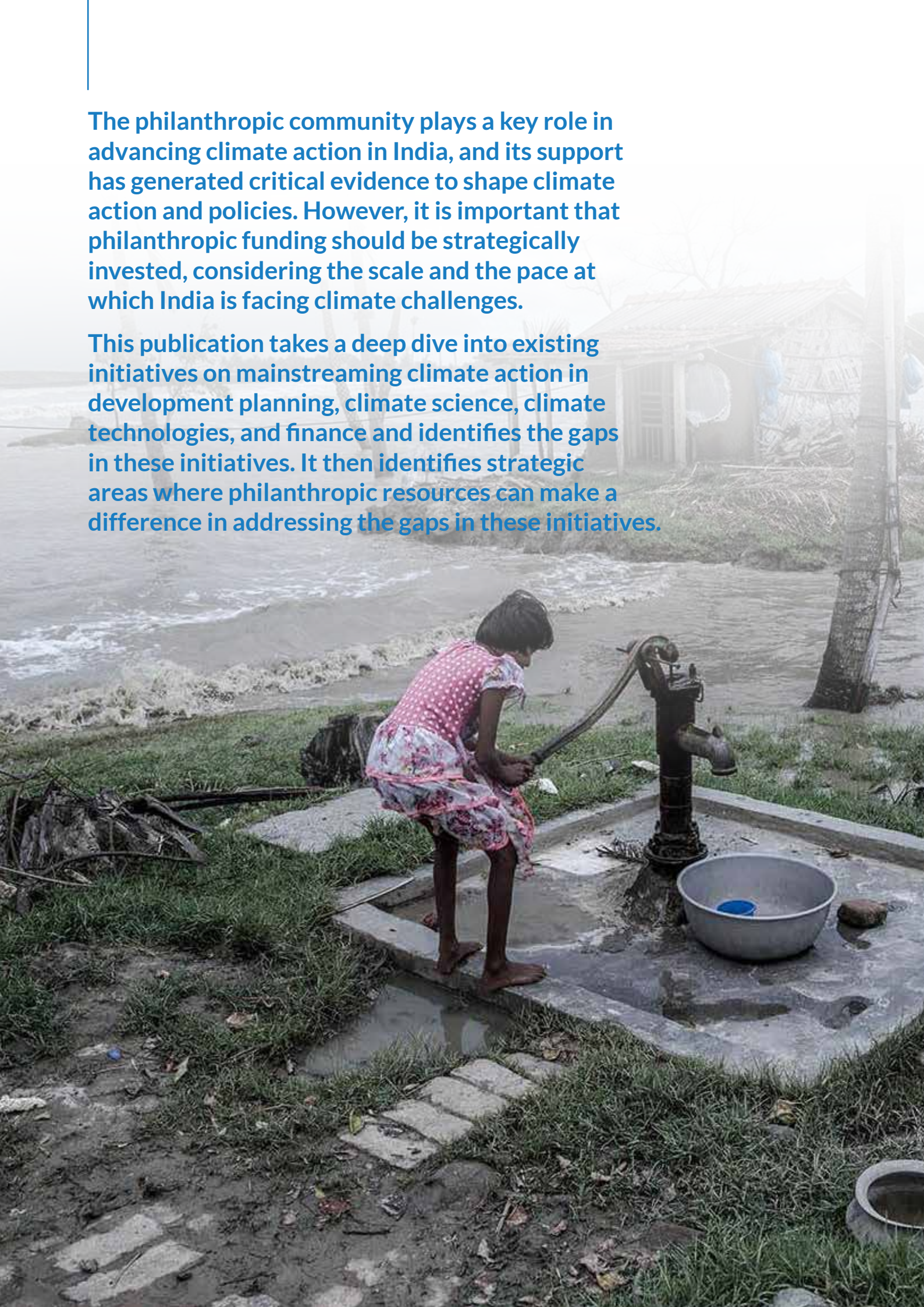
CLIMATE RESILIENCE LANDSCAPE FOR INDIA

How philanthropies can fill the financing gap

SHAKTI
SUSTAINABLE ENERGY
FOUNDATION

The philanthropic community plays a key role in advancing climate action in India, and its support has generated critical evidence to shape climate action and policies. However, it is important that philanthropic funding should be strategically invested, considering the scale and the pace at which India is facing climate challenges.

This publication takes a deep dive into existing initiatives on mainstreaming climate action in development planning, climate science, climate technologies, and finance and identifies the gaps in these initiatives. It then identifies strategic areas where philanthropic resources can make a difference in addressing the gaps in these initiatives.



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Suggestion Citation

Madan, N., Rishta, P. Bhandari, R and Sharma,V., 2022. Climate Resilience. New Delhi: Shakti Sustainable Energy Foundation.

About Shakti Sustainable Energy Foundation

Shakti Sustainable Energy Foundation is committed to advancing clean energy and climate action in India. We work with decision makers, civil society, think tanks and the private sector to identify and scale energy system interventions that will reduce GHG emissions to align with a 1.5°C future and address the climate crisis.

We envision a clean and secure energy future for India. By supporting the transition to clean energy sources, it is possible to boost economic development, spur innovation, deliver social and health gains and protect our climate–for today and future generations.

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Shakti Sustainable Energy Foundation
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List of Abbreviations

°C	Degree Celsius
ADB	Asian Development Bank
AF	Adaptation Fund
BUR	Biennial Update Report
CAMPA	Compensatory Afforestation Fund Management and Planning Authority
CCAP	Climate Change Action Programme
CDRI	Coalition for Disaster Resilient Infrastructure
CIFF	Children's Investment Fund Foundation
CII	Confederation of Indian Industry
cm	Centimetre
COVID-19	Coronovirus Disease 2019
CRMG	Commodity Risk Management Group
CSO	Civil Society Organisation
EU	European Union
FCDO	Foreign, Commonwealth & Development Office
FPO	Farmer Producer Organisation
FY	Fiscal Year
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GW	Gigawatt
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IPCC	Intergovernmental Panel on Climate Change
IDRC	International Development Research Centre
JICA	Japan International Cooperation Agency
LED	Light-Emitting Diode
MAP	Medicinal & Aromatic Plants
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
NABARD	National Bank for Agriculture and Rural Development
NAFCC	National Adaptation Fund for Climate Change
NAPCC	National Action Plan on Climate Change
NCEF	National Clean Energy Fund
NDC	Nationally Determined Contribution
NDRF	National Disaster Response Fund
NIUA	National Institute of Urban Affairs
NFSM	National Food Security Mission
NMSHE	National Mission for Sustaining the Himalayan Ecosystem
NRLM	National Rural Livelihood Mission
PAGREXCO	Punjab Agri Export Corporation
PMCCC	Prime Minister's Council on Climate Change
PMU	Project Management Unit
PM KUSUM	Pradhan Mantri Kisan Urja Suraksha Evem Utthan Mahabhiyan
SAPCC	State Action Plan on Climate Change
SCCC	Steering Committee on Climate Change
SDC	Swiss Agency for Development & Corporation
SDGs	Sustainable Development Goals
SEEDS	Sustainable Environment and Ecological Development Society
SHG	Self-Help Group
TCS	Tata Consultancy Services
UK	United Kingdom
UNDP	United Nations Development Programme
USD	United States Dollar
UT	Union Territory
WB	World Bank

Foreword

Climate-linked disasters pose one of the greatest global challenges to socioeconomic development. As per the sixth assessment report of Intergovernmental Panel on Climate Change (IPCC), 2021, earth's temperature has increased by 1.1 degrees Celsius (°C) compared with the average in 1850 -1900, and we are witnessing the devastating impacts of this rise in temperature almost every day. More than 300 extreme weather events have occurred in the past 60 years, leading to a monetary loss of USD 79.5 billion in the last 20 years alone. The IPCC report predicts that we have a 50% chance of exceeding the 1.5°C temperature threshold in the next few decades. This will result in irreversible climate risks.

Even though the exposure due to extreme events is linear, the impacts are non-linear and depend on a region's sensitivity and adaptive capacity. As we have seen in the past, rural communities are hit the hardest by these extreme events. For a lucky few, it entails adjustments in livelihood options, while for others, the impacts are catastrophic.

The philanthropic community plays a key role in advancing climate action in India, and it helps generate critical evidence to shape climate action and policies. The non-partisan nature of philanthropic involvement allows for independent knowledge creation and collaboration between policymakers, academia, civil society, and businesses.

At Shakti Sustainable Energy Foundation, we deploy philanthropic resources to promote climate solutions. We started our journey a decade ago by creating awareness on climate change and its impact. We then focused on climate mitigation action across sectors and tiers of governance through evidence-based policymaking. However, given the increasing pace of climate change, mitigation measures are not enough to reverse climate impacts. We require more focused and localised climate action targeting vulnerable and marginalised communities. Recognising that this is the decade to accelerate efforts, we must deepen our initiatives to enhance the resilience of these communities.

I am delighted to introduce this study, titled Climate Resilience Landscape for India. The study covers climate change issues in India and maps existing initiatives by various actors such as the central and state governments, civil society, bilateral and multilateral agencies, private sector, and philanthropic initiatives. It identifies the gaps in tackling climate resilience issues and possible solutions to address these issues comprehensively and holistically. I trust this publication will be a useful resource for policy makers and practitioners to plan and implement strategies to enhance climate resilience in India.

Dr. Anshu Bharadwaj

Chief Executive Officer
Shakti Sustainable Energy Foundation

Executive Summary

According to the Global Climate Risk Index 2021, India ranked 7th out of 180 countries affected by climate change, implying extremely high exposure and vulnerability . More than 75% of Indian districts are hotspots for extreme climate events . Taking action to mitigate the impacts of climate change and build resilience among communities is vital for India to sustain its developmental trajectory while simultaneously tackling climate change. Both climate science and international climate negotiations stress the urgent need to develop and implement effective climate risk assessment and management approaches to avert, minimise, and address climate challenges.

The Indian government recently announced its commitment to reach net-zero emissions by 2070, along with intermediate 2030 targets that include increasing non-fossil fuel electricity capacity to 500 gigawatts (GW), meeting 50% of the country's electricity requirements with renewable energy, reducing carbon emissions by one billion tonnes, and decreasing the economy's carbon emission intensity by 45%. Meeting the ambitious 2030 targets and transitioning the country towards a net-zero pathway will require significant effort at both the central and sub-national levels.

States play a critical role in undertaking measures and implementing the actions required for change on the ground. Reaching the 2030 targets and eventually net-zero emissions while building the resilience of local and vulnerable communities will require substantial and immediate action from state governments, as well as local actors and civil society organisations (CSOs). This may be a challenge, as there is a significant capacity gap within the states when it comes to understanding the nuances of climate change and the cross-sectoral efforts required to tackle it. Thus, this gap should be urgently addressed and state actors' capacities to be built to ensure that India stays on track to achieve its climate action targets.

Several vital changes are required across state and non-state actors to undertake ambitious low carbon and climate-resilient pathways.

Long-term climate planning

Given India's political economy, strategic long-term planning and implementation can often give way to short-term stop-gap measures. To be truly effective, state climate action plans need to adopt a long-term approach, iron out the associated complexities, and establish accountability among the various involved institutions.

Roadmap for climate resilience

States need evidence-based roadmaps that serve as guiding documents for climate-resilient development and include various developmental pathways, in order to inform state officials about different actions that need to be taken to achieve their targets and further augment climate ambition.

Integrated and coordinated actions

Climate-resilient development needs to be integrated with mitigation, environmental, and ecological measures that are grounded in science-based targets and adaptable to the local context. States also need to ensure that the various line departments work together to implement climate plans.

Building local institutional capacity to augment state ecosystems

A strong stakeholder ecosystem can augment state government efforts through an inflow of evidence-based research, informed opinions, and technical assistance. Strengthening the local civil society ecosystem by building technical capacity is therefore important.

Funding climate action

Lack of financial resources is one of the biggest barriers to states' low-carbon and climate-resilient development. While there are multiple instruments that can help states raise funding for such development, it is essential that states themselves begin allocating funding for climate action within their budgets to ensure long-term impact.

Participative climate action planning

Given that various stakeholders are involved in state-level climate action, participatory planning for climate action in states is necessary to address all voices and build consensus.

Equity and justice

State-level low-carbon development programmes should be designed with marginalised communities in mind. This can lead to equitable growth, shared prosperity, and a climate-resilient future. A critical focus on co-benefits is required, such as improved public health, green jobs, and improvement in overall quality of life.

This report takes a deep dive into the existing initiatives focused on mainstreaming climate action into development planning and identifies the technology, finance, and capacity gaps in these initiatives. The report also highlights the following strategic priorities where the philanthropic community must intervene to advance climate action in India:

Evidence-based planning and implementation

- Provide state governments with the knowledge support that they require to develop effective roadmaps for low-carbon and climate-resilient development.
- Make sure the roadmaps are absorbed within the State Transition Plans/State Action Plans on Climate Change (SAPCCs)/state budgets, with the intention of ensuring definitive state buy-in.

Government capacity building

- Enhance the capacities of government officials to execute the measures outlined in the roadmaps through technical assistance.
- House experts within the government by setting up a project management unit (PMU) to ensure seamless flow of information between CSOs, the research community, and policy makers. Aim to have the PMU absorbed by the state government in due time.
- Support project implementation in selected cases - help states develop detailed project reports, investment plans, green procurement guidelines and design incentive structures and tender templates.
- Undertake these implementation activities together with the concerned state officials, providing them with hands-on training in the aforementioned activities.

Enhancing local institutional capacities for climate action

- Incubate and/or augment capacity within the existing local CSO ecosystem by training existing resources on climate change issues, engaging new actors through institutional grants, and providing other hand-holding support as required.
- Simultaneously, facilitate the formation of partnerships between the local CSOs and established organisations to give exposure to the local CSOs to active projects and build their capacities.

Cementing government ownership

- Work with the state government to either strengthen existing climate committees or constitute new ones. These committees should be headed by high-level authorities within the state government and include actors from various sectors or line departments to foster government ownership.

Cross-learning at the sub-national level

- Work with partners across India to ensure cross-state diffusion of the learnings and findings from "model" states.
- Support learning exchange via conventions, coalitions, knowledge products, training modules, cross-learning platforms, networks and other available channels.
- Facilitate robust centre-state dialogues to ensure the necessary provisions are in place for state-level climate action.

1. Need for Climate Resilience

1.1: India's Vulnerability to Climate Change:

Climate change is one of the most pressing challenges of our time. From impacting global environmental cycles, food & water security, and biodiversity to hampering human health and well-being, climate change is affecting our entire existence. It is no surprise that the increase in the global mean temperature and associated impacts have been caused by human-induced activities.

India was ranked the seventh worst-hit country in 2021 due to its vulnerability to extreme weather events. India considers climate change and related factors as one of the greatest threats to its socioeconomic developmental goals. India's Prime Minister Shri Narendra Modi in his speech at COP26 highlighted the existential crisis faced by many developing nations due to the adverse impact of climate change. The adverse impacts of this phenomenon have become visible across the world, including India. Heatwaves across north India during April 2022, flash floods in Himalayan states, and Cyclones Nisarga and Amphan are just a few examples of these extreme events. Over 300 such extreme events have occurred in the past 60 years, leading to a monetary loss of USD 79.5 billion in the last 20 years , with Cyclone Amphan alone resulting in USD 14 billion in economic losses . At the same time, there was a 45% decrease in the number of human lives lost from 2008 to 2019, mainly due to greater adoption of adaptive measures such as early warning systems and the implementation of hard technologies such as sea dikes .

Cyclones like Amphan, Tauktae, Yaas, and Nisarga hit when India, along with the rest of the world, was already reeling from the impact of the coronavirus disease 2019 (COVID-19) pandemic-induced economic crisis. India's gross domestic product (GDP) shrank by 7.3% in 2020-21 , the brunt of which was borne by the urban and rural poor, as informal jobs disappeared, resulting in an unprecedented reverse migration to the hinterlands. These cyclones further increased the vulnerability of the rural economy by destroying crops. Scientific studies project that such challenges are likely to amplify with an increase in extreme events in the coming years. The number of past and projected extreme weather events in India (1965-2024) is shown in Figure 1.

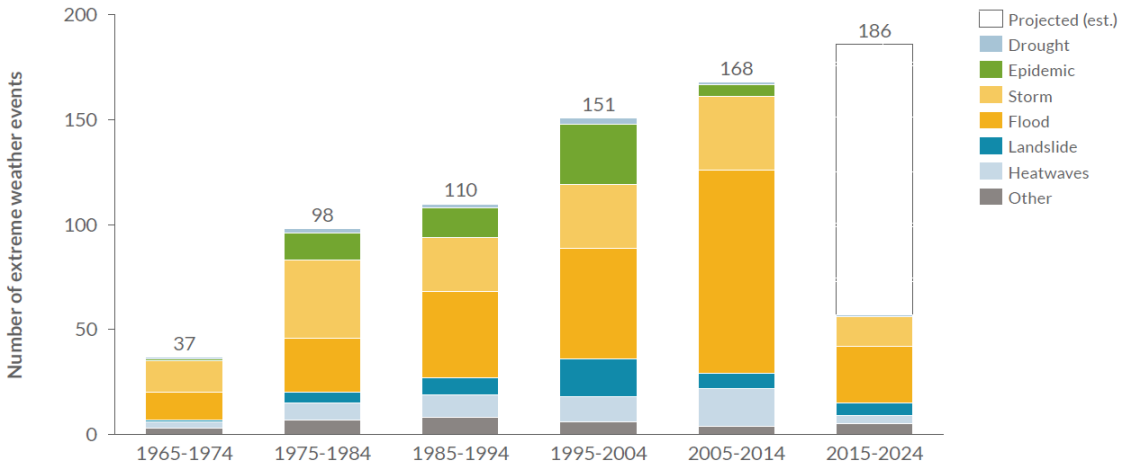


Figure 1. Past and projected extreme events in India (Source: EM DAT database)

The Ministry of Earth Sciences carried out a scientific study titled ***Assessment of Climate Change over the Indian Region*** that projects that the land surface temperature across India could rise by an average of 2 degrees Celsius (°C) (under a moderate emission scenario) in the next 50 years. A variable pattern of rainfall is also projected, i.e. floods in the central and southern parts of the country and droughts in most northern and some southern parts of the country. A rise of 20-30 centimetres (cm) in sea level and a 3-4 times increase in heatwave events are also projected by the end of the century.

India has a fragile ecosystem with a mix of features such as glaciers, high mountains, long coastlines, and massive semi-arid regions that are the hotspots for climate change. India's vulnerability due to climate change is also high because of the following aspects:

High dependence on agriculture: In 2021, it was calculated that 40% of the workforce in India was employed in the agriculture sector . Extreme temperature shocks and erratic rainfall patterns impact agriculture and farm revenue.

Long coastline: India's coastline houses some of the country's most populous economic hubs. Rising sea levels threaten the survival of such communities, as this causes flooding, erosion, saline ingress, decline in fish catch, etc. Floods are on average the greatest cause of annual losses from natural disasters in India, costing an estimated USD 10 billion every year . The east coast is prone to cyclones, and with the change in weather patterns, cyclones have also started frequenting the western coast.

High fossil fuel dependence: India still relies on fossil fuels as a primary source of energy, and its high fossil fuel base will keep it locked in a high emission cycle in the near term.

Diverse biodiversity: India is home to various species of flora and fauna living in deserts, semi-arid lands, mountains, wetlands, islands, and coastal areas. This makes the biodiversity of the country rich but simultaneously vulnerable to the consequences of climate change.

1.2: Climate Change Risks:

India faces a slew of environmental issues related to air and water pollution, as well as an inefficient or non-existent waste management systems. Climate change due to human activities has further exacerbated the socioeconomic challenges already faced by the country. Climate change's impacts are highlighted in Figure 2.

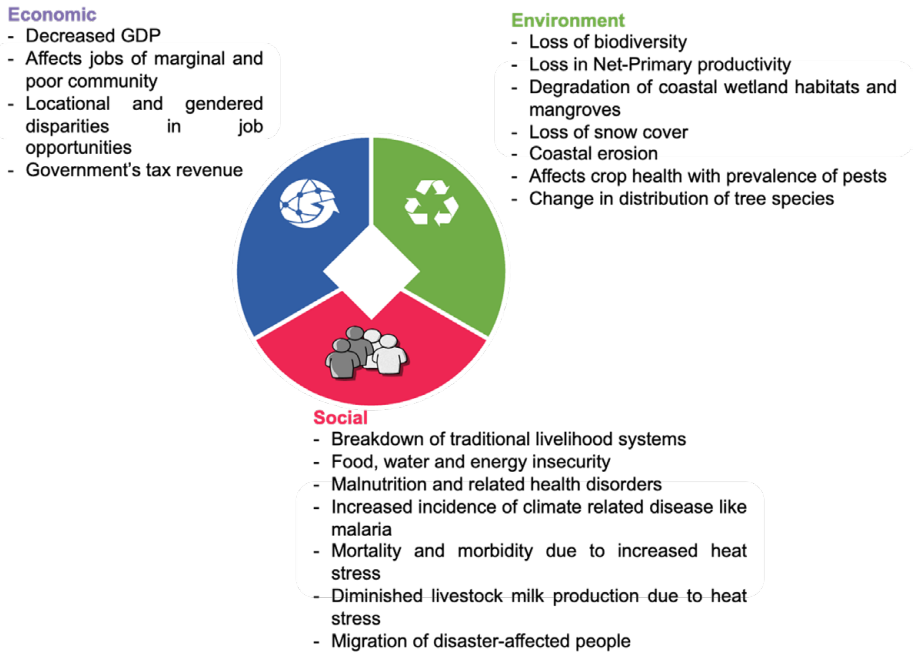


Figure 2 Economic, Social and Environmental challenges of climate change

2. Concept of Climate Resilience:

2.1: Introduction

International communities are currently discussing ways to effectively combat the climate crisis. Climate change mitigation efforts (potential solutions and innovations to combat the problem) and adaptation efforts (adjusting to current or expected climate change impacts) are the key topics that dominate the discussion, and the idea of climate change resilience pathways is gaining momentum. A climate-resilient pathway is an endless development trajectory that strives to merge mitigative and adaptive efforts in the sphere of climate change, to uphold the principles of sustainable development for the planet.

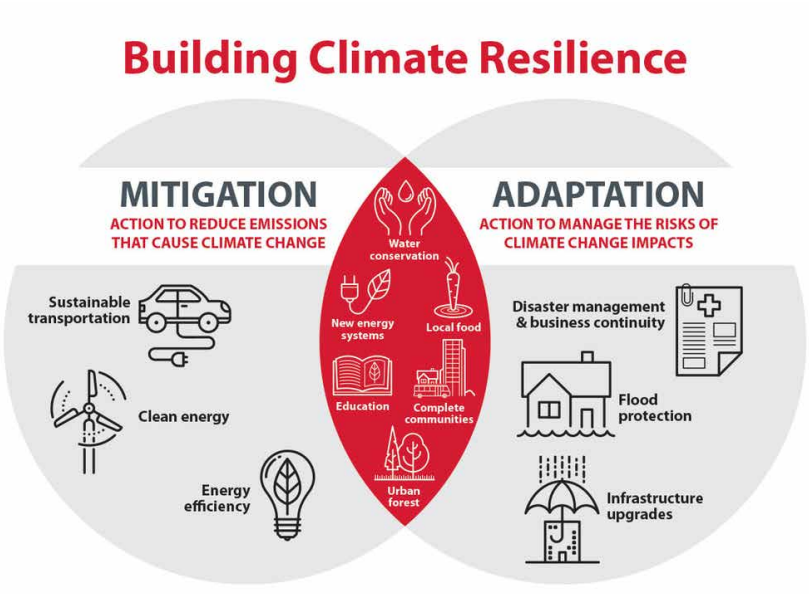


Figure 3. Concept of climate resilience

The IPCC defines climate resilience as the capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation (the concept of climate resilience is depicted in Figure 3).

2.2: Pathway towards Climate Resilience

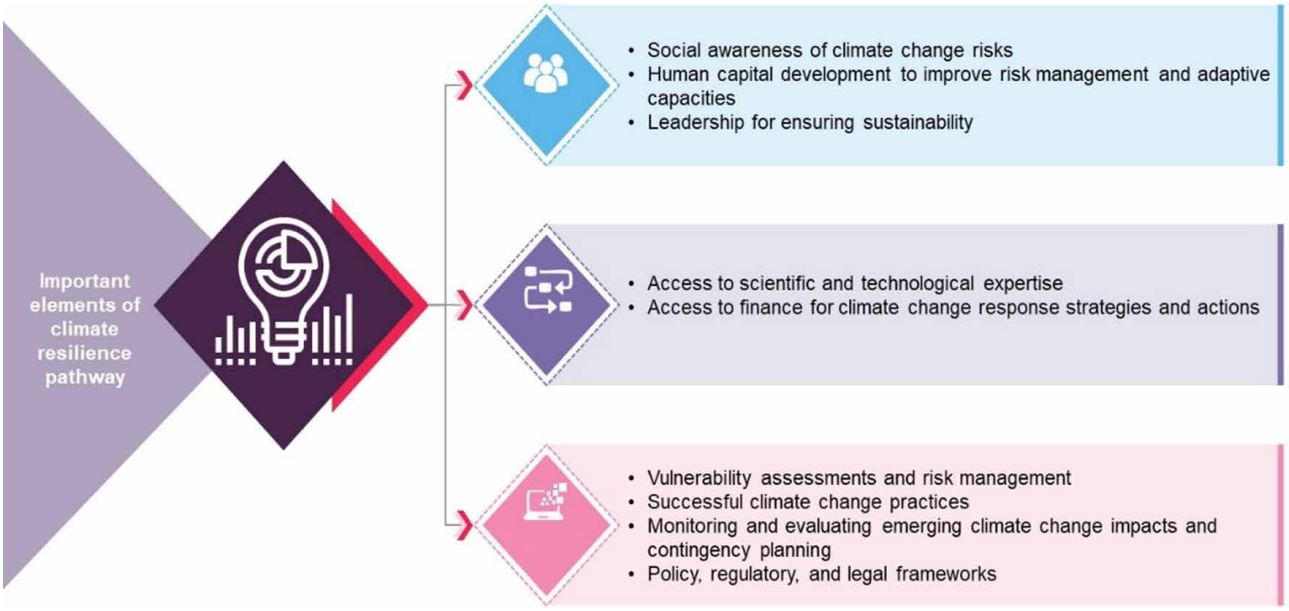


Figure 4. Important elements of climate resilient pathways

A climate-resilient pathway is a comprehensive process that requires flexibility, innovation, and participative problem solving. It also considers effective mitigation and adaptation strategies. Key elements of climate-resilient pathways are shown in Figure 4.

The best climate-resilient pilot practices to replicate and upscale are the ones that are built around the two key pillars of climate resilience: 1) people who are aware of climate risks and how to address them; and 2) the availability of technical and financial resources to address climate change challenges.

Case study: A climate-resilient agricultural project

Not only does climate change reduce crop yields, but it also reduces the nutritional quality of major cereals and lowers livestock productivity. Reducing vulnerability to droughts, pests, diseases, and other climate-related risks and shocks and improving the capacity to adapt and grow in the face of longer-term stresses like shortened seasons and erratic weather patterns are essential to addressing the vulnerability of the agricultural sector due to climate change. An agricultural project can successfully address climate risks if it has an adequate balance between adaptive infrastructure, well-informed people, a good governance structure, and opportunities for alternative livelihoods. The key elements that contribute to a successful project are shown in Figure 5.

Key project elements

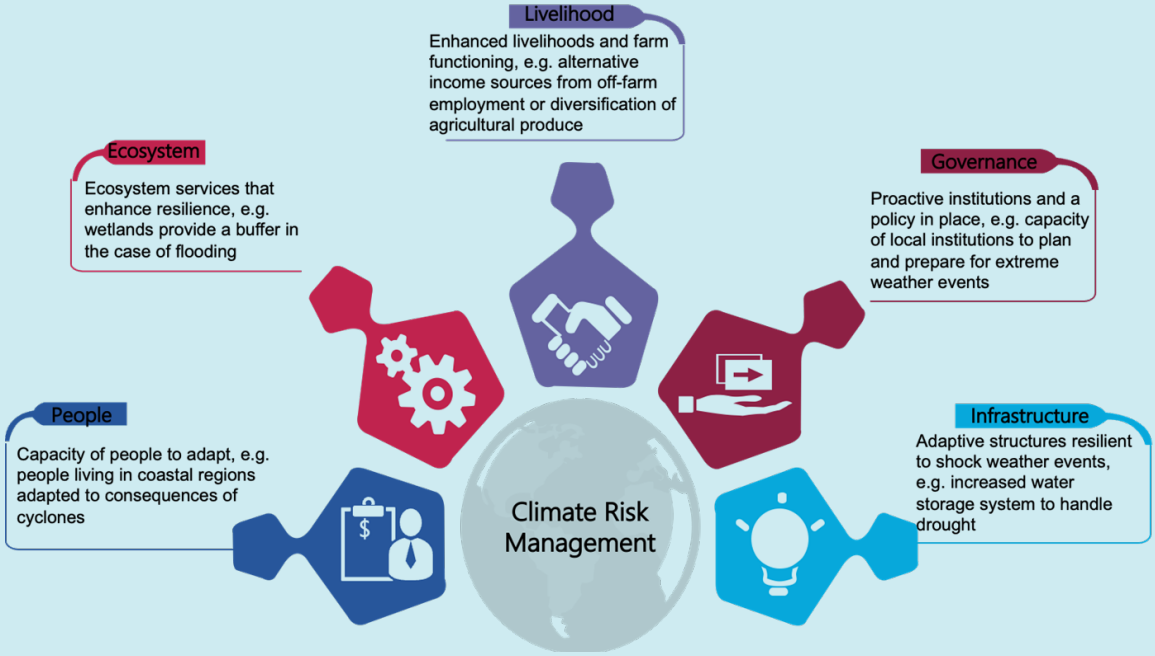


Figure 5. Climate risk management framework

The World Bank (WB) is supporting a climate-resilient agricultural project in Maharashtra that has the following key components:

- *Promoting climate-resilient agricultural systems:* It aims to strengthen the adaptive capacity of smallholder farms to modify their production systems in order to moderate potential future impacts from climate events. This contributes to **capacity building** and **sustaining livelihood elements.**
- *Post-harvest management and value chain promotion:* It aims to support the participation of smallholder farmers in farmer producer organisations (FPOs) and the integration of these FPOs into value chains for crops relevant to the climate agenda, as well as strengthen the supply chain for climate-resilient crop varieties in the project area. This

intervention supports the development of **resilient infrastructure, ecosystem services, and sustaining livelihood elements.**

- *Institutional development, knowledge, and policies for climate-resilient agriculture:* It aims to enhance the transformative capacity of institutions and stakeholders to promote and pursue more climate-resilient agriculture, with sectoral strategies and policies based on strong analytical underpinnings and cutting-edge climate, water, and crop modelling. This component helps in strengthening **governance** and **capacity building.**

3. Climate Finance Landscape in India

In India, finance flows to climate adaptation constitute a small portion of the green finance portfolio. Only USD 1.1 billion out of a total USD 50 billion was invested in climate adaptation in fiscal year (FY) 2019-21 . The mapping of green finance flows across sectors is depicted in **Figure 6** below. Sustainable agriculture & land use, waste & pollution control, and water use & conservation attracted investments of USD 5.8 billion, 1 billion, and 3.1 billion, respectively, during this period.

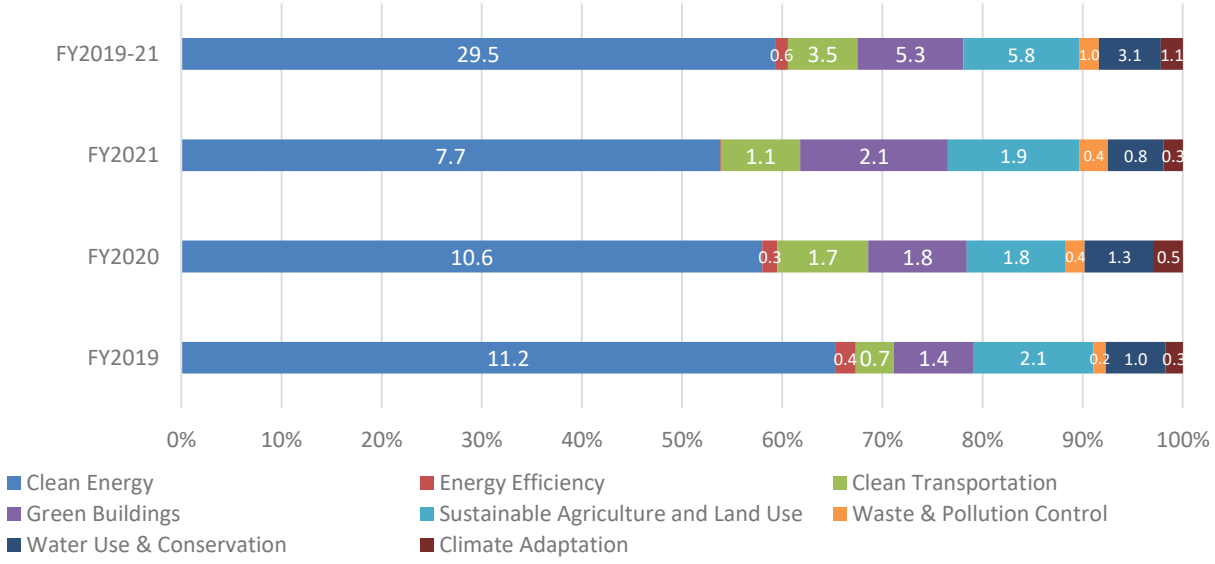


Figure 6. Green finance flows mapped across sectors (USD billion, FY 2019-21)

Climate finance in adaptation and resilience-related interventions from multilateral climate funds, multilateral banks, various bilateral agencies, the National Adaptation Fund for Climate Change (NAFCC), etc. is shown in Figure 7 . The share of the budget going towards climate change through various developmental schemes such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), National Food Security Mission (NFSM), National Rural Livelihood Mission (NRLM), etc., has not been computed thus far, as there is no systematic framework to climate tag these schemes.

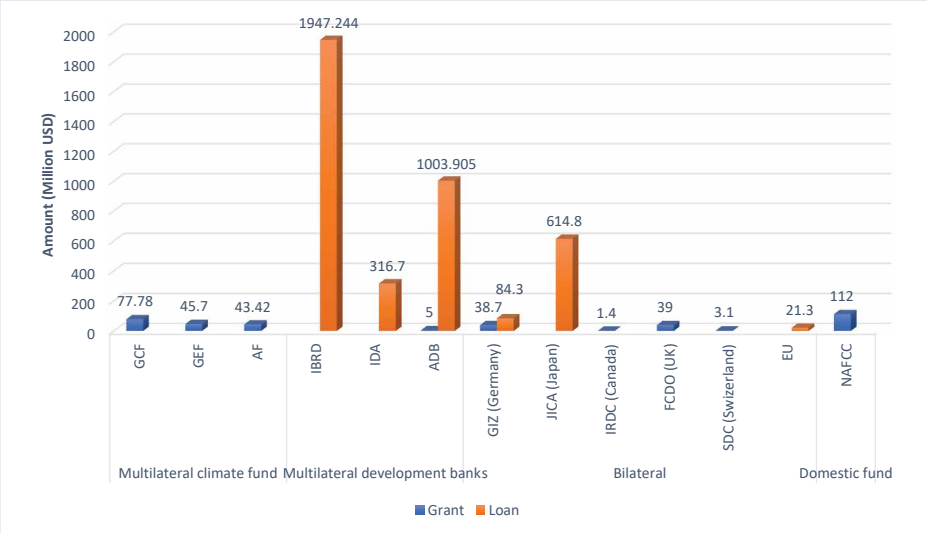


Figure 7. Climate adaptation finance in India (2016-2020)

It is estimated that India requires an annual financial inflow of at least USD 170 billion as estimated in 2015 to tackle climate change, i.e. approximately USD 2.5 trillion cumulative investment by 2030 . This includes an estimated USD 206 billion up to 2030 to implement adaptation actions in agriculture, forestry, fisheries, water resources, and ecosystems. Apart from this, there will be additional investments needed to strengthen resilience and disaster management. Therefore, adaptation finance is essential to carve out climate-resilient pathways and reduce the impact on vulnerable communities.

3.1: Government of India's Domestic Climate Change Initiatives

In June 2007, the Prime Minister constituted the **Prime Minister's Council on Climate Change (PMCCC)**, a high-level advisory body with representatives from ministries and the heads of key departments, as well as non-governmental organisations and media houses. The main role of this council is to advise on and coordinate international and national climate change actions in India.

The government laid out eight broad missions under the **National Action Plan on Climate Change (NAPCC)** in 2008. Amongst them, five missions—the National Mission on Sustainable Habitat, National Water Mission, National Mission for Sustainable Agriculture, Green India Mission, and National Mission for Sustaining the Himalayan Ecosystem—provided guidance on **climate change adaptation strategies.**

The National Mission on Strategic Knowledge for Climate Change, the sixth mission and primarily a **service mission,** provided support to strengthen scientific knowledge on climate change. Four other missions were added later, amongst which two missions, i.e. the National Coastal Mission and National Health Mission, covered the vulnerabilities of coastal areas and the health sector.

In 2009, PMCCC asked each state/union territory (UT) to prepare a **State Action Plan on Climate Change (SAPCC)** in line with the guiding NAPCC document. Each state developed a SAPCC covering state-specific issues on climate change and strategies to address them.

Over the last decade, as a result of the implementation of various climate change pilot projects and capacity building programmes at different levels of governance, there has been an enhancement in climate change knowledge. India also submitted its Nationally Determined Contributions (NDCs) and adopted the Sustainable Developmental Goals (SDGs) in 2015, which provided a guiding path for developing a robust framework to link climate change with sustainable development. Initial SAPCC documents were the first step in the iterative process; states are now revising and strengthening the SAPCCs based on recent scientific developments, linking them to the NDCs and SDG framework.

The Government of India has established **two financing windows dedicated to climate change:** National Adaptation Fund on Climate Change (NAFCC) and Climate Change Action Programme (CCAP).

National Adaptation Fund on Climate Change (NAFCC): This fund aims to scale up climate change adaptation interventions by financing projects/programmes based on climate scenario and vulnerability analysis. This fund also supports capacity building of key stakeholders for planning, implementing, and monitoring climate adaptation measures. Sectoral coverage of NAFCC is shown in **Figure 8.**

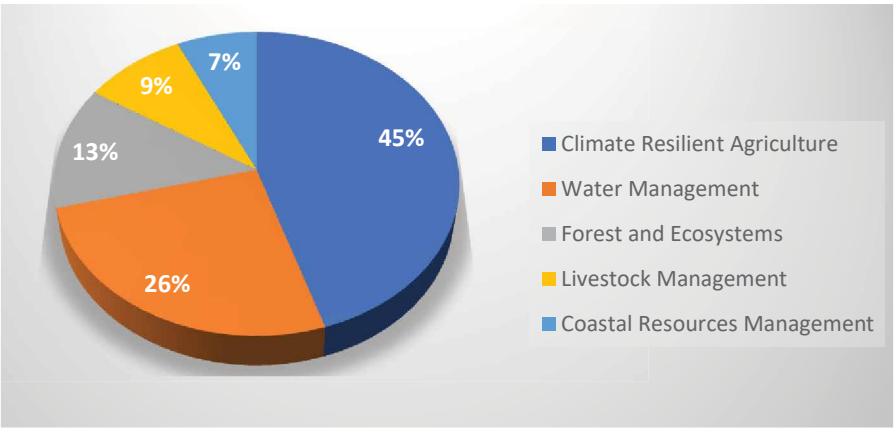


Figure 8. NAFCC project distribution across sectors

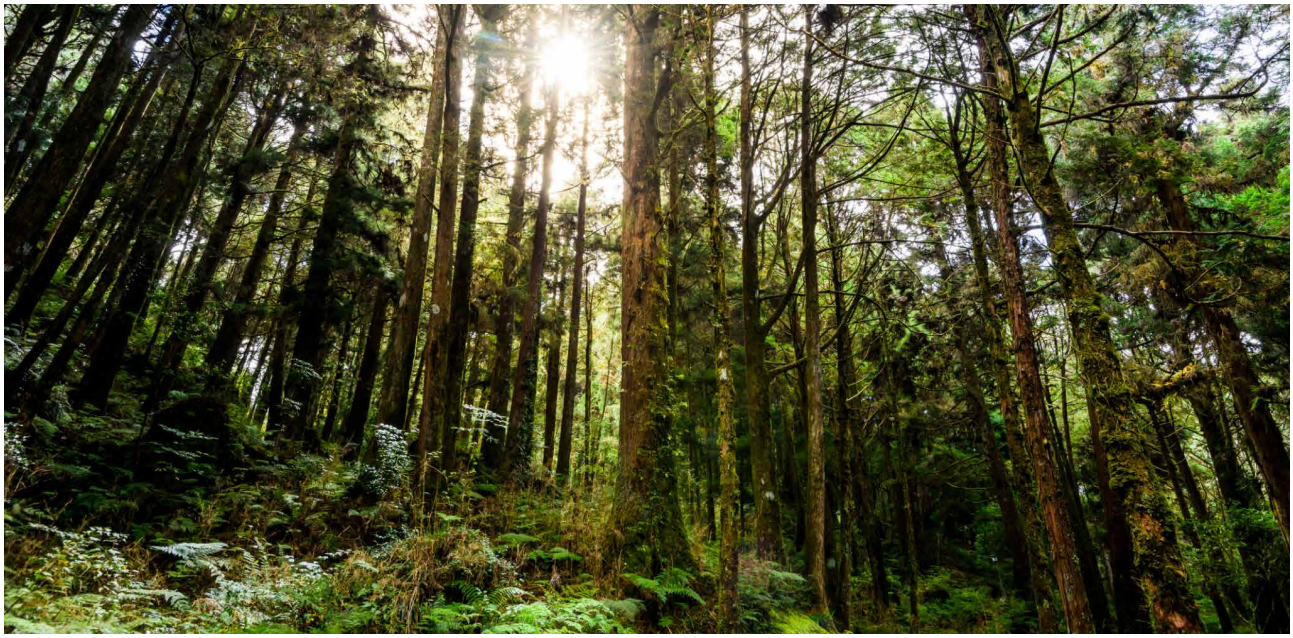
Climate Change Action Programme (CCAP): This fund strengthens scientific and analytical capacity and the institutional framework on climate change and supports the implementation of climate-related actions at the national and sub-national levels. It also supports states in the implementation of pilot initiatives envisaged under the SAPCCs.

Furthermore, key ministries such as agriculture, water, renewable energy, and environment have initiated various schemes to address sector-wise developmental issues, while simultaneously contributing to addressing climate risks. Major financing schemes include the following:

- National Clean Energy Fund (NCEF): Ministry of Finance has established NCEF to support research and innovation projects related to clean energy and the environment.
- Fund to support the strengthening of climate change centres: Department of Science and Technology is supporting the development of a knowledge centre on climate change at the state level through this fund to conduct a vulnerability assessment, organise a capacity building programme on climate change, etc.
- Pradhan Mantri Kisan Urja Suraksha Evem Utthan Mahabhiyan (PM KUSUM): Ministry of New and Renewable Energy's

scheme helps farmers install solar pumps and grid-connected solar and other renewable power plants across the country. The government provides a subsidy of 60% to farmers, and 30% of the cost is covered by loans. Farmers bear only 10% of the total cost of the project.

- Integrated Power Development Scheme: This scheme focuses on strengthening sub-transmission and distribution networks in urban areas through the metering of distribution transformers/feeders/ consumers in urban areas.
- Unnat Jyoti by Affordable LEDs for All: This scheme provides light-emitting diode (LED) bulbs to domestic consumers, with a target to replace 77 crore incandescent bulbs with LED bulbs.
- Jal Jeevan Mission: Ministry of Water Resources, River Development, and Ganga Rejuvenation provides financial support to various states to provide safe and adequate drinking water.
- Prime Minister Krishi Sinchayee Yojana: This scheme extends support to facilitate irrigation and improve water use efficiency in a focused manner, along with farm productivity.
- Rashtriya Krishi Vikas Yojana: This scheme incentivises states to increase their investment in agriculture and allied sectors. It also helps in achieving the goals of reducing the yield gaps in important crops and maximising returns to farmers.
- Compensatory Afforestation Fund Management and Planning Authority (CAMPA) Funds: These funds are meant to promote afforestation and regeneration activities as a way of compensating for forest land being diverted to non-forest uses.
- National Disaster Response Fund (NDRF): This fund, managed by Government of India, covers expenses for emergency response and disaster relief & rehabilitation.
- National Rural Livelihood Mission: This mission aims to alleviate rural poverty and create sustainable livelihood opportunities for the rural poor. It seeks to promote sustainable community-based institutions that will facilitate the provision of financial services, economic services, and other entitlements to the rural poor.



3.2: International Initiatives on Climate Change

India receives support from multilateral and bilateral agencies to address the challenges of climate change. The World Bank, United Nations Development Programme, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), and Foreign, Commonwealth and Development Office (FCDO), among others, fund projects related to energy, water, agriculture, disaster risk reduction, and coastal zone management in India (an overview of international financing sources in India is shown in Figure 9).

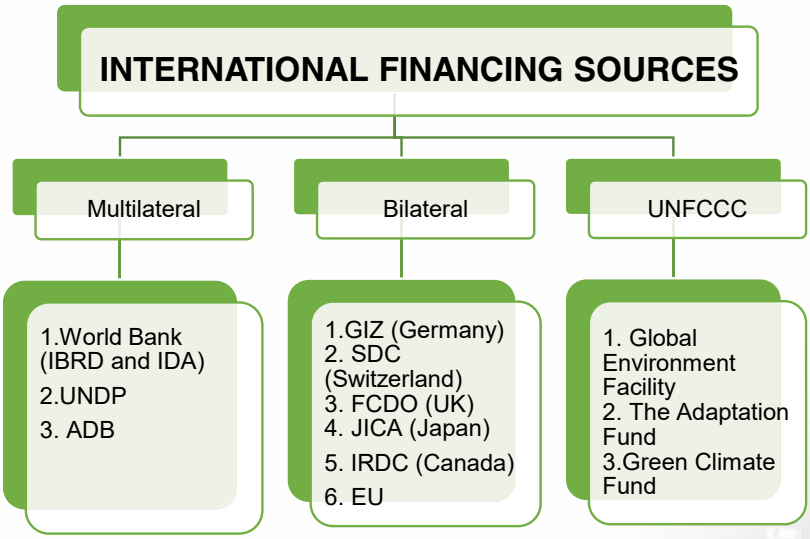


Figure 9. Overview of international financing sources

3.2.1: Key Multilateral Initiatives

1. **World Bank (WB):** The WB group is committed to assisting countries in responding to the climate crisis. In 2019, the group launched its ***Action Plan on Climate Change Adaptation and Resilience*** to increase climate financing and to build a resilient future, especially for the poor and vulnerable. Through its various affiliate organisations, the bank has funded several projects on climate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resilience and adaptation in India, including the following:

- Maharashtra Project on Climate Resilient Agriculture: The project aims to enhance climate resilience and the profitability of smallholder farms in Maharashtra.
- Andhra Pradesh Integrated Irrigation & Agriculture Transformation Project: The project works to improve small-scale community-based irrigation in order to exploit the underutilised potential of decentralised tank irrigation systems.
- The First Resilient Kerala Program Development Policy Operation: This intervention aims to enhance Kerala's resilience against the impacts of natural disasters and climate change.
- India National Cyclone Risk Mitigation Project: The project is implementing suitable structural and non-structural measures to mitigate the effects of cyclones in the coastal Indian states and UTs.
- Sustainable Livelihoods and Adaptation to Climate Change: This project helps farmers adapt to climate change and sustain their livelihoods.
- Tamil Nadu and Puducherry Coastal Disaster Risk Reduction Project: The project aims to increase the resilience of coastal communities in Tamil Nadu and Puducherry to a range of hydro-meteorological and geophysical hazards, along with improving the capacities of project implementation entities to respond promptly and effectively to an eligible crisis or emergency.
- Bihar Kosi Basin Development Project: The project aims to enhance resilience to floods and increase agricultural production and productivity in the target districts in the Kosi river basin and improve Bihar's capacity to respond promptly.

2. **United Nations Development Programme (UNDP):** UNDP has a strong mandate concentrated on development, with a focus on sustainable development, climate change and disaster resilience, and governance. In India, UNDP is implementing a project on ***Enhancing climate resilience of India's coastal communities,*** which began in 2018 and is expected to be completed by 2025. This project aims to protect and restore the natural ecosystems in India's coastal zones to strengthen coastal communities' climate resilience, as this long coastline is among the areas most vulnerable to climate change. This project is being financed by the Green Climate Fund.
3. **Asian Development Bank (ADB):** ADB has a project titled ***Strengthening Climate Change Resilience in Urban India,*** which began in 2015 through the Urban Climate Change Resilience Trust Fund. This project helps the Government of India identify, plan, invest, and respond to climate change

and disaster-related risks in vulnerable cities and towns across India. In addition, there are various sectoral projects on adaptation.

3.2.2: Key Bilateral Initiatives

1. **GIZ:** Indo-German joint initiatives are being implemented in various areas such as energy, water, agriculture, urbanisation, waste, biodiversity, and forestry. These projects are providing policy support through evidence-based planning, strategic capacity building programmes, demonstrative management measures, etc. Major ongoing projects in these areas include the following:

- Climate Adaptation and Finance in Rural India
- Supporting the Institutionalisation of Capacities on Climate Change Studies and Actions
- Conservation and Sustainable Use of Biodiversity in India
- Water Security and Climate Adaptation in Rural India.

2. **KfW:** KfW is one of the world's leading development banks that supports climate-friendly growth in India. It has various projects in energy, urban development, and natural resource management. Under the Natural Resource Management umbrella programme, there are different ongoing projects that deal with climate resilience, aiming to support resource-friendly processes in rural communities. This programme supports the implementation of sustainable and replicable model projects.
3. **Swiss Agency for Development and Cooperation (SDC):** SDC has been working in India on climate change since 2011, engaging in multilateral climate change policy processes, innovative climate change and mitigation projects in targeted partner countries, and related knowledge generation and dissemination. SDC has an Indian Himalayas Climate Adaptation Programme that supports the implementation of the National Mission for Sustaining the Himalayan Ecosystem (NMSHE) under NAPCC.
4. **Foreign, Commonwealth and Development Office (UK):** FCDO is implementing a major project on climate change titled Infrastructure for Climate Resilient Growth that is currently active across 22 districts in three Indian states and supports the climate proofing of India's largest social security programme, the Mahatma Gandhi National Rural Employment Guarantee Scheme.

3.2.3: Major UNFCCC Initiatives

1. **The Global Environment Facility (GEF):** The GEF is a financial mechanism that provides grants to developing countries for projects that benefit the global environment and promote sustainable livelihoods in local communities. GEF projects address six designated focal areas: biodiversity, climate change, international waters, ozone depletion, land degradation, and persistent organic pollutants.
2. **Adaptation Fund (AF):** India has accessed AF through the National Bank for Agriculture and Rural Development (NABARD), India's national implementing entity for this fund. The projects being implemented are in the agriculture, fisheries, forestry, coastal zone management, and water sectors.
3. **Green Climate Fund (GCF):** GCF assists developing countries in low-emission and climate-resilient development. This is one of the pioneer funds that aims for a 50:50 balance between climate change mitigation and adaptation aspects. So far, India has received financing for three projects from GCF. The first was a climate change adaptation project focused on improving and conserving the groundwater resources in Odisha. The second, a pan-India project, was a climate change mitigation project that enabled access to long-term, affordable finance for solar rooftop installation projects in the commercial, industrial, and residential sectors. The third project is a cross-cutting project promoting adaptation to climate risks for the coastal communities, as well as enhancing the mangrove and forest covers and carbon sequestration.

3.3: Civil society initiatives on climate change adaptation and resilience

Some of the major civil society-led initiatives on climate change adaptation and resilience are summarised below:

1. **Community-Based Microclimate Resilience:** The project, undertaken by Sustainable Environment and Ecology Development Society (SEEDS) India, helps urban poor communities in Gorakhpur, Uttar Pradesh adapt to climate change through the design and construction of new types of flood-resilient and affordable housing. Low-cost, sustainable housing policies, standards, and techniques provide a range of benefits to residents and the wider population, including resilience to climate change, improved health, increased safety and sanitation, and poverty alleviation. Over the years, this project has reached out to families affected by earthquakes, floods, and cyclones, restoring homes, schools, and hospitals.
2. **Community-Based Flood Early Warning System:** This project, being implemented by the International Centre for Integrated Mountain Development, enhances the resilience of vulnerable communities in the Indian Himalayan region to flood hazards through early-warning systems.
3. **Building Agriculture Resilience by Harvesting Rainwater in India:** This project uses a special type of technology called 'Bhungroo', which is an innovative water harvesting technique for irrigation to address the water concerns of the community. The technology frees excess water from flood prone and waterlogged farmland by drawing all the excess water underground and making land accessible for farming. This technology has been developed by Naireeta Service Pvt Ltd and approved by the United Nations Framework Convention on Climate Change (UNFCCC). This technology is being adopted in villages in Andhra Pradesh and Gujarat, and the systems are run by women's self-help groups and were supported with government funding after pilot testing and validation.
4. **Pathways to Climate Resilient Livelihood Models:** This initiative by Udyama uses an ecosystem-based approach for building community-based hubs in vulnerable communities across the country. This project provides needs-based training to ensure the sustainability of climate-resilient measures.

3.4: Private Sector Initiatives on Climate Change Adaptation and Resilience

Table 1. Private sector initiatives on climate change adaptation and resilience

TITLE	NAME OF ORGANIZATION(S)	OBJECTIVE
Microinsurance Reducing Farmers' Exposure to Weather Risk	BASIX and ICICI Lombard	In 2003, ICICI Lombard General Insurance Company formed a partnership with BASIX, a Hyderabad-based microfinance institution, to pilot the sale of rainfall index insurance contracts to small farmers in Andhra Pradesh. The WB Commodity Risk Management Group (CRMG) provided technical support, and the project became the first weather insurance initiative in India and the first farmer-level weather indexed insurance offered in the developing world.
Adaptation to Climate Change Impacts Through Diversification of Farming Systems	ITC Limited	ITC's Let's Put India First initiative leveraged digital technology and customised extension services to empower farmers and increase rural incomes. Various risk management and adaptation projects on water conservation, watershed development, and rainwater harvesting were implemented as a part of this initiative.

TITLE	NAME OF ORGANIZATION(S)	OBJECTIVE
Replenishing Water	Pepsico India	• PepsiCo and Punjab Agri Export Corporation (PAGREXCO) partnered in 2002 to start a Citrus Development Initiative, marking another step towards the promotion of crop diversification and helping farmers adapt to a water-constrained climate. • PepsiCo is involved in water conservation efforts throughout its business operations, including the use of rainwater harvesting initiatives in its manufacturing locations, such as rooftop rainwater harvesting and recharge ponds. • The Pepsico Foundation is partnering with Water.org to develop WaterCredit, a market-driven model that provides microloans to families throughout India.
mKRISHI: Empowering Rural Farmers	Tata International Limited, Tata Consultancy Services (TCS)	TCS's Mobile Agro Advisory System provides information on the microclimate, local market prices, and other key topics in local languages for easy use by farmers.
Adapting to Climate Change by Growing Medicinal and Aromatic Plants	Fasiam Agro Farms and Jammu & Kashmir Medicinal & Aromatic Plants (MAP) Growers' Cooperative	Fasiam Agro Farms, in partnership with Jammu & Kasmir MAP Growers' Cooperative, is helping farmers switch to low-risk, high-value aromatic and medicinal crops that thrive in the local soil and climate as a strategy for climate change adaptation.

3.5: Philanthropic Initiatives on Climate Change Adaptation and Resilience

Philanthropic organisations—Rohini Nilekani Philanthropies, Azim Premji Foundation, Rockefeller Foundation, MacArthur Foundation, Oak Foundation, Children's Investment Fund Foundation, etc.—are supporting various initiatives on climate resilience to address climate risks, as summarised below in Table 2:

Table 2. Philanthropic initiatives on climate change adaptation and resilience

Name of organisation	Key initiatives
Oak Foundation	Oak Foundation established a Climate Justice Resilience Fund in 2016 to support initiatives to implement approaches to climate change adaptation and resilience, build advocacy skills, and facilitate information access to inform policy. The fund supports initiatives on water access, food security and sovereignty, sustainable livelihoods, and migration and relocation, with an emphasis on community-led solutions. Ongoing projects in India cover highly vulnerable communities in Odisha and West Bengal.
MacArthur Foundation	MacArthur Foundation offers grants to researchers on different projects related to climate solutions, such as: • Impact of increasing heat stress on Indian manufacturers • Impacts of coastal flooding on Indian cities and states.
Rockefeller Foundation	The Rockefeller Foundation has launched a new climate and resilience initiative with an initial corpus of USD 8 million to help cities around the world become more resilient to the physical, social, and economic challenges linked to climate change. This programme is working with the National Institute of Urban Affairs (NIUA) to promote and support the development of resilient cities across India.
Azim Premji Foundation	Azim Premji Foundation has an annual programme on climate change research to promote increased understanding of the climate crisis in India in the following areas: • Education and outreach • Policy and action • Adaptation and mitigation
Children's Investment Fund Foundation (CIFF)	CIFF mainly supports climate change mitigation interventions. However, some of these interventions are cross-cutting between mitigation and adaptation. Examples of projects include: • Low-carbon agriculture and nutrition: This project entails interventions related to low-carbon agriculture and ecosystem restoration to enable a social transition to reduce gender inequality. • Finance for net-zero land use and food system emissions: This initiative supports net-zero land use and food system emission reduction projects. This also develops the capability of the agricultural community to shift towards more resilient cropping practices.
Rohini Nilekani Philanthropies	Rohini Nilekani Philanthropies has a funding platform for adaptive and resilient models that can equip communities to face environmental challenges in various areas such as biodiversity, agriculture, water, etc.

4. Gaps and Role of Philanthropists in Addressing Climate Resilience

Climate change and the related risks have gained momentum over the years. The significant adverse impacts of climatic change and climate-related extreme events underpin the urgent need to plan and implement viable adaptation strategies and measures. Though India has started considering climate change as a high priority, it is still not integral to the planning process for socioeconomic growth. The urgency is yet to percolate from the national government to state and from state to district administration. Therefore, there are still considerable gaps in addressing climate resilience measures. Community resilience initiatives that help people adapt to climate change and disasters do exist, but there is a need to deepen their impact, scale them up, and attract more partners to take this approach. For example, a major part of climate-focused philanthropic funding goes to the agriculture and energy

sectors. Philanthropy can play a catalytic role, leveraging the organisations' experience, expertise, and networks to bring about broad-based action. The broad pillars under which philanthropic organisations can play a role, along with the gaps in the present ecosystem, are detailed in Table 3 below.

Table 3. Gaps and role of philanthropists in addressing climate resilience

S. No	Strategic areas	Gaps in addressing climate resilience	Role of philanthropists in supporting climate resilience	Expected impact
1	Evidence-based Planning and Implementation – Integration of Climate Thinking into States' Development Plans	Tackling climate change is not a key objective for most Indian states. While all states have developed SAPCCs or are in the process of updating them, these documents often follows a broad brush approach and are difficult to translate into fundable project ideas. Furthermore, most SAPCCs do not give adequate importance to mitigation. It is essential that adaptation and mitigation levers be in sync with each other to drive effective climate action. In most states, SAPCCs function as standalone documents with limited recognition of the activities of other line departments, which, if integrated, can facilitate collective climate action. SAPCCs also lack in-built design of upscaling, which creates problems. It is important to develop replication strategies for successful pilots in the planning stage. However, Indian state and city governments are yet to mainstream climate change into their planning or budgeting processes.	States need evidence-based roadmaps that serve as guiding documents for low-carbon and climate-resilient development. The plans should include various developmental pathways to inform state officials about the different actions that need to be taken and the alternatives available to achieve their targets and further augment climate ambitions. To be truly effective, SAPCCs need to adopt a long-term approach, iron out associated complexities, and establish accountability among various institutions. The state climate plans should recommend levers that can be easily translated into fundable / finance ready projects. 'Gold standard' guidelines or templates must be created that states can refer to when developing their own plans. To ensure successful mainstreaming of climate change concerns at the sub-national level, there is a need to develop climate action plans at the district and panchayat levels. For example, Shakti supported Vasudha Foundation in the development of District Climate Plans for six districts across the states of Gujarat, Maharashtra, and Madhya Pradesh in 2021. The plans were launched by the state government and helped percolate climate thinking within district administration. Additional plans of a similar nature should be developed for districts with high climate change risk/ vulnerability. Deep engagement with local stakeholders, including panchayat and village councils, self-help groups, farmer producer organisations, etc., are critical for the long-term sustainability of these plans. Climate change is a long-term problem that requires long-term solutions, so all new plans and policies must take this into account. This involves integrating measures into government plans, budgets, and policies that help beneficiaries cope with the effects of droughts, higher rainfall, and other climate change-related impacts. Such mainstreaming of climate change into new or existing projects is a more efficient use of resources than designing separate projects to deal with it.	Climate change considerations are incorporated into the regular planning processes of the state and district administration. Local governmental organisations start allocating resources for better and integrated planning of key economic sectors. This intervention starts benefiting the local community groups and rural population.

2	Evidence-based Planning and Implementation – Data Gaps	SAPCCs were developed based on past climate data, due to the non-availability of climate projections. Interventions were planned and incorporated based on past events, without consideration of the likelihood of the occurrence of extreme events in the future at higher frequency. Some states extrapolated past data to understand future projections using various regional climate models. However, the assessment scale was huge. Some SAPCCs downscaled the climate projections from a scientific study carried out by the Government of India titled "Climate change and India: a 4x4 assessment - a sectoral and regional analysis for 2030s" under the aegis of the Indian Network on Climate Change Assessment to plan their interventions. The data obtained was, therefore, insufficient and with a high level of uncertainty and cannot be used to project future events. The inability to project/model extreme climate events constrains these plans' ability to budget resources for building climate-resilient infrastructure. This lack of knowledge resources hinders evidence-based policy formulation and, consequently, stakeholder action.	Establishing science – policy – community linkages is essential to designing appropriate plans to enhance the resilience of local communities. Although climate science has made remarkable strides in examining extreme climate events, this needs to be backed up by the community's traditional knowledge and perceptions. Philanthropy's long-standing relationship with academic institutions, civil society, and governments must be leveraged to build the science – policy – community linkages. The scientists working on climate modelling must collaborate with civil societies and administrations working at the district, city, or village level to ensure that the science translates into policy and practice. Department of Science and Technology, under the National Mission for Strategic Knowledge on Climate Change, has developed a common framework for vulnerability assessment at the state and district levels. This is a useful tool for adaptation planning. Various local academic organisations are working on enhancing the precision of climate information by downscaling the national level knowledge to the local level. Philanthropists can support this initiative to create a data repository where information is available at the district level. Philanthropic resources can be deployed to develop a Climate Risk Atlas with state-/district-level granularity. This can help policy makers and business take informed policy or business decisions and consider climate risks early on in their decision-making processes.	Climate science is effectively translated into policy and practice. Granular information at the district level is available. This information strengthens local academic organisations, community groups, local CSOs, and local businesses to enable planning for resilience.
3	Evidence-based Planning and Implementation – Technology Gap	Technology plays a critical role in implementing climate-resilient measures. Addressing the technology gap requires technology transfers and co-creation. Several technologies are being implemented across development programmes in India for agriculture, water, health, forests, and livelihoods. However, the analysis of which technology works in which geographical location is missing. This sometimes leads to maladaptation. Large-scale disasters usually receive a significant amount of attention, followed by financial support from the government. However, small-scale and local disasters such as heatwaves, cloudbursts, and small-scale floods are less noticed, even though they have equally devastating impacts on local populations. Rural populations, which are the most vulnerable to such extreme events, cannot afford the technological solutions. Therefore, their susceptibility to extreme events further increases. Sometimes private players and governmental organisations provide support in the rollout of technological solutions. However, community capacities to manage these technologies are lacking, which does not guarantee the rate of return of such technologies.	Multistakeholder collaboration is needed to assess technology needs and customise the technologies available at the global and national levels, based on local needs. To ensure effective application of the technology and get the desired outcome, we have to strengthen the capacities of local communities to manage the technologies. Indian industries are proactive in the mitigation sector and are coming up with innovative low-cost technologies. Similarly, the private sector can play a critical role in developing innovative solutions to make vulnerable communities resilient to climate change. Considering the network that most philanthropists have with businesses & industry, they can facilitate the establishment of a business & industry platform to develop technology solutions to address climate risks for vulnerable communities. Research areas could include, for example: • Ecosystem-based landscape restoration (an integrated approach to conservation and security of water, food, energy, and land) • Zero emissions agricultural practices • Artificial intelligence and machine learning • The private sector can also work with local innovators and entepreneurs to build climate unicorns. Government of India established a separate entity, the Coalition for Disaster Resilient Infrastructure (CDRI), in September 2019 to promote disaster-resilient infrastructure. CDRI facilitates research and knowledge sharing in the fields of infrastructure risk management, standards, financing, and recovery mechanisms. We should explore the benefits of aligning private sector research with CDRI's priorities.	This strategic area will facilitate development of technological options to address the risks linked to extreme climate events. In addition to the benefit to local groups and community members, this will also benefit local private players in terms of providing opportunities for them to develop low-cost technologies. There is the possibility of building a network of local climate unicorns.

4	Evidence-based Planning and Implementation – Finance for Climate Adaptation and Resilience	As per India's NDCs, the finance required for climate adaptation actions is USD 206 billion (excluding the investments needed to strengthen resilience and disaster management) by 2030. Additionally, developing climate-resilient infrastructure is estimated to require an investment of USD 178 billion. Another study conducted by Climate Finance Initiative in 2020 estimates that USD 270 billion is required to enhance resilience in cities. Estimating the exact amount of required finance is challenging because of the unpredictability of climate change impacts and local adaptation needs, along with the non-availability of climate data. The implementation of resilience measures requires resources at an unprecedented scale, because developmental finance has not considered climate change when making its plans. NAFCC was launched with a budget provision of USD 50 million over two years, which acted as a trigger for the states to submit climate finance proposals. However, due to limitations on the availability of public finance, it could only help meet the additional costs of demonstration projects. Lack of financial resources is one of the biggest barriers to states' low-carbon and climate-resilient development. While there are several instruments that can help states raise funding for such development, it is essential that states themselves begin allocating funding for climate action within their budgets to ensure long-term impact.	Estimating the amount of required finance and identifying funding sources are critical to ensuring the implementation of climate adaptation and resilience actions by 2030. Estimation of the amount of finance required involves connecting climate change risks with the costs of implementing climate actions. There is a need to assess the finance going to developmental projects that eventually fail due to severe climate events. States need to embed climate change in their fiscal policy and expenditure frameworks to ensure climate action is prioritised. This could also help identify areas that require additional funding. Several states, including Odisha, Assam, Chhattisgarh, Kerala, and Bihar, are tracking the climate relevance of their developmental projects through sectoral budget coding. However, the process has only been taken up by a handful of states and is largely driven by external agencies and hence not institutionalised. To ensure holistic state development across sectors, climate change concerns need to be integrated into the sectoral development planning processes at the local level. We should work with leading economists, experts, and think-tanks to facilitate the introduction of climate interventions into state-level planning processes, e.g. the development of green budgets for states. This will ensure sustained funding rather than short-term project-based funding. Additionally, we have to create innovative mechanisms that leverage public finance to attract private investment. States' capacities need to be enhanced to draw funding from multilateral development institutes or banks. However, this will require structural changes to the economy, along with behavioural change. Furthermore, we need to engage with the private sector to create innovative instruments to bridge the gap in funding. So far, private sector investment is more focused on low-carbon initiatives in the transport and power sectors. This is mainly due to the uncertainty regarding returns on investment and a lack of institutional governance in the country to implement climate-resilient initiatives.	This strategic area will ensure the greening of developmental finance and improve its ability to attract private finance. This will support local governments in meeting the cost of innovative climate resilience interventions that are not covered by developmental finance.

5	Government Capacity Building	States play a critical role in undertaking measures and implementing the actions required for change on the ground. Reaching the 2030 climate targets and eventually net-zero by 2070 will require substantial and immediate action from state governments, as well as local actors and CSOs. However, there is a significant capacity gap within the states when it comes to understanding the nuances of climate change and the cross-sectoral efforts required to tackle it. This gap should be urgently addressed and state actor capacities built to ensure that India stays on track to achieve its climate action targets.	Philanthropists can play important role in developing the capacity of local or execution level officials. This may involve setting up a project management unit to ensure a seamless flow of information between civil society/research community and policy makers. We have to enhance the capacities of local officials to execute measures outlined in the climate plans through technical assistance in the form of trainings and workshops. However, this alone is not sufficient, as most of the training programmes are carried out on an ad hoc basis and are not institutionalised. Some international agencies are working in states like Himachal Pradesh, Punjab, and Tamil Nadu to strengthen capacities at different levels of governance, involving government and non-government actors. However, these initiatives need to be deepened. Therefore, we must work with multiple stakeholders on varied topics. Examples of relevant topics include: • Strengthening local department and village council capacities on project/programme monitoring and evaluation so that their expertise can be utilised to improve and sustain the programmes. • Enhancing the capability of the local government to work with media to write effective stories on successful climate projects, so that these projects get visibility and are taken up by the government for scale-up. This also facilitates cross-learning. • Furthermore, supporting projects in selected cases will help states develop detailed investment plans and green procurement guidelines, design incentive structures and tender templates, etc. It is necessary to undertake these implementation activities along with concerned state officials, with the intention of providing them hands-on training in the aforementioned activities.	Capacity is built within the state and local administration on taking climate action. State and local governments are able to design and implement climate actions with limited hand-holding support.
6	Enhancing Local Institutional Capacities for Climate Action	Civil society organisations (CSOs) play an important role in delivering result-oriented development projects at scale. Although most states in India have vibrant CSO ecosystems at the local level, many of them have limited understanding of climate issues and how the climate agenda must be intertwined with local developmental priorities like health and education.	We must incubate and/ or augment capacity within the existing local CSO ecosystem by training existing resources on climate change issues, hiring new capacity through institutional grants, and providing other hand-holding support as required. In parallel, it is important to facilitate partnerships between local CSOs and established organisations or experts on active projects in their state and give them the required exposure.	This will strengthen the existing institutions or build new capacity at the local level. This set of climate concious CSOs will help integrate climate thinking into local developmental priorities.
7	Cementing Government Ownership	SAPCC is guided by the Steering Committee on Climate Change, headed by the state chief secretary, and is responsible for coordinating and driving climate-responsive developmental planning processes across government departments. However, in most states, these high-level committees are unable to integrate climate thinking into the upcoming programmes of the line departments.	It is important that we work with the state government to either strengthen existing climate committees or constitute new ones. These committees will be headed by high-level authorities within the state government and include actors from various sectors to foster government ownership. Support district, city, or panchayat level authorities develop climate action plans – ownership for climate action should percolate from the state government to local government. Time bound implementation of these plans should be part of the key performance indicator of concerned nodal officers.	Greater state and local government ownership and institutionalisation of climate thinking at every level.

8	Cross-Learning at the Sub-National Level	Several states have already expressed their desire to undertake low-carbon development and foster climate resilience, including Bihar, Maharashtra, Gujarat, Arunachal Pradesh and Tamil Nadu, among others. This is an encouraging development and has the potential to stoke climate action across the country. However, even the states that have expressed this intent require substantial support and ecosystem-level changes to actually realise their aspirations. We envisage considerable cross-learning opportunities for states as they begin implementing climate inclusive development models. However, the currently available cross-learning opportunities are sub-optimal.	We must work with partners across India to ensure cross-state diffusion of the learnings and findings from the "model" states. We must encourage track-1 (dialogue among state actors) and track-2 (dialogue among non-state actors) dialogues, along with dialogues between state and non-state actors. We must build coalitions, knowledge products, training modules, cross-learning platforms, and networks and other available channels to support the exchange of learnings. Additionally, we have to create a mechanism to facilitate robust centre-state dialogues to ensure the necessary provisions are in place for state-level climate action.	A formal and informal platform for dialogue and cross-pollination of ideas at the sub-national level is available.

Together with the proposed interventions, several vital changes are required across state institutions to enable ambitious low-carbon and climate-resilient pathways. Along with technology and finance, equity and justice will become increasingly critical. The impact on marginalised communities, women, and tribals must be at the forefront when developing climate adaptation and resilience plans at the national or sub-national level. To get buy-in from the political economy, the climate plans must focus on co-benefits such as improved public health, green jobs, and improved overall quality of life, which can lead to equitable growth, shared prosperity, and a climate-resilient future for all.

While supporting climate action at the sub-national level, we must remain aware of the pitfalls. There are two major risks faced by the activities we propose: risks posed by the political landscape and administrative risks. Examples of potential risks:

1. States may either dilute their policies or renege on their climate commitments. The outcomes of the programme would be impacted if there was a change in state policies for climate action within the states we are directly engaging with. There may also be a change in state leadership, which could lead to similar outcomes.

2. State fails to internalise the processes and best practices. The outcomes of the programme would be impacted if the governments we are engaging with directly do not internalise or mainstream the processes and frameworks that we are helping them develop.

3. One of the potential risks of this initiative itself is that the state administration could become heavily reliant on hand-holding support, which makes it difficult for them to internalise the abovementioned processes. It is therefore essential to strategically build capacity within the government and ease support over time.

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