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Accelerating Green and Climate Resilient Financing in Pakistan

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About Growth Gateway

The Growth Gateway (Gateway) is a single access point for UK and businesses in priority regions to the UK Government's offer on trade, finance, and investment. Launched with an initial focus on Africa, Gateway has now expanded to have a global remit with the mandate to prioritise high potential and strategic regions such as the Indo-Pacific region.

Gateway can deploy flexible and dedicated resources to address specific problems that businesses face whilst investing, trading, or trying to access new markets. Gateway's funding model can deploy ODA and non-ODA resources to enable it to operate adaptively, and rapidly to implement interventions that can achieve dual objectives which mutually enhance each other: to deliver development impact in country, whilst also securing commercial, diplomatic, and strategic benefits for the UK.

Growth Gateway is delivered by a joint public-private sector team from the UK Foreign Development and Commonwealth Office and the Department for Business and Trade, and the Boston Consulting Group-led consortium with Invest Africa, PA Consulting and Tetra Tech.

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Foreword

Pakistan is already feeling the devastating impact of climate change. This will only get worse. The Nationally Determined Contributions (NDCs) committed by 2030 show the temperature will increase by 1.5°C in the first half of the 2030s and will make it very difficult to control temperature increase by 2.0°C towards the end of 21st century. Every increment of global warming will intensify multiple hazards in all regions of the world – droughts, mudslides, floods, hurricanes, cyclones, and wildfires. Any leader who has had to confront such life-threatening challenges knows that the cost of inaction is far greater than the cost of prevention.

We all know there is a significant climate financing need in Pakistan. However, there is currently limited understanding of Pakistan's climate finance gaps, where this finance is most needed, and how Pakistan can mobilise the US$348 billion needed by 2030. This report aims to shed light on the role of private sector climate finance in Pakistan, and to think about how development partners can effectively collaborate with the Government of Pakistan and the private sector to pull in the same direction and realise Pakistan's climate finance objectives.

The recently announced UK-Pakistan Country Development Partnership Strategy is focussed on addressing critical structural issues: population dynamics, climate vulnerability, gender equality, and macroeconomic stability. It emphasises the UK Government's support to Pakistan to build a more resilient and cleaner growth path and to promote macroeconomic stability, private-sector-led growth, and resilience to climate shocks. Our partnership is founded on culture, shared history, diplomacy, development, security, and mutual trade and investment opportunities – and our future relies on joint action to drive sustainable and inclusive growth.

This project is being delivered through our 'British Investment Partnerships' initiative – which brings together a range of UK-supported instruments to help mobilise green investment – and will help inform the next generation of UK support for Pakistan's climate financing ambition. Supporting green, climate resilient infrastructure and investment is central to both the UK's International Development Strategy and is one of our core priorities as the British High Commission in Pakistan. The UK is well placed to leverage our British Investment Partnerships Toolkit (including British International Investment, UK Export Finance, Private Infrastructure Development Group, and the UK Centres of Expertise) in Pakistan to mobilise climate finance at scale - building climate resilience and reducing Pakistan's GHG emission trajectory.

This report is only a brief snapshot of the 450+ slides of analysis produced by BCG under this project! And it comes at an opportune time to galvanise action, ahead of COP28. I hope that the findings will contribute meaningfully to the formulation of Pakistan's locally owned climate finance roadmap to action. I give my special thanks to the Government of Pakistan and the Project Steering Committee members for stewarding this project to support Pakistan's sustainable growth ambition.

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List of Acronyms

4RF	Resilience, Recovery and Rehabilitation and Reconstruction Framework
ADB	Asian Development Bank
AF	Adaptation Fund
A&R	Adaptation and Resilience
AFOLU	Agriculture, Forestry, and Other Land Use
BCG	Boston Consulting Group
BRSR	Business Responsibility and Sustainable Reporting
CAT	Catastrophe Bonds
CFU	Climate Finance Unit
CFDPCG	Climate Finance Development Partners Coordination Group
CPEIR	Climate Public Expenditure and Institutional Review
DAC	Development Assistance Committee
EE	Energy Efficiency
ESG	Environmental, Social and Governance
EU	European Union
EVs	Electric Vehicles
FCDO	Foreign Commomwealth & Development Office
FOSAD	Forum of South African Director's General
FY	Financial Year
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Fund
GFDRR	Global Facility for Disaster Reduction and Recovery
GH	Green Hydrogen
GHG	Greenhouse Gases
GoP	Government of Pakistan
IFC	International Finance Corporation
IMF	International Monetary Fund

IMCC	Inter-Ministerial Committee on Climate Change
IGCEP	Indicative Generation Capacity Expansion Plan
IRENA	International Renewable Energy Agency
KPI	Key Performance Indicator
MDB	Multilateral Development Banks
MtCOe	Metric Tonnes of Carbon Dioxide Equivolent
MoCC	Ministry of Climate Change
MoPDSI	Ministry of Planning Development & Special Initatives
MIGA	Multilateral Investment Guarantee Agency
MSMEs	Medium, Small, and Micro Enterprises
NAP	National Adaptation Plan
NCAAP	National Climate Adaptation Action Plan
NCMAP	National Climate Mitigation Action Plan
NCGC	National Credit Guarantee Company
NDC	Nationally Determined Contribution
NDMA	National Disaster Management Agency
NDRMF	National Disaster Risk Management Fund
NEECA	National Energy Efficiency & Conservation Authority
NGO	Non-Government Organisation
ODA	Offical Development Assistance
OECD	Organisation for Economic Co-operation and Development
PDF	Project Development Facility
RE	Renewable Energy
RO	Reverse Osmosis
ROI	Return on Investment
SBA	Stand-By-Arrangement
SBP	State Bank of Pakistan
SBFN	Sustainable Banking Finance Network
SECP	Securities & Exchange Commission of Pakistan
SUPARCO	Ministry of Economic Affairs Division, Space & Upper Atmosphere Research Commission

TA	Technical Assistance
TCFD	Task Force for Climate related Financial Disclosures
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change
V-LED	Vertical Integration and Learning for Low-Emission Development in Africa and Southeast Asia
WAPDA	Water and Power Development Authority

Glossary of Terms

Blended Finance - the strategic use of development finance and or philanthropic funds to mobilise private capital flows.

Catastrophe Bonds (CAT Bonds) - hard-to-insure risks to capital market investors in exchange for returns that have typically been built around natural disasters such as hurricanes and floods.

Climate Adaptation - taking action to prepare for and adjust to the current and projected impacts of climate change.

Climate Adaptation and Resilience (A&R) - changes in processes, practices and structures to moderate potential damages or to benefit from opportunities associated with climate change.

Climate Mitigation - efforts to reduce or prevent emission of greenhouse gases by using new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behaviour.

Concessional Financing - below-market interest rates, grace periods in which the loan recipient is not required to make debt payments for several years or a combination of low interest rates/ grace periods.

Energy intensity - a measure of the quantity of energy required per unit output or activity, so that using less energy to produce a product reduces the intensity.

Green Bonds - a type of fixed-income instrument that is specifically earmarked to raise money for climate and environmental projects. These bonds are typically asset-linked and backed by the issuing entity's balance sheet, so they usually carry the same credit rating as their issuers' other debt.

Green Hydrogen - a process obtained by electrolysis of water that is powered entirely by renewable energy, so it generates no polluting emissions into the atmosphere and is the cleanest and most sustainable hydrogen.

Green Taxonomy - a framework for defining what can be called environmentally sustainable investments.

Stand-By-Arrangement - provides short-term financial assistance to countries facing balance of payments problems. Historically, it has been the IMF lending instrument most used by advanced and emerging market countries.

Tenor Risks – potential danger that comes when the time borrowers have to pay back a loan or debt does not match up well with the time, they expect to receive money. Major concern for banks especially for loans over an extended period

Executive Summary

1. Executive Summary

Right now, climate action and the economy are the two most important, entwined priorities for the government and people of Pakistan. Pakistan is facing both a macro-economic and climate crisis, threatening its sustainable growth and poverty reduction ambitions. Pakistan's high vulnerability to climate change multiplies other risks, compounding its human and economic development challenges.

There is a significant need for climate finance in Pakistan to tackle climate threats and drive a low-carbon growth path. The World Bank has estimated that the total investment needs for a comprehensive response to Pakistan's climate challenges between 2023 and 2030 amounts to around US$348 billion. This consists of US$152 billion (44%) to support adaptation and resilience and US$196 billion (56%) for de-carbonisation or 'mitigation'.

To mobilise high quality climate finance at scale, we need to understand where finance is currently flowing in Pakistan - and where it needs to be directed. This report's preliminary analysis suggests that in 2021, US$4 billion in public and private capital was invested in climate mitigation and adaptation activities in Pakistan. This includes investment from both domestic and international sources. Estimates suggest that domestic sources contributed 16% (US$ 650 million) and international actors contributed 84% (US$3,358 million) of the total climate finance tracked.

However, despite Pakistan's severe climate vulnerabilities, there is a disproportionate focus on financing low-carbon mitigation projects, relative to adaptation and resilience. Climate financing flows are heavily skewed towards mitigation – estimates suggest mitigation measures in 2021 accounted for around ~80% (US$ 3,147 million) of the total climate finance. This predominantly came from large-scale investments in renewable energy generation. And this trend is not unique to Pakistan: adaptation and resilience projects are under-financed across the world due to their smaller scale and higher risk nature.

Private climate finance from domestic and international investors has lagged behind other countries and will be needed if Pakistan is to make up some of the financing gap. The current landscape of climate finance in Pakistan is dominated by international public financiers. The report's 2021 estimates suggest that Pakistan's domestic private sector only contributed 5% of total climate finance tracked, compared to 10% in Nigeria, 14% in Kenya and 51% in India.

This report highlights key findings and recommendations from the comprehensive 'Accelerating Green and Climate Resilient Financing in Pakistan' study. It collates data and analysis gathered over 20 weeks in consultation with numerous government, private sector and development partner stakeholders, and identifies the set of challenges Pakistan will need to overcome to accelerate financing and meet the country's climate action needs. The report notes that climate financing typically flows along three dimensions:

1. **A subset of projects (mainly in the renewable energy sector) identified as 'bankable climate opportunities' for private investors.** These include mitigation solutions and power value chain opportunities that go beyond the central power grid, such as: mini-grids, solar-home-systems, and energy efficiency measures. These have easily quantifiable benefits and often immediate financial returns.

2. **A subset of investment opportunities identified as 'priority climate interventions.'** These have limited immediate financial returns but are advanced where the cost of inaction – on the economy and on people's livelihoods – is extremely high. These are mainly adaptation and resilience measures which are needed to mitigate the negative impacts of severe rainfall or extreme heat.

3. **Opportunities related to the disaster risk financing ecosystem in Pakistan.** Effective disaster relief will help Pakistan to reduce the strain on government budgets and allow players to share the risk more effectively with the private sector when it comes to responding and building resilience to climate shocks.

There are several barriers to each of the three dimensions identified above, as well as cross-cutting constraints that need to be tackled to unlock financing. The report identifies and presents these overarching constraints, barriers to bankable climate opportunities in mitigation and in adaptation and resilience, and barriers to developing Pakistan's disaster risk financing ecosystem.

Key barriers identified include:

- **Sub-optimal Climate Finance Governance and Coordination:** Currently, Pakistan's climate finance governance and reporting is fragmented with responsibilities set across several line ministries. This fragmentation of responsibilities is hampering cooperation and development partner coordination within the climate finance space.

- **Lack of Climate Policy Roadmaps and Implementation Plans:** Pakistan does not currently have well-defined sectoral action plans and financing strategies, especially for adaptation and resilience. The National Adaptation Plan has high level adaptation priorities that is not broken down into regional and detailed sectoral priorities. There is no scientific basis to determine the top five A&R measures required in Pakistan, for instance, based on detailed modelling of climate risk and impact across sectors.

- **Lack of Local-Level Climate Risk Modelling and Quantification of the Cost of Inaction:** Pakistan does not fully understand the specific local level risks associated with climate change. This risk modelling is a building block upon which adaptation and resilience strategies are developed. The lack of quantification of the cost of inaction is hampering the development of an evidence-based prioritised project pipeline, as well as effective allocation of resources to the most critical A&R projects.

- **Lack of National Level Green Taxonomy:** Pakistan is yet to develop a national green taxonomy (framework) that aligns with the country's most pressing climate priorities. This taxonomy will guide the climate investment community to ensure the right classification of green initiatives.

Considering the local context, and building upon best practice global examples, the report identifies 21 key Initiatives across four categories to catalyse climate finance in Pakistan (see Figure 1).

To close the financing gap, Pakistan will need to implement these initiatives along all dimensions. In turn, these initiatives will enhance the attractiveness of bankable opportunities, using de-risking instruments, mobilise additional public and private sector support - such as using 'blended finance' (concessional and commercial capital) mechanisms for A&R projects, and help to relieve government budgets from disaster recovery through the development of a robust disaster risk financing ecosystem.

From these initiatives, the report recommends prioritising action on five core institutional and governance 'enablers' to ensure a solid climate finance platform is built before the remaining initiatives are sequenced. These five priority overarching enablers are to:

1. **Develop an Evidence-Based Quantification of the Cost of Inaction:** Quantification of the cost of inaction has far-reaching impact on three dimensions – physical, social, and economic impact - and facilitates informed actions and decisions. Data from internal and external sources is methodically translated into assumptions that lead to scenario-based outputs that culminate into a value range representing the cost of inaction. After quantifying cost of inaction, critical measures and projects can then be developed to mitigate negative impact of climate impact drivers. Projects are then developed to form the basis for tailored engagement with potential financiers to secure funding commitments. Typically investment in A&R is 15-20% of the potential economic damage incurred.

2. **Develop a Robust Locally Adapted Climate Action Roadmap:** To ensure Pakistan is on par with best-in-class countries regarding the climate policy landscape, some key policy documents must be developed to provide clarity to all relevant stakeholders. The long-term NDC and NAP documents need to be broken down into five-year mitigation and adaptation action plans by sector and province.

3. **Enhance Green Finance Guidelines for Financial Institutions and Develop Regulations:** To enhance climate finance mobilisation from financial institutions and grow the sustainable finance ecosystem in Pakistan, four key sustainability principles are essential. The first is to integrate ESG considerations within company regulations, bank financing, lending, and investment activities. The second is to set targets including promoting sustainable lending practices, reducing carbon emissions, and building resilience into company operations. The third is to encourage the development of green products and projects by identifying and implementing innovative mechanisms to scale access to green finance and encouraging companies to implement green projects. The final principle is to enhance risk management considerations by analysing climate related risks and opportunities within all investment and company operations.

4. **Develop a Green Taxonomy that Aligns with the pressing Climate Priorities:** Developing a green taxonomy forms part of a broader set of financial sector initiatives to greening Pakistan's financial sector. In Pakistan, there is a growing need for guidance on what activities qualify within a climate transition scope and the green taxonomy provides the classification system to identify activities, assets, and/or project categories that deliver on key climate, green, social, or sustainable objectives with reference to identified thresholds and/or targets. The main benefits of a national green taxonomy are supporting the development of a robust and reliable green finance market (i.e., sustainable funds, green mortgages etc.); informing the development of policies & regulations (e.g., taxonomy-aligned disclosure regulations); offering a structured approach for banks and asset managers to identify, evaluate and promote green projects; and enabling the identification and tracking of climate financing flows.

5. **Agree a Climate Finance Governance Framework to Streamline Oversight and Coordination:** To address the oversight and coordination challenges, the Government of Pakistan should consider a new climate finance governance framework. To avoid duplication of work across line ministries, integration of the various climate financing units at ministerial level under a common agenda, based on a clear national financing plan, will be necessary. Pakistan can learn from the experiences of some best-in-class countries in improving its climate change governance efforts.

The UK government, in collaboration with the Climate Finance Development Partners Coordination Group, will support the Government of Pakistan and private sector to take forward these five core institutional strengthening and governance initiatives, before progressing the remaining initiatives.

Figure 1: Overview of 21 initiatives across four categories to catalyse climate finance in Pakistan

Introduction

2. Introduction

Context

Pakistan is facing both a macro-economic and climate crisis, threatening its sustainable growth and poverty reduction ambitions. Pakistan is the eighth[1] most climate vulnerable country in the world (see Figure 2 below). The figure shows the impact of the devastating 2022 floods, with extreme weather events likely to continue to set-back growth and development unless the country can build more resilience into its economy, infrastructure, services, water and food systems. Even if the world manages to uphold the 2015 Paris Agreement goal to keep the rise in average global temperatures to 1.5°C, Pakistan will still be faced with severe climate disruptions that could exacerbate flooding, drought, conflict, and hunger.

Prior to the floods, Pakistan's economy faced a difficult adjustment to regain macro-economic and fiscal stability – this challenge is now even harder. Pakistan needs to 'build back better' and accelerate transformation in key sectors. Damage induced by future climate-related extreme events will likely have economy-wide impacts on growth, public expenditure, employment, and poverty. As the country recovers from the devastating floods, there is an opportunity to forge a more sustainable, private sector-led growth path that is increasingly resilient to climate shocks.

The Economic, Social, and Environmental Landscape

Pakistan has made significant progress over the past two decades in reducing poverty and has reached lower-middle income status, but it continues to face considerable economic fragility that will constrain its ability to sustain growth and further enhance equity. This sustained decline in poverty has been driven primarily by the expansion of off-farm economic opportunities and an increase in out-migration, with its associated foreign remittances. However, significant geographical inequalities remain. Rural poverty at 43.5% is more than twice as high as urban poverty (18.5%).[2] **The country's per capita GDP reached US$1,597 in 2022**[3], but annual per capita GDP growth has been volatile and low at 2% - less than half of the regional average.[4] The current account deficit worsened significantly in FY2022 reaching US$17.4 billion (or 4.6% of GDP) due to external factors.[5]

These external imbalances, together with continued political and policy uncertainty, have contributed to a loss of investor confidence and a weakening currency. In 2023, the Pakistani Rupee has so far depreciated close to 40% against the US Dollar. Foreign reserves have also dwindled. The weakening exchange rate, together with the high energy and commodity prices as well as an overheating economy, have raised annual inflation to an average of 29% in 2023. In July 2023, the Executive Board of the International Monetary Fund (IMF) approved a nine-month, US$3 billion Stand-By Arrangement (SBA) to support Pakistan's economic stabilisation programme.

Pakistan also faces a daunting unfinished agenda on human development, which compounds its structural macro fragility. The country currently ranks 141 out of 174 countries on the Human Capital Index, with a score of 41 out of 100.[6] There are vulnerabilities stemming from factors such as poverty, limited education, and lack of health coverage.

Pakistan is endowed with considerable renewable natural capital, equivalent to an estimated 13-15% of per capita wealth but much of it is at risk.[7] Pakistan ranks among the top 10 countries in the world

[1] Global Climate Risk Index Report
[2] World Bank (2022), Pakistan Country Climate and Development Report
[3] Ibid
[4] World Development Indicators (NY.GDP.PCAP.PP.CD, SI.POV.LMIC)
[5] State Bank of Pakistan, Current Account Deficit
[6] World Bank (2022), Human Capital Index
[7] World Bank (2021), Managing Assets for the Future

most impacted by the loss of biodiversity and ecosystem services.[8] Pakistan's high pollution levels exerts a significant drag on human health and economic performance equivalent to approximately 10% of GDP.[9]

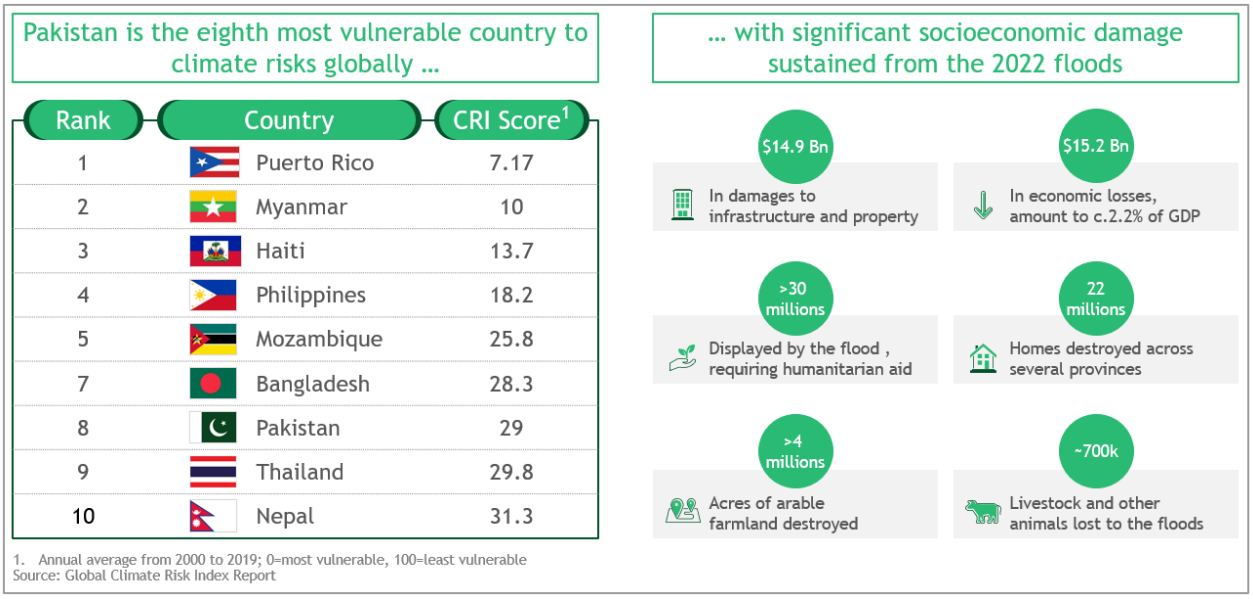
[8] Swiss Re (2020), Biodiversity and Ecosystems Services Index
[9] World Bank (2019), Opportunities for a Clean and Green Pakistan

Climate Vulnerability

Pakistan is the eighth-most vulnerable country to climate change in terms of potential economic losses and faces challenges to water and food security and livelihoods for its 225 million inhabitants.[10] In Pakistan, the mean temperature has risen by 0.47 °C in the last 50 years.[11] Rising temperatures impact the snowpack of Pakistan's glaciers in the northern areas comprising the Himalayan, Karakoram, and Hindukush ranges, leading to water shortages, flash flooding, and land erosion that threaten millions of farmers' livelihoods. Climate change is also negatively affecting Pakistan's food security, and it has the potential to impact hydroelectric dams that produce about 30% of Pakistan's electricity. The lack of storage capacity in relation to population increase has dropped per capita availability of water from 5,260 cubic meters to 935 cubic meters in the last 70 years, making Pakistan a water scarce country.[10]

Pakistan is already experiencing severe impacts from climate change. Between June and August 2022, Pakistan faced an unprecedented climate catastrophe as widespread flash flooding devastating lives, livestock, crops and infrastructure. 30 million people were affected, and more than 20 million people required humanitarian support. The country experienced consecutive extreme climate events: extreme heat waves with 50°C+ temperatures in Sindh and Balochistan, causing rapid glacial flash flooding and forest fires. By 28 August 2022, rainfall was nearly two times more than the 30-year average, four times in Balochistan, and five times in Sindh.[12]

Figure 2: Comparison of country vulnerability to climate change, and impacts on the 2022 floods



Pakistan's high vulnerability to climate change is a risk multiplier, compounding its human and economic development challenges. The ND-Gain Index has ranked Pakistan as the 27th least ready country in the world to address the impacts of climate change.[13] The poor are the most vulnerable as they are the most reliant on agriculture, livestock, fisheries, forests, and groundwater. They are also most directly impacted by natural hazards and the slow onset of climate change.

Vulnerable groups such as women, children, people with disabilities, and refugees are likely to be disproportionally affected by climate change, particularly in deprived areas such as in the interior of Sindh and Balochistan.[14] Pakistan has limited access to social protection and disaster coping mechanisms.

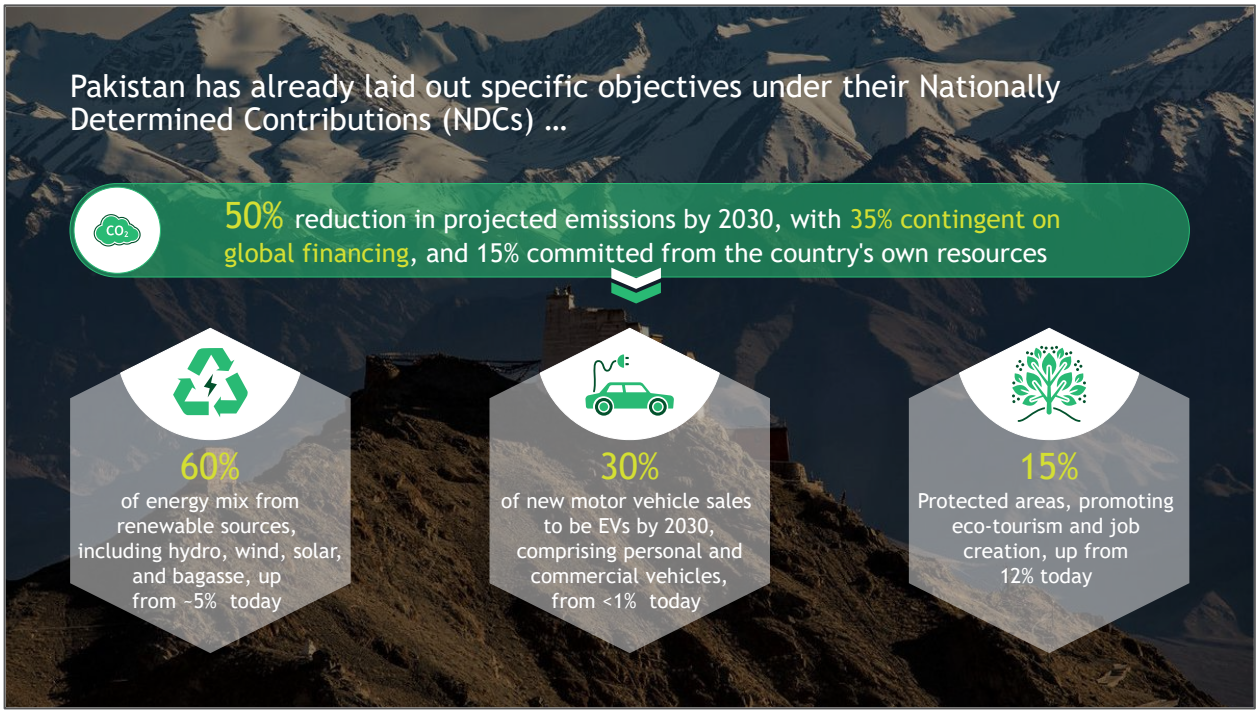
[10] German Watch (2021), Global Climate Risk Index
[11] Asian Development Bank (2017) Climate Change Profile of Pakistan
[12] Pakistan Meteorological Department
[13] Notre Dame Global Adaptation Initiative (2022), Country Readiness Index

[14] Work and Opportunities for Women (2021), Women's Economic Empowerment and Climate Change: A Primer

The impact of the floods in Pakistan due to climate change exacerbated the already existing inequalities, revealing serious differences in safety, education, decision-making, and employment.

In response to the gravity of the climate crisis, the Government of Pakistan (GoP) has announced policy actions and targets to reduce Greenhouse Gas (GHG) emissions, increase water availability, and prioritise the use of indigenous resources for energy security and affordability. Pakistan has invested in developing its Climate Change policy framework through its NDC (2021), 4RF (2022) and the NAP (2023). Pakistan made NDC commitments in 2016 which were revised in 2021. According to its 2021 NDC (see Figure 3 below), Pakistan plans to reduce its projected emissions by 50%, capping them around 800 Metric Tonnes of Carbon Dioxide Equivalent (MtCO2e).[15] These goals are ambitious, and the GoP has indicated that it only has funds to reduce emissions by 15%, seeking assistance from the international community and the private sector for the remaining 35% emissions reduction. Pakistan is one of the first countries in South Asia to have formulated a dedicated Ministry of Climate Change and has had a National Climate Change Policy since 2012, demonstrating the country's commitment to counter the adversities of climate change.

Figure 3: Pakistan's NDC objectives (2021)

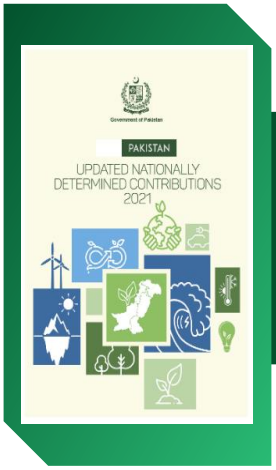


Future Climate Risks

The combined risks from the intensification of climate change and environmental degradation, unless addressed, will further aggravate Pakistan's economic fragility. Damage induced by climate-related extreme events will likely have economy-wide impacts on growth, the economy, employment, and poverty. Overall, between 18 to 20% of GDP will likely be lost per year by 2050 due to climate change.[2] Breaking down these figures, between 6.5 and 9% of GDP will likely be lost as increased floods and heatwaves reduce agriculture and livestock yields, destroy infrastructure, sap labour productivity, and undermine health. Additionally, water shortages in agriculture could reduce GDP by 4.6%, and air pollution could impose a loss of 6.5% of GDP per year.

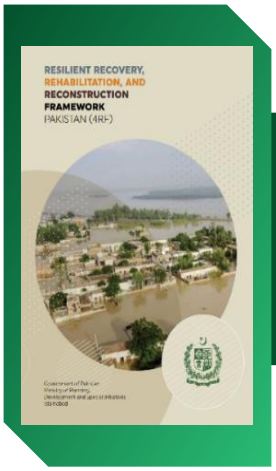
[15] Government of Pakistan (2021), Updated Nationally Determined Contributions

3. Government of Pakistan Policies



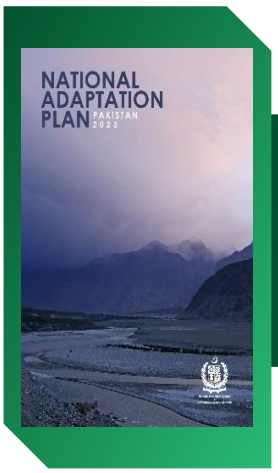
Updated Nationally Determined Contributions (2021)

- Pakistan's NDC represents a national consensus on transitioning towards a climate-resilient economy and features a range of actions, from Nature-Based Solutions (NBS) and tech-based interventions to major natural capital restorations efforts, such as the Ten Billion Tree Tsunami Programme. The NDC also aims to set clear targets in regard to greenhouse gas emissions by targeting high emission sectors like energy and industry. With the ambitious goal of reducing projected emissions by 50% by 2030, Pakistan plans to adopt 60% of energy mix from renewable sources, 30% of new motor vehicle sales to be EVs by 2030 and ban imported coal. To fund these capital-intensive transitions, Pakistan seeks to enhance access to international climate finance (35% of the 50% reduction in projected emissions is contingent on global financing) to utilise both markets and non-market-based approaches and stimulate private sector involvement.



Resilient Recovery, Rehabilitation and Reconstruction Framework (2022)

- The 4RF framework outlines a comprehensive strategy for recovery and reconstruction in the aftermath of the flood disaster and is based on findings from the Post-Disaster Needs Assessment (PDNA) carried out in the affected regions. The 4RF approach focuses on four Strategic Recovery Objectives (SROs) - enhancing governance and state institutional capacities, restoring livelihoods and economic opportunities, ensuring social inclusion and participation, and restoring and improving basic services and physical infrastructure in a resilient and sustainable matter.



National Adaptation Plan (2023)

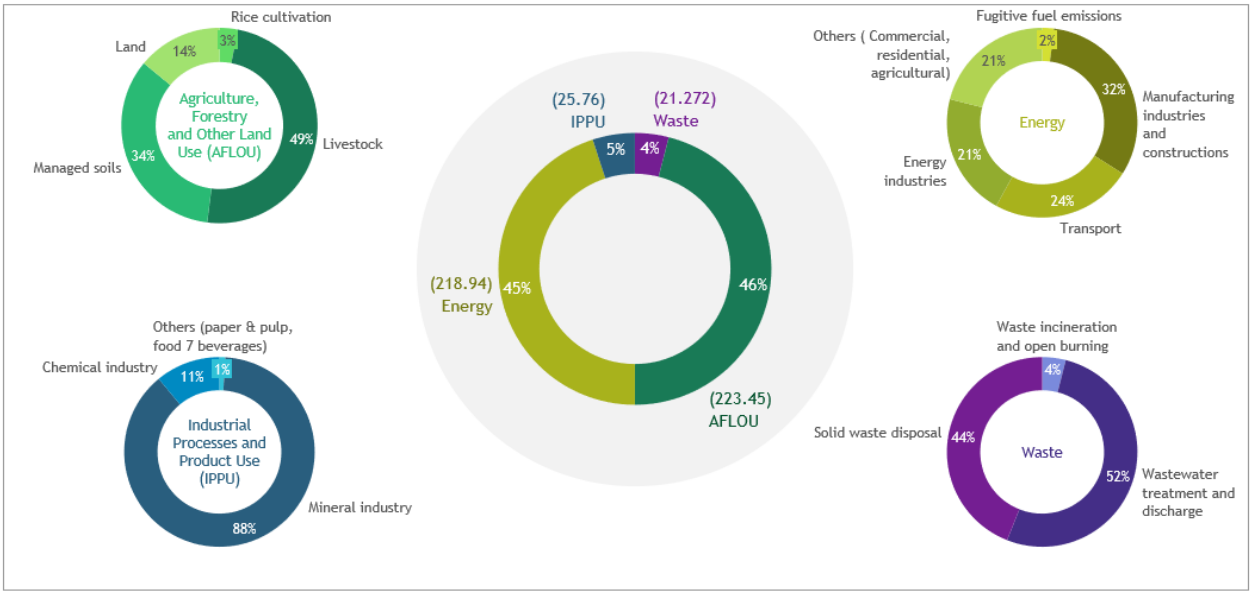
- The Pakistan National Adaptation Plan (NAP) has been developed to implement adaptation strategies, promote inclusivity, and facilitate collaboration among stakeholders. The NAP outlines climate risks, vulnerabilities, and adaptation strategies in seven key areas: agriculture-water nexus, natural capital, urban resilience, human capital, disaster risk management, and gender, youth, and social inclusion.

Pakistan's GHG emission profile

Given Pakistan's large population, high energy intensity and growth aspirations, future GHG emissions will become globally material unless actions are taken to curb the growth rate of emissions. Although Pakistan is relatively a minor contributor to climate change, it nonetheless should seize the opportunity of global decarbonisation efforts to help decouple its socioeconomic growth from costly, polluting, and emissions-intensive fossil fuels.

Emissions are driven largely by two sectors: (i) agriculture, forestry, and other land use (AFOLU), and (ii) energy. These account for 46% and 45% of total national emissions, respectively. In 2018, the country's total GHG emissions were estimated at 499 million MtCO2e, inclusive of land use and forestry, which accounted for less than 1% of global GHG emissions (see Figure 4). Projections show that these emissions will go up to 1,600 MtCO2e, if not curtailed.[15]

Figure 4: Pakistan's GHG emissions across AFLOU, IPPU, Energy and Waste



The Climate Finance Landscape in Pakistan

4. Current assessment of climate financing in Pakistan

4.1. Pakistan's climate finance needs

There is a significant need for climate finance in Pakistan. Pakistan's updated NDC reveals substantially enhanced ambition as compared to its first pledges after the Paris Agreement. The NDC sets a cumulative conditional target of an overall 50% reduction of its projected emissions between 2015 and 2030, with a 15% reduction using the country's own resources, and an additional 35% subject to international financial support. The NDC estimates that, by 2030, the total cost of NDC implementation will reach nearly US$ 200 billion.[15]

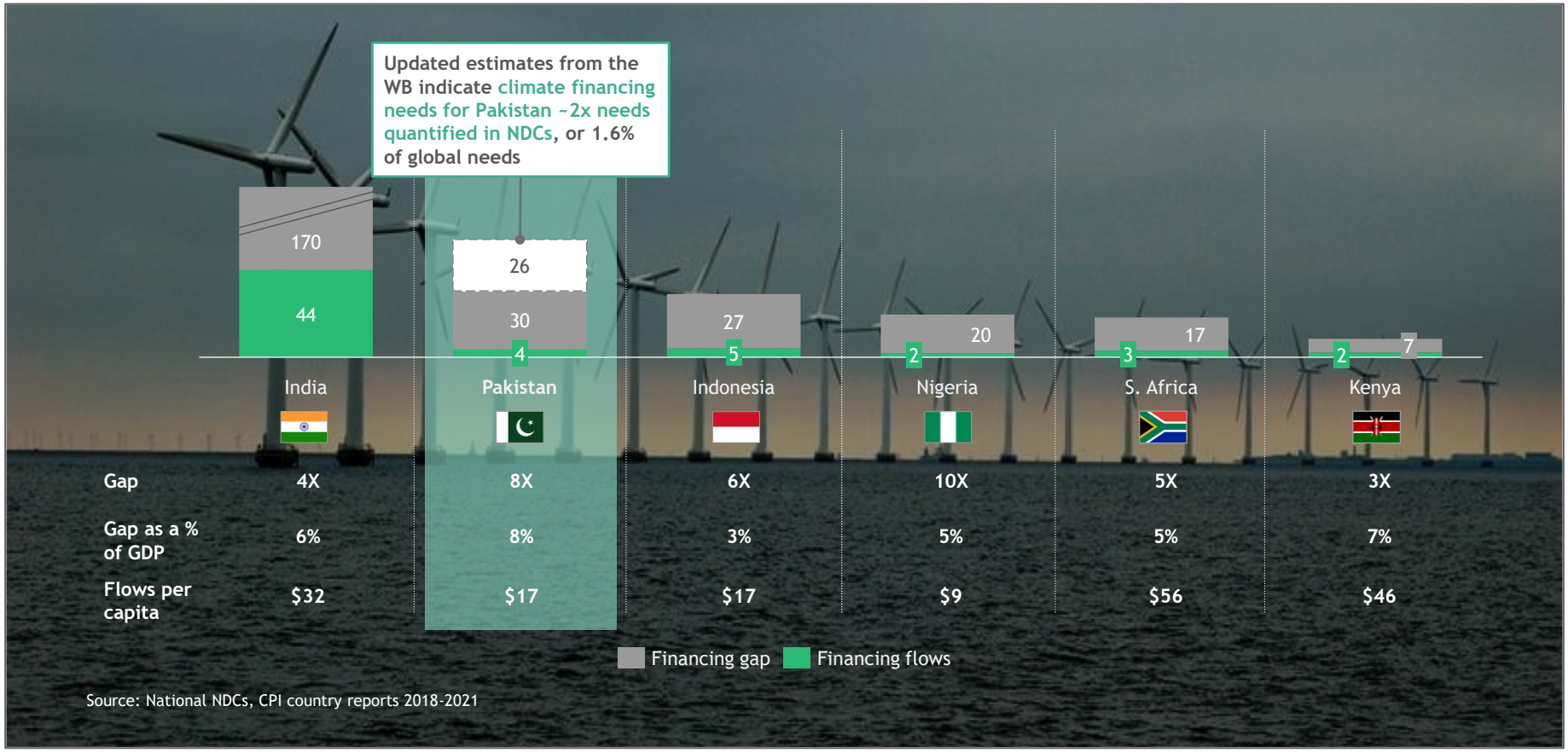
The World Bank has estimated that the total investment needs for a comprehensive response to Pakistan's climate challenges between 2023 and 2030 amount to ~US$348 billion (or 10.7% of cumulative GDP for the same period). This consists of US$152 billion (44%) for adaptation and resilience and US$196 billion (56%) for decarbonisation. This figure dwarfs the historic average annual development budget at the federal and provincial levels.[16]

These estimates suggest a significant climate finance gap (see Figure 5). An illustrative assessment based on a retrospective review of the level of funding in recent years suggests that the financing composition currently available over the next decade can be estimated to be around US$39 billion from public finance - including Multilateral Development Bank (MDB) financing - and US$9 billion from public-private partnerships for infrastructure projects.[17] This will not be enough to address the priority transitions identified above.

Pakistan has not succeeded in accessing international climate finance at scale. This will be necessary going forward as the investments needed to build climate resilience and accelerate a transition away from fossil fuels will be substantially out of domestic capital reach. Utilisation of the Green Climate Fund (GCF), Global Environment Fund (GEF), The Adaptation Fund (AF) and major bilateral climate funds has been limited. For example, GCF has approved US$10.8 billion for 200 projects globally, but only US$221 million (2%) are for six projects in Pakistan. This is less than Pakistan's peer countries. For example, Bangladesh which ranks similarly in terms of vulnerability to climate change, has accessed nearly twice as much GCF financing (US$441 million).[18] MDBs are expected to remain the main source of international climate finance for Pakistan as they have provided about US$6.4 billion for climate-related investments over the 2015–2020 period.[17] For instance, a large share of World Bank lending to Pakistan (44% in FY2021) is now linked to climate co-benefits, and 50% of the portfolio of the IFC is climate-tagged. More MDB financing will thus be required to accelerate green and climate resilient financing in Pakistan.

[16] Which was roughly US$11 billion per year between 2011/2012 and 2014/2015 as per Government of Pakistan, UNDP (2017), Climate Public Expenditure Institutional Review- more recent data is not available
[17] World Bank Group Pakistan Country Climate and Development Report 2022
[18] Green Climate Fund, Country Profiles

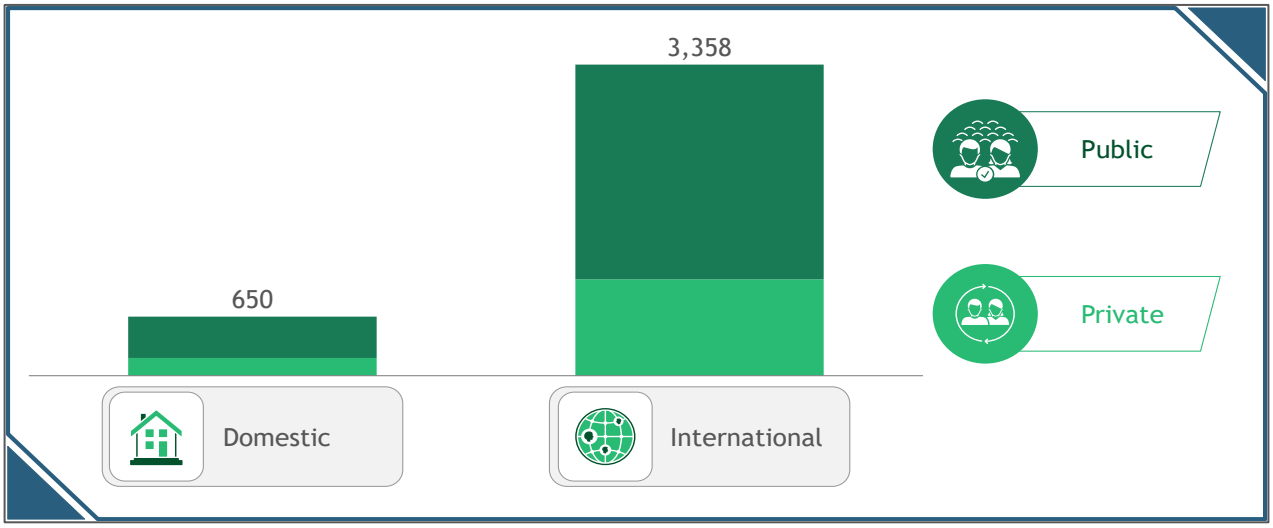
Figure 5: Annual climate financing needs compared with international financing flows by country



4.2. Assessment of Current Financial Flows

In 2021, US$4 billion in public and private capital was invested in climate activities in Pakistan (see Figures 6 & 7), from both domestic and international sources[19] (see Figure 6). Private sector flows comprised ~31% of total flows, with the remaining coming from the public sector.

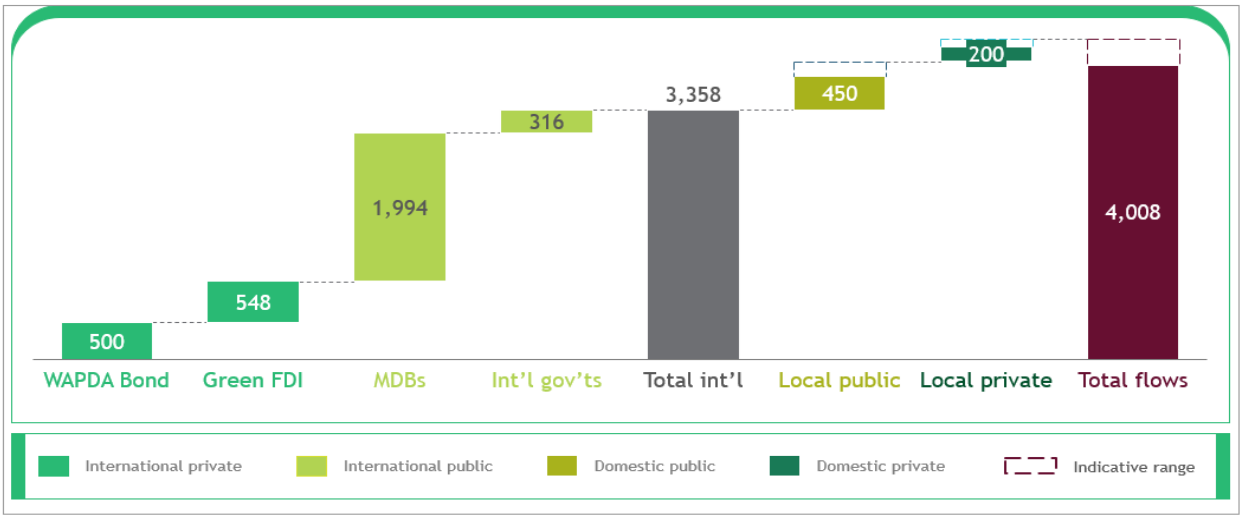
Figure 6: Domestic and international climate finance contributions in 2021 (US$ millions)



Domestic sources contributed 16% (US$650 million) of the total climate finance tracked (see Figure 6). This included domestic public and private sector sources accounting for 11% (US$450 million) and 5% (US$200 million), respectively (see Figure 7).

In 2021, international actors contributed 84% of total climate finance in Pakistan (US$3,358 million), with Development Partners contributing 58% of total financing flows (US$2,310 million) - see Figure 7. International private sector investors and project developers provided a further 26% (US$1,048 million) of total climate finance tracked.

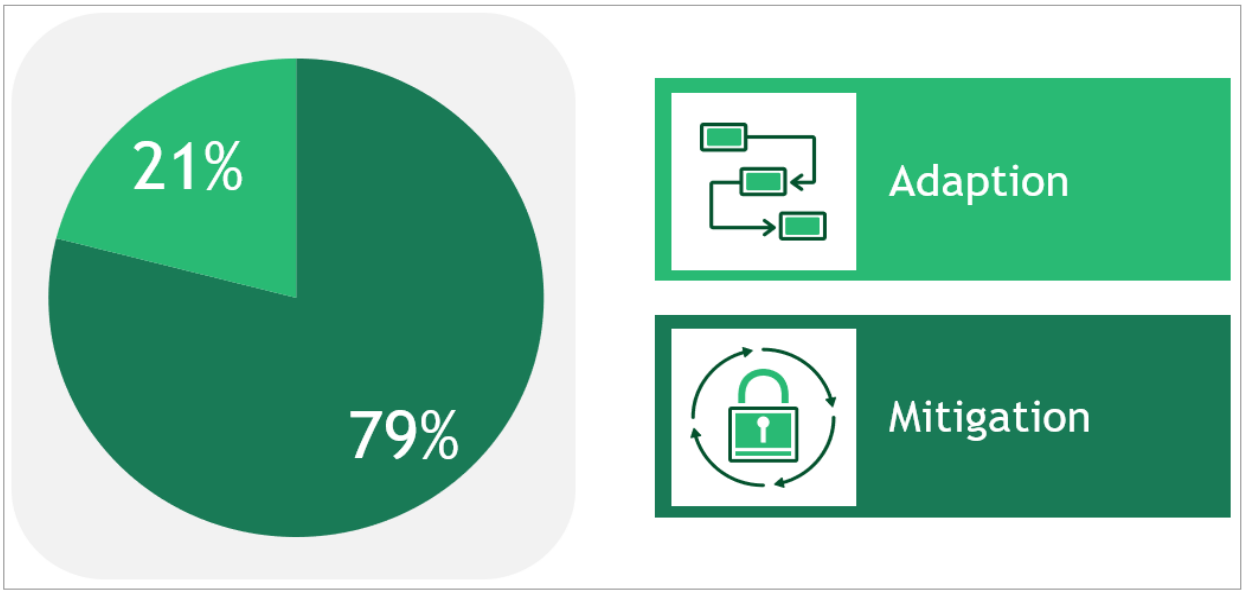
Figure 7: Climate-related finance in Pakistan broken down by source in 2021 (US$ millions)



[19] CPI Reports (2018-2021); FDI Markets; OECD-DAC Dashboard; Pakistan's CPEIR Report; SBP Credit Report; Belief Audits; Expert Interviews; BCG Analysis

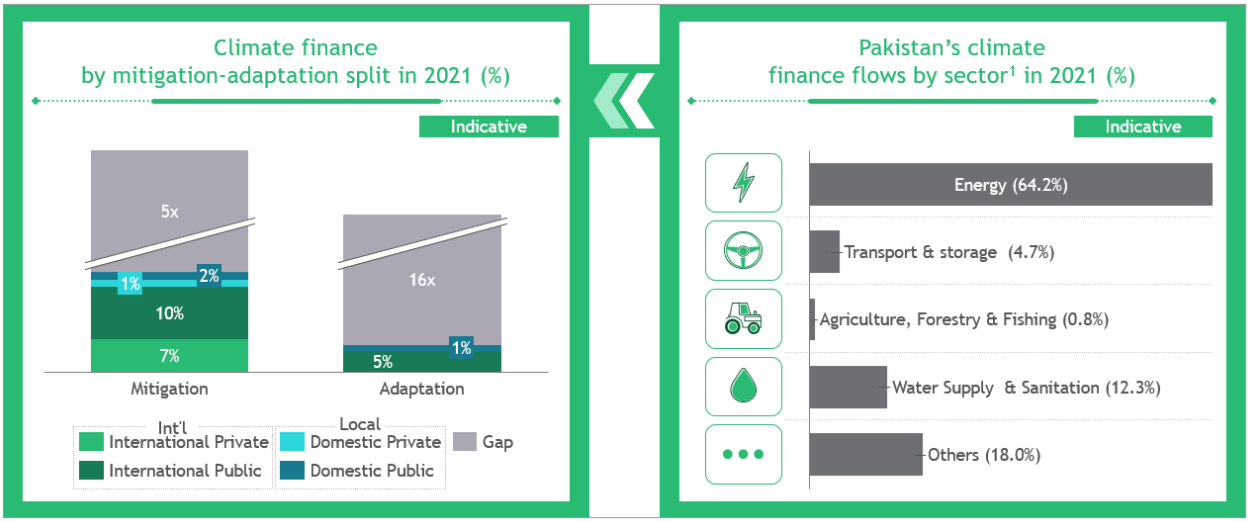
Another challenge is the disproportionate focus on mitigation relative to A&R despite the severe climate vulnerabilities in Pakistan. Mitigation measures accounted for a significant portion of investment constituting ~79% (US$3,147 million) of the total financing flows (see Figure 8). This was mainly due to large-scale investments in renewable energy generation, accounting for US$2,020 billion, which was primarily pushed through the State Bank of Pakistan's renewable energy financing scheme.

Figure 8: Pakistan's climate finance flows split by mitigation-adaptation (%)



Mitigation projects attracted the majority of flows given their high bankability in 2021, with the energy sector attracting lion's share of the flows (see Figure 9). As a result, the financing gap for mitigation is relatively low compared to A&R. In 2021, financing for mitigation is estimated at ~US$3 billion, 20% of annual required funding, resulting in a ~5x gap (using NDC estimates). In the same year, the estimated spend on A&R is ~US$1 billion, 6% of the annual required funding, resulting in an A&R funding gap of ~16x (using NDC estimates). [20]

Figure 9: Climate finance gap in Pakistan by mitigation-adaptation; and split by sector in 2021 (%)

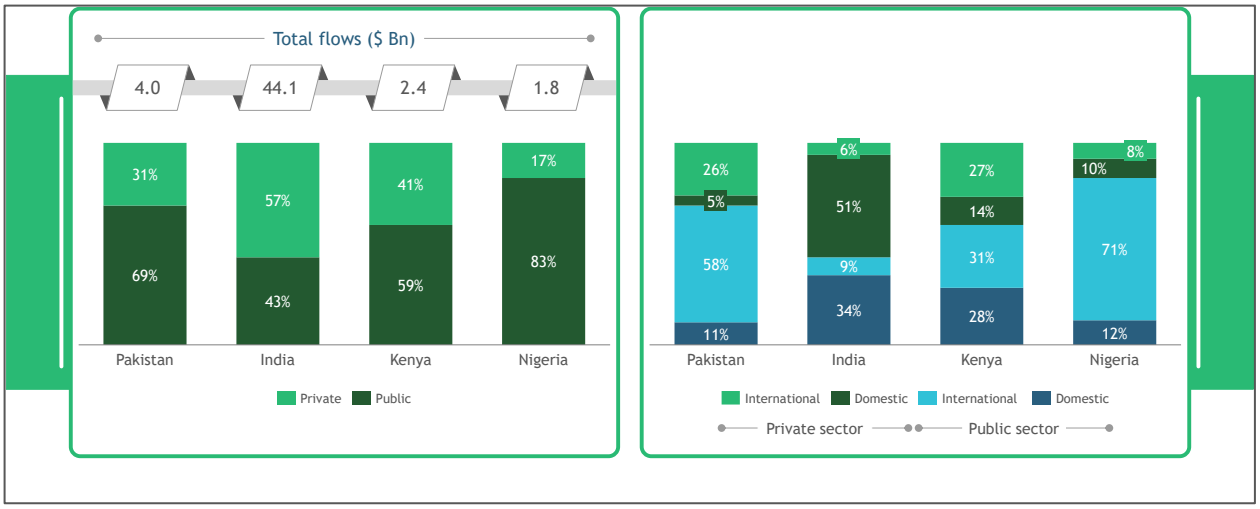


[20] CPI Reports 2018-2021; fDi Markets; OECD-DAC Dashboard; Pakistan's CPEIR Report; SBP Credit Report

Comparison with Other Countries

Private sector climate financing in Pakistan is relatively small compared to other countries (see Figure 10), particularly financing by the domestic private sector – in Pakistan this accounts for only 5%, compared to 10% in Nigeria, 14% in Kenya and 51% in India. **In summary, the current landscape of climate finance in Pakistan is dominated by international public financiers.** Private finance from domestic and international investors has lagged behind other countries and will be needed if Pakistan is to make up some of the financing gap.

Figure 10: Climate finance flows country comparison broken down by the private and public sector and international and domestic sources.



Green and climate financing opportunities in Pakistan

5. Green and climate resilient financing opportunities in Pakistan

Climate financing in Pakistan largely falls within three main categories:

1. Bankable climate opportunities in mitigation;
2. Priority climate interventions to support adaptation and resilience (A&R); and
3. Disaster relief.

This categorisation is because of the different risk and return appetites of various providers of financing and the unique nature of Pakistan as a disaster-prone country.

5.1. Bankable climate opportunities in mitigation

Climate financing flows globally are dominated by mitigation projects with power projects accounting for over 50% of all flows, showing the relative significance of the sector.[21] Similarly, the power sector in Pakistan is vital. Pakistan's power generation mix is currently split between thermal sources, at 60%, and renewable sources, at 40%. Access to power is currently standing at ~79% of the population against the South Asian median of 95% - the lack of access is concentrated in rural Pakistan at 72% in 2020. Transmission & distribution grid has losses of 17% of generated output which is 9% higher than the global average amounting to ~US$1.8 billion in losses in 2022. Pakistan's power demand is growing rapidly and is expected to reach 216 TWh by 2030 - a 38% increase against estimated power consumption for 2023.[22]

Attracting investment to develop the power grid is essential but a long term and costly endeavour that involves substantial domestic public funding. There are some short to mid-term opportunities to consider in the power value chain that go beyond the central power grid. Current opportunity areas include increasing the share of renewable energy sources and advancing the use of electric vehicles. New opportunity areas include distributed networks (captive power systems and solar home systems & mini grids), energy efficiency, and green hydrogen.

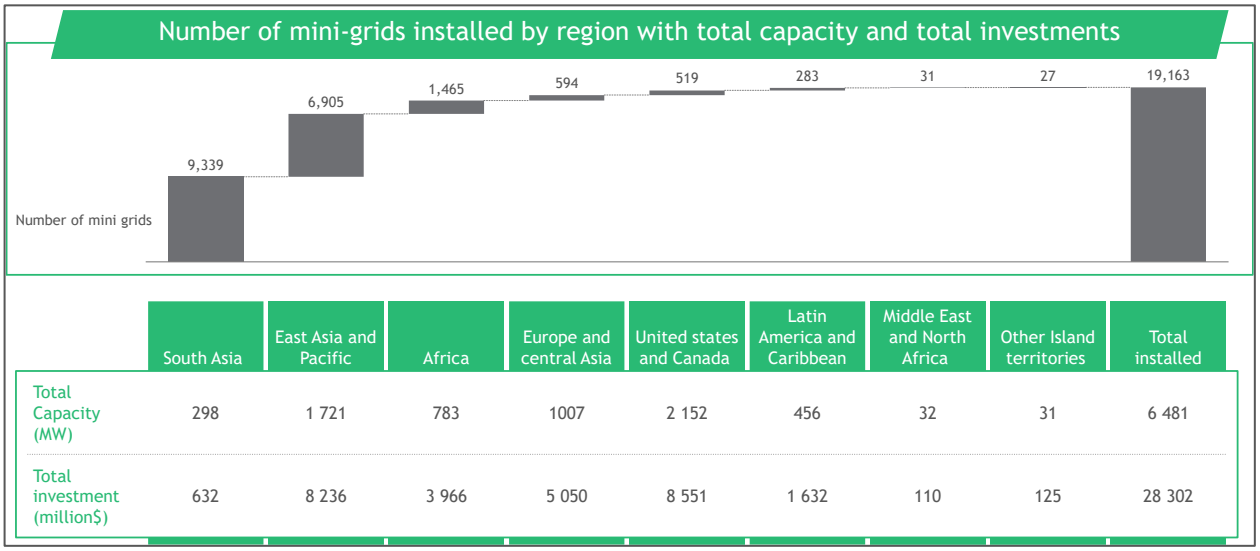
Renewable Energy (RE) generation: Pakistan has multiple upcoming renewable energy projects amounting to more than 11GW of additional capacity including the Diamer Bhasha dam expected to bring 4.5GW alone. The NDC target is to achieve 60% of power generation from RE sources by 2030, up from the current 40%.

Electric Vehicles (EVs): Pakistan is in the early stages of adoption of EVs, with early initiatives & investments aimed at promoting EVs and establishing EV infrastructure. Pakistan's NDC ambition is to have 30% of all new vehicles sold in various categories to be EVs. The key factors the GoP needs to consider to attract investments for EV opportunities are high initial cost, low purchasing power of Pakistani consumers and limited charging infrastructure.

Distributed networks: Globally, distributed networks emerge as a solution in the short to mid-term for power access & reliability issues. Solar home systems, mini-grids and captive power are the popular forms of distributed networks suitable for supplying power to households, small communities, and large industrial facilities respectively.

[21] IEA World Energy Investment 2022
[22] IEA, State of industry report 2022, IGCEP 2021-30

Figure 11: Number of mini-grids installed by region with total capacity and total investments



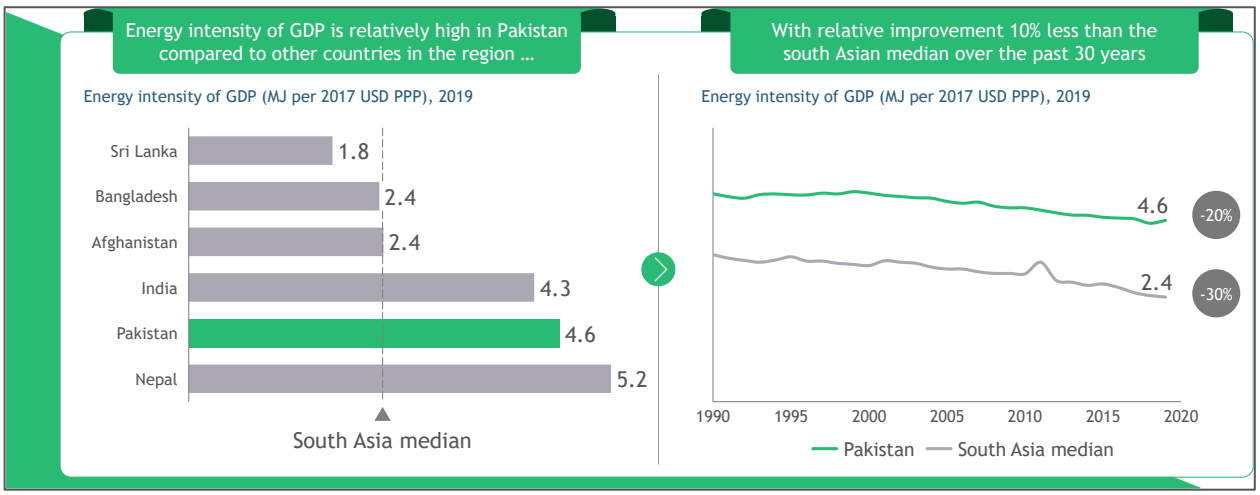
	South Asia	East Asia and Pacific	Africa	Europe and central Asia	United states and Canada	Latin America and Caribbean	Middle East and North Africa	Other Island territories	Total installed
Total Capacity (MW)	298	1 721	783	1007	2 152	456	32	31	6 481
Total investment (million$)	632	8 236	3 966	5 050	8 551	1 632	110	125	28 302

Mini-grids are a common solution for economies similar to Pakistan. This is because minigrids provide grid-like services to a larger number of households with a better impact to investment ratio. Minigrids also support small-medium industrial facilities that are fragmented across the country and are one of the most common power off-grid solutions with 19k+ systems employed globally. Mini-grids have proven successful in the region with ~50% of mini grids globally installed in South Asia (see Figure 11).

Pakistan has a significant investment opportunity in mini-grids to support its off-grid population. Today, ~21% (40 million+) of people in Pakistan have no access to electricity which will require ~1500 MW of power generated through mini-grids. Mini-grids can play a vital role in providing electricity to 40 million+ people & boost the economy by up to 2% per year. The development of mini-grids, however, requires a high upfront investment. The security situation near many rural communities is a cause for concern on the stability of off-grid power projects.

Energy Efficiency (EE): Pakistan has one of the highest energy intensity rates in the region which has not been improving as much over the past 30 years, compared to the other countries in the region (see Figure 12).[23]

Figure 12: Pakistan's energy intensity of GDP compared with other countries in the region (2019); and Pakistan's trend in energy intensity of GDP (1990 – 2019) against the South Asia median

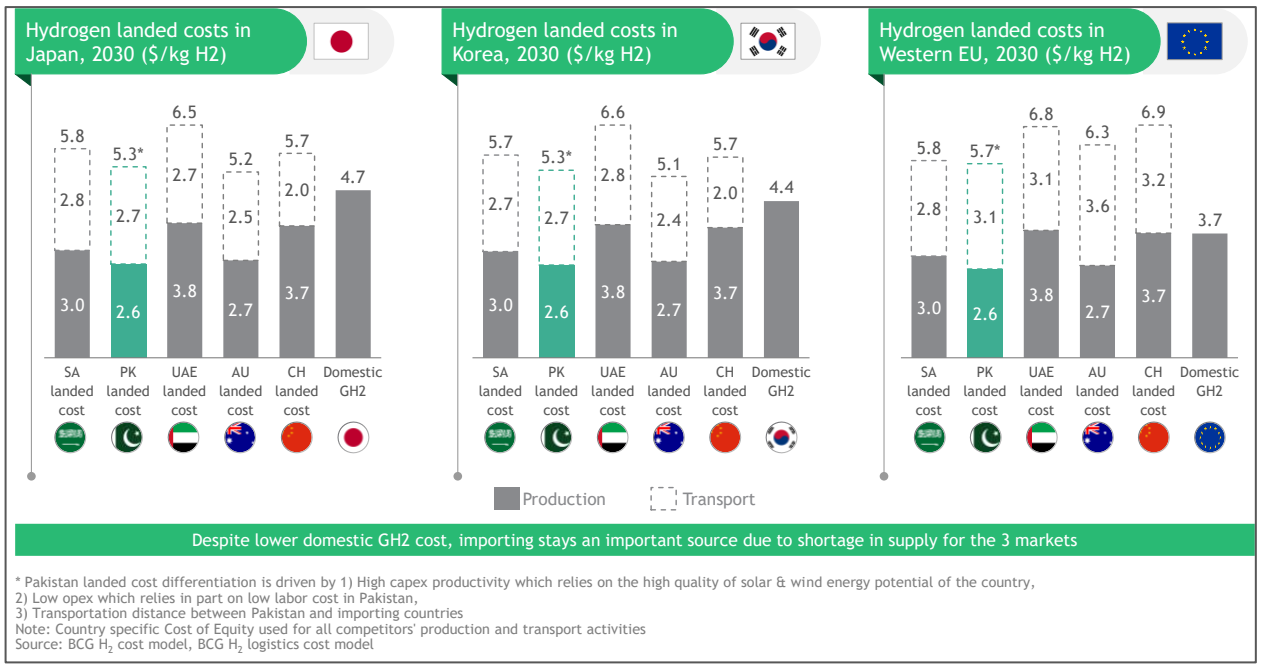


[23] International Energy Agency

Power interruptions in Pakistan is 16x higher than the regional median[24]. Energy efficiency is therefore essential in helping Pakistan overcome its current distribution challenges and growing energy demand - energy and power demand is expected to grow by 38% until 2030 adding additional pressure on the already inefficient power distribution grid. By focusing on key industries and domestic appliances, Pakistan can save 16.4 TWh/year in energy amounting to US$1.2 billion/year savings by 2030. Pakistan has already started EE initiatives with examples of projects dating back to 2009. [25] Energy subsidies are, however, undermining the financial appeal of EE projects. EE projects also require an upfront investment which many institutions are lacking.

Green Hydrogen: Pakistan has a good foundation to be a supplier for the growing GH2 (certified green hydrogen standard) market. Pakistan is building a green hydrogen plant in Sindh that is planned to be operational by 2025 producing ~55Ktpa with an excess 33Ktpa[26] to export. Sindh's GH2 plant aims to drive down the cost of green hydrogen below US$2/kg[27] once operational at full capacity[28] making it competitive against fossil fuels & cost in other countries. Pakistan has a huge potential for producing solar power needed in the GH2 production processes since most parts of the country receive sunlight. Pakistan's geo-proximity to Japan, Korea and Western Europe, and major hydrogen importers, makes shipping and total landed cost competitive (see Figure 13 for a country comparison of GH2 domestic costs). There is, however, no clear policy to support GH2 expansion & land use. Additionally, there are no off-take agreements in place & competition with other exporters is high.

Figure 13: Comparison of domestic GH2 costs in Pakistan against other selected countries



* Pakistan landed cost differentiation is driven by 1) High capex productivity which relies on the high quality of solar & wind energy potential of the country,
2) Low opex which relies in part on low labor cost in Pakistan,
3) Transportation distance between Pakistan and importing countries
Note: Country specific Cost of Equity used for all competitors' production and transport activities
Source: BCG H_2 cost model, BCG H_2 logistics cost model

Typically, investors look for four components when evaluating bankable opportunities. These components include: a solid business plan, government support & commitment, preliminary off-take agreements, and project associated risks. Focusing on these components is especially critical for Pakistan to drive investor confidence in bankable climate opportunities in the country given the current economic context.

[24] International energy agency (IEA), World Bank Doing Business data bank

[25] World bank, Pakistan IGCEP 2022-31
[26] BCG clean H2 demand model
[27] US$2/kg is the tipping point making green hydrogen competitive to fossil fuels. Source IEA
[28] Driven by the falling prices of wind & solar energy which constitutes 70-80% of total cost of GH2 production

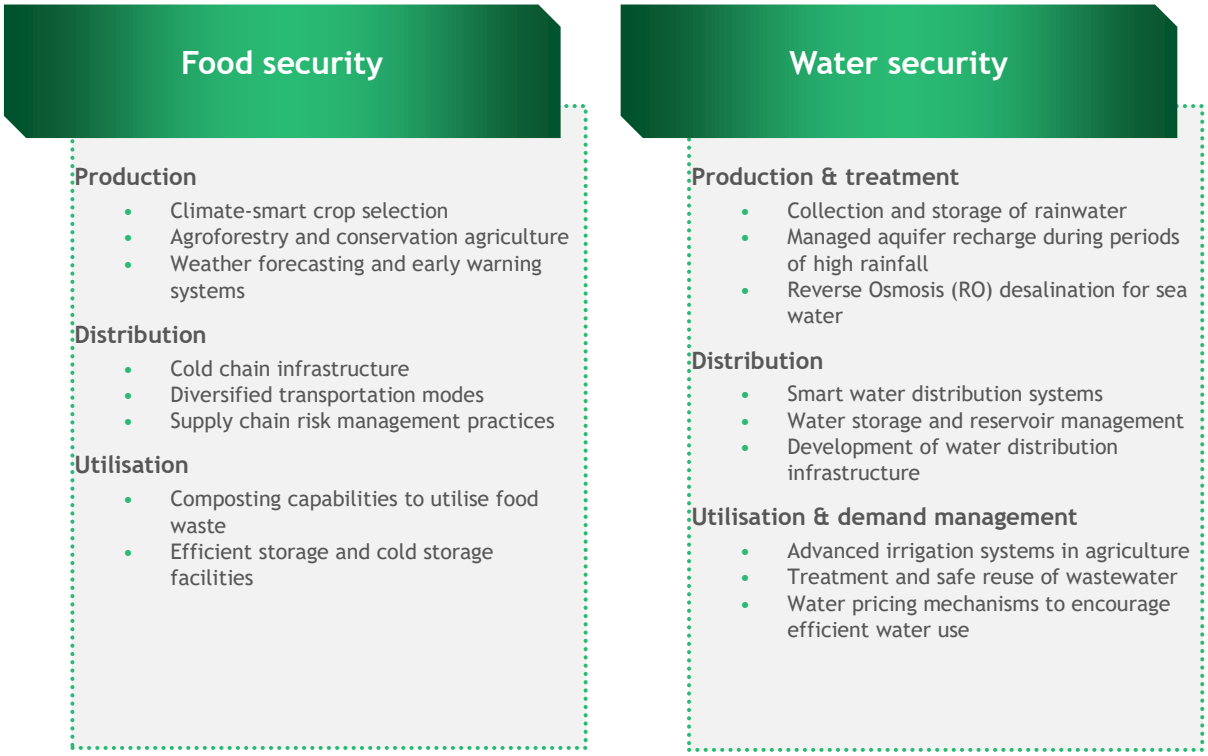
5.2. Priority climate interventions to support Adaptation and Resilience (A&R)

Priority climate interventions are designed to build climate resilience across vital systems most impacted by severe climate risks. Priority climate interventions leverage concessional and blended finance structures to address most critical economic and social vulnerabilities. Water & food security, infrastructure & built environment, industry, and biodiversity are the critical systems most impacted by climate risks across the world. These systems are also relevant to the Pakistan context:

1. **Water and food security systems** - Floods significantly impact food & water security by damaging water supply infrastructure & agricultural fields, contaminating water sources, and compromising crop production, leading to shortages in water and increased food prices.
2. **Infrastructure & built environment** - Floods cause severe damage to infrastructure, including buildings, roads, bridges, utilities, & transportation networks, leading to disruptions, economic losses, and the impairment of essential services.
3. **Industry** - Floods impact industry through hampering manufacturing operations, disrupting supply chains and damaging assets resulting in significant economic losses and job displacements.
4. **Biodiversity** - Floods have significant impacts on biodiversity, resulting in habitat destruction, displacement of species, alterations in species composition and ecological disruptions. These led to long-term changes in biodiversity patterns and ecosystem functioning.

With specific reference to water and food security systems, 17 intervention areas have been identified based on global best practices – eight with the potential to address Pakistan's food security challenge, and nine with the potential to address Pakistan's water security challenge (see Figure 14).

Figure 14: Opportunities in water and food security systems



5.3. Disaster relief

Despite high vulnerability to climate disasters, there is currently no disaster risk financing mechanism to mitigate physical and economic losses. Over the past decades, several countries have developed resilient disaster risk financing mechanisms built upon climate models and a well-defined risk layering approach. This is becoming an essential tool to manage relief, recovery, and reconstruction efforts. These mechanisms also enable disaster risk management funds to enhance their ability to forecast budget requirements and financing instruments to deal with climate disasters.

Developing a national risk layering mechanism, however, requires extensive time and resources committed by GoP and relevant parties. The layering approach must be able to clearly segment disasters by expected frequency and severity, which will entail developing a robust, scientifically reviewed, climate model. Assessments must be conducted at provincial levels to ensure the appropriate level of granularity (e.g., building standards and resilience to specific disasters). A step-change in data & reporting capabilities will be necessary to develop 'bankable' calculations, which act as the basis for any risk transfer mechanism (e.g., to develop re-insurance contracts with major re-insurers). An iterative approach will be needed to 'refresh' layering as climate risks and asset vulnerability evolve on an annual basis.

Pakistan should aim to develop a well-defined strategy to act as the basis for the disaster risk financing mechanism and approach. This strategy should inform the mandate and guiding principles of any disaster fund. Typically, the four main components of such a strategy are:

1. **Climate modelling:** Developing and maintaining a robust climate model, whether in-house or externally sourced, that can act as the basis for strategic decision making and risk assessment with regards to climate disasters (e.g., defining scope of coverage, defining most critical disaster types, estimating frequency and severity of disasters by region, etc.).

2. **Financing channels:** Creating sustainable financing channels for the national disaster risk management fund/entity, and the key guidelines that need to be in place to inspire confidence among relevant capital markets investors and reinsurers (e.g., committed ringfenced financing, donations, etc.).

3. **Disbursement & claims management:** Defining the ideal approach to disbursement during relief, recovery, and reconstruction phases following any given disaster, respectively, and ensuring financing is directed appropriately to mitigate economic, physical, and humanitarian losses.

4. **Capital & risk management:** Developing the ideal fund structure and relevant risk transfer and investment instruments with respect to cost, complexity, and liquidity, ensuring an appropriate balance of liquidity and value of risk coverage across the relief, recovery, and reconstruction phases.

Barriers to accelerating green and climate resilient financing in Pakistan

6. Barriers to accelerating green and climate resilient financing in Pakistan

The role of the private sector in addressing climate challenges is vital given the lack of available public climate finance. Pakistan's total investment-to-GDP ratio remains around 15%, compared to South Asia's regional average of over 30%, and private investment has remained at around 10% of GDP over the last decade.[29] The ratio of foreign direct investment to GDP, at 0.7% in 2020, is also low compared to South Asia's regional average of 2%, because of an unfavourable investment environment and the elevated perception of risk.[30]

The barriers to green and climate financing in Pakistan and unlocking the private sector can be categorised into four dimensions:

1. Overarching constraints;
2. Barriers to bankable climate opportunities in mitigation;
3. Barriers to priority climate interventions in A&R; and
4. Barriers to developing Pakistan's disaster risk financing ecosystem.

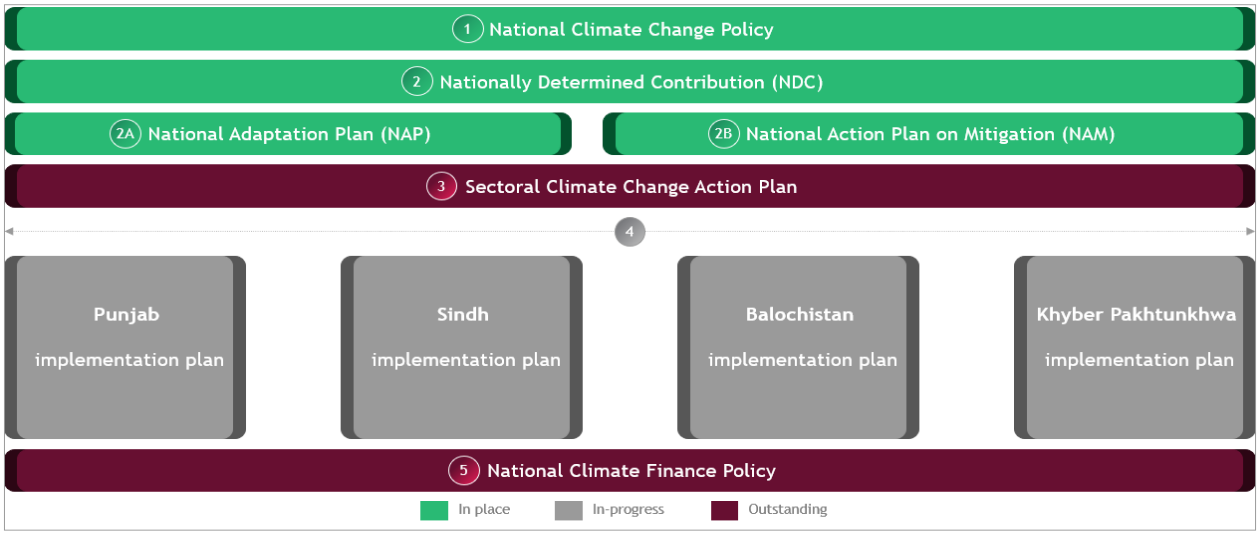
6.1. Overarching Constraints

To unlock green and climate resilient financing in Pakistan, there are foundational capabilities and enablers that are required. In Pakistan today, however, there are several overarching barriers to accelerating green and climate financing that cut across investment categories. These major cross-cutting barriers have been highlighted across three dimensions: climate policy roadmaps & implementation plans, data & reporting, and climate finance governance & coordination.

Climate policy roadmaps & implementation plans

Pakistan has some elements required for an effective climate policy framework based on UNFCCC conventions (see Figure 15 for Pakistan's climate policy framework). Pakistan in 2012 developed and recently updated the National Climate Change Policy that articulates the long-term country strategy highlighting thematic focus sectors and programs. The NDC was amended in 2021 and provides generic and specific targets across thematic focus sectors in Pakistan. The NAP was also recently launched in 2023.

Figure 15: Climate policy framework in Pakistan



[29] IFC (2021), Creating Markets in Pakistan: Country Private Sector Diagnostic
[30] World Bank (2021), Foreign Direct Investment, Net Inflows (% of GDP) – Pakistan

Despite these policy documents, stakeholders believe that there is no clear articulation of climate priorities at national and provincial levels. Pakistan today does not have well-defined sectoral action plans especially for adaptation and resilience. The National Adaptation Plan has high level adaptation priorities that are not broken down into regional and detailed sectoral priorities. There is no scientific basis to determine the top five A&R measures required in Pakistan, for instance, based on detailed modelling of climate risk and impact across sectors. Similarly, high level sectoral targets and objectives exist in the NDCs for mitigation, however, these targets are not time bound and do not have detailed activities and roadmaps to ensure success.

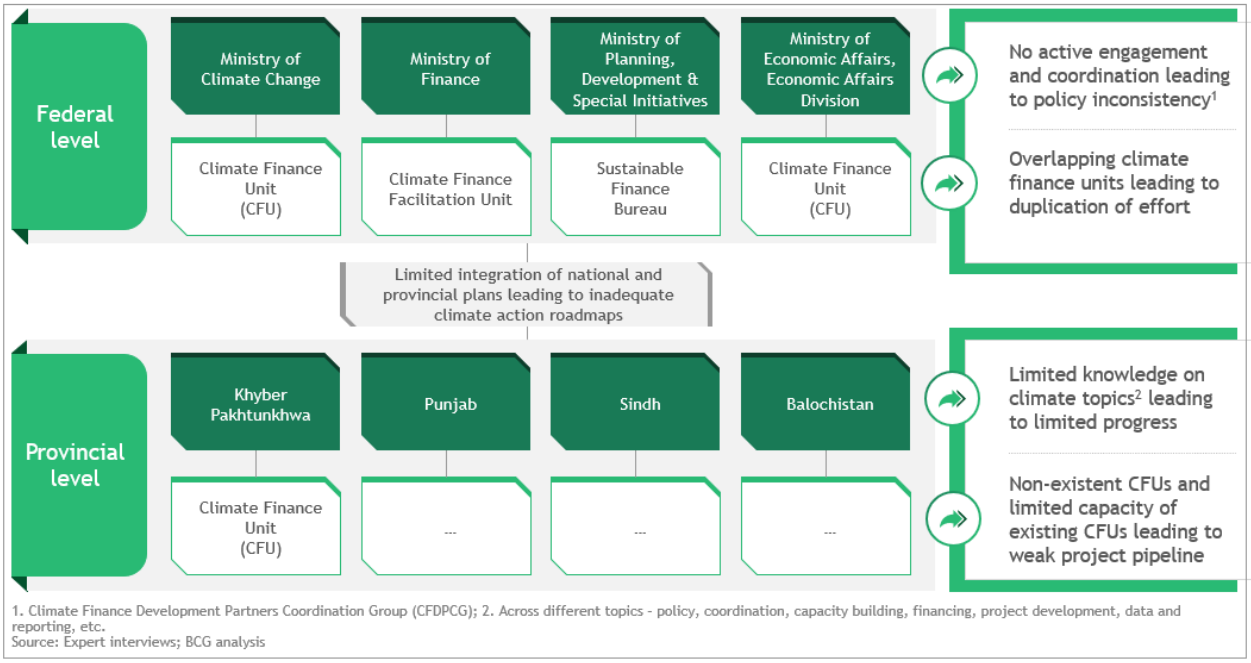
Data and reporting

Investments are based on reliable and sound data. Without adequate data, potential financiers of climate projects are unable to participate in funding opportunities. In instances where there may be an appetite, the unavailability of data makes funding difficult. In Pakistan, there is no centralised platform to access data on climate issues. The information that exists is scattered across several ministries, departments and agencies making it difficult to get a comprehensive view on interventions within the climate space. Additionally, Pakistan is yet to develop a national green taxonomy that aligns with the pressing climate priorities to ensure the right classification of green initiatives to guide the climate investment community and other stakeholders. Finally, there are no mandatory disclosure requirements for financial and non-financial institutions to ensure data availability across the economy. Improving data and reporting starts with developing a green taxonomy.

Climate finance governance & coordination

As described in Figure 16, **there are different climate finance units with overlapping responsibilities at the federal level.** Also, provinces are largely working in silos, with no systematic coordination with relevant ministries, and no alignment of activities with national strategies and climate roadmaps. Furthermore, there is limited alignment with external stakeholders - there is only ad-hoc coordination with the Climate Finance Development Partners Coordination Group (CFDPCG) and private sector players, leading to sub-optimal allocation of resources and limited contribution to NDCs.

Figure 16: Challenges in Pakistan's Climate Finance institutions at Federal and Provincial levels



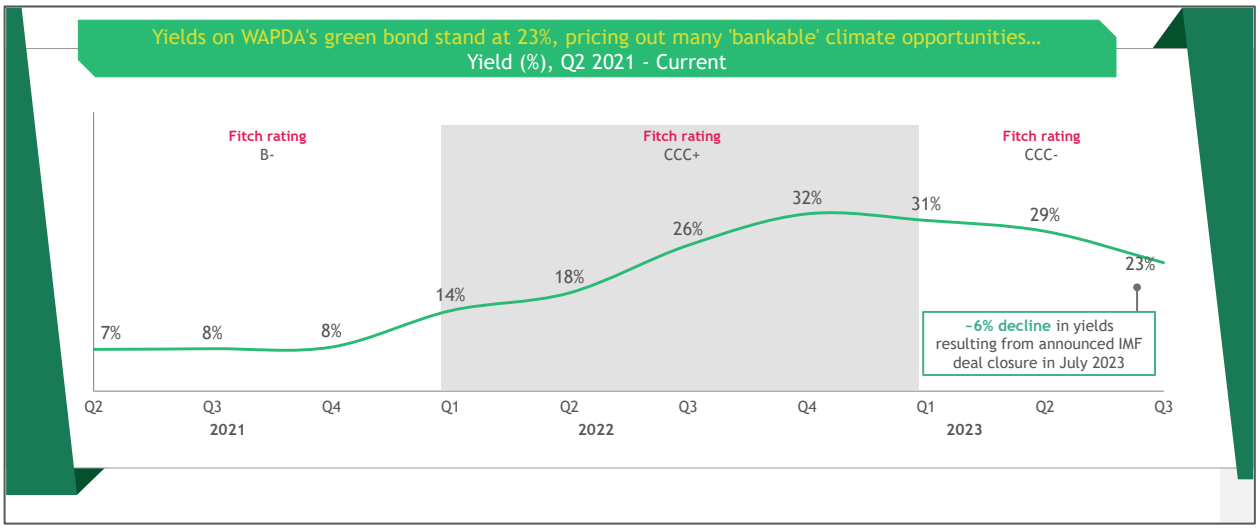
1. Climate Finance Development Partners Coordination Group (CFDPCG); 2. Across different topics - policy, coordination, capacity building, financing, project development, data and reporting, etc.
Source: Expert interviews; BCG analysis

6.2. Bankable climate opportunities in mitigation

Bankable climate opportunities typically involve the use of debt or equity for interventions that offer market or above-market financial returns relative to risk profile with adequate enablers and incentives in place. The international private sector, domestic public sector, and domestic private sector are typically

the source of funding for bankable projects in Pakistan. There are, however, supply-side challenges associated with financing bankable climate opportunities in Pakistan. These supply-side challenges affect both international investors and domestic investors. International private investors have low interest in climate financing opportunities due to the high return on investment barriers in Pakistan. The current ROI hurdle rate of ~23% annual returns on existing debt instruments, prices out many bankable opportunities (see Figure 17). Also, annual depreciation of the Pakistani Rupee estimated at ~30% over the next 2 years limits the potential climate investment options given high currency risk. Some international investors also price in perceived political instability in Pakistan further increasing minimum viable return for projects. These factors mean most of the bankable opportunities in Pakistan are unable to stand on their own relative to other countries. For local investors, the most significant challenges are credit risk and long-term tenure of climate projects. Given the relatively high return today on money market debt instruments, local banks perceive climate projects as riskier given all the preparatory and logistical work that goes into getting projects off the ground. Also, long-term nature of these projects does not fit the business model of most banks thereby limiting participation by the domestic private sector.

Figure 17: Yields on WAPDA's green bond (2021)



According to the World Bank, Pakistan's banking sector is not effectively delivering on its role as an intermediary of capital and facilitator of climate finance and green growth.[31] The banking sector has pivoted an ever-greater percentage of its asset base towards the government in recent years, crowding out credit to the private sector. Credit to the public sector accounts for nearly 70% of all the credit extended by the banking sector. For the remaining comparatively small portion lent to the private sector, banks take a conservative highly risk averse approach. Consequently, only 20 business groups in the country account for 30% of the banking sector's private sector lending portfolio.[32] This high level of risk aversion is also reflected in the banking sectors loan-to-deposit ratio of 46%, an extraordinarily low figure compared to economies such as Bangladesh (73%) or Turkey (92%). Pakistan's private sector credit for renewable energy is further limited. Only 1.3% of total private sector credit has been lent for renewable energy projects, (0.4% hydropower, 0.8% solar and 0.1% wind).[33]

Furthermore, Pakistan's capital markets are relatively underdeveloped. Green bonds are an increasingly important climate financing instrument worldwide but relatively new in Pakistan and the

[31] The Government of Pakistan is the dominant borrower in the system and is crowding out the private sector. Credit by domestic banks to the government and State-Owned Enterprises as a share of GDP in Pakistan was the 11th highest out of 156 countries. The banking sector has pivoted an ever-greater percentage of its asset base towards the Government of Pakistan in recent years. This is mainly because government bonds offer a comparatively high 'risk-free' yield which does not entail any capital charges. They are also liquid instruments and can be offloaded easily in the secondary market. Government securities are also readily accepted within the financial system as collateral. This increasing exposure to the government, however, has come at a cost, the most important one being crowding out credit to the private sector.

[32] World Bank (2022), Pakistan Development Update – Financing the Real Economy

[33] State Bank of Pakistan (2022), Credit Loans Data

country will need to achieve greater macro-fiscal stability for use of bonds to become more feasible. In 2021, the Water and Power Development Authority (WAPDA) launched the country's first-ever 10-year green bond and so far, has raised US$500 million to support hydropower generation.[34] Practical experience has shown that green bonds are effective in generating revenue for high-cost, large-scale development projects. The introduction of innovative financing mechanisms will be crucial in narrowing the climate financing gap.

6.3. Priority climate interventions in A&R

Priority climate interventions leverage concessional and blended finance structures to address most critical economic and social vulnerabilities. The international public sector, international private sector, domestic public sector, and domestic private sector are all financiers of different priority climate interventions in Pakistan today. There are demand and supply side challenges in financing priority climate interventions. On the demand side, there is no evidence-based quantification of the cost of climate inaction which is critical to frame the conversation around the physical, social, and economic need for priority investments to create the burning platform for concessional financing and grants. Also, there are no integrated sectorial or provincial action plans that present a clear pipeline of A&R interventions. This is due to the lack of detailed project prioritisation in the NAP, based on scientific modelling of climate risks. On the supply side, there is no dedicated funding towards priority climate interventions. Despite interest in investing in projects, the GoP, Climate Finance Development Partners Coordination Group and other stakeholders have not developed a mechanism to ensure sustained funding for critical climate interventions in Pakistan.

6.4. Disaster relief

Developing an effective disaster financing ecosystem typically relies on having a strong local insurance sector, where the disaster financing entity can play the role of a re-insurer, essentially providing a loss-cap for local insurers to promote climate disaster insurance coverage on homes, land, industrial facilities, and critical infrastructure. However, insurance penetration in Pakistan has traditionally been low. In 2015, reports suggest only 1.9% of the population held any form of insurance policy.[35] Asian Development Bank (ADB) classifies Pakistan as having a 'critically insufficient' disaster risk financing gap.[36] Insured losses from the 2010 floods amounted to just 1% of total losses from this event. World Bank reports also suggest that only around 1-2% of residential properties in the country are insured against climate disasters.[37]

Pakistan faces some key challenges which will need to be addressed across the four main components of developing a resilient disaster financing ecosystem:

- **Climate modelling:** Currently, there are efforts in place to develop a national climate disaster model, however, this will only constitute a first step to achieve a model which can be leveraged for effective risk transfer. Typically, re-insurers will require at least two scientific reviews of climate models to enable risk calculations that will pave the way for risk transfer.

- **Financing channels:** Currently, there are no sustainable financing channels in place to capitalise and replenish the disaster risk fund. There has been government financing in previous years, however, this has not been formalised as an annual budget item, and there are currently no policies in place to ringfence disaster risk financing from diversion towards other pressing projects.

[34] Pakistan Water and Power Development Authority (2021), Term Sheet, Green Bond Framework, Second Party Opinion

[35] Peak Re (2015), Pakistan Growth Potential of a Nascent Insurance Market
[36] Asian Development Bank (2022), Narrowing the Disaster Risk Protection Gap in Central Asia
[37] World Bank (2019), Options for Strengthening Disaster Risk Financing in Pakistan

- **Disbursement & claims management:** Given the limited development of the local insurance sector, particularly with regards to climate risk insurance, traditional disbursement channels (i.e., through insurers) are limited. There is no clear approach in place to inform the disbursement approach during different post-disaster phases, which is critical to inform required levels of liquidity, and therefore relevant risk and financing instruments.

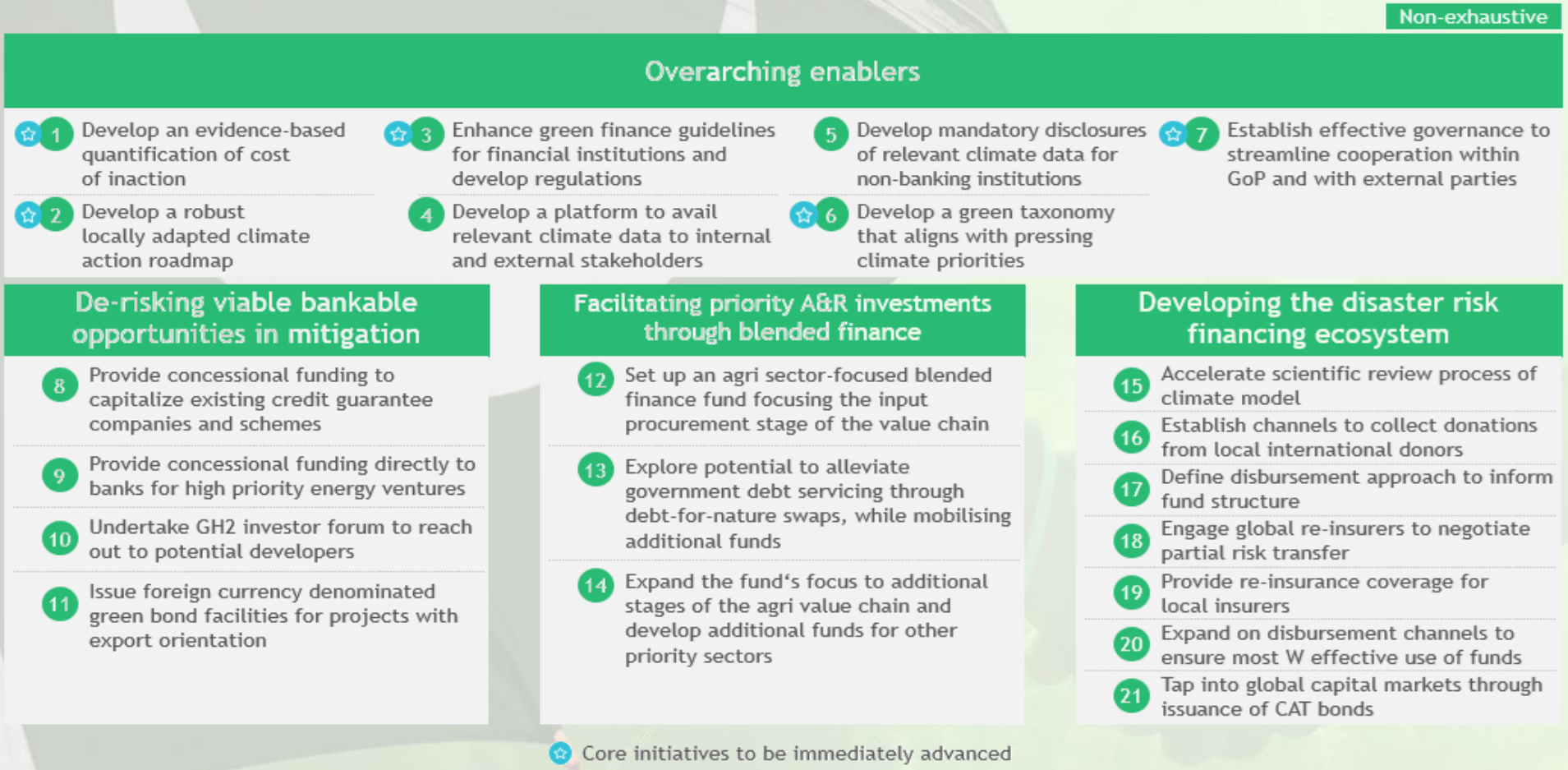
- **Capital & risk management:** There are currently no risk transfer channels in place, to position Pakistan as an attractive market for reinsurers to absorb a portion of the climate risks facing the country. Developing these risk transfer channels will require a sustained effort enabled by robust climate data, tangible reform to emphasise commitment, and a clear disaster risk financing strategy in place.

Initiatives to accelerate green and climate resilient financing

7. Initiatives to accelerate climate financing in Pakistan

In response to the barriers to climate financing in Pakistan, **21 initiatives** have been identified along the four constraint dimensions (see Figure 18), including **cross-cutting enablers** that are required to unlock more climate financing. From this long list, 5 initiatives have been prioritised for development as **roadmaps to action** (outlined in the following section).

Figure 18 - Proposed climate finance Initiatives and enablers



7.1. Overarching enablers

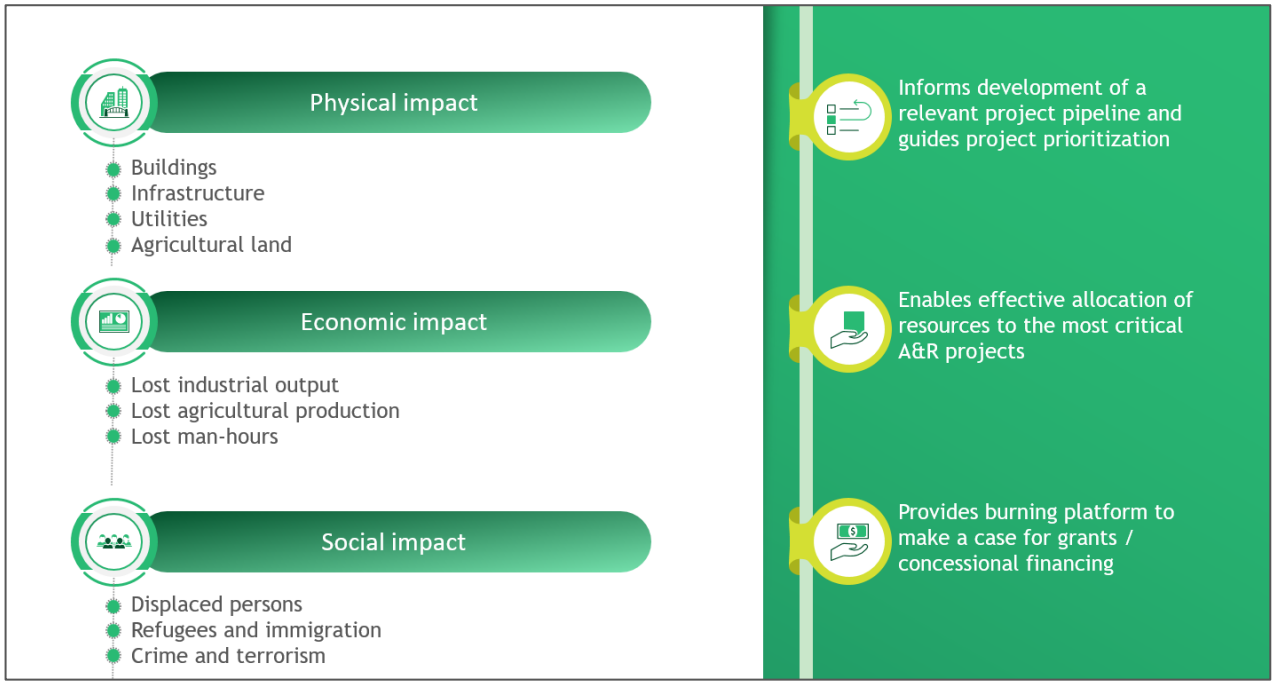
To address some of the governance and institutional challenges on climate finance in Pakistan, seven critical initiatives have been proposed in consultation with wide range of stakeholders in Pakistan.

Climate Policy Roadmaps and Implementation Plans

Initiative 1: Develop an evidence-based quantification of cost of inaction (see Figure 19)

Two critical demand side challenges were identified as blockers to enhancing priority climate interventions in A&R. These challenges include the unavailability of an evidence-based quantification of the cost of climate inaction to create incentive for concessional financing and grants; and the absence of integrated sectorial or provincial action plans that present a clear pipeline of A&R interventions. By using data and analytics to model climate risk to estimate the cost of climate inaction in Pakistan, informed decisions can be taken on A&R priority pillars across top 2-3 sectors and geographies. Furthermore, a prioritised list of A&R actions and projects can be developed to improve resilience in Pakistan.

Figure 19 - Benefits of using data and analytics to quantify cost of climate inaction



Initiative 2: Develop a robust locally adapted climate action roadmap

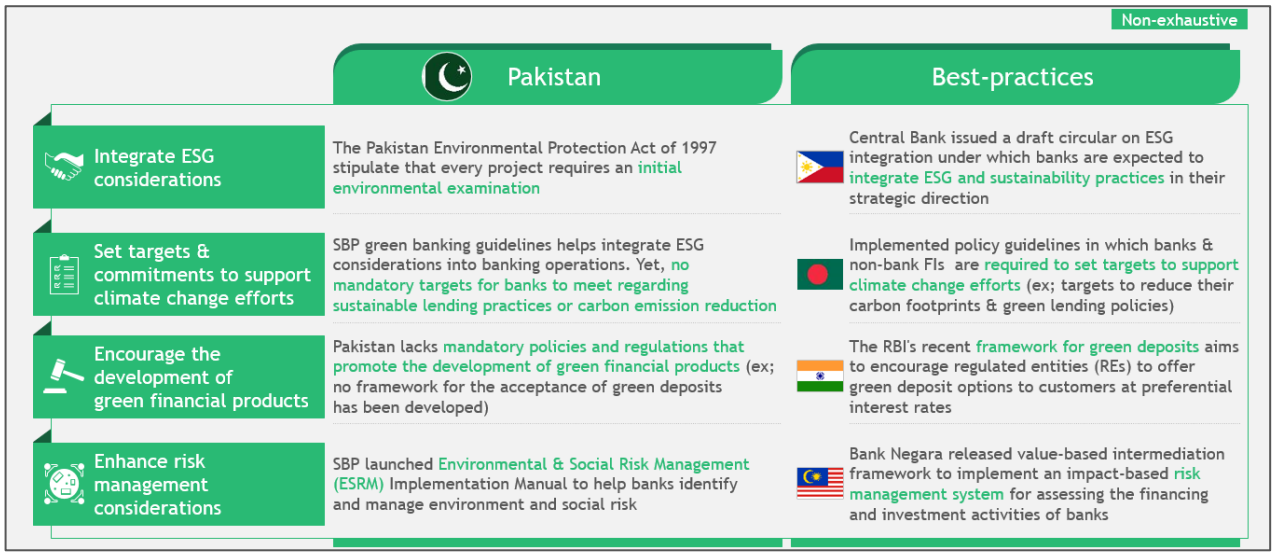
There are no clear climate priorities at national and provincial levels in Pakistan. In countries that have developed policy frameworks adapted to the local context, NDCs are cascaded to inform detailed action plans at national, sub-national and sectorial levels. A clear climate finance policy is also usually developed to articulate government commitment towards climate financing and to galvanise private sector to invest in opportunities. Pakistan must develop these details over the next 2-3 years to be on par with its regional peers.

Initiative 3: Enhance green finance guidelines for financial institutions and develop regulations

Pakistan can learn from the experiences of some best-in-class countries in improving its green finance guidelines and regulations (see Figure 20). To enhance climate commitment from financial institutions, ESG considerations need to be integrated within company regulations, bank financing, lending, and investment activities. Also, targets need to be set to promote sustainable lending practices, reduce carbon emissions & build resilience in companies' operations. Additionally, incentives from governments can help identify and implement innovative mechanisms to scale access to green finance & encourage companies

to implement green projects. Risk management considerations need to be mainstreamed as well for institutions to consider climate-related risks and opportunities in investment & companies' operations.

Figure 20 – Actions taken by peer countries to improve green finance regulations



Data and reporting

Initiative 4: Develop a platform to avail relevant climate data to internal and external stakeholders

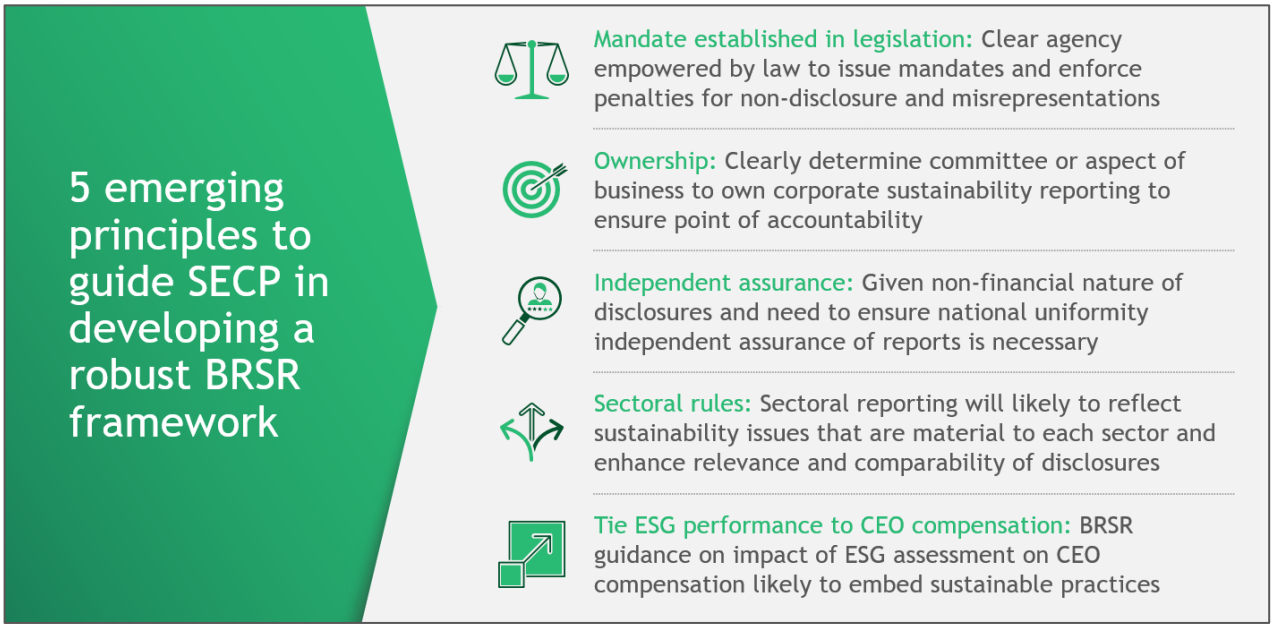
There is no central repository of climate data in Pakistan. This is a major bottleneck for multilateral and donor agencies as well as other stakeholders that want to understand the climate landscape. Pakistan can take lessons from other countries in consolidating and making climate project information and general climate data available, in digital format, for use by financiers and other stakeholders. In Colombia, for instance, the Superintendencia Financiera de Colombia (SFC), the government agency responsible for overseeing financial regulation, launched a Sustainable Finance microsite to keep stakeholders informed on the climate change agenda. This website hosts many sustainable-finance-related resources, including the SFC's Green Finance and Climate Change Position Statement, the climate change survey results, and relevant public presentations and technical documents.[38]

Initiative 5: Develop mandatory disclosures of relevant climate data for non-banking institutions

There is demand for ESG data and reporting by investors and other stakeholders across the globe. To bridge the ESG information demand-supply gap, countries are adopting ESG reporting and disclosure guidelines and legislation. To gather comprehensive data on ESG practices in a country, disclosure and reporting is required from governments, publicly traded companies and private companies using different frameworks. No mandatory ESG disclosure and reporting legislation exists for publicly listed companies in Pakistan despite various efforts to nudge the private sector. ESG-related data has been the biggest stumbling block for assessing ESG-related risks and opportunities of major companies. Developing a Business Responsibility and Sustainability Reporting (BRSR) will go a long way to provide a nationwide unified reporting framework for companies. There are emerging principles that can guide the SECP in developing a robust BSBR based on experiences of other countries (see Figure 21).

[38] Sustainable Banking and Finance Network

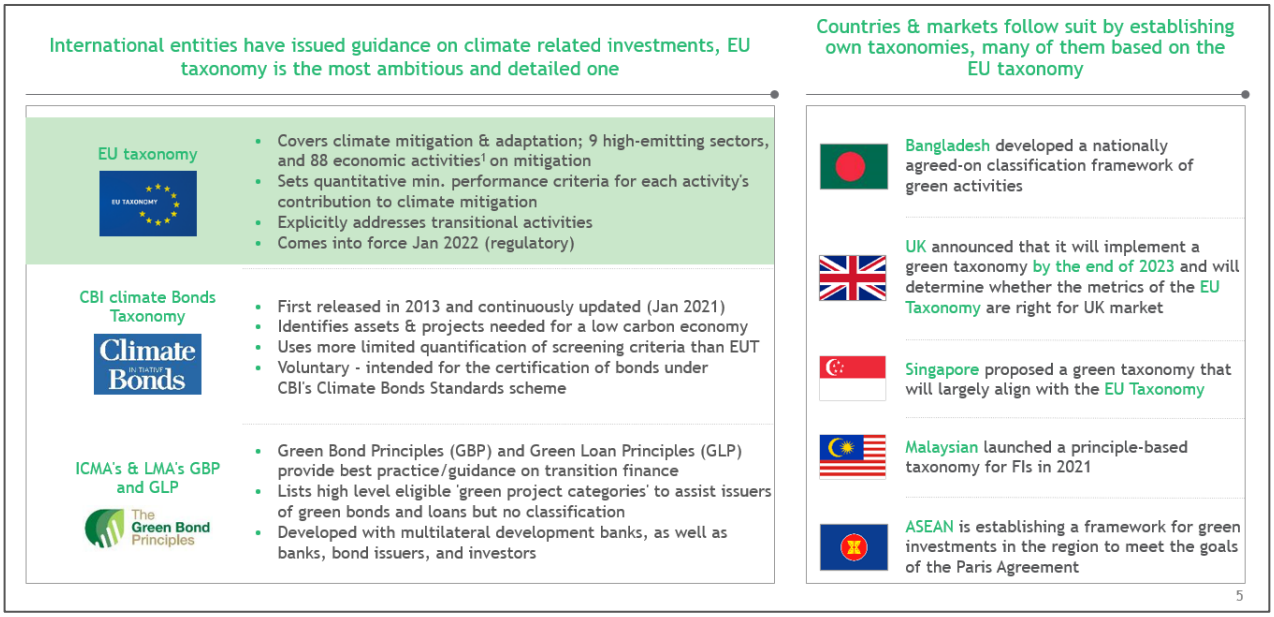
Figure 21- Emerging principles in creating a BRSR framework



Initiative 6: Develop a green taxonomy that aligns with pressing climate priorities

Countries in recent years have developed green taxonomies to enhance sustainable finance. Green taxonomies play an important role in scaling up sustainable finance, fuelling the low-carbon transition. There is a global proliferation of the number of countries that are adopting or have adopted a green taxonomy framework mainly in Europe, Asia, and North America (see Figure 22).

Figure 22 – Examples of countries that have developed green taxonomies



Today, Pakistan is lagging other Asian countries when it comes to the development of a green taxonomy. Developing a green taxonomy can address key challenges and facilitate climate financing into Pakistan. One of the major benefits of developing a green taxonomy is the creation of environmental standards and practices to avoid greenwashing, helping investors to make informed investment decisions. Another benefit is the elimination of inconsistencies arising from differing definitions & criteria for green finance across different sectors and regions leading to policy misalignment. Once a green taxonomy is developed,

there will be awareness creation which leads to institutional capacity & expertise to identify activities that deliver environmental and sustainable objectives.

Climate Finance Governance & Coordination

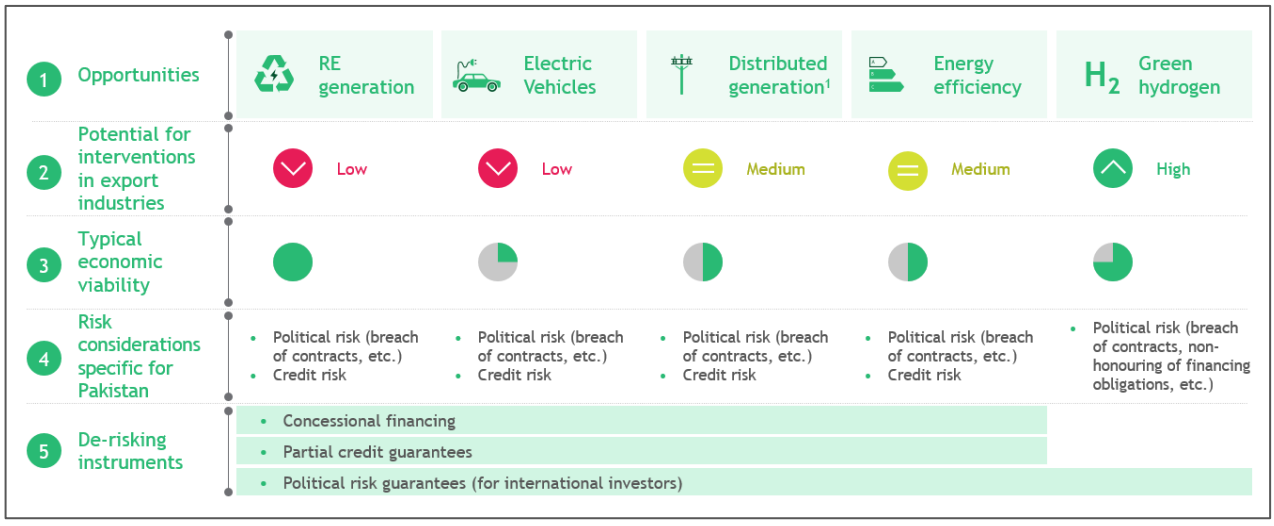
Initiative 7: Establish effective governance to streamline cooperation within GoP and with external parties

To address the fragmented climate governance mechanisms in Pakistan, effective coordination is required to enable vertical coordination of actions between national and subnational governments as well as enable horizontal coordination between line ministries. Pakistan can learn from the experiences of some best-in-class countries in improving its climate change governance efforts. In South Africa, for instance, there are three main fora for vertical and horizontal inter-ministerial and provincial level coordination. The Inter-Ministerial Committee on Climate Change (IMCCC) is an Executive-level committee, chaired by the Minister responsible for the environment portfolio and brings together Ministers from other line ministries affected by national climate policy. The Intergovernmental Committee on Climate Change (IGCCC) brings together line ministries and government representatives from provincial and local governments, thereby fulfilling both horizontal and vertical functions. The Forum of South African Directors General (FOSAD) brings together Heads of Departments and Directors General from each line ministry to enhance policy alignment, monitor implementation and to provide technical support.

7.2. Bankable climate opportunities in mitigation

Given the supply-side challenges identified with the potential opportunity areas in mitigation, de-risking instruments need to be utilised to enhance viability of projects. Across opportunity areas, concessional financing, partial credit guarantees, and political risk guarantees have been identified as de-risking instruments relevant to the Pakistan context (see Figure 23).

Figure 23 – De-risking instruments for bankable climate opportunities in Pakistan



These de-risking instruments form the basis for the four proposed initiatives to advance financing for bankable climate opportunities in mitigation.

Initiative 8: Provide concessional funding to capitalise existing credit guarantee companies and schemes

Concessional financing in Pakistan typically comes from the government, multilateral & donor agencies, and climate & philanthropic funds. Given the current IMF program, there is a restriction on the provision of subsidies by government for projects. In addition, there is also no dedicated and ongoing facility from multilateral & donor agencies that supports energy projects in Pakistan in the long-term. Moreover,

climate and philanthropic funds currently provide relatively lower funding to Pakistan compared to regional peers (US$10 million over last 3 years, compared to $78 million in Indonesia over the same time).[39]

In Pakistan today, credit guarantee schemes are unlocking commercial private capital, however, several challenges exist, leading to slow pace and low deal sizes given the relatively low capitalisation of companies. InfraZamin, the leading local provider of credit guarantees in Pakistan, has thin capitalisation (balance sheet of US$50 million against a pipeline of at least US$200 million) resulting in an average guarantee amount of US$7-10 million for infrastructure projects, which only covers small-scale projects.[40] The 2-3% guarantee fee above lending rate makes the cost of projects even higher given average bank lending rates of 20-23%. This has led to a stagnant pipeline for InfraZamin, with only 4-5 deals executed in two years despite high request and referrals from local banks.

Given the ambitious target in the NDCs to reach 60% renewable energy generation by 2030, an expansion of partial credit guarantee facilities is required in Pakistan to address the credit and tenor risk concerns expressed by domestic private investors. Partial credit guarantees are also vital to ensure that the proposed new clean distributed energy solutions can be deployed to improve the access to energy in rural areas. The National Credit Guarantee Company (NCGC) is expected to be launched soon, which will deepen guarantees for the SME sector, including for green SMEs. However, the expected capitalisation of ~US$ 30 million (from FCDO and the GoP) for NCGC will be inadequate to meet the demand for credit guarantees within the energy sector. With existing credit guarantee companies already in place, multinational and donor agencies can recapitalise these companies to ensure adequate funding of renewable projects and other bankable climate opportunities in Pakistan.

Initiative 9: Provide concessional funding directly to banks for high priority energy ventures

The State Bank of Pakistan (SBP) introduced the SBP Financing Scheme for Renewable Energy to help address the dual challenge of energy shortage and climate change through the promotion of renewable energy[41]. Under this scheme, SBP offered low interest financing for renewable energy projects through commercial banks at an interest rate of 6% with a 12-year maximum financing tenor. Approximately US$350 million has been disbursed under the scheme by SBP between 2017 and 2020 (~US$117 million per year). Again, the current IMF program restricts the SBP from providing subsidies under the renewable energy program. To ensure that momentum is not lost in the financing of renewable energy and other bankable energy projects in Pakistan, alternative sources of financing will be needed to replace the funding that hitherto was provided by the SBP. Multilateral and donor agencies in Pakistan can leverage concessional financing through the domestic banking system to crowd in private capital to support these energy projects. For this to materialise, the GoP needs to reach out to donors to fund the SBP Financing Scheme for Renewable Energy. In addition, multilateral and donor agencies can help in building the capacity of local banks to develop bespoke lending products. Furthermore, multilateral and donor agencies can help build capacity of project developers to meet funding requirements of banks.

Initiative 10: Undertake GH2 (green hydrogen) investor forum to reach out to potential developers

International private investors have not fully explored the full suite of coverage provided by the Multilateral Investment Guarantee Agency (MIGA) for international projects in Pakistan. International private investors interested in capital intensive climate projects in Pakistan can use political risk guarantees provided by MIGA to offset currency inconvertibility & transfer restriction risks as well as any perceived political risk.

The GoP can position Pakistan as a green hydrogen hub by undertaking a GH2 investor forum to reach out to potential international developers. Green hydrogen investors, on the other hand, can proactively reach out to MIGA for political risk guarantees.

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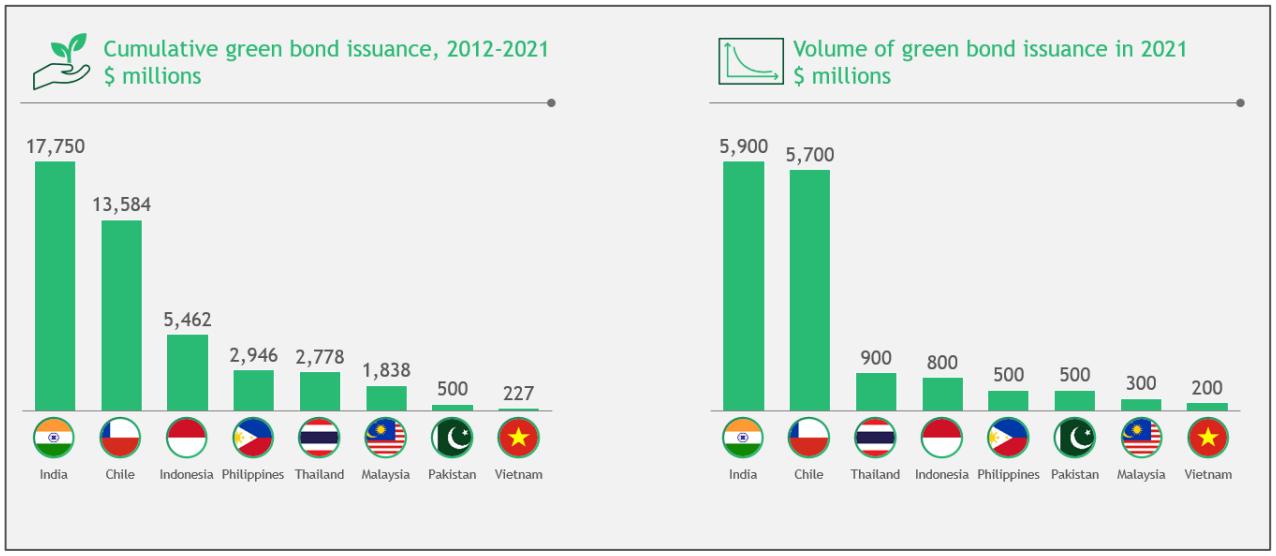
[39] OECD stats
[40] InfraZamin
[41] SBP

Initiative 11: Issue foreign currency denominated green bond facilities for projects with export orientation

Green bonds are expected to remain one of the primary climate financing instruments given its size, and alignment with Pakistan's context. The structuring and origination of Sustainability-Linked Bonds (SLBs) remain complex and non-standardised, making green bonds suitable for Pakistan. Pakistan is, however, lagging other APAC and South Asia countries when it comes to green bonds issuances[42] (see Figure 24).

Figure 24 – Overview of green bond issuances in APAC and South Asia



There are several prerequisites for successful green bond issuances that are currently not in place in Pakistan. Pakistan's high interest rate regime may price out many bankable opportunities and see limited local institutional participation in green bonds. An estimated 30% annual local currency depreciation over the next 2 years makes local currency bonds in Pakistan unattractive to foreign investors. Current deal pipeline does not support USD denominated bonds. The current political situation is expected to be priced in any green bond issuance which will make coupon rates relatively higher. International private investors are sceptical about investing in Pakistan now; and multiple roadshows are required for investor participation in bonds to raise confidence. Despite these challenges, multilateral agencies such as IFC can support Pakistan to issue green bond facilities in the future, when macro-economic and political situation normalises. In the meantime, however, international private investors can be attracted to invest in climate focused projects for export-oriented ventures. Green bond facilities for energy efficiency projects in the textiles industry, for instance, can be explored.

For Pakistan to create the enabling environment for green bond issuances, there is first the need to ensure adequate capital market infrastructure (exchanges, trading platforms, clearing houses, credit risk assessment, custodians, and fiduciaries). Also, a favourable investment climate through sound taxation & accounting frameworks, legislative enforcement, protection of creditor rights, and bankruptcy and competition laws are required. The GoP also needs to support the development of the local repo markets to ensure well-functioning financial markets, before stimulating Green, Social, and Sustainability (GSS) bond issuances. These actions align with the three enablers used by other countries to accelerate green bond issuances - building awareness, incentivising investors, and establishing a working ecosystem.

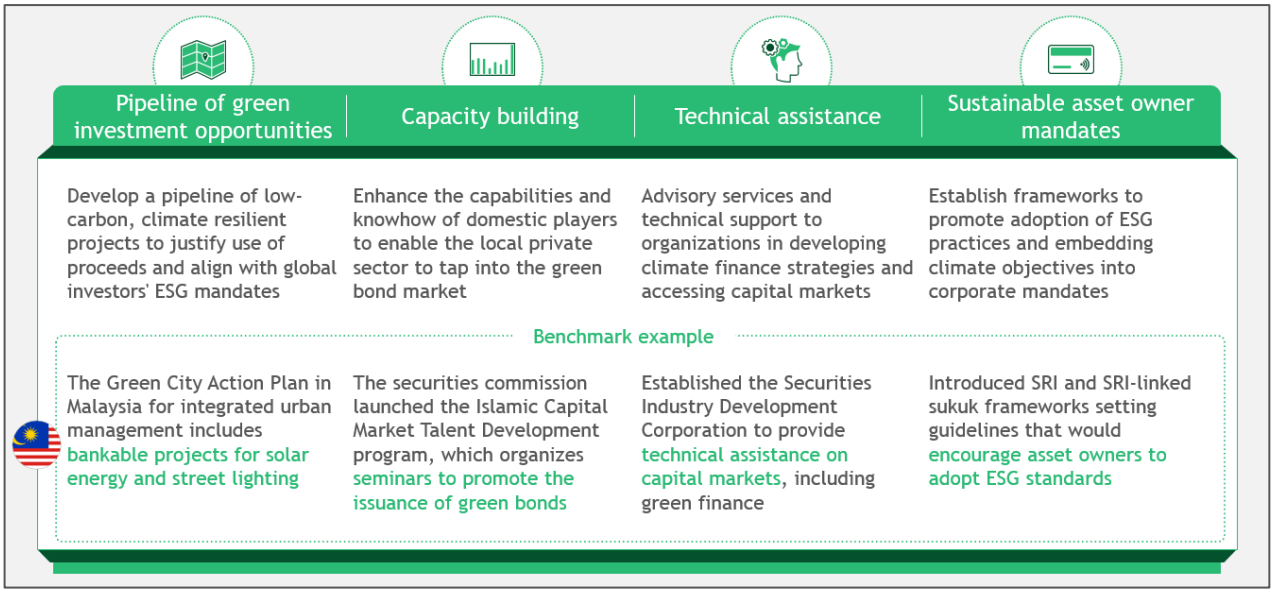
Building awareness

Given the novelty of green bond issuances in Pakistan, it is vital for issuers to be educated on benefits of green bonds, outlining clear investable projects and opportunities in the process. Building awareness involves developing a pipeline of green investment opportunities, capacity building, technical assistance,

[42] IFC Emerging Market Green Bond Report

and sustainable asset owner mandates. Malaysia is making inroads in building awareness on green bond issuances (see Figure 25).

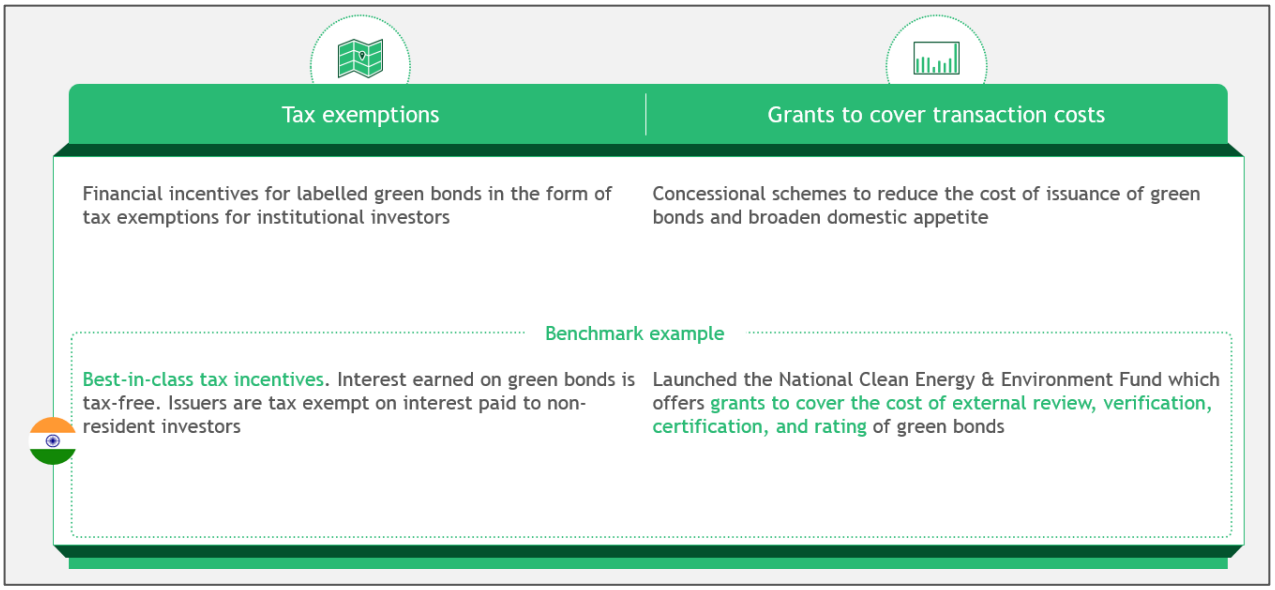
Figure 25 – Efforts in Malaysia to build awareness on green bonds



Incentivising investors

In other markets, incentives such as tax reduction, interest subsidies and grants have been introduced to promote green bond issuance. India has provided tax exemptions and grants to cover transactions costs of green bond issuances (see Figure 26).

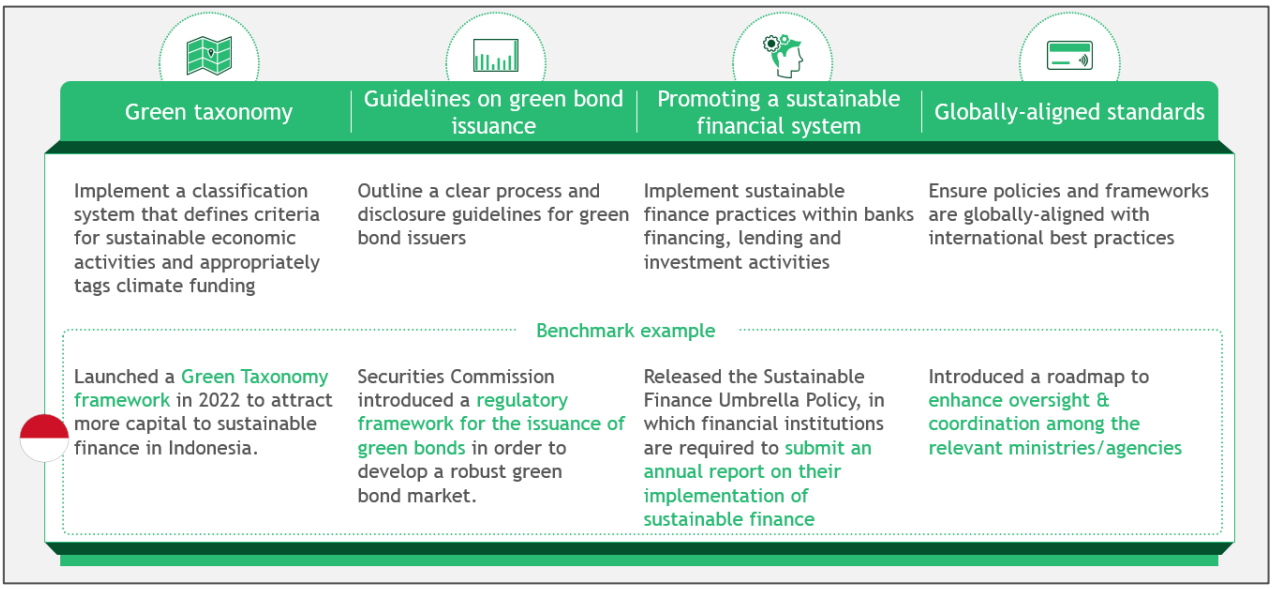
Figure 26 – Efforts in India to incentivise investors to participate in green bonds



Establishing the ecosystem

It is also important to establish guidelines and standards to support the development of a prosperous and sustainable bond market. In Indonesia, several critical actions are being taken to establish a strong green bond ecosystem involving the development of a green taxonomy, enactment of guidelines on green bond issuance, promotion of sustainable financial systems and adoption of globally-aligned standards. (see Figure 27).

Figure 27 – Efforts in Indonesia to establish a green bond ecosystem



7.3. Priority climate interventions in A&R

To address the supply-side challenge of no dedicated and ongoing funding towards priority climate interventions, a blended finance mechanism can be developed in Pakistan. Blended finance can address key barriers in mobilising private finance in Pakistan to address A&R needs in vital systems. Funds have been the most common blended finance structure deployed globally and is likely the most suitable vehicle for Pakistan. Given Pakistan's capacity to manage & implement projects, a sector-specific fund will likely be more suitable rather than a national fund facility. A sector-specific fund will ensure a higher focus and straightforward implementation of interventions in the short-term.

Over the next 3-5 years, the following initiatives have been proposed to bring this blended finance fund to fruition. These initiatives are:

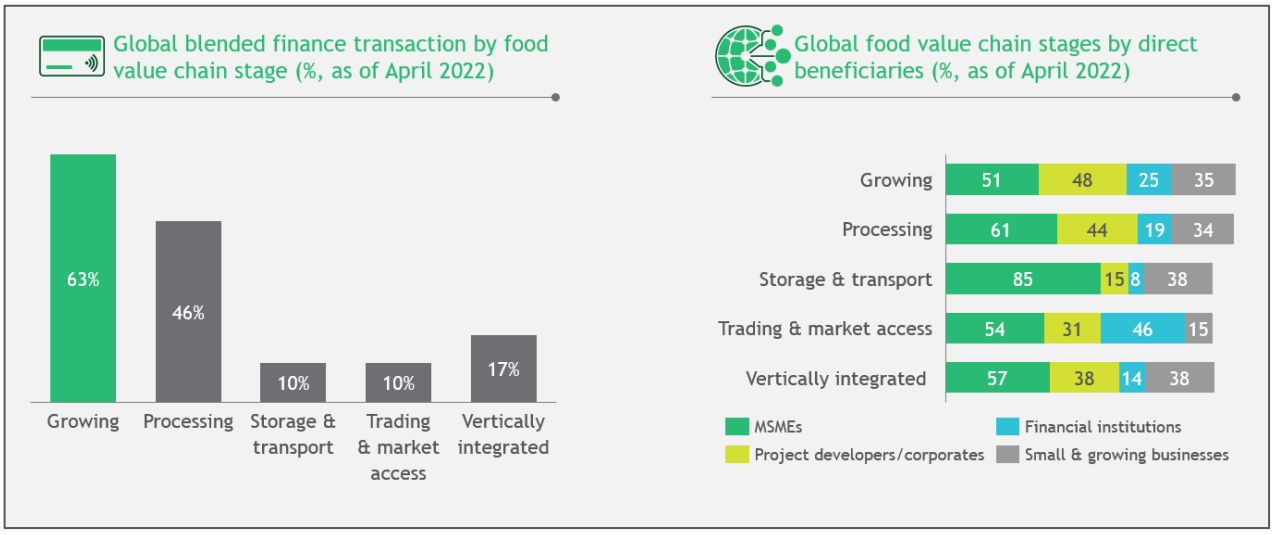
Initiative 12: Set up an agri sector-focused blended finance fund focusing the input procurement stage of the value chain

Out of the four vital systems identified as most impacted by severe climate risks - water & food security, infrastructure & built environment, industry, and biodiversity – food security and by extension the agricultural sector is an ideal pilot sector for a fund. From a global perspective, agricultural subsectors dominate blended finance flows in A&R. Internally, the NAP has already identified the Agriculture-Water nexus as critical as such a focus on agriculture will be aligned with existing GoP priorities. Moreover, Pakistan's agriculture sector plays a central role in the economy as it contributes 18.9% to GDP and absorbs 42.3% of the labour force, of which 67.2% are women. Agriculture has strong export potential as food exports make up 17% of total exports, with Pakistan's largest manufacturing and exporting sector (~64% of exports), dependent on agriculture for cotton. Finally, the cost of inaction is high with agriculture as production of key crops in Pakistan are expected to be 14% to 50% lower because of climate change.

Globally, a large number of the blended financing in agriculture has focused on the growing/input stage of the value chain with MSMEs being primary beneficiaries[43] (see Figure 28). The agriculture value chain in Pakistan faces several challenges with inputs at the forefront of these bottlenecks similar to the case in other emerging market economies leading to low yields, post-harvest losses and inadequate grading. Focusing on the input procurement stage of the agricultural value chain has the potential to drive significant impact in Pakistan.

[43] Convergence

Figure 28 - Global blended finance transactions by food value chain stage and beneficiaries



A number of countries have setup up similar agriculture funds, creating impact and mobilising private sector flows. In La Cote d'Ivoire, the Food securities Fund has been set up to provide working capital loans to local agricultural aggregators (processors, cooperatives, traders) to help address the common gap of time sensitive affordable credit. Similarly, the Terra Bella Colombia Fund has been established as a frontier private equity fund that provides early-stage project finance capital to high impact community-based forest and agriculture projects (see Figure 29).

Figure 29 - Examples of agri-focused blended finance funds

Food securities Fund

The Food Securities Fund provides working capital loans to local agricultural aggregators (processors, cooperatives, traders) to help address the common gap of time sensitive affordable credit

Sector: Agriculture (Agro-processing)
Deal size: $67,500,000
Structure: Guarantee + [debt + equity] + TA

Investors
- Bank Lombard Odier & Co
- Global Environment Facility (GEF)
- Terra Silva Collaboration
- The Rockefeller Foundation

Impact
- Impact targets: 40,000 smallholder farmers impacted, 700 new jobs created, 9,500 tCO2eq sequestered

Terra Bella Colombia Fund

TBCF is a frontier private equity fund that provides early-stage project finance capital to high impact community-based forest and agriculture projects

Sector: Agriculture (Agro-processing & climate resilient agriculture)
Deal size: $100,000,000
Structure: [debt + equity] + TA

Investors
- USAID
- US International Development Finance Corporation (DFC)
- Domestic private Investors

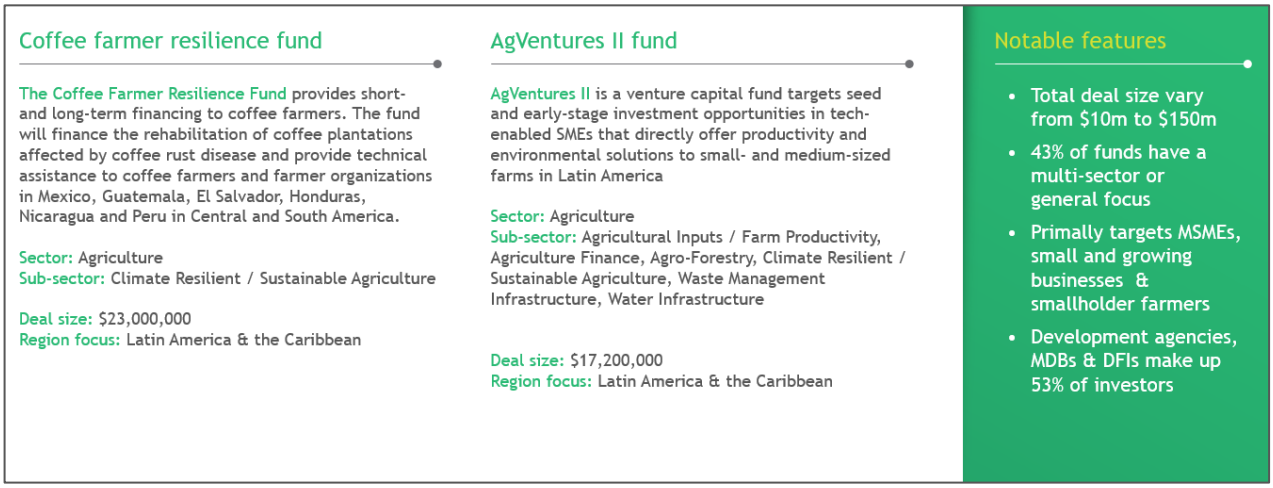
Impact
- Supported sustainable agribusiness and climate change mitigation in Colombia & generated alternative income opportunities for smallholders, including Afro-Colombians, Indigenous

Notable features

- Total deal size vary from $10m to $400m
- Targets low & middle-income countries
- Public or philanthropic investors are concessional within the capital structure
- A large number of transactions are associated with a grant-funded TA facility

There are a number of funds as well that focus on the agriculture input and procurement stage targeting MSMEs, small and growing businesses & smallholder farmers (see Figure 30).

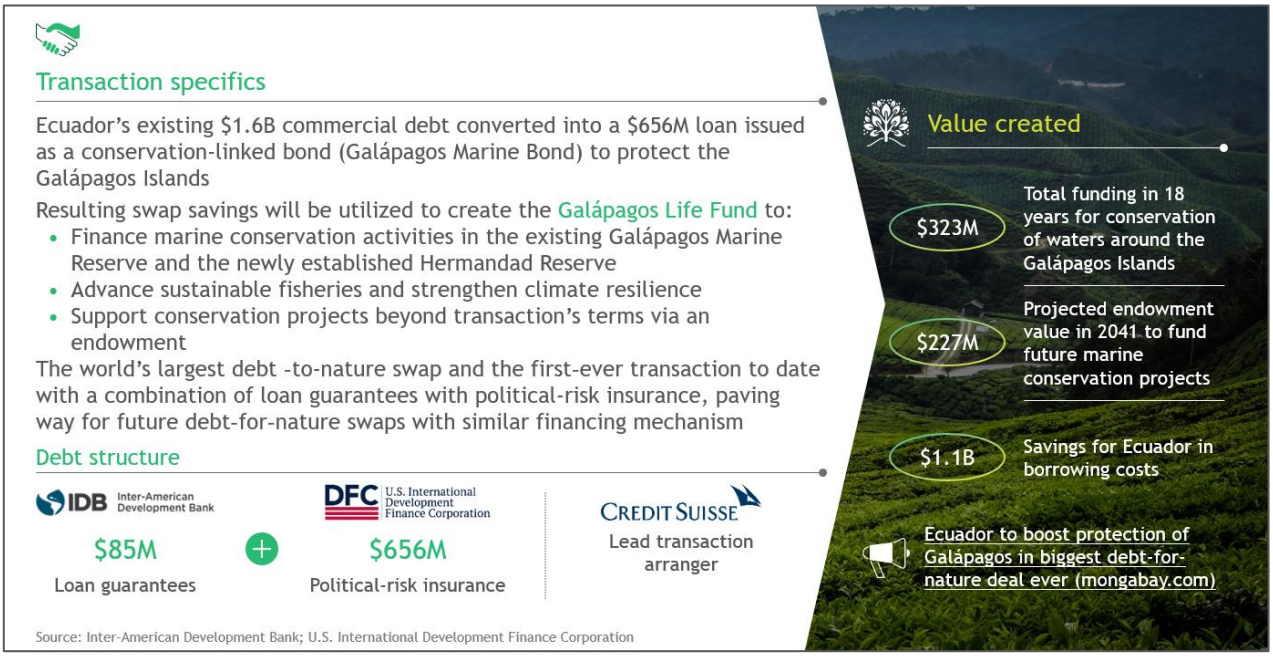
Figure 30 – Examples of agri-focused blended finance funds focused on input & procurement stage



Initiative 13: Explore potential to alleviate government debt servicing through debt-for-nature swaps, while mobilising additional funds

In Pakistan, the debt-to-GDP ratio stood at approximately 75% in 2022, far above the 58% mandated threshold by the Fiscal Responsibility and Debt Limitation Act. In recent years, debt-for-nature-swaps have become an alternative form of investments in climate related projects for developing countries with high debt burden, with recent deals made in Belize and Ecuador (see Figure 31). There is an opportunity for Pakistan to reduce its debt and mobilise financing for an agri-focused blended finance fund by working with bilateral and multilateral partners.

Figure 31 - Case study on debt-for-nature swap in Ecuador



Initiative 14: Expand the fund's focus to additional stages of the agri value chain and develop additional funds for other priority sectors

In the long-term, following a pilot of the blended finance fund, there are further opportunities to mobilise climate financing on a broader scale, covering other aspects of the agriculture value chain, including production, processing, and go-to-market stages. In addition, other blended finance vehicles can be developed, focusing on other priority sectors, amplifying the impact of such mechanisms, and mobilising further private finance into Pakistan.

7.4. Disaster relief

Developing Pakistan's disaster risk financing ecosystem will entail a sustained effort on the part of the GoP in addition to the different donor support groups. An effective ecosystem will require building a solid foundation, namely in i) developing a robust climate model, ii) establishing sustainable channels for financing iii) defining a clear disbursement approach based on post-disaster relief, recovery, and reconstruction requirements, and iv) developing an optimal capital & risk management approach tailored to Pakistan's needs.

The core of this effort has been translated into seven short and long-term initiatives, which will require effective coordination within the GoP, and between the GoP and relevant donor support groups, focusing on maximising the value of stakeholder contributions towards creating a sustainable ecosystem to reduce the burden of disaster financing on GoP and mitigate future losses. These initiatives are based on insights from best-in-class disaster risk financing entities worldwide (see Figure 32).

Figure 32 – Benchmarking of global disaster risk financing entities

	Mexico Natural Disaster Fund (FONDEN)	New Zealand Earthquake Commission (EQC)	Florida Hurricane Catastrophe Fund	UK Flood RE	Philippines DRRM (NDRRM, LDRRM, QRF, MRRP, CARED	Caribbean catastrophic risk insurance facility (CCRIF)	Pacific Catastrophe Risk Insurance company (PCRIC)
Disasters covered	Earthquakes & hurricanes	Earthquakes, landslips, volcanic eruption, hydrothermal activity & tsunamis	Hurricanes	Floods	All disaster risks	Tropical cyclones, earthquakes, excess rainfall	Tropical cyclones & earthquakes (including tsunamis), Excess rainfall and droughts
Years in operation	24 years	78 years	30 years	7 years	13 years	16 years	7 years
Entity type	Public entity	Public entity	Tax-exempt state trust	Private entity with public reporting	Public entity	Multi-country, multi-peril risk pool	Regional entity owned by Pacific Island Countries
Estimated coverage	$750M	$300M (+ ~$8.2B re-insurance cover)	$3.7B	$820M	$550M	$1B	~$250M
Sources of funding	Federal budget + cat bonds	Insurance premiums + direct beneficiaries + cat bonds	Insurance premiums + donations + cat bonds	Insurance premiums + insurance levies	LDRRMF: 5% of LGUs income (30% allocated to a quick response fund & 70% to a disaster mitigation fund)	Membership fees paid by participating governments + commitments from CDB & donor countries	Grants, financing from partner countries

Initiative 15: Accelerate scientific review process of climate model

Pakistan's disaster risk fund has already started developing an in-house climate loss model; however, several steps still need to be undertaken. NDRMF's current climate loss forecasting model is as a pilot stage and reviews still need to be conducted with reinsurers to ensure underlying data points and assumptions meet their requirements to constitute a basis for risk transfer.

NDRMF will need to seek independent reviews of the model and underlying assumptions by academic and scientific bodies (e.g., universities, specialised firms, etc.). In addition, a clear process and governance structure must be developed to ensure the model is continuously maintained, improved, updated, and refined to be leveraged annually. In addition to the in-house model under development, re-insurers may request an additional independent model to be developed. Here, Pakistan can aim to leverage donor support groups to engage re-insurers in gauging interest for risk transfer of Pakistan's climate risks, and potentially get concessional/grant financing to fund the development of a second climate model.

Initiative 16: Establish channels to collect donations from local international donors

There are five main financing sources typically leveraged as observed from best practices - local and international grants, direct insurance premiums, insurance levies (i.e., obligatory fees paid by local insurers in return for re-insurance coverage / loss caps), and government allocations. In order to finance core activities (e.g., research, climate modelling, re-insurance premiums, etc.), Pakistan's disaster risk management fund will require sustained sources of revenue. In the short term, it is recommended that Pakistan work closely with donor support groups to establish donation channels, targeting both local and

international donors, to capitalise and replenish the fund, until more sustainable sources are developed in the mid- to long-term (e.g., direct premiums from insured parties, insurance levies, etc.).

Initiative 17: Define disbursement approach to inform fund structure

In order to effectively plan fund allocation and ensure an effective model to disburse financing, there is a need to define an approach to facilitate disbursements. Disbursement stages define when disaster financing is needed after a disaster strikes, and the guidelines developed for fund liquidity and resource requirements. Disaster financing resources are not all needed immediately following a climate event. Typically, there are three main disbursement phases to consider (i.e., relief, recovery, reconstruction), each with different implications on the disbursement approach and expected resources required.

Additionally, Pakistan will need to clearly define the mechanisms through which funds will be channeled and identify the relevant recipients of financing based on the recovery stage. There are four main disbursement models observed among best practices:

- **Direct to beneficiary:** Disbursing funds directly to impacted beneficiaries depending on scope of coverage. This approach can be perceived as highly relevant to Pakistan given the lack of domestic insurers; however, this will entail significant resources (e.g., on-ground operations, claims assessment capabilities, etc.) to manage many claims effectively.

- **Through insurance companies:** Disbursing funds to insurers as re-insurance coverage, which are then channeled to insured individuals, businesses, and government entities. Pakistan does not have a developed domestic insurance sector, and this will limit the feasibility of this model in the short-term.

- **Direct to NGOs/ service organisations:** Disbursement of funds to NGOs on the ground, thereby maximising impact and ensuring quick response, particularly for humanitarian efforts. This approach is largely limited to the relief and recovery stages. Effectiveness gradually diminishes as time-from-disaster increases.

- **Hybrid model:** Adopting a hybrid model where disbursement channels are defined based on each distinct phase following a disaster (e.g., disbursing to NGOs during relief stage within hours-days from a disaster occurring, and to banks / insurers during the reconstruction phase, which can be months from a disaster occurrence).

Initiative 18: Engage global re-insurers to negotiate partial risk transfer

To ensure a more sustainable climate risk financing ecosystem, Pakistan must develop a climate risk transfer mechanism. There are two main risk transfer mechanisms leveraged by disaster funds for disaster risk financing, namely re-insurance contracts and catastrophe bonds.

Re-insurance contracts are an ideal way forward for Pakistan in the short-term given lower complexity, in addition to more transparent and faster process for claims disbursement (Catastrophe bonds can often take several months to disburse). Re-insurance contracts are simpler to execute due to direct engagement with one or few entities, quicker to disburse claims relative to CAT bonds, and typically provide broader geographic coverage. These contracts, however, require one or several scientifically robust climate models to inform risk calculations and associated premiums. Re-insurance contracts can be expensive in terms of premiums; however, it means that Pakistan should ensure a balance between insurance premiums and deductibles which will need to be financed directly before coverage can be activated.

Initiative 19: Provide re-insurance coverage for local insurers

Countries that have developed climate disaster funds have typically involved the local insurance sector as a foundation and a channel to absorb a first layer of losses. Pakistan should aim to adopt the same approach in the long-term. Following the examples of Philippines, Chile, and Colombia, the local private insurance sector was developed through incentives (i.e., co-payment, policy reform, etc.). In Philippines, building on the success of the re-insurance risk transfer, incentives and policy reform were implemented

to develop the local insurance ecosystem. Similarly, in Chile, sustainability-related mandatory disclosure requirements were revamped for insurance companies to support coverage. In Colombia, guidelines, premium subsidies, and tax benefits were introduced to promote the development of the local insurance markets. Pakistan can adopt similar measures to gradually develop the domestic insurance market's ability to provide disaster risk coverage, enabled further by existing re-insurance contracts to provide a loss limit for local players.

Initiative 20: Expand on disbursement channels to ensure most effective use of funds

Beyond setting the starting point for Pakistan's approach to disbursement of disaster risk management funds, additional channels will need to be expanded over time to maximise reach and impact. Beyond the typically observed channels (e.g., channeling funds through insurers), there are a number of innovative approaches which can be considered, leveraging existing networks (e.g., disbursement of funds through banks, with insurance coverage bundled with loans/credit initiatives to farmers, businesses, and individuals).

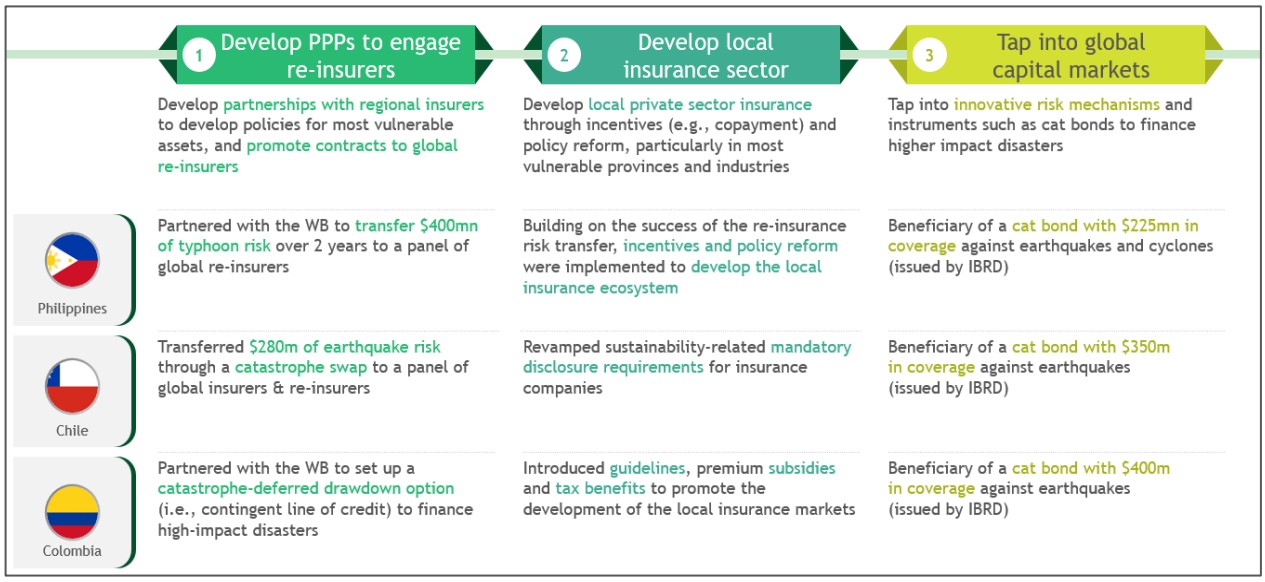
Initiative 21: Tap into global capital markets through issuance of Catastrophe (CAT) bonds

Tapping into innovative risk mechanisms and instruments such as CAT bonds to finance higher impact disasters is becoming more common in global risk markets. CAT bonds transfer risk to capital markets, primarily private institutional investors, through CAT bonds which trigger payments based on pre-defined metrics. Several countries have successfully leveraged CAT bonds in recent years to financing climate disaster recovery. In 2018, Chile and Colombia received US$350 million and US$400 million in payouts respectively from earthquake CAT bonds. In 2019, Philippines also benefited from a US$225 million CAT bond payout that provided coverage against earthquakes and cyclones.

CAT bonds have higher risk absorption capacity compared to re-insurance contracts due to more diversified pool of investors and place less emphasis on sovereign creditworthiness due to principal funds being placed in a neutral account, meaning default risk is limited to premium defaults while the principal capital is protected. Trigger conditions for CAT bonds can, however, be complex to define and determine in case of payout claims. CAT bonds also require extensive support from a consortium of partners (i.e., bookrunners, structuring entities, risk modelling partners, etc.)

All together, these initiatives capture the three pillars that have underpinned the development of a resilient disaster financing ecosystem in other countries (see Figure 33).

Figure 33 - Actions taken by peer countries to develop a disaster risk financing ecosystem

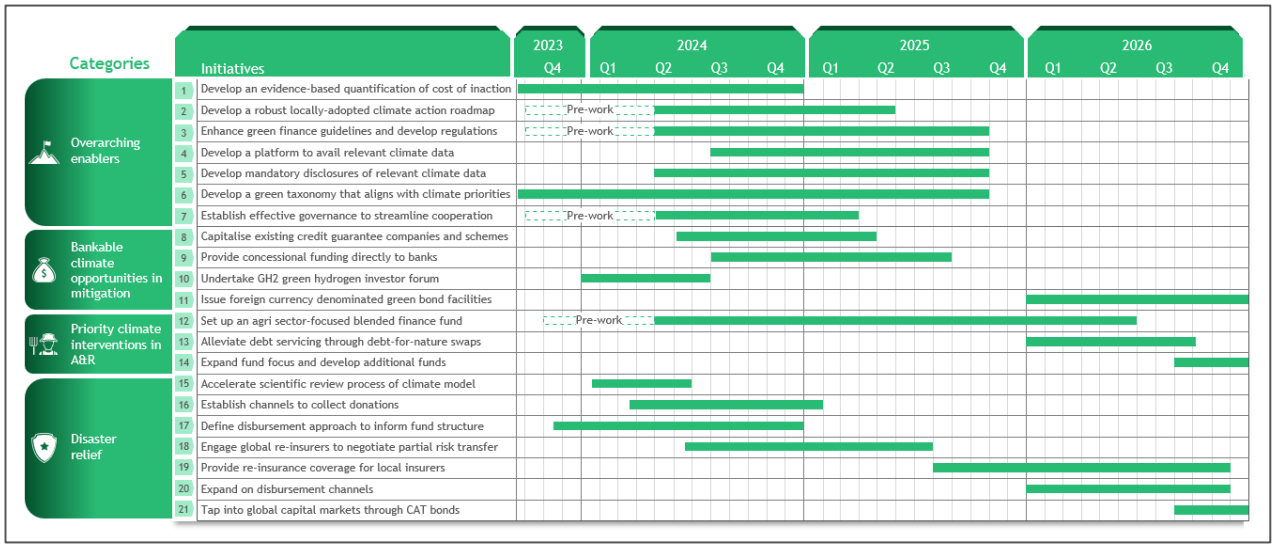


5 Roadmaps to Climate Action

8. Roadmap for implementation of identified initiatives

Over the next three years, it is expected that all initiatives identified will be further developed with detailed roadmaps and activities under each initiative (see Figure 34).

Figure 34 - Climate finance initiative workplan

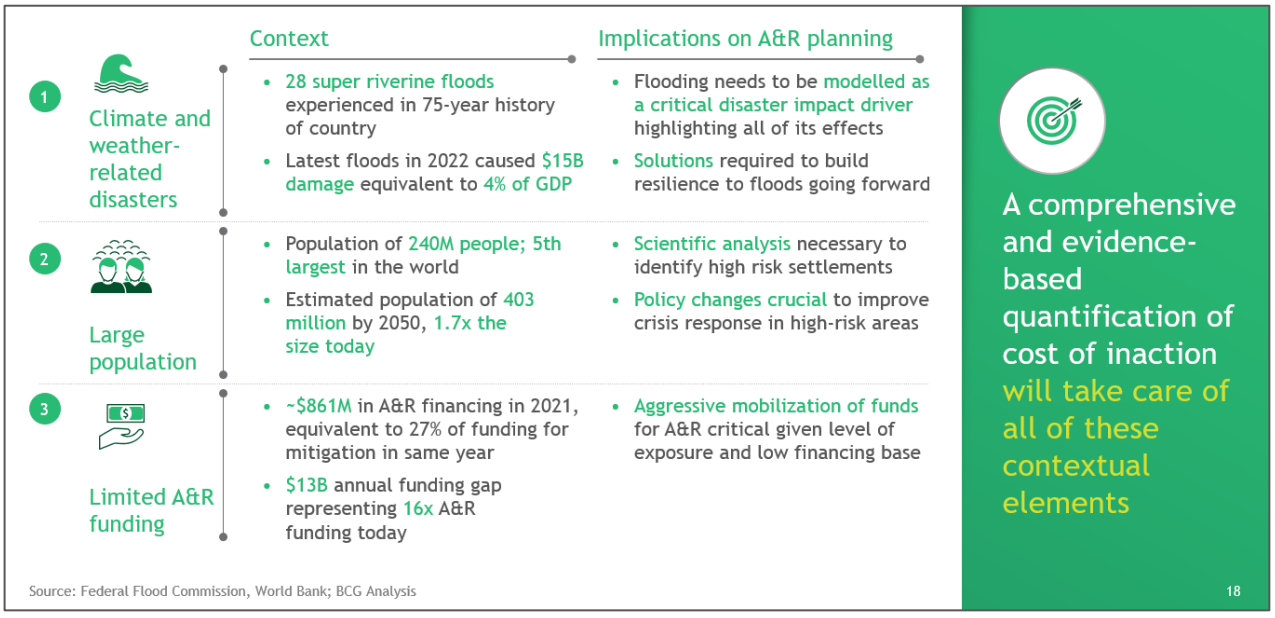


The initiatives have been sequenced such that focus will be given to the ones that are foundational and need to start immediately. These foundational initiatives are discussed further below.

8.1. Develop an evidence-based quantification of cost of inaction

Pakistan's context and exposure to numerous floods call for a holistic approach to A&R planning (see Figure 35). The peculiar combination of high frequency in climate and weather disasters, large population and limited A&R funding means a lot is at stake in Pakistan from a climate and sustainability perspective.

Figure 35 - Contextual elements underpinning need for quantification of cost of climate inaction



Quantification of cost of inaction has far-reaching impact on three dimensions - physical, social, and economic impact - and facilitates informed actions and decisions. There are typically 6 steps involved in quantifying the cost of climate inaction. These steps are quantifying physical impacts, assessing

probability, identifying impacted areas, calculating cost of inaction, defining adaptation needs to address crisis, and defining inaction indicators impacting funders (see Figure 36). Proprietary tools exist to carry out the steps necessary for the quantification of cost of climate inaction. These tools leverage open-source data, as a starting point, and data from local sources and other published materials to form a strong baseline of current A&R landscape. Key institutions are engaged on specific questions to close gaps in data required to accurately quantify cost of climate inaction. For Pakistan, institutions to be engaged include Ministry of Climate Change (MoCC), National Disaster Management Agency (NDMA), Ministry of Planning Development & Special Initiatives (MOPDSI), National Disaster Relief Management Fund (NDRMF), Ministry of Economic Affairs, Economic Affairs Division, Space & Upper Atmosphere Research Commission (SUPARCO), Ministry of National Food Security & Research, amongst others (see Figure 37).

Figure 36 – High level steps involved in quantifying cost of climate inaction

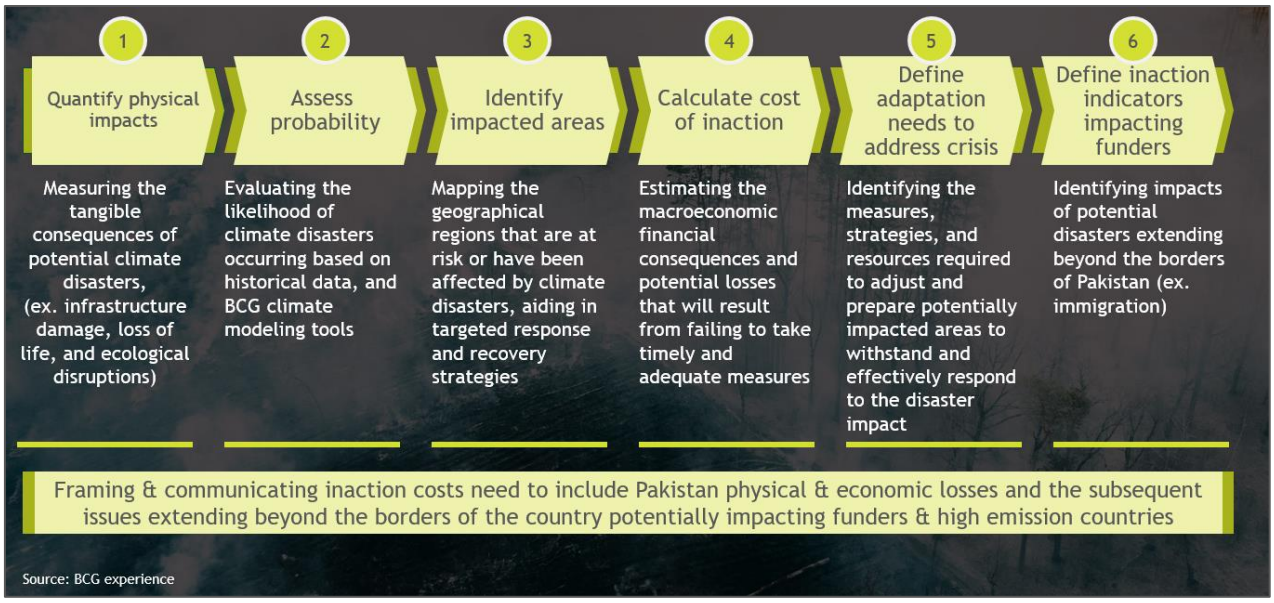


Figure 37 – Non-exhaustive list of Institutions to be engaged for information to facilitate quantification efforts

Non-exhaustive

Institution	Function	Relevant topics
Ministry of Climate Change (MoCC)	Execute roadmap, convene stakeholders, and drive activities Provide information on existing medium and long-term A&R policies and strategies	• Existing A&R policies • Pakistan adaptation priorities • Awareness and education initiatives on flooding
National Disaster Management Agency (NDMA)	Provide data on historical flooding patterns and extent of loss as well as relief mechanisms	• Flooding data and impact (e.g., affected areas, intensity, loses, etc.) • Disaster relief and response plan • Points of interest (key buildings and assets)
Ministry of Planning Development & Special Initiatives (MOPDSI)	Provide insights in government policy framework and interventions on disaster relief and recovery	• Disaster economic recovery plans • Points of interest
National Disaster Relief Management Fund (NDRMF)	Provide information on disaster risk financing strategy of Pakistan	• Modeling of climate risk • Disaster insurance and re-insurance
Ministry of Economic Affairs, Economic Affairs Division	Provide information on external economic agreements and partnerships on climate	• Public financing flows for A&R projects • Partnerships with development agencies
Space & Upper Atmosphere Research Commission (SUPARCO)	Provide research publications and data on historical incidents and projections for the future	• Satellite remote sensing solutions for urban planning
Pakistan Armed Forces	Provide historical data to assist with climate modeling	• Modeling of climate risk • Points of interest
Donor Support Group	Provide financial and technical support to quantify cost of climate inaction	• Funding commitment for solutions • Capacity building

Source: Expert interviews, BCG experience

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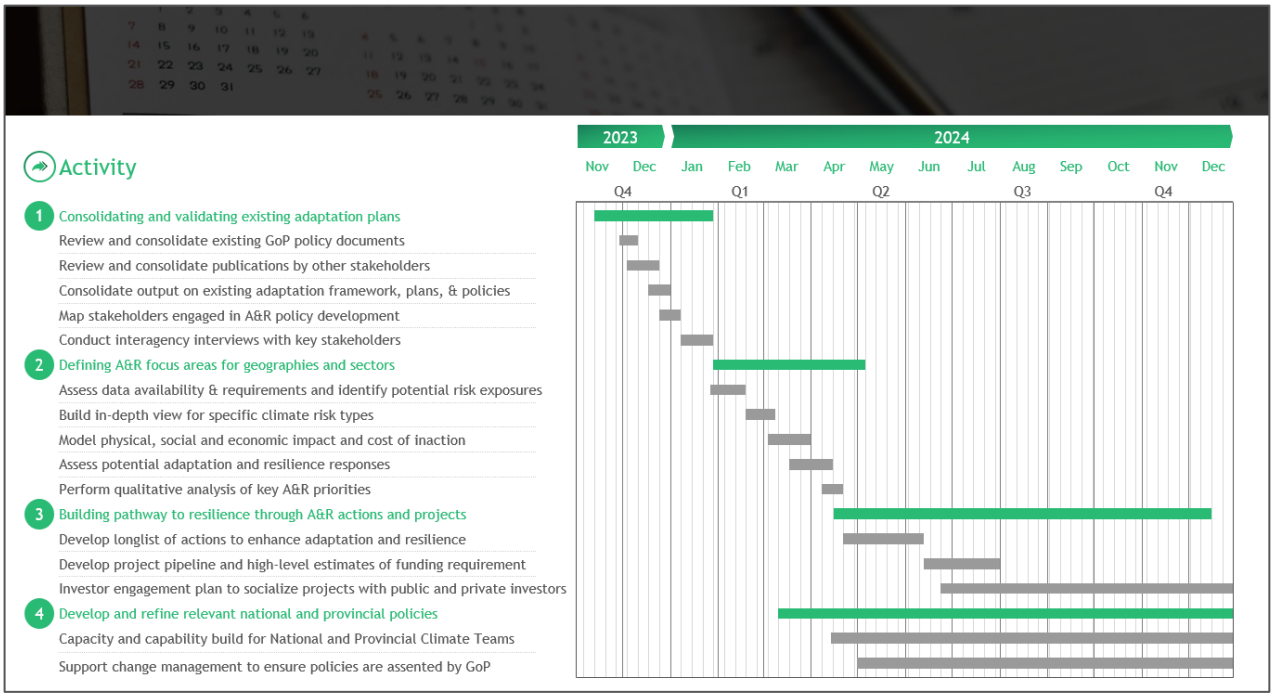
Data from internal and external sources is methodically translated into assumptions that lead to scenario-based outputs that culminate into a value range representing cost of inaction. After quantifying cost of

Figure 38 – Cost of inaction workplan



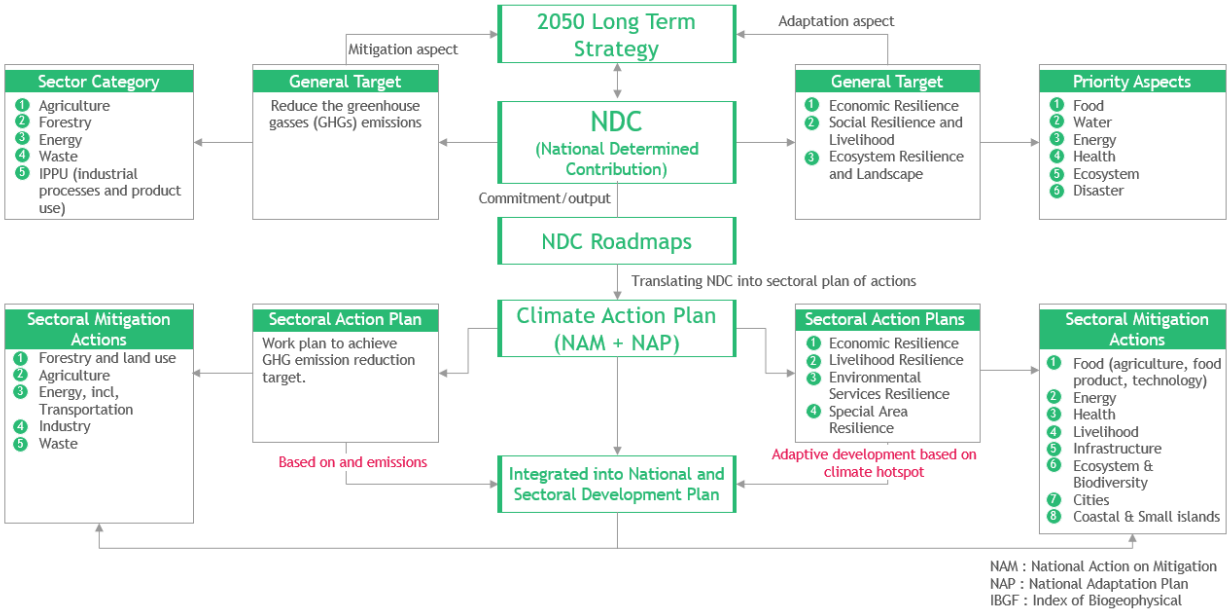
inaction, critical measures are developed to mitigate negative impact of climate impact drivers. Projects are then developed to form the basis for tailored engagement with potential financiers to secure funding commitments. **Four main activities need to be completed over next 12-month period to enhance Pakistan's pathway to resilience** (see Figure 38).

8.2. Develop a robust locally adapted climate action roadmap

To ensure Pakistan is on par with best-in-class countries regarding the climate policy landscape, some key policy documents must be developed to provide clarity to all relevant stakeholders. The long-term NDC and NAP documents need to be broken down into five-year mitigation and adaptation action plans by sector and province. The adaptation action plan will be greatly influenced by the analytics work that will go into the initiative on quantification of the cost of climate inaction. NDCs are typically cascaded to inform detailed roadmaps and actions plans across several key sectors and provinces over shorter periods (e.g., 3–5-year intervals) – (see Figure 39).[44] The rationale for developing sectoral and provincial actions plans is to ensure focus and guide the mainstreaming of climate change into various actions of sector ministries and provinces. Cascading NDCs into sectoral and provincial plans provides a clear direction on prevailing priority sectors and actions for key stakeholders including private sector investors. This also provides a flexible approach to tracking and monitoring progress towards NDCs to facilitate changes in strategy and actions.

[44] INDONESIA Long-Term Strategy for Low Carbon and Climate Resilience 2050

Figure 39 – Climate policy framework based on benchmarks

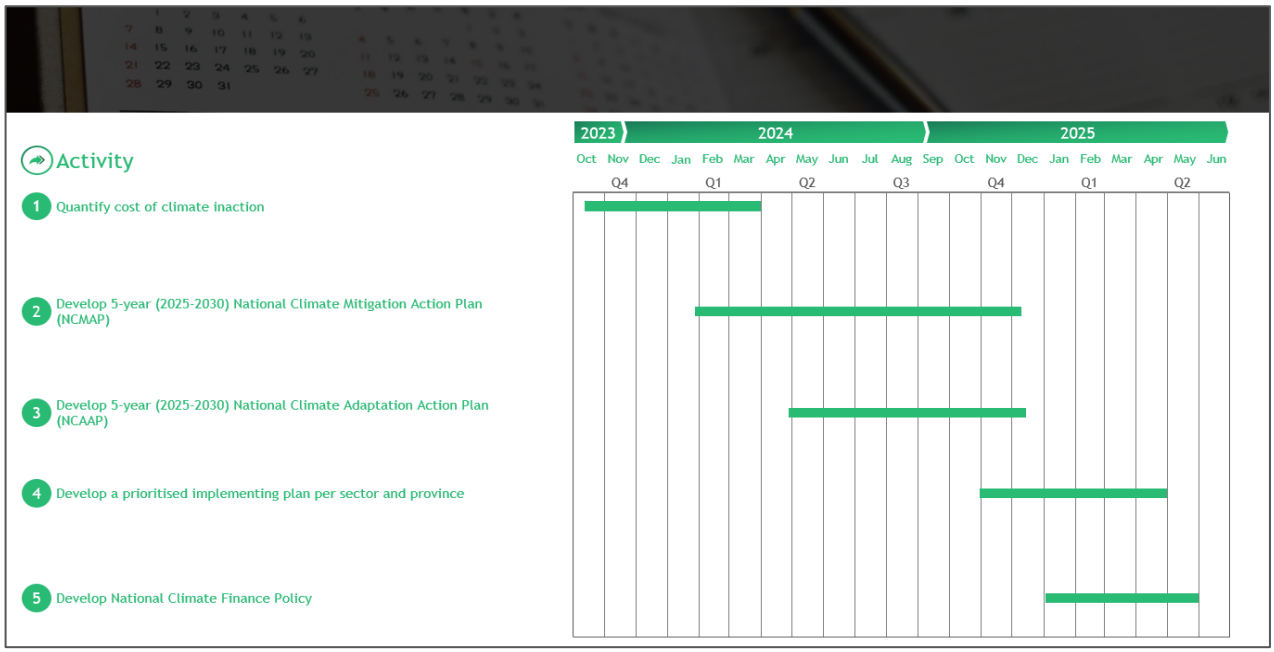


In addition to developing sectoral action plans, other countries, such as Kenya, have developed national policies on climate finance.[45] The rationale for the development of a national finance policy is to articulate government commitment towards climate, based on funding gap and resource availability, and communicate strategy to mobilising funding from other internal and external sources. Developing climate finance policies help in creating intentional partnerships using alternative and innovative financing mechanisms to secure private sector participation in climate interventions. These policies also guide spending patterns across government and external partners on climate interventions to identify spending gaps.

Overall, five actions are required in Pakistan to ensure a more robust climate policy framework over the next 20 months (see Figure 40) – quantify the cost of climate inaction (see Section 8.1 above); develop a five-year NCMAP and a NCAAP in parallel; develop a prioritised implementation plan per sector and province; and develop a National Climate Finance Policy.

[45] Kenya National Policy on Climate Finance (2016)

Figure 40 – Locally adapted climate action roadmap workplan

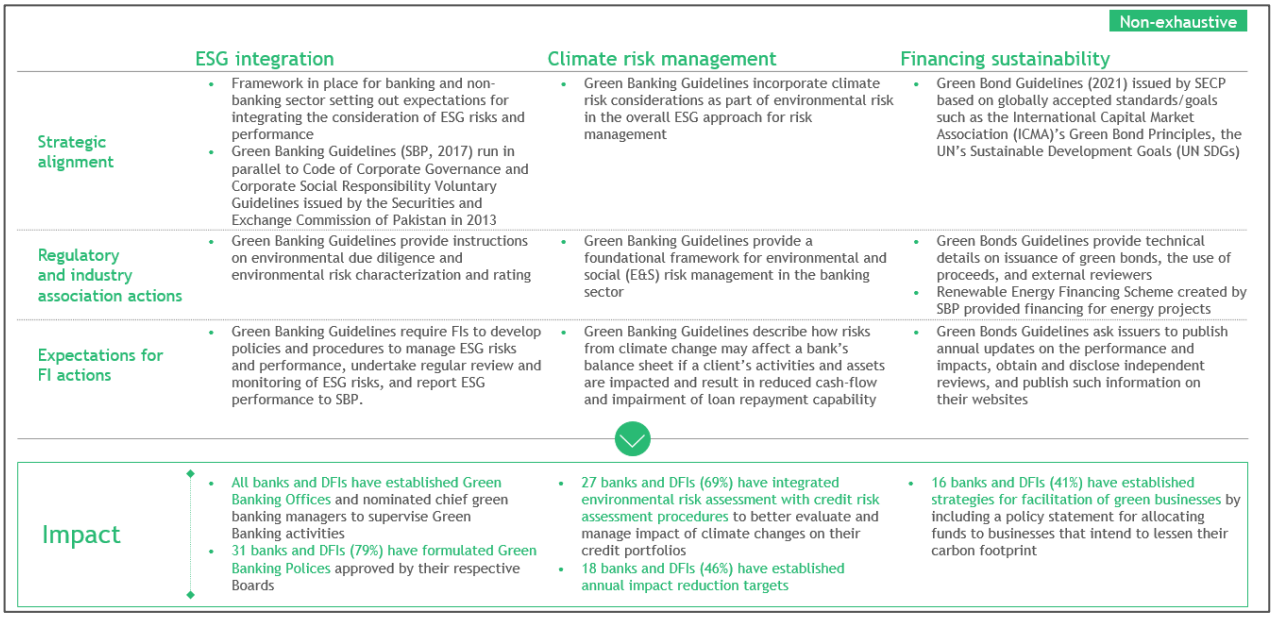


8.3. Enhance green finance guidelines for financial institutions and develop regulations

The Sustainable Banking Finance Network (SBFN) has identified three pillars to developing national enabling frameworks for sustainable finance. The framework highlights ESG integration, climate risk management, and financing sustainability. ESG integration refers to the management of ESG risks in the governance, operations, lending, and investment activities of financial institutions. Developing a green taxonomy will enable ESG integration and reporting of sustainable investment/lending. Climate risk management refers to new governance, risk management, and disclosure practices that financial institutions can use to mitigate and adapt to climate change. Financing sustainability refers to initiatives by regulators and financial institutions to unlock capital flows for activities that support climate, green economy, and social goals. Pakistan has made progress on implementing actions on ESG integration and financing sustainability, whilst formulating climate risk management actions. Progress made by Pakistan is reflected in Green Banking Guidelines and Green Bond Guidelines issued by SBP and SECP respectively in 2017 and 2021. These guidelines have led to some impact in Pakistan over the last few years including all banks and DFIs establishing Green Banking Offices and nominating chief green banking managers to supervise Green Banking activities (see Figure 41).[46]

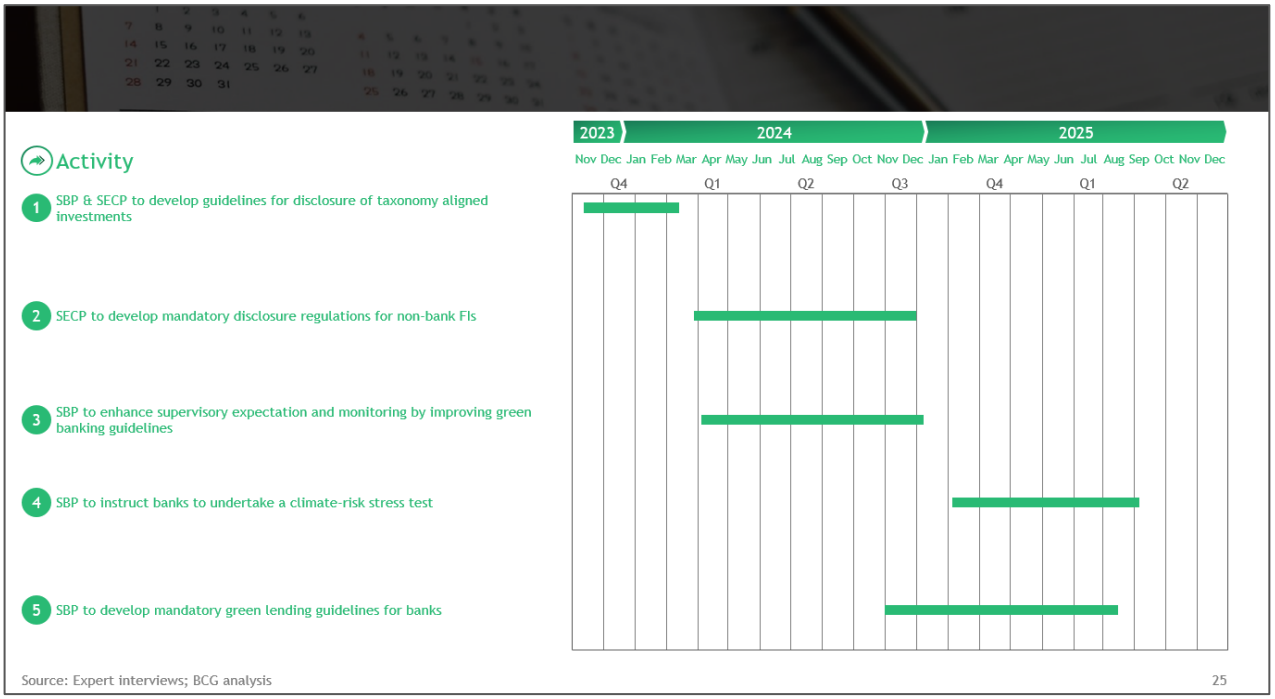
[46] SBFN Country Progress Report, Bank for International Settlements

Figure 41 – Highlights and impact of green banking regulations in Pakistan



There are, however, several other guidelines that Pakistan can introduce in line with best-in-class countries. In Bangladesh, for instance, Bangladesh's central bank mandates for 5% of all term loans disbursed by the nation's banks and other FIs to be contributed to green finance and 20% of all loans disbursed to be contributed to sustainable finance. To ensure that mandates are effective, Bangladesh's central bank ensures that bank ratings are influenced by adherence to these guidelines. **SBP & SECP need to enhance regulatory framework with five regulatory actions to be executed over a 24-month period** (see Figure 42).

Figure 42 - Green finance guidelines workplan



Source: Expert interviews; BCG analysis

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8.4. Develop a green taxonomy that aligns with the pressing climate priorities

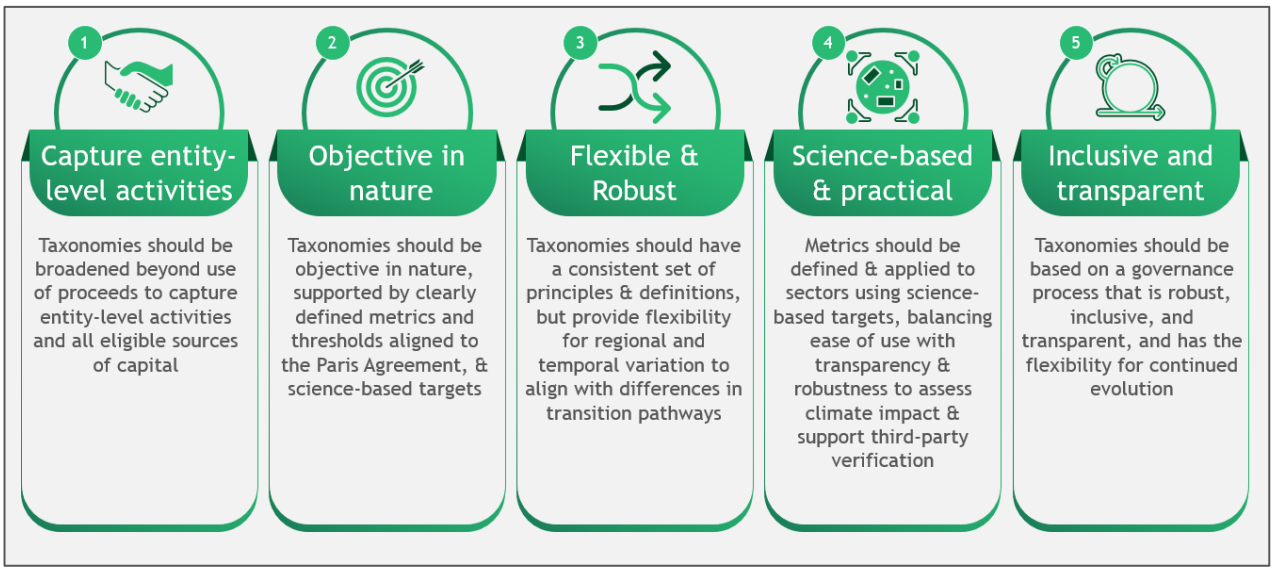
Developing a green taxonomy forms part of broader set of financial sector initiatives to greening the financial sector. There is a growing need for guidance on what activities qualify within a climate transition scope and the green taxonomy provides the classification system to identify activities, assets, and/or

project categories that deliver on key climate, green, social, or sustainable objectives with reference to identified thresholds and/or targets[47] (see Figure 43).

Figure 43 – Overview of rationale for green taxonomy

There are four main use cases for a green taxonomy – it supports the development of robust and reliable green finance market (i.e., sustainable funds, green mortgages etc.); it informs the development of policies & regulations (e.g., taxonomy-aligned disclosure regulations); it offers a structured approach for banks and asset managers to identify, evaluate and promote green projects; and it enables the identification and tracking of climate financing flows. The EU taxonomy is currently the most detailed classification system for sustainable investments, with others expected to follow. There are five key global guiding principles from benchmarked countries to consider when developing a green taxonomy (see Figure 44).

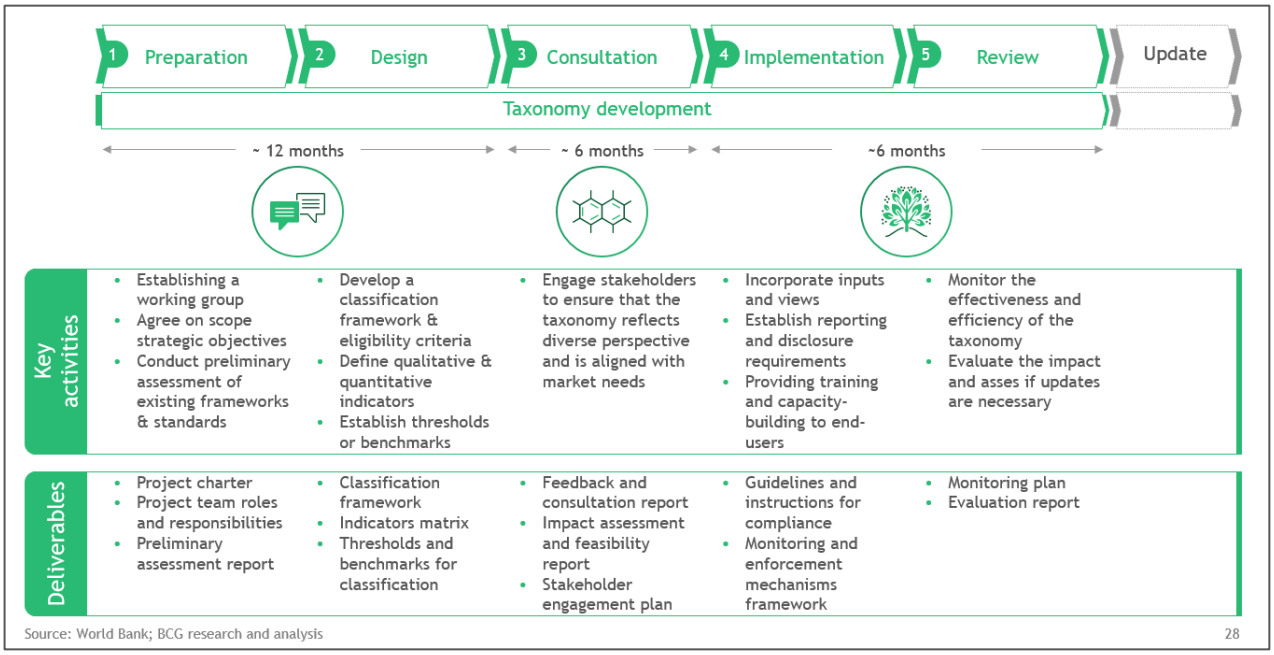
Figure 44 – Guiding principles for developing a green taxonomy



[47] ICMA, May 2020, Sustainable Finance definitions

There are five sequential stages for the development of a green taxonomy, starting with the establishment of a working group that provides independent, non-binding advice to regulators on the design and implementation of a green taxonomy (see Figure 45).

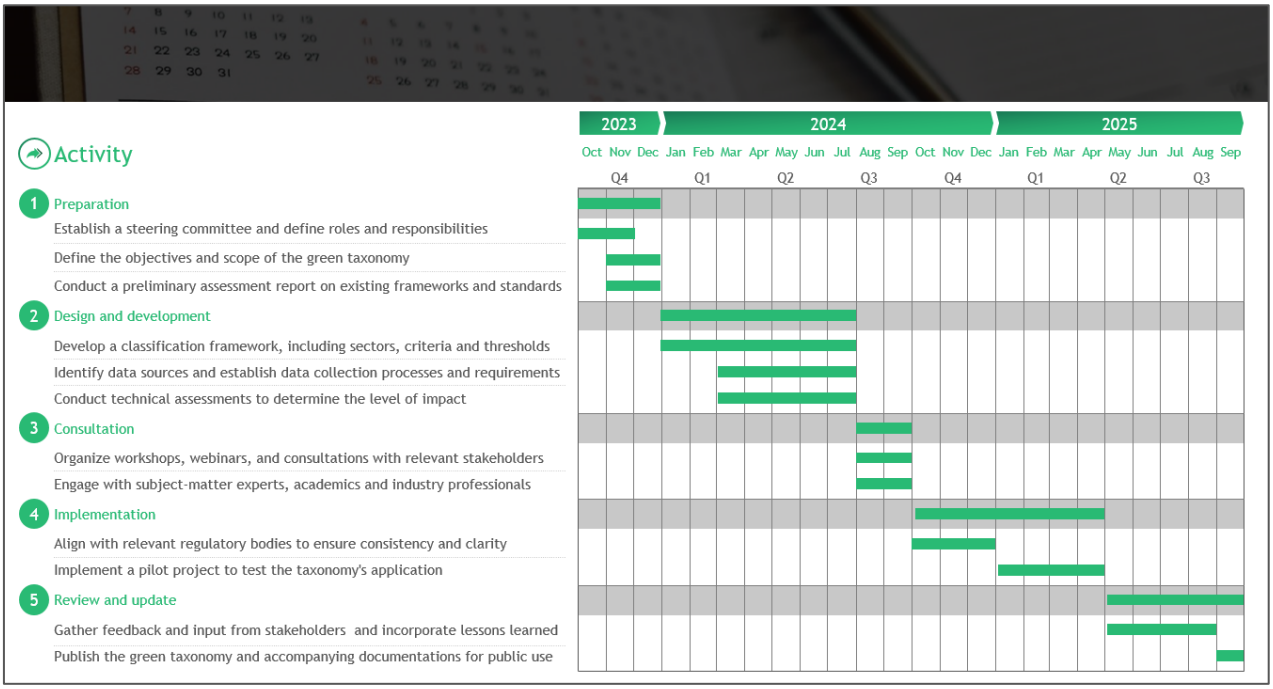
Figure 45 – Stages in the development of the green taxonomy



Source: World Bank; BCG research and analysis 28

Developing & implementing a green taxonomy will require implementation of these five stages over a 24 months (see Figure 46).

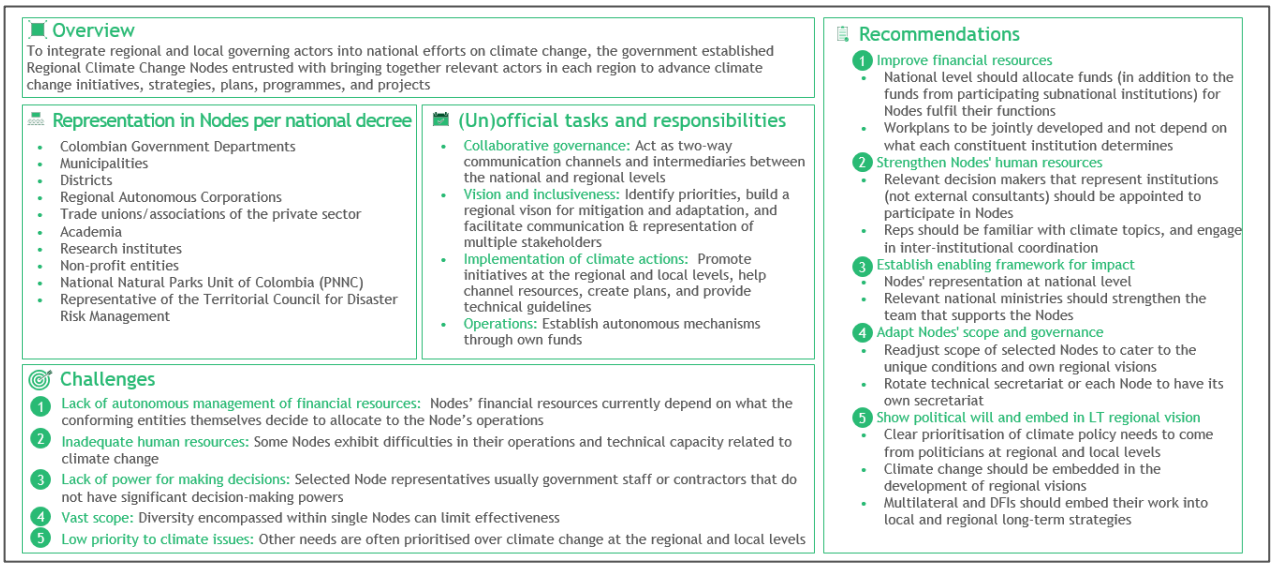
Figure 46 - Green taxonomy workplan



8.5. Establish effective governance to streamline cooperation within GoP & with external parties

To address the governance challenges in Pakistan within the climate financing ecosystem, some guiding principles are relevant based on the experiences of other countries. Pakistan can learn from the experiences of some best-in-class countries, such as Colombia and South Africa, in improving its climate change governance efforts.

Figure 47 – Overview of regional nodes in Colombia

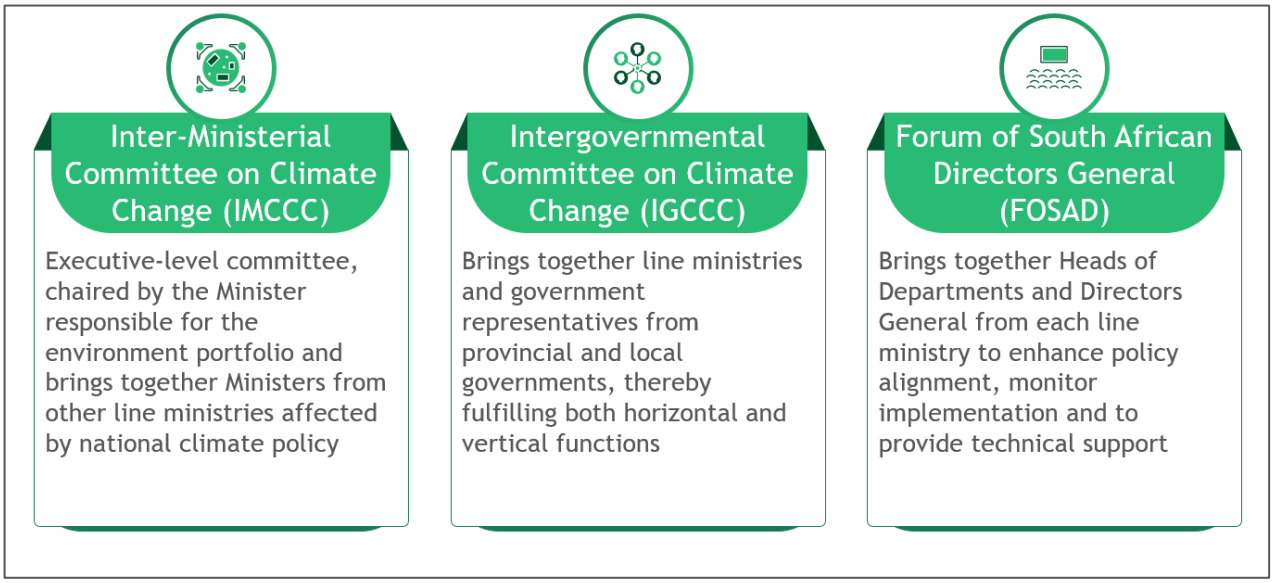


Colombia has mechanisms at national and sub-national levels to ensure coordination across key climate change institutions. At the national level, coordination occurs through the Intersectoral Commission on Climate Change (CICC). At regional level, regional nodes are activated. CICC was established in 2016 with all relevant line ministries part of the Commission. Membership has expanded over time to reflect climate policy needs. According to third party sources such as Climate Action Tracker, Colombia has an acceptable governance system for climate change largely due to effectiveness by CICC. Nine regional Nodes have been created at the sub-national level and are responsible for coordinating climate actions across the country (see figure 47). Nodes were established in 2008 by Civil Society Organisations (CSOs) and institutionalised by national Decree in 2016. Nodes sit between the central and regional governments. While CICC is making strides, the Nodes face a number of challenges, including resource constraints and low political influence limiting its effectiveness.[48]

In South Africa, three main fora are used for inter-ministerial coordination. These are the Inter-Ministerial Committee on Climate Change (IMCCC), at executive level; Intergovernmental Committee on Climate Change (IGCCC), at local government level; and Forum of South African Directors General (FOSAD), at departmental level (see Figure 48).

[48] Vertical Integration and Learning for Low-Emission Development in Africa and Southeast Asia" (V-LED)

Figure 48 – Overview of governance systems in South Africa



The next steps for the GoP is to take the lessons from other countries and develop tailored governance systems for Pakistan over the next 18 months.

Moving Ahead: Towards a Green and Resilient Economy

9. Moving ahead: towards a green and resilient economy

The 2023 United Nations Climate Change Conference (COP28) to be held from 30 November to 12 December in Dubai, will call for a stocktake on the global climate crisis, agree on a consensus on loss and damage, and agree a timeline to phase-out fossil fuels. The UK will play a significant supporting role having tripled its contributions to adaptation finance by 2025, based on 2019 levels, with funding coming from existing ODA budgets, including to address climate change issues in Pakistan.

As demonstrated during the widespread floods in 2022, Pakistan remains vulnerable to climate changes putting at risk the livelihoods of millions of a poor, mainly rural, population. A significant amount of climate finance, in excess of US$60 billion/year, is required to meet the needs of Pakistan's NDC which will go towards mitigating future disasters and devastation in the country. Closing this climate finance gap, through public, private, non-governmental and philanthropic funding will require a set of integrated partnership initiatives led by the GoP with external partner support.

This Accelerating Green and Climate Resilient Financing Report recommends 21 initiatives across four categories – overarching enablers, de-risking viable opportunities, facilitating a blended finance fund, and developing a disaster risk financing ecosystem. From this set, we recommend an implementation focus in the initial phase on the five core initiatives under the overarching enablers to ensure that a solid institutional and governance bedrock is established in which to sequence further initiatives across the remaining three categories.

The five enabler initiatives (see Figure below) include:

1. **Developing an evidence-based quantitative cost of inaction** will raise awareness amongst partners of the worst-case scenarios and the impact climate change will have on citizens across Pakistan if the current situation remains unchanged.
2. **Supporting the development of a green taxonomy** will ensure consistency, standardisation, and alignment of common climate parlance, thereby building a firm and credible case to external parties to support financing activities.
3. **A locally adapted climate action roadmap** will set the national strategic direction to address climate challenges and ensure the NDC is fully operationalised.
4. **Enhancing green finance guidelines and developing a set of regulations,** together with a robust platform to collect climate data will strengthen Pakistan's institutional credibility and increase its chances of receiving future climate investments.
5. **Finally, the report recommendations strengthening public governance mechanisms** at federal and provincial levels to streamline cooperation within GoP and with external parties.

Figure 49 - Benefits of the five core enabler initiatives

To bring this roadmap to fruition, all key stakeholders will need to agree with how the findings and recommendations of this report are taken forward – and who will own these initiatives. Following agreement, the first phase on strengthening the enablers can start by engaging stakeholders through planning and coordination events.

This report stresses the urgent need to fill the climate financing gap in Pakistan, and illustrates the volume of current financial flows, and where the GoP and external partners should focus their attention to mobilise critical climate financing to meet Pakistan's green growth and resilience needs. The analysis in this report is just the start though. To maintain the momentum, Pakistan's government, private sector and development partners are urged to effectively pull in the same direction to translate Pakistan's climate finance ambition into reality. The recommended roadmaps show a clear path to turn plans into action, thereby strengthening Pakistan's locally owned climate finance landscape going forwards.

The UK stands ready to support GoP and the private sector to deliver on this critical agenda. We will work, through the Donor Coordination Committee, together with relevant GoP ministries to drive implementation of these roadmaps.

Annexes

Annex A: Development Partner Support Landscape

Several multilateral and donor agencies are supporting efforts in Pakistan to unlock domestic and international climate finance. The UK and other partners are supporting project preparation in Pakistan to facilitate access to multilateral climate funds and private sector investment. However, despite these efforts to improve the enabling environment and a pipeline of bankable projects, investment flows continue to be limited in scale and heavily skewed towards climate mitigation. The early-stage financing landscape is sparse and is dominated by UK supported entities (Karandaaz, InfraCo Asia and InfraZamin), with a strong mitigation and infrastructure focus. In terms of growth stage finance, the landscape consists of Multilateral Development Banks (MDBs) and select bilateral Development Finance Institutions (DFIs). This group has provided the vast majority of Pakistan's public climate finance, skewed towards mitigation. On commercial finance, Pakistan has a competitive but risk adverse commercial banking sector but limited non-bank financial institutions (private equity investors, mutual funds, pension funds, insurance companies).

Annex B: Methodological Approach to Assessing Finance Flows

In order to estimate climate financing flows into Pakistan, a preliminary assessment has been used to estimate flows from both public and private sources. We defined **public** as government-owned/administered institutions, public sector undertakings, bilateral and multilateral development institutions, and climate funds. We defined **private** as privately held institutions including commercial FIs and institutional investors.

Public flows: The OECD DAC dashboard gives a perspective on climate-related development finance commitments from multilateral development banks (MDBs) and DAC member countries, which captures climate-related international flows from international public sources. For the domestic public climate flows, Pakistan's Climate Public Expenditure & Institutional Review (CPEIR) estimates on government expenditures as a % of the federal budget has been used (c. 6.5% for adaptation and 4.5% of mitigation). In addition, budgetary expenditures by sector for the year 2021 were used to perform sanity checks to ensure estimates are within acceptable ranges.

Private flows: The FDI markets database has been used to estimate international private finance in Pakistan, which are mainly directed toward renewable energy and renewable tech. The captures annual international private flows, except for the year 2021 which saw Pakistan issue its first green bond (in reference to the US$500 million WAPDA bond). On the other hand, to estimate domestic private flows, we relied on expert interviews with the four leading private sector banks in Pakistan to come up with a high-level estimate on their annual climate lending. An assumption was used afterwards that 50% of the climate-related projects in Pakistan are financed through bank credit, implying that the remaining 50% come from internal financing.

Limitations

In the process of estimating climate financing flows into Pakistan, certain limitations are noteworthy. First, the evaluation under discussion primarily focused on a single year which is likely to have been an optimal year for Pakistan before the onset of economic difficulties. Therefore, the findings are subject to temporal limitation and may not accurately represent long-term trend or the full scope of climate finance flows. Furthermore, the absence of explicit identification of climate-related expenditures in the budgeting process necessitates reliance on estimates, which may introduce a degree of uncertainty and potential bias in the quantification of flows. Moreover, the reliance on estimates from the CPEIR may not capture more recent development or changes in public expenditures. Finally, it is important to note that the FDI markets database utilised for green FDI flows includes both closed and announced deals but not necessarily the exact disbursement, which might inflate the actual figures, as announced deals may not necessarily translate into actual investments. Notwithstanding these limitations, the overarching narrative regarding climate finance flows into Pakistan in unequivocal and provides valuable insights into the country's climate financing landscape.

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