

# CLIMATE FINANCE IN INDIA

PAPER 1

## THE STATE OF CLIMATE FINANCE UNDERSTANDING PAST AND FUTURE TRENDS

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COUNCIL FOR  
STRATEGIC AND  
DEFENSE RESEARCH

## ABOUT THIS PAPER SERIES

While there have been strides made in climate finance mobilisation and deployment, there are still several gaps and the quantum mobilised till date lags behind the requirements. In the face of the climate emergency, there is a need to immediately mobilise large amounts of climate finance, from across all sources, for developing countries. This collection of papers explores areas and approaches for facilitating the required finance mobilisation in India. Building on existing research and assessments, the papers in this report dive deep in the following four themes:

- The State of Climate Finance: Understanding Past and Future Trends
- Climate Finance Flows to Developing Countries: Untapped Opportunities
- Climate Finance in India
- Catalysing Private Climate Finance Readiness for Mainstreaming Article 9 at the Subnational Level: Context of India

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## EXECUTIVE SUMMARY

Accessing and utilizing climate finance is key to enhancing South Asia's programmes on low carbon and climate-resilient development. Tracking climate finance, however, is a challenge due to the lack of an internationally agreed taxonomy and system of classification of "green" activities. A comprehensive measurement of climate finance flows can help identify the right capital providers that can be mobilized for climate action. It can allow regulators and policymakers in these countries to better understand the significance of policy measures in promoting climate change mitigation and adaptation. It can also help private investors, both domestic and international, stay updated with climate action trends, keep a tab on green investment opportunities, or to fulfil their 'net zero' targets. Lastly, it can serve as a basis for revision of the USD 100 billion target, moving towards one that is in tune with the realistic extent of finance required to counter existing and future adverse consequences of climate change.

## ABOUT THE AUTHOR

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## INTRODUCTION

The South Asian region is made up of diverse ecosystems. The varied climate and topography sustain the economies of surrounding countries and endow them with rich ethnic and cultural diversity. But these ecosystems are fragile. The fast-changing developmental paradigm is increasing their vulnerability to adverse impacts of anthropogenic climate change. The most consequential changes are probably related to the regularity and enormity of extreme weather events like intense rainfall, drought, and cyclones, that leads to debris flow, flash floods, and landslides.

In 2009, at the COP15 Summit in Copenhagen, developed countries pledged to mobilise USD 100 billion a year towards the climate finance needs of developing countries[1]. To do so, they put forward an 'effective and efficient' multilateral fund arrangement, with a governance structure that would provide equal representation to developed and developing countries. In 2015, however, at the COP21 Summit in Paris[2] extended this goal through 2025. Through these years, the world witnessed several hydro meteorological (floods, storms, heat waves) and climatological (droughts, wildfires) calamities, largely ascribed to climate change. This resulted in a disproportionate effect on less endowed and vulnerable countries like India. Developed countries have, so far, failed in covering their commitment shortfalls and mobilizing resources commensurate with their current and historical carbon emissions.

Accessing and utilising climate finance is key to enhancing the South Asian region's programmes on low carbon and climate-resilient development. Preliminary estimates[3] indicate that India, the largest country in the South Asian region, would require around USD 206 billion (at 2014-15 prices) between 2015 and 2030 to install and carry out adaptation actions in agriculture, forestry, fisheries infrastructure, water resources, and ecosystems. Additional investments will be required to improve disaster and resilience management. As per NITI Aayog[4] cost estimates, around USD 834 billion till 2030 (at 2011 prices) will be required for mitigation activities for moderate low carbon development. According to an independent study[5]—for India to significantly ramp-up generation from renewable energy and related integration, distribution and transmission infrastructure, thereby helping the country realise net-zero emissions by 2070—there is a cumulative investment requirement of USD 10.1 trillion. Similarly, Nepal would require USD 28.4 billion between 2021 and 2030 to achieve its Nationally Determined Contribution (NDC) targets[6]. These targets, inter alia, include ensuring 15% of the total energy demand is supplied from clean energy sources by 2030, increasing sales of electric vehicles to cover 90% of all private passenger vehicle sales, reducing greenhouse gas emissions significantly, and maintaining 45% of the total area of the country under forest cover. Pakistan has set a monumental cumulative conditional target of overall 50% reduction of its projected emissions by 2030 by shifting to 60% renewable energy and 30% electric vehicles, and moving towards a blanket ban on imported coal. It has estimated[7] the cost of its energy transition alone to be USD 101 billion by 2030. Bangladesh would require an estimated USD 143.73 billion to implement its revised NDCs that include implementation of renewable energy projects of 4.1 GW, electrification of the railway system, achieving 20% energy efficiency in industries, and additional coastal afforestation activities[8].

Due to lack of an internationally agreed taxonomy and system of classification of “green” activities, South Asian countries face huge limitations while tracking climate finance. A comprehensive measurement of climate finance flows can help identify the right capital providers that can be mobilized towards NDC implementation. It can allow regulators and policymakers in these countries to better understand the significance of policy measures in promoting climate change mitigation and adaptation. It can also help private investors, both domestic and international, stay updated with climate action trends, keep a tab on green investment opportunities, or to fulfil their 'net zero' targets. Lastly, it can serve as a basis for revision of the USD 100 billion target, moving towards one that is in tune with the true extent of finance required to respond to existing and future adverse consequences of climate change.

This document analyses the flow of climate finance to South Asian countries, with a focus on India, for the years 2016-20, to understand where the funds have gone and where they need to go. It tries to identify whether these international finance flows have been successful in matching demand priorities in the countries of the region.

The following sections outline the methodology followed to identify relevant transactions and classification of “green” expenditures into different climate change mitigation and adaptation sectors. This is followed by an analysis of the trends observed in the data and the impact of national interventions on the state of international climate finance. The final section is a set of action points and policy recommendations to enable cross-sectoral, inter-governmental, and government-donor discussions on resource mobilization for climate action.

## APPROACH AND METHODOLOGY

For this analysis, the working definition of climate finance has been lined up with the operational definition recommended by the UNFCCC Standing Committee on Finance. It states[9], “Climate finance aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts.” Thus, the tracked climate-relevant expenditures have been classified into adaptation and mitigation activities (including expenditures on clean energy, energy efficiency, and clean transportation sectors). Besides, both adaptation and mitigation expenditures have been further disaggregated by sub-sectors as represented in Exhibit 1.

Climate change adaptation finance has been defined as “resources directed to activities aimed at reducing the vulnerability of human or natural systems to the impacts of climate change by maintaining or increasing adaptive capacity and resilience.” Likewise, climate change mitigation finance has been defined as, “resources directed to activities contributing to reduction of greenhouse gas (GHG) emissions and/or enhancing GHG sinks and reservoirs[10].”

The data has been sourced from the Creditor Reporting System (CRS) database[11] of the Organisation for Economic Co-operation and Development (OECD). This dataset is publicly available and captures primary capital flows directed from bilateral and multilateral development finance institutions, multilateral development banks, and climate funds towards direct and indirect mitigation and adaptation efforts in recipient countries, in this

|            |                      |  |
|------------|----------------------|--|
| Adaptation |                      | <ul style="list-style-type: none"> <li>• Biodiversity</li> <li>• Biosphere Protection</li> <li>• Disaster Preparedness, Monitoring, and Early Warning System</li> <li>• Disaster Risk Reduction</li> <li>• Forestry Development</li> <li>• Policy Research and Development</li> <li>• Disaster Resilience and Capacity Building</li> </ul> |
| Mitigation | Clean Energy         | <ul style="list-style-type: none"> <li>• Biofuel</li> <li>• Biogas Energy</li> <li>• Energy Storage</li> <li>• Hydro Energy</li> <li>• Policy Research and Development</li> <li>• Renewable Energy - Multiple</li> <li>• Rooftop Solar</li> <li>• Solar PV</li> <li>• Waste-to-Energy</li> <li>• Wind Energy</li> </ul>                    |
|            | Clean Transportation | <ul style="list-style-type: none"> <li>• Dedicated Freight Corridor</li> <li>• Electric Vehicles</li> <li>• Mass Rapid Transit System</li> <li>• Policy Research and Development</li> <li>• Public Transportation</li> </ul>   |
|            | Energy Efficiency    | <ul style="list-style-type: none"> <li>• Energy-efficient Equipment</li> <li>• Green Buildings</li> <li>• Green Energy Corridor</li> <li>• Policy Research and Development</li> <li>• Process Efficiency</li> <li>• Smart Grids</li> <li>• Transmission and Distribution</li> </ul>  |

**EXHIBIT 1: BREAKDOWN OF CLIMATE-RELEVANT EXPENDITURES BY SECTORS**

case the 8 South Asian countries. To reduce inaccuracy in the assessment of climate finance flows, the methodology provided by the members of the OECD’s Development Assistance Committee (DAC), Rio Markers[12] for Climate has been referred to. However, to reduce the possibility of “green washing” of finance flows and avoid any over-estimation of finance flows, the actual inclusion and/or exclusion of transactions has been subjected to careful discretion and manual screening of the dataset.

The tracked data includes climate-relevant Official Development Assistance (ODA), Other Official Flows (OOF) and Private Development Finance[13], gross disbursements reported to OECD-DAC-CRS system for the years 2016-20 (January to December reporting cycle). The finance flows are qualified by marking ‘Principal’ or ‘Significant’ mitigation objective and are counted fully or partially towards mitigation finance for relevant sectors and sub-sectors as per the scope of the study. The sectors included in the data are - Disaster

Prevention and Preparedness, Emergency Response, Energy distribution, Energy generation from renewable sources, Energy Policy, Forestry, General Environment Protection, Reconstruction Relief and Rehabilitation, and Transport and Storage. The relevant sub-sectors have been assigned based on the project description. This analysis has considered actual fund disbursement as opposed to any multi-year commitments or pledges for future funds.

The source of climate finance has been classified as multilateral, where the donor financing institution has multiple countries as shareholders and finance flows internationally; and as bilateral, where there is a single country ownership of the financing institution. Furthermore, the source of funds has been classified as public if it is a government-owned/administered institution and private if the institution is not owned by the government such as commercial financial institutions, non-governmental organizations, and corporations.

For each transaction, the financial instrument has been defined as follows:

| Instrument    | Definition  |
|---------------|---|
| Grant         | <p>Transfers made in cash for which no repayment is required. It comprises the following financing types:</p> <ul style="list-style-type: none"> <li>a. Technical Assistance (TA) - Grant-in-aid provided to help developing countries implement projects effectively, improve capacity, promote technology transfer and stimulate regional cooperation. It helps the recipient obtain development financing by improving its ability to manage projects.</li> <li>b. Core contribution, pooled programs and funds - For contributions under this category, the donor relinquishes the exclusive control of its funds by sharing the responsibility with other stakeholders (other donors, NGOs, multilateral institutions, Public Private Partnerships).[14]</li> <li>c. Grant - A financial award given by a federal/international authority for a beneficial project. It often includes stringent compliance and reporting measures to ensure that the money is well-spent. The grantee is not expected to repay the money but is expected to use the funds from the grant for their stated purpose.</li> <li>d. Project-type intervention - Financial assistance provided to recipient country to reach specific objectives/outcomes within a defined time frame, with a defined budget and a defined geographical area. It includes appraisals, feasibility studies, and evaluations (whether designed as part of projects/programs or dedicated funding arrangements).</li> <li>e. Viability Gap Funding - A grant, one-time or deferred, provided to support infrastructure projects that are economically justified but fall short of financial viability. The lack of financial viability usually arises from long gestation periods and the inability to increase user charges to commercial levels.[15]</li> </ul> |
| Low-cost Debt | <p>Loans extended at terms preferable to those prevailing on the market. It comprises the following financing types:</p> <ul style="list-style-type: none"> <li>a. Aid loan excluding debt reorganization - Loan extended by international institutions which is concessional in character and each transaction of which is administered with the promotion of the economic development and welfare of developing countries as its main objective.</li> </ul>   |

| Instrument | Definition   |
|------------|--|
| Grant      | <p>b. Concessional loan/Official Development Assistance loan - Loan extended on terms substantially more generous than market loans[16]. The 'concessionality' can be achieved either through interest rates below those prevailing on the market or longer maturity or grace periods, or a combination of those. Concessional loans typically have long grace periods. According to the OECD, the 'grant element' of ODA loans is of at least 25%.</p> <p>c. Export credits - Government financial support, direct financing, guarantees, insurance or interest rate support provided to foreign buyers to assist in the financing of the purchase of goods from national exporters.[17]</p> <p>d. Investment-related loan to developing countries - A type of foreign investment that involves bank loans issued by domestic banks to businesses in foreign countries or the governments of those countries.[18]</p> <p>e. Soft loan - Loan with no interest or a below-market rate of interest. Also known as 'soft financing' or 'concessional funding', soft loans have lenient terms, such as extended grace periods in which only interest or service charges are due, and interest holidays. They typically offer longer amortization schedules (in some cases up to 50 years) than conventional bank loans. Soft loans are often made by multinational development banks to developing countries that would be unable to borrow at the market rate.[19]</p> |
| Equity     | <p>A stock or any other security representing an ownership interest. There are two primary methods that companies use to obtain equity financing: the private placement of stock with investors or venture capital firms (private equity) and public stock offerings.</p>  |

## *EXHIBIT 2: BREAKDOWN OF CLIMATE FINANCE FLOWS BY INSTRUMENTS*

### KEY OBSERVATIONS

The total tracked climate finance disbursements to the South Asian region increased from USD 4.9 billion in 2016, after the acceptance of the historic Paris Agreement in 2015, to an all-time high of USD 7.7 billion in 2019 (an increase of about 57%). In 2020, however, the world entered into a phase of prolonged lockdowns, mobility restrictions, and pandemic-induced economic slowdown. With each country trying to save the lives and livelihoods of its own citizens, climate change slipped further down the list of immediate global priorities. Consequently, the tracked climate finance witnessed a sharp decline of about 47% and totalled to USD 4 billion in 2020.



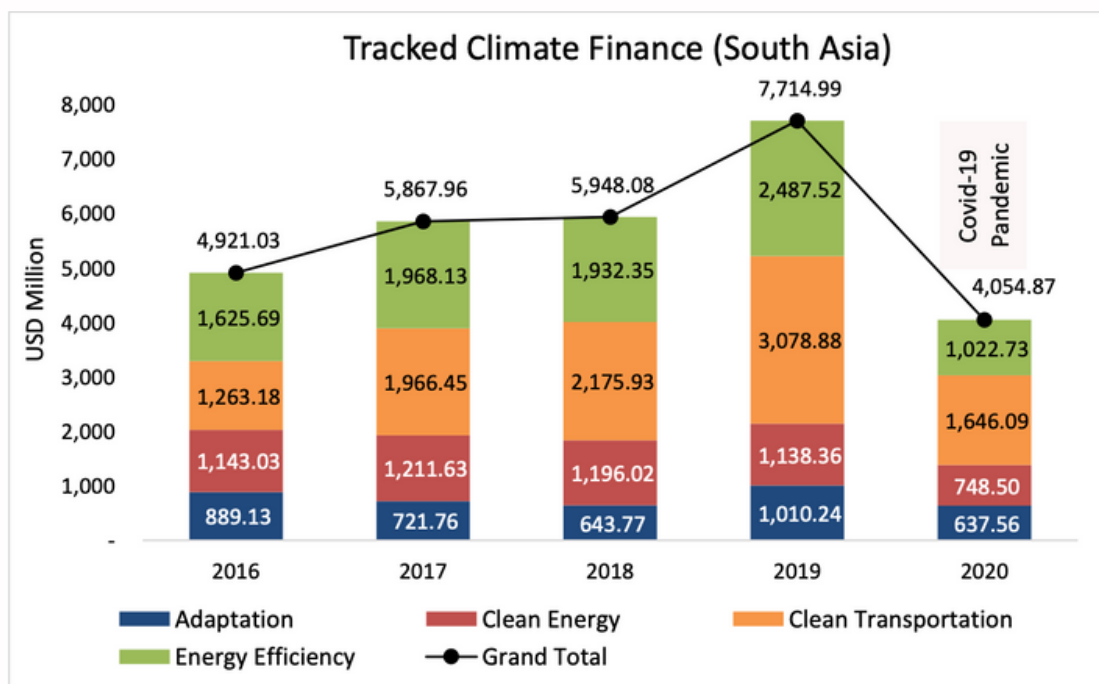


EXHIBIT 3: TOTAL TRACKED CLIMATE FINANCE FLOWS FOR 2016-20

Between 2016 and 2020, India remained the largest recipient of climate finance, accounting for nearly 65% of total tracked disbursements. It was followed by its eastern neighbour, Bangladesh, and north-western neighbour, Pakistan, which accounted for 14% and 11% of the funds, respectively. In these five years, climate change mitigation sectors (clean energy, clean transportation, and energy efficiency) attracted as much as 86% of the total funds on average. The remaining 14% were disbursed to adaptation sectors like forestry management, disaster preparedness, monitoring and early warning systems, biosphere protection, etc.

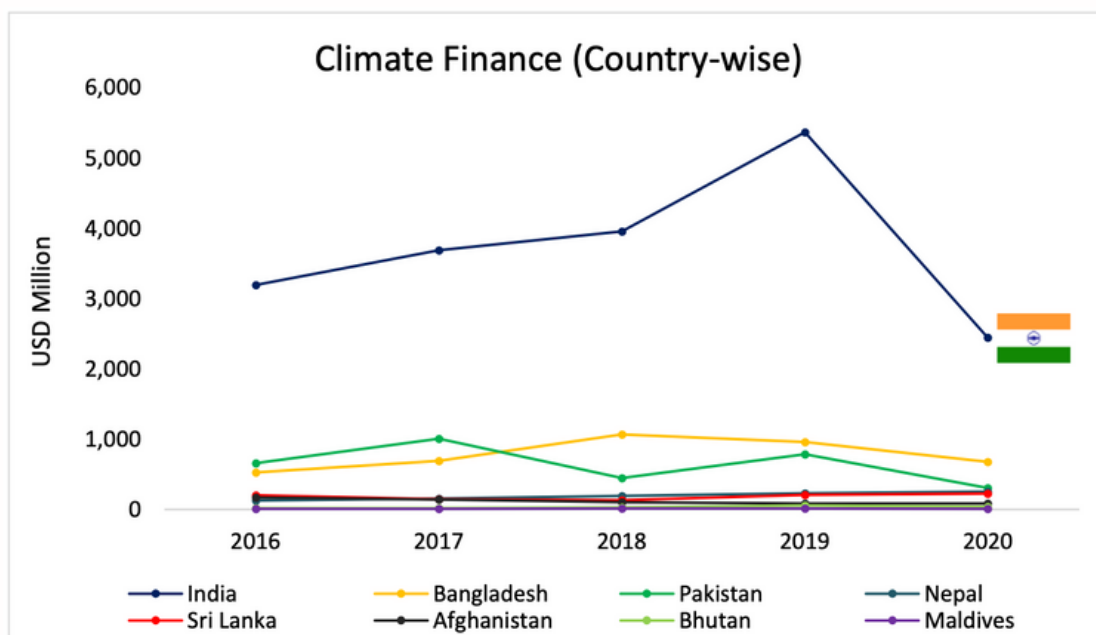
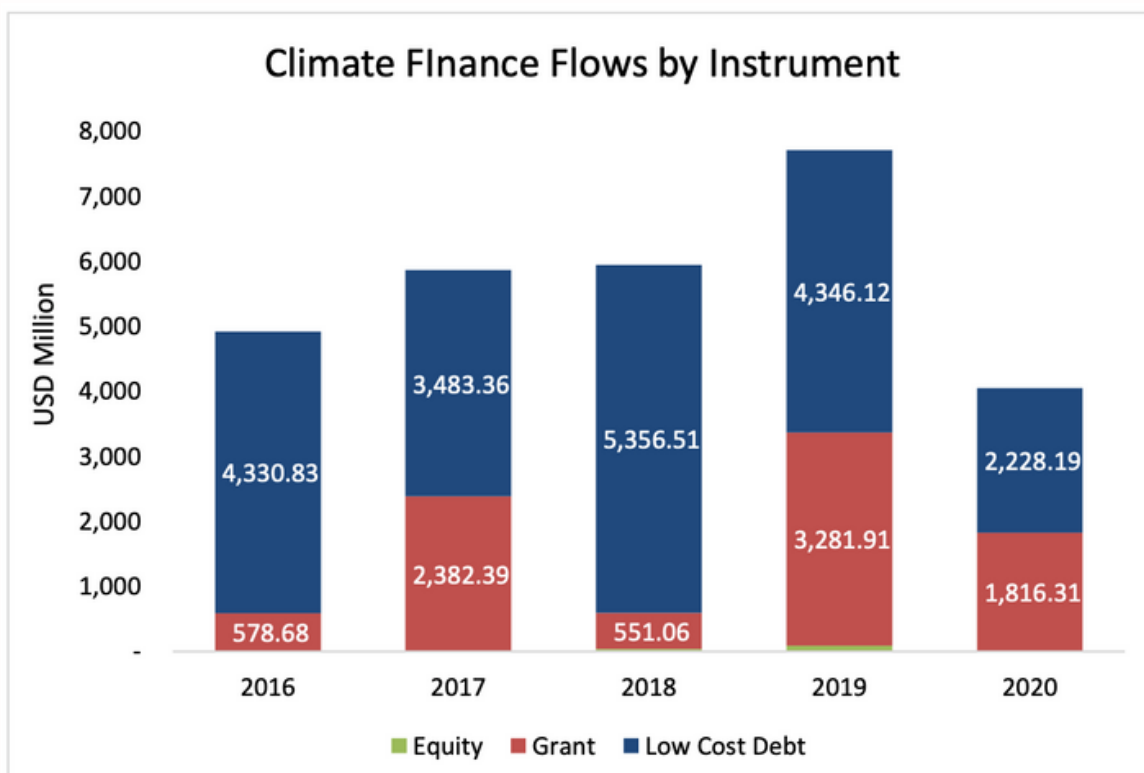


EXHIBIT 4: COUNTRY-WISE TRACKED CLIMATE FINANCE FOR 2016-20

The channels of disbursement of funds were low-cost debt, grants and grant-equivalents, and project equity. For both mitigation and adaptation, debt was the preferred mode of financing climate action. There is, however, disagreement among recipient countries about inclusion of non-grant funds like loans, guarantees, and export credits within the scope of climate finance. This, they argue, is tantamount to utilizing the recipient country’s future savings to cover the risks and costs of climate externalities. On the contrary, donor countries argue that financial intermediation, if it happens on significantly concessional terms as compared to commercial/ market terms of borrowing, should be counted as climate finance. This analysis has taken a cautious view to consider low-cost debt and project equity as instruments to mobilize climate finance.



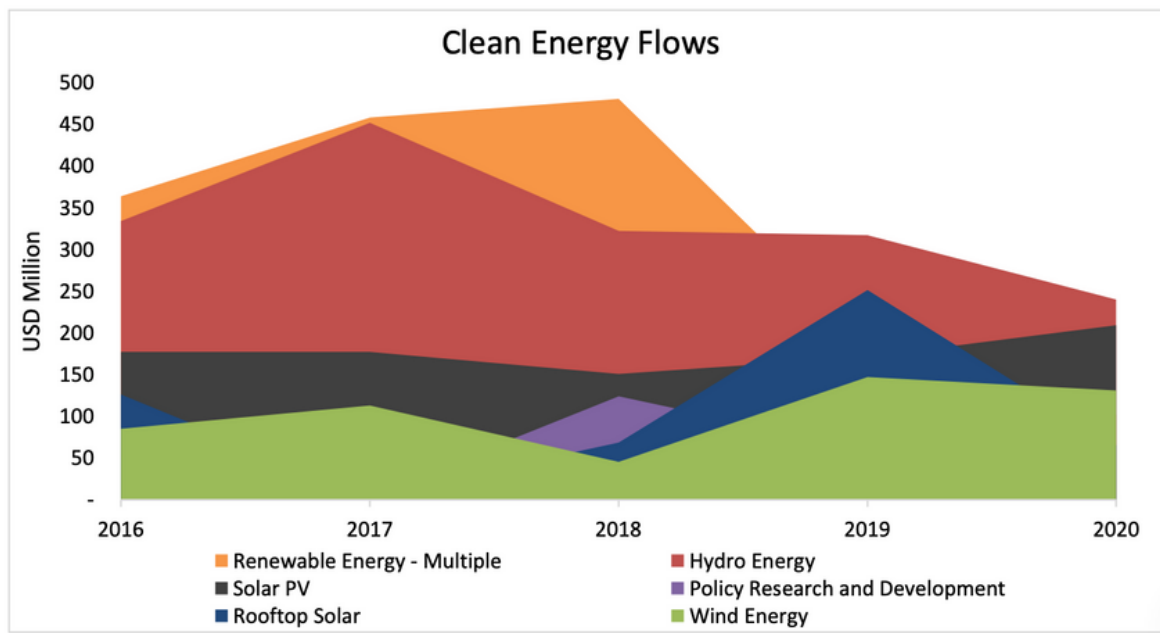
*EXHIBIT 5: BREAKDOWN OF CLIMATE FINANCE BY INSTRUMENTS*

## CLIMATE FINANCE BY SECTORS

- MITIGATION

Between 2016-20, climate mitigation sectors (clean energy, clean transportation, and energy efficiency) accounted for more than 80% of the total receipts. Clean energy technologies like solar, wind, and hydro have largely matured and are commercial in all South Asian countries. Projects in clean energy sector are largely domestically financed with government budgetary support and private corporate developers. India’s favourable energy landscape and policy interventions—like awarding infrastructure status to solar projects, launch of the International Solar Alliance in 2015 to develop and deploy cost-effective and transformational solar energy technologies, introduction of the National Wind-Solar Hybrid Policy, and the ambitious target to install 175 GW of renewable energy capacity by the year 2022—has made it the preferred destination for international finance providers. In 2017,

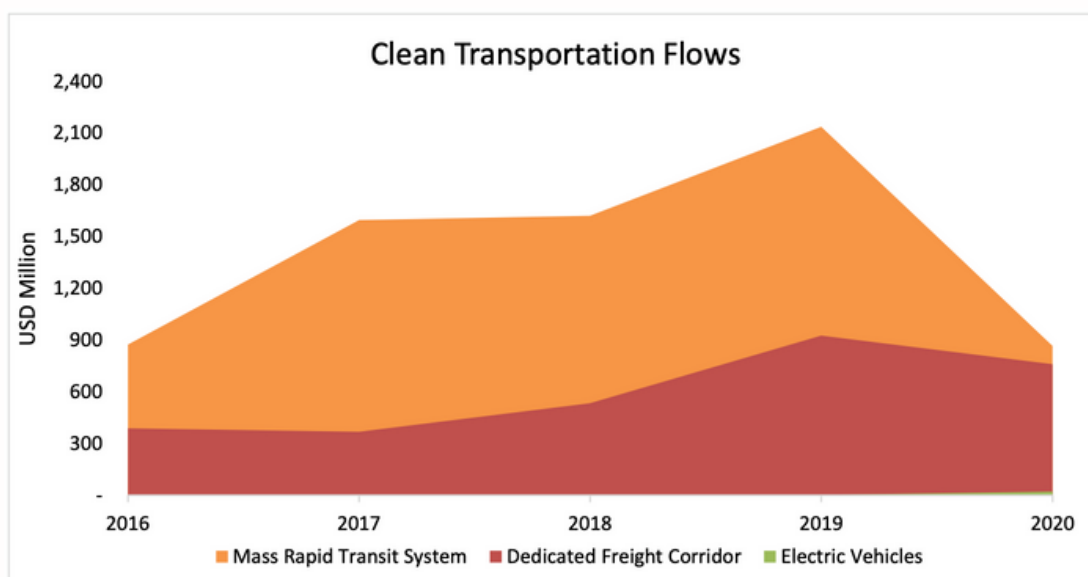
total investment in renewable energy projects in India surpassed fossil fuels for the first time[20].



*EXHIBIT 6: TRACKED CLIMATE FINANCE - CLEAN ENERGY SECTOR*

The clean transportation sector accounted for one-third of total tracked finance for the region. Unsurprisingly, India attracted nearly 10 times of international financial support than all its neighbours combined. The major share of these flows was directed at mass rapid transit systems and dedicated freight corridors to provide the country with a high-capacity, sustainable transportation infrastructure that can withstand climate change related extreme weather events and minimize economy disruptions. Of late, Bangladesh has also been incorporating climate standards in its mass rapid transit systems by constructing flood inundation maps and defining site specific critical design thresholds.

To build an ecosystem for manufacture and adoption of electric vehicles, India has launched the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India) Scheme under its National Electric Mobility Mission Plan (NEMMP) 2020. It has also come up with a Metro Rail Policy[21], 2017, that emphasises the role of mass rapid transit systems in improving cities' competitiveness and lowering per capita carbon emissions. As a result, by 2019, India attracted more than twice the amount of funds it garnered in 2016 for metro rail projects. While the region witnessed a progressively upward trend in finance flows in the clean transportation sector up until the pre-pandemic year, no significant flow could be mapped to Pakistan and Sri Lanka which have high metric tons per capita CO2 emissions.

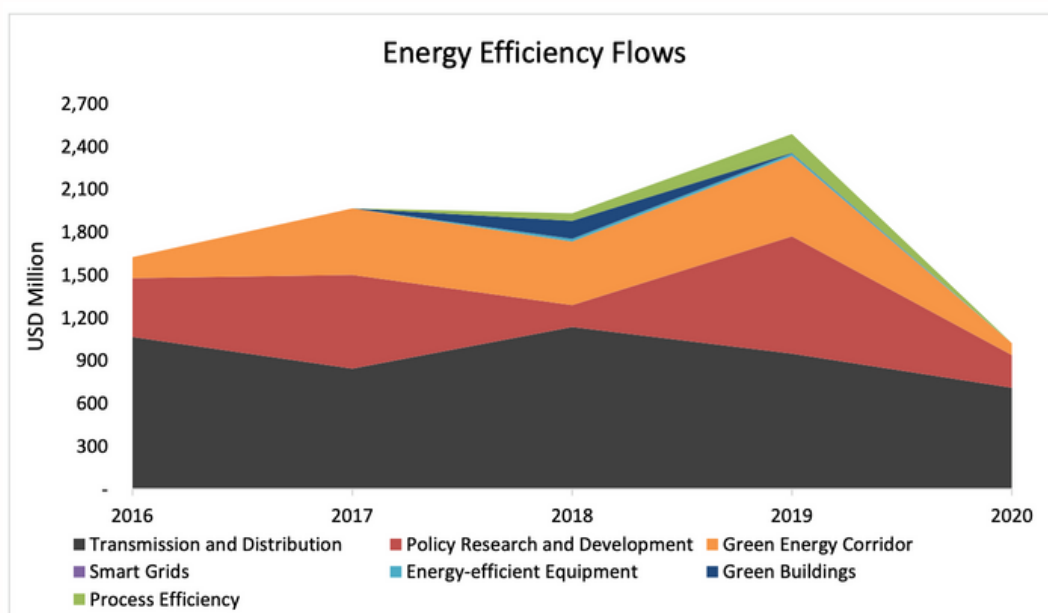


*EXHIBIT 7: TRACKED CLIMATE FINANCE - CLEAN TRANSPORTATION SECTOR*

The energy efficiency sector consists of investments in renovation and modernisation of transmission and distribution infrastructure, smart grids, green energy corridors, manufacture of energy efficient equipment, process efficiency in industries, and development of green built infrastructure. Between 2016-20, nearly 52% of the tracked climate finance was disbursed to transmission and distribution projects, majorly in India and Bangladesh. India’s green corridors project to evacuate 20 GW of renewable power from surplus states and the National Smart Grid Mission to develop smart grid, micro grids, consumer engagements, and training and capacity-building attracted the major share of its international finance.

Finance for energy efficient equipment, process efficiency, and green buildings was sourced largely from domestic sources. India’s public sector undertakings, namely Bureau of Energy Efficiency (BEE) and Energy Efficiency Services Limited (EESL) are responsible for driving its energy efficiency programme. These interventions comprise the Perform, Achieve, and Trade (PAT) scheme which is a market-based mechanism to enhance the cost effectiveness of improvements in energy efficiency in energy-intensive large industries and facilities, through the certification of energy savings that can be traded. Nationwide, EESL is replacing conventional streetlights with smart and energy efficient LED streetlights under its Street Lighting National Programme (SLNP). It is also providing LED bulbs to domestic consumers under its Unnat Jyoti by Affordable LEDs for All (UJALA) program to replace conventional and inefficient illumination lamps.

In the green buildings sector, heating, cooling, and ventilation (HVAC) appliance ownership is expected to drive international finance for countries like India owing to the emergence of an affluent middle class. The country has the required policy framework in place like the Energy Conservation Building Code[22], 2017 which defines the norms of energy performance for various building components to lower the building’s energy requirement without affecting the function, comfort, health or productivity of the occupants.



*EXHIBIT 8: TRACKED CLIMATE FINANCE - ENERGY EFFICIENCY SECTOR*

- ADAPTATION

The adaptation sector attracted only 14% of tracked climate finance between 2016-20. India and Bangladesh remained the top two recipients of adaptation finance in the region. Despite the region’s vulnerability to adverse consequences of catastrophic climate events due to its unique geo-climatic and socio-economic conditions, the scale of finance required for adaptation has been inadequate. For instance, 58.6% of India’s landmass is vulnerable to earthquakes of moderate to very high intensity; 12% land is prone to flood and river erosion; out of 7,516 km coastline, 5,700 km is at the risk of devastation by cyclones and tsunamis; 68% of the cultivable land runs the risk of turning into a barren desert due to drought, and 15% of the landmass is prone to landslides[23]. While disaster preparedness, risk reduction, and capacity building together accounted for 69% of the tracked adaptation finance, in absolute terms, it totalled to merely USD 2.7 billion over a period of five years for the entire South Asian region.

Lack of project readiness, long gestation periods, and commercial infeasibility are often cited as major reasons for the small quantum of climate finance disbursed to adaptation sectors. Besides, the inability to measure and quantify the impact of such interventions makes them “politically unpopular”. In most cases, the benefits of such projects are expected to accrue only to recipient countries, over a relatively long period of time. This analysis has found that, on average, research and development activities accounted for nearly 15% of tracked adaptation finance. How this translates into actual policy intervention is yet to be measured. Other sectors like forestry management, biosphere protection, and biodiversity accounted for the remaining 16% of tracked climate finance for adaptation.

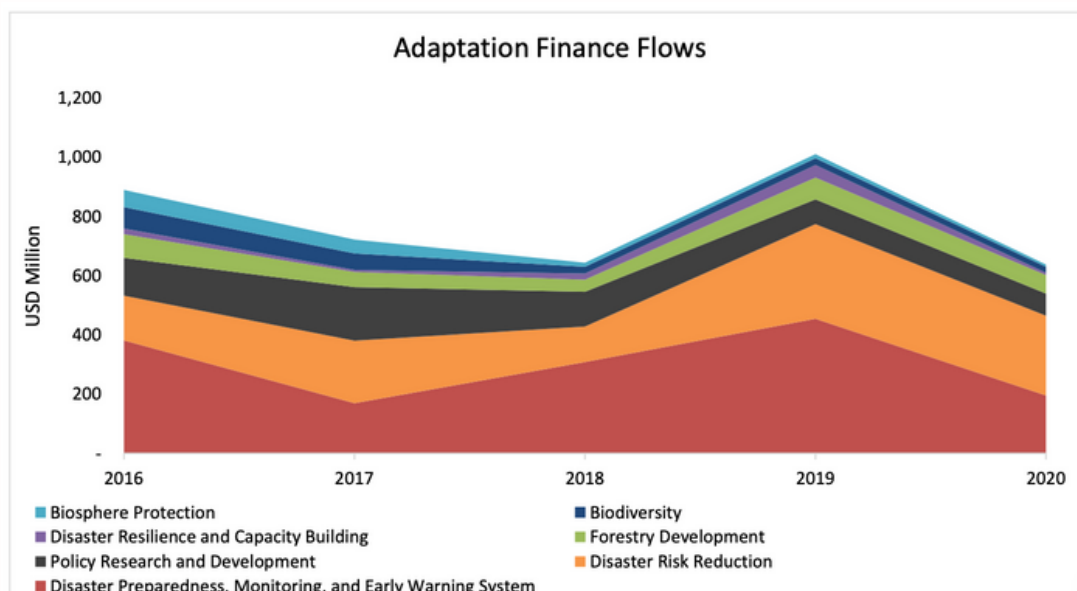


EXHIBIT 9: TRACKED ADAPTATION FINANCE

## RECOMMENDATIONS

Today the world is faced with two major conundrums – the pandemic and climate change. Together, they have made the developing world increasingly vulnerable to economic shocks and reduced the capacity of governments, communities, and societies to respond to extreme climate events. Climate action must, however, remain a priority for governments and policymakers. For a green and sustained recovery in the aftermath of the pandemic, there is a need for transformational scaling up of climate finance for both mitigation and adaptation sectors. This section, therefore, recommends the following:

- **Develop a climate finance taxonomy and green tagging tool:** Due to lack of an internationally agreed taxonomy, what is being classified and tracked as climate finance commitments globally has become a matter of contention and intense debate. Recipient countries often argue that private non-grant capital, because of its commercial aims, cannot fall under international climate finance as it does not protect against risks and costs of climate externalities. Climate finance also cannot include development assistance provided by multilateral banks and development finance institutions (in terms of loans, guarantees, and export credits) for infrastructure projects. These resources, usually utilised for infrastructure projects, can be employed by developing countries in a usual business scenario without any backing from developed countries. Any pledge or multi-year commitment about promised sums in the future that are not backed by credible action thus amounts to 'green washing' of development finance.

A climate finance taxonomy is the first step towards clear-cut definitions of what is "green" for investors and policymakers. Furthermore, a robust green tagging mechanism is crucial to boost trust and accountability in country-specific data on climate-related commitments. The credibility of data will allow public and private actors to weigh their activities for climate relevance, and facilitate more informed engagements on resource mobilization. The Climate Public Expenditure and Institutional Review (CPEIR) is a mechanism that allows a structured qualitative and quantitative analysis of how a country's public expenditures relate to climate change.

- **Strengthen tracking and reporting of climate finance:** The 2015 Paris Agreement established the Enhanced Transparency Framework[24] (ETF) to ensure clarity in the receipt of financial, technology development and transfer, and capacity-building support by developing countries. The framework is proposed to become operational by 2024 and implemented in a “facilitative, non-intrusive, non-punitive manner, and respectful of national sovereignty” to build trust and confidence that “all countries are contributing their share to the global effort.”

While such interventions are welcome, there is a need for added emphasis to address reporting ambiguities in the current transparency system to improve comparability, and harmonise, disaggregated data as much as possible. Building on international experience and best practices, donor and recipient countries need to work together to develop common reporting formats to make verifiable data available in a timely manner. This information can serve as a basis for revision of the USD 100 billion target, to one that reflects the true extent of finance required to respond to existing and future adverse consequences of climate change. The difference between multi-year commitments and actual annual disbursements will set the context for deeper engagement between donor and recipient countries to strengthen alignment with the latter’s national climate needs and priorities.

- **Mobilize private capital to bridge investment gap for adaptation:** In 2016, the United Nations Environment Programme (UNEP), in its Adaptation Gap Report[25], estimated annual climate adaptation costs and financing needs for adaptation from developing countries to USD 140-300 billion by 2030 and USD 280-500 billion by 2050. Due to lack of commercial viability of projects in adaptation sectors, the business case for private capital is usually very limited. Often, there is lack of clarity on financial revenue stream, as the benefits of adaptation projects are often intangible, making it difficult for investments from private sector companies. However, private and public sectors can jointly play a significant role in the following ways to make projects investment-friendly:
  1. Investment in data analytics and artificial intelligence-based scenario analysis to foster development of quantitative climate tools for addressing planning uncertainties.
  2. Capacity building and technical assistance to national and sub-national governments to enable the development of vigorous adaptation plans and unlock opportunities for private sector investment.
  3. Developing risk and cost modelling frameworks that integrate climate change in pricing structures, procurement policies, insurance standards, building codes, etc.

Article 9.4 of the Paris Agreement[26] states that the provision of scaled-up financial resources should aim to balance adaptation and mitigation, taking into account country-driven strategies and the priorities and needs of developing countries. Donor countries should increase their focus on financing adaptation projects for the positive externalities they create even if the project outcomes are not clearly visible and measurable in the near term and the benefits are confined to the recipient countries alone.

- **Leverage blended finance instruments for climate action:** The OECD defines[27] blended finance as the strategic use of development finance for the mobilization of commercial capital. Blended finance can play a crucial role in reducing the actual or

perceived risks for private sector to invest in a sector, thereby demonstrating the viability of a transaction or building a track record. It involves the use of relatively small amounts of development capital to mitigate specific investment risks and help rebalance risk-reward profiles of development-impact oriented investments that are unable to proceed on strictly commercial terms. To mobilise international climate finance at scale, blended finance instruments like concessional debt (low-interest rate, long tenure), lines of credit to other banks and financial institutions, grants, equity investments, first-loss protection, and guarantees can be deployed.

Blended finance instruments can help recipient countries scale-up financing of new technologies in renewable energy, energy efficiency, urban transport, and adaptation sectors. For instance, the role of Green Climate Fund (GCF), the world's largest climate fund, is mandated to support developing countries raise and realize their NDC targets towards low-emissions, climate-resilient pathways. GCF has supported over 177 projects in developing countries committing a total of USD 8.9 billion and crowding in an additional USD 24.4 billion from different sources. The projects are spread across South Asia, Asia-Pacific, Africa, Eastern Europe, Latin America, and Caribbean and are anticipated to positively impact 500 million people across these geographies. In India, GCF has supported four programmes till date for a total support of USD 315 million, which have attracted additional co-financing of USD 1.2 billion. Climate finance mobilisation efforts should focus more on leveraging such mechanisms to ensure that scarce public resources are deployed in a way that catalyses the required amount of finance from public/private sources to address individual country priorities.

- **Mobilize climate finance for energy technology innovation:** In order to stall the increase in the global average temperature to well below 2°C above pre-industrial levels, as envisaged in the 2015 Paris Agreement, will require rapid abatement of GHG emissions in hard-to-decarbonize and energy-intensive sectors. This can be accomplished by creating large carbon sinks through afforestation and reforestation, adopting state-of-the-art negative emission technologies that have huge carbon scrubbing potential, incorporating circular economy principles in production and supply chains, and using sustainable alternative fuels. Climate finance can play a critical role in facilitating this transition to a net zero state.

Low carbon renewable energy technologies like solar, wind, and hydro have already matured and are largely commercial. Electric vehicles, charging infrastructure, and deployment of mass batteries for electricity storage are soon going to be commercial in most South Asian countries. The real challenge is going to be the decarbonisation of hard to abate industrial sectors. Carbon sequestration through forestry alone will be insufficient given the region's high population density and limited landmass available for afforestation and reforestation. Technological interventions, however, can facilitate swift absorption and removal of carbon emissions. Climate finance can help commercialisation of energy technologies that are still in the realm of imagination but can be moved out of laboratories through strategic investments in research, development, demonstration, and deployment. Besides, it is crucial to circumvent the "valley of death" typical to the innovation process - the technology valley of death at the research stage and the commercialization valley of death at the market-readiness stage.



## END NOTES

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