



A Review of Prospects and Challenges of Green Finance on Environment

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ABSTRACT

Green Finance is becoming more and more popular nowadays because of the divergent feature of making sustainable developments along with being efficient in saving the environment as it connects the financial industry, environment improvement, and economic growth. Development without Environmental sustainability is meaningless and it is a well-established fact green financing is one of the most efficient initiatives for achieving this. Obviously, it is the initiative of advancement in technology but still, there arises factors of compatibility between the implementation of Green Finance and the uses of this technology. The present research is a modest attempt to explore the factors considered as advantages in the implementation of Green Finance for a sustainable environment and to know about the hurdle paving the way in the implementation of these technologies. The study is based upon the analysis drawn from the review of existing literature and thematic analysis of research attempts made so far on the relevant aspects.

Keywords: Green finance, environmental sustainability, Economic growth, Financial Industry

Introduction

Development without Environmental sustainability is meaningless and this fact is not only recognized at the level of one or two countries but has gained popularity and acceptance at the global level. Development that meets the needs of the present without compromising the ability of future generations to meet their own needs is sustainable development. It is the basic idea of working for today while keeping in the mind needs of tomorrow. Sustainable development is a global effort to protect the planet, eliminate poverty, and enhance the quality of life for all. It is no longer the case of "economy first and environment later", instead a balance of every factor is needed for true economic development. In this context, different initiatives have been introduced on the different levels and one of those initiatives is Green Financing. Green finance is an emerging concept and it has a very significant and positive impact on sustainable development.(Swaty)³³

Although there is no precise definition of "green finance," in simple words, Green Finance is a loan or investment that promotes environmentally positive activities or any activities with the main goal of promoting sustainability, such as the development of green structures, effective energy and waste management, the preservation of ecosystems, projects involving renewable energy sources and purchase of ecologically-friendly goods and services.

Green financing is to increase the level of financial flows (from banking, micro-credit, insurance, and investment) from the public, private, and not-for-profit sectors to sustainable development priorities. A key part of this is to better manage environmental and social risks, take up opportunities that bring both a decent rate of return and environmental benefit, and deliver greater accountability. The advancement of green finance is indispensable in attaining sustainable development goals and addressing pressing environmental challenges (Goel et al. 2022)¹⁶.

Green Finance covers a wide range of financial products and services through which the green financial economy operates. It includes firstly, Retail tools such as Green Mortgages, Green home Loans, Green car loans, Green Infrastructure, Green bonds, Green Credit cards, etc. Secondly, Corporate Finance tools such as Green project finance, Green securities, Green technology rental, and Carbon finance, and then Insurance tools such as Green insurance and Carbon insurance. Along with that, there are some asset management tools such as Eco fund and carbon fund. (Kahraman Yunus)¹⁷. Green financial tools are very effective in promoting environmentally friendly practices and projects as these products have become globally a means of directing investment capital towards climate change mitigation as well as climate change resilience and adaptation projects.

Literature Review

Different researcher has tried to study green finance their view has provided an overview of green finance as what this concept is and how it is effective.

Solomomn S.K(2020)³¹ In his study researcher has verified some challenges that hinder the implementation of green finance effectively.

Ranjan et.al.(2021)²⁹ The finding indicates that Green finance is vastly emerging as a priority for public policies and there have been improvements in public awareness and financing options in India. The study reviews the developments in green finance globally and in India

Bhattacharyya R. (2021)⁴ The present work serves as a brief compilation of concepts and information pertaining to the broad domain of green finance, particularly for a readership with non-financial background. It also discusses the weaknesses and challenges that these initiatives are facing. Finally, it occludes that the green finance domain is very vast and it has strong linkages to ESG schemes.

Tang Meile et.al(2022)³⁴ Has stated in his study that Green Finance has significant impact in reducing pollutant emissions, and this also enabling it to improve the ecological environment quality. In their study they stated that Green finance can optimize the allocation of financial resources and guide resources to enter more green environmental protection enterprises.

Feng, Haiyan(2022)¹² The study has concluded that there are positive impacts of renewable energy on carbon neutrality and green finance is playing a vital role in this.

Rajguru et.al.(2023)²⁸ Researcher has confirmed in their study that Green Finance has contributed vastly to CO2 emission reduction and higher green funding also has a positive impact on innovation.

Tariq A. and Hassan A.(2023)³⁵ The impact of green finance on environmental sustainability is significant because by lowering CO2 emissions and it is concluded that green finance, as well as renewable energy, has a significant impact on environmental sustainability.

Fu Chengbo et.al.(2023)¹³ The study has recommended that aligning financial incentives with sustainable outcomes, fostering transparency, and incorporating social equity in green finance initiatives to contribute towards achieving sustainable development goals and promoting a greener future.

Zhang Ziyu et.al(2023)⁴⁴ has recommended that there is a need to focus on the consistent and steady development of green finance.

Ozili, Peterson(2023)²⁴ The findings show that green finance has the potential to make a significant difference in the environment, and society, and for climate change mitigation.

Khan et.al.(2023)¹⁹ In this study, he tries to identify the factors that are impediments to the implications of green finance policies.

Zhao, Hailei. (2023)⁴³ This paper provides guidance for the sustainable development of green finance in the supply chain and makes contributions to promoting the development of green economy. In order to control the risks of supply chain financing business, the risks of supply chain financing business are classified and analyzed, and specific project risk levels and points are determined to propose control measures to ensure effective control of the business risks.

Chen, Wei. (2023)⁷ This research paper aims to explore how advancements in green finance research facilitate ESG development. The assessment identifies and outlines the future investment consequences of green financing, including how it will influence the establishment of circular economies at the organizational and national levels. The results underline the crucial importance of facilitating further research on green financing.

Mishra, Keshav & Kannaujia, Arjun. (2023)²³ In this article researcher attempt to examines the components of green financing, including green banking, green insurance, and green bonds. Along with that it also assesses the

possibilities and difficulties for green finance as a useful instrument of Sustainability in developing nations like India.

These are some primary literature which had helped to find the existing research gap. All of these are focused on the particular aspects of green financing. There is very little Study that has a comprehensive view. So In this paper attempt is made to study the importance of green finance for the environment. For this study, thematic analysis is utilized existing articles and papers are analyzed and the following objectives are framed:

- To identify the driving factors of Green Finance on the Environment
- To know about the hurdles in the implementation of Green Finance

This study also has some limitations which are:

- The study is complete based on the qualitative data which is secondary in nature.
- The study has limited resources so, it is done as per the convince

Analysis and Discussion

Implications of the Green Finance to the Environment

Green finance can benefit the social environment, economy, and ecological environment. It can play a huge role in achieving sustainable goals and ensuring Sustainable development in this segment we will discuss the advantages of green finance to the Environment.

Table No 1

Advantages of Green finance to the environment

Author name	Year	Title	Findings
Fu Chengbo et.al.	2023	"Advancing green finance: a review of sustainable development".	Carbon neutrality
Swaty	2023	"Green Finance and Sustainable Development: Exploring Dynamic Causal Links and Global Implications"	green finance has a positive impact on sustainable development
Tariq, Anam& Hassan, Arshad	2023	"Role of green finance, environmental regulations, and economic development in the transition towards a sustainable environment".	green finance as well as renewable energy have a significant impact on environmental sustainability
Zhang Ziyu et.al.	2023	"Research on the carbon emission reduction effects of green finance in the context of environment regulations."	Carbon Emission reduction Green Financial Development
Yang et.al.	2023	"Has green finance improved China's ecological and livable environment?"	for better developing green finance and improving the ecological livable environment
Wang et.al.	2023	"Does Green Finance Expand China's Green Development Space? Evidence from the Ecological Environment Improvement Perspective"	green finance expands the green development space of the economy and society by improving the ecological environment research-proven the correlation between green finance and carbon emissions

Markandya et.al.	2015	“Analyzing Trade-offs in International Climate Policy Options: The Case of the Green Climate Fund”	discussed the dual benefits of the Green Climate Fund for Economic Growth and low-carbon Goals in Developing and Developed Countries
Zhang Kai et.al.	2021	“Green Finance, Innovation and the Energy-Environment-Climate Nexus. Frontiers in Environmental Science”	<ul style="list-style-type: none"> • green finance could effectively mitigate environmental pollution and climate change • Innovation significantly reduces CO2 emissions and climate change by improving renewable energy efficiency
Tang Meile et.al.	2022	”Influence of Green Finance on Ecological Environment Quality in Yangtze River Delta. International Journal of Environmental Research and Public Health”	<ul style="list-style-type: none"> • Green finance has a significant positive impact on improving regional ecological environment quality. • Reduce pollutant emissions, and enable green finance to improve the ecological environment quality
Feng, Haiyan	2022	“The Impact of Renewable Energy on Carbon Neutrality for the Sustainable Environment: Role of Green Finance and Technology Innovations”	<ul style="list-style-type: none"> • Carbon Emission Reduction • Climate Change tracking
Rong, Yanbo & Hu, Jinyan.	2023	“How can green credit decrease social health costs? The mediating effect of the environment”	<ul style="list-style-type: none"> • Decrease social health costs. • Green credit can relieve financial pressure through social financing
Chin M.Y. et.al.	2022	“The impact of green finance on environmental degradation in BRI region.”	there is a positive relationship between the reduction in CO2 emissions and financial performance of the firms
Umar, Muhammad & Safi, Adnan.	2023	“Do green finance and innovation matter for environmental protection? A case of OECD economies.”	Green finance and the innovations' magnitude of impact on carbon emission is higher.
Kirikkaleli, D., & Adebayo, T. S	2021	“Do renewable energy consumption and financial development matter for environmental sustainability? New global evidence.”	In the long run Global financial development and global renewable energy consumption have a positive impact on environmental sustainability Financial development should be seen as a tool that can be used to keep the environment clean by implementing financial regulations. CO2 emission reduction

1. Carbon Emission Reduction

Carbon dioxide emissions or CO₂ emissions are emissions stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during the consumption of solid, liquid, and gas fuels and gas flaring. Green Finance has a very positive impact on carbon dioxide emission reduction. It mainly reduced carbon emissions through green project financing and carbon market trading. In China, the Carbon Emission Index has decreased from 3.98 tonnes/10000 yuan in 2003 to 1.87 tonnes/10000 yuan in 2019[Zhang Ziyu]⁽⁴⁴⁾ which is around a 53% decrease. Similarly in another study, it's shown that Green funding in Innovation significantly Reduces CO₂ emission [Zhang Kai]⁽⁴⁵⁾. Along with that green finance is also helping in carbon Neutrality, which means having a balance between emitting carbon and absorbing carbon from the atmosphere in a carbon sink [fu Chengbo]⁽¹³⁾

2. Carbon footprint

Carbon Footprint is the total amount of greenhouse gases (including carbon dioxide and methane) that are generated by our actions. Green financing focuses on more environmental and eco-friendly projects and different green products are used for this. One of the aspects of Green finance is to promote cashless transactions and use more environmentally friendly substances. That is why Green credit cards are also helpful in reducing carbon footprint; by preventing the use of harmful substances and being helpful in Protection of the trees.[kahraman Yunus]⁽¹⁷⁾

3. Mitigate Environment Pollution

Green finance helps mitigate the Environmental pollution effect by promoting more and more projects which leads to carbon emission reduction and carbon neutrality. Along with that green finance also promotes more and more environment-friendly constructions and infrastructure development, which is beneficial for the ecological balance.

4. Economic Development with Environment Sustainability

Environment Sustainability is the ability to maintain an ecological balance in our planet's natural environment and conserve natural resources to support the well-being of current and future generations. Green finance has a positive impact on sustainable development While green finance represents a crucial financing mechanism for advancing sustainable development goals [Swaty]⁽³³⁾ Green finance as well as renewable energy has a significant impact on environmental sustainability [Tariq, Anam& Hassan]⁽³⁵⁾

5. Protection of ecological Environment and Biodiversity

Green finance has a positive impact on the ecological environment by expanding the green development space. As per one study in China, it was shown that in the past decade ecological environment quality of river YRD (Yangtze River Delta) has shown upward trends and environment pollution has improved with a growth rate of 39.3 percent. [Tang meile]⁽³⁴⁾. Similarly in another study, it's concluded that green finance has significantly improved the ecological and livable environment along with the regional ecological environment quality [Yang et.al]⁽⁴²⁾. So it is evident that Green finance is playing a major role in the Protection of the Ecological environment and biodiversity.

6. Sustainable Economic Growth

As per the Intergovernmental Panel on Climate Change (IPCC), the United Nations body for assessing the science related, to climate change, it is evident that human actions have highly impacted the planet, which leads to the warming of the atmosphere, ocean, and land. That is why it is necessary to focus on the Economical development with environmental sustainability. Green Finance is one such tool that can evidently help to achieve Sustainable development goals by infusing investments that are more eco-friendly and sustainable.

7. Renewable Energy efficiency

Green Finance and its tools are playing a vital role in improving the climate conditions by renewable energy efficiency. Green Finance Significantly promotes total renewable energy, biomass, and non-biomass energy production in the short run and long run. The impact of green finance on renewable energy is positive and significant and it can amplify renewable energy generation.[Alharbi S.S]⁽²⁾. Clean energy is also playing a vital role in the reduction of carbon emissions and striving towards carbon neutrality.

8. Corporate Social responsibility

It is the responsibility of every business to behave ethically contributes to sustainable economic development and makes themselves socially accountable not only for themselves but also to their

stakeholders and the public. The CSR initiatives significantly improve an organization's environmental performance. Green finance is a very effective tool to comply with corporate social responsibility through work on projects that are not only profit-oriented but also help by ensuring the ecological balance.

9. Climate change adaption

Adjustment or changes in any process practice and structure to moderate the potential damages or to gain benefits from opportunities associated with climate change. In other words, it is the process of adjusting to the effects of climate change and for survival, it's the most important attribute. Green financing is the means that can also facilitate adaptation according to climate changes and also help to keep the tracking of the changes in the climate.

10. Decreasing social health cost

The mediating effect of the environment improving the allocation of credit capital to green industries can curb the impact of environmental pollution on residents' health, which is conducive to achieving economic and environmental goals [RONG] Green finance also provides the foundation to Decrease the social health cost and provide a better and improved lifestyle to the individuals.

Hurdles to implement green finance

There are different challenges and barriers that can hinder the effective implementation of green finance policies. These are some points that can collapse the whole green financing system. So it is necessary to discuss them and understand them so the proper measure can be taken on the time.

Table no 2

Hurdles to implement the Green Finance

Author name	Year	Title	Findings
Khan et.al.	2022	"Impediments of Green Finance Adoption System: Linking Economy and Environment".	<ul style="list-style-type: none"> • Different challenges that hinder green finance • The study recommended that an appropriate framework is required to be developed at global, country, organizational, and individual levels
Solomon S.K	2020	"Challenges of Green Finance and Sustainable Economic Development in India"	There are various challenges related to awareness, policy coordination, and implementation of policy for green finance
Ozili, Peterson.	2023	"Policy perspectives in promoting green finance."	<ul style="list-style-type: none"> • overlapping regulations • Lack of an effective mechanism • lack of unified and clear standards for information disclosure • Greenwashing.
SOUNDARRAJAN P, VIVEK N.	2016	"Green finance for sustainable green economic growth in India"	<ul style="list-style-type: none"> • Lack of rules and regulations • Lack of coordination and communication
Rajeev, Meenakshi & Chakraborty, Oisikha.	2023	"Green Finance for a Greener Economy."	There is a need for better collaboration with international private and public investors to

			stimulate global investment in green finance products to achieve a greener economy in India
Xu,Siyun & Zhu, Huiqin.	2022	"Does Green governance efficiency and green finance policies matter in sustainable environment implications for public health"	Environment improvement can be achieved if green finance policies are put into place which will restrict business frequent pollution behaviors and encourage more capital to flow into low-pollution industries
Charles, Gincy & Pkilip, Bijin	2020	"Green Finance: Recent Drifts, Confrontation and Prospect Opportunities for Sustainable Development in India"	absence of comparability, transparency, and effectiveness of green projects

1. Lack of awareness and Education

Many investors and financial institutions may not fully understand the concept of Green Finance or the potential benefits of sustainable investments. Raising awareness and providing education about the environmental and social impact of investment choices is crucial.

2. Long-term investment time and high risks

Most green projects have long-term payback periods, convergent time of these projects are mostly varied from medium term to long term along with that these projects need high investments in the initial phase so it includes uncertainty and a high degree of risk. In such cases, investors may be hesitant to commit to the green project, especially if they are looking forward to the short-term returns.

3. Overlapping regulations or lack of legal system

There is the problem of the overlapping of regulations and having no proper clarification regarding policies and regulations. There are no effective regulatory frameworks for green finance, which can lead to ambiguous Standards for information and can have loopholes for any kind of manipulation. This will also lead to the absence of comparability, transparency, and effectiveness of green projects.[Charles]⁽⁵⁾. There is also no proper legal system regarding the implementation and robust green financial laws.

4. Lack of monitoring reporting and verification system

There are no definitive standards and regulations for green financing, these are evolving gradually due to which there is a lack of transparency which leads to the lack of data. It makes it difficult to monitor and verify the data. Along with that, there are also no predefined standards for reporting which also hinder the comparability of the data. This makes green financing unreliable for the investors and they lose interest and faith in this.

5. Greenwashing

Greenwashing was first coined in 1986 by Jay Westerveld. It refers to the practice where a false and misleading set of claims are made by the organization about the positive impact that a company, product, or service has on the environment. This can create a major problem for the green financing system because on paper the positive impact can be shown, which probably leads the environment toward sustainability but in reality, this would not be the case and drastic climate degradation can occur.

6. Poor communication and coordination

There are no standard concepts and definitions related to the green finance terms which can lead the ambiguity among the different stakeholders and lead to possible conflicts. The lack of an effective mechanism for ongoing communication between the different regulators and stakeholders can also constrain the implementation of green finance [ozile]⁽²⁴⁾. [Ranjan et.al]⁽²⁹⁾ has also concluded that there is a need to take more steps in the direction of reduction in asymmetric information through better information management systems and increased coordination amongst stakeholders.

7. Lack of technological expertise

Green financing also has one of the technical aspects. There is a need for experts who can understand the importance of development and as well as the sustainability of the environment and also efficiently merge both. There is a need for proper assistance in the education and training of consultants and experts to support green finance projects and operate them as per the sustainability of the environment.

8. Valuation of natural capital and biodiversity

Natural capital can be defined as all kinds of renewable and nonrenewable resources which are available in the world. Biodiversity is the variety of all living things and their interactions. Both of them have a huge scope it's very difficult to measure them completely, this is why it's a huge hindrance in the implication of green finance policies. Every geographical location has its advantages and disadvantages. So, it's become necessary to make the policies of green finance at the regional and local level and then implement them which are very huge tasks to accomplish.

9. Political Instability

There is already a lack of regulations for green finance now and political instability become one more hindrance in implementing the Green finance policies as Political parties keep changing in some time intervals and every political party has their own agendas and political preferences. The change in the ruling government dynamics also affects and restricts the green finance policies.

10. High switching cost

Change is the key to innovation, it is easy to follow the traditionally set policies and implement them but to bring changes in these policies and methods there is a need for huge capital and uncertainty. There is also a huge risk and cost associated with switching to a green finance policy because it's not the minor changes in the policy but the whole fundamental nature of the organization is going to transform. Estimated costs and risks associated with making such big changes could very well be in the trillions of dollars so the first thing that should be considered that what types of support are available for organizations to start making these changes and what kind of opportunities they can gain from them.

Conclusion

The main purpose of the study was to list the possible implications of green finance on the environment and identify some common hurdles in the implementation of green finance. Sustainability and carbon emission reduction are the main implications for the environment and carbon footprint, Protection of ecological environment, Renewable energy efficiency, corporate social responsibility and Decreasing social health cost are the other advantages of the green finance.

High switching cost, Greenwashing, and lack of rules and regulations are the main hindrance. The political instability, lack of technical expertise, valuation of natural resources and biodiversity, lack of communication and coordination, and high risk involvement are also other hurdles in the effective implementation of the Green finance.

Suggestions

- There is a need of proper structure rules & and regulations. The government, banks, and private entities need to collaborate together for the proper implementation of green finance policies.
- There is a need for proper assistance in the education and training of consultants and experts to support green finance projects and operate them as per the sustainability of the environment
- The main hindrance is Greenwashing, there is a need to ensure the transparency of the funds and projects because this can be a huge problem not only for economic development but also for the sustainability of the environment, as it can make false or misleading claims.

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