



The Concept of 'Green Finance', for Developing Economies like India in Attaining Sustainable Development Goals: An in-depth Analysis.

Sanay Khurana

Abstract: *The disastrous impact is so widespread that all economies have realized the need to work through dialogue to find an urgent solution. One way for Green Growth to become an effective tool is to garner finance for it which is known as 'Green Finance' or 'Climate Finance' through banks, governments, and private financiers. This is the only viable solution if there is adequate governmental support for it.*

Research Question: *Climate change has become an extremely important issue for all economies of the world, irrespective of their state of development. To counter the dangerous trends that are visible, it is important to take immediate and stringent steps, by all economies of the world. What path do developing economies like India follow? How far can they move on an economically viable path of development? What is the best fit for such economies? These are some of the questions that will be answered in the course of the research paper.*

Key Words: *Green Finance, Climate Finance, Public Private Partnership, Greenhouse Gases, Carbon Tax, Emerging Market Economies.*

Received 22 Sep, 2023; Revised 03 Oct., 2023; Accepted 05 Oct., 2023 © The author(s) 2023.

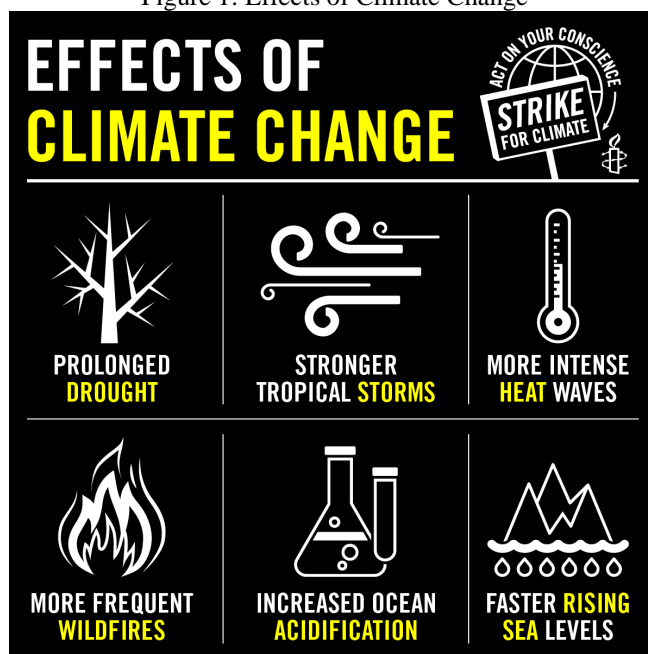
Published with open access at www.questjournals.org

I. INTRODUCTION

Climate change is a phenomenon that has been, is being, and will be experienced by the present and coming generations. It is extremely important for all economies of the world to collectively work towards a viable solution. The present situation is a result of excessive emissions of Greenhouse Gases (GHG), primarily due to the burning of fossil fuels, cutting down of forests, and farming livestock. All of these add enormous amounts of greenhouse gases to those that naturally occur in the atmosphere leading towards global warming.

Fossil Fuels- coal, oil, and gas are the largest contributors to global climate change, accounting for over 75% of GHG emissions and nearly 90% of all carbon dioxide emissions. As GHG emissions blanket the Earth, they trap the sun's heat.

Figure 1: Effects of Climate Change



Source: Google Image

II. DEFINITION

Climate change has become an extremely important term as its impact is being felt worldwide irrespective of GDP level or location. The extent of damage that it is and has created has left the world aghast. There are a lot of pertinent questions that all countries of the world have to answer concerning the policies that they have followed and the ones that they should follow.

2.1 Sustainable Growth

Sustainable growth with respect to the environment is economic growth that can continue over the long term without creating intolerable pollution or using up all the non-renewable resources. All countries have to manage a balance between fulfilling the needs of the current generation without compromising the needs of the future generation. There has to be a balance between economic growth, environmental care, and social well-being

Sustainable development as a branch of the social sciences, studies the processes that businesses should grow, in the changing world environment that has been devastated by climate change.

Figure 2: Sustainable Development Goals



Source: Vector stock.com

2.2 Developing Economies and Emerging Market Economies

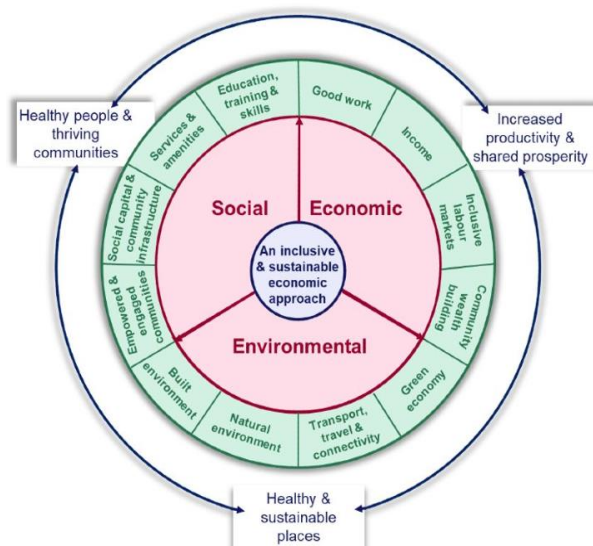
Developing economies will be the most severely affected by climate change. These countries are likely to release more than half of the annual global total of greenhouse gas (GHG) emissions as early as 2030 (Brookings, March 3, 2023). It is important to understand the range of development, adaptation, and resilience priorities that these economies would be facing in tackling climate change issues along with achieving a robust rate of growth.

Most of these economies have to face the disastrous consequences of changing climatic conditions by protecting the livelihoods of their citizens. While all of them are concerned that if they embark on an energy transition, it will impede economic growth, and hard-won progress in tackling food security, education, health, and other elements of sustainable development. This transition is extremely difficult for both developing as well as developed economies. The developed countries consume more global energy and contribute more to global emissions than developing countries. This causes global inequity in the energy consumption in the world. Amongst the most abundant GHGs in the atmosphere are water vapor, carbon dioxide, methane, and nitrous oxide. These have been emitted into our atmosphere through human activities such as industrialization, burning of fossil fuels, gas flaring, urbanization, and agriculture. It is the unguarded actions of humans over the years that are responsible for the depletion of natural resources and huge environmental compromises over the years. The consequence of this is being faced by the world over. This has led to a concerted correction of the policies of the past, being substituted by policies that would address the current pressing issues. Besides the innovations in new technologies, transitions should be such that they should take into account:

- Justice between countries
- Justice across workers
- Justice across generations
- Justice across gender gaps.

It is important to take into account that as most of the detrimental impact on climate change is primarily due to the policies that have been adopted by developed nations, their contribution has definitely to be much more than the current emerging market economies.

Figure 3: Inclusive Development



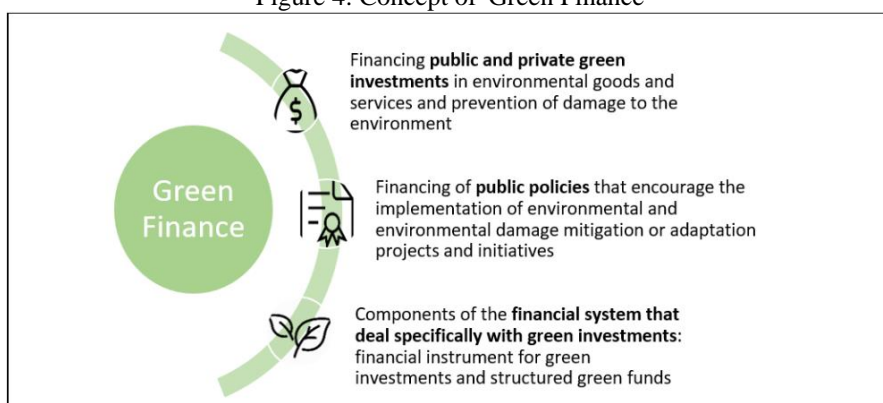
Source: Google image

2.3 Green Finance

Emerging Market Economies work towards development finance, under the overall umbrella of "sustainable growth". Advanced Economies emphasize the creation of 'Global Public Goods' (These are those public goods whose benefits affect all citizens of the world). They encompass:

- Natural Environment
- World's History
- Cultures
- Technological Progress

Figure 4: Concept of 'Green Finance'

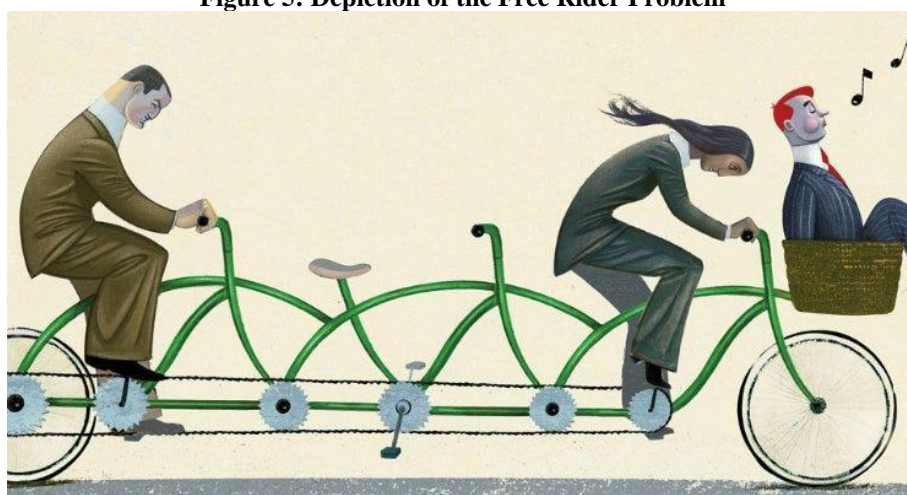


Reference: Lindenberg, Nannette, *Definition of Green Finance* (April 15, 2014). *DIE mimeo*, 2014. Available at SSRN: <https://ssrn.com/abstract=2446496>

The Covid-19 pandemic, refugee crisis, and climate change, which are global problems, have led to the emergence of global public goods. The definition of Public Goods is that they are 'non-excludable', and are enjoyed over and over again by anyone without diminishing the benefits they deliver to others ("non-rival"). National Public Goods are for example 'National Defense', which benefits the citizens of the State. Global public goods are those that benefit all the citizens of the world. This is the need of the hour as the impact of climate change is so severe that all countries of the world, whether they belong to Emerging Market Economies or Advanced Economies.

Governments are most successful in providing public goods when they have strong institutions. By enforcing regulation and taxation, governments mobilize resources to provide public goods and eliminate the 'free rider' problem. (A person that gets an advantage without paying for it or earning it).

Figure 5: Depiction of the Free Rider Problem



Source: Google image

Global public goods lack the legal authority to enforce regulation and taxation or the institutional capacity to coordinate the needs of all citizens of the world across all generations.

It is with this respect that various climate change agreements are taking place all over the world. It is basically to consider and accept that the present adverse climatic impact has to be addressed collectively by the world, and treat 'climate change', as a Global Public Good. Climate Finance or Green Finance should add to the amount that is kept aside for other developmental purposes. The need of the hour is that every economy should keep aside a certain amount that should be deployed for sustainable purposes.

The estimated requirement for climate finance is presently amounting to more than \$4 Trillion but the opportunity to include Private Finance along with Governmental aid would help in achieving the targets that are required for 'Green Finance'. Private Companies are sensing business opportunities in the many innovations required to move to 'net zero carbon impact'.

Such companies are more willing to invest in Advanced Economies as they feel that the risk premium is minimal, due to currency volatility. If governments pitch in to share a part of the risk, along with better country information concerning their plans, as well as a list of pre-decided projects that would aid in carbon reduction.

The inherent problem in Emerging and Developing Economies (EMDE) is the volatility of their currencies. But this volatility is due to 'global risk' factors, which mostly emerge in Advanced Economies (AE). It has been seen in the past that zero interest rate in advanced economies result in the outflow of capital to high-yield economies, when the risk in these economies increase there is subsequently an outflow of investment into safer havens. This was the major reason that 'emerging economies' (EE), entered into recession after the 'subprime' crisis. Economists advise that it is the regulation in EE that led to volatility, but it is the unregulated volatile flows that are responsible.

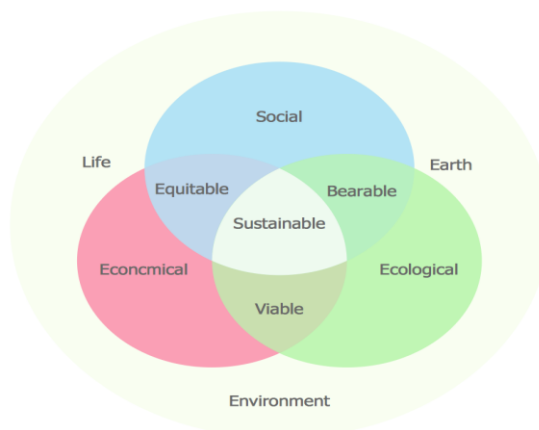
AE has to make a concerted effort to address arbitrage and excess volatility in both major banks as well as small banks, failures of banks in the US and the UK will be curtailed, and it would reduce spillovers to emerging economies. Emerging economies on the other hand need to be strengthened against political lobbies that underwrite regulation. Regulation needs to be right-sized to become light, universal, as well as market-friendly. EMs are forced to overregulate as AE's underregulate.

The effects of climate change are becoming more and more obvious. Recent years have witnessed unprecedented heat waves, fires, and floods, that have affected a large number of countries irrespective of location. The war on climate change cannot be delayed any further. It is necessary to create public goods for the benefit of all countries, to which every country contributes.

III. Tradeoff between Growth and Sustainable Growth

Some propositions state that economic growth inevitably causes environmental damage such that it is only with negative economic growth can the country work towards a cleaner environment. The expenses that an economy has to incur might be phenomenal to protect the surroundings. This is more for a developing economy as they have to face several issues at the same time. The need is 'inclusive development' for the world as one earth, one family, one future.

Figure 5: Inclusive Development



Source: Google image

In general, environmental goals do not move in synchronization with economic goals. The overall improvement in economic growth is associated with an increased use of materials that impact the surroundings adversely. At present, it is not feasible to achieve endless economic growth, well-being improvement, and environmental protection altogether. It is a combination of academic authority, practical relevance, institutional support, intellectual independence, and political feasibility in deciding which goals are important at which point in time. It also depends on the state of the economy and which category it falls in. There have been studies that have been conducted in developed economies in the agriculture sector that indicate that the more environmentally sustainable farms are, the less likely they are to operate at a high level of technical efficiency. The moment the concept of 'social responsibility' is added to the concept, the whole equation changes, and a

viable solution is then possible. The question arises whether the study should include only economic returns or whether social benefits need to be included in the cost-benefit analysis.

A tradeoff exists between environmental goals and pure economic growth. These become accentuated when the distinction is between a developed economy and a developing economy. It becomes extremely difficult for a developing economy to achieve its macroeconomic goals while trying to grapple with major issues of decreasing poverty levels and reducing unemployment. Economies cannot afford to adopt vigorous social welfare schemes as they need to keep their current account deficit under control as well as hope that continuous high rates of growth will lead to increasing income levels and in the bargain achieve the above-stated goals. This could be in contradiction to protecting the environment. This is when the tradeoff occurs.

IV. Process of Transition towards Sustainability Goals for both Developed and Developing Economies

The transition process and core principles of a green economy, require concerted action both at the global level as well as by individual countries. It involves the process of restructuring the market economy and transitioning toward a green economy, implying continuous effort and interdependence, since it cannot be achieved in isolation.

Figure 6: Transition to a Green Economy



Source: Google image

The green economy addresses the interdependent pillars of sustainable development: environmental concerns; renewable energy; low carbon levels. However, the same model cannot be applied to developed and developing nations.

The movement from a market economy to a green economy involves imposing restrictions on the use of natural resources (mineral resources, forests, soil), regulating energy production as well as changing consumption habits.

The above process involves several issues for an economy, in making current decisions about savings and investments as well as fulfilling the needs of a 'welfare State'. Ideally, this involves the implementation of the social discount approach, for macroeconomic goals. Environmental degradation needs to be determined using aggregated indicators that stem from environmental and protection policies.

What is most important is that economists as well as the government have realized that 'green growth', is not a replacement for sustainable development, it provides economic and environmental pillars while taking full account of the social consequences of greening the growth dynamics of economies. Natural assets are not infinitely substitutable, green growth policies take account of this. The aim of all policymakers should be to:

- Enhance productivity by creating incentives for greater efficiency in the use of natural resources, reducing waste and energy production, and unlocking opportunities for innovation and value creation.
- Boosting investor confidence through greater predictability in how governments will react to major environmental issues
- Opening up new markets by stimulating demand for green goods, services, and technologies
- Contributing to fiscal consolidation by mobilizing revenues through green taxes and the elimination of environmentally harmful subsidies
- Reducing risks of negative shocks to growth due to resource bottlenecks, as well as damaging irreversible environmental impacts

- Strategies for greener growth need to be country-specific. Green growth also realizes that focusing on GDP is the main measure of economic progress, and this does to a large extent overlook the impact on the environment. Most economies have to broaden their horizon and need to rely on a broader range.

- Measures of progress, encompassing the quality and composition of growth, and the way it affects people's life and welfare.

The most vulnerable are the emerging market economies, as they not only have to achieve high rates of GDP growth, but they need to take care of the environment as they too are being adversely impacted by the effects of climate change which is reducing several marginalized populations to poverty levels. Developed economies have to form effective policy monetary decisions whereby they help the developing nations.

Despite the vast literature on the emphasis on 'green growth', there are clear instances where strong environmental policies continue to be a drag on economic growth, rather than a driver for it. There is no predetermined path that charts the economy towards 'green growth'. The processes that are adopted are hit-and-trial ones. The aim is to save the environment but in practice to what extent could it be a feasible process can only be known when it is empirically proven.

V. Unique concepts involved in the use of 'Green Finance'

Green investments differ from common "non-green" investments by four special characteristics:

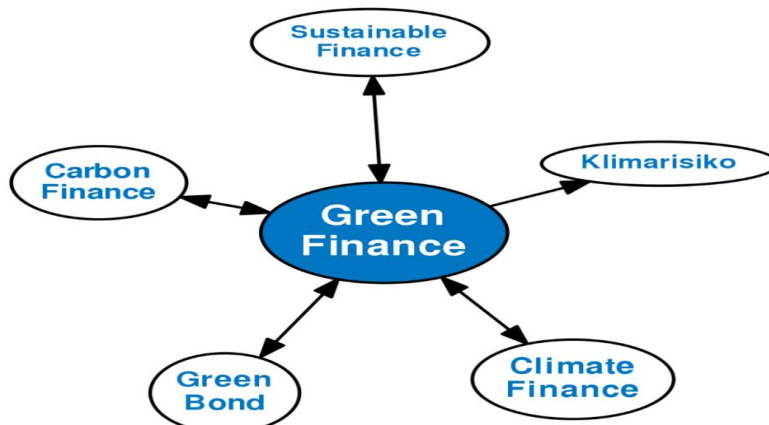
- Externalities
- Profitability depends on government support
- Occurrence is in an environment of rapid technological progress
- Subject to severe uncertainties

Generally, financial institutions show a greater interest in fossil fuel projects than green projects, mainly because there are several risks associated with these new technologies and they offer a lower rate of return. For green projects to be viable higher finance would be required, through new financial instruments and new policies, such as 'green bonds', 'green banks', 'carbon market instruments', 'fiscal policy', 'green central banking', 'financial technologies', 'community-based green funds', to name a few.

Banking finance is another area that has to increase its funding for 'green growth', but as all funds cannot come from this sector alone, pension funds and insurance companies that hold long-term financial resources should be encouraged for green infrastructure investment.

'Carbon pricing', is yet another format that could be followed to encourage green growth. The problems that have cropped up in this system have been the 'carbon price risk', which is a new type of political risk for both companies as well as investors. This risk is related to future climate risk agreements and changes in carbon-related national policies. The risk is technological as well as political, as there is uncertainty surrounding possible future technologies that might affect the speed and scope of the transition toward a low-carbon economy. This uncertainty further influences investors' ability to formulate long-term expectations about assets in which they could and should invest.

Figure 7: Examples of Green Finance



Quelle: <https://wirtschaftslexikon.gabler.de/definition/green-finance-99713>

Another important factor that has to be considered, while filling the green financing gap is the role of green central banking. Responsibility for financial and macro-economic stability lies implicitly or explicitly with central banks which need to address climate-related and other environmental risks. Central banks through their regulatory oversight over money, credit, as well as the financial system are in a powerful position to support the development of green finance models. Community-based funds are a good way of funding some small and medium-sized green projects.

New financial technologies such as blockchain, the Internet of Things, and big data, could unlock green finance for the world. There have been instances like Blockchain applications for sustainable development, blockchain use-cases for renewable energy, decentralized electricity markets, carbon credits, and climate finance, as well as innovation in financial instruments, including green bonds, that have been adopted since the Paris Climate Change conference of 2015.

VI. Conclusion and the Way Ahead

The importance of sustainable growth and along with it the availability of 'Green Finance', is the imperative need of the hour, given the disastrous impact that the world has and is facing. This impact has been felt by both developed as well as developing economies. The first step that has to be considered is the financing of technology that is environmentally friendly. This requires the participation of the central banks of the country along with government subsidies as well as private finance. All of the above can become a viable alternative only if the concerned government of the country takes a firm decision on protecting the returns of private financiers, as well as mitigating the risk concerning policy measures in this area. There has to be a consistent flow of funds from the developed nations to the developing ones, as the burden of growth is greater on the latter, even though they may be a larger contributor to greenhouse gases in the environment.

The second step is for the economies to encourage research and development in all spheres. Encouragement of alternative technology to fossil fuel, reduction in the use of chemical fertilizers, and moving towards the use of electric vehicles, are some of the different areas that are making a concerted effort to reduce carbon imprints. The agricultural sector is an extremely important sector for an emerging economy. For India, it is necessary to develop technologies that would help overcome the challenges of extreme weather events. This could be a viable, feasible, cost-effective time-bound plan if the government puts it on its priority list. The agricultural sector in India, has already started encouraging the growth of crops with the use of natural manures, has adopted a new strain of 'basmati rice' in certain regions of Punjab, and has adopted the slogan 'more crop per drop', to save the excessive use of groundwater consumption.

An effort has to be made on all fronts to mitigate the disastrous effects of climate change in all countries of the world.

Bibliography

- [1]. Artie W. NgORCID Icon, Jatin Nathwani, Jingyan Fu & Hui Zhou. (2021). Green financing for global energy sustainability: prospecting transformational adaptation beyond Industry. Taylor Francis.
- [2]. Ivan Diaz-RaineyORCID Icon, Jan Corfee-Morlot, Ulrich VolzORCID Icon & Ben CaldecottORCID Icon. (2023). Green finance in Asia: challenges, policies and avenues for research. Taylor Francis
- [3]. Kashyap, P. (2022). India: Green Finance: Exploring the Indian Financial System 08 March 2022 by Parul Kashyap. Sun legal.
- [4]. Munitlak-Ivanović, J. Zubović, Petar Mitić RELATIONSHIP BETWEEN SUSTAINABLE DEVELOPMENT AND GREEN ECONOMY - EMPHASIS ON GREEN FINANCE AND BANKING Ekonomika Poljoprivrede (1979).
- [5]. Noban. H. (2021). Green Finance and Sustainable Growth September 2021 ResearchGate.
- [6]. Satish Kumar, Dipasha Sharma, Sandeep Rao, Weng Marc Lim & Sachin Kumar Mangl (2022). past, present, and future of sustainable finance: insights from big data analytics through machine learning of scholarly research. Springer Link.
- [7]. Sharif Mohd. University of Delhi Vijay Kumar Kaushal Himachal Pradesh Unive Green Finance: A Step towards Sustainable Development July 2018 MUDRA Journal of Finance and Accounting 5(01) DOI:10.17492/mudra. v5i01.13036. ResearchGate.
- [8]. Sharma, M. (2021). Green banking initiatives: a qualitative study on Indian banking sector Meenakshi Sharma & Akanksha Choubey. SpringerLink