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A Study of Green Finance in India: its Trends, Initiatives and Challenges

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ABSTRACT

Green finance refers to the allocation of financial resources towards endeavors that promote sustainable development. Green finance is significant as it is the first coordinated attempt made by the financial industry to integrate financial performance with a good influence on the environment. This makes green finance a revolutionary concept. In order to achieve sustainability, the right green financing products are now being developed. Along with presenting the numerous green financing projects being undertaken by organizations and institutions in India, this article highlights current developments in environmentally responsible practices in the rapidly developing nation of India. In addition to this, it explores the difficulties that arise with green finance in India. The article concludes that green finance has the potential to make a significant difference in the environment, society, and for the mitigation of climate change; however, there are many challenges that exist, such as the lack of awareness about green finance, inconsistent definitions of green finance, lack of policy coordination for green financing, inconsistent policies, and lack of profitable incentives to investors and financial institutions who are willing to invest in climate change mitigation.

Keywords: *green finance; climate change; green bonds; energy efficiency*

INTRODUCTION

The phenomenon of climate change has been observed to have significant detrimental impacts on various aspects of our planet, including its ecological systems, economic activities, and the stability of the financial system. The occurrence of frequent natural disasters in different regions of the world has prompted concerns and cautions over the long-term viability of human actions. There is an increasing inclination presently to exhibit greater responsibility in safeguarding and conserving the environment, through the attainment of net-zero emissions, with the aim of benefiting forthcoming generations. [2]

Governments have exhibited a growing sense of prudence towards this matter and have reached a consensus to adhere to and adhere to the principles outlined in the Sustainable Development Goals (SDGs) and the Paris Agreement (established in 2015). The Paris Agreement emphasizes the imperative of keeping global warming well below 2 degrees Celsius and urges nations to exert their utmost endeavors to restrict the temperature increase to 1.5 degrees Celsius, relative to pre-industrial levels (The term "pre-industrial level" denotes the historical era preceding the onset of the industrial revolution, commonly associated with the 19th century, during which discernible indications of climate change began to emerge). [1]

A substantial investment is required to address the issue at hand. In order to uphold the 2 °C temperature limit outlined in the Paris Agreement, it is estimated that a total of $53 trillion in energy-related investments will be necessary by the year 2035.(International Energy Agency (IEA), 2014).[11]

The advancement of China's renewable energy sector is heavily reliant on the crucial factor of financial development. The Green Climate Fund (GCF) was formed in 2010 by a collective of 194 countries with the primary objective of offering financial assistance to developing nations in their efforts to both cut greenhouse gas (GHG) emissions and adapt to the impacts of climate change. Subsequently, the phrase "green finance" has become a recurring topic in publications by international organizations (IFC, 2017) and many national governments. [15]

Green finance is a strategic methodology aimed at integrating the financial sector into the transition towards economies that are low in carbon emissions and resource consumption. This approach is particularly relevant in the context of adapting to the impacts of climate change.Green financing aims to achieve economic growth, environmental improvement, and the development of the finance industry concurrently. It is a form of targeted financing that seeks to channel adequate funds into specific areas by means of public agency intervention in the market process. This intervention is necessary as the autonomous market mechanism is deemed insufficient in providing the necessary funds for green economic activities. [14]

Thus, Green Finance can be defined as the deliberate alignment of the financial sector with the objective of promoting projects that aim to mitigate climate change, advance renewable energy, reduce carbon emissions, optimize resource utilization, and ultimately contribute to the development of a more environmentally sustainable economy. Green finance encompasses three primary components: environmental enhancement, the financial sector, and economic expansion. [1]

Green initiatives have the potential to not only mitigate carbon emissions, but also promote energy security and self-sufficiency, aligning with the objectives outlined in the Sustainable Development Goals and the Paris Agreement. [1]

OBJECTIVES OF THE STUDY

1. To comprehend the various organizations' and institutions' green financing initiatives in India.
2. To analyze the trends in green financing in India.
3. To analyze the obstacles encountered in the realm of green financing within the context of India.

Green financing Trends and Initiatives in India

Green finance is a term used to describe the organized financial activities that are designed to support sustainable development objectives. These activities take the shape of financial products that are specifically targeted towards promoting sustainability. Despite being in its early stages, India's green finance sector is showing a clear commitment to sustainability through its G20 chairmanship in 2023, as evidenced by its tagline "One Earth, One Family, One Future." This aligns with the nation's obligations as stated at the United Nations Climate Change

Conference in Glasgow (COP26) to attain carbon neutrality by the year 2070. However, the attainment of these objectives necessitates a substantial influx of capital and the establishment of a robust regulatory framework. [1]

Green Projects Financing

Emerging financial mechanisms, such as green bonds, carbon market instruments like carbon tax, and novel financial organizations like green banks and green funds, are being established with the purpose of funding environmentally sustainable initiatives. To a great extent green bonds have emerged as the primary means of financing environmentally sustainable projects in India. Green bonds refer to a type of financial instrument that is issued by various entities such as sovereign governments, inter-governmental organizations, or corporations. The primary objective of these bonds is to raise funds specifically designated for promoting ecologically sustainable development. India is now positioned as the second largest emerging market for green bonds, following China, when considering the value of green bond issuance.

1. **Green Bonds**

In light of the Indian government's objective to augment renewable energy capacity to 175 GW by 2022, it is projected that substantial financial resources will be necessary to support this industry. Hence, there arose a necessity to develop novel mechanisms for funding renewable energy initiatives, and green infrastructure bonds emerged as a distinct channel that may facilitate the allocation of financial resources towards clean energy projects. [3]

During the UN Climate Summit in September 2014, YES BANK made a pledge to allocate investments towards the generation of 500 MW of power on an annual basis. Subsequently, the bank increased this promise to a total of 5000 MW over a span of five years, commencing in February 2015. Recognizing the potential of green bonds, YES BANK identified an opportunity to showcase their efficacy inside a developing economy. [4]

Green Bonds by YES BANK

February, 2015: YES BANK has made a notable move by issuing India's inaugural Green Bonds, which received a rating of AA+ by CARE. This issuance, amounting to INR 10 billion, is one of the earliest instances among emerging nations and aligns with the Green Bond Principles. The initial intention for the bond was to be INR 5 billion, with an additional green shoe option. This offering saw significant oversubscription, with demand coming from prominent investors such as insurance firms, pension and provident funds, foreign portfolio investors, new pension schemes, and mutual funds. [4]

August, 2015: The bank successfully secured INR 3.15 billion through a private placement with the International Finance Corporation (IFC) for its second issuance of a 10-year green bond. This is the inaugural investment made by the International Finance Corporation (IFC) in a green bond offering within emerging economies, representing a significant milestone in the field. [3]

September, 2016: YES BANK successfully raised INR 3.30 billion by issuing 7-year Green Infrastructure Bonds to FMO, the Dutch Development Bank, under a private placement arrangement. This is the inaugural investment by FMO in a Green Bond issued by a financial institution in India. [3]

KPMG, India has rendered assurance services for the fiscal year 2015-2016, pertaining to the utilization of funds in alignment with the Green Bond Principles, with respect to the initial and subsequent green bonds released by YES BANK. [3]

The Climate Bonds Initiative recognized YES BANK as a Green Bond Pioneer in the category of "Pioneers in Emerging Markets- India" for their inaugural issue of green bonds in February 2015. [4]

2. Green Credit Card

Waste Management utilizes green credit cards to support its sustainable financial initiatives, so users can accrue supplementary incentives for environmentally-friendly financing on each dollar expended with the company. If an individual allocates a substantial portion of their financial resources towards environmentally-friendly initiatives on a monthly basis, it may be worthwhile to consider exploring this particular choice. [13]

3. Solar Investment Trusts (SEITs)

The utilization of a Solar Investment Trust serves as a means for small-scale industrial and commercial rooftop solar developers in India to secure equity funding at a reduced cost of financing. The trust bears resemblance to a mutual fund, albeit with a key distinction: the trust has the ability to directly hold project special purpose entities (SPVs), whereas mutual funds often hold shares of the company at the corporate level rather than at the project SPV level. To achieve India's rooftop solar capacity goal of 40 GW by 2022, a substantial capital expenditure of approximately $40-50 billion is necessary. This aim represents a significant increase from the existing capacity of 1.3 GW. [5]

4. Sovereign Green Bonds

On January 25, 2023, the Government of India officially became a member of the Sovereign Green Bonds Club. This was accomplished through the Ministry of Finance, which successfully priced a two-tranche deal totaling INR 80 billion (equivalent to USD 1 billion), with an equal split between five-year and ten-year tenors. [6]

The offering garnered significant oversubscription, exceeding four times the initial demand. As a result, the primary market experienced a reduction in the spread of two basis points for the 10-year tranche and three basis points for the 5-year tranche. Both tranches were priced at rates lower than those on the yield curve, resulting in a greenium, which refers to reduced financing costs. According to the Reserve Bank of India, the allocation of the five-year bond was made to a total of 32 investors, while the 10-year bond was allotted to a larger group of 57 investors. [6]

On February 9th, each tranche was reopened, resulting in an increase of INR 40 billion (USD 500 million) in India's overall green liabilities, bringing the total to INR 160 billion (USD 2 billion). The Ministry of Finance (MoF) was able to get more cost-effective financing for this funding cycle due to the bonds remaining within the yield curve. [6]

5. Sustainable Equity Fund (SEF)

A Sustainable Equity Fund (SEF) can be classified as a form of investment fund. The fund prioritizes investments in enterprises that demonstrate a favorable influence on both the environment and society. Furthermore, it is also meant to generate financial rewards for investors. These funds often aim to invest in companies that exhibit ecologically and socially responsible activities. For instance, the implementation of strategies aimed at mitigating carbon emissions, fostering diversity and inclusion, and assuring the ethical management of supply chains. The primary objective of a Sustainable Equity Fund is to advance the principles of sustainability while simultaneously generating financial gains for investors. [7]

The Bajaj Allianz Life Sustainable Equity Fund has been recently introduced by Bajaj Allianz Life Insurance, a prominent life insurance provider in India. The objective of the fund is to provide consumers with the chance to invest in socially responsible enterprises that have undergone assessment based on pertinent Environment (E), Social (S), and Governance (G) criteria. The Fund will allocate its investments towards enterprises exhibiting elevated ESG scores, ultimately prioritizing companies that are encompassed inside benchmark ESG indices. [7]

6. Blended Finance

Obtaining financial support for small-scale and micro-impact projects necessitates a departure from conventional means such as state grants, institutional financing, and charitable sources. Instead, it is imperative to explore blended finance structures that enable the strategic utilization of development finance from private investors to promote sustainable development. [8]

Social impact bonds have the potential to serve as a financial framework for implementing small-scale interventions aimed at facilitating the transition to a more sustainable environment. These interventions can be carried out at various levels, such as district, municipal, and state. The utilization of social impact bonds involves a combination of impact investment, public-private partnerships, and outcome-based finance. Outcome-based finance models provide the provision of initial risk financing by investors for the implementation of environmentally sustainable projects. There exists a necessity to create incentives that encourage more investors who are willing to offer "first loss capital" in order to mitigate risks associated with projects and stimulate additional investments. Incentives of this nature can be implemented through the provision of more feasible and attractive projects, wherein the outcome requirements are explicitly established. Additionally, guarantee support can be offered to mitigate unforeseen risks, and regulatory relaxations can be granted to permit adaptable finance arrangements. [8]

7. Green finance Project by Reliance Group

- Reliance has established an ambitious objective of attaining net-zero carbon emissions by the year 2035. To fulfill this goal, the company is allocating a substantial investment of over USD 10 billion (equivalent to Rs 75,000 crore) towards the development of an extensive ecosystem for New Energy and New Materials within India. This strategic initiative aims to ensure a sustainable future for future generations. .[9]
- The construction of the Dhirubhai Ambani Green Energy Giga Complex, spanning over 5,000 acres near Jamnagar, is being undertaken by the Reliance group.This facility is expected to rank among the largest

integrated production facilities for renewable energy globally. The consortium plans to allocate a substantial amount of Rs 60,000 crores towards the establishment of cutting-edge facilities that would facilitate the production and integration of essential components within the New Energy ecosystem. .[9]

- The Reliance Group has announced an investment of Rs 15,000 crores in various aspects of the value-chain, collaborations, and future technologies within the renewable energy sector. This investment aims to establish a comprehensive and interconnected renewable energy ecosystem, encompassing both upstream and downstream sectors. .[9]
- Reliance is making a substantial investment of Rs 5.95 lakh crore in Green Energy and various other projects in the state of Gujarat, with a projected timeframe of 10 to 15 years.The investment will facilitate the establishment of a 100 GW Renewable Energy Power Plant and contribute to the creation of a Green Hydrogen Eco-System.[9]

8. Electric Vehicles

The clean transportation sector in India has mostly experienced growth due to the implementation of Mass Rapid Transit Systems (MRTS). In order to facilitate the advancement of sustainable transportation, it is imperative to accelerate the widespread adoption of electric vehicles. The aforementioned phenomenon is seen in the increase in funding for electric vehicles (EVs), which rose from INR 1.8 thousand crores (USD 269 million) in the fiscal year 2019 to INR 3.4 thousand crores (USD 481 million) in the fiscal year 2020. This figure encompasses many types of vehicles, such as cars, buses, three-wheelers (often known as rickshaws), and two-wheelers (mostly scooters). The low-speed electric scooters emerged as a significant driver in the two-wheeler market, representing about 90% of the overall sales during the fiscal year 2020. Nevertheless, due to the absence of licensing and registration requirements, as well as their exclusion from the Vahan database, these vehicles are not accounted for. [10]

The National Electric Mobility Mission Plan (NEMMP) was implemented by the Government in 2013, with additional adjustments and updates being made. In the fiscal year 2020, certain states, namely Karnataka, Telangana, Andhra Pradesh, Uttar Pradesh, and Tamil Nadu, implemented incentive programs. Conversely, other states introduced similar initiatives in the fiscal year 2021. [10]

9. Energy Efficiency

According to the Energy India Security Scenarios developed by NITI Aayog, it is projected that there will be a significant 850% surge in energy consumption in buildings between 2012 and 2047, assuming the implementation of the 'Determined Effort Scenario'. Based on a study conducted by the ORF, it has been determined that the aggregate energy consumption of buildings in India accounts for 37% of the country's total primary energy consumption on a yearly basis. The establishment of an energy-efficient India necessitates a concentrated effort and financial commitment towards the development of the energy efficiency industry. [12]

Challenges Ahead for Green Finance

At present, there exists a deficiency in data availability, a lack of standardization in the taxonomy of green finance, and a lack of uniformity in data collation between public and private organizations, resulting in inconsistencies in data recording.

The attainment of data governance objectives can be facilitated through the allocation of resources towards the enhancement of management information systems for environmentally sustainable initiatives, hence addressing the current deficiency in information availability. It is imperative to monitor the advancement of the green project's activities through the systematic documentation of data, encompassing the allocation and use of money. A significant number of publicly sponsored initiatives lack an evaluation of their climate significance, hence posing challenges in assessing the allocation of financial resources for addressing climate change. Numerous institutions across the globe, including those in the United States, China, the European Union, Japan, and Australia, have prioritized the establishment of performance databases for the purpose of analyzing and enhancing building performance. These institutions have also embraced the integration of indoor environmental quality and occupant satisfaction with energy consumption data, by adopting innovative technologies. Nevertheless, these databases are still in the starting phases of their development.

Conclusion

There has been a notable surge in the influx of green investments in India originating from international and multilateral development institutions, aimed at addressing the requirements of growing economies. The government is enhancing the policy framework in order to facilitate investments and foster the development of the green finance investment landscape. Nevertheless, the demand for green finance surpasses the existing resources available to address the impacts of climate change. The Climate Change Finance Unit has the potential to offer strategic support to the Ministry, as well as contribute to the development of a uniform green finance framework for the nation. Furthermore, it can function as a facilitator between private and governmental entities. Public sector units that are dedicated to specific departments have the potential to significantly contribute to the advancement of the green finance investment landscape.

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