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Green renewable finance

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Abstract
Presently, the whole world is going through a bad phase. It's all because of playing with nature. Covid-19 has made People have realized that the time has come when we should behave friendly with nature. In recent years the idea that economic growth is intrinsically linked with a healthy environment has gained recognition among academics, businessmen, activists and common man alike. The alarming rate at which the non- renewable resources are depleting has made human beings realized that healthy environmental conditions are an indispensable part of the prosperity cycle of human beings. This has led them to shift their focus from being solely profit-oriented to being environmentally ethical too. As a part of healthy and ethical practices, individuals working in various sectors have now started addressing the need and means by which sustainable growth can take place. All of this is due to growing awareness about global climate change and global warming as a pressing concern.
As a part of India's agenda under the Paris Agreement which was to reduce the emission intensity of their GDP by 33-35 per cent by 2030 from their 2005 level, India has started looking out for sustainable alternatives in every sector including the finance sector. This sector may not have a direct relationship with the environment but certainly has a direct relationship with firms and corporations who may be polluting the environment. Hence, the finance sector may be indirectly involved in promoting unethical means to procure profits at the cost of the environment.
India is largely an agrarian economy where the service sector contributes the most to the overall GDP. The primary sector depends on the environment for yield; the secondary and the tertiary on the other hand heavily depend on the primary sector and resources provided to them by the environment. The topography of India suggests that it is vulnerable to various climate changes, for instance, melting Himalayan glaciers may produce floods in north India on the one hand whereas erratic monsoons will create droughts in the peninsular region. Hence, economics and sustainable development goals of the country cannot be entirely divorced from one another.
This paper aims to suggest green finance as the ultimate option for sustainability and explore sustainability in terms of financial institutions concerning India. The above-mentioned objective will be explored further by examining the role of the Central Bank or an alternative body to the central bank and its role in enabling India's transition towards a Green Economy with environmentally and ethically positive outcomes.

Keywords: environment, sustainability, green finance, central bank, sustainable growth

Introduction

Ethical Finance

The recent crisis at the Yes Bank and other co-operative banks in India has shattered the public's trust in the Indian banking system. As the examination of financial institutions continues, the relationship between banks and the public continues to deteriorate as even more frauds are found out. To recoup the trust of the public in banks and other financial institutions, the reintroduction of ethical finance becomes extremely important. There are many reasons why ethical violations take place. Most of the time they take place because of the normalization of unlawful practices. They also take place because individuals start taking advantage of loopholes in the existing system which brings us to the conclusion that financial institutions need to work on cultivating collective ethical consciousness, and focus on inculcating a collective sense of responsibility to keep the system thriving.
Till recently investors were interested only in profits and returns on investments, but things are changing gradually. With the realization that profit cannot be earned at the cost of the environment, the investors now are becoming more and more concerned about ways through which they can mitigate environmental hazards, and engage in ethical investing. Thus, they prefer investing in institutions which follow a high ethical standard in terms of the environment. Due to this reason, having high ethical standards become an important requirement to maintain the public's trust in financial markets and investment firms. Ethical finance is an approach that incorporates environmental, social and governance (ESG) factors and their impact in its process. For example, Green funding is the financing of environment-friendly investments and projects which incorporate ESG factors too.

Climate Changes

At the moment, climate change is the world's most pressing concern. There are several reasons for this, climate changes such as hurricanes, storms, high temperature and wildfires exacerbate extreme weather events which affect livestock and human beings alike, jeopardizing the economy along with other consequences. These changes also result in severe damage to buildings, dams, roads and all kinds of infrastructure in general. It also disrupts the supply chain due to power blackouts which result in reduced agricultural yields bringing negative economic shocks to people and society.

Globally, the occurrence of extreme weather changes has brought forth the issue of climate changes in the limelight for various reasons. Environmental and climate change activists like John Paul Jose from India, Greta Thunberg from Sweden, Isra Hirsi from the USA and various others worldwide are mobilizing people and making their voices heard by demanding action on the changing environment and climate change.

Impact of Climate change on India

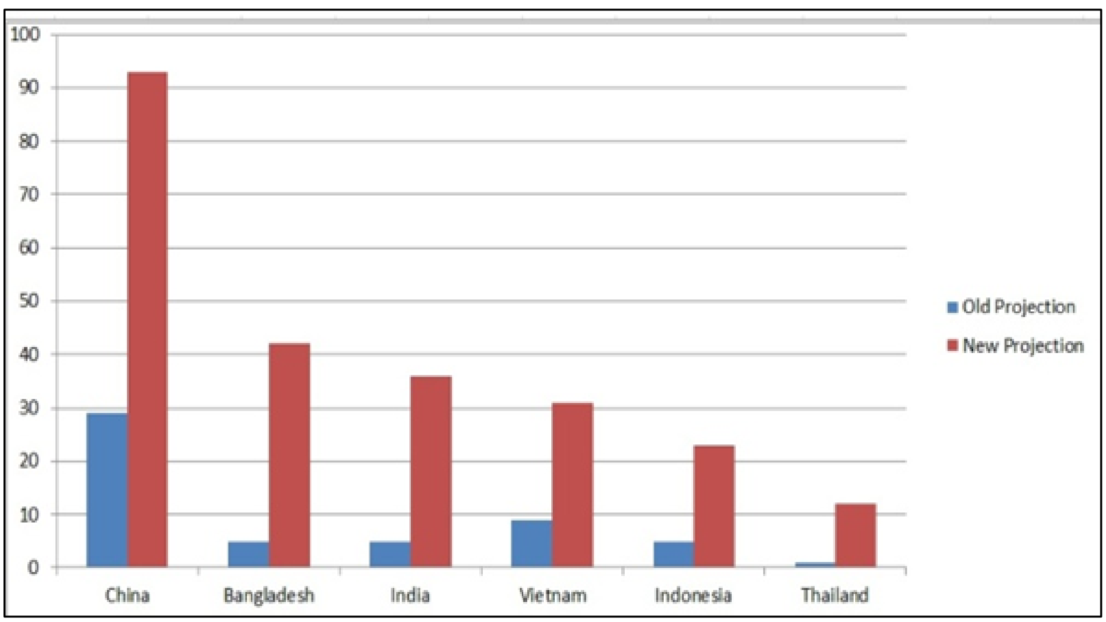
The Global Climate Risk Index 2020 says India suffered an economic loss of $37 Billion due to climate change in 2018. Another study by Stanford University's Earth System Science, measuring the effects of anthropogenic climate change on GDP per capita by country, has estimated that Global warming has made the Indian Economy 31% smaller than it would have been otherwise. (Budget 2020 [11], "To fight climate change, correct anomalies in fund allocation", Shailendra Yashwant

, 'Money Control' May, 11, 2020) India is an agrarian economy [1] where the calculated loss to a farmer due to climatic changes ranges between 15-18% on an average. This may increase up to 20-25% in unirrigated areas. Climate change affects about 65 per cent of the agriculture-dependent population directly, becoming the single most important reason for the economic slowdown in the country, as per the 'Economic Survey 2017-18'.

The yearly monsoon season, which takes place from June to September, severely affects India every year. In 2018, 324 people died in the state of Kerala alone due to landslides and floods. Over 220,000 people became homeless, about 20,000 houses and 80 dams were destroyed. The total damage amounted to about 2.4 billion Euros (US$ 2.8 billion). Furthermore, India's east coast was badly hit by the cyclones Titli and Gaja in October and November 2018. The floods in the same year were described as the worst of all in the last 100 years. They also killed about 1000 people. At the same time, extreme heat waves hit people in most of the areas of India.

According to the Intergovernmental Panel for climate change (IPCC), "climate changes are likely to make rainfall erratic, lead to rising sea levels and make extreme weather events such as drought, floods and heat waves—like the one currently sweeping large parts of India". The latest reports by the United Nations body to assess climate science suggest that the sea levels may rise an extra 10 CM with a 2-degree increase, washing away the terrain and livelihoods of millions of people. The Climate Central study, published in the journal Nature Communications, expect areas inhabited by 36 million Indians now to be at risk of chronic flooding by 2050, much higher than the five million expected previously. Globally, the figure could be as high as 300 million people, nearly four times the past estimations. ("Coastal Concerns: Rising sea levels will inundate coastal areas sooner than projected" by G. Sitharaman, "The Economics Times, Nov.10.2019) [9].

Rising sea level poses flooding risk to 36 Million Indians by 2050 Population that could face annual coastal flooding threat in 2050 (Million)



(The Economic Times, 10-11-2019)

Fig 1

By 2100, lands inhabited by 200 million people could permanently be below the high-tide line. Drastic climate changes can also have a severe impact on food security, may destroy crops disrupting food storage and transport. Since agriculture is a leading employer of India's poorest people and as such, it may threaten the livelihoods of some of the most vulnerable people in the world.

Depletion of Natural Resources and the Economy

Air and water are two vital resources that we need for even our basic survival apart from our usage of these for commercial and other uses. We need to keep this in mind that we have to use these resources sustainably, that is in a way such that our current, as well as future generations, can experience them.

A recent report by German watch which is a Germany based non-profit organization working on environmental issues ranks India as the fifth most vulnerable country in terms of extreme weather events ('Climate Risk and Response: Physical Hazards and Socioeconomic impacts' "Report McKinsey Global Institute, January 16, 2020) [10, 12]. In the Climate Risk Index 2020, India's rank has worsened from the 14th spot in 2017 to 5th in 2018 in the global vulnerability ladder. Studies show that the current level of efforts to showdown global warming will see the average temperature in India rise by 1-2 Centigrade by 2050. Climate change will have deep economic and social impact. ("View: Climate change distress should reflect in budget 2020" [11], The Economic Times Jan, 30, 2020) [11]. A report by McKinsey estimates that unchecked climate change could cause a reduction of 2.5-4.5% of GDP ("Climate Risk and Response: Physical Hazards and Socioeconomic impacts" Jan 16, 2020 [10, 12], "Report McKinsey Global Institute"). We need to cut CO2 emissions by 45% (against 2010 levels) by 2030 and to reach net-zero around 2050.

The question that needs to be asked here is our economy and the financial system prepared for the risks of meeting this target? What we are doing to deal with issues such as the impact of higher levels of global warming on society and investments?

Green Financing

Although it is difficult to completely overcome the crisis induced by climate problems yet to a great extent we can control it through Green Financing. Green Finance as the name suggests is the type of finance aimed at making the economy "greener", environment friendly and for sustainable development. It encourages economic development without exploiting natural resources mindlessly. Those investments which provide environmental benefits through new financial instruments and policies such as green bonds, green loans, FinTech and Startups collectively fall under the umbrella term Green Finance. It shifts the focus from just profit to sustainable profits making Green Finance a more feasible option as compared to traditional finance where the end goal profit only.

According to the Paris Agreement, "at least US$ 2.5 Trillion (at 2014-15 Prices) will be required to finance its climate changes for the period 2015-2030" ("COP21 in Paris: India vows to reduce carbon dioxide emission", Urmi A Gosawami, 'The Economic Times' October 2, 2015) [13]. Similarly, the financing gap to achieve the Sustainable Development Goals in developing countries is estimated to be $2.5-3 trillion per year (United Nations- Meeting Coverage and Press Release, September 25, 2019). It will require huge investments in the new green infrastructure to achieve the above-mentioned targets. It will roughly be about three times the total investment made in the infrastructure sector in the last 10 years to tackle climate change for this decade ('The Urgent case for Green Financing' LIVE MINT 11-08-2019). It will also include technological shifts to green infrastructure as well as the implementation of government climate policies.

The recent Economic Survey notes that India is the second-largest emerging market for green bonds after China. Despite this, the report concludes that "scarce financial resources" continue to be a constraint in meeting India's commitments under the 2030 Sustainable Development Goals (SDGs) and the Paris Agreement (Economic Survey 2019-20). To deal with this situation, India has been working on developing certain schemes specifically designed to fight climate change and environmental hazards.

India has financed various renewable energy projects but each of them had their shortcomings in terms of the government's policy, and regulatory priorities. For instance, in the year 2008 India launched the "National Action Plan on climate change" (NAPCC) which enveloped 8 sectoral schemes within it. It took six more years to approve these schemes. NAPCC does not augur well for India's efforts to combat climate change. Out of these eight schemes, only two featured in the 2020 budget documents. This could either mean that these schemes were subsumed by other schemes or that they were not allocated by budget. Another program linking climate change and finance came in the form of setting up a "Climate Change Finance Unit (CCFU)". CCFU was planned to create a strong platform to analyze issues related to climate finance supporting sustainable development and mitigation plans. But its role got restricted to only representing India in International Conferences, (A press release by the Ministry of Finance in 2018).

Currently, Climate financing is funded by domestic and foreign funds. An important foreign fund is "Green Climate Fund (GCF)" which is the world's largest fund created under the "United Nation Framework Convention "on climate changes in 2010. In 2019, India got US$ 43 Million from this fund to boost climate resilience (India Today 13-11-2019). In October 2019, India joined the "International Platform on Sustainable Finance" (IPSF) in an attempt towards transitioning current economic investments into a green, low carbon and climate-resilient economy (Economic Survey 2019-20). Also, the launching of "Coalition for Disaster-Resilient Infrastructure" (CDRI) at the UN Secretary-General's Climate Action Summit in New York, US, is a significant development in the exploration of renewable energy sources as a solution to the economic crisis. This will promote the resilience of new and existing infrastructure systems to climate and disaster risks (IISD 03-10-2019, SPG KNOWLEDGE HUB, and "India Launches Global Coalition for Disaster-Resilient Infrastructure" by Delia Paul). At present, the entire world is battling with COVID 19 crisis and the worst economic hit is yet to come. In such a situation, countries can turn towards harnessing the potential of renewable energy which can aid in economic recovery from COVID-19 by improving global GDP gains by almost US$ 100 Trillion (about 80 Trillion pounds) between now and 2050, according to a "Global Renewable Outlook" report by The International Renewable Energy Agency (IRENA). "A green recovery is essential as we emerge from the COVID-19 crisis. The World will benefit economically, environmentally and socially by focusing on clean energy" said Faith Birol, Head of International Energy Academy. ("How Renewable Energy could help us economically recover from the Pandemic" by Jillian Ambrose, 'The Guardian' April 22, 2020).

Organisations across the globe are trying to come up with numerous plans and strategies that could help the earth heal and the world recover from the economic crisis in an eco-friendly manner. The "Green Growth Equity Fund" (GGEF) is a joint UK-India Fund, managed by Ever Source Capital. It is a specifically designed fund which aims to promote sustainable energy projects. Both India and U.K have invested over £240 million of anchor capital into the fund, which is expected to rise to £500 million from institutional investors.

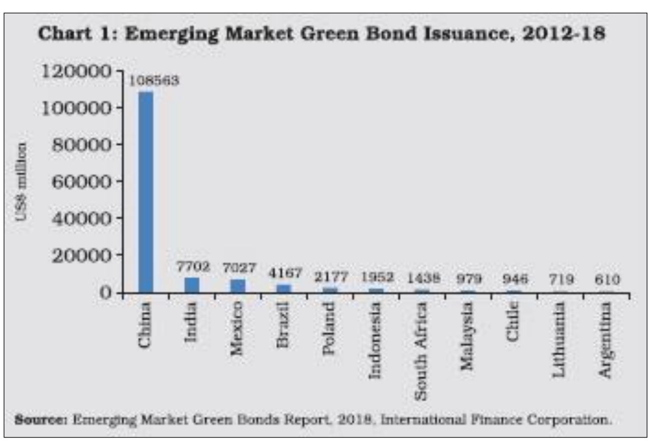
The Indian government is planning to build about four Tesla-style Giga factories in various parts of India. These factories will manufacture batteries which will help India in moving towards electric vehicles, cutting down its dependence on foreign oil and in minimizing pollution levels. The estimated cost of this venture is approximately $4 billion. All such plans requiring huge investments will require green finance at an affordable cost, as the country prepares for an eco-friendly shift.

"Public Funding alone cannot finance the necessary transformation required to address climate change, Green finance is required to be harnessed for financing environment-friendly sustainable development" ("Policy action needed to boost green financing: RBI" Financial Express, December25,2019). Green finance products such as Green bonds, Green loans also provide additional opportunities for capital markets. They allow them to bring the green growth model in the single institute and also aid in improving the market share not only in the domestic market but also in the Global Market. Financing is emerging as the key challenge to this vision, slowing down the pace of growth. Till December 2019, over 50 per cent of the 2022 target was yet to be achieved.

Green Bonds

Green Bonds are debt instruments in whose case a third party has certified that the proceeds will be used only for clean projects in terms of the environment. RBI states that "India's ambition of generating 175 gig watts of renewable energy by 2022 also entails massive funding". While Green bonds do not necessarily expected to be better pricing—which is based on the timing of the issue and rating of the issuer- they are becoming more popular because many investors are gradually paring their investments in fossil fuel companies and shifting to green projects.

Green bonds worth $10.3 Billion of transactions took place in the first half of 2019. India has become the 2nd largest market globally for green bonds with $10.3 Billion worth of transactions in the first half of 2019, as issuers and investors continued to adopt policies and strategies linked to sustainable development goals, according to 'Economic Survey 2019-20.(Economic Survey 2019-2020).



(**Source:** RBI Publication December 24, 2019)

Fig 2

Global green bond and green loan issuance reached an adjusted USD 257.7bn in 2019, marking a new global record. The total is up by 51% on the final 2018 figure of USD 170.6 bn. Of the total, USD 10 billion (4%) are green loans. Asia-Pacific and North American markets followed at 25% and 23%, respectively. In 2019, the total amount of green bonds issued in Europe increased by 74% (or USD 49.5 billion) year-on-year, reaching a total of USD116.7 bn. As of November 2018, India had issued Green bonds valued at US$ 7.15 Billion. The amount is minuscule, given the size of funds required. In July 2019, two Indian companies — Greenko and Adani Green — stormed into the international market for green bonds to raise $950 million and $500 million, respectively. Indian entities are slowly warming up to green bonds. State Bank of India (SBI) on 28th March 2020 said it has raised $100 million in green bonds through private placement, through SBI's London branch and shall be listed on Singapore Exchange (SGX). The previous time an Indian company raised funds through a green bond issue was in September 2018, when the State Bank of India scooped up $650 million. Green bonds worth $802 Million were issued by different corporate in the latter half of the year 2019. ("Green Bonds issuance goes through the roof" Business Line Jan, 31, 2020)

India has made limited progress towards achieving 175 GW renewable energy capacity by 2022 since first announcing the target in July 2018. As of 30 June 2019, India has installed a total of 33.7 GW of solar capacity, with 66.3 GW left to be installed in just about three years. India needs an implementable action plan consisting of a strategy and policy framework to enhance the ability of the financial sector to mainstream climate action into decision making. India for the first time ranks among the top ten in this year. (CCPI, Climate Change Performance Index Results 2020). However, despite an overall high rating for its climate policy performance, experts are of the view that the Indian Government has to yet to develop a road map for the phase out of fossil fuel subsidies that would consequently reduce the country's high dependence on coal. (German Watch, New Climate Institute, at the COP 25 Climate Summit, "India among top 10 countries with higher climate performance, "The Economic Times: December 10, 2019)

Central Bank

The argument that the role and scope of operation for the Central Bank should be expanded beyond taking care of the monetary policy for the country is doing rounds at present. It is advised that it should play a more diverse role and priorities social as well as environmentally ethical activities by encouraging banks to also record environmental and ethical aspects of their credit and investment activities.

In other countries such as China and Brazil, the Central Banks assume authority in matters beyond finance. For instance, the People's Bank of China takes into account environmental factors in its monetary policy framework and financial stability assessments. In Brazil, the Central Bank of Brazil requires banks to list down environmental risks while computing capital requirements. Such a framework, however, will not suit the Central Bank of India. It is practically impossible for the Central Bank to additionally take care of the environmental as well as social responsibilities apart from the issues arising due to the financial system of the country. The Central Bank of India already takes care of the money supply through a strong monetary policy which in itself is a difficult task in a developing country like India. Apart from that it also acts as an advisor to the government and its responsibilities multiply during extraordinary crises situations like a pandemic. For instance, the current COVID 19 epidemic situation. Apart from other governmental units, it is the Central Bank of India which will be required to take concrete steps to put the country again on the path of development, by regulating money supply in the economy. Extraordinary conditions like these disrupt the flow of money and may result in inflation, unemployment in the country. In such circumstances, it becomes the responsibility of the Central Bank to lay down policies to bring financial stability in the country during and after the epidemic is over. Involving the Central Bank of India in green financing will only burden the institution and can distract it from its main function of regulating money supply through changes in interest rates?

In the budget 2020-21, instead of a strategy that will re-orient how we execute climate action via an economy-wide green industrialization that puts money into low carbon and climate-resilient sectors such as renewable, what we got was yet another set of vague and unclear announcements. ("Budget 2020, on climate change, it was business as usual" Money Control, May 11, 2020) [11].

Re-Energy Institute

Presently, many investors want to turn their investments into renewable energy industries. A report published by The United Nation Environment Programme (UNEP) also recommended that "A Nation green finance strategy is needed" ("Green Financing" UN environment program). It also suggested that a real conversation is needed at the regulatory level to shape financial markets. Current climate change mitigation policies and programmes vary in their scope and the administrative level at which implementation is managed (State, regional, sectoral, and voluntary at individual unit level). (India Second Biennial Update Report to the United Nations Framework Convention on Climate Change @Ministry of Environment, Forest and Climate Change, Government of India, 2018)

Currently climate financing in India includes several complex procedures and covers various ministries, government departments, development finance institutions, (NABARD) public sector banks, private sector banks and other institutions or NGOs (TERI, although not through direct financing). Apart from these organizations, climate change funds raising are done in fragmented ways through some schemes across departments. (Budget 2020- How well in India financing). This fragmented approach has been disappointing and away from the mainstream. As such, a co-ordinated mechanism is required which can only be done by a large scale institution. This institution will have to play a key role in allocating resources to aid sustainable investment.

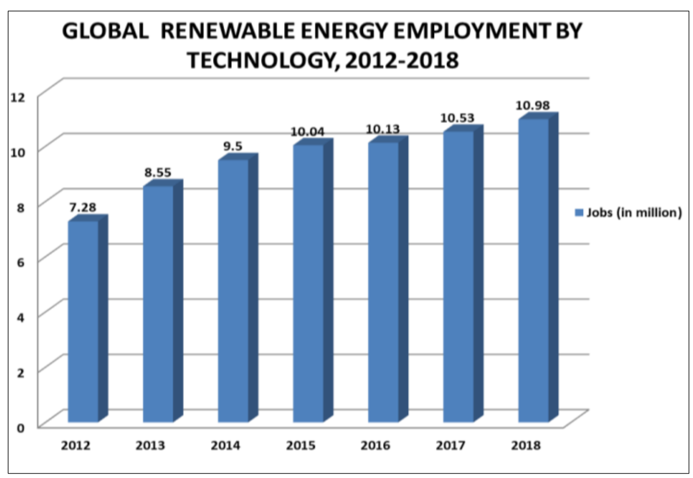
No institute yet has taken on the role of coordinating with and bringing together policymakers, regulators, institutional investors, corporate, financing and consumers solely around the issues of sustainability and environmental issues. Progress in climate improving infrastructures, availability of green investment options, capacity building, the task of bringing awareness and understanding, introducing innovations amongst various stakeholders, establishing mechanisms around climate finance and green industries are extremely crucial tasks.

A separate body needs to take care of all these tasks. The aim of such an organization should be to accelerate the transmission to a zero-carbon and climate-resilient economy. The organization should solely be responsible for taking care of ethics both in terms of the social and well as the environmental activities. Hypothetically such an organization can be called "Re-Energy Institute". An example of such an organization is the Green Finance Committee (GFC) of China. It has more than 200 members. The organization plays a key role in facilitating the release of new policies, in promoting green finance, product innovation and aids in capacity building. Such an organization's sole responsibility should be to design and formulate suitable and effective policies that promote green finance, product innovation, capacity building, and disclosure requirements as well as risk mitigation. Along with these, it should have the power to affirm strategies, policies and regulations independently. It should co-ordinate the various institutions in the financial sector, corporate, who undertake renewable projects, both public and private to ensure effective implementation. Such an institution should be tasked with the responsibility to design campaigns to raise awareness regarding environmental and climate challenges faced by the country, and also to deepen the understanding of green development, green finance among the investees, investors, government and intermediaries. There is a lack of awareness around these issues in the country and the same has resulted in the underutilization (only 80 per cent) of total green funds raised for renewable energy. Desired progress can be achieved only through collective efforts of different countries worldwide engaged in the same pursuit through a peer learning approach and a collaborating format. For addressing the shortcomings of green finance consistent reporting and exchange of knowledge are prerequisites. The organization should also engage in obtaining investment-related information from investors which ought to be communicated to issuers also, about the investment made by the company in different green projects. While India tracks GHG (greenhouse gas) emissions through various reporting mechanisms including PAT (perform-achieve trade), and RPO (renewable purchase obligations), India still does not have a National MRV (Measurement Reporting and Verification) through which international and domestic climate finance can be tracked. There is an urgent need to develop a unified statistical standard and development assessment system for green finance. It will help the authorities in the monitoring of implementation and evaluation of policies. At present, climate change in India is not included as a possible factor in the stress test, even though it is agreed that it may happen shortly. Financial institutions should be encouraged to take a periodic "Climate Stress Test" (CST) which will evaluate the potential vulnerability of banks and financial institutions' capital position to climate-related risks such as drought or tsunami. According to a study conducted by Cambridge, India "fares poorly when it comes to asking companies to disclose how vulnerable their businesses are to climate-related risks" and hence, the above-mentioned approach becomes extremely important for the country (Cambridge Institute of Sustainable Leadership, TCFD Report 2018, May 2018). It was also pointed out by the said report that "although the Securities Exchange Board of India has introduced a requirement to produce business responsibility reports for the top 100 listed entities in 2012, which was increased to the 500 largest listed companies in 2016 (SEBI, 2016), we have not been able to find evidence of specific TCFD-compliant initiatives" The suggested Re-energy institute needs to have an independent think tank which can conduct specialized research in climate finance to promote innovative mechanisms and best practices from all over the world. India must focus on developing long term debt funding avenues to boost investor sentiment in renewable energy while banks prefer to lend over the short term, causing an asset-liability mismatch and making it less attractive to borrowers who are looking for longer-term loans. Although expanding green bond market is a positive indication to market participants, the commitment of country towards renewable infrastructure, the lack of depth and volume of capital market is an impediment. Insurance and pension funds are the ideal financing options, but they constitute a small fraction of financial savings in India. The Pension Fund Regulatory Authority, "The PFRA" has recently reduced the credit rating bonds to 'A' grade for making investments in bonds. Further it has been suggested to allow NPS to invest in corporate bonds/securities which have a rating of 'BBB' bonds. ('Budget 2020: Allow NPS schemes to invest in 'BBB' bonds, demands PHD Chamber', Financial Express, Rajiv Kumar, December 18, 2019). India should give preference to sovereign bonds. The World's largest sovereign fund, the Norwegian Pension Fund Global, which manages a trillion dollar, has decided to pull out of fossil fuel companies. Sean Kidney, CEO of Climate Bonds Initiative, has pitched for the Indian govt. to go for a Sovereign borrowing through a rupee denominated green bonds issuance, he further said that India could get the better of China, which is yet to do a sovereign green bonds issue. ("Green bonds issuance goes through the roof", M.Ramesh, 'Business Line, October 31, 2019). Presently, India's external debt to GDP ratio is 2.6% which is 14% in China, much higher than India. Financial Institutions should minimize restrictions on Insurance Companies. Such funds should be encouraged to invest in green bonds. Even encouraging non-resident Indians (NRIs) to invest in the clean technology space will provide sufficient capital for the renewable sector. The Luxembourg Stock Exchange is in touch with Indian big group companies to issue green bonds and tap into India's green finance market. (Luxembourg green Exchange is a dedicated platform for green, social and sustainable securities). ("In Talks with Indian firms", "The Economic Times" Kritika Suneja, January 20, 2020). Retail investors, high net worth individuals and venture capitalists can also open a large pool of capital. With the new challenges emerging on a global level, countries are moving towards exploring the possibility of new financial technologies (fintech). In the year 2018, the Financial Conduct Authority or the FCA in the UK launched a Green FinTech challenge to support technological innovations in the green finance sector. Under this program, successful applicants were to benefit from a myriad of services like admission into a regulatory sandbox, direct support from the regulator, tailor-made cohort engagement terms, etc.

Carbon Delta, a Swiss company has developed a Climate Value-at-Risk (VaR) assessment method to quantify climate change risks across investment portfolios, enabling climate change to be factored into investment decisions. It uses a combination of publicly available and proprietary data and machine learning to determine such risks. Such technological capabilities can reduce the information asymmetry that exists between companies and investors and between regulators and financial institutions. This will be instrumental in dealing with concerns of "green washing" or false claims of environmental compliance, as pointed out in the RBI report.

Digital platforms will enable investors to have access to external audit and standardized reports. For instance, Green Assets Wallet, which is a blockchain-based platform, offers validation of green commitments and provides a framework for issuers to report on impact, reducing information asymmetries and increasing efficiency and transparency in green transactions. The emergence of Big Data and machine learning will make it extremely convenient to monitor green investments thereby standardizing green reporting. Big data and artificial intelligence are also tools through which an individual can calculate the carbon footprint of financial transaction data which will enable them to calculate the environmental impact of their purchases. The institute should also see if the loans taken by corporate are being utilized on renewable energies only. There is no green washing by the concerned company.

Along with above-mentioned means, the government can also provide fiscal benefits in the form of tax-exemption on interest in green finance. At the same time, laws can be made for people urging them to invest a certain amount out of their pension and insurance schemes into green Finance. Blended finance also an option, although it is a fairly new concept and was identified as a financial investment vehicle only in 2015 during UN negotiations for the subsequent years. The institute should have some incentive policies for banks for adopting green finance. However, despite the need for huge investment expenditure, it will lead to a fall in prices too. It is estimated that by 2023, new wind energy and new solar PV will be cheaper than the existing coal. Also, the employment rate will increase. The International Renewable Energy Agency (IRENA) estimates that there are now 10.3 Million renewable energy jobs globally, a 5.3% increase from 2016. IRENA reports that globally, the Renewable Energy sector employed 11 Million people in 2018.



Source: IRENA jobs database

Fig 3

Renewable is also creating numerous employment opportunities. Renewable energy could employ more than 40 million people by 2050 under the International Renewable Energy Agency's (IRENA) climate safe energy path, according to a report published by the Agency during its 10th Assembly. Asia could account for 64% of jobs in renewable by 2050, the Americas 15% and Europe 10%. (www.irena.org, IRENA, Renewable Energy and jobs, Annual Review 2019) The foundation of finance should be ethical in both social and environmental sense. The very foundation of any financial transaction is trust and having an ethical foundation allows individuals to trust the system. Without trust, the system collapses. Rules and regulation undoubtedly impact the system but by embedding an ethical culture, and behaviors the fundamental way in which business is done gets changed. Banks can decide not to finance companies which follow an unethical path to make a profit. For instance, they can reject companies that do not respect labour rights such as freedom of association, collective bargaining, non-discrimination, no child labour, no forced labour and worker health and safety. Instead, they can make decisions to support companies that support living wages, integrate labour rights in their supply chains and respect human rights. It is seen that companies that follow ESG and ethical investing outperformed their peers on variables that investors care about. For example, Blackrock, which manages a whopping US$ 6.3 Trillion, is hiring people to hold publicly traded companies to a higher standard of corporate social responsibility according to The New York Times. The investment industry should work for the ultimate benefits of society and that cannot be achieved without the highest possible ESG standards and ethics.

Summary

The assessment carried out in this paper brings us to the conclusion that the government, businessmen and policymakers should also prioritize ways through which they can reward long-term decision making, encourage transparency and promote sustainable growth over short-term profit. The research also clearly indicates that India's renewable energy financing structure needs major reforms to boost the flow of capital into the sector in order to achieve the ambitious targets as per Paris Agreement. India is making progress in that direction yet it needs to work on introducing innovative financing mechanisms that are in sync with the environmental, technological transitions and requirements of the sector.

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