

Green Finance: A Powerful Weapon for Sustainable India

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Sandeep Kumar Rawat

Research Scholar,
Dept. of Management,
Dr. Shakuntala Misra National
Rehabilitation University,
Lucknow, U.P. India

Anu

Assistant Professor,
Dept. of Management,
Dr. Shakuntala Misra National
Rehabilitation University,
Lucknow, U.P. India

Abstract

The modern business era is the era of globalization. This era has many opportunity and challenges. The most attention seeking challenge, which has become an agony for the entire world, is degradation of natural resources; as a result the survival of human being is now at stake. India is travelling in the same boat with the rest of the world and battling against this serious issue. Like every country India is trying to solve this problem in its own way. India is adopting many environment friendly practices like digitization of services, preventing the use of paper and many more practices. Green financial practices are one of the very powerful practices to fight against deterioration of environment. In this study the researcher is trying to explore the various green financial practices which have been adopted by India for figuring out the problem of environmental deterioration and for making India Environmentally sustainable. The researcher is also trying to portray the efforts made by the World Bank's towards environmental sustainability. The whole study is based on basis of secondary data.

Keywords: Globalization, Environmental degradation, Green finance, Environment friendly practices, Digitization of services.

Introduction

World has recognized the power of nature and it has also been realized by the countries that for the achievement of versatile utilities in different sectors, they are incurring a huge cost in terms of deteriorated environment and degradation of natural resources. These natural resources are limited and there consumption is increasing day by day. This problem must be solved quickly because we cannot assume our self in the stage of development until and unless the development is sustainable and these resources are also left over for coming generations too. After considering the importance of nature as only means for the survival of human beings, India has join the hands with the rest of the world and come up with many measures for solving this problem like promoting the use of electronic media and preventing the use of paper, using solar energy and wind energy. These measures are not limited with government but every field of study is trying to solve this problem in its own way and coming up with the new concepts like Green Marketing, Green Human Resource Management, E- Supply Chain Management and so on. Green Finance is one of them. This is considered as an emerging solution for this predicament. Green financial practices refer to all those practices which are adopted for:-

1. Reducing the use of natural resources
2. Creating additional source of supply
3. Blending the profitability with sustainability

If the above features are presented in any activity that will come under the preview of green financial practices i.e. financial activity either create some new source of natural resources or it should reduce the use of existing resources.

The concept of environmental sustainability started in 1969 with the establishment of the National Environmental Policy Act in the United States whose purpose is to promote the general welfare, to maintain productivity and later on an independent agency Environmental Protection Agency was established in 1970 [14]. The policy aims to protect the natural resource for future generation. From that point of time several international and domestic organizations were formed which are working towards environmental management such as UNFCC [14].

If we talk about the green financial practices in Indian context they started in 2015, when the Government of India with the help of Reserve

Bank of India, Ministry of Finance and other constitutional bodies launched the program of "Go Green Initiative". From that movement not only the government sector but also the private sector of India started participation in green financial practices.

The rest of the paper is organized in the following manner. Section 2, 3 and 4 present the objectives, methodology adopted for study and review of previous literature respectively. Further, Section 5 through light on the efforts of World Bank towards environmental sustainability in relation to green finance. Later on, this section further emphasized on the journey of green finance in India where different initiatives of Indian Banking Industry and Indian Companies are highlighted. Finally, Section 6 concludes the paper

Objective of the study

This study is conducted keeping following objectives in mind-

1. To discuss the efforts of World Bank towards environmental sustainability in relation to green finance.
2. To discuss the journey of green finance in India
3. To highlight the initiatives of Indian banking industry and other Indian companies towards the adoption of green financial practices.

Research Methodology

Exploratory research design is adopted for this study. This study is based on secondary data. For the purpose of making data more meaningful pie diagram and tables are formed by utilizing different reports and studies.

Literature Review

Several studies and work have been done in the area of environmental sustainability and green finance. The key studies giving the glimpse of importance of this burning issue are listed below:

Jeremy Gorelick and Neil Wamsely (2020) asserted that the most effective method to regulate green practices within a city is not through a specially committed environmental strategy but rather through a more well-established proponent and they further concluded that sub-national governments in developing countries have largely going wrong to make green investments without the help of external agencies. This study also observed that increasing the cascade of capital into climate smart infrastructure would gain colossal economic, social and environmental benefits for cities and investors. However in practical situation there are multiple obstacles that must be reduce first to let this happen [1].

Sa Xu (2020) compared the Chinese green credit product with international green product and policies and reached into following conclusion; there should be a diversified development green credit product second only diversified development is not sufficient a good amount of promotion measures also required for promoting these product and the last but not the least conclusion he has drawn from the study that there must be a positive innovation is required for the development of the green credit policy in china with the support of the china's commercial banks and other financial institutions[2].

Jieqiong Yang and Panzhu Luo (2020) this paper proceeded from the conventions and importance of international carbon monetary transactions and looked after out associated studies at the connotation, concepts, and status of carbon economic markets. Subsequently, in this study the author made a worldwide comparisons and analyzed the elements of the carbon financial marketplace and tried to reader would recognize the modern scenario of the improvement of the worldwide carbon financial marketplace and presented the hints for some international locations where carbon monetary researches are not deep enough. In addition, this study also pointed out the shortcomings of the improvement of the global carbon economic marketplace like the market machine is not superior, many nations have a short time to participate inside the carbon economic marketplace, carrier agency and regulatory system is not properly developed and the member and innovation of carbon financial merchandise are inadequate [3].

Toyo Kawabata (2020) found that public authorities at national and regional level holding advantage of the private governance system especially Green bond Principles (GBP). When they have their own standard polices and frameworks. This study further described that Green Bond Principal eventually assists as a model of governance for policy makers because public authorities considered them as the best practices of the market. This study further strengthened the creditability of Green Banking Principles because private governance schemes bring more users by clearing that private standard are associated with green bond governance [4].

Tolulope Latunde and Lukman Shina Akinola et al. (2020) with the capital assets pricing model and other statistical tools analyzed risk and return of four commodity of Deutsche Bank for making the best decision in the investment management. It is found that percentage of investor wealth could be drained out in risky assets in DTO-DB Crude oil Double Short, 67 percentage in SZO-DB Crude oil Short, 16 percentage in OLO-DB Crude oil Short. Since the anticipated returns of DBO- DB Crude oil fund has negative and bad predicted returns, the funding in DBO- DB Crude oil will result in having a loss from the investment [5].

Sebastian Goers and Friedrich Schneider (2020) examined the macroeconomic crunch of an environmental tax in Austria from 2020 to 2030 and concluded that for meeting the future energy and climate goals in 2030 and 2050, Austria needs to apply broad measures to cut down the use fossil fuels and decrease the 30% emission apart emission from European trading system and he further said that transportation is the fundamental driver of contemporary increasing greenhouse gas emission [6].

Alexander Ryota Keeley and Shunsuke Managi, (2019) assessed the economic feasibility of renewable hybrid mini-grid systems in Indonesia. And found that renewable hybrid mini-grid systems are lower than to the diesel mini-grid systems in the assumed project site on the basis of Net Present

value and Internal Rate of Return. He further revealed that the debt and equity ratio greatly affect the profitability of the renewable mini-grid projects that means augmenting the avenue of low cost financing is one of the captious factor for implementation of the renewable hybrid mini grid project [7].

Sandeep kumar Rawat and Anu (2020) on the basis of previous studies explore the various emerging research area of green finance. Firstly they describes the concept of green finance after that a critical review is done by the author and on the basis of this review new area of green finance is found which can be carried by the new researcher for the future studies in Indian context. These areas are Cultural influence on green finance, demographical effects on green finance and International comparative analysis can be done [8].

Clement Allan Tisdell, (2019), presented a case in support of governments providing financial support for the increased use of solar and wind power as a method for supplying electricity. This study is an modified classification of energy resources for sustainability appraisal and identified the nature of sustainability related to the use of different energy resources for creating heat and power. This study focused on the use of solar and wind power in against the use of fossil fuels. Further the author outlined the scheme of government and polices for increasing the demand and supply of solar energy [9].

Lucas Kruiwagen (2015) explored the climate change risk and examined how investor can fortunately assure listed fossil fuel companies to mitigate risk by the game theory and further this study analyzed the effectiveness of owner commitment strategies by studying the situations for cooperation

between investors and companies. He developed many criteria model for its impact on the development of sustained cooperative [10].

Result and Discussion

Efforts of World Bank towards Environmental Sustainability in Relation to Green Finance

In 2007, the World Bank first time realized the problem of environmental sustainability. When intergovernmental of climate change in a report provided a scientific data which depicted an evidenced connection between human action and global warming along with causes behind increasing the frequency of natural disaster [15]. On that time a Swedish group of pension fund thought about how they could use the savings towards the solution of the problem of climate disaster. They called the World Bank with the notification that they wanted to invest in projects that help the environment but they did not have idea how to find these projects? After analyzing all the situations for helping the Swedish group within one year World Bank issued first green bond in 2008 and created a historical event and changed the fundamental way of investment. From that point of time the, World Bank raised more than 13 billion US dollar by issuing almost 150 green bonds in 20 currencies for institutional as well as retail investors [15].

The proceeds from green bonds are used in different key areas like transportation; renewable energy and green infrastructure etc. The below mentioned data is showing the impact of issuance of green bonds and use of its proceeds from 2015 to 2019. The Table 1 presents the use of proceeds from the green bonds in various key sectors across the world.

Green Bond Proceeds in Key Sectors in World.

Year	Renewable Energy	Clean Transportation	Water and Water waste Management	Solid waste Management	Agriculture and Land, Forest and Ecological Resources	Resilient Infrastructure. Built Environment.
2015	2653.5	1088.	646.9	-	389.7	666.5
2016	3194.3	1611.4	774.6	-	615.9	697.1
2017	3779	2014.1	897.4	-	835.2	733.1
2018	3718.8	2151.9	832.8	2151.9	932.4	734
2019	44013	3100.1	846.2	111.4	1332.3	755.7

Source: (Green bond impact report) [16], [17], [18], [19], [20]

Further, the Figure 1 gives more clear idea about the bifurcation of total proceeds of green bonds that is segregated among key sectors by the World Bank.

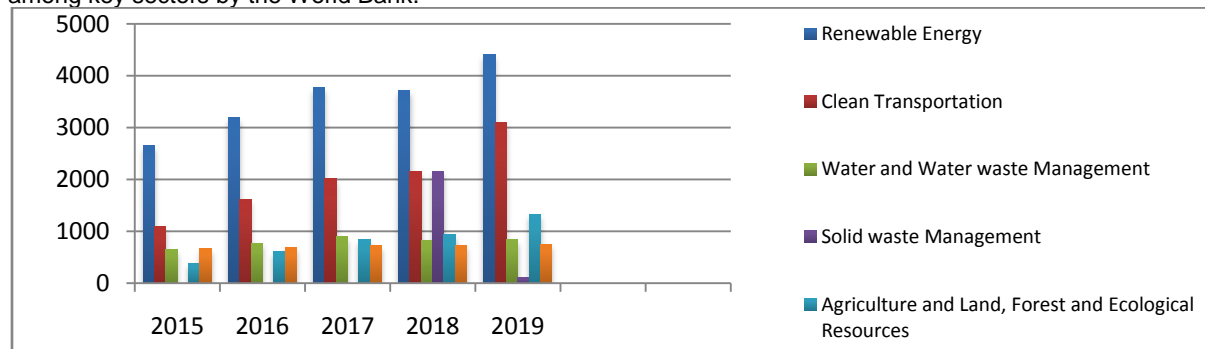


Figure 1: Bifurcation of Total Proceeds of Green Bond used by World Bank in Key Sector

Source: (Green bond impact report) [16], [17], [18], [19], [20]

The below mentioned Figure 2 represents total amount raised by the World Bank from green bond issuance from 2015 to 2019 and its total allocation in terms of percentage.

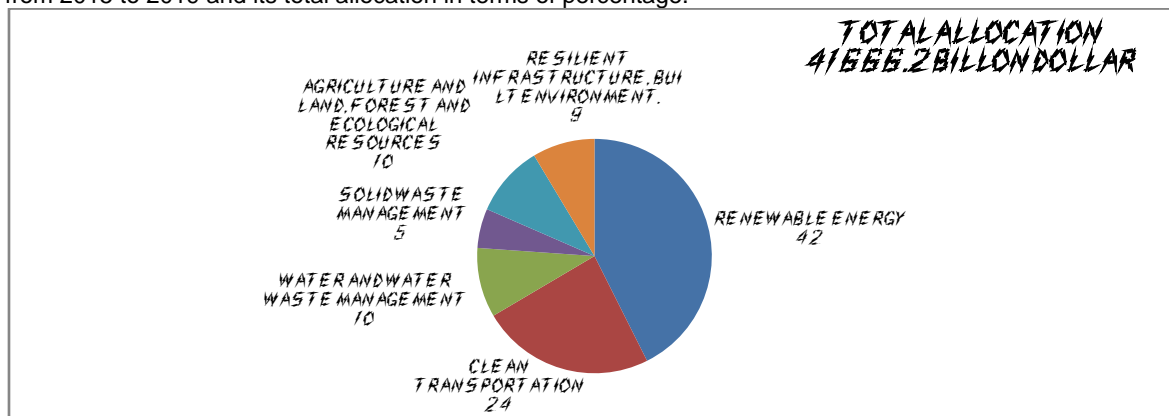


Figure 2: Five Year Green Bond Proceeds Allocation by World Bank in Different Sectors of the World
Source: (Green bond impact report) [16], [17], [18], [19], [20]

The above figure is representing that World Bank raised total 41666.2 billion dollar from issuing green bonds out of which 42% is allocated in renewable energy projects, 24% clean transport agency, 10% in water and waste management, 5% in solid and waste

management, 9% in resilient Infrastructure projects and 10% in agricultural development. Further, the Table 2 is representing the progress report of green bond [16], [17], [18], [19], [20].

Table 2: Highlights of World Bank’s Efforts towards Sustainability with the Help of Green Bonds

Year	Key Points
2009	<ol style="list-style-type: none"> 1. First so labeled green bond issued by World Bank. 2. IFC inaugural Green bond 3. Climate bond issued
2010	<ol style="list-style-type: none"> 1. Concept of climate Finance is established under the UNFCCC 2. UN Green Climate fund established.
2011	<ol style="list-style-type: none"> 1. Green bond market is formally organized by G20, IMF and OECD.
2012	<ol style="list-style-type: none"> 2. Total 2.6 billion dollar raised by World Bank. 3. Green Bond is recommended as climate finance solution by International energy agency and OECD.
2013	<ol style="list-style-type: none"> 1. First corporate green bond 2. First Municipal Green bond
2014	<ol style="list-style-type: none"> 1. The Green bond principle are framed 2. Green is formally organized as an climate action by UNFCCC
2014	<ol style="list-style-type: none"> 1. The Green bond principle is framed 2. Green is formally organized as an climate action by UNFCCC
2015	<ol style="list-style-type: none"> 1. First Green Covered bond 2. UN sustainable development goals lunched and CO 3. P21 Pairs Agreement signed
2016	<ol style="list-style-type: none"> 1. First Sovereign bond lunched 2. Green group study lunched by china.
2017	<ol style="list-style-type: none"> 1. Total issuance by World Bank is 161 billion dollar.
2018	<ol style="list-style-type: none"> 1. Total issuance accounted for 500 billion dollar. 2. Green loan Principle
2019	<ol style="list-style-type: none"> 1. Luxembourg green exchange displayed World Bank sustainable Bonds.
2020	<ol style="list-style-type: none"> 1. World Bank is the largest issuer of green bond and china is the major Investor of green bond.

The above table is representing the progress report of green bond from its initiation to becoming the world’s largest issue. The issuance of green bond is important because the fund raised by the traditional instrument was not sufficient for dealing with sustainable challenges and meeting the sustainable development goals 2030.

Journey of Green Finance in India

The Green Finance practices are also important for India like rest of the world because it is the second most populated country in the world and more than 60 % population is based on agriculture and the rate of natural resource consumption is very high. Unfortunately the practices of green finance came in India very late and these practices

have also brought some challenges with it. But before moving towards the green finance practices followed

Definition of Green Finance

Green finance comprises :

The finance of private and public green investment used in following area

1. Environmental goods and services like water management, soil management or protection of bio diversity and forestry management
2. Prevention, reduction and compensation of damage to the environment and to the climate such as (dams and energy efficiency)
3. The finance of public policies that promotes
4. The implementation of environmental mitigation projects
5. Adoption of initiatives and projects engaged in renewable energy
6. Elements and component of financial system that deal with Green Investment (green climate funds bio diversity funds etc.)
7. Green instrument (green bonds, forestry derivatives etc).

Source: (Nannette Linenberg, 2014) [22]

From the above definitions the meaning of green finance is cleared but the green finance practices are not limited to them but these are wider than this terminology. The green finance practices include not only green finance but also ethical finance, climate finance, environmental finance and social finance also. India is a developing country and the growth of industrial sector in India was not so fast as the world's other developed nations are growing because it got independence in 1947. The first Industrial Policy was declared in 1948 followed by Industrial Policy 1956, Industrial Policy 1977 and Industrial Policy 1980 for the promotion of industrial sector in India but these policies were not as effective as the New Industrial Policy 1991 [11].

The New Industrial Policy had given a kick start to the industrial sector by introducing a plenty of reforms. This was the era of the Indian history where the industrial sector got the wing to fly with the introduction of LPG (liberalization, Privatization, Globalization). Liberalization refers to the process of reducing the restriction on the domestic industries so the new industries in India get easily established and

by India one should know the concept and the area covered in these practices.

rate of industrialization increase. Privatization refers to the process of allowing the private players to setup industries in India and remove the industries from the reservation list of the government. Globalization means linking the domestic economy with world economy. In short welcoming the all kind of foreign investment and allowing the Indian investors to investment in the other country.

The LPG policy has brought extensive changes in the economic structure of the country.

Later on many other reformed were borrowed from this LPG policy and introduced in many industrial sectors and redefined the working of the industrial sector. Following are some major changes which are taken place with the introduction of New Economic Policy [12].

1. The role of public sector industries is redefined.
2. A purposeful reform policy sector were lunched which included, disinvestment policy.
3. Restrict on foreign investment were removed to the some extent.
4. Industrial de-licensing, (end of the licensing or red tapism), only 13 industries are required to get license for starting operation.
5. Step of industrial deregulation were taken; private players were allowed to open the industry.
6. Monopoly restriction act was abolished.

Later on, so many industrial reforms were introduced which made India fastest growing economy in the world. This rapid industrialization took many problems with it such as disappearance of handy craft industries, fading domestic culture, brain drain and environmental degradation. Out of these problems environmental degradation is most burning and challenging issue that was recognized by India in its 12th five year plan [22]. From that point of time, India had been trying to solve problems arose out due to industrialization. However the workings of India towards sustainability took boost after lurching the program of Go Green Initiatives [33]. Under Go Green Initiative a cumulative efforts were made by the different sectors of country. Table 3 presents the significant initiatives taken by India in the direction of environment sustainability under the flagship of Go Green.

Table no. 3: Go Green Initiatives of India

S.N.	Sector/ Agency	Initiatives
1.	Government of India	Five initiatives made by government of India 1. Namami Gange Programe 2. Green skill development programme 3. Swachh Bharat Abhiyan 4. Compensatory a forestation Fund Act
2.	Reserve Bank of India	Set up the Green Banking Guidelines
3.	SEBI	Set up the Green Bond Guideline as well as green bond frame work.
4.	IRDA	Green Insurance frame work

Source (your story, 2019) [33]

The above initiatives became the foundation of Green India and after seeing these initiatives the country got a kick start towards the green financial practices.

Green Finance Practices followed by Indian Banking Industry

As we all know that banks are the back bone of modern financial system and none of the financial

practice become successful without support of banks. In India, banks are controlled and regulated by Reserve Bank of India under the monetary policy. The important feature of the Indian banks is that they show remarkable and active participation in those activities that are performed for the welfare of the society. The different initiatives taken by the Indian Banking Industry are listed below:

State Bank of India

1. Lunched green counter channel (2014).
2. Collaborated with Suzlon Energy Ltd. (2014)
3. Entered into agreement with Exim Bank to jointly provide loan to Astonfield Renewable Resources and Grupo T-Solar Global for building solar plants
4. Promoting e transaction by lunching SBI YONO
5. For Reduction in use of paper provide e-receipt [23].

Punjab National bank

1. Conducting E audit
2. Organized more than 290 tree plantation driver
3. Promoting green building practices
4. Formulated guideline regarding pollution control before providing role.
5. Signed green pledged with ministry of renewable energy [24].

Canara Bank

1. Promoting mobile banking, tele banking and e banking
2. Setup e- lounges for high tech banking
3. Setup kiosk for printing pass book
4. Promoting green HRM practices
5. Given preferences to loans provided for environmental projects [25].

ICICI Bank

1. Offering green product and services like Instabanking and e-vehicle finance

2. Patterned with CNBC
3. Promoting green communication
4. Making partnership with many NGOs and international organizations for promotion of green banking practices [26].

HDFC Bank

1. Encouraging employees to prevent the use of natural resources in wasteful manner
2. Promote e – transactions
3. Promoting energy conservation by promoting the use of CFL instead of traditional lighting
4. Established solar ATM
5. Recycling paper [27].

AXIS Bank

1. Initiated the process of dry waste for recycle them into note book
2. Started car pulling
3. Annual report is being sent through email [28].

Apart from aforesaid initiatives, the Indian banks started many other green financial activities such as online banking, solar ATM, Tree plantation assignment, mobile banking, canvas bags, green mortgages and loan, green car loan, green cards, green insurance and green securitization [29].

Green Financial Practices Followed by other India Industries

After the Go Green Initiative taken by India, the prospective and the way of working of Indian companies have changed drastically and now the Indian become the second largest country after China, which started following the green financial practices.

In India, 1119 companies are engaged in environmental product and services [31]. The Table 4 describes the list of companies, which offers eco friendly product and services.

Table 4 List of Eco-friendly Indian Companies

Sl.No.	Name of the Sector	No. of Companies
1.	Alternative energy	197
2.	Art & Craft	51
3.	E vehicle	19
4.	Eco Fashion	51
5.	Eco friendly packaging	65
6.	Eco tourism	53
7.	Green architecture	51
8.	Green funding	6
9.	Green gadgets	2
10.	Green innovation	40
11.	Green media	11
12.	Green products	89
13.	Herbal medicine	28
14.	Organic agriculture	87
1.	Organic food and drinks	140
2.	Rural development	30
3.	Training and education	40
4.	Waste management	108
5.	Water conservation	51

Source (Ec Deaz, 2020) [31]

Keeping the "Go Green" Initiative in the mind, SEBI realized the need of green instruments because traditional instruments were lacking in supply of funds required in the environmental conservation area and meeting the sustainable development goals

2030. SEBI formed the Guidelines regarding Green Bonds. These guidelines are known as Green Bond Guidelines and Green Banking Guidelines [35]. If any Indian company wants to issue green instrument, it has to follow the Green Bond Guidelines issued by

SEBI. Table 5 is showing the Indian companies which issued green instrument and the respective area where these funds are utilized.

Table 5: List of Indian Companies that Issued Green Instruments

S.N.	Name	Amount Raised	Area of utilization
1.	Yes Bank	10 billion dollar	Renewable Energy and Energy efficiency
2.	EXIM Bank	500 million dollar	Low Carbon Transport
3.	CILP WIND Farma India	6 Billion dollar	Renewable energy
4.	IDBI	500 million	Renewable Energy, Low Carbon Transport and water management
5.	Hero Future Energy	3 billion	Renewable energy
6.	PNB Housing finance	5 billion	Low carbon buildings
7.	Axis Bank	500 million	Renewable energy, Low carbon buildings and transport
8.	ReNew Power	5 billion	Renewable energy
9.	Greenko	500 million	Renewable energy
10.	IREDA	7 billion	Renewable energy
11.	SBI	650 million	Environmental friendly projects

Source: (Green bond market and green bond, 2018) [32]

Conclusion

It is clear from above discussion that environmental sustainability is not only the problem for India but it has occupied the whole world. Now it has become a challenge to meet the needs of current generation without deprivation of future generation from these facilities. For this purpose many practices are being used by the countries. Green financial practices are one of the emerging powerful practices developed by the World Bank and it has been trying to make these practices more effective since their inception and become successful up to a great extent. If we talk about the use of these practices in Indian context, the green financial practices came in India very late but now tremendous progress has been made by India in this area and it is following these practices at a very large scale as it can be seen in India that there are total 1119 companies, which are engaged in the area of producing eco friendly products and services. India has raised almost 38 billion dollar from the issuance of Green Instruments and fund which have been so raised are utilized in the environmental conservation projects. Moreover, Indian banks are also actively participating in green financial practices by changing its ways of working i.e. shifting paper work to digital work. Overall it can be concluded that green financial practices have been emerged as very innovative tool to fight against environmental degradation and India is on the right track and doing well in this area for making India Green.

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