Climate targets of green bonds issuers aligned with green finance framework of the sustainable development goals of India

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ABSTRACT

All the reports based on climate change bring the point of the hazardous impact of environmental degradation on human life. To preserve the environment many countries, industries, companies, and organizations are generating ideas and for their execution, they need funds. Green bonds are found to be a suitable method of raising funds for purposes like energy efficiency, clean transportation, Renewable energy, Natural resources etc. This research is based on the twenty largest green bond issuers in India from 2017 to 2024. The research will be based on the companies aligning their targets with sustainable development goals.

Keywords: Climate targets, Green bonds, SDGs.

INTRODUCTION

The 2021, WHO health and climate change global survey report, says, "The health risk posed by climate change is now urgent for all countries. The climate changes are severe for population health and our environment as well as for our future." The report published by the World Bank (2023), "As of the world's most populated country, the carbon intensity of India has a direct impact on the world's economy. In 2021 the greenhouse gas emission was 3.9 billion carbon dioxide, making India the world's third emitter, behind China and US." Many countries are taking effective steps to protect the environment and to reduce climate changes. Countries have ideas. But ideas without funding is mere a hallucination. For the execution of action plan regarding climate change, they need fund and that's how green bond come to play an important role to bridge the gap. TATA Cleantech capital limited (2023), "The green bond market plays an important role in funding projects that contribute to environment sustainability."

LITERATURE REVIEW

ICMA, 2021, "Green bonds are financial instruments that provide fixed income which is used to fund environmental or climate benefits projects. Green bonds are kind of bond instruments, which is used to raise the fund to finance or re-finance, in part or full, new or existing, eligible green projects." Companies, govt. groups and individuals have projects to protect our environment for further degradation.

Ms. Ashima Verma and Dr. Rachna Aggarwal (2020), "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 other

Saleem Ahmed & Mokhchy Jihane (2022), "The issue of green bonds has a good influence on firms, may contribute to environmental development, encourages CSR and value creation, and helps to attract investors to some level."

Hannah MacRae and Laura Tozer (2024), " Green bonds present a promising potential solution to financial barriers, as they provide sizeable upfront capital, long payback periods, and economies of scale, while potentially helping to distribute the costs of climate action over time.

S&P global (2024), "Green bonds will continue their dominance in market, buoyed by increased demand for environment projects across all geographies." "Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs, said by Gro Harlem

Brundtland. In green bonds, investors try to achieve their financial goals with their values and to play their part to bring positive changes.

Climate policy initiative (2022), "In 2019/2020, tracked green finance was INR 309 thousand crores ($44 billion) per annum, approximately 1/4 of India's need."

World bank (2023), "To finance India's 2030 climate targets submitted under Paris Agreement, the country need $170 billion per year in investment. However, India receives $44 billion per year."

Framework for sovereign green bond, (2022),"At COP 26, India underlined the need to start the one-world movement 'LIFE' which means 'Lifestyle For Environment' urging for mindful and deliberate utilization instead of mindless and destructive consumption of natural resources."

European commission (2019), "The commission published the action plan on financing sustainable growth, with the aim of reorienting capital towards sustainable investment, managing financial risks that arises from climate change and other environmental and social problem and fostering transparency."

Ms. Ashima Verma and Dr. Rachna Aggarwal (2020), says, "Another major problem is the definition of what is actually green. This is mainly due to regulations regarding the issues of green finance and one of the major one is defining green. 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." (1 pdf)

Olaf weber and VashundaraSaravada (2019)"Greenwashing in the green bond market means bond proceeds get allocated to assets that have little or no environmental value, which shakes market confidence."

Heidi Tuhkanena,b and GregorVulturius (2020),"There is the need to better understand the shortcoming of the reporting practices when trying to assess the contribution of green bonds to issuers climate targets."

Micheal Doran and James Tanner (2019), "Green bonds are now in the mainstream. But the lack of contractual protections, as well as issues with reporting metrics and transparency, risk undermining the market and the broader sustainable finance project."

European commission (2019),"A more diverse investor base and a potentially lower cost of capital, resulting for example from inclusion in actively managed investment portfolios and in sustainability-focused indices, and from improved credit ratings for bond issuance and better credit worthiness assessments for bank loans."

Lupin Rahman, global head of sovereign markets at Pacific Investment Management Company (PIMCO)**,** explained the advantages of these bonds this way: "Emerging market green bonds are an attractive and growing opportunity for fixed income investors, as issuers are distinguishing their sustainability credentials with enhanced targets and clear frameworks to tackle climate transition and climate risks, as well as broader sustainability goals.

1) Green bond framework

Framework for sovereign green bonds (2022) India's climate action:
1) Reach 500GW non-fossil energy capacity by 2030,
2) 50 per cent of its energy requirements from renewable energy by 2030
3) Reduction of total projected carbon emissions by one billion tonnes from now to 2030.
4) Reduction of the carbon intensity of the economy by 45 per cent by 2030, over 2005 levels
5) Achieving the target of net zero emissions by 2070

2) Green bond principal, ICMA (2021), Green bond types:

1. Standard Green Use of Proceeds Bond: an unsecured debt obligation with full recourse-to-the-issuer only and aligned with the GBP.
2. Green Revenue Bond: a non-recourse-to-the-issuer debt obligation aligned with the GBP in which the credit exposure in the bond is to the pledged cash flows of the revenue streams, fees, taxes etc., and whose use of proceeds go to related or unrelated Green Project(s).
3. Green Project Bond: a project bond for a single or multiple Green Project(s) for which the investor has direct exposure to the risk of the project(s) with or without potential recourse to the issuer, and that is aligned with the GBP.
4. Secured Green Bond: a secured bond where the net proceeds will be exclusively applied to finance or refinance either:
   i. The Green Project(s) securing the specific bond only (a "Secured Green Collateral Bond"); or

ii. The Green Project(s) of the issuer, originator or sponsor, where such Green Projects may or may not be securing the specific bond in whole or in part (a “Secured Green Standard Bond”). A Secured Green Standard Bond may be a specific class or tranche of a larger transaction.

3) Green bond category (Sovereign green bond, 2022)

Green bond category	Examples of potential metrics
Renewable energy	• Installed renewable energy capacity (in MW). • Annual renewable energy generation (in MWh). • Annual GHG emissions avoided in tons of CO2e
Energy efficiency	• Number of energy efficiency equipment and appliances installed • Annual energy savings (in MWh). • Annual GHG emissions avoided in tons of CO2 emission
Sustainable management of natural resources	• Area of land or ocean conserved/recovered (km2). • Area (km2) of marine/forest reserves under active monitoring
Clean transportation	• Number of people who use new ecological public transport • Number of km of new electric train/road lines created/maintained • Annual GHG emissions avoided in tons of CO2 emission. • Air Quality improvement (PPM)
Sustainable water	• Volume of water collected and/or treated (m3) • Increased water efficiency of systems (% reduction in water consumption/loss) • Number of households that have access to new potable water supply
Green Building	• Level of certification by property • Annual energy savings (in MWh) • Annual GHG emissions avoided in tons of CO2e

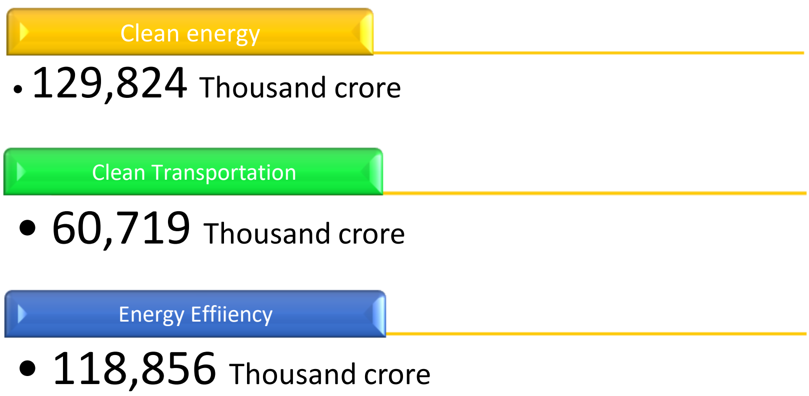
4) Status of green bond at national level

2015 – In the financial world of green bond, India entered with INR 1000 cr. With Yes bank and followed by CLP by INR 600 cr. 2016 – The Axis bank issued first international green bond with $ 500 million. 2016— SEBI launched green bonds guidelines. 2018— as of this year SEBI issued $650 million from green bonds. 2023— First sovereign green bond issued in India INR 80 Billion (Ms. AshimaVerma and Dr. Rachna Aggarwal, 2020)

Domestic sources of finance

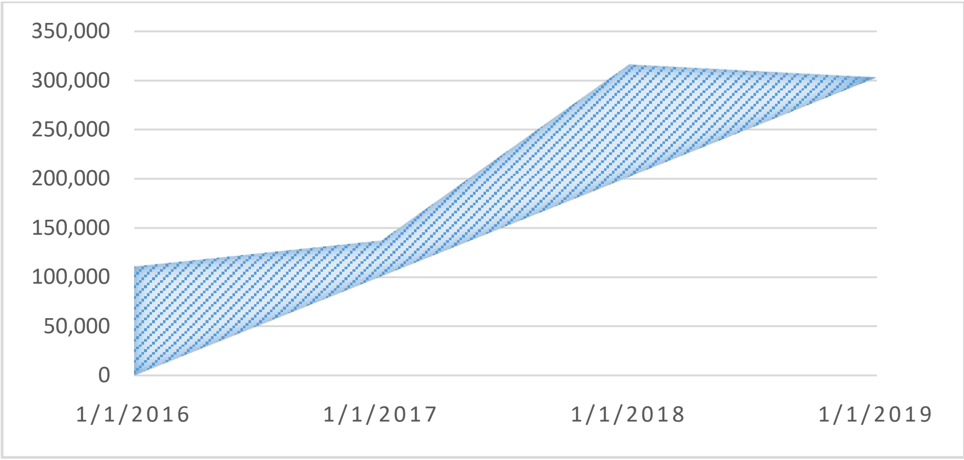
The landscape of green finance in India, In 2019/2020, tracked green finance was INR 309 thousand crore (USD 44 billion) per annum, which is lesser than the 1/4 of India’s needs. It is estimated that if India needs to achieve nationally distributed contribution (NDC) under the Paris agreement, India requires 162.5 lakh crore (USD 2.5 trillion) from 2015 to 2030 (Climate change Policy, 2020).

Finance flow to key real economy sector – clean energy, clean transport, and energy efficiency.



*Climate policy initiative

Growth of green bonds issued in India



*Climate policy initiative

Domestic sources continue to account for the majority of green finance, with 87% and 83% in FY2019 and FY2020, respectively. Of these domestic sources, the private sector contributed about 59%—INR 156.9 thousand crores (USD 22 billion) . Public sector flows were evenly distributed between Government Budgetary spends (Central and State) and PSUs at approximately 54% and 46% respectively.

Green bonds issuance based on sectors in India

The total fund flow towards mitigation was almost evenly divided between clean energy (42%) and energy efficiency (38%), with both sectors receiving significantly more funding than clean transport (17%). In the clean energy sector, funding was split equally between public and private sources, with Public sectors units (PSUs) contributing 35% and Commercial Financial Institutions (FIs) contributing 27%. Domestic flows dominated at 82%, compared to international inflows at 18%. Within the clean energy sector, solar projects attracted the most financial investment, receiving INR 54,000 crores in 2019/2020, which accounted for 41% of the total finance flows to the sector. Clean transportation, on the other hand, was primarily funded by public sources, which contributed 96% of the sectors total funding, amounting to INR 58,000 crores for FY2019/2020. Domestic finance inflows for clean transportation were significantly higher at 72%, compared to international flows at 27%, with 99% of the international funds coming from public sources. While finance flows to the Energy efficiency sector increased by 26% from FY2019 to FY2020, fund flows to process efficiency and green buildings decreased in FY2020 by 83% and 81% respectively.

5) Twenty green bonds issued in India from 2017 to 2024

S.no	Issuers name	Issuance date	Maturity date	Amount raised(Cr.)	Coupon (%)	Tenure (Years)	Area of investment
1	L&T Infrastructure Finance company limited	2017	2024	667	7.59	7.00	Renewable energy
2	Tata clean teach capital limited	2018	2023	180	8.74	5	Solar energy
3	Indian renewable energy development agency limited	2019	2029	275	8.51	10	Solar energy
4	Indian renewable energy development agency limited	2019	2029	590	8.47	10	Wind & Solar Energy
5	Ghaziabad Nagar Nigam	2021	2025 2026 2027 2028 2029 2030 2031	150	8.10	4.02 5.02 6.02 7.02 8.02 9.02 10.02	Water Treatment plant
6	Yarrow Infrastructure private limited	2021	2024	581	6.49	3.00	Solar energy
7	Priapus infrastructure limited	2021	2024	16	6.49	3.00	Renewable energy
8	Rattanindia Solar 2 private limited	2021	2024	227	6.49	3.00	Renewable energy
9	Malwa solar power generation private limited	2021	2024	197	6.49	3.00	Solar energy

10	Citra real estate limited	2021	2024	19	6.49	3.00	Renewable energy
11	Sepset construction limited	2021	2024	197	6.49	3.00	Renewable resources
12	Avaada solarrise energy private limited	2022	2025	499	6.75	2.00	Solar energy
13	Clean sustainable energy private limited	2022	2025	334	6.75	2.00	Solar energy
14	Fermi solarfarms private limited	2022	2025	337	6.75	2.00	Solar energy
15	Avaada SatarahMH private limited	2022	2025	270	6.75	2.00	Solar energy
16	Vikash telecom private limited	2022	2025	495	7.65	3.00	Solar energy
17	Indore municpal Corporation	2023	2026 2028 2030 2032	244	8.25	3.00 5.00 7.00 9.00	Sustainable development
18	Mindspace business parks REIT	2023	2026	550	8.02	3.00	Sustainable development
19	Ahmendabad municipal corporation	2024	2029	200	7.90	5.00	Climate resilient development
20	Vadodra Municpal corporation	2024	2029	100	7.09	5.00	Sewage treatment

*Source – SEBI website (https://www.sebi.gov.in/statistics/greenbonds.html)

Status of green bond at international level.

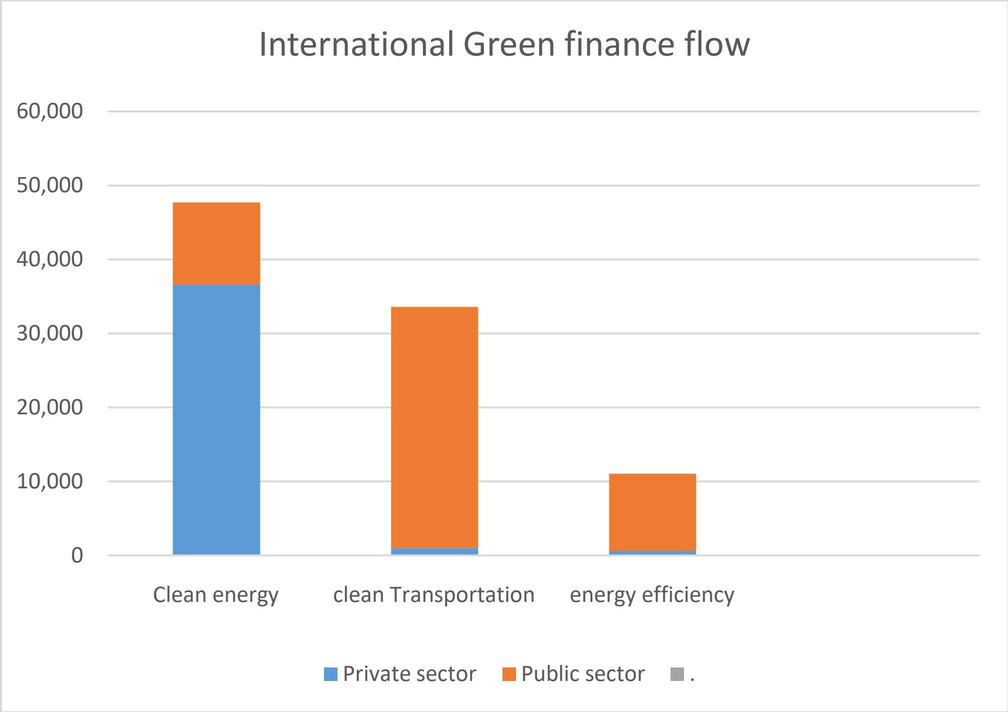
According to IFLR, (2019), Green bond and capital market,

- 2007 EIB and World Bank issue first green / climate awareness bonds.
- 2010 The Climate Bond Initiative launches the Climate Bond Standard and Certification Scheme.
- 2014 ICMA publishes the ICMA Green Bond Principles.
- 2015 UN Sustainable Development Goals and 2030 Agenda for Sustainable Development.
- 2016 Paris Agreement on Climate Change – ratified by 170 countries.
- 2018 Green bond issuance hits $167.3 billion.
- 2018 EU Commission publishes action plan on financing sustainable growth.
- 2019 Green bond issuance estimated to be over $200 billion.
- 2019 As part of EU action plan critical papers are published: guidelines on corporate climate related information reporting, classification system –taxonomy – for environmentally-sustainable economic activities, a voluntary EU green bond standard, EU climate benchmarks and benchmarks' ESG disclosures.

International source of finance

The share of international sources increased from 13% in FY 2019 to 17% in FY 2020. Public sources, such as Official Development Assistance (ODA) and Other Official Flows (OOF), constituted 60% of international finance over this two-year period. Foreign Direct Investment (FDI) flows saw a significant rise from FY2016-2018, reaching nearly INR 9,000 crores (USD 1.2 billion) in FY2020. Despite this increase, green finance still accounts for only about 3% of total FDI inflows to India.

As with previous years, clean energy was the highest-funded sector overall by international funders, accounting for 54% of total international financial flows. Clean transport accounted for 52% of total international public funding, its rise of over 300% from previous years attributed to the increase in public expenditure on Mass Rapid Transport System (MRTS), as well as the increased coverage of tracked sub-sectors in our analysis. As with domestic finance flows, international public sector funding of clean transport was higher than that of private. However, the difference was substantial here, with over 99% of the funding for clean transport coming from public sector. Climate policy initiative.



CONCLUSION

According to the World Bank report, 2023, in order to achieve India's 2030 climate targets submitted under Paris agreement, India needs $170 billion per year in investment. However, India receives $44 billion per year. That is approximately 1/4 of India's total need.

To fill this financial gap, India need not only government but private companies to come forward and help in achieving SDG goals by 2030 to protect our environment and save the resources for our next generation.

Green bond issuer needs to strictly use the finance raised on the name of climate for environment purposes only and not for companies personal goals. As per the list released by SEBI, twenty companies have issued green bonds and raised millions of dollars and that fund is used to achieve sustainable development goals of India.

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