GREEN FINANCING: AN EMERGING FORM OF SUSTAINABLE DEVELOPMENT IN INDIA

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ABSTRACT

Green financing is a term that refers to sustainable development projects and initiatives, environmentally friendly products and policies that encourage financial investment to stimulate more sustainable economy. This paper mainly aims to study the kind of green financial products and services being offered by Indian markets and to analyze the trends in green financing in India. The research is based on the secondary data in the descriptive and analytical nature. The study observed that Indian green Finance market is at an emerging stage and it has not been able to attract ample number of investors.. It requires proper framework for making these green finance products more attractive to the investors. The current market practices, regulations monitoring the market and financial incentives are becoming a great hurdle in the success of financial instruments. Therefore it is suggested that Awareness among Investors and consumers about the green finance is essential for the sustainability of the economy. Conferences, newspaper report, seminar can be useful tools for imparting the knowledge about the necessities of green products, technologies for energy efficiency for the sake of the future generation because a socially responsible consumer creates the market for green products.

Keywords: *Green finance, Green bonds, Green Banking*

Introduction

The Finance sector of an economy forms the backbone of the country. It has a direct impact on the country's economic growth and development. However in order to achieve sustainability in economic growth the philosophy of Environmentalism plays a very crucial role. Therefore, with increasing environmental concerns both at national and global level; it has become important for the finance sector to become responsive to these environmental issues. This gave rise to the concept of Green Finance which is an innovation in the field of finance. Green Finance thus involves making investments in environmentally sustainable products and projects which aims at reducing or avoiding greenhouse gas emissions, controlling industrial pollution, water sanitation, waste management and overall biodiversity protection. It also includes green investments i.e... The stocks, exchange traded funds and mutual funds of the companies whose operations aims at improving the environment.

Green finance is future oriented which pursues economic growth, financial industries development and environmental protection. Particularly green finance can be divided in two parts:

1. The finance to minimize environmental costs.
2. The finance to support green growth.

In India green growth is an adopted agenda where the concern has been increased on environmental degradation caused by industrialization. There has been realization of the need to take corrective measures to protect environment, the focus has shifted to adopt appropriate production processes to minimize energy conservation and hence Reduce (Waste), Reuse and Recycle have emerged as thrust areas of various activities. But there is still lack of information about availability of alternative clean technologies and advantages of investing in such technologies. In India, SIDBI has taken several initiatives to promote lending for green and energy efficient technology in MSME (Micro, Small and Medium Enterprise) sector such as:

- Focused lending schemes for promoting investment in clean production and energy efficient technologies.
- Promoting investments in production process underbilateral lines of credit from Germany and Japan.

Financial Institution have started going green by offeringgreen products and services to appeal to more environmentally friendly consumers such as: Green Car loans, Energy efficient mortgages, Eco-savings deposits and green credit card.

Along with the green financing, green investment is another instrument to achieve green growth. Green Investment activities focus on companies or projects that are committed to the conservation of natural resources, the production/discovery of alternative energy sources, implementation of clean air and green finance projects and other environmentally conscious business practices.

Research Methodology

Present study is based on Descriptive Research. Present research work is set to study following objectives.

1. To study the kind of green financial products and services being offered by Indian markets.
2. To analyze the trends in green financing in India.
3. To examine various challenges in the area of green financing in India.

Required data is collected from various reports of Government Agencies, Different Financial Institutions reports and websites. This study is restricted to green finance instruments available in India only

Meaning Of Green Finance

There is refusal universal definition of green finance. Green Finance means finance only those projects and businesses which protect or less deteriorates the environment. It considers the negative and positive environmental effects while financing the projects and business investment in renewable energy, resource efficiency/energy efficiency, clean energy, control of pollution, waste management, water sanitation, mitigation and adoption strategies of climate change, bio-diversity protection and development of green products for end user like cloth- cotton bag etc. Green finance refers to financial maintain intended for sustainable development. It includes both public and private finance.

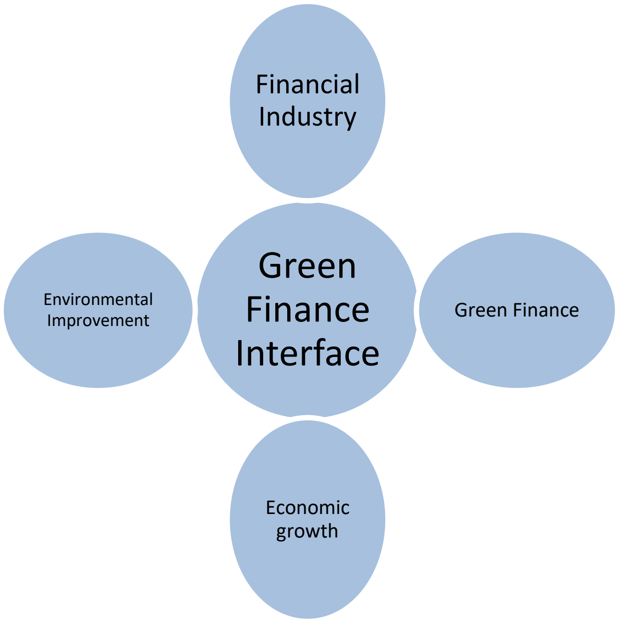
Historical Background Of Green Finance

In 1992, The United Nations Environment Program Finance Initiative (UNEP FI) was launched when UNEP joined with a group of commercial banks to promote consciousness of the environmental program into the banking industry. The UNEP Finance initiative is a unique corporation among UNEP and the economic region. It can be seen as 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 nationas have signed to the UNEP FI statement. Signatory institutions to the UNEP FI statement also have the chance to learn from the network about the latest trends and practices on how to seize green opportunities for growth as well as to shape sustainable finance agenda in their own development (UNEP FI, 2010, 2011).

How Green Finance Work

Green businesses and innovations are all at various levels of development, in this way, requiring distinctive levels of subsidizing from various wellsprings of capital. There are by and large three sources: residential open fund, worldwide open back and private part back. Residential open back alludes to the immediate subsidizing by a legislature while worldwide open fund alludes to subsidizing from universal associations and multilateral advancement banks; private segment fund comprises of both local and global financing sources. Green financing can be bundled in various routes through different speculation structures.

The Green Finance Interface



Green fund is a Centre piece of low carbon green development since it interfaces the money related industry, ecological change and monetary development "One missing connection amongst 'knowing' and 'doing' in the progress to green industry is 'green back'. All green modern suggestions cost cash, and numerous green industry plans of action are as a general rule untested or eccentric. Hence, conventional fund may think that its troublesome or economically ugly to back these green modern recommendations." (Gao, 2009).

Importance Of Green Finance

Green Finance is important as it promotes and supports the flow of financial instruments and related services towards the development and implementation of sustainable business models, investments, trade, economic, environmental and social projects and policies. As the financial sector plays a key role through its intermediary functions and risk management in advancing sustainable economic development while directing investment to the real economy, the intertwinement of these two is crucial.

Moreover, based on the lessons learned from the global financial crisis in 2006-2009, the availing of the global warming and the need for more sustainable business practices, Green Finance Initiatives have also been addressing the 2030 Sustainable Development Goals (SDG's) Agenda by emphasizing the shift of focus from shareholders' value creation (economic) to the generation of stakeholders' value (economic, environmental and social).

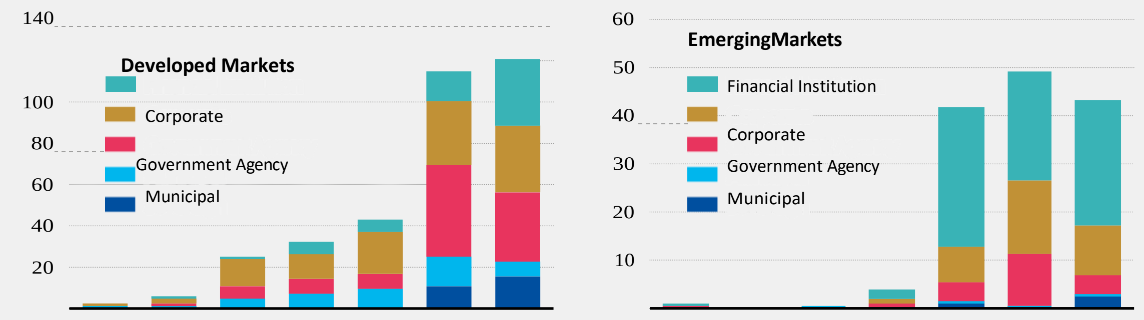
Green Finance represents the future of the financial sector through innovative financial mechanisms and by supporting the investments in projects with positive and sustainable externalities

Key Actors In The Success Of A Green Finance Uptake

CURRENT FOCUS		CHALLENGES TO GREEN FINANCE UPTAKE
• To deliver on NDCs while balancing inclusivegrowth ○ To deliver on long-term low carbon vision, government launched a number of efforts in areas such as Clean and efficient energy, Smart Cities, Green Buildings, Make in India, Urban Mobility,etc. ○ Pricing fossil fuel consumption through coal cess and incentivizing through PAT schemes, Feed-in-tariffs and renewable energy certificates	**GOVERNMENT**	• No formal tracking of budget allocations to assess if flows are sufficient to meet NDCtargets • Inadequate guidance at policy level to drive capital flows into climate-friendlyprojects • Existing efforts mostly focused on RE (solar and wind) and not being replicated "at a similar scale" across other sectors like sustainable transport, greenbuilding

• Sensitized banking sector about international initiatives like Equator principles (2007), accorded priority for banks to provide loans with a threshold of INR 150million to specific borrowers in renewable energy sector(2015) • SEBI issued green bond issuance guidelines (Total Issuance of INR 6billion by 2017); mandatory business responsibility reporting for top 500 listed entities to mainstream sustainability reporting although current format doesn't add value to carbon emission disclosurepractices • Limited focus on climate changerisk	**REGULATORS**	• Environmental risks yet to be recognized as a 'major' threat to financialstability • Climate change risk assessment not part of insurance and pension fund investment guidelines. Regulatory provisions heavily rely on rating agencies to identify high-rated investments, limiting scope for support to climate-friendlyprojects
• Follow E&S risk assessment although mostly for compliancereasons • Banks play a key role in providing long-term financing at competitive rates. However, Basel III compliance requiring larger capital requirements (compliance deadline March 2019 for Indian banks) and existing pressures on loan books (12.1% gross non-performing assets as of 2018) limit banks' ability (and in turn willingness) to deploy funds in emerging sectors where risk is perceived to behigher	**BANKS**	• No specific focus on lending to environment-friendly sectors; focus limited to RE based on priority sector lendingrules • Insufficient clarity on what constitutes green finance and no guidance to enable clear differentiation between green from non-greensectors • Do not consider climate risk in lendingpractices
• Institutional investors, that have access to long-term funds, do not consider climate change risk in their investment decisionmaking	**CAPITAL MARKET PLAYERS**	• Insurance, pension, and mutual funds not focused on greenfinancing • Limited sectoral knowledge and assessment tools to categorize and assess environmentally-friendlysectors • Have the capacity but no guidance to createuptake
• Current models do not recognize climaterisks • No premium placed when assessing project, activity or green associated in environmentally-friendly sectors. No additional risk attached to conventional investments that are not aligning to 1.5°scenario	**RATING AGENCIES**	• Not integrating climate change risk into rating models and do not have enough framework or motivation to undertake this without regulatory guidance and investor demand
• Have access to climate finance (NABARD, SIDBI are Green Climate Fund (GCF) accredited direct access entities) • NABARD has an Environment and Social policy that covers 36 eligible activities under agriculture and related sector, social sector and ruralconnectivity	**DEVELOPMEN T FINANCIAL INSTITUTIONS (DFI)**	• Focus may be skewed or limited to selected sectors like agriculture • No mandate to focus on sectors like clean energy, waste and pollution control, water management, transportation • Limited technical expertise, skills and knowledgeto undertake a broader approach in green

Figure2.3–Green Finance ,byIssuerSector,2012-2018($billion)



Source:IFCanalysis,Bloomberg,EnvironmentalFinance,ClimateBondsInitiative.

Green Finance Scenario

Table 1 Green Finance by issuance sector

While financial institutions in developed markets accounted for some 18 percent of total green greenfinance issuances, they were the largest-issuing sector in markets, making up 57 percent of cumulative green finance issuance, followed by non- financial corporates (25 percent), government agencies (14 percent), sovereigns (2 percent), and municipals (1 percent)

Table 2 Funds Requirements for various purposes of development of Green finance in India. (In billion dollars)

Purpose	**Demand in 2010**	**Demand in 2020**	**Demand in 2030**
Domestic products	42	56	73
Green Products	541	688	910
Energy products	8	12	23
Food	2	5	15
Others	41	52	72
Total	**634**	**813**	**1093**

Above table shows that there is increase in Green Finance products from the year 2010 to the year 2020. And it is also expected that there would be increase in requirements of green financein the year 2030

Table 3 Green Finance Associate Companies

States Amount (In corers)	No of Companies	Amount (In corers)
Andhra Pradesh	10292	480
Assam	509	24.09
Bihar	32	110.5
Chattishgarh	945	119
Gujarat	576	96.68
Karnataka	2318	158.27
Kerala	4079	149.09
Madhya Pradesh	10282	152
Maharashtra	1329	49
Orissa	13434	104
Rajasthan	506	61.65
Punjab	957	16.95
Tamil Nadu	1566	59.40
Uttar Pradesh	279	10.55
West Bengal	10000	37

Above table shows that Orissa, Andhra Pradesh and Madhya Pradesh are having maximum number of companies who are providing green finance at large extent. Bihar, Uttar Pradesh and Rajasthan are having very few companies who are dealing with Green Finance.

Green Financial Products And Services In India

Green Banking

Green Banking is like a normal bank, which considers all the social and environmental factors; it is also called as an ethical bank. Ethical banks have started with the aim of protecting the environment. These banks are like a normal bank which aims to protect the environment and it is controlled by same authorities as what a traditional bank do. There are many differences compared with normal banking, Green Banks give more weight to environmental factors, their aim is to provide good environmental and social business practice, they check all the factors before

lending a loan, whether the project is environmental friendly and has any implications in the future, you will awarded a loan only when you follow all the environmental safety standards Defining green banking is relatively easy. Green Banking means promoting environmental –friendly practices and reducing your carbon footprint from your banking activities. This comes in many forms

1. Using online banking instead of branch banking.
2. Paying bills online instead of mailing them.
3. Opening up accounts at online banks, instead of large multi-branch banks
4. Finding the local bank in your area that is taking the biggest steps to support local green initiatives.

Green Banking Products

Green Loans: means giving loans to a project or business that is considered environmentally sustainable.

Green Mortgages*:* refers to type of mortgage that provides you a money-saving discount or a bigger loan than normally permitted as a reward for making energy-efficient improvements or for buying a home that meets particular energy-efficiency standards.

Green Credit Cards: Be it in form of environmentally friendly rewards or using biodegradable credit card materials or promoting paperless banking, credit cards are going green.

Green Saving Accounts: In case of Green Saving Accounts, banks make donations on the basis of savings done by customer's .The more they save, the more the environment benefits in form of contributions or donations done by banks.

Mobile banking and online banking*:*These new age banking forms include less paperwork, less mail, and less travel to branch offices by bank customers, all of which has a positive impact on the environment.

Table 4

Green Banking Initiatives by Indian Banks

Green Banking Initiatives by Indian Banks include both public sector banks and private sector banks.

Sr.No	Name of bank	Initiatives
1	**State Bank of India:**	SBI has launched green banking policy and set up windmills in Tamil Nadu, Maharashtra and Gujarat in generating 15MW power. This is the first bank in India which is in green banking and promoting green power projects.
2	**Punjab National Bank**	taken various steps for reducing emission and energy consumption.
3	**Bank of Baroda:**	giving preference to environment friendly green projects such as windmills, biomass and solar power projects which help in earning the carbon credits.
4	**Canara Bank:**	doptedenvironmental friendly measures such as mobile banking, internet banking, telebanking, solar powered biometric operations.
5	**ICICI Bank Ltd:**	started 'Go Green' initiative which involves activities like Green products/offerings, Green engagement and green communication with customers
6	**HDFC Bank Ltd**	Taking up various measures for reducing their carbon footprints in waste management, paper use and energy efficiencies

7	**Kotak Mahindra Bank**	Through the 'Think Green' initiative this bank had taken several initiatives such as to reduce the paper consumption and encouraging their customers to sign for e-statements and they had become partners with 'Grow- Trees.com' to plant one sapling for every e-statement on behalf of its customers.
8	**IndusInd Bank**	Initiated its Green Office Project under which it had installed solar powered ATMs in different cities targeting energy saving as well as reducing CO2 emissions
9	**IDBI**	is providing various services in the field of Clean Development Mechanisms (CDM) to its client.
10	**YES Bank**	It has projects portfolio in the areas of alternative energy and clean Technologies

Source: Money Control (2018)

Green Bonds

Green bond is a debt instrument which has characteristics similar to that of a standard coupon bond but the difference is only that the issuer of this bond utilizes the proceeds from this bond in energy efficient projects relating to renewable energy, emission reduction, reforestation, etc.

Following are some facts of International Bond markets are as follows:

- High currency hedging costs.
- Poor sovereign ratings (currently at BBB)
- Low tenure (currently concentrated between 3 to 10 years)
- There are some recommended policy measures which the government can take to overcome the challenges faced by green bonds:
- Development of an exchange risk liquidity facility through foreign reserves to the participantsof green bonds for specified period.
- Complying with the guidelines of Green Climate Fund (GCF) to provide risk mitigationproducts such as partial credit guarantees, risk guarantees or hedging product, etc.
- One of the policy measures to reduce hedging risks can be indexing electricity tariff toinflation.

In India, Indian Renewable Energy Development Agency (IRDA) 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 10 year Green Infrastructure bond in February 2015 raising an amount of

Rs.1,000 crores. The amount raised by the bank would be diverted towards the financing of the Green Infrastructure projects such as solar power, biomass, wind power and small hydel projects. It has tied up with KPMG India to provide Assurance services annually in accordance with the green bond principles. Hindustan Power Project entered the green bond market with an issue of bonds fully underwritten by Yes Bank.

In 2016 Yes Bank issued another green bond as a private placement 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 is the India's first dollar denominated green bond. The bank would utilize the proceeds in funding the green projects in India, Bangladesh and Sri Lanka.

NTPC Ltd. had planned to raise $ 500 million by way of green bond issue. The proceeds from this issue will be used for setting up 10 GW solar power capacities. The state governments of Andhra Pradesh, Telangana, Madhya Pradesh and Rajasthan have asked the company set up large scale solar power projects for which it has issued tenders worth 1.25 GW solar PV power capacities. Re New Power Ventures issued green bonds for raising $68 million backed by Goldman Sachs. Greenko, a clean energy player issued a $550 million high yield corporate bond to re-finance its wind and hydro power projects carrying a interest rate of 8% p.a. It was rated B by Fitch. CLP

India Ltd. issued Green bonds to raise Rs. 600 crore offering a coupon rate of 9.15 % p.a. in three series of equal amounts and its maturity would take place every year in April 2018, 2019 and 2020.

IDBI Bank Ltd. raised US $350 million by issuing a five year Green Bond priced at Treasuries plus 255 bp, which was oversubscribed by three times i.e. US $1 billion.

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Table 5 Green Bond Market in India

Indian green bonds 2015 - March 2017 — * denotes international issuance

DATE	ISSUER	AMOUNT	COUPON	TENOR	CERTIFIED/REVIEWED	THEME
Feb 2015	YES BANK	INR10bn	8.85	10	n/a	Renewable energy and energy efficiency
Apr 2015	Export-Import Bank of India	USD500m*	2.75	5	n/a	Low carbon transport
Sep 2015	CLP Wind Farms India	INR6bn	9.15	3, 4 & 5	n/a	Renewable energy
Nov 2015	IDBI	USD350m*	4.25	5	KPMG	Renewable energy, low carbon transport and water management
Feb 2016	Hero Future Energies	INR3bn	10.75	3 & 6	Climate Bonds Standard	Renewable energy
April 2016	PNB Housing Finance	INR5bn	8.01	n/a	n/a	Low carbon buildings
June 2016	Axis Bank	USD500m*	2.88	5	Climate Bonds Standard	Renewable energy, low carbon buildings and transport
Aug 2016	ReNew Power	INR5bn	n/a	n/a	Climate Bonds Standard	Renewable energy
Aug 2016	NTPC	INR20bn*	7.38	5	Climate Bonds Standard	Renewable energy
Aug 2016	Greenko	USD500m*	4.88	7	Sustainalytics	Renewable energy
Dec 2016	YES BANK	INR3.3bn	7.62	7	n/a	Renewable energy
Feb 2017	ReNew Power	USD475m*	6	5	Climate Bonds Standard	Renewable energy
Mar 2017	IREDA (x2)	INR7bn	8.12 & 8.05	10	Climate Bonds Standard	Renewable energy

Above table shows that

- Average coupon rate on Green Bonds for domestic issuers is significantly higher7.5%compared with 4.7% for international issuance; this difference is because of currency riskfaced by INR. Hedging cost would beadditional
- InIndia, the coupon rates for bonds ranges from 7% to 10%, anrangeis2.5%—8

Green Insurance

Green insurance schemes are those schemes which provide risk cover at a low premium and enhanced coverage for green products to minimize the impact of climate change, thereby fostering good corporate behavior.

In India at present HSBC collaborated with Allianz to provide its customers with green reinvestment insurance. It provides cover to buildings obtaining certification from international environmental standards such as US Leadership in Energy and Environmental Design (LEED) and Building Research Establishment Environmental Assessment Methodology (BREEAM). This cover provides an additional 5% over and above the normal insured loss amount with a only minor increase in premium. This would encourage the builders to create more energy efficient buildings.

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.

State Bank of India (SBI) had launched a Green Home Bank loan scheme at low interest rates toencourage the customers to opt for Green housing i.e. the buildings that are certified by ratingagencies such as 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 Vehicle finance which aims at reducing the interest rate by 50% on the loans taken by the consumers on purchase of cars employing renewable sources of energy 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 reduce the processing fees of customers purchasing homes in LEED certified buildings. (Raghupati&Sujhatha, 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 National Bank offers medium term loan schemes to farmers for construction of green houses, setting up of biogas plants with sanitary latrines and has a scheme of PNB’s Saur UrjaYojna for small farmers to finance the purchase of solar home lighting and water heaters.

India being a developing country has a bond market operating in the nascent.

Policy and Regulatory Interventions to catalyze green finance at scale

Policy action

Macro approaches to increase green finance availability and allocation in the economy.

Earmarking a portion of Statutory Liquidity Reserves (SLR) from commercial banks for green investments through issuance of green government securities – **Green SLR**

Creating a **dedicated green financial institution /bank** which develops capacity and knowledge to access green and climate finance sources

Using a small part of Forex reserves to leverage and **crowd in additional climate finance flows from international institutional investors by creating financial vehicles outside India**

Regulatory action

Risk assessment guidance and dislcosure mandates to enable market-wide reforms

RBI: Stronger risk assessment frameworks that recognize and measure green and non-green exposures of banks (green tagging), credit quota (under priority sector lending), green lending as a collateral for refinancing from RBI

Pension and Insurance Funds: Minimum capital allocation to green projects, making climate change risk assessment of portfolio a fiduciaryresponsibility

SEBI: Mandatory disclosure of carbon and risk disclosure of listed companies, promotion of green equities and bonds, adjusting ,green premium to valuation of companies in the IPO stage

Market action

Markets need to be more responsive to institutional needs, esp. from international investors

Stock exchange: Promote listing of green equities and green bonds through incentives (lower listing fee), creation of dedicated green indices, lower brokerage fee for green investors

Mutual funds: Issue risk guidance materials for investors (especially retail investors) that highlight climate exposure risks, work with regulator to explore climate risk grading of funds

Credit rating agencies: Mandatory incorporation of climate change risks into rating models, realign credit ratings approach to promote green ratings

Growth of nations will increasingly get defined and measured by their ability to balance economic growth and environmental considerations. Many developing and developed nations are making significant strides, challenging the economic and financial status quo, and upgrading themselves with eco-friendly and environmentally-aware institutions and processes. India needs to undertake similar bold steps that are strategic to its growth in the next few decades. While creating a green finance taxonomy is only a first step to this longer-term endeavor, it is a significant one that can ensure “growth” and “green” are emphasized in parallel to foster in a modern era of “green growth”.

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 look forward at tapping this growing sector. Thus, there will be increase in demand for Green bonds and structured green funds. Moreover, investors would get the benefit of diversification from investment in such bonds. This is true in context of India also as a study of Mc Kinsey &co. found that a probable increase in carbon emissions to 5 – 6.5 million MT in India could 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 additional 600 – 750 billion Euros even after accounting for steep decline in cost of renewable energy technologies. International Finance Corporation (IFC) has taken a step in this regard. It has decided to invest $75 million in green bonds issued by Punjab National Bank Housing Finance Ltd. in 2015. These are secured non – convertible debentures whose proceeds will be directed towards the construction of Green residential buildings certified by World Bank’s EDGE.

In India a Council on Climate change under the supervision of Prime Minister was constituted in 2007 and reconstituted in 2014 for adaptation and mitigation of climate change. It has launched various programs like National Action Plan on Climate change, Jawahar Lal Nehru National Solar Mission, National water Mission, National Mission for Enhanced Energy Efficiency, National Mission on Strategic Knowledge for 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 set up under the framework of the United Nations Framework Convention on Climate Change (UNFCCC) has accredited NABARD as National Implementing Entity (NIE) to finance clean energyprojects in India.

Recent Government Policies And Incentives Of Green Finance In India

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

1. India’s National Action Plan on Climate Change recommended that country shouldgenerate10% of its power from renewable energy resources by 2015 and 15% by2020. Of India’sinstalled power generation capacity of 2, 55,012.79 megawatt(MW), renewable power has ashare of 12.42% or 31,692.14 MW which shows thatthere exists a huge scope for investmentin this sector.
2. The Ministry of New and Renewable Energy (MNRE) has revised its targets forenergycapacity to 1, 75,000 MW till 2022, comprising 1, 00,000 MW solar, 60,000MW wind,10,000 MW biomass and 5,000 MW small hydro. These revised targets demand a huge investment. Since, the sanctioned budget would not suffice so MNREhas asked the public and private sector financial institutions such as Power FinanceCorporation (PFC), Rural

Electrification Corporation (REC), Indian RenewableEnergy Development Agency (IREDA),
3. IFCI Ltd, SBI Capital Markets ltd and ICICI bank ltd to raise funds.
4. The finance ministry has increased the clean energy cess on coal by Rs.100 permetric tonne tofund clean environment initiatives. The scope of National CleanEnergy fund (NCEF) has beenexpanded to include financing and promoting cleanenvironment initiatives and fundresearches towards that end.
5. The government has also proposed the use of renewable energy resources in railwayssector. Itincludes use of CNG in train operations, setting up of water recyclingplants, use of solarenergy to illuminate coaches, station buildings and platforms.

Constraints For Green Financing

1. **Stable Policy and Regulatory Framework:** Private sector does not want to invest when there is instability regarding policies of Government. An unpredictable 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 long term green investment.
2. **An Environmental Performance Disclosure:** Disclosure and reporting about the environmental performance of the firms is essential for green financing. Socially responsible investors want to invest in green firms but lack of information about environmental performance of the companies makes green finance difficult.
3. **Low Profitability of Green Industries:** Private sector is more inclined to make investment in polluting industries because of low cost and high return in it than green industries. Moreover, green investments are long term in nature which makes them less attractive for investment.
4. **Mechanism for measuring the Viability of Green Industries:** Investors want to invest in those projects which are commercially viable. There is no proper mechanism to choose commercially viable green projects. Conventional projects look more viable than green projects because of less incorporation of positive and negative externalities in measuring the viability of the projects.
5. **Less Awareness among Consumers for Green Products:** Private sector will produce green products only when there is sufficient market for that. Because of high cost and lack of awareness about the importance for green products people hardly buy green products.
6. **Less Awareness among Investors about Green Finance:** Besides low profitability, low awareness among investors about the importance of green finance is also a major constraint. Also investment in energy efficiency technology and solar energy etc. are considered as cost, not investment.
7. **Less availability of green financial products:** Limited number of green financial products is also a major obstacle for the development of green finance

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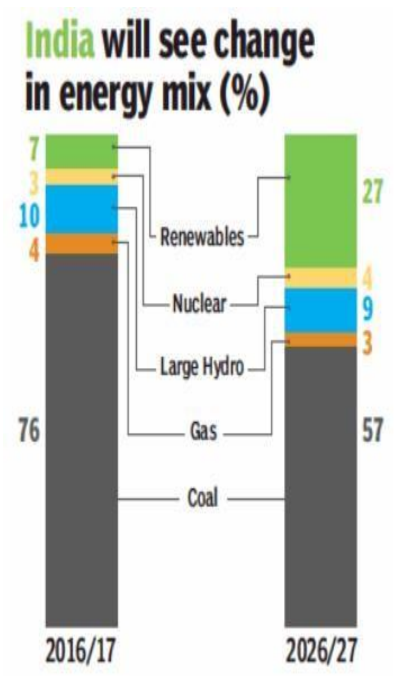
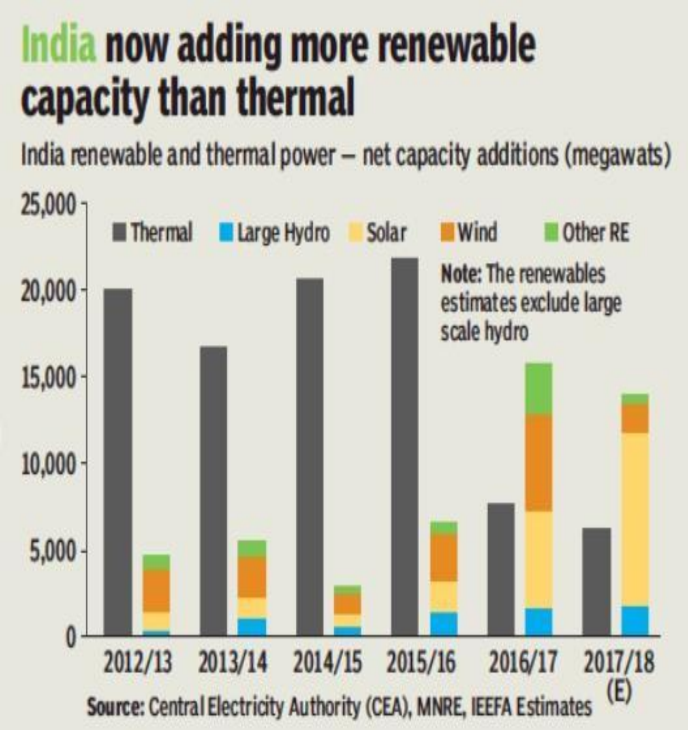
In India a Council on Climate change under the supervision of Prime Minister was constituted in 2007 and reconstituted in 2014 for adaptation and mitigation of climate change. It has launched various programs like National Action Plan on Climate change, Jawahar Lal Nehru National Solar Mission, National water Mission, National Mission for Enhanced Energy Efficiency, National Mission on Strategic Knowledge for 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 set up under the framework of the United Nations Framework Convention on Climate Change (UNFCCC) has accredited NABARD as National Implementing Entity (NIE) to finance clean energy projects in India.

The recent government policies and initiatives which have increased the scope of Green financial products in India are as follows:

1. India’s National Action Plan on Climate 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 2, 55,012.79 megawatt (MW), renewable power has a share of 12.42% or 31,692.14 MW which shows that there exists a huge scope for investment in this sector.
2. The Ministry of New 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 huge investment. Since, the sanctioned budget would not suffice so MNRE has asked the public and private sector financial institutions such as 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 raise funds.
3. 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 include financing and promoting clean environment initiatives and fund researches towards that end.
4. The government has also proposed the use of renewable energy resources in railways sector. It includes use of CNG in train operations, setting up of water recycling plants, use of solar energy to illuminate coaches, station buildings and platforms. There is also a proposal to change the design of locomotive cabin to reduce the noise level.
5. Other initiatives on part of government includes its plans for creating a solar army, providing venture capital to ambitious solar power generation projects and setting up of solar parks totaling 20,000 MW over a period of five years.
6. Indian Innovation Lab, a new initiative of MNRE aims at bringing the public and private leaders on common platform to develop innovative instruments that would mitigate risks and direct more investment for green growth in India. It has launched four winning ideas: Loans for SME, Rooftop Solar Private Sector Financing Facility, P 50 Risk solutions and RenewableEnergy Integrated Hedging, Equity and Debt fund.





Above chart indicates that asper the government estimates, India would required USD 2.5 trillion (at 2014-15 prices) to meet climate change action committed to be achieved till2030

Further, India has embarked upon the ambitious target of building 175 GW of renewable capacity by 2022, from just over 30 GW now, this requires the massive funding of USD 200Bn. Achievability is contingent upon requisite funding at reasonable capital cost; green bonds fits the bill perfectly. According to Bank of America-Merrill Lynch, the domestic green bond market has a $125-billion opportunity by 2025. It expects around $32 billion of such bonds being sold over the next five years.

Findings

1. Indian green Finance market is at an emerging stage and it has not been able to attract ample number of investors.. It requires proper framework for making these green finance products more attractive to the investors.
2. Due to high cost of debt capital the investment in green projects becomes very expensive. High cost of debt is attributed to the factors like high rate of interest, short maturity period and non-existence of non-recourse debt.
3. The current market practices, regulations monitoring the market and financial incentives are becoming a great hurdle in the success of financial instruments.
4. Several risks associated with the green finance in the form of technology related risk, currency risk, off taker risk becomes hurdle in the availability of financial resources.
5. Lack of awareness amongst the investors about the innovative financial instruments also creates hurdle in green financing.
6. Lack of efficient framework for project evaluation of a sustainable project mainly in case form early stage innovation becomes a challenge for channelizing funds towards green projects.
7. As far as blocks to green investments are concerns there are there physical barriers such as limited access to grid connections which can limit the march of green finance along with financial, behavioral and informational hurdles. Hence for the transition to a green growth pathway, dramatic upgrades in

technology, skills, policies and more viable business projects, along with an aligned public consciousness are needed.

Suggestions

1. Government should bring stable policy framework for green finance which encourages private sector to finance sustainable development programme. For this, India has launched its National voluntary guidelines for responsible financing which mainly focus on disclosure of information.
2. Environmental performance of the companies can be shown through index. Although India has 4 ESG index, there should be more ESG index in India to show the environmental performance of the companies. There should be green rating agencies also in the country.
3. Government should intervene to increase the profitability of green projects. It can be increased by giving the tax exemption, subsidies and concessional loans to green projects which reduce the cost of green projects. It can also be done by charging high tax and by reducing the subsidies of polluting industries that means increasing the cost of polluting industry.
4. There should be a mechanism to evaluate the projects and business etc., in terms ofenvironmental, social and governance (ESG) risk. Objective should be to give more emphasis on environmental risk.
5. 45% of the production comes from medium, small and micro enterprises. So, MSME has greatscope to use energy efficient technology which reduce green house gas emission and generaterenewable energy sources. Although, in India SIDBI and SBI provide the financial support tosmall scale industries for using the energy efficient technology, but more funds should beprovided for the same.
6. Awareness among Investors and consumers about the green finance is essential for thesustainability of the economy. Conferences, newspaper report, seminar can be useful tools forimparting the knowledge about the necessities of green products, technologies for energyefficiency for the sake of the future generation because a socially responsible consumer createsthe market for green products.
7. More numbers of green financial products should be available to investors so that they can make investment easily For examples green loans, green equity, green bonds, green credit card etc.
8. The government should set out a “green” investment programme in consultation with the states and the private sector defining its vision, direction and priorities for investment in both mitigation and adaptation efforts. This should necessarily include levels of preparedness of different sectors to determine the right mix of capital source, smart time bound incentive structures and institutional ownership and strategies to build bankable pipeline.
9. The SEBI disclosure requirements for green bonds and securities is a valuable first step in helping India define long-term sustainable investments and mobilising green finance, but it does not go far enough. The next step must be to establish a comprehensive set of criteria for defining “green” assets in sync with international frameworks. This would meet an urgent market demand for definitional consistency, standardisation, and comparability important for issuers, investors and appropriate public policy interventions.
10. **Review and redesign Priority Sector Lending to introduce green sub-sectors with targets:** Banks have a special role to play in primary lending to households and businesses. Priority Sector Lending sub-targets should be set on the basis of green taxonomy. This recommendation will help track and motivate financial flows into the green economy but other measures will be needed to kick-start bank lending.

Conclusion

Global warming is creating various problems in the economy. Scientists and environment experts believe that it is due to green house gas emissions. India is in a race against time in meeting its climate goals and greening all finance has become an imperative. Green financing will reduce green house gas emissions significantly. Though Government of India has taken various steps for sustainable development but the private sector participation for sustainability is in the nascent stage. Because of the limited public finance, private finance has immense importance in the sustainable development. So, the development of green finance is essential. This requires concerted efforts, a cohesive approach and the collective vision of policymakers, regulators and actors in the financial system. The way forward is to accelerate the dialogue at the highest level and initiate a narrative around sustainable finance.

There should be a unified approach around taxonomy, green guidelines, financial products, as well as defining the roles of private and public sector and bankers and asset managers. This will stimulate action to align the financial system with green finance and in turn support the sustainable growth of the country.

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