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Green Finance: A Key to Fight with Climate Change

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Abstract*: Climate change (CC) is a burning issue in the contemporary situation. All nations should be concerned about this, and it must be addressed right away. Additionally, greater funding is required to discourse this issue. Green finance becomes a global issue in sustainable economic and financial growth. Green finance refers to the financial arrangements that are specifically used to fund ecologically viable plans or projects that incorporate the features of climate change. Member nations of the Kyoto Protocol, which was endorsed on December 11, 1997, gave it a top priority. These initiatives fall under the categories of "green financing," "waste processing and recycling," "biodiversity protection," "climate change adaptation," etc. In addition to helping India and poor nations to achieve the Sustainable Development Goals (SDGs), green financing may help them raise money to fulfill their Nationally Determined Contribution (NDC) obligations under the Paris Agreement. Greening the industry through finance will lead to eco-sound results, ultimately leading to the green growth of the nations. Different countries can adopt green financing in a variety of methods and with varying legislation. In India, CSR was deemed necessary for NBFCs and SCBs by 2007. NAPCC was established in 2008 to adopt and mitigate the climate change policy. In the Union Budget of 2022, Finance Minister has announced the issuance of sovereign green bonds during the upcoming fiscal year. SGBs could potentially mobilize additional financial resources to support India's commitment to achieving net-zero carbon emissions by 2070. The issuance of sovereign green bonds is a baby step toward directing private capital flows toward environmentally beneficial public projects. Other government programs aimed at preventing climate change and developing a low-carbon economy may receive funding from green financing.

Keywords: Green Finance, Green Bond, Climate Change, Global Warming.

I. INTRODUCTION

The 2007 Stern Review offers a thorough and insightful starting point for comprehending the economics of climate change [10]. Because of the excessive greenhouse gases (GHGs) that our past and present production and consumption patterns have released into the atmosphere, particularly carbon dioxide, which has a concentration in the atmosphere that is above critical levels, "global warming" or "climate change" (CC) is the result [12]. Through a variety of routes, it in turn has an impact on our entire socioeconomic system. All of this could have detrimental effects on the sociopolitical and economic equilibrium around the world, including lower living standards, decreased productivity, more migration, etc. All of this involves factors that make it challenging for groups of people to make rational judgments, including high levels of uncertainty, lengthy lag times before becoming obvious, free riding, and issues with collective action. The tragedy of the commons is the source of Climate Change's local origins, which is why its repercussions won't be realized until after our generation has passed. The impacts are probably irreversible, but there are a lot of unknowns in the research. This review paper therefore deals with a topic that combines risk, uncertainty, putting morality first, and global cooperation for the greater good. For that, we need some finance should be required to tackle the issues which are called green finance. Global nations gave this finance priority under the Kyoto Protocol. Financial organizations like green banks and green funds that invest in ecologically friendly goods and projects are included in the definition of "green finance," as are all types of financial instruments like green bonds and instruments [3]. Long-term reduction of carbon emissions and an increase in ecologically beneficial outcomes are both aided by green finance or climate-smart financing. The growth of green finance is being driven by innovations found in the market. World Economic Forum investment in green infrastructure is projected to be $5 trillion per year until 2030 and much of which will be in the developing world. India will also require infrastructure funding of about $4.5 trillion by 2040 and this funding is projected to be utilized in national renewable energy targets, electric vehicles, and green housing.

II. REVIEW OF LITERATURE

According to their research, cash obtained through green bonds might be utilized for a diversity of environmental initiatives in qualifying categories rather than only for low-carbon and climate-resilient ones[8]. To the Climate Bonds Initiative Report, investors may significantly give to the market's liquidity by putting money from retirement amounts, mutual funds, and hedge funds into the market (2019). According to Volz [17], his study found that, compared to other areas of the globe, Asia (excluding Japan) had the lowest percentage of socially responsible investments, at 0.8% of total managed assets in 2016.

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Lack of or insufficient disclosure regulations that address environmental or long-term systemic risk factors is the main obstacle to sustainable development. Hoshen *et al.* [6] Research that was conducted in. Bangladesh recommended that banks support numerous eco-friendly activities to encourage sustainable growth. Banks should lead the charge in creating novel, ecologically beneficial products. It had been confirmed that domestic green bonds will help provide extra finance, helping to fulfill the need for green infrastructure investment. The government also actively participates in the issuing of green bonds together with the issuance of sovereign and sub-sovereign bonds. Government and the financial system will be crucial in promoting the green transition in 2016, United Nations Environment Report, and also to boost green funding, private-public collaborations are necessary. The G20 will keep playing a vital role in developing policies and creating best practices for a green transition[15]. Goel [5] indicated that a system must be built up for an effective green financial system that harmonizes the interaction between ecology and money. If properly implemented, green finance will aid in resource allocation and reduce the environmental risk [18]. The report made the case that government intervention will be crucial in reducing obstacles to green finance. Local administration and sponsorship of energy-saving devices should be the government's main priorities [9]. According to Yao and Zhi [18], research that was conducted in Beijing, Green finance is a cutting-edge financial strategy meant to accomplish resource sustainability and environmental protection, If green finance has a rational market mechanism, it can control the drift of money, manage environmental risks effectively, and deliver the best allocation of environmental and social resources. Additionally, they conclude that efficient policy regulation will eliminate moral hazard and the information asymmetry phenomena. Raghpathi and Sujatha [11], concluded that India has a significant potential to develop the green infrastructure required for green financing by removing the obstacles and raising corporate citizens' awareness. This research conducted by IFC [7] reveals that many different players have put additional effort into developing strategies for evaluating and encouraging green financing. It shows that it is likely to determine roughly how much money is being spent on green projects by private financial organizations.

II. OBJECTIVES OF THE STUDY

1. To comprehend the global and India development of the green finance concept.
2. To assess India's need for green financing.
3. To recognize the numerous issues facing the green finance area

III. RESEARCH METHODOLOGY

The present investigation is descriptive in form and is based on secondary data drawn from several government reports released by the Indian government as well as other publications produced by public and private sector organizations and Indian banks.

IV. RESULT AND DISCUSSION

Working principle of green finance:

Since green enterprises and innovations are all at different stages of growth, they all need different amounts of financial support from different sources of funding.

Generally speaking, there are three sources: domestic open fund, global open back, and private part back. Residential open back refers to direct government funding, whilst global open fund refers to funding from international organizations and multilateral development banks; private segment fund includes both domestic and international funding sources. Different speculative structures allow for the combination of different types of green finance. A key component of low-carbon green development, the green fund links "A crucial link between "knowing" and "doing" in the transition to a green economy is "greenback." Every green current concept is expensive, and many green industrial strategies are typically illogical or unproven. Therefore, traditional funds may believe that supporting these green, modern advice is difficult or undesirable monetarily."

A. Global Concept of Green Finance:

The United Nations Environment Program (UNEP) and several commercial banks collaborated to develop the UNEP Finance Initiative (UNEP FI) in 1992 to bring awareness of the environmental program to the banking sector. The UNEP Finance project is distinct from other UNEP initiatives and businesses in the area. It might be considered the inspiration for green finance. Later, the project continues to hold in-depth discussions with other financial organizations about how to link environmental protection and sustainable economic growth, including investment and commercial banks, insurers, and fund managers. It seeks to incorporate environmental factors into current financial practices and services. Currently, more than 40 countries and 190 financial institutions have signed the UNEP FI declaration [13,14].

The Equator Principles (EPs) were launched in 2003 and were initially welcomed by many influential international institutions, including Citigroup Inc., The Royal Bank of Scotland, and Westpac Banking Corporation. It serves as "a collection of deliberate metrics for choosing, assessing, and managing social and ecological risk in venture finance" [2]. All new projects with total capital expenses equal to or more than US$10 million, whether locally, nationally, or worldwide, must adhere to these criteria. Globally, the EPs have been adopted and implemented by close to 70 monetary institutions thus far. As opposed to the UNEP FI report, the EPs expressly lays out sector norms that help EPFIs run freely and control their policies. However, the EPs only apply to incidental consulting services and project finance, which is a very small segment within the financial industry. Ten optional principles may be found in the UN Global Compact (UNGC). The signatory banks pledge not to violate human rights, uphold labor laws, combat corruption, and safeguard the environment [16].

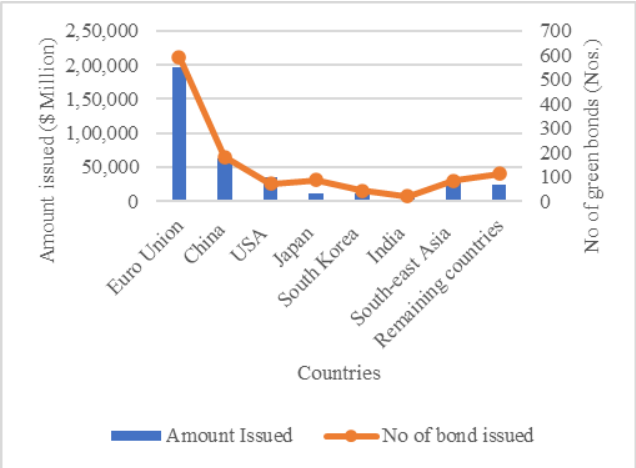
The Carbon Disclosure Project (CDP) is a nonprofit organization that encourages businesses, investors, and other organizations to report the greenhouse gas (GHG) emissions of their activities and evaluate their possible exposure to hazards associated with climate change. It applies a climate change reporting system to give participants information about their climate impacts. The project can precisely determine how much of a bank's backing of firm results in greenhouse gas emissions. However, the CDP lacks exclusion criteria or regulations to minimize the direct consequences of bank financing to businesses that do not declare their carbon emission levels [1-4].

B. Green finance in India:

India supported the Kyoto convention in August 2002, demonstrating its feeling of responsibility in the battle against an increase in Earth's temperature. A mechanism has been built up to engage multiple partners since Sustainable Advancement Objectives demand enormous capital commitments that cannot be made by Governments and public sector organizations alone. The Companies Act of 2013 mandates that larger businesses devote at least 2% of their annual normal net profits to Corporate Social Responsibility (CSR) activities, which include, among other things, environmental protection.

C. Green fiancé products in India

Since 2015, India has been issuing green bonds. As per RBI Bulletin (January), 2021 India had $16.3 billion in outstanding green bonds as of February 2020. Since January 2018, India has issued green bonds worth roughly $8 billion of all the bonds issued on the Indian financial market which was depicted in figure I. India maintained a favorable position in comparison to numerous advanced and emerging nations, even though the value of green bonds issued in India since 2018 made up a relatively tiny fraction of the overall bond issuance.



(Source: RBI Bulletin (Janurary), 2021)

Figure I: Global Issuance of green bonds Since 2018

The first nation to issue a sovereign bond was Poland. The government of India announces the issue of sovereign bonds in the Union Budget for 2022–2023. India had $16.3 billion in outstanding green bonds as of February 12, 2020. Since January 1, 2018, India has issued green bonds worth roughly USD 8 billion. Since 2015, the majority of green bonds have been issued with maturities of Maturity ≥ 5 but 10 years. Around 76 percent of the green bonds issued in India since 2015 were denominated in USD. In India, green bonds are issued in various institutions which are mentioned below in table I.

Table I: Issuance of green bonds in different financial institutions

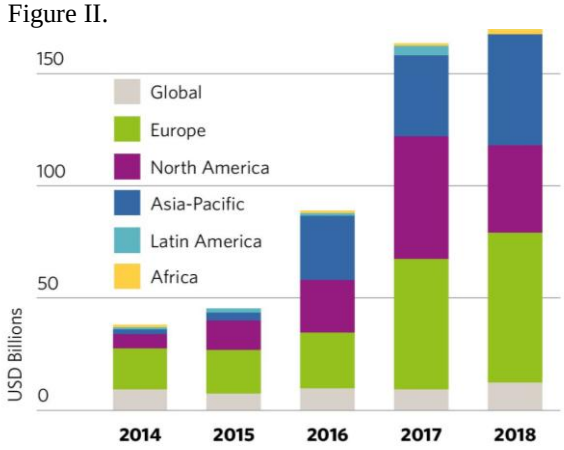
S. No.	Financial Institution	Issuing year
1.	Yes Bank Ltd.	2015
2.	Indian Renewable Energy Development Agency Ltd.,	2017 & 2019
3.	Rural Electrification Corporation Limited or REC Ltd.	2017
4.	Power Finance Corporation Ltd.	2017
5.	Indian Railway Finance Corporation Ltd.	2017
6.	Adani Renewable Energy Ltd.	2019
7.	Re New Power Pvt. Ltd.	2019

Under Green Insurance, HSBC and Allianz are working together in India to provide their consumers with green reinvestment insurance. Buildings that gain certification from global environmental standards like the US Leadership in Energy and Environmental Design (LEED) and the Building Research Establishment Environmental Assessment Methodology are protected by it (BREEAM). With only a slight price increase, this coverage offers an extra 5% on top of the types covered loss amount. This would stimulate the construction industry to produce more energy-efficient structures. Green loan schemes provide different financial institutions. To encourage customers to choose green housing, i.e., buildings that are certified by rating agencies such as Leadership in Energy & Environmental Design (LEED) India, India Green Building Council (IGBC), and TERI - GRIHA from TERI- BCSD India, State Bank of India (SBI) launched a Green Home Bank loan scheme at low-interest rates. The bank tries to lower the processing costs for consumers buying houses in LEED-certified structures through its home finance programs [11]. The Union Bank of India offers programs that grant loans to farmers for the installation of solar house lighting systems, solar water pumps, and solar water heaters. For the building of greenhouses, the establishment of biogas plants with sanitary latrines, and the purchase of solar water heaters and home illumination, Punjab National Bank offers medium-term credit programs to farmers. India, a developing nation, currently has a burgeoning bond market.

For Green banks, the Indian Renewable Energy Development Agency (IREDA), a government-backed agency for promoting clean energy investments, announced plans to become India's first Green bank in May 2016. India Infrastructure Finance Corporation Limited (IIFCL) also launched a dedicated scheme known as the 'credit enhancement scheme' for funding viable infrastructure projects with bond tenors above five years.

India’s need for green financing:

- India is ranking third position in global CO2 emission in the world. So, to reduce global warming high finance is required.
- United Nations under 17 Sustainable development goals, through investing in green finance can achieve the goal of 3, 6,7, 9, 11, 12, 13, 14, and 15.
- The climate bond initiative report, it was showing that over the period of years there is a huge demand for green finance in the Asia-pacific region and it was depicted in Figure II.



(Source: Climate bond initiative report, 2018)

Figure II: Demand of green bond across the World

- In the Cancun Agreement of 2010, rich nations pledged to mobilize a total of $100 billion annually by 2020 to meet the needs of poor nations. The Glasgow Climate Pact (COP26), however, emphasized that the developed nation parties' target had not yet been attained.
- India's prime minister declared at the COP26 Climate Summit that his country will achieve net zero emissions by 2070.
- Over the next 10 years, nations like India will require an additional USD 1 trillion in funding to reach these climate commitments.
- With the support of green finance, a country may meet its Nationally Determined Contribution (NDC) goal.

D. Challenges for green finance for India:

- The Indian green bond market is still in its infancy and has struggled to draw in a sufficient number of investors. High-rated bonds or low-risk investment choices are often where investors put their money. To make these bonds appealing to investors, the bond market needs an appropriate structure.
- The cost of loan financing is considerable, making investments in green initiatives quite pricey. High-interest rates, short maturity periods, and a lack of non-recourse debt are all factors that contribute to high debt costs.
- Current market behaviors, market-monitoring rules, and financial incentives are all contributing to the failure of financial instruments.
- Several risks connected to green finance, such as those relating to technology, currency, and off-taker risk, represent a barrier to the availability of financial resources.
- Another obstacle to green finance is investors' ignorance of cutting-edge financial products.
- The lack of a framework that is effective for project evaluation of a sustainable project, particularly in the case of early-stage innovation, makes it difficult to direct funding towards green ventures.

V. CONCLUSION

Green finance has emerged as a global issue in the development of sustainable economic and financial systems. Climate change and pollution are issues that worry all countries. Green funding is thoroughly examined in this essay to demonstrate its importance for national development. Numerous issues are being brought about by global warming. Experts on the environment and scientists agree that greenhouse gas emissions are to blame. This study emphasized how considerably fewer greenhouse gas emissions will result from green funding. By removing the obstacles and raising corporate citizens' knowledge of the need for more sustainable growth, it may be said that India has a huge potential to build the green infrastructure required for green financing. We anticipate that green financing will soon be widely accepted across all social strata.

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