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**Working Paper**

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# Accelerating green finance for a sustainable future

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## Abstract:

India's commitment to achieving net-zero emissions by 2070 is a significant step towards addressing climate change and reducing greenhouse gas emissions goal comes with several challenges. The banking sector can indeed play a crucial role in helping India meet its climate goals through green financing. The demand for sustainable and energy-efficient resources is on the rise due to the pressing need to address environmental challenges like climate change. However, ensuring the security of sustainable finance and promoting responsible investment in this sector does present significant challenges. Green financing refers to the practice of directing financial resources from various sectors such as banking, micro-credit, insurance, and investment towards projects and initiatives that promote sustainable development and have positive environmental and social impacts. The primary goal of green financing is to align financial flows with priorities related to environmental protection, social well-being, and long-term sustainability and recognizes the interconnectedness of economic, social, and environmental well-being. It encourages financial stakeholders to prioritize projects that not only generate profits but also contribute positively to the planet and society. Green and sustainable finance refers to financial practices and investments that prioritize environmental and social considerations alongside financial returns. This article focuses on the SEBI 's efforts on green bond principles and incorporating the market needs by green finance to support environmentally friendly projects, mitigate climate change, and promote social well-being. Promoting green and sustainable finance is crucial for addressing environmental challenges and creating a more equitable and resilient global economy. It requires collaboration between governments, financial institutions, investors, businesses, and civil society to drive positive change.

Key Words: Green Finance, Environment and Development, Environmental Economics, Financial Instruments, Government Policy and Regulation

JEL Code: Q56.Q58, G-23, G-28, Q-48, 54

## 1. INTRODUCTION:

Under the Paris Agreement 2015 and G 20 meeting 2016 have endorsed the global goal of committed to keeping global warming below 2 degree. In practice this means that governments took on the responsibility to finance climate actions. (Becker, 2017)

The financing gap for conservation, renewable energy, and climate-related projects is a significant challenge that needs to be addressed urgently. It is estimated that \$400-600 billion is needed annually to finance land, forest and water conservation, and more than \$350 billion in incremental capital – to finance renewable energy and energy projects efficiency. Today, less than 15% of required capital flows into conservation, with the majority coming from the public and philanthropic entities. The latest climate finance accounting shows there is a funding gap of about \$70 billion. It is therefore important to understand the ways in which we can use other resources to maintain health ecosystems on land and in the oceans. Green finance is one of many terms used to describe related activities to the two-way interaction between environment and finance and investment. It has partly become a household term in the last decade resulting in the creation of many national green investment banks and rapidly growing green bond market. But green finance is closely associated with related concepts such as climate finance and sustainable finance. A good description of what they each refer to is provided by the United Nations Program for the environment:

- Sustainable finance includes environmental, social and governance and economic aspects.
- Green finance includes climate finance but does not include social and economic aspects.
- Climate finance is a subset of environmental (green) finance.

Sustainable finance is therefore the broadest term that includes all financing activities that contribute to sustainable development. Green and sustainable finance refers to financial practices and investments that prioritize environmental and social considerations alongside financial returns. This approach aims to support environmentally friendly projects, mitigate climate change, and promote social well-being.

### ***Objective of the Study:***

- I. To study the influence of SEBI's efforts on green bond [debt security];
- II. To study the Governmental, Corporate and other Financial Institution's commitments towards mitigating climate change and promising more climate finance for developing countries to adapt to climate impacts;

### **2. Review of Literature:**

#### **Green finance in the literature:**

India's commitment to achieving net-zero emissions by 2070 is a significant step towards addressing climate change and reducing greenhouse gas emissions goal comes with several challenges. The banking sector can indeed play a crucial role in helping India meet its climate goals through green financing.<sup>1</sup>

Green finance is a rapidly evolving field that has gained significant attention in both academic and practitioner literature. Researchers, policymakers, financial institutions, and environmental organizations have contributed to discussions and research on various aspects of green finance. The literature on green finance is vast and multifaceted, reflecting the complex intersection of finance, sustainability, and environmental concerns. Researchers continue to explore new dimensions of green finance as the field evolves to address the challenges of climate change and environmental degradation. Here are some key aspects of green and sustainable finance:

- Environmental, Social, and Governance (ESG) Criteria: ESG criteria are used to evaluate the sustainability and ethical impact of investments. Environmental criteria assess a company's impact on the environment, social criteria evaluate its treatment of employees and communities, and governance criteria assess its leadership and management practices.
- Green Bonds: Green bonds are fixed-income securities specifically issued to fund environmentally friendly projects. The proceeds from these bonds are used for initiatives such as renewable energy, energy efficiency, clean transportation, and

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<sup>1</sup> <https://www.weforum.org/events/the-davos-agenda-2022>

sustainable agriculture.

- **Socially Responsible Investing (SRI):** SRI involves investing in companies that align with certain ethical and social values. Investors in SRI funds seek to support businesses that prioritize positive social impacts and ethical practices.
- **Impact Investing:** Impact investors actively seek to generate measurable positive social or environmental impacts alongside financial returns. Investments may target areas such as affordable housing, clean water, healthcare, and education.
- **Sustainable Development Goals (SDGs):** The United Nations' SDGs provide a framework for global development, including goals related to poverty, inequality, climate action, and more. Investors align their strategies with these goals to contribute to global sustainability.
- **Corporate Sustainability Reporting:** Companies are increasingly expected to disclose their ESG performance and impacts. This transparency helps investors and stakeholders assess a company's commitment to sustainability.
- **Green Banking and Lending:** Financial institutions are incorporating environmental considerations into their lending practices. They may offer preferential rates for green projects or develop specific loan products for renewable energy and energy-efficient initiatives.
- **Environmental Risk Assessment:** Financial institutions assess and manage their exposure to environmental risks, such as those related to climate change, resource scarcity, and pollution. This helps them make informed investment decisions.
- **Stakeholder Engagement:** Engaging with stakeholders, including investors, communities, and non-governmental organizations, helps financial institutions better understand their concerns and align their strategies with sustainable values.
- **Sustainability Indexes and Funds:** Various indexes and funds track the performance of companies that meet specific sustainability criteria. These tools help investors identify opportunities aligned with their values.
- **Regulations and Standards:** Governments and international organizations are introducing regulations and standards to promote green and sustainable finance. These frameworks provide guidance for financial institutions and investors in incorporating sustainability into their operations.

This study has tried to present such lines of guidance for India's commitment to addressing climate change and transitioning to clean energy sources while recognizing the substantial

investments required and the role of banks and financial institutions in achieving these goals. Promoting green and sustainable finance is crucial for addressing environmental challenges and creating a more equitable and resilient global economy. It requires collaboration between governments, financial institutions, investors, businesses, and civil society to drive positive change.

### **3. Green Finance Initiatives in India**

India had been taking steps to promote green finance and sustainable development. As India moves towards 2070, it is likely that these efforts will continue to evolve and expand. Key challenges on this path may include the need for further policy reforms, increased access to financing for green projects, and addressing socio-economic issues while pursuing sustainable development. India has been taking several steps to promote green finance initiatives in order to address environmental challenges and promote sustainable development. Green finance refers to financial products, services, and investments that prioritize environmental sustainability and contribute to the transition to a low-carbon and climate-resilient economy. India may need to adapt to evolving international agreements and standards related to green finance and climate change mitigation.

- **Green Bonds:** India has been active in issuing green bonds, which are financial instruments specifically used to fund environmentally friendly projects. These projects typically focus on renewable energy, energy efficiency, sustainable transportation, and waste management. Various public and private sector entities, including public financial institutions, have issued green bonds to attract investments for such projects.
- **Renewable Energy Financing:** India has set ambitious targets for increasing its renewable energy capacity, including solar and wind power. To support these targets, the government has facilitated financing mechanisms such as concessional loans, grants, and incentives to attract both domestic and foreign investments in renewable energy projects.
- **Sustainable Lending Practices:** Financial institutions, including banks and non-banking financial companies, have started integrating environmental and social factors into their lending decisions. This means that projects and companies with strong environmental and social credentials are more likely to receive favorable

financing terms.

- National Clean Energy Fund (NCEF): The NCEF was established to fund research and innovative projects in clean energy technologies. The fund is supported by a levy on coal produced in India. It aims to support activities related to clean energy development, energy efficiency, and sustainable transportation.
- Sustainable Development Goals (SDGs) Integration: India has aligned its financial policies with the United Nations' Sustainable Development Goals. This includes encouraging investments that contribute to achieving these goals, which cover areas such as clean water and sanitation, affordable and clean energy, climate action, and more.
- Green Rating Systems: India has introduced green rating systems for assessing the environmental performance of companies and projects. These ratings help investors and lenders make informed decisions based on the environmental sustainability of the entities they are investing in.
- National Adaptation Fund for Climate Change (NAFCC): This fund was established to support projects and initiatives that enhance climate resilience and adaptation. It provides financial assistance to projects aimed at reducing the vulnerability of communities to climate change impacts.
- International Solar Alliance (ISA): India is a founding member of the ISA, which is a platform for cooperation among solar-rich countries to promote the deployment of solar energy. The alliance facilitates financing mechanisms for solar projects and research.
- Regulatory Support: Regulatory bodies like the Securities and Exchange Board of India (SEBI) have introduced guidelines for companies looking to issue green bonds. These guidelines provide a framework for transparency and accountability in the use of proceeds from green bond issuance.

India's large population and its economy's carbon intensity have significant implications for global greenhouse gas emissions and climate change.

- Population Impact: With nearly 1.4 billion inhabitants, India is indeed the world's most populous country. The sheer size of its population means that any changes in its energy consumption, industrial activities, and lifestyle choices can have a substantial impact on global emissions.

- **Carbon Intensity:** The carbon intensity of an economy refers to the amount of carbon dioxide (CO<sub>2</sub>) emitted per unit of economic output (usually measured in GDP). India's economy, like many developing countries, has historically been carbon-intensive due to its reliance on industries like manufacturing, construction, and energy production that can emit large amounts of CO<sub>2</sub>.
- **Greenhouse Gas Emissions:** In 2021, India's greenhouse gas emissions amounted to around 3.9 billion CO<sub>2</sub>-equivalent tonnes. This placed India as the third-largest emitter of greenhouse gases globally, following China and the United States.
- **Emissions per Capita:** While India is a significant emitter on the global stage, its emissions per capita are comparatively lower than those of developed countries. In 2021, India's emissions per capita were about 2.8 CO<sub>2</sub>-equivalent tonnes. This is much lower than the world average of 6.9 and significantly below the emissions per capita of countries like the United States (17.5 CO<sub>2</sub>-equivalent tonnes).
- **Climate Change Implications:** Despite the lower emissions per capita, India's large population means that even relatively small per capita emissions contribute significantly to the overall global emissions. Additionally, as India's economy continues to grow and industrialize, there are concerns that its total emissions could rise substantially, exacerbating global climate change.

Efforts are being made to address these challenges. India has been taking steps to transition to cleaner and more sustainable forms of energy, increase energy efficiency, and enhance forest and ecosystem conservation. The country also signed the Paris Agreement, committing to specific emission reduction targets. However, there's a delicate balance to strike between economic development and emissions reduction, especially for developing countries like India. These nations often face the challenge of providing improved living standards for their populations while simultaneously addressing climate change concerns. International cooperation and support are crucial in achieving a sustainable and equitable solution to the global climate crisis.

### **Background: India's longstanding commitment to the environment:**

India has had a longstanding commitment to the environment, driven by its rich cultural heritage, natural diversity, and recognition of the importance of sustainable development.

- **Cultural and Spiritual Significance:** India's diverse cultural and spiritual traditions

emphasize the interconnectedness of all life forms and the need for harmony with nature. Concepts such as "Vasudhaiva Kutumbakam" (the world is one family) reflect this perspective.

- **Legislative Framework:** India has enacted several laws and policies to protect the environment. The Water (Prevention and Control of Pollution) Act, the Air (Prevention and Control of Pollution) Act, and the Wildlife Protection Act are some examples. The Environmental Impact Assessment (EIA) process is also a crucial tool for evaluating the potential environmental impact of development projects.
- **International Commitments:** India is a signatory to various international agreements and conventions related to environmental conservation and sustainable development, including the Paris Agreement on climate change, the Convention on Biological Diversity, and the Ramsar Convention on wetlands.
- **Renewable Energy:** India has been increasing its focus on renewable energy sources such as solar, wind, and hydropower. The country aims to significantly increase its renewable energy capacity to reduce its carbon footprint and dependency on fossil fuels.
- **Afforestation and Biodiversity Conservation:** India has implemented afforestation and reforestation programs to combat deforestation and habitat loss. It has also established a network of national parks, wildlife sanctuaries, and biosphere reserves to protect its rich biodiversity.
- **Sustainable Agriculture:** India has promoted sustainable agricultural practices, including organic farming and agroforestry, to reduce the negative environmental impact of conventional farming methods.
- **Waste Management:** The Swachh Bharat Abhiyan (Clean India Campaign) was launched to address issues of sanitation, waste management, and cleanliness. Efforts are being made to manage waste more effectively and promote recycling.
- **Air and Water Quality:** India has been taking measures to improve air and water quality, especially in urban areas facing pollution challenges. Initiatives include promoting cleaner technologies, vehicle emission standards, and wastewater treatment.
- **Green Technology and Innovation:** The Indian government and various organizations are investing in research and development of green technologies to address environmental challenges, such as pollution control and sustainable resource utilization.

- **Public Awareness and Education:** There's a growing emphasis on educating the public about environmental issues and encouraging sustainable practices. Programs and campaigns are launched to raise awareness about conservation and the importance of protecting natural resources.

However, it's important to note that India also faces significant environmental challenges, such as air and water pollution, deforestation, loss of biodiversity, and the impacts of climate change. While the commitment to the environment is strong, there's a need for continuous efforts to balance economic growth with environmental protection.

#### **4. Green Finance: the way for India's sustainable future:**

*“Sustainable development is the pathway to the future we want for all. It offers a framework to generate economic growth, achieve social justice, exercise environmental stewardship and strengthen governance.”*

Ban Ki-moon, United Nations Secretary-General

India has made progress in its efforts to address climate change and has improved its ranking in the Climate Change Performance Index (CCPI). The fact that India benefits from low per capita emissions and energy use is a positive sign, especially considering its large population. The growing share of renewable energy also reflects a commitment to transitioning towards more sustainable energy sources. The update to India's Nationally Determined Contribution (NDC) and the announcement of a net-zero target for 2070 show that the country is taking steps to align its climate goals with the global effort to limit global warming. However, as you mentioned, there are some challenges and gaps that experts have highlighted. The absence of a carbon pricing mechanism is a significant issue, as carbon pricing can play a crucial role in incentivizing emission reductions and promoting the transition to low-carbon technologies. By putting a price on carbon emissions, industries and individuals are encouraged to reduce their emissions and invest in cleaner alternatives. Concrete action plans are essential to ensure that the targets set in the NDC and the net-zero commitment are achieved. These plans should outline specific measures, policies, and strategies that the country will implement to reduce emissions, increase renewable energy capacity, and transition to a more sustainable economy. Clear and comprehensive action plans provide a

roadmap for achieving climate goals and help track progress along the way. It's important for India, like all countries, to have a comprehensive approach that combines policy frameworks, technological innovation, and investment in renewable energy infrastructure, public awareness campaigns, and international cooperation. By addressing the gaps mentioned and working towards implementing effective policies and strategies, India can continue to make meaningful contributions to global climate efforts while achieving its own environmental and sustainable development goals.<sup>2</sup>

Countries such as **Chile**, **Morocco** and **India** (ranked 6 to 8) have consistently performed well in the CCPI and are closing in on leading countries such as **Denmark** and **Sweden** (ranked 4 and 5).<sup>3</sup> The "Make in India" program and the National Manufacturing Policy of 2011 reflect the Indian government's strong emphasis on reviving and strengthening the manufacturing sector in the country. This effort is aimed at increasing the sector's contribution to the GDP, creating jobs, and promoting sustainable practices. By promoting "Make in India" and emphasizing green manufacturing practices, the Indian government aims to strengthen the manufacturing sector's role in the economy while ensuring environmental sustainability and creating employment opportunities. India is taking ambitious steps towards inclusive and sustainable development. Mobilizing low-cost, long-term capital for green assets is crucial for achieving these goals. The collaboration between the United Nations Environment Programme (UNEP) and the Federation of Indian Chambers of Commerce and Industry (FICCI) demonstrates a commitment to finding innovative solutions for attracting private capital to support green initiatives in India.<sup>4</sup> Green finance plays a crucial role in India's journey towards a sustainable future. As one of the world's most populous and rapidly developing countries, India faces significant environmental and social challenges, including air and water pollution, climate change, and inequality. Green finance offers a pathway to address these challenges while fostering economic growth and stability. Here's how green finance can contribute to India's sustainable future:

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<sup>2</sup> [https://wedocs.unep.org/bitstream/handle/20.500.11822/7525/-Delivering\\_a\\_Sustainable\\_Financial\\_System\\_in\\_India\\_-\\_Final\\_report-2016Delivering\\_a\\_Sustainable\\_Financial\\_System\\_in\\_India.pdf.pdf?sequence=3&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/7525/-Delivering_a_Sustainable_Financial_System_in_India_-_Final_report-2016Delivering_a_Sustainable_Financial_System_in_India.pdf.pdf?sequence=3&isAllowed=y)

<sup>3</sup> <https://germanwatch.org/en>

<sup>4</sup> [https://wedocs.unep.org/bitstream/handle/20.500.11822/7525/-Delivering\\_a\\_Sustainable\\_Financial\\_System\\_in\\_India\\_-\\_Final\\_report-2016Delivering\\_a\\_Sustainable\\_Financial\\_System\\_in\\_India.pdf.pdf?sequence=3&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/7525/-Delivering_a_Sustainable_Financial_System_in_India_-_Final_report-2016Delivering_a_Sustainable_Financial_System_in_India.pdf.pdf?sequence=3&isAllowed=y)

- **Funding Renewable Energy and Clean Technologies:** India is making substantial strides in expanding its renewable energy capacity, particularly solar and wind power. Green finance channels investments into these sectors, supporting the transition from fossil fuels to clean energy sources. This not only helps reduce carbon emissions but also creates job opportunities and stimulates economic growth.
- **Enhancing Energy Efficiency:** Green finance can fund projects aimed at improving energy efficiency in industries, buildings, and transportation. By reducing energy consumption, India can decrease its greenhouse gas emissions and reliance on imported fossil fuels, leading to long-term cost savings and environmental benefits.
- **Emission Reduction and Climate Mitigation:** Green finance can support projects that directly contribute to reducing greenhouse gas emissions, such as afforestation, reforestation, and sustainable land use. These initiatives help India meet its commitments under the Paris Agreement and address the challenges posed by climate change.
- **Adaptation to Climate Change:** India is vulnerable to the impacts of climate change, including extreme weather events and rising sea levels. Green finance can fund projects that enhance climate resilience, such as building flood-resistant infrastructure, promoting sustainable agriculture practices, and establishing early warning systems.
- **Promoting Sustainable Infrastructure:** As India continues to urbanize, there is a growing need for sustainable urban infrastructure, including public transportation, waste management, and green buildings. Green finance can provide the necessary funding to develop these projects in an environmentally and socially responsible manner.
- **Encouraging Socially Responsible Investments:** Green finance also includes social considerations, promoting investments that prioritize social well-being, equity, and inclusivity. This can lead to projects that provide clean water, sanitation, education, and healthcare to underserved communities.
- **Private Sector Engagement:** Green finance encourages private sector involvement in sustainable development. By offering financial incentives, such as tax benefits and subsidies, the government can attract private investments in green projects and technologies.
- **Risk Management and Long-Term Sustainability:** Financial institutions and investors are becoming more aware of environmental and social risks that could affect their

portfolios in the long run. Green finance promotes risk management by integrating environmental and social factors into investment decisions, fostering more resilient and sustainable financial systems.

- **Creating Jobs and Economic Growth:** The green finance sector has the potential to generate new employment opportunities across various industries, from renewable energy installation to sustainable agriculture. This can contribute to economic growth while also addressing social and environmental challenges.
- **Policy Support and Regulation:** Governments can play a significant role in promoting green finance by enacting policies and regulations that incentivize sustainable investments and penalize environmentally harmful practices.

So green finance provides a comprehensive framework for financing and promoting sustainable development in India. By channeling investments towards environmentally friendly and socially responsible projects, India can build a resilient economy, mitigate the impacts of climate change, and improve the overall quality of life for its citizens. However, achieving these goals will require collaboration between governments, financial institutions, businesses, and civil society to create a robust green finance ecosystem.

## **5. SEBI consultation on Green Finance**

“Developing countries like India are particularly vulnerable to the impacts of the climate crisis. Financial institutions have a vital role to play in helping developing countries like India mitigate and adapt to the impacts of the climate crisis.” SEBI had introduced guidelines for the issuance and listing of green bonds in India. Green bonds are debt instruments where the proceeds are exclusively used for financing or refinancing projects and activities that have environmental benefits. SEBI's guidelines for green bonds were aimed at encouraging companies and institutions to raise funds for green projects and activities. The world still faces an impact of 4 per cent on its GDP even if the Paris Agreement targets to mitigate greenhouse emissions are met. The economies of developing nations like India are more likely to be affected by such an impending impact. In such a scenario, financial institutions play a crucial role in developing strategies to safeguard our economy from risks brought on by climate change.<sup>5</sup> The Paris Agreement targets to mitigate greenhouse emissions are met;

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<sup>5</sup> <https://www.downtoearth.org.in/blog/energy/sebi-s-green-and-blue-bonds-are-they-the-sustainable-finance-that-india-needs--85148>

there will still be a significant impact on the global GDP due to the effects of climate change. Developing nations like India are particularly vulnerable to these impacts, as they often have limited resources to adapt to and mitigate the consequences of climate change. In such a scenario, the role of financial institutions becomes crucial in developing strategies to safeguard the economy from climate-related risks. The Securities Exchange Board of India (SEBI) and the Reserve Bank of India (RBI) are indeed key players in this regard. The Securities and Exchange Board of India (SEBI) had indeed introduced significant enhancements in its green debt circular. One of the key provisions in this circular was the requirement to appoint an independent third-party reviewer/certifier for both pre and post green bond issuance. This move aimed to enhance transparency, credibility, and the overall integrity of green bonds in the Indian financial market.<sup>6</sup> (Shantanu Srivastava, 2023) Its provision works on pre-issuance certification and post-issuance verification aimed to address concerns related to green washing (misrepresentation of environmental credentials) and boost investor confidence in green bonds. It also helps in standardizing the evaluation and reporting processes associated with green bonds, making it easier for investors to assess the environmental impact of their investments. The Securities and Exchange Board of India (SEBI) is taking steps to promote Sustainable Finance through green and blue bonds. Sustainable Finance is indeed a crucial aspect of modern financial systems, as it aligns investment decisions with environmental, social, and governance (ESG) considerations, fostering long-term investments in sustainable projects and economic activities like consultation paper on Green and Blue Bonds, Green Debt Securities enhanced disclosures, as well as motivational interests of other stakeholders, including the environment and society.<sup>7</sup> (Reports for Public Comments, 2023)

SEBI's efforts to strengthen the green and blue bond framework and promote sustainable finance align with global trends in ESG investing and corporate responsibility. These initiatives can help India attract investments in environmentally and socially responsible projects while addressing climate change and sustainability challenges. It's important for stakeholders, including investors and businesses, to engage in the consultation process and contribute to shaping these regulations for a more sustainable financial future.

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<sup>6</sup> <https://www.financialexpress.com/opinion/a-boost-for-green-bonds/3021644/>

<sup>7</sup> [https://www.sebi.gov.in/reports-and-statistics/reports/aug-2022/consultation-paper-on-green-and-blue-bonds-as-a-mode-of-sustainable-finance\\_61636.html](https://www.sebi.gov.in/reports-and-statistics/reports/aug-2022/consultation-paper-on-green-and-blue-bonds-as-a-mode-of-sustainable-finance_61636.html)

Therefore it can be said that the SEBI needs additional effort, attention, or development. It implies that there is a need for improvement in science-based taxonomy to classify eligible projects as part of any green debt issuance, including eligibility criteria for green hydrogen and associated value chains. Due to India's need for capital to fund its NDCs and overall energy transition efforts, dedicated green capital from global ESG investors will be necessary.

SEBI needs proper rules and regulations for implementation in the following sections;

- Improvement in Science-Based Taxonomy
- Eligibility Criteria for Green Hydrogen
- Capital for India's NDCs and Energy Transition:
- Global ESG Investors,
- ESG Ecosystem
- Credibility of Domestic Issuances

In summary, there is need for regulatory improvements, clear guidelines, and a supportive ecosystem to facilitate green debt issuance and attract global ESG investments. This is particularly important for India's efforts to meet its climate goals and transition to cleaner energy sources.

## **6. Governmental and other Financial Institution's commitment in green bond issuance:**

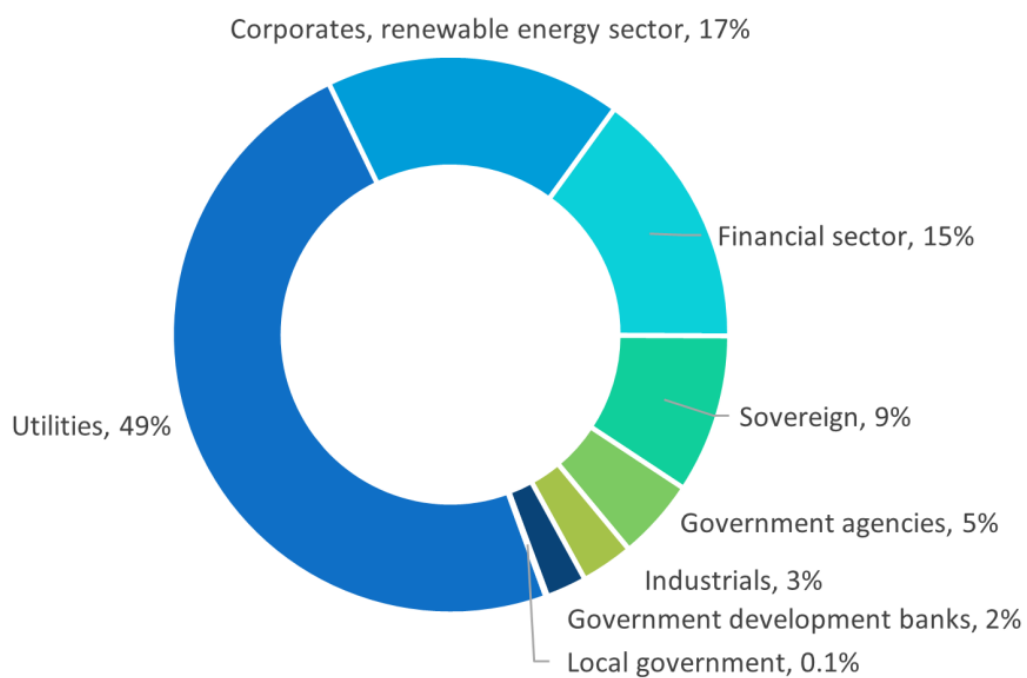
Most of the countries have set net-zero targets with plans to reach them by 2050, and some private companies are also taking steps to become climate-positive.<sup>8</sup> Getting to net zero will require a series of decisions that the government and financial institutions can support. In 2021, at COP-26, India announced an ambitious target for achieving net zero GHG-emission by 2070. This requires investment in research for developing cost-efficient technologies and domestic manufacturing of equipment. (Gupta, 2023)

India's commitment to green finance and sustainability led to the issuance of significant amounts of green bonds to attract capital for its renewable energy and environmental projects.

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<sup>8</sup> <https://www.slideshare.net/WorldResources/net-zero-targets-which-countries-have-them-and-how-they-stack-up>

The Indian government and various financial institutions recognized the potential of green bonds to not only fund important initiatives but also to showcase the country's dedication to addressing climate change and environmental concerns. The Government of India's entry into the green bond market can have significant positive impacts on India's efforts to transition towards a more sustainable and climate-friendly future. Green bonds are a type of financial instrument specifically designed to raise capital for projects that have positive environmental or climate-related benefits.



*Figure 1 - Green bond amounts issued in India by type of issuer. Source: World Bank with data*

In the context of India, it's impressive that green bond issuances have reached a total of \$21 billion as of February 2023. This reflects a significant commitment from investors and issuers to support sustainable development in the country. These funds can be directed towards projects such as renewable energy installations, energy-efficient buildings, clean transportation, waste management, and more. By investing in green bonds, investors not only contribute to positive environmental outcomes but also potentially gain access to a diverse range of investment opportunities. These bonds often come with reporting and transparency requirements to ensure that the funds are used for their intended purposes, giving investors' confidence that their money is making a difference.

There are challenges with any major transformations, whether they involve digitalization,

globalization, sustainability initiatives, or any other strategic shift, do come with challenges. However, they also present significant opportunities for finance to lead the way and role in guiding their organizations through these changes over the coming years through;

- **Data-Driven Decision-Making:** Finance teams have access to vast amounts of data. By harnessing this data effectively, they can provide valuable insights for informed decision-making across the organization. This includes predictive analytics, cost-benefit analysis, and financial modeling to assess the impact of various transformation initiatives.
- **Risk Management:** Finance is well-equipped to assess and manage the risks associated with major transformations. By conducting thorough risk assessments and developing risk mitigation strategies, finance teams can help ensure that the organization's transformation efforts proceed smoothly and with minimal disruptions.
- **Financial Planning and Budgeting:** Finance plays a crucial role in developing and managing budgets for transformation projects. This involves allocating resources effectively, monitoring spending, and ensuring that financial goals align with the broader strategic objectives of the organization.
- **Cost Optimization:** Transformation often involves significant investments. Finance can lead efforts to optimize costs by identifying areas of inefficiency, reallocating resources, and ensuring that the organization gets the best value for its investments.
- **Compliance and Governance:** Finance is responsible for ensuring that the organization complies with relevant regulations and governance standards. This becomes even more critical during times of transformation when new risks and compliance requirements may arise.
- **Sustainability and ESG (Environmental, Social, and Governance) Initiatives:** As sustainability becomes a more prominent consideration for organizations, finance can lead efforts to integrate ESG metrics into financial reporting and decision-making processes.
- **Technology Adoption:** Finance can champion the adoption of new technologies, such as advanced analytics, artificial intelligence, and block chain, to streamline processes, improve financial visibility, and enhance decision support.
- **Talent and Skill Development:** Finance teams need to develop new skills and capabilities to keep pace with evolving business needs. This includes data analytics, digital literacy, and a broader understanding of the organization's strategic goals.

- **Communication and Stakeholder Engagement:** Finance can help bridge the gap between different departments and stakeholders by providing clear financial communication and aligning financial strategies with the organization's overall mission and vision.

While major transformations can be challenging, they present finance with an opportunity to be at the forefront of guiding organizations toward their strategic goals. By leveraging their financial expertise, data analytics capabilities, and strategic thinking, finance professionals can contribute significantly to the success of transformation initiatives through establishing green finance system in India. Establishing a green finance system in India presents unique challenges and opportunities given the country's economic landscape, environmental concerns, and developmental needs. Establishing a green finance system is crucial for promoting sustainable economic growth, mitigating climate change, and fostering environmentally friendly practices within the financial sector. Good ethical policy is needed to consider when setting up a green finance system as;

- **Clear Policy Framework and Targets:** Define a clear policy framework that outlines the objectives, principles, and goals of the green finance system. Set specific targets for green investments, renewable energy adoption, emission reductions, and other relevant metrics.
- **Regulatory Support:** Develop and enforce regulations that encourage green investments and penalize environmentally harmful practices. Implement mandatory disclosure requirements for environmental, social, and governance (ESG) factors to enhance transparency.
- **Incentives and Subsidies:** Offer financial incentives, tax breaks, and subsidies to encourage both investors and financial institutions to invest in green projects. These could include reduced interest rates for green loans or grants for research and development in sustainable technologies.
- **Green Bond Market Development:** Foster the development of a robust green bond market by creating standardized guidelines for green bond issuance. Provide support for certification and verification processes to ensure the credibility of green bonds.
- **Capacity Building:** Invest in educational programs and training to build the capacity of financial professionals, regulators, and investors in understanding green finance concepts and practices.
- **Risk Assessment and Management:** Establish methodologies for assessing and

managing environmental risks in investment portfolios. Encourage the integration of climate risk assessments into financial decision-making processes.

- **Green Financial Products and Services:** Encourage financial institutions to offer a range of green financial products and services, such as green loans, green mortgages, and green insurance, to facilitate sustainable consumer and business behavior.
- **Collaboration and Partnerships:** Foster collaboration between government agencies, financial institutions, academia, NGOs, and other stakeholders to share knowledge, best practices, and resources for green finance initiatives.
- **Data Collection and Reporting:** Develop a comprehensive data collection and reporting system to monitor progress towards green finance objectives. This data can also help investors make informed decisions and drive accountability.
- **International Alignment:** Ensure that the green finance system is aligned with international standards, such as the Principles for Responsible Banking (PRB) and the Task Force on Climate-related Financial Disclosures (TCFD), to attract international investment and cooperation.
- **Sustainable Infrastructure Investment:** Prioritize investments in sustainable infrastructure projects, such as renewable energy, public transportation, and energy-efficient buildings, which can contribute to long-term environmental and economic benefits.
- **Public Awareness and Engagement:** Raise public awareness about the importance of green finance and sustainable investing. Encourage consumer choices that support environmentally friendly products and services.
- **Progress Monitoring and Review:** Establish mechanisms for regular monitoring, evaluation, and review of the green finance system's effectiveness. Adapt policies as needed based on the outcomes and changing environmental and economic conditions.

Successful implementation of a green finance system requires a multi-faceted approach involving collaboration among various stakeholders, a long-term perspective, and a commitment to sustainability. Leveraging Private Finance for the growth of green finance markets represents an emerging opportunity for both the private sector investment and project developers. The growth of green finance markets presents a significant opportunity for both the private sector and project developers to contribute to sustainable development and environmental conservation. It includes a range of investment options that focus on renewable energy, energy efficiency, sustainable infrastructure, and other environmentally

beneficial activities. As the green finance market expands, it encourages innovation in technology, business models, and financial instruments that support sustainable initiatives. The growth of green finance can drive the development of new industries and job opportunities in areas like renewable energy, energy efficiency, sustainable agriculture, and more.

## **Conclusion;**

India's commitment to achieving net-zero emissions by 2070 is a significant step towards addressing climate change and reducing greenhouse gas emissions goal comes with several challenges. The banking sector can indeed play a crucial role in helping India meet its climate goals through green financing. The Prime Minister has also committed to bringing down projected carbon emissions by 1 billion tonnes between 2021 and 2030. This demonstrates a dedication to reducing India's carbon footprint. India aims to produce 500 gigawatts (GW) of energy from non-fossil sources by the year 2030. This is a substantial goal that involves transitioning to renewable energy sources such as solar, wind, hydro, and nuclear power. The Council on Energy, Environment, and Water (CEEW) estimates that over \$10 trillion in investments would be needed to achieve net-zero emissions by 2070. These investments would primarily focus on decarbonizing India's power, industrial, and transport sectors. However, there is also a significant investment shortfall estimated at \$3.5 trillion in India's net-zero ambition. Finance plays a crucial role in helping an organization transform its processes and postures to integrate sustainability considerations into its daily business operations and long-term strategy. By leveraging financial expertise and tools, organizations can effectively integrate sustainability into their core business operations and ensure that these considerations are not just an afterthought but an integral part of their daily business life and future strategy. This approach not only benefits the environment and society but also enhances the organization's long-term financial sustainability and competitiveness. Green financing is essential for achieving India's climate goals, it should be part of a broader strategy that includes regulatory support, technological innovation, and public awareness campaigns. By aligning financial institutions with the country's climate objectives, India can make substantial progress toward a sustainable, low-carbon future. The Banks and financial institutions will need to support and finance projects and initiatives related to clean energy, sustainability, and climate mitigation.

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