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GREEN INNOVATION AND ENTREPRENEURSHIP

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ABSTRACT

The Paris climate agreement (2015) and the adoption of sustainable development goals (SDG) has paved an innovative way in the field of financing, called the green financing, which focuses on integration of increasingly sustainable approach into future business models. As per the report of United Nations environment program (UNEP-2016), Green finance is a strategy for financial sector which involves investment in various areas aligned with the sustainable development goals. Although, the context differs considerably for different countries. Developing countries, notably those with underdeveloped financial systems, face particular challenges in trade off between economic, environment and social outcomes. Further, as the world moves from Millennium Development Goals (MDG) to Sustainable Development Goals (SDG), the signatories commits finance flows that are consistent with a pathway towards low greenhouse gas emissions and climate resilient development. Most of the developing economies have taken their initial steps towards green finance transition. UNEP and other international organisations are committed to facilitate and speed up this transition process by drawing various strategies, road maps and working closely with developing countries and raising their concerns globally. Furthermore, in India, a number of steps have been taken at both national and international level to move towards green financing and clean growth which can ensure investment on sustainable development projects without bearing a cost on country's economic and financial position. A few public private ventures like India Innovation Lab for Green Finance have also come up to help implement novel solutions for unlocking investment for green infrastructure In India. In the background mentioned above, the present paper highlights the key concerns and barriers for developing countries including India in moving towards greener economy or green financing and green innovations the actions required globally, like national and international collaboration and the needs to provide a thrust to private sector to actively contribute in the green investment and financing. The paper concludes that with the adequate and viable strategies, the developing countries can ensure a better environment and strengthen the financial system and at the same time mitigating the risk involved in financing such projects. Further, the paper reveals that the service coverage of financial sector actors can be extended by identifying and filling gaps which acts as barriers towards green financing transition and a greener environment and thus ensure a clean and sustainable growth rate.

KEYWORDS*: Sustainable Development, Green Financing, Green Investment, Greener Economy.*

Introduction

Although, green innovation is a much debated topic worldwide but it still does not have a standard definition, mainly because the definitions proposed vary significantly. Often, green innovation is used interchangeably with green investment. However, in practice, the two terms differ. Green finance is a wider lens including more than investment, it also includes the operational cost of green investment. In this paper, the term green finance is used for finance flowing into sustainable projects and initiatives. It comprises of financing public and private green investments which can prevent, minimise and

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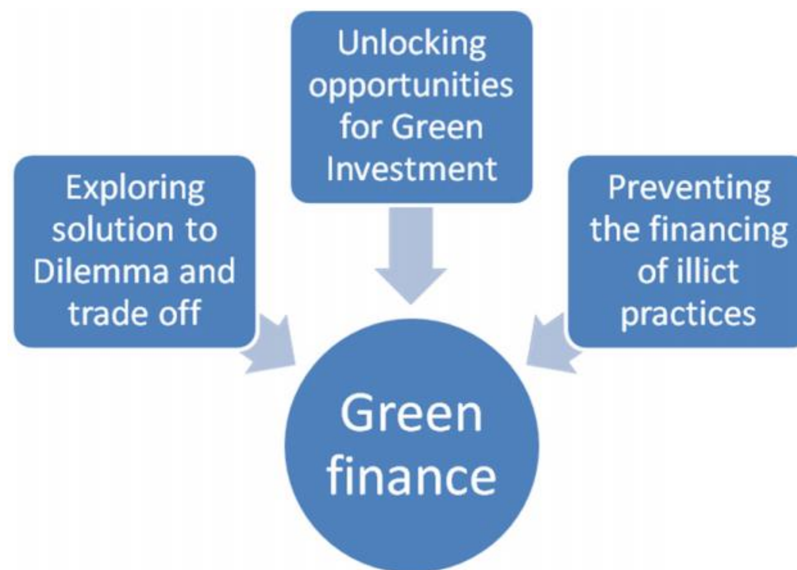
compensate for damage to environment and provide environmental goods and services at the same time. As per the report of United Nations environment program (UNEP-2016), Green finance is a strategy for financial sector which involves investment in various areas aligned with the sustainable development goals, although, the context differs considerably for different countries. Developing countries, notably those with underdeveloped financial systems, face particular challenges in trade off between economic, environment and social outcomes.

Globally, the finance and innovation community is emerging as an important partner in the challenge of responding to climate change, policy makers have an opportunity to both deepen and broaden this partnership. The share of private sector has risen by 23% from 2013 to 2014 which shows increasing awareness about the climate change and the urge to innovate business in a way in which it can be profitable without harming the climate. Broadly, concern and action to align financing to sustainable development is concentrated in three areas:



Preventing the Financing of Illicit Practices or Profiting from Weak Enforcement

Weak enforcement of environmental, economic and social policies and regulations can lead to social conflicts and market impacts resulting in losses to lenders and investors, and even macroeconomic stability risks.

Unlocking Opportunities for Green Investment

In many countries, opportunities for green finance such as renewable energy, energy efficiency, agricultural development and Small and Medium-sized Enterprises (SMEs) productivity, as well as insurance markets, are potentially commercially viable, but inadequate owing to barriers in demand or supply.

Exploring Solutions to Dilemmas and Trade-Offs

Many developing countries face a tension between the need to expand the electricity supply and reduce fossil fuel intensity. Similarly, SME finance is an area where regulators must be careful that lending requirements do not result in reduced overall lending or higher rates of non-performing loans and financial instability.

The developing countries have formulated a number of policies and strategies to increase the share of green financing and to catch up with developed countries in the process of transition to greener economy but the cost of green financing is higher in developing countries than developed countries due to institutional bottlenecks which makes such investment less profitable for developing countries and hamper countries growth rate and economic competitiveness. Thus developing countries need a more integrated approach to increase the profitability of business investment without hampering the environment.

Purpose

This paper highlights green finance and innovation as an alternative way in the field of financing, highlights the major issues faced by the developed and developing countries and also mentions the steps taken by developing countries, with a special focus on India to spread awareness and increase the finance flow in green investment and at the same time make the projects profitable.

Methodology

The paper focuses on secondary data and results of other empirical research, and the data published by climate policy initiative.

Major results

A number of research has been done in the field of green financing to acknowledge it as an alternative method for traditional financing and make green investment as a lucrative and profitable option for investment. Under China's Presidency in G20 in 2016, a Green Finance Study Group (GFSG) has been established, co-chaired by China and U.K and UNEP as secretariat. The GFSG is entrusted with the task to identify institutional and market barriers within the financial system that prevents the adequate mobilization of private green investment into areas such as pollution control, clean energy, clean transportation and energy efficient products. The focus is on options for action by market players, central banks and market operators such as stock exchange and rating agencies. The GFSG undertakes research in:

- **Greening the Banking System**: A number of market and institutional failures may stand in the way of banks fully incorporating environmental dimensions into decision-making. For example, lack of capacity and absence of "green" performance measurement appear to be constraints for banks in many developing countries.
- **Greening the Bond Market:** The growth of green bond markets faces a number of barriers, as does the broader incorporation of environmental considerations into the working of fixed income markets. For green bonds, a lack of clear and comparable definitions could undermine confidence while uncertainty and high costs of verification could prevent a critical mass of issuance.
- **Greening Institutional Investment:** A number of market and institutional failures, such as lack of disclosure requirements and weak environmental impact assessment capacity, may prevent full incorporation of material environmental factors into investment decision-making. This could result in inadequate risk management and potentially excess caution over allocations to green investments.
- **Risk Analysis:** A range of possible market and institutional failures may prevent the effective incorporation of future environmental risks into financial decision-making by financial institutions such as banks, insurers and other institutional investors. These problems include short-termism, misaligned incentives as well as inadequate expertise and underdeveloped risk assessment methodologies.
- **Measuring Progress:** International cooperation, experience sharing and facilitation of green capital flows requires mapping of definitions and indicators for measuring progress on green finance activities, policy targets, and designing and implementing policy incentives.

As per a discussion paper by the Business and Industry advisory Committee (BIAC), Private finance sources will be essential to address climate change as well as other sustainability challenges. For this to happen, in addition to the availability of capital, private sector investment depends on an assurance that the policy environment is stable and predictable so that investors can be certain that policy goals and incentives will be in place for the duration of projects. To help mitigate risk in environmentally sustainable and low-carbon markets, the public sector can play a key role in supporting the effective mobilization of private sector sources of green finance. Public support should therefore be encouraged to "crowd-in" private finance, through for instance the greater involvement of national development banks and use of concessional loans, which would reduce investment risk and shape investment trends. There are differing views on the issue of carbon pricing, yet there is a basic need for business everywhere to operate in a stable and predictable policy environment. While there is currently no global carbon market, there is a recognized need to develop robust methodologies and establish a fair and transparent mechanism to provide reliable sources of green finance and incentivize decarbonisation.

In countries and regions introducing emissions trading systems and carbon prices, business stresses the need for a predictable policy environment. Existing mechanisms and legislation need to be taken into account to avoid market distortions for businesses already working with national or regional carbon pricing systems. It is also crucial to consider the cross-border nature of financing and business, and thus a global level playing field should be promoted across international markets.

Areport published by climate policy initiative entitled “Global Landscape of Climate Finance 2015” the Global climate finance flows reached at least USD 391 billion in 2014 as a result of a steady increase in public finance and record private investment in green investment. The report also points out that about 74% of total climate finance flows, and up to 92% of private investments were raised and spent within the same country, confirming the strong domestic preference of investors which highlights the importance of domestic framework for attracting investment. East Asia and the Pacific remained the largest destination of climate finance flows, accounting for 31% of the total or USD 119 billion, up by 22% from 2013. China alone accounted for 22% (USD 84 billion) of total finance. Western Europe was the second main destination with 24% of the total or USD 93 billion, up by 3% from 2013 despite the challenges faced by renewables in some countries due to policy changes or uncertainties. The Middle East and North Africa region and South Asia experienced a significant increase in climate finance investments from 2013, up by 114% and 33% respectively. The bulk of adaptation investments target the climate change vulnerabilities of countries in East Asia and the Pacific region, Sub-Saharan Africa and Latin America and Caribbean, 46% (USD 12 billion), 13% (USD 3.3 billion) and 12% (USD 3 billion) of total adaptation finance respectively.

In India, a number of initiatives have been taken to increase green investment and direct the flow of finance into sustainable projects. The India Innovation Lab for Green Finance is one such example**,** it is a public-private initiative to seek out and help implement novel solutions for unlocking and scaling up investment for green infrastructure in India. By addressing investors’ needs, it aims to drive new private investment for clean growth. India Lab has 29 public and private lab members who help develop and support the lab instruments, including the Indian Ministry of New and Renewable Energy, the Ministry of Finance, the Indian Renewable Energy Development Agency, the Asian Development Bank, ReNew Power, the World Bank, and the development agencies of the France, UK, and US governments, among others. The three endorsed instruments have been just launched for piloting to estimate about the potential investment these instruments will attract for green growth in India in the upcoming year. It includes a rooftop solar financing facility, a peer-to-peer lending platform for green investments, and a currency exchange hedging instrument.

Also, to increase the flow of funds in sustainable projects various policies, requirements and prohibitions are being used to direct investment. Priority sector lending is one such example. India is also using the Green Infrastructure Investment Coalition as a means for engaging with foreign institutional investors

Apart from this a number of ways were suggested in a workshop arranged by NABARD on the theme “Opportunities in Green Finance" like introducing:

Green finance Indices: Green indices would identify and pool companies with solid environmental performance or in the green energy generation sector or on the basis of other ‘green’ criteria. They can provide both a benchmark for green performance of companies in general, as well as a benchmark for the financial performance of low carbon companies

Green bonds: The importance of establishing standardized criteria for project eligibility; having minimum financial characteristics such as size, rating and structure; and applying rigorous governance and due diligence project finance to aid index providers in putting green bonds on a fixed income ‘Green Index’.

Though developed and developing countries both face obstacles in transiting economy to green economy but the developing countries face particular challenges in mobilizing green and sustainable finance both in relation to:

The need for external capital flows for investment in areas such as energy, waste, transport, water, and agricultural improvements

Underdeveloped financial systems in areas crucial for green investment such as structuring major projects and in providing credit and insurance to enable large and small businesses and households to make investments and manage the risks they face.

An India Advisory Council of the UNEP India Inquiry was convened by the Federation of Indian Chambers of Commerce and Industry (FICCI). This report highlights key proposals emerging from their discussions for aligning the Indian financial system with sustainability. In the Indian context, they call for development of a more robust and resilient 'sustainability-oriented market framework' focused on banking, institutional investment, public finance institutions and foreign direct investment. They called for policy and regulatory innovation in five areas:

- Development of incentives such as equity tax credit and production tax credits.
- Strengthening existing institution such as Indian Renewable Energy Development Agency to become the green development financing institution.
- Deregulation to increase external commercial borrowing funding of green projects by exempting withholding tax, replacement of construction finance and refinancing and innovative solutions for hedging.
- Inclusion of renewable energy sector within the Priority Sector Lending (PSL) category requirements.
- Sharpening of the operation of the National Clean Energy Fund, green credit ratings and green bonds.

Thus we can say that developing countries are taking their first steps in the green finance transition but the potential to harness finance to the development priorities of these countries is also required to be taken care of. Experience from across the globe attests to the interest and creativity of developing countries in seeking to ensure that investment and finance serve optimally to advance sustainable forms of development. A useful starting point for developing countries is to draw up a green finance strategy or road map that seeks to identify and articulate the policy, regulatory or institutional developments that would best serve to align finance to the country's sustainable development priorities. Various international organisations like UNEP have been working with several developing countries on such strategies and road maps, and is keen to extend this to all developing countries.

Such road maps might address the questions like the development objective, financial sector reforms required, professional and institutional capacity that would need to be addressed, policies for public and private actor who can participate and also the developing nations have to address the risk involved in the process of transition.

Conclusion

As 2016 draws to a close, there is a strong hope that the Paris Climate Summit could represent a turning point in the global fight against climate change. A transformation of global financial and energy systems is needed to make a low-carbon and climate-resilient global economy the 'new normal', and to support the implementation of the climate actions already proposed by more than 150 countries. To catch up with developed countries, the developing countries have to make a number of reforms in the banking sector, stock exchange, national and international collaboration to have better technology, conduct research and development and most importantly align the policies in favour of green finance and monitor the procedure of finance flow in green investment to make projects profitable and sustainable

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