

# Essence of Green Finance in Driving Economic Sustainability and Adoption of Green Initiatives to Restore Ecological Sustainability - The Way Towards Green Recovery

Somrita Dey<sup>1</sup>, Ayan Banerjee<sup>2</sup>

<sup>1</sup>Student, Institute of Chartered Accountants of India (ICAI)  
Email: somrita.dey.94[at]gmail.com

<sup>2</sup>Assistant Professor, Department of Commerce, St. Xavier's College (Autonomous) Kolkata, India  
Corresponding Author Email: ayanbanerjee[at]sxccal.edu

**Abstract:** *COVID – 19 have taught us newer approaches towards our life, career and practices. The changes in policies and strategies have become inevitable for sustainable development. Sustainable business model, investments, trade and commerce is the need of the hour. The world has witnessed several global meets and economic sustainable plans and goals in the recent past. The ongoing global problem bound the policy makers and global thinkers to rethink about some initiatives which will at one hand meet the global standards and ecological sustainability and at the other hand it must focus on climate change aspect. Thus, Green Finance and Green initiatives had gained utmost importance. The goal of green financing is to increase level of financial flows from private, public and not-for-profit sectors to sustainable development priorities. This study is descriptive in nature and has been conducted to identify the way towards green recovery. The study revealed that, there is a rapid shift towards CNG in transportation sector by 2030. The study also depicted a change in attitude of individuals and their inclination towards renewable energy sources which is definitely creating a severe need for energy transition by way of research and development in this field. Massive investment in sustainable low carbon economy is a big hurdle for developing nations. Lack of awareness and inadequate technical knowledge is hampering fund raising through green bonds.*

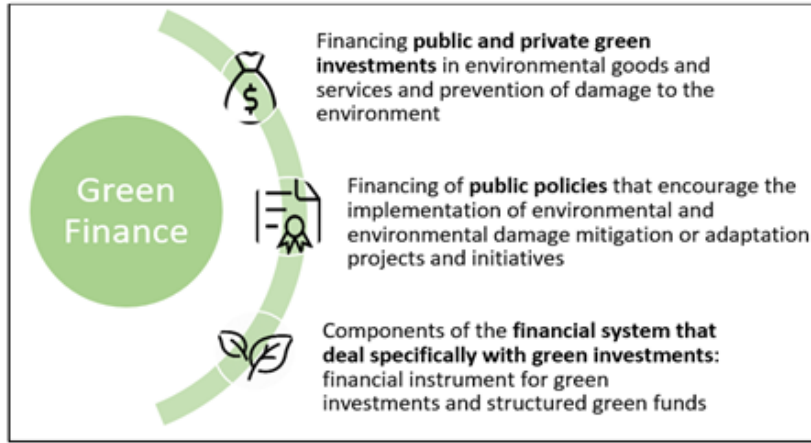
**Keywords:** Green Finance, ecological sustainability, green recovery, greeninitiatives, green economy

## 1. Background of the Study

“All must pay the debt of nature” quoted by Annie Proulx, as the society is moving towards modernization with latest technology and innovation we seem to avoid or pay least attention to the environment destroying the entire Eco system. Since the inception of Industrial revolution that has paved the way for development of economy at the cost of depletion of natural resources in the form of affecting bio diversity, water bodies, soil, as well as poor air quality thereby generating unprecedented levels of pollution. It is quite easier to deplete resources than its replenishment and according to experts even ecological footprint calculation failed to measure the extensive use of natural resources. To offset major depletion of natural resources to increase chances of survival of the planet in the near future, it points out to a significant concept - “Economic Sustainability”

Economic sustainability can be defined as general well-being without harming environment i.e. to safeguard resources for long term use.

First and Second wave of Covid pandemic that appears to be the deadliest crested in various states of India recording huge variation of death surveillance shaking the economic upliftment as a whole. Complete lockdown, sanitization, avoidance of mass gathering and launching vaccination drive can never act to be sufficient for steady lifting of the economy. Severe Climatic changes in the nature of pandemic have grave repercussion for the entire mankind. Thereby going green as a part of Sustainable development can be a great challenge. The Economic and Social survey of Asia and the Pacific 2020 has indicated a steady fall of about 17% to 12% of market share for renewable energy from 1990 to 2017. Lack of sufficient knowledge is creating a hurdle among the general public as to what the word GREEN may contribute to sustainable development for the society. No standard definition of green finance has been quoted till now. According to Höhne / Khosla / Fekete / Gilbert (2012): "Green finance is a broad term that can refer to financial investments flowing into sustainable development projects and initiatives, environmental products, and policies that encourage the development of a more sustainable economy."



Reference: Lindenberg, Nannette, *Definition of Green Finance* (April 15, 2014). *DIE mimeo*, 2014.

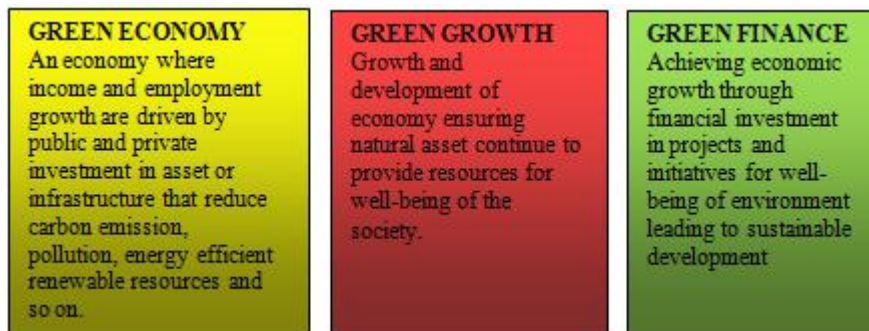
Available at SSRN: <https://ssrn.com/abstract=2446496>

**Rationale behind the study**

The idea of Green finance generated with the launch of The United Nations Environment Program Finance Initiative (UNEP FI in 1992) currently includemembership of more than 240 **finance institutions** around the globe. Green development is the only way to improve ecological contamination and reducing ozone depleting substances and to fight against natural corruption involving deforestation,

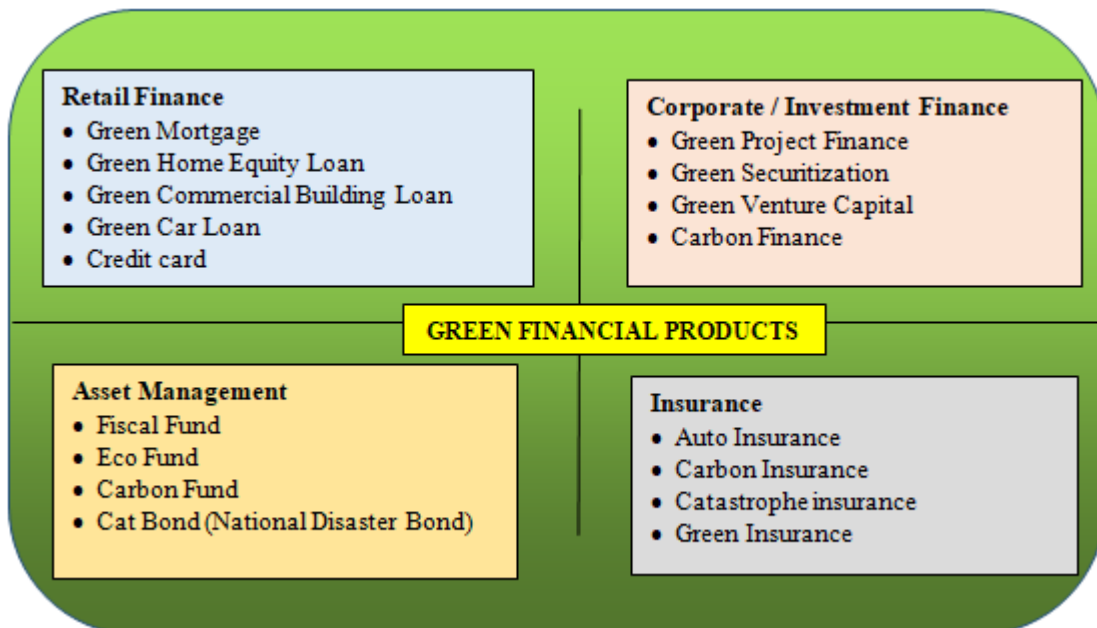
air and water pollution creating ruinous effect over bio diversity.

To go GREEN revolves around three phrases - Green Economy, Green Growth and Green Finance



Green finance is specifically intended towards products and services beneficial to environment and managing

environmental risk and can be categorized into 4 major heads:



For welfare of the economy it is vital for financial sector for mitigation or diversion of capital from carbon emitting sectors to carbon mitigating sectors. According to the findings of Climate Policy Initiative (CPI) 2020, in the year 2018 India was able to deploy only \$18 billion towards climate investment compared to annual requirement of \$160 billion. Recent reports indicated that India struggling with frequent flood, storms, heat waves required USD 170 billion per year to finance climatic action while a total green finance over last few years stood only USD 19 billion on average which is creating a centre for concern. India's Intended Nationally Determined Contribution (INDC) estimated nearly USD 2.5 trillion which is needed to tackle severe climatic actions and reduction of green house gas emission from 2015 to 2030. As per reports released in September 2020 by Climate Policy Initiative (CPI), low carbon transport, renewable energy, energy efficiency identified as green sector driving economic growth.

Nowadays projects related to sustainable development gaining more financial privilege in terms of tax refund or in the form of government support which is throwing an opportunity for the new start-ups to go green. Though in the current scenario there is lack of clarity as to how far the financial sectors are leaning towards India's green economic development goal.

## 2. Brief Review of Literature

- Vanita Tripath *et.al* (2012) in the paper titled "Green is Good in Indian Stock Market" has used risk adjusted measures to evaluate the performance of green stock over non green stock portfolio during crisis period and concluded that green stock portfolio can be safer for conservative investors during economic crisis.
- Parvadavardini SOUNDARRAJAN *et.al* (2016) in the paper titled "Green Finance for sustainable economic growth in India" has studied recent opportunities and challenges faced by Green finance in India to reduce environmental risk and to achieve ecological balance.
- Dharish David *et.al* (2018) in the paper titled "A COMPARATIVE STUDY ON THE ROLE OF PUBLIC-PRIVATE PARTNERSHIPS AND GREEN INVESTMENT BANKS IN BOOSTING LOW-CARBON INVESTMENTS" has mainly focused their survey on scaling up green investment through public private investment and GIB in the context of India and Japan.
- Jeffrey D. Sachs *et.al* (2019) in the paper titled "Importance of green finance for achieving sustainable development goals and energy security" has studied the need for green finance to achieve sustainable development goals and the ways to fill the green finance gap.
- Babita Jha *et.al* (2019) in the paper titled "Green Finance: Fostering Sustainable Development in India" has reviewed the need to build green finance strategies and the green financial initiatives taken by public and private sector including various challenges and recommended ideas to face those challenges.
- Farhad Taghizadeh-Hesary *et.al* (2020) in the paper titled "Sustainable Solutions for Green Financing and Investment in Renewable Energy Projects" highlighted

the role of financial institution in green investment, development of green credit guarantee scheme, increasing rate of return in green project and identifying green investment risk.

- Gincy Charles *et.al* (2020) in the paper titled "Green Finance: Recent Drifts, Confrontation and Prospect Opportunities for Sustainable Development in India" has identifies the initiatives taken by Government and the targets achieved till date in implementing green finance in India.
- Nishadi Thennakoon (2020) in the paper titled "Let's make the Post -Covid-19 Recovery Process Greener" has discussed the significance of undertaking green policies as post covid recovery plans to mitigate climatic risk and to bring stability in financial system post Covid 19.
- Dr. Hariharan Narayanan (2021) in the paper titled "GREEN FINANCE – AN OPEN DOOR IN FUTURE FOR THE UNIVERSE" discussed the evolution as well as global opportunities and challenges faced by green finance during Covid 19.
- Muhammad Arif *et.al* (2021) in the paper titled "Diversifier or More? Hedge and Safe Haven Properties of Green Bonds During COVID-19" has undertaken cross quantile analysis thereby identifying green bonds as safe haven for investors of conventional asset thereby proving hedging opportunities.
- Muhammad Abubakr Naeem *et.al* (2021) in the paper titled "Did COVID-19 Impact the Connectedness Between Green Bonds and Other Financial Markets? Evidence From Time-Frequency Domain With Portfolio Implications" has studies the hedge effectiveness of green bonds over other financial asset amidst Covid pandemic situation.
- Priyam Kamra *et. al* (2021) in the paper titled "Green Financing: A Global Investment Transformation" studied the working of green financing across the globe highlighting risk assessment and the interplay of Covid pandemic and green finance.

### Objectives of the study

- To identify the important policies and strategies undertaken globally to gain economic sustainability in 21<sup>st</sup> century.
- To identify the constituents of green finance for the period of study.

## 3. Methodology

The paper is descriptive in nature aimed at identifying global policies to drive economic sustainability and green policies of Indian Industries and is based on secondary data collected from United Nation Sustainable Development Report 2019, reports on International Conference from 1972 to 2019, reports published by government of India, Climate Policy Initiative Report 2020, 2018, 2016, FICCI Report 2020, press releases by India government, annual reports including news reports and published journals. To analyze the constituents of green finance, the period of study was considered from 2016 to 2020. The facts and figures from IDFC report relating to green finance commitment, climate finance, green finance commitment by OECD & Non-OECD nations has been collected and analyzed for the period of study.

**4. Analysis & Findings**

**4.1 Adoption of global initiatives – as a measure of economic sustainability**

World has always showed consciousness towards environment which is evident from a number of international conferences framing strategies, rules and regulations. Inter-governmental political forums like G5 and G6 were in force to concentrate on trade security climate change and economic issues since 1973. Later on 1981 G7 forum involving wealthiest developed countries namely Canada, France, Germany, Italy, Japan, UK and U.S came to spotlight to catalyze major global initiative for addressing climatic change and providing financial aid to developing nations. But as per Bloomberg Report developed nations failed to keep the promise made on 2009 to devote \$100 billion annually to poor countries to tackle global warming

issues. The 47<sup>th</sup> G7 summit held on 11 – 13 June 2021 in Cornwall UK mainly addressed two themes – Climate action and health as the world is still battling with covid pandemic and G7 nation promised to deliver 1 billion Covid vaccine to other nations. The G20 Global Summit on Financing Energy Efficiency, Innovation and Clean Technology held in 2019 with 19 forums specially focused on eight themes involving "Global Economy", "Trade and Investment", "Innovation", "Environment and Energy", "Employment", "Women's Empowerment", "Development" and "Health". From Indian context, according to G20 Osaka Summit Interim Compliance Report, The Indian Renewable Energy Development Agency, considered allocating \$20 million towards Green Window project for expansion of clean energy market in India.

**4.2 International mega conferences on Environment from 1972 to 2015**

Name of the Conference	Year of Conference	Location	Participating Countries	Primary Discussions
UN Conference on the Human Environment	1972	Sweden	Representatives of 113 member states of United Nation	Declaration of 26 principles relating to International Environment Laws Establishment of United Nations Environment Program (UNEP)
World Commission on Environment and Development	1987	Nairobi	Norway, Sudan, Italy, Saudi Arabia, Zimbabwe, Germany, Hungary, China, Colombia, India, Brazil, Japan, Guyana, USA, Algeria, Indonesia, Nigeria, USSR, Yugoslavia, Canada	Developed the theme of Sustainable development
United Nations Conference on Environment and Development (UNCED) or Earth Summit	1992	Rio de Janeiro, Brazil	117 heads of state and representatives of 178 nations	Main focus was signing of following treaties: <ul style="list-style-type: none"> <li>• Convention on Biological Diversity for protection of plant, wild life and endangered species</li> <li>• United Nations Framework Convention on Climate Change (UNFCCC) for reduction of emission of green house gases leading to global warming</li> <li>• United Nation Convention to combat Desertification (UNCCD) to converse forestry</li> <li>• Agenda 21 dealing with generating global strategies for environmental development</li> </ul>
Earth Summit +5	1997	New York	117 heads of state and representatives of 178 nations	Review the progress of Agenda 21
World Summit on Sustainable Development or Rio +10	2002	Johannesburg	Representative from 193 nations	Progress and implementation of Agenda 21 and declaration on Sustainable Development
UN Conference on Sustainable Development (UNCSD) or Rio +20	2012	Rio de Janeiro	192 UN member states including 57 Heads of State and 31 Heads of Government, private sector companies, NGOs and other groups.	Mainly concentrated over major three theme- <ul style="list-style-type: none"> <li>• Green Economy to be adopted to achieve sustainable development</li> <li>• Eradication of poverty by supporting the developing countries and to involve in search of green path for overall development</li> <li>• Improvement of international coordination to achieve sustainable development</li> </ul>
United Nations Sustainable Development Summit 2015	2015	New York	193 Member States of the United Nations	The outcome document entitled “Transforming our world: the 2030 Agenda for Sustainable Development”, mainly concentrated on 17 sustainable development goals with 169 targets over Millennium Development Goals which could not be achieved in full.

Source: Author’s compilation

**Sustainable Development Goal Summit 2019** was held in New York to review the implementation and of progress of Sustainable development goals (SDGs). Major findings clearly indicated a worst result on SDG13 (climate action), SDG 14 (life below water)and SDG 15 (life on land).There was no restrictions implemented towards emission of greenhouse gases thereby causing severe threats to human well-being. As per the reports, to overcome the loopholes in policies and initiative, government and stakeholders need to improve strategies and policies regarding public private investment and how effectively utilize them in achieving SDGs. According to SDG Report, India has secured index ranking of 115 and has failed to achieve its target as per 17 SDGs.

**4.3 Overview of Indian Initiatives towards economic sustainability**

From Indian perspective few initiatives have been noted. As per the reports of NitiAyog, India has been constantly stepping towards clean energy transition with planning of installation of 500 GW of renewable energy capacity by 2028. Though outbreak of Covid 19 resulted in sharp fall of fossil consumption thereby reducing greenhouse gas emission for the first time in last four decades. Further with Unnat Jyoti by Affordable LEDs for All (UJALA) program saving fossil fuel and opening newer fronts in urban development and transport design, energy system design, industry growth is marked as few recovery programs that has to be followed. Energy Storage technology has been identified as a critical technology to be adopted and grabbing the opportunity of being global leader in manufacturing battery cells may create sustainable economic and environmental benefit in near future.

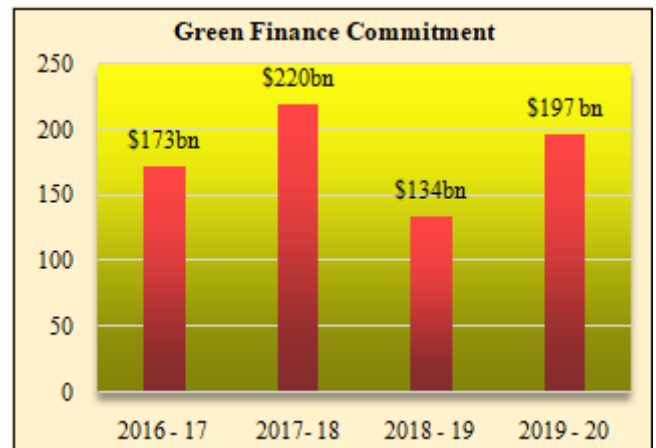
As per the reports of Business Standard, **Climate Summit** held on April 2021 with 40 nation for meeting the climate crisis and reduction of carbon emission, India’s Prime minister announced India-US Climate and Clean Energy Agenda 2030 Partnership that may result in mobilizing investment towards clean technology as well as green collaboration.

A large number of policies initiatives and regulations are being planned and hosted since 1991 but it is still doubtful as how much have actually been implemented. Still reports deliver that all developed as well as developing countries are working on climate finance, climate technology, reducing carbon emission and achieving carbon credit and trying to concentrate on goals and strategies to fight against climatic changes to save Earth.

**4.4 Comparative analysis of financial commitment towards Green Finance – Global scenario**

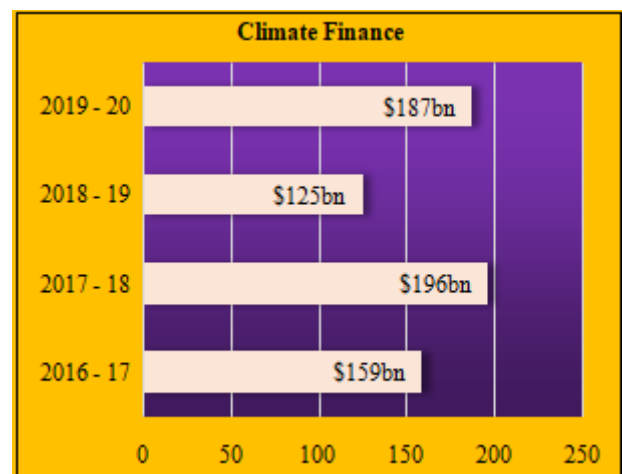
“When we heal earth we heal our self”- David Orr. Do we actually know how to heal? We are busy in rupturing the ecological balance to fulfill our comfort and needs without even thinking of future for a second. To bring hope for future and to be responsible for what we are receiving today it becomes important to adopt green finance to promote sustainable economic development by way of presenting SDG by shifting the focus of mankind towards generation of

stakeholder’s value. To measure the progress of green finance ambition, International Development Finance Club (IDFC) is involved in tracking the green finance commitments by its members that is established through yearly reports.



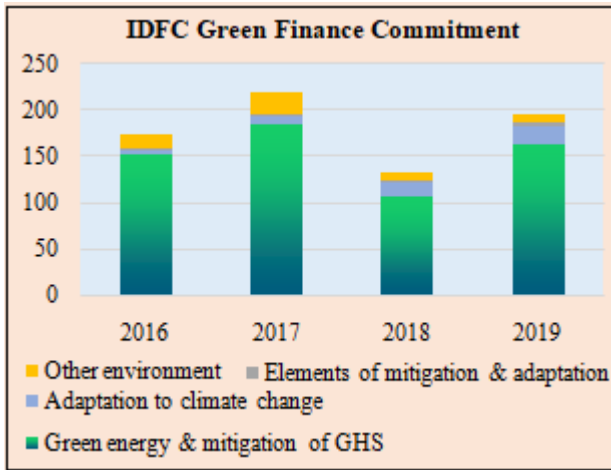
Source: IDFC Report

It is evident from the above column chart that there has a rising trend towards green finance commitment. IDFC members reported total green finance commitment of \$197billion in 2019 which is 47% higher than previous year, still it is below the highest peak that reached in 2017.



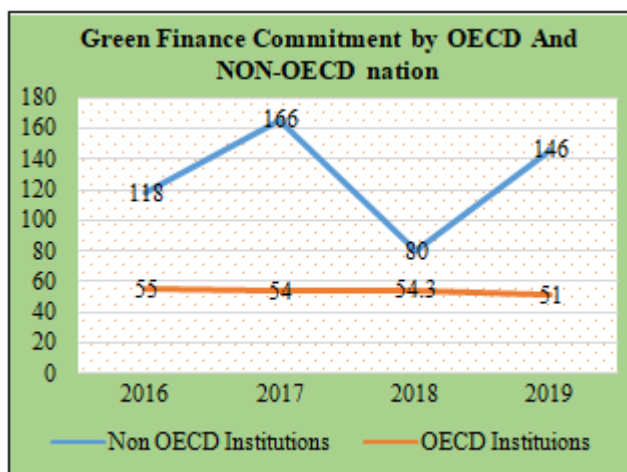
Source: IDFC Report

For the year 2019 - 20, climate finance mitigating greenhouse gas emission and issues relating to climate change accounted for 95% of the total green finance commitment which is portraying a ray of awareness among individuals. There has been rise of 50% commitment towards climate finance compared to last year as per IDFC report.

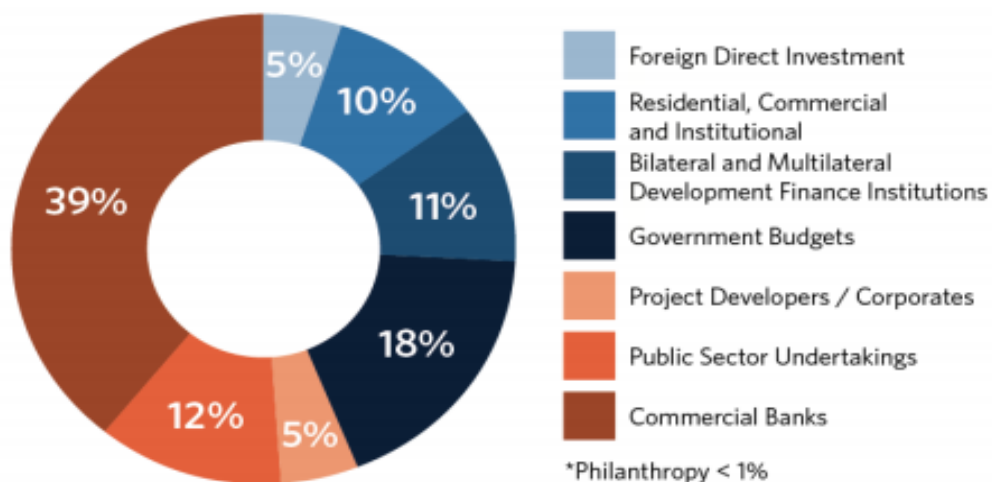


Source: IDFC Report

Above chart depict the comparative analysis of sector wise allotment of green finance from 2016 to 2019. Green energy and mitigation of greenhouse gas holds highest share nearly 87% of climate finance in 2019 which proves a drop in share compared to 2016 when it was 96% of total climate finance. Though adaptation to climate change in 2019 has shown much improvement recording 25% rise from 2018.



Source: IDFC Report

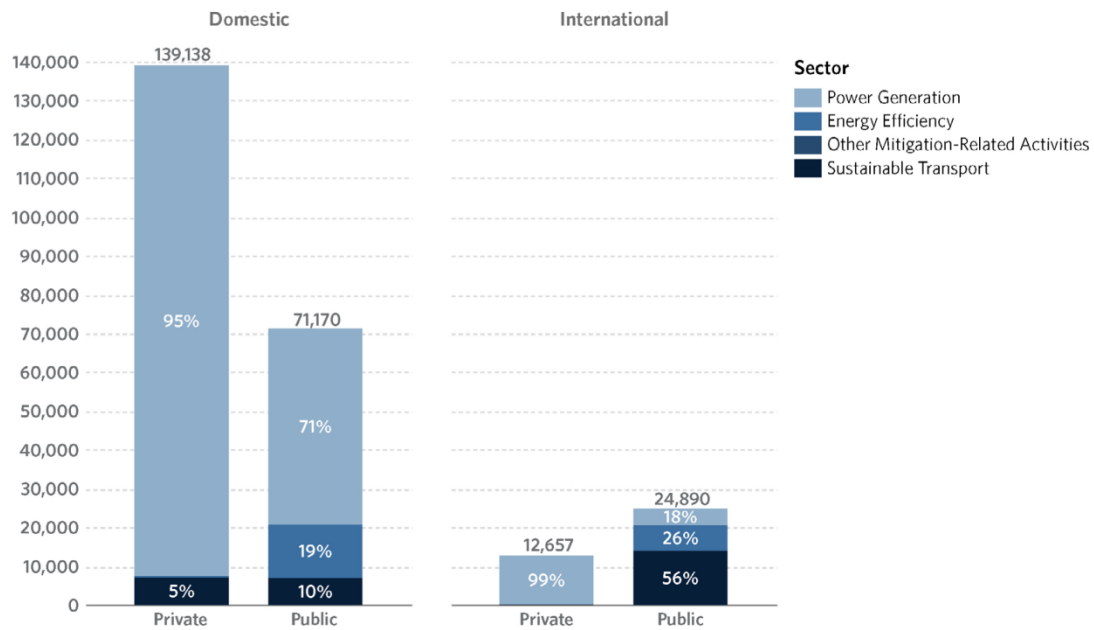


Source: <https://www.climatepolicyinitiative.org/wp-content/uploads/2020/09/Landscape-of-Green-Finance-in-India-1-2.pdf>

Total commitment by IDFC members of non OECD countries accounted for \$146bn which is quite higher compared to previous year when it was \$80bn. This is proving an upward trend in green finance investment that were recorded in 2016-2017. While commitment from OECD countries showing \$51bn which is lower compared to 2016 - 18. Total flow of outbound finance from OECD nations to Non OECD nation represent \$20 billion while that of non OECD were mostly invested in home countries projects nearly \$143.9bn and majority of which were in the form of loans.

### India to emerge as a successful nation adopting Green finance

Our study revolves around identifying whether green finance can be adopted as a technique driving economic sustainability in our society. From Indian perspective green financial flow can play a crucial role in handling impacts of severe climatic changes by diverting financial flows towards carbon mitigating sectors and adapting strategic role in restoring a sustainable economy. AS per Climate Policy Initiative Report September 2020 India witnessed green finance flow of INR 111 thousand crores (USD 17 billion) in 2017 and INR 137 thousand crores (USD 21 billion) in 2018 and classification of investment by source is depicted by following figure representing majority of investment from commercial banks while FDI holding least participation in green investment merely about 5%.



Source: CPI analysis

Technological advancement followed by reduction in green tariff and favourable environment friendly policies contributed towards rapid growth of green investment and India promised 225 GW of renewable energy capacity by 2030. Though majority of contribution came from domestic sector in 2017 and 2018. India permit 100% FDI through automatic route in renewable energy generation thereby this sector received 60% rise in foreign capital investment from 2016-17 to 2017-18.

**Analysis of most preferable constituent of Green Finance from Indian perspective**

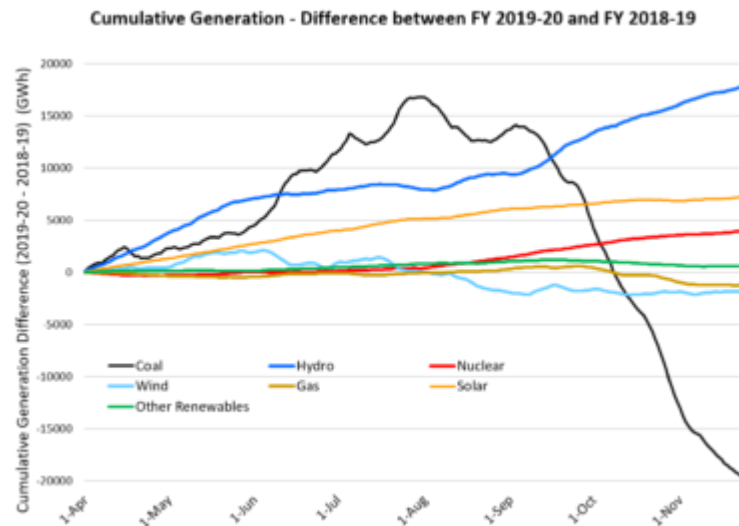
Main focus of our survey revolves around identifying green growth in particularly the sector of renewable energy capacity namely power generation, energy efficiency and power transmission and sustainable transportation.

**a) Power Generation**

Power generation sector is playing a crucial role in achieving India’s clean energy target. As on December 2018 rooftop solar capacity accounted 4 GW as the sector proved to be highly attractive investment avenue with better solar policy intervention and a high reduction in solar tariff. As per the reports of Institute of Energy Economics and Financial Analysis (IEEFA) to meet the government target of 450GW by 2030 India successfully installed 9.39 GW of new grid renewable energy capacity including 1.5 GW of rooftop solar in 2019. There has been a 10% rise in installation of new wind capacity which is nearly about 2.5 GW in 2019 as compared to 2018.



Source: economic times



**Source:** CEA, IEEFA's Charles Worringham calculations

It is clearly seen from the above trend that grid coal fired power generation is facing a sharp fall nearly 20000 GW in absolute term providing a ray of light towards renewable capacity as investors are shifting towards cost effective and safe renewable energy sources. Therefore, with changing appetite towards renewable energy call for innovative financial solution and better policy generation by government and divesting funds from fossil fuel sector by financial institution to provide sustainable energy choices.

#### b) Energy efficiency and Power transmission

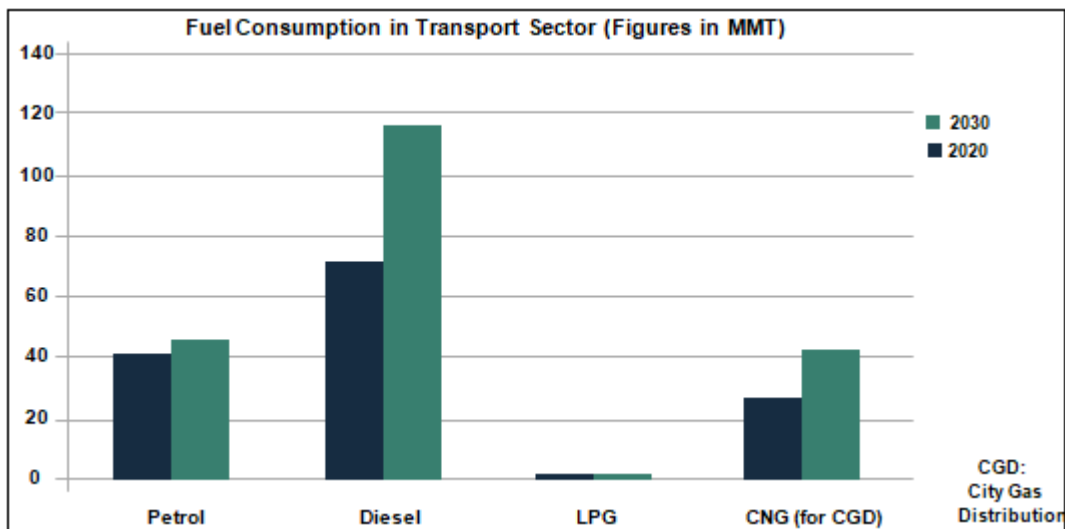
This sector deals with smart grid, green energy corridor, renovation and modernization, and building infrastructure for efficient power transmission. A total investment of INR 20 crores was initiated towards the sector from 2016 to 2018. Digital India and Make in India programs made it mandatory to provide cheaper digital electricity grid thus National Smart Grid Mission (NSGM) under the power ministry committed INR 3000 crores towards Smart grid development in smart cities to manage the distribution lines and managing peak loads and reducing technical and commercial losses. Green Energy corridor to synchronize electricity produced from renewable sources with conventional power station grid involved total project cost is INR 10141 crores which was to be funded by government grant state equity and loan from KWF Germany but the progress is quite slower to meet its target. About 39% of

tracked investment was committed towards green building and infrastructure. Distribution sector is facing two challenges - with implementation of SAUBHAGYA (Pradhan Mantri Sahaj Bijli Har Ghar Yojana) scheme i.e. electrification of all households and to ensure its financial viability. UDAY Scheme (UjwalDiscom Assurance Yojana) launched in 2015 to improve the financial as well as operational efficiency of state DISCOMs resulted in increasing outstanding liability which was 0.98 lakh crore in 2016. Energy efficiency services Limited (EESL) indulged in energy efficiency program like Unnat Jyoti by Affordable LEDs for All (UJALA) to distribute LED bulbs and Street Lighting National Programme (SLNP). Under National E-Mobility Program, it also participated in providing electric vehicles in lease or outright purchase to replace petrol and diesel vehicles. As per the reports by maintaining energy performance standards, energy efficiency initiatives will save more than 3700 crore KWH energy consumption of the country.

#### c) Sustainable Transportation

To decarbonise the transport sector government has come up with strategies of shifting to renewable fuels to reduce the emission of greenhouse gases as production of bio fuels provide an alternative to mitigate challenges thrown by climatic changes.





MoP & NG forecast for Petroleum Products demand, for planning Refinery capacity, by 2030 & 2040 is as under

S. No.	Item	Requirement in MT	
		2040	2030
1	Diesel	240	163
2	Petrol	83	49
3	LPG	41	34

Source: FICCI Report

To do away with the situation Government has initiated rules and regulations specifying mass emission standards for Compressed Natural Gas, Biodiesel (B-100), Ethanol (ED 95) and Flex fuel (E 85), Flexfuel Methanol M15 or M100, Methanol MD 95, A20 (blend of 15% methanol and 5% ethanol) and dual fuel vehicles. Ethanol Blending Programme (EBP) and National Biodiesel Mission (NBM) were initiated to encourage use of renewable fuel. SATAT’ (Sustainable Alternative Towards Affordable Transportation) scheme under Ministry of Petroleum & Natural Gas targets production of 25% of available Bio CNG (CBG) i.e. 15 MMT by 2023, from 5000 plants in the country to substitute LNG. Pradhan Mantri JI-VAN (Jaiv Indhan- Vatavaran Anukool Fasal Awashesh Nivaran) Yojana’ has been initiated to provide financial support of INR 19.695 billion from 2018-19 to 2023-24 towards bio ethanol projects. Hydrogen fueled automobiles can also act as zero emission electric vehicles hence can be treated as cleanest renewable energy fuel for future. The Ministry of New and Renewable Energy in the National Power Energy in 2004 had set a target to reach 1 million hydrogen-fueled vehicles on road and 1000 MW of total hydrogen-based power generating capacity be set up in the country by 2020 but somehow failed to reach the target. Though in 2018 Tata Motors in association Indian Oil Corporation had set trials for hydrogen fueled vehicles. Electric vehicles or EV plays a significant role in reducing carbon emission and as per reports will reduce 30% demand for petrol and diesel requirement by 2030. Under Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India (FAME-India) Scheme II launched on April 2019, it has expended INR 100 billion (USD 1.4 billion) to be utilized for incentives on the purchase of electronic vehicles or EVs (INR 85.96 billion) and f deployment towards charging infrastructure (INR 10 billion). Thus Government aims

public participation towards clean air mission reducing GHGs emission and raising awareness towards low carbon mobility by setting a road-map to face challenges and maintain ecological sustainability.

### 5. Conclusion

Covid pandemic that hit the globe around March 2020 is definitely creating a blockage towards ongoing progress of SDGs. Therefore, to be back on track accelerating the progress calls for some sort of pathways to deal the backlog. Though High level political forums took the matter into consideration in their annual meet conducted from 14<sup>th</sup> to 16<sup>th</sup> July.

According to World Bank Report poor and middle income countries recorded more than half of total carbon emission which indicated their interdependence over carbon emission and rate of economic development. Developing country like India face shortage of investment to meet renewable energy goal thereby accelerating global warming by paying least attention towards climate catastrophe.

Indian Government has initiated a paradigm shift in energy taxation by charging higher tax on petroleum products which is acting as implicit carbon tax to reduce carbon emission. As a result, the reports forecast a rapid shift towards CNG in transportation sector by 2030 as depicted by the study.

A sharp fall in coal fired power generation as portrayed by our study is clearly depicting a change in attitude of individuals and their inclination towards renewable energy sources which is definitely creating a severe need for energy transition by way of research and development in this field.

Sustainable low carbon economy requires massive investment which is a big handicap for developing countries facing investment gap in clean energy projects. They are facing hurdles to raise fund for green investment through green bonds due to lack of awareness and inadequate technical knowledge of financial institutions.

As a step towards achieving carbon neutrality target, major tech companies like Wipro, TCS, Infosys, HCL, Tech

Mahindra has been successful in cutting down carbon emission by 85% due to the immediate shift of work culture involving work from home and travel restrictions amidst pandemic crisis.

Surviving in today's complex and volatile environment where Covid pandemic is reshuffling global priorities need strong collaboration among developed and developing nation to come up with innovative ideas and technological upliftment fostering green recovery. All these discussions pose a serious question to the researchers to think or ponder about whether nationwide practices undertaken by different industries and / or organizations to come out from the crisis period is a way towards green recovery.

## References

### Journals & Periodicals

- [1] Tripathi, V., & Bhandari, V. (2012). Green is good in Indian stock market. *Colombo Business Journal*, 3(2), 27-45.
- [2] Soundarrajan, P., & Vivek, N. (2016). Green finance for sustainable green economic growth in India. *Agricultural Economics*, 62(1), 35-44.
- [3] David, D., & Venkatachalam, A. (2018). A comparative study on the role of public-private partnerships and green investment banks in boosting low-carbon investments (No. 870). ADBI Working Paper.
- [4] Sachs, J. D., Woo, W. T., Yoshino, N., & Taghizadeh-Hesary, F. (2019). Importance of green finance for achieving sustainable development goals and energy security. *Handbook of green finance: Energy security and sustainable development*, 10.
- [5] Jha, B., & Bakhshi, P. (2019). Green finance: Fostering sustainable development in India. *Int. J. Recent Technol. Eng*, 8, 3798-3801.
- [6] Taghizadeh-Hesary, F., & Yoshino, N. (2020). Sustainable solutions for green financing and investment in renewable energy projects. *Energies*, 13(4), 788.
- [7] Charles, G., & Philip, B. GREEN FINANCE: RECENT DRIFTS, CONFRONTATION AND PROSPECT OPPORTUNITIES FOR SUSTAINABLE DEVELOPMENT IN INDIA.
- [8] Thennakoon, N. (2020). Let's Make the Post-COVID-19 Recovery Process Greener. *Central Bank of Sri Lanka Papers*, Forthcoming.
- [9] Narayanan, H. (2021). Green finance—an open door in future for the universe.
- [10] Arif, M., Naeem, M. A., Farid, S., Nepal, R., & Jamasb, T. (2021). Diversifier or more? Hedge and safe haven properties of green bonds during COVID-19
- [11] Naeem, M. A., Mbarki, I., Alharthi, M., Omri, A., & Shahzad, S. J. H. (2021). Did COVID-19 Impact the Connectedness Between Green Bonds and Other Financial Markets? Evidence From Time-Frequency Domain With Portfolio Implications. *Frontiers in Environmental Science*, 9, 180.
- [12] Kamra, P., & Grover, T. (2021). Green Financing: A Global Investment Transformation. Available at SSRN 3839756.

### Internet

- [13] [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2322596](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2322596)
- [14] [https://www.agriculturejournals.cz/web/agricecon.htm?type=article&id=174\\_2014-AGRICECON](https://www.agriculturejournals.cz/web/agricecon.htm?type=article&id=174_2014-AGRICECON)
- [15] <https://www.adb.org/publications/comparative-study-role-ppp-green-investment-banks-boosting-low-carbon>
- [16] <http://faculty.econ.ucdavis.edu/faculty/woo/Woo-Articles%20from%202012/Sachs-Woo-Yoshino-Farhad.2019.Green%20Finance.pdf>
- [17] [https://www.researchgate.net/profile/Priti-Bakhshi/publication/344270446\\_Green\\_Finance\\_Fostering\\_Sustainable\\_Development\\_in\\_India/links/5f6225c1a6fdcc1164175c3e/Green-Finance-Fostering-Sustainable-Development-in-India.pdf](https://www.researchgate.net/profile/Priti-Bakhshi/publication/344270446_Green_Finance_Fostering_Sustainable_Development_in_India/links/5f6225c1a6fdcc1164175c3e/Green-Finance-Fostering-Sustainable-Development-in-India.pdf)
- [18] <https://www.mdpi.com/1996-1073/13/4/788>
- [19] <http://www.shabdbooks.com/gallery/184-april2020.pdf>
- [20] [https://papers.ssrn.com/sol3/Papers.cfm?abstract\\_id=3666801](https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=3666801)
- [21] [https://www.researchgate.net/profile/Hariharan-Narayanan-5/publication/350581600\\_GREEN\\_FINANCE\\_-\\_AN\\_OPEN\\_DOOR\\_IN\\_FUTURE\\_FOR\\_THE\\_UNIVERSE/links/6067099a299bf125e21c48a/GREEN-FINANCE-AN-OPEN-DOOR-IN-FUTURE-FOR-THE-UNIVERSE.pdf](https://www.researchgate.net/profile/Hariharan-Narayanan-5/publication/350581600_GREEN_FINANCE_-_AN_OPEN_DOOR_IN_FUTURE_FOR_THE_UNIVERSE/links/6067099a299bf125e21c48a/GREEN-FINANCE-AN-OPEN-DOOR-IN-FUTURE-FOR-THE-UNIVERSE.pdf)
- [22] [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3782126](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3782126)
- [23] <https://www.frontiersin.org/articles/10.3389/fenvs.2021.657533/full>
- [24] [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3839756](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3839756)
- [25] [https://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/04AR\\_2101202185D9B6905ADD465CB7DD280B88266F77.PDF](https://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/04AR_2101202185D9B6905ADD465CB7DD280B88266F77.PDF)
- [26] <https://www.unescap.org/blog/threat-climate-change-outpaces-shift-green-finance>
- [27] <https://www.cbd.int/financial/gcf/definition-greenfinance.pdf>
- [28] [https://en.wikipedia.org/wiki/Human\\_impact\\_on\\_the\\_environment](https://en.wikipedia.org/wiki/Human_impact_on_the_environment)
- [29] <https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-economy>
- [30] <https://www.oecd.org/greengrowth/whatisgreengrowthandhowcanithelpdeliversustainabledevelopment.htm>
- [31] <https://india.mongabay.com/2020/09/india-needs-massive-increase-in-green-finance-for-required-climate-action/>
- [32] <https://msutoday.msu.edu/news/2018/depleting-earths-resources>
- [33] <https://www.hig.se/Ext/En/University-of-Gavle/About-the-University/Environmental-Work/What-is-sustainable-development-at-HiG/Economic-sustainability.html#:~:text=Economic%20sustainability%20is%20an%20integrated,optimal%20use%2C%20recovery%20and%20recycling.>
- [34] <https://www.econation.co.nz/sustainable-economy/>
- [35] [https://www.g20-insights.org/policy\\_briefs/fostering-sustainable-global-growth-green-finance-role-g20/](https://www.g20-insights.org/policy_briefs/fostering-sustainable-global-growth-green-finance-role-g20/)
- [36] <https://sustainabledevelopment.un.org/sdgsummit>
- [37] [https://s3.amazonaws.com/sustainabledevelopmentreport/2019/2019\\_sustainable\\_development\\_report.pdf](https://s3.amazonaws.com/sustainabledevelopmentreport/2019/2019_sustainable_development_report.pdf)

- [38] <https://pib.gov.in/Pressreleaseshare.aspx?PRID=1577014>
- [39] <https://www.britannica.com/event/United-Nations-Conference-on-Environment-and-Development>
- [40] <https://research.un.org/en/docs/environment/conferences>
- [41] [https://www.researchgate.net/profile/Alberto-Riccardi/publication/280738160\\_THE\\_UNITED\\_NATIONS\\_CONFERENCE\\_ON\\_SUSTAINABLE\\_DEVELOPMENT\\_UNCSD\\_-\\_EARTH\\_SUMMIT\\_RIO20\\_-\\_IUGS\\_POSITION\\_STATEMENT/links/55c4a59108aebc967df373f0/THE-UNITED-NATIONS-CONFERENCE-ON-SUSTAINABLE-DEVELOPMENT-UNCSD-EARTH-SUMMIT-RIO-20-IUGS-POSITION-STATEMENT.pdf](https://www.researchgate.net/profile/Alberto-Riccardi/publication/280738160_THE_UNITED_NATIONS_CONFERENCE_ON_SUSTAINABLE_DEVELOPMENT_UNCSD_-_EARTH_SUMMIT_RIO20_-_IUGS_POSITION_STATEMENT/links/55c4a59108aebc967df373f0/THE-UNITED-NATIONS-CONFERENCE-ON-SUSTAINABLE-DEVELOPMENT-UNCSD-EARTH-SUMMIT-RIO-20-IUGS-POSITION-STATEMENT.pdf)
- [42] <https://news.un.org/en/story/2012/06/414382>
- [43] [https://niti.gov.in/sites/default/files/2020-06/India\\_Green\\_Stimulus\\_Report\\_NITI\\_VF\\_June\\_29.pdf](https://niti.gov.in/sites/default/files/2020-06/India_Green_Stimulus_Report_NITI_VF_June_29.pdf)
- [44] <https://www.investindia.gov.in/team-india-blogs/carbon-financing-india>
- [45] [https://www.business-standard.com/article/current-affairs/automakers-firm-up-measures-to-safeguard-workforce-amid-covid-19-surge-121050200210\\_1.html](https://www.business-standard.com/article/current-affairs/automakers-firm-up-measures-to-safeguard-workforce-amid-covid-19-surge-121050200210_1.html)
- [46] <https://www.autox.com/news/industry-news/indian-auto-industry-covid-19-relief-a-look-at-efforts-initiatives-109592/>
- [47] <https://www.autox.com/news/industry-news/indian-auto-industry-covid-19-relief-a-look-at-efforts-initiatives-109592/>  
<https://www.autox.com/news/industry-news/indian-auto-industry-covid-19-relief-a-look-at-efforts-initiatives-109592/>
- [48] <https://content.techgig.com/wipro-infosys-grofers-pwc-roll-out-salary-hikes-for-indian-employees/articleshow/83843848.cms>
- [49] <https://www.intracen.org/Why-is-Green-Finance-important/>
- [50] <https://www.idfc.org/wp-content/uploads/2019/09/official-idfc-communicate-21-09-2019-22h50-cet.pdf>
- [51] <https://www.climatepolicyinitiative.org/publication/idfc-green-finance-mapping-report-2019/>
- [52] <https://www.mainstreamingclimate.org/publication/idfc-releases-its-green-finance-mapping-report-2016/>
- [53] [https://www.idfc.org/wp-content/uploads/2019/04/idfc\\_mapping-report-2015\\_2016\\_4-pager\\_vf.pdf](https://www.idfc.org/wp-content/uploads/2019/04/idfc_mapping-report-2015_2016_4-pager_vf.pdf)
- [54] <https://energy.economictimes.indiatimes.com/news/renewable/indias-renewable-energy-capacity-reaches-86-gw-in-2019-wind-takes-biggest-share/73266746>
- [55] <https://ieefa.org/ieefa-india-indias-electricity-sector-transformation-has-made-progress-in-2019-20/#:~:text=IEEFA%20forecasts%20cumulative%20renewable%20energy,5.7GW>
- [56] <https://mnre.gov.in/green-energy-corridor>
- [57] [https://powermin.gov.in/pdf/Uday\\_Ujjawal\\_Scheme\\_for\\_Operational\\_and\\_financial\\_Turnaround\\_of\\_power\\_distribution\\_companies.pdf](https://powermin.gov.in/pdf/Uday_Ujjawal_Scheme_for_Operational_and_financial_Turnaround_of_power_distribution_companies.pdf)
- [58] <https://ficci.in/spdocument/23273/India-Roadmap-on-LCSM.pdf>
- [59] <https://www.iea.org/policies/7450-faster-adoption-and-manufacturing-of-hybrid-and-ev-fame-ii>
- [60] <https://indiasmartgrid.org/viewnews.php?id=3082>
- [61] <https://www.bloomberg.com/news/articles/2021-06-10/g-7-leaders-poised-to-turn-spotlight-on-green-finance-at-summit>
- [62] [https://en.wikipedia.org/wiki/2019\\_G20\\_Osaka\\_summit](https://en.wikipedia.org/wiki/2019_G20_Osaka_summit)
- [63] [https://en.wikipedia.org/wiki/Group\\_of\\_Seven](https://en.wikipedia.org/wiki/Group_of_Seven)
- [64] <https://undocs.org/en/A/CONF.48/14/Rev.1>
- [65] <https://sustainabledevelopment.un.org/hlpf/2020/>
- [66] <https://futureoflife.org/2016/08/05/developing-countries-cant-afford-climate-change/>
- [67] <https://www.cnn.com/2021/03/19/covid-pandemic-pushes-75-million-more-people-into-poverty-in-india-study.html>
- [68] <https://www.ecomena.org/green-finance/>

### Author Profile



**Somrita Dey**, Student, Institute of Chartered Accountants of India (ICAI) Email: somrita.dey.94@gmail.com



**Ayan Banerjee**, Assistant Professor, Department of Commerce, St. Xavier's College (Autonomous) Kolkata. Email: [ayanbanerjee@sxccal.edu](mailto:ayanbanerjee@sxccal.edu)