

**Research Study on
Climate Finance- Indian Policy, Funding and Way ahead**

**Submitted By
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CERTIFICATE

This is to certify that a bona fide work carried out by **Dinesh Kumar Mishra, Roll No. 2K21/EMBA/10 of 2021-23 batch** for a major study titled **“Research Study on Climate Finance- Indian Policy, Funding and Way ahead”**. The documents will be submitted to Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 in partial fulfillment of the requirement for the completion of a Major study in the fourth semester of Masters of Business Administration (Executive).

**Signature of Mentor
of Head (DSM)**

Signature

Seal of Head

Place:

Date:

DECLARATION

I, **Dinesh Kumar Mishra**, Roll No. **2K21/EMBA/10** student of **2021-23** batch of **Delhi School of Management, Delhi Technological University, Bawana Road, Delhi – 42**, hereby declare the report **“Research Study on Climate Finance- Indian Policy, Funding and Way ahead”**. submitted as a part of the **Fourth Semester Masters of Business Administration(Executive)**, requirement for the completion of a Term study

To the best of my knowledge, the facts and data included in the report are accurate.

No other university will accept this report for the purpose of awarding another degree, diploma, or fellowship.

Place:

Dinesh Kumar

Mishra

Date:

ACKNOWLEDGEMENT

I, **Dinesh Kumar Mishra** - I would like to thank my mentor from the bottom of my heart, **Dr. Archana Singh**, Delhi School of Management, DTU for the invaluable assistance and continuous direction during the process. I want to thank her for all of her help and encouragement throughout the endeavor. She assisted me in coming up with the phrases necessary to give a meaningful study structure.

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My gratitude to my colleagues & batch mates, friends whose participation in the study gave many valuable inputs for its completion.

Dinesh Kumar Mishra

(2K21/EMBA/10)

EXECUTIVE SUMMARY

Purpose – Climate finance is necessity of the present world to prevent world from serious challenges and effects of climate change. In this research study the gap between reality of climate finance and government steps towards policy establishment for improvement climate finance is established.

Design of Research Study: The research study is design is qualitative research.

Research Methodology: The subject is Reviewed through online research paper and news Paper. The same has been analyzed through Literature review.

Findings- The cash flow by International financial institution is not sufficient to mitigate Climate finance requirement. The move towards climate finance will be eye wash until all developed countries will not be serious about the clarity and transparency in the decision-making process for climate finance investment around the world. India, being developed countries where there is huge scope for climate finance investment are not being capitalized properly.

Further Research Direction- This study can be further moved towards the awareness of Climate finance assets and their outcome. Improvement of financial institution and

Government policy to strengthen also may considered for the further study. The cause and concern about the less investment in Climate finance may be highlighted in study.

Limitation- This research study is viewed in respect of India Climate finance but the funds and concepts of Climate finance developments are driven by developed countries. The external views are considered in this research study.

Originality- This research study is original concept to understand Climate finance.

Key Words- Climate Finance, Gaps, Government policy.

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Chapter - 1

INTRODUCTION

In present world are competing with each other in name of Development. Developed countries exploited the environment and resources to make them powerful and profitable. The leading countries now worry about the troubleshooting of healthy Climate. The finance use for expediting towards Climate is named as Climate Finance. United nations formed United Nations Framework Convention on Climate finance. The institute regulated various financial institute to mitigate climate issues and encourage world for healthy climate. India implemented various policy to attract investors and boost the Climate finance in India.

The fact is that Globally Climate finance is not defined properly. Government of India has initiated many policies and program for supporting Climate finance but awareness and movement towards the climate finance is very less. There are different challenges for India to develop the climate assets in the country. Developed countries not treating climate finance as necessity of world which leads to very slow movement of climate finance.

1.1 **Climate-** Climate can be defined as the atmosphere for any location over long time; Climate is the long-term summation of the atmospheric elements and their different elements effect in short time and long time. The factors are solar power in terms of heat and radiation, the effect of temperature, humidity and the amount, type and frequency amount of precipitation, specified wind and the direction and atmospheric pressure.

1.2 Correlation between Climate and Climate Finance- Climate change refers to the changes in the Earth's climate, and its associated effects, which have a negative impact on the environment and human societies. Climate finance, on the other hand, is the mobilization of financial resources to address climate change challenges by supporting mitigation and adaptation measures.

1.3 Need of Climate Finance- The centrality of climate finance in climate change mitigation efforts is because reducing greenhouse gas emissions and building resilience to climate change requires significant capital investments. Climate finance can be sourced from governments, private sector organizations, international development banks, and multilateral organizations such as the Green Climate Fund (GCF). These funds can be used to support a wide range of studies, including renewable energy, energy efficiency, sustainable infrastructures, and ecosystem conservation.

Mitigation efforts aim at reducing the emission of greenhouse gases that are responsible for climate change, which can be achieved by investing in renewable energy, reducing carbon emissions from transportation, making industry more sustainable, and adopting sustainable land management to reduce deforestation. This is where climate finance investment is essential, to finance these initiatives and encourage the adoption and deployment of these technologies globally.

On the other hand, adaptation measures are essential to reduce the adverse effects of climate change, including weather events such as storms, floods, and droughts. These adaptation measures can include studies such as developing sustainable water management, enhancing food security, and building climate-resilient infrastructure. Climate finance can play a crucial role in financing these initiatives, particularly in developing countries where the effects of climate change are felt most acutely.

In many cases, there are significant infrastructure gaps to be bridged to reach climate targets, but given that climate finance is limited, resources must be focused on priority sectors with the most transformative potential. Therefore, it is essential that climate finance is allocated in a way that prioritizes the most urgent needs of communities affected by climate change. Climate finance should also be transparently allocated to studies that offer the most transformative potential, which in turn will help address the most pressing needs of communities affected by climate change.

Climate finance is essential to mitigate and adapt to climate change. The financing of mitigation and adaptation measures to reduce the adverse effects of climate change is essential, and climate finance provides a significant source of funds to finance these transformative initiatives. The proper allocation and transparent disbursement of climate finance funds can significantly impact and positively contribute to global efforts towards combating climate change.

The single biggest challenge to sustainable development is climate change, whose extensive, unprecedented effects disproportionately affect the most vulnerable and underprivileged groups.

1.4 Background of Climate Finance- Climate change in order to keep the increase in global temperature to no more than 1.5 degrees Celsius, world together set a goal to save the world by saving our environment and Climate. The world's stakeholders need to act and provide funding for solutions to reduce the effects of climate change, open the door to a low-carbon economy by reducing greenhouse gas emissions, increase access to renewable energy options, and more. Many of the Sustainable Development Goals (SDGs) of the United Nations (UN) are geared toward resolving various environmental issues, however the UN estimates that \$3 to \$5 trillion annually is needed to achieve the SDGs. The need for climate finance is more urgent than ever due to the large scale capital required for a low-carbon transition, which is necessary to lessen the effects of climate change, support solutions for climate adaptation, and reduce global greenhouse gas emissions.

Climate finance is important after pandemic. This pandemic teaches us the lesson to become wiser towards environment. After pandemic many jobs are coming and there will be huge investment toward creating the economy green and more resilient for try to avoid other effect of climate change. At present word is expecting huge investment in climate action to create a sustainable economy. According to world bank data the world need to make significant investment in infrastructure over the next future (Till 2030). Data recorded in 2019 and expected investment around world for climate finance is around US \$ 90 trillion by 2030. Transitioning to a green economy, it found can unlock new economic opportunities and jobs. An average yields of US\$ 4 from investment of 1 US\$ is expected. Covid- 19 has not stopped climate change but this process produces the atmospheric impact of drop in emissions. Slowly returning to a path that would bring a global temperature increase much above the Paris Agreement goal of 1.5 degrees Celsius and have significantly greater severe effects would occur when CO2 emissions and temperature have grown back to roughly where they were before the epidemic. If we want to reduce global warming to 1.5 degrees, only a small portion of proven fossil fuel stocks can be burnt, according to the long-term economic reality.

1.5 Support for Climate Finance in India- Government of India made the initiative to develop Climate finance through many Financial organizations. The details are as follows

NABARD- The funding was intended to support holistic rural development and boost rural areas' prosperity. The scope of activity and duration of operation of these programmes and products vary significantly. The Climate Change Fund was started in 2016-2017, making it a relatively new study. The initial \$571,900 capitalization of the fund was refilled annually from NABARD profit margins. NABARD granted \$159,600 and \$129,010 in 2019 and 2020, respectively, to perform vulnerability assessments and increase climate resilience in rural areas of the nation. Perhaps more important than any individual program is NABARD's embrace of strong fiduciary, legal,

environmental, and social standards throughout its portfolio. As a result, NABARD was able to obtain authorization to serve as the National Implementing Body for India with the Adaptation Fund beginning by 2012 and accreditation as a direct access entity with the Green Climate Fund beginning in 2015. (UNFCCC, 2012; GCF, 2019). Although they each have a reciprocal approach to expedite institutions accepted by the other fund, the multilateral climate funds have strict requirements and due diligence procedures. NABARD has been given access to extremely advantageous international resources to test out finance schemes for climate action thanks to its accreditation with the Adaptation Fund and Green Climate Fund. The Adaptation Fund has given NABARD \$8.1 million so far for eight initiatives in the areas of forestry, agriculture and food security, and coastal and water management (NABARD, 2021c).

RBL bank- Since 2014, RBL Bank has used indicators relating to, for example, resource efficiency, carbon emission intensity, occupational health and safety, and community-related risks to assess all transactions worth more than \$1 million and with a tenure over one year (RBL Bank, 2019). More recently, RBL Bank has integrated the physical and transition risks of climate change into its assessments (RBL Bank, 2021). While 32% of RBL Bank's exposure in 2017 met the criteria for integrated risk assessment, that percentage has decreased to 32% as a result of the growth of microfinance and retail banking in comparison to wholesale transactions (RBL Bank, 2019; 2021). RBL Bank has been able to steadily lower its exposure to ESG risks throughout its portfolio thanks to the adoption of an integrated environmental and social management system.

SIDBI- SIDBI was setup by the government of India in 1990 as a DFI to support and promote MSMEs, particularly by closing the credit gap that they face, estimated at \$343.1 billion (SIDBI, 2019b). Since access to credit and insurance can reduce income fluctuation and enable investment in productive assets, expanding access to

financial services for MSMEs is inextricably related to reducing poverty and fostering economic growth. The Samridhi Fund of SIDBI serves as an example of the possibilities of impact investing in MSMEs. The Samridhi Fund, which was established with a \$57.2 million corpus in partnership with the Life Insurance Corporation of India, United India Insurance Company Limited, and the UK's Department for International Development (now the Foreign, Commonwealth & Development Office), offers social enterprises in low-income Indian states with tested business models risk capital ranging from \$66,500 to \$3.3 million. The finance is structured as equity-linked or equity instruments. SIDBI's own assessment suggests that the Samridhi Fund generated 24,000 new jobs, provided 2 million people with access to healthcare and 1.8 million people with access to clean drinking water, and offset 10.5 mega tonnes of CO2 (SIDBI, 2020)

1.6 Problem Statement- Climate change is serious threat for world. Despite all this It has been observed that Developed countries like USA, Germany not showing the seriousness to encourage climate finance. Establishing financial institute not able to required .Climate finance is not to be treated like "nice to have" , it must be insisted for "must to Have".

Chapter -2

Literature Review

To review the Research projects, we will examine some research papers that have conducted our research on Climate finance, policy and other related sections.

Reseroy Kouwenberg (2013) writes in his paper "a review of the global finance literature" discussed about the climate finance and paris agreement and adopted plans.

Author have had the most significant based on citations, influence on climate finance research. Author try to clusters of journals and their views to represent the influence on climate finance. The author investigated that climate finance as the main research topic in the above said topic by previous researcher and what is remain to perform for next generation researcher.

Muniyandi Balasubramanian and V Dhulasi Birundha(2012) in their research Paper “Climate change and its Impact of India” discussed Climate change the as problem which is associated with various adverse impact on water, coastal management and increase temperature. They discussed about impact of climate change in the form of decline in rainfall and temperature resulted in increased severity of livelihood issues inside nation.

“Climate Finance Architecture in India” by Divya Singh(2017) discussing about Domestic Public Finance and domestic public climate finance. The Author discussed about International climate finance from Multilateral and bilateral sources of funding. Author has given their specific observation on climate finance landscape in India. Climate change and its implication for India and their Institutional and their policy response.

Koyal Kumar Mandal (2021) in his paper Climate Finance discussed India’s current effort at mobilizing finance for mitigation and adaption from various sources, analyses the major drivers behind the flow of such funds the author discusses the difficulties in estimating India’s climate finance flow and need, driven in part by lack of clarity. Author discussed about the key challenges of climate finance and given suggestion for produces problem in Climate finance. Author emphasis on the Conceptual foundation of climate Finance in India. In this paper it is discussed about the various fund and India role or contribution of other financial institution constituted for Climate fund. Author given details about various fund and their fund comparison and requirement with the developed and under develop countries and the requirement.

Dave Steinbach, Adarsh Varma, Prima madan, Ashutosh Pandey, Pallavee Khanna, Smita Nakhodda(2016) writes articles for India's readiness towards the climate finance and their future survivability plan of action. The authors describe National Action plan on climate change and they address threat posed by climate change. The authors discussed about green climate fund and their funding patterns and purpose of the fund. The authors discussed about the various projects and capability and opportunities of India in terms of Climate finance development.

Chapter -3

Objective of Study

3.1 **Objective of the study**

The objective of this study is as follows: -

3.1.1 To Understand Global and Domestic Finance Institutions for Climate Finance

3.2.1 To analyze India Policy and different scheme launch by Government of India for motivating Climate Finance investment.

3.3.1 To Understand Challenges and way ahead of Climate finance in India.

Chapter -4

Research Methodology

4.1 **Research Methodology** - My first undertaking is to recognize an achievable technique for information assortment for our examination. We have adopted to collect various information through various research papers. It is a study to understand climate financing, definition, impact and their global future and their affect the whole world.

For this study, data has been collected from various sources such as:

- 4.1.1 Various reports and research papers based on Climate Finance are mentioned in the Literature review.
- 4.1.2 Union budget 2023 which discussed the various funds and government policy towards climate finance and investors.
- 4.1.3 Conference of parties reports available in various platform, analysis for India's role and future course of action.
- 4.1.4 UNFCCC reports and their secretary interview regarding Indian potential and future prospects.
- 4.1.5 India's effort towards make in India, and Atmanirbhar Bharat related with climate finance and their potential in terms of development of Climate finance.

The paper is developed based on Climate finance funds, policy and challenges related with Indian economy and present India vision and their challenges and opportunity. These statistics are reexamined to gain insight into India's current government. In order to achieve the study's goal, the data has also been further examined and processed.

4.2 Research design

Qualitative research design is adopted.

4.3 Source of Data

Primary data: Nil

Secondary Data: Journals, Internet another Research Papers

4.4 Research Instrument

All the data related with Climate finance research papers, blogs and internet used to collect the data. The data is analyzed to understand and compare with the present reality and progress of Climate finance progress.

Chapter -5

Results

5.1 Global Finance Mechanism

Global Environmental Facility(GEF)– Established at the 1992 ahead of Rio Earth Summit, located Washington, District of Columbia, United States of America. It includes 184 countries in the association with international institutions and civil organization and the private sector. GEF provides grants and blended finance for study related to Food security, land degradation, climate change, biodiversity,

persistent organic pollutants in developing countries. GEF on average \$ 1 billion expedite for addressing environmental changes issues. The fund is largest source of multilateral funding for globally diversification. To date the GEF has provided more than \$ 22 billion in grants and mobilized. Another \$ 120 billion in co-financing for more than 5200 study and program. Till June 22 GEF donors pledged a record \$5.33 billion in support for their four years' replenishment cycle which will be accomplished by June 26.

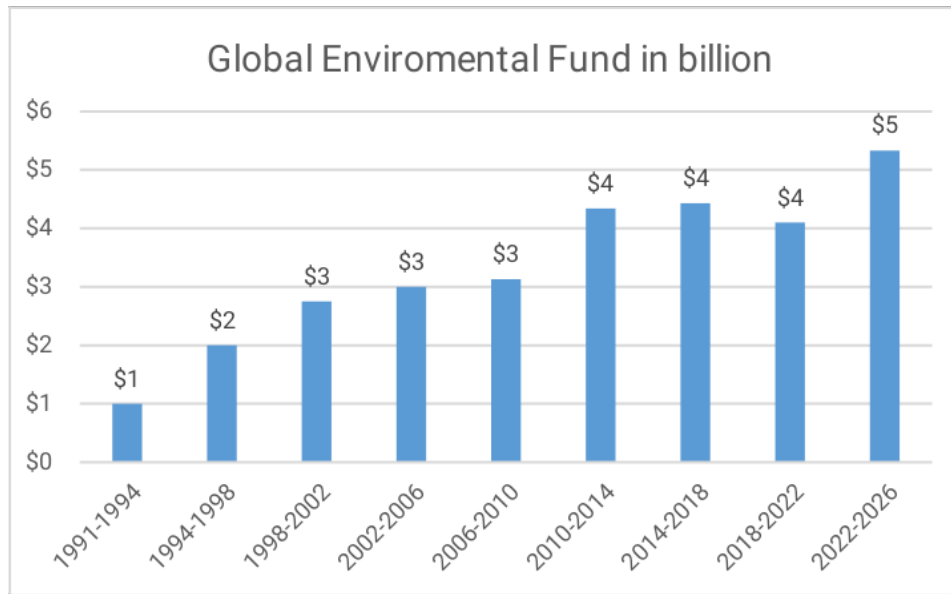


Figure- 01 Global Environmental Fund Replenishment Cycles

India is a member of GEF. The partnerships started in year 1991 and going stronger over the years. In year 1993 GEF intervention to start building institutional and technical capacity for harnessing renewable source of energy (Solar and Hydropower). This increase Indian renewable energetic capacity and played vital role to promoting and regulatory changes in renewable energy.

\$516 million of GEF grants and leverage around 30 Million. Most satisfying outcome of GEF study that it crates impact on livelihood of the people concerned.

The output of replenishment cycle of fund is evident that the fund cash flow is constant, it must be increasing in order .

5.2 Least Developed Countries Fund (LDCF)-

The Adaptation Fund (AF)- The fund is setup under the Kyoto protocol of the United Nations framework convention on climate changes. Adaption fund established in 2001. With aim to finance concrete adaption study. The fund used for finance climate adapting studies and program in developing countries. This fund follow Clean development mechanism(CDM) study activities and also with funds from other sources. AF Financed through a 2% levy on the sale of emission credits. CDM is a way to reduce greenhouse emission through efficient and sound technology.

Tables 1: Adoptive Fund Used in Indian Study

Sl No	Study Name	Area	Sanctioned amount in US \$	Study approval date
a.	To accept and built the ecosystem	Kanha and Pench area in MP	2556093	10/7/2016

b.	Security of program to create and explore the bounding of climate finance	MP	1790500	4/10/2015
c.	Climate-smart actions and strategies for sustainable	North-western Himalayan region	969570	10/09/2015
d.	Climate Proofing of Watershed Development Studies	Tamilnadu and Rajasthan	1344155	10/09/2015
e.	Small and Marginal Farmers to be secured and enhanced	Bankura & Purulia in West Bengal	2510854	10/10/2014
f.	Conservation and Management of Coastal Resources as a Potential Adaptation Strategy for Sea Level Rise	Coastal Areas	689264	10/10/2014

Six studies funded by the Adaptation fund at India. Overall \$9.85 million fund was granted and used in coastal zone management, agriculture, water management, forestry, food security in Madhya Pradesh, Northwest Himalaya, Rajasthan, Tamilnadu, Andhra Pradesh and west Bengal. The above list of study is in progress in various parts of India and the funds are regulated through NABARD. There are certain studies are still in pipe line and progress of such fund is very slow due to political issues. The cheapest raw material is available in China but due to present political condition fulfilment of demand is not fulfilled.

5.3 The Green Climate Fund (GCF)

The fund look after by 24 members, which constitute the board of GCF supported by a secretariat. The headquarter is located at South Korea. The intended of Green climate fund is effort to raise climate finance under the UNFCCC. Developed countries are the responsible for most greenhouse emissions. As consequence, the moral responsibility to pay for a share of the cost of the climate mitigation worldwide.

Green Climate fund approves \$137 Million investment in India. The Ministry of Environment, forest and climate changes has been selected as India National Designed Authority or the Green climate fund.

Till today groundwater recharge system installation study in Odisha is under progress under the funds collected from green climate fund. Indian government is trying more money but still not received. The grants status report are as tabulated

Table 2: Green Climate Fund Contribution by Countries

SI No	Country	Announced (billion)	GDP Per Capital	Emission per capital(tons of Co2 emm)
a.	USA	\$3,000	\$55,000	17
b.	Japan	\$1,500	\$36,000	9
c.	UK	\$1,211	\$46,000	7
d.	France	\$1,035	\$43,000	5
e.	Germany	\$1,003	\$48,000	9
f.	Sweden	\$581	\$59,000	6
g.	Canada	\$277	\$50,000	14
h.	Italy	\$334	\$35,000	7
i.	Norway	\$258	\$97,000	9
j.	Australia	\$187	\$62,000	17
k.	Spain	\$161	\$30,000	6
l.	Netherlands	\$134	\$52,000	10
m.	Switzerland	\$100	\$85,000	5
n.	South Korea	\$100	\$28,000	12
o.	Denmark	\$71.80	\$61,000	7

p.	Belgium	\$66.90	\$48,000	9
q.	Finland	\$107	\$50,000	10
r.	Austria	\$34.80	\$51,000	8
s.	Luxembourg	\$46.80	\$111,000	21

5.4 The Climate Investment Funds (CIFs)

The request of G8 and G 20 countries, the fund is established in year 2008 for establishing finance and scale climate pilot studies in developing countries, This multilateral fund. Through contribution from the 14 donor countries, the fund supports more than 350 studies across the world. The fund have channeled more than \$ 60 billion from government and the private sector World largest solar park, First geothermal power plant in south American investment for wind power industry supported through the fund. The CIFs have a total pledge of USD 8.08 billion. Indian study details are as follows-

Table 3: CIF Study Details in India

Sl No	Fund Name	Fund amount	Study
a.	Clean Technology Fund	\$793 million	3GW of newly installed solar power capacity
		\$500 million	Accelerated coal Transition program, India had been selected as one of the first 4 pilot countries
		Concessional Financing	This is to help to offset the high upfront costs of large-scale solar park studies and rooftop solar photovoltaics
b.	Strategic Climate Fund		India has very less investment in these funds. Maximum

c.	Pilot Program for Climate Resilience (PPCR)		investment carried on Technology Fund only
d.	Scaling-Up Renewable Energy Program for Low-Income Countries		

India has been selected as one of the first 4 pilot countries and can receive up to \$500 million in financing for program implementation. In year 2020 and 2021 there were \$800,000 program for technical assistance ranged across provision of climate finance for financial institution.

Innovation in Solar power and hybrid technologies, Private sector smart cities and infrastructure program, Supporting India offshore wind sector , climate resilience of women engaged in poultry, green growth and scaling up demand side energy efficiency study, partial risk sharing facility for energy efficiency, Rajasthan renewable energy transmission investment program, various infrastructure for solar park, Solar roof top, solar power transmission, supporting Green hydrogen through high technology are the various studies where phase wise climate finance fund is used in India.

5.5 Climate Finance in India

Government of India Policy- Prime Minister outlined three pillar for growth of climate finance, first step is increasing the production of renewable energy, second reducing the use of fossil fuel in economy and last rapidly moving towards gas-based economy. Climate finance became seven top priorities of the union budget 2023-24 towards green industrial, sustainable energy in the nation. The initiative are as follows:

5.5.1 Green Hydrogen Mission- The target of production of 5MMT of green hydrogen.

For this more than 18 Thousand crores have been prefinished as to incentive the private sector in this field.

5.5.2 Energy Transition - Future activities of Climate finance- The overall objective is to accelerate the momentum of green growth along with finding solution. India has achieved the target of 40% contribution in he installed electricity capacity, which is 9 years earlier the target.

5.5.3 Energy Storage studies- India has to increase the battery storage capacity to 125 gigawatt hours in the next 6- 7 years. Funding also been initiated for battery energy storage system. Capacity of 4000MWH will be supported with Viability Gap Funding. India moving towards meeting the energy storage obligation targets. Further green mobility the import of capital goods and machinery required for the manufacturing of lithium-io cells for battery used in electrical vehicles will be exempted from customer duties.

5.5.4 Renewable Energy - In Sep 2019 India announced its target to reach 500 GW of renewable energy generation to achieve the target by 2030. India nationally determined contribution (NDC) estimates India require 162.5 lakh crores from 2015 to 2030 or average around 11 lakh crore per year for climate action. E20 Fuel and emphasis on bio fuel was launch and brought new opportunities for investors.

5.5.5 Green Credit program- This is the program to encourage behavioral change under the environment Protection act. This will incentivize environmentally

sustainable and responsive actions by companies, individuals and local bodies to help additional resources with such mobilized activities.

5.5.6 PM –PRANAM- Government of India promoting farmers to adopt natural farming through PM program for Restoration, Awareness, Nourishment and Amelioration of mother earth(PRANAM)- The objective of this scheme to reduce the use of chemical fertilizer and balanced the use of chemical to reduce negative impact on the environment.

5.5.7 GOBAR-dhan Scheme- This scheme was launched in 2018. In the present budget government has announced to set up to 500 new waste to wealth pants the goabrdhan yojna.

5.5.8 Costal shipping- India promoting waterways in India to promote water based transport and greener cargo handling. India promoting energy efficient and low cost mode of transport for freight and passenger through public-private-partnership (PPP model). India has 7500 km contiguous coastline create opportunity as costal shipping. Till only 6% of total freight movement in water transport is recorded which is very low. Ministry of road transport and highways estimated Rs 2,58,606 Cr as Capital expenditure and 11,829 Cr estimated as revenue expenditures

5.5.9 Vehicle replacement- The policy was launched on 31 Aug 2021, to replace old vehicle with modern and &new vehicle on Indian roads. According to this policy

commercial vehicle aged below 15years and passenger vehicles ages 20 years will have to mandatory scrapped if they are enable to pass fitness test. This policy is expected to reduce huge pollution, job opportunities creation and boost demand for new vehicle.

5.6 India adopted measure for promoting Climate Finance. Mitigation and adaptation in both directions are included in the actions. India has incorporated several climate change mitigation strategies into programs for rural and environmental development, creating a point of leverage for achieving social, environmental, and economic sustainability. The Indian government has adopted a number of measures to help it meet its climate change goals, including:

- a) A campaign to use LED bulbs cut emissions by 40%
- b) The Indian Railways' net zero aim will reduce emissions by 60 million tons.
- c) Increase renewable energy capacity (95% of the target was already met as of September 22).
- d) The national initiative for street lighting has reduced net carbon emissions by 5.97 MT by replacing traditional lights with LEDs.
- e) The adoption of the 6Rs of sustainability (Reduce, Reuse, Recycle, Recover, Redesign, and Remanufacture) and the provision of clean water at the doorstep in rural areas under the Jal Jeevan mission have shown increases in carbon stock of 39.7 million tonnes annually and 56 billion units of electricity, respectively, during the 2020–21 period.

5.7 Financing Climate Change: Sovereign Green Bond

The climate finance change necessitates the mobilisation of both domestic and international resources. India declared the issuing of Green Bonds in its Union Budget for 2022–2023 in an effort to fulfil its aim to mitigate the consequences of climate change.

The Indian government would issue green bonds to mobilise domestic financial resources and draw potential investors for funding public sector studies targeted at reducing carbon intensity and achieving the goals set forth in the National Action Plan on Climate Change (NAPCC). The money raised through green bonds will be used by the Indian government for a range of "green initiatives" broken down into the following categories:

- (a) Climate Change Adaptation
- (b) Sustainable Water and Waste Management
- (c) Pollution Prevention and Control

5.8 Investment for Climate Finance

5.8.1 Indian Investment in Climate Finance- Announcements of investments do not always pan out. In-depth analysis of the figures reveals a lot about India's financial priorities. There are however many who believe that fossil fuels are necessary to produce the electricity required for India's development. As a result, significant investments in coal, oil, and gas as well as solar and wind energy have been announced.

According to the Ministry of Petroleum and Natural Gas, the nation will invest Rs 480,000 crore (\$60 billion) in the construction of gas infrastructure in 2021–2022. In addition to boosting up local exploration for gas and oil, the nation is increasing its

interests in foreign oilfields including Russia's Sakhalin 1 and Sakhalin 2 and Brazil's BM -Seal-11.

5.9 India on Non fossil fuels

The investigation takes place at a time when India is significantly affected by climate change. This year, the northeast was hit hard by heavy rains, flooding, and landslides, but northern India was plagued by protracted heatwaves. These strange monsoon patterns, according to experts, are a sign of climate change.

India is performing very well being attracting substantial investments meeting country climate goals that required proportionate, transformation investment of India energy increase at sectoral level. It is possible due to financial support and government policy have played vital role to accelerate growth of renewable energy sector. After Covid 19 pandemic government initiated new and alternatives to finance the transition and incentivize private sector participation to scale up investment for a transformational and sustainable impact.

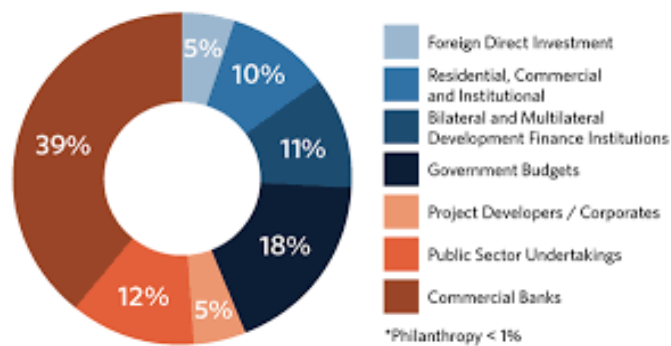


Figure 2: Investment in Various Sector

Chapter-6

Barriers in Mitigating Strategy in Climate

From the platform of the United Nations framework convention on climate change (UNFCCC), former Vice president of US and Environmentalist Mr AL gore remarked that, we are not doing enough for climate finance. He was refereeing the efforts and renewed focus on exploitation of fossils fuel and lack of climate finance to the developing countries to enable them to adopt climate changes. The pledge taken by the developed countries in 2009 (Copenhagen, Denmark) to provide \$ 100billion each year, have failed to fulfill this. Developing countries including India have voiced their concern in COP27 for a Global Climate Finance targeted by 2024, which known as New collective quantifies goals on climate finance. Still the gap between Developing countries and developed countries not able to define and purpose of climate finance. The definitions don't have synergies the operations across the world. Various organizations defining climate finance as per their convenience, the lack of all togetherness of world is still big factor for climate finance.

6.1 In present condition Lack of standard accounting framework is clearly visible. The climate finance necessity is urgent requirement which need to spent on the activities like renewable energy generation which will contribute to slowing down climate change and help the world to limit the Global warming. But developing countries like India facing difficulties to make common people to understand to the last person. High inflation rate, overall price of the product, their service and their benefits still undiscovered for the common people of India. In India Solar industry has lots of scope and for growth. It is being preyed by many people for personal and industrial

purpose Experts of India feel that solar development create more employment in near future but still it faces challenges in India. Solar panels can convert a tiny percentage of sunlight into energy, especially in North or hilly part of India where sunlight is not available in abundance. There are very less players in India for solar product. Due to price of solar product is higher in terms of installation, the product is still he usage of such item is still far away from the local person. Another initiative towards EV has the same story. Due to lack of proper infrastructure of charging facility and other utility EV will be second car in future. At present EV is the choice of counted persons. It will be huge challenge to mold the ecosystem. The domestic players hesitate to invest in such areas as there is completely no demand for such items. The alternatives are higher in price.

6.2 Political will power also play the vital role. This is also major challenge for Climate finance. Still the equipment or base materials in affordable price of renewable energy are imported from China. Present political conditions compel investors to produce everything in India, importing of item from countries like china is not as per political will. This is one of the cause of concern

6.3 There is No scientific analysis present the requirement and commitment of \$100 billion by the UNFCCC. The data is not enough and the number was not seeming a product of sufficient analysis. The complete campaign is steered by the UNFCC but the aim and balance sheet kept a distance. It seems that the directives are provided for accumulation of such fund but the utility and aim is still far from reality. It is lack of visionary leader is clearly evident.

6.4 The flow of money in climate finance is irregular. As the demand for such products is by and large nil, climate finance is heavily biased towards mitigation and the adoption is lagging behind due to this. Flow of money is uncertain. India is the third largest producer of CO₂, although the emission is lower than China (28% of global emissions). The US still has less CO₂ around 15% emissions. In the coming year, the demand will be expected to be huge compared to present. In present conditions, India is passing through a changing phase where climate finance will be a requirement for the future but in present cash flow is not satisfactory. Developing countries are also focusing towards climate finance but till the time combined impact towards climate finance from developed to countries like India. Team effort among the world is still not synchronized for climate finance. India is still far away from target to achieve the basics of climate finance.

6.5 The attitude of the well-off is really alarming for the progress of climate finance. The US decision not to pay \$2bn of their contribution is not significantly good for climate finance. Developed countries should be the engine of climate finance till the time engine performance and the attitude do not have a positive impact on the rest of the countries. Attitude will be very formal. In present conditions, many developed countries including the US attitude is like they are donors of the climate fund. The attitude of the US is not appreciable as climate finance is a requirement and necessity of the present world. Climate change studies have a long gestation period. The looming slowdown does not help either as most countries and corporations are going for cost-cutting which almost always affects badly.

Chapter -7

Conclusion

Future climate change will be our society's first-order issue. Researchers in financial economics have recently become interested in the numerous ways that climate change will affect the financial markets. Modeling the relationship between asset prices, the economy, and the climate, as well as documenting the many ways that

the climate is Risk has already been accounted for in financial markets. But there is still a lot of work to be done. Researchers will be able to more properly replicate the various feedback loops between climate change and the real economy because to advances in computing power. The basic economic assumptions of these models will be similar to those discussed in this paper, but they will provide new and improved quantifications of key ideas like the societal cost of carbon.

The empirical assessments of climate risk exposure in various asset classes, and particularly equities assets, have a lot of room for improvement. Increased firm disclosure in the upcoming years, whether required or whether imposed by regulators or required by major investors will present new chances to assess how exposed corporations are to various climate threats. In the lack of fresh data directly provided by businesses, existing data can be processed in more inventive ways to enhance climate risk exposure metrics, such as satellite imagery, language from 10-K statements, or transcripts of earnings calls. Similar to this, more complex sentiment analysis can enhance our capacity to distinguish between news concerning physical risk and transition risk and our measurements of bad climate news. Together, these developments will increase our capacity to create portfolios of climate hedges that are ever more potent.

Examining how much climate risk might affect financial stability by impacting asset prices is another crucial issue. It largely relies on how concentrated these risks are in the portfolios of investors and financial institutions. The research agenda for measuring this concentration is significant and valuable. We need improved measures of asset-level risk exposures in order to accomplish this so that they can be added up to the portfolio level. Financial firms would be able to better manage their exposure to climate risk, and regulators would be able to make sure that these risks do not endanger the stability of the financial system.

Chapter -8

Implication of Study

The Study of Climate Finance, policies and way ahead have following Implication: -

8.1 Policy Implications- This study is emphasizing on various International and National policies for promoting Climate Finance through various Financial institutions, Conferences of parties meetings and national policy. The study reflected Climate finance hierarchies begins with the top leaders of developed countries but fact is that the hierarchies level is not moving down, due to lack of transparent policies and the will power of the countries. These study also describe the gap between sanctioned and required finance in the climate finance. This gap can be fulfilled by transparent policy and their implications on ground. The Climate finance is the requirement of present world ; strong and transparent policy and seriousness of the countries can be eliminate the threat of Climate.

8.2 Managerial Implication- The study discusses about various investment opportunities in India. The political will power is also required to motivate investors for ease of investment in Climate finance. Government initiative is very slow process, without awareness it is very difficult to analyses threat of Climate . It should be posses as social problem where everyone should understand the threat of climate is slow poison, if world will understand this , the spreading of poison or effect may be reduced.

Chapter -9

Limitation of Study

Limitations- The study has some limitations. The study is based on the data and articles available and newspapers and articles. The data is collected from various case study available in various media sources. The articles, daily news and daily news update and world reaction for day to date update created frame of mind for writing the case study.

Chapter -10

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