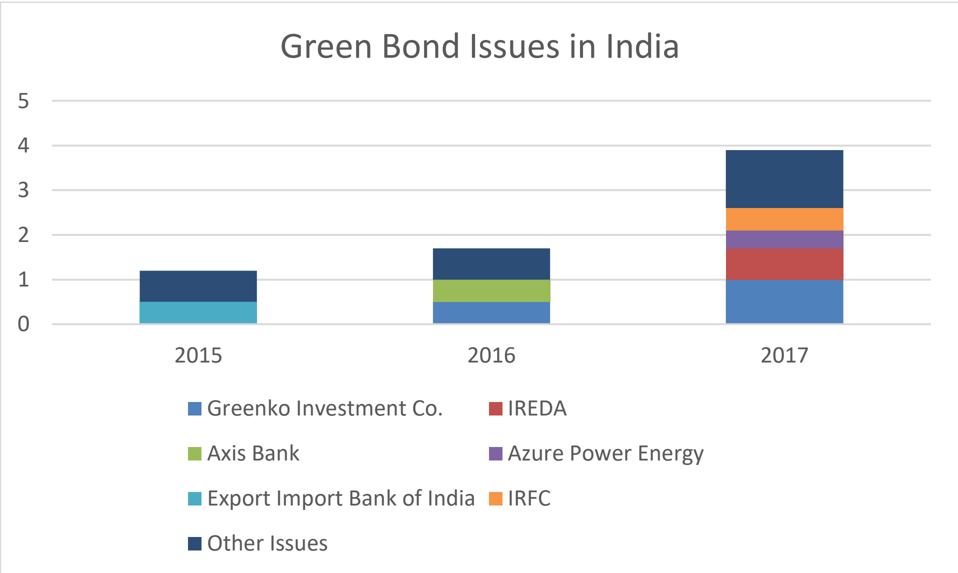
Source : (Climate Bonds Initiative, 2018) [18]

The graph shows the green bond issues through the years in USD Billion. Since 2014 Developed Markets have been at the forefront. And the emerging markets are trying to match the needs of bonds. They are continuously on a rise. They got a real push in 2016 when China for the fisrt time issued their green bonds. The contribution of Supranational Institutions remain roughly the same. It can also very vivid that the contribution is falling from the Developed nations mainly due to the U.S. Decision to reduce their share in the overall contribution.



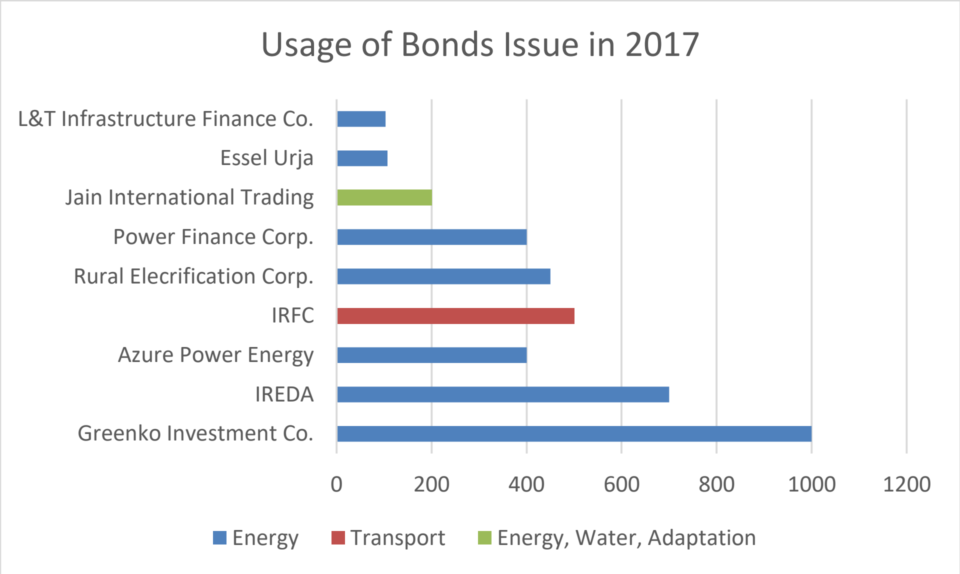
Source: Climate Bonds Initiative

The figure shows the contribution of emerging nations to green bonds issuance in USD Million from 2012-18. The contribution of China is the highest followed by India followed by Mexico in the Emerging Markets Category. Well the study of emerging markets is essential because they are the biggest opportunity to fulfill green future goals. The contribution of all the other nations is very less. Seychelles being the last nation in its share to green bonds.



Source: Climate Bonds Initiative

The graph shows figures in USD Billion. It represents 63% of the total isuances of green bonds in India by various organisations. It is quite evident that Greenko Investment Company has been the largest issuer in 2017 of USD 1 Bn and continuously investing since 2016. The overall investment in green bonds has been on a rise. IREDA has also shown a remarkable funding by investing USD 700 Million. Also it can be seen that Axis bank has reduced its share in 2017.



Source: Climate Bonds Initiative,India(Corporation et al., 2017)

The above graph shows the usage of bonds issued in the year 2017 in USD Million. Here we see the usage of bonds in Water sector for the first time by Jain Interational Trading. We also have a sole issue for the transport sector by Indian railway Finance Corporation (IRFC) of USD 500 Million. Also it is very clear from the figure that maximum use of the bond proceeds are in the Energy Sector with the highest issue by Greenko Investment Company.

6. Critical Review

One of the biggest concerns in Green Bonds is Green Wash activities. Lyon and Maxwell [18] defined it very broadly, disclosing positive information about the environmental and social activities of an organisation and withholding the negative information and thereby giving it an overall favourable and enhanced picture.Roselle [19] said that there is a rise in demand as well as the need of socially responsible investing. At the same time Bowen and Arragon-Correra,Labbe[20] who were of the view that green wash gives a more admiring image of the organisation than it really is.

Another major problem is the definition of what is actually green. This is mainly due to lack of regulations regarding the issues of green finance and one of the major ones is defining 'green'. Therefore, what different nations consider as green differs. China has been condemned by world nations for using green bonds for running coal-burning power plants when it is the second largest issuer of green bonds. They reason they provide is that these coal-burning power plants are more efficient than using renewable sources.

Looking at the statistics, the usage of green bonds in India is majorly concentrated towards energy sector. Other sectors like biodiversity, forestry, water conservation and sustainable use of waste are not given the required contribution. There is a need of another $667 billion for electric vehicles by 2030, 2.5 billion green homes by 2020 that will require $1 trillion, waste management $11 trillion by 2030 and the list is long Limiting the use of green bonds to energy sector will make the solution of bigger issue of climate change difficult.

India has raised $6.5 Billion in a span of four years since its first issue, whereas China raised $37 Billion in 2017 alone. Another report suggests that China will issue $ 55 Billion every year till 2020 and

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corresponding figure for India remains at $15 Billion. This simply demonstrates that India is lacking at making enough efforts for green future i.e. $100 billion by 2022.

7. Prospects Of Green Bonds

Jeff Bezoz, the richest man on earth, if investedall his personal wealth of more than USD 100 Bn, there woul still be room for atleast 18 times similar investments of green bonds in India. This is the degree of scope of green bonds in India. Yes bank that pioneered green bonds in India, at World Future Energy summit elucidated its intention to raise USD 1 Billion by 2023 which will rise to USD 5 Billion by 2030. This will eventually provide electricity to 1.05 Million households in the country annually by wind and solar energy power generation. According to New Energy Outlook (2019), India will overtake US in its investment in green by 2044.

8. Conclusion

The prominence of investing in green future as never been this peaked. With pleasant ambitions of producing 175 GW power by renewable energy by 2022, if India does not at now, this target will only remain a dream. Hence, the financial agents have a huge opportunity to deepen the efforts to achieve sustainable goals. And green bonds are a primary source for a long term and convenient cost of capital for green project developers. Defining green appropriately and encouraging transparency promote the issuance and investment in green bonds. Lack of awareness is also one of the main impediments to these bonds. Therefore, the government needs to organise campaigns and expert talks that tell people about their share of participation in protecting their home.

Well there will always be a question that green bonds are displaying the requited environmental transformation or not. Standardisation of the issuance process and some customized standards can take green bonds a long way. And because of this various new standards and norms are established by the governing bodies. Hence their role still remains pivotal in increasing transparency and keeping a check on the reporting requirements as stated by SEBI in India.

9. Suggestions

There is a need to have an intensified push by the government to the private sector to issue and invest in bonds. So, a policy of tax benefits to the issuers as well investors can help overcome the existing need of funds for environmental projects. A system of tax credit can be framed whereby the issuers do not have to pay interest payments and instead tax credit be transferred to the bond holders' account. Another way could be tax exemption on interest received by the bond holders. Likewise, Capital Gain tax bond which are currently issued for NHAI and REC can also be issued for renewable energy projects.

Formation of development funds. Just like Rural Infrastructure development fund, a fund that would help in priority sector lending of renewable energy can be of great help to raise finance for green needs.

Standardization and comparability would give an unblocked view of what is green and what is not.

Credit rating of green bonds- Moody's, an International rating agency, launched its green bond rating mechanism in 2016. Therefore, such credit rating assessment be followed not only on the basis of use of proceeds or reporting but also on analysing if the funds are invested in sound green projects.

Removing the limit of 15 Cr per borrower under priority sector lending by the banks can be a huge aid to promote green projects. This is mainly because 15 cr is too small a limit for investment in such projects that require large amount of funds.

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