

Green Finance Key for Sustainable Development of Economy

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Abstract: *Green finance is an element of a broader occurrence; from the incorporation of assorted non-financial or ethical concerns onto the financial universe. Generally green finance is taken into account because the resource for green growth which reduces greenhouse emission emissions and air pollutant emissions significantly. Green finance in agriculture, green buildings and other green projects should increase for the economic development of the country. In this paper an effort has been made to explain green financing in a very boarder sense. In present times of technological progress the worldwide economy is undermined from three major challenges: environmental change, vitality limitations and money related emergency. this can be on account of economic improvement conveys alongside itself expenses to the countries within the shape of environmental degradation. Green finance is that the solution for accomplishing contract between the economy and nature. Green finance is taken into account because the monetary help for green development, which decreases ozone depleting substance discharges and air contamination emanations altogether. Green fund in horticulture, green structures, green security and other green activities should increase for the monetary improvement of the state. During this paper an Endeavour has been made to explore the prevailing literature on the green finance and future scope of green finance in India. Green finance is an emerging concept within the field of finance. Because of limitation of public finance for financing the sustainable development and reducing the consequences of temperature change temperature change}, private finance has gained its importance. Green finance which capitalizes the private finance refers to financial support for sustainable development. This study, through secondary information, attempts to debate the necessity, constraint and government initiative for green finance. the aim of this paper is to aware the private investors about their role in sustainability.*

Keywords: Environment, Green building, Green finance, Green projects, Renewable energy.

I. INTRODUCTION

In the 21st century green financing becomes essential part not only in business but also in environment science. All the nations, developed and developing should take the attempts for green financing. it's estimated that global green financing in green infrastructure will reach to \$40 trillion between 2012 and 2030.

Green finance is that the principle of green credit. It refers to a series of administrative means requiring that commercial banks and other financial institutions keep on researches and developments to supply pollution treatment facilities, be engaged within the ecological protection and restoration. It also develop and utilize new energy resources, target the circular economic production, garden truck production, and ecological agricultural production, provide loans to support relevant enterprises and institutions and implement concessionary low interest rates, but restrict new project investments of polluting enterprises accompanied with some punishable interest rates (Xu 2013).

In this paper we've stressed in green agriculture, green buildings, green banking, green marketing and a few other green projects. Government and non-government organizations should take steps to implement green finance within the society for the sustainability of the long run generation.

II. REVIEW OF LITERATURE

- Heim and Zenklusen (2005) found that investors within the stock exchange became environmentally sensitive and wouldn't favor the industries that don't go with the pollution norms.
- Wagner and Schaltegger (2006) indicate the unresolved issue of the requirement for accounting and reporting standards with indicators which are universally acceptable and applicable to any industry an extra argument was made that social and environmental reporting and accounting are meant to be developed and implemented side by side.
- Weber, Fenchel, and Scholz (2008) supported a survey of UNEP banks and non-UNEP banks, report that analysis of environmental risks was integrated only during due diligence at application but not altogether aspects of the lifetime of the loan, specifically the monitoring phase. They argue that the banks don't have a whole understanding of the impact of environmental risks on their loan portfolio.
- Verma et al. (2012) emphasised that there are some issues which impede the expansion of green financial products.

III. CONCEPT OF GREEN FINANCE

There is no standard definition of green financing. Green finance defines as support for green growth which reduces greenhouse gases (GHGs) and air pollutant emissions significantly. Green growth indicates as growth make through the harmony between the economy and also the environment. Finance in industrial and economic advancements with the reduction of green house gas emissions and other environment pollutions is green finance. Green growth is that the solution to 3 current threats to the worldwide economy; namely, climate change, energy constraints and financial crisis. Green finance faces a wide-ranging challenge to the normal constructs of monetary law in every country. within the 1990s environmental considerations have began to play an even bigger role within the field of project finance, influencing and shaping the organizational routines governing lending decisions.

Green finance covers the development of the areas of environmental degradation, such as, pollution, pollution and scarcity, infringement of rivers, improper disposal of commercial medical and house-hold waste, deforestation, loss of open space and loss of biodiversity. It must be eco-friendly and might contribute to poverty alleviation. The Clean Development Mechanism (CDM), means reducing GHGs through eco-friendly technologies and obtaining carbon emission reductions which will be traded for earning carbon credits. it's a co-operative mechanism established under the Kyoto Protocol-1997, has the potential to help developing countries in achieving sustainable development by promoting environment friendly investment from industrialized country governments and businesses (Chaudhary and Bhattacharya 2006). Financing in CDM projects is additionally a green finance. For green financing the subsequent strategies are needed (Opportunities in Green Finance 2009):

- Allocate policy environment for promoting investment,
- Increase of public and personal investment,
- Identify suitable projects for green finance,
- Identify the problems and approaches for green finance, and
- The role of varied agencies in promoting green finance.

IV. OBJECTIVES

In this paper we specialize in green financing in some detailed manner. Business is that the {part of} environment so finance in green projects becomes a significant part of the sustainability and growth of the organizations. So during this research objective is to form green financing in grass root of the economy. Emphasize is on green finance programmes at this time.

V. METHODOLOGY

This Research is predicated on secondary data of the researchers on global green financing. The attempt has been taken through this paper to initiate green finance within the developing country like India. Every society needs green finance for eco – friendly business, as population of the planet is growing rapidly for the rapidly growing population we'd like green finance to form the environment healthier and become an area where all the creatures of earth will live healthy life.

5.1 History of Green Finance

In 1992, The UN Environment Program Finance Initiative (UNEP FI) was launched when UNEP joined with a gaggle of economic banks to market consciousness of the environmental program into the banking system. The UNEP Finance initiative may be a unique corporation among UNEP and therefore the economic region. It may be seen because the initial idea of Green Finance. Later on, the initiative keeps engaging more financial institutions, including investment and commercial banks, insurers and fund managers into close dialogues about connecting environmental protection with sustainable economic development. It aims to integrate environmental considerations into present financial services and practices. Currently, around 190 financial institutions beginning, greater than 40 nation as have signed to the UNEP FI statement. Signatory institutions to the UNEP FI statement even have the possibility to find out from the network about the most recent trends and practices on a way to seize green opportunities for growth additionally on shape sustainable finance agenda in their own development (UNEP FI, 2010, 2011).

5.2 Sources of Investment

- Public Finance: it refers to the direct investment by the govt of country International public finance- it refers to the investment from global/ international businesses and multilateral improvement banks.
- Private finance includes both residence and universal resources

5.3 Green Projects

Some of the green projects where green financing opportunities have are as follows:

- Renewable energy projects, such as, solar energy based equipments like solar pump, solar home light, solar street light, desalination plant, geo-thermal energy, biomass based power etc.
- Fuel substitution, such as, coal to grease to gas to hydrogen in power plants, manufacturing process industries, automobiles. Fuel shift from fossil fuel to compressed gas (CNG) or Liquefied petroleum gas (LPG) within the transport sector and related equipment finance.
- Energy from biomass, such as, biofuels from rice husk, sugarcane bagasse, molasses waste etc. Cultivation for biofuels, agriforestry.
- Fuel efficient equipments.
- Energy efficiency improvement and waste heat utilization projects.
- Recycling of waste vermicompost, compost from sericulture waste/cocoons, paper, coconut fibre, cloth/yarn, jute wastes, garments waste.
- Rain water harvesting by rooftops, farm pond.
- Soil conservation/watershed structures-On-farm development, contour binding, bench terracing.
- Carbon sequestration projects like horticulture and forestry, social forestry, afforestation.
- Green housing/habitat-Rain water harvesting, waste management, renewable/solar energized, sanitation, eco-friendly material.
- Biofertiliser/biopesticide, Rhizobium, Azotobacter, Azolla, Trichoderma, Trichogramma.
- Green microfinance.
- Improved Jute retting technology.
- Cultivation of and use of eco-friendly material/handicraft-Jute.

- Finance projects which address conservation issues-prawn hatchery, fish seed preparation, ornamental fisheries.
- Cultivation of aromatic and medicinal plants.
- Rural and eco-tourism.
- Bee keeping.
- Integrated farming models.
- Other project and activities that reduce anthropogenic emissions by sources, management of methane emissions from municipal landfills, management of methane emissions from agriculture and cattle manure management.

5.4 Green Financial Products

A. Retail Finance

- Green Mortgage
- Green Home Equity Loan
- Green Commercial Building Loan
- Green consumer loan, Credit Card

B. Corporate /Investment Finance

- Green Project Finance
- Green Securitization
- Green risk capital & Private Equity
- Technology Leasing
- Carbon Finance

C. Asset Management

- Fiscal Fund (Treasury Fund)
- Eco Fund, Carbon Fund
- Cat Bond (Natural Disaster Bond)

D. Insurance

- Eco ETF Insurance
- Auto Insurance
- Carbon Insurance
- Catastrophe Insurance
- Green Insurance

Three classifications for green fund are: framework of green, money related help for industry or firms and budgetary markets. Green financing identified with environmental change incorporates alleviation and adjustment ventures. Numerous private financial specialists see the hazards of ecologically economical activities as not advocated by the conventional returns. Open financing components can tilt this adjust for apparent gainfulness; for example, by offering delicate advances or ensuring credits from private banks. Open subsidizing can help goad private speculation. Joined Nations Economic and Social Commission for Asia and also the Pacific, Financing an Inclusive and Green Future: A Supportive (Hee, 2010).

Green financial products and repair opportunities vary across the sectors and markets. The features of those products are as follows:

- Improved market shares efficiently. As green financing products are of fine quality, in order that they continuously creates demand in markets.

- Increase profits within the business. Majority of shoppers choice green products, in order that both producers and sellers find satisfied get pleasure from the green financial products.
- Environment awareness and benefits are created. a comparatively high degree of environmental awareness and government support for environmental sustainability in Europe has driven ever-growing consumer demand for eco-friendly products and services.
- Improved the image of the varied brands. Most of the consumers' choices are the brand products which come from green financing.
- Positive media attentions are created. Higher levels of media coverage about green financial issues, together with multinational environmental campaigns and outreach initiatives have helped improve the final public's understanding of the problems.
- Create higher employee satisfaction and maintenance. Since employees in green financing factories find satisfied salaries, bonus etc. and accommodation of workplace is healthy, so efficient and healthy workers provide maximum production within the market.
- Improved license to control green financing. The green financing products have higher demand within the world markets; as a result government improves the license of the green financing projects.
- Increase customer acquisition and loyalty. Products of green financing are durable and smart, so that, customers have faith in these products and browse to pay premium price for the purchasing of green products.
- Strengthened relationships and partnership with external stakeholders. As external stakeholders find maximum satisfaction for the products of green financing, they're wanting to create relationships and partnership within the green financing producers.

VI. GREEN FINANCIAL PRODUCTS & SERVICES IN INDIA

6.1 Green Bond

Green bond could be a device which has characteristics almost like that of a customary bond certificate but the difference is simply that the issuer of this bond utilizes the proceeds from this bond in energy efficient projects linking to renewable energy, production reduction, reforestation, etc.

In India, Indian Renewable Energy Development Agency (IREDA) issued a tax free Green Bond in February 2014 for Rs.1, 000 each. It issued bonds with 10 year, 15 year and 20 year terms carrying interest rates at 8.16%, 8.55% and 8.55% p.a. respectively. CARE and Brick Works gave it AAA rating. Yes Bank has issued a ten year Green Infrastructure bond in February 2015 raising an amount of Rs.1, 000 crores. the quantity raised by the bank would be diverted towards the financing of the Green Infrastructure projects like solar energy, biomass, wind generation and tiny hydel projects. it's affiliated with KPMG India to produce Assurance services annually in unison with the green bond principles. In 2016 Yes Bank issued another green bond as a non-public assignment with International Finance Corporation (IFC) as a sole investor for INR 3.15 billion. The bond has been rated as AA+ by ICRA and CARE. EXIM Bank of India issued a five year \$500 million green bond in March 2015. it's the India's first dollar denominated green bond.

6.2 Green Insurance

Green insurance schemes are those schemes which give risk cover at a coffee premium and enhanced coverage for green products to reduce the impact of global climate change, thereby fostering good corporate behavior. In India at the present HSBC collaborated with Allianz to produce its customers with green reinvestment insurance. It provides cover to buildings obtaining certification from international environmental standards like US Leadership in Energy and Environmental Design (LEED) and Building Research Establishment Environmental Assessment Methodology (BREEAM). This cover provides a further 5% over and above the conventional insured loss amount with a only minor increase in premium. this could encourage the builders to make more energy efficient buildings.

6.3 Green Loan Schemes

Green loan schemes are the financing schemes offered by commercial banks and financial institutions at concessional interest rates directed towards providing support to investment in energy efficient projects. banking company of India (SBI) had launched a Green Home loan scheme at low interest rates to encourage the purchasers to choose Green housing i.e., the buildings that are certified by rating agencies like Leadership in Energy & Environmental Design (LEED) India, India Green Building Council (IGBC) and TERI – GRIHA from TERI- BCSD India. ICICI Bank has launched a scheme of car finance which aims at reducing the charge per unit by 50% on the loans taken by the consumers on purchase of cars employing renewable sources of energy just like the Civic Hybrid of Honda, Tata Indica CNG, Reva electric cars, Mahindra Logan CNG versions, Maruti's LPG version of Maruti 800, Omni and Versa and Hyundai's Santro Eco. Under its Home finance schemes the bank attempts to cut back the processing fees of consumers purchasing homes in LEED certified buildings. (Raghupati and Sujatha, 2015) Union Bank of India offers schemes extending loans to farmers for purchase of solar water heaters, solar water pumps and installing of solar home lighting system. Punjab full service bank offers medium term loan schemes to farmers for construction of green houses, fitting of biogas plants with sanitary latrines and features a scheme of PNB's Saur UrjaYojna for little farmers to finance the acquisition of solar home lighting and water heaters. India being a developing country features a bond market operating within the nascent stage.

VII. FUTURE SCOPE OF GREEN FINANCE IN INDIA

Environment sustainability being a key issue on worldwide level has increased the scope for investment in green projects utilizing renewable energy resources. Therefore, many banks and financial institutions would forestall at tapping this growing sector. Thus, there'll be increase in demand for Green bonds and structured green funds. Moreover, investors would get the advantage of diversification from investment in such bonds. this is often true in context of India also as a study of Mc Kinsey & co. found that a probable increase in carbon emissions to five – 6.5 million MT in India can be lowered by 30% to 50% by 2030 by investing in energy efficient technologies in building infrastructure and for this purpose there would be need for an extra 600 – 750 billion Euros even after accounting for steep decline in cost of renewable energy technologies. International Finance Corporation (IFC) has taken a step during this regard. it's decided to take a position \$75 million in green bonds issued by Punjab commercial bank Housing Finance Ltd. in 2015. These are secured non – convertible debentures whose proceeds are directed towards the development of Green residential buildings certified by World Bank's EDGE.

In India a Council on global {climate change | temperature change} under the supervision of Prime Minister was constituted in 2007 and reconstituted in 2014 for adaptation and mitigation of climate change. it's launched various programs like National Action Plan on temperature change, Jawahar Lal Nehru National Solar Mission, National water Mission, National Mission for Enhanced Energy Efficiency, National Mission on Strategic Knowledge for global climate change, National Clean Energy fund. Other programs like Auto Fuel vision and Policy 2025, Expert groups on Low Carbon Strategies, etc. In 2015 the Green Climate Fund founded under the framework of the world organization Framework Convention on global climate change (UNFCCC) has accredited NABARD as National Implementing Entity (NIE) to finance clean energy projects in India.

VIII. CONSTRAINTS FOR GREEN FINANCING

Stable Policy and Regulatory Framework: Private sector doesn't want to take a position when there's instability regarding policies of presidency. hit or miss policy creates uncertainties about risk and returns of the projects. There should be a stable policy environment which provides guidance, assurance and encourages the investors for future green investment.

- **An Environmental Performance Disclosure:** Disclosure and reporting about the environmental performance of the firms is crucial for green financing. Socially responsible investors want to speculate in green firms but lack of knowledge about environmental performance of the businesses makes green finance difficult.

- Low Profitability of Green Industries: Private sector is more inclined to form investment in polluting industries due to low cost and high return in it than green industries. Moreover, green investments are long run in nature which makes them less attractive for investment.
- Mechanism for measuring the Viability of Green Industries: Investors want to take a position in those projects which are commercially viable. There's no proper mechanism to settle on commercially viable green projects. Conventional projects look more viable than green projects due to less incorporation of positive and negative externalities in measuring the viability of the projects.
- Less Awareness among Consumers for Green Products: Private sector will produce green products only there's sufficient marketplace for that. Due to high cost and lack of awareness about the importance for green products people hardly buy green products.
- Less Awareness among Investors about Green Finance: Besides low profitability, low awareness among investors about the importance of green finance is additionally a serious constraint. Also investment in energy efficiency technology and solar power etc. are considered as cost, not investment.
- Less availability of green financial products: Limited number of green financial products is additionally a significant obstacle for the event of green finance.

IX. RECENT GOVERNMENT POLICIES IN INDIA

The Recent Government Policies and Initiatives which have Increased the Scope of Green Financial Products In India are as follows:

- India's National Action Plan on temperature change recommended that country should generate 10% of its power from renewable energy resources by 2015 and 15% by 2020. Of India's installed power generation capacity of two, 55,012.79 megawatt (MW), renewable power features a share of 12.42% or 31,692.14 MW which shows that there exists a large scope for investment during this sector.
- The Ministry of recent and Renewable Energy (MNRE) has revised its targets for energy capacity to 1,75,000 MW till 2022, comprising 1,00,000 MW solar, 60,000 MW wind, 10,000 MW biomass and 5,000 MW small hydro. These revised targets demand a large investment. Since, the sanctioned budget wouldn't suffice so MNRE has asked the general public and personal sector financial institutions like Power Finance Corporation (PFC), Rural Electrification Corporation (REC), Indian Renewable Energy Development Agency (IREDA), IFCI Ltd, SBI Capital Markets Ltd and ICICI bank Ltd to lift funds.
- The finance ministry has increased the clean energy cess on coal by Rs.100 per metric tonne to fund clean environment initiatives. The scope of National Clean Energy fund (NCEF) has been expanded to incorporate financing and promoting clean environment initiatives and fund researches towards that end.
- The government has also proposed the utilization of renewable energy resources in railways sector. It includes use of CNG in train operations, putting in of water recycling plants, use of solar power to illuminate coaches, station buildings and platforms. There's also a proposal to vary the planning of locomotive cabin to cut back the background level.
- Other initiatives on a part of government includes its plans for creating a solar army, providing working capital to ambitious solar energy generation projects and putting in of solar parks totaling 20,000 MW over a period of 5 years.

9.1 Steps taken by the Indian Economic System

1. National Environment Policy (NEP) 2006
2. National Action Plan on temperature change (NAPCC)
3. State Action Plan on temperature change (SAPCC)
4. Energy Conservation Act
5. National Electricity Policy (NEP)
6. Integrated Energy Policy (IEP)

9.2 Recommendations

In the 21st century, for the sustainable economic and financial development, green finance become as a world concern. All the nations are anxious about change of environment and environment pollutions. For green financing we'd like to

1. Identify the possible green projects and verify them whether or not they are green financing or not,
2. Finance to get less waste, recycle waste into composts or other articles projects,
3. increase finance all told green projects,
4. Awareness creation at grassroots level among rural populace is important,
5. Founded of green projects and facilitate replication,
6. Motivate the marginal and tiny holder farmers to green farming,
7. Plant trees where ever possible,
8. Encourage developers to create green buildings,
9. Finance in eco-friendly products,
10. Micro-finance to be increased to prudence green products with very low rate, and
11. Finance in rain water harvesting and solar lights and other renewable energy sources.

X. CONCLUSION

In this paper we've got discussed green financing and take a look at to point out that it's essential for the event of a rustic. warming is creating various problems within the economy. Scientists and environment experts believe that it's thanks to green house gas emissions. we've stressed that green financing will reduce green house gas emissions significantly. we've got provided the usefulness of green buildings which save energy and keep healthy environment and reduce illness of the dwellers. we've got emphasized to speculate in renewable energy projects and other eco-friendly projects. We hope in near future green finance are going to be popular altogether societies of the world.

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