

ADAPTATION FINANCE AND THE MULTILATERAL DEVELOPMENT BANKS: FROM CONCEPTS TO PRACTICE

**RECOMMENDATIONS
OF A WORKING GROUP
ON CLIMATE
ADAPTATION FINANCE**



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OVERVIEW

African leaders have consistently emphasized the urgent need for increased action and financial support for climate adaptation. The Committee of African Heads of State and Government on Climate Change has repeatedly called for more funding for adaptation.¹ Responses thus far include the Africa Adaptation Initiative, launched in 2015 to strengthen collaboration through high-level, pan-African and regional dialogue, large-scale climate adaptation action, and investments to address the adaptation finance gap. The African Development Bank and the Global Center on Adaptation have joined forces to develop the Africa Adaptation Acceleration Program; it has thus far mobilized \$10 billion for investments in climate adaptation, benefiting over 63 million people across 37 African countries.² In 2023, the Early Warnings for All Africa Action Plan was launched to save lives and livelihoods during and after extreme weather events.

Multilateral development banks (MDBs)—the World Bank and its regional counterparts—can and should do more to help African governments meet their climate objectives. Vulnerability to the climate is not felt evenly across the world, and countries' capacities to manage extreme weather and climate events are highly unequal. Poor countries do not enjoy the same level of resilience afforded by paved roads, reliable power, buildings built to code, warning systems, emergency response, food security, cold storage, and other infrastructure enabled by decades of fossil fuel use in rich countries.

Adaptation through climate-resilient economic growth—including investments in infrastructure, social programs, climate-resilient seeds, fertilizer, and weather forecasting—is essential for all countries and especially for poor countries. Central to these investments is low-cost financing from the MDBs. In recent years, these organizations have increased investments in mitigating emissions. But adaptation remains under-funded relative to mitigation, especially in poor countries in sub-Saharan Africa.

Focusing on adaptation first and foremost is a way to help poor countries grow, generate more jobs, become resilient, and be able to adopt zero or low-carbon technologies. An overemphasis on mitigation, on the other hand, is not only unfair but also shortsighted. Poor countries have ambitious development agendas that they will carry out with alternative funding sources or partners if the multilateral banks do not step up. When they do, the rest of the world will have much less say on emissions. A better approach is to invest in adaptation that will result in jobs and economic development. Climate action requires popular support for policy adoption and implementation; policy-makers will have little success a decade from now talking to a large unemployed youth labor force in Africa about “saving the planet.”

This working group is convened to explore how development banks—the largest providers of finance to poor countries—can more meaningfully support poor countries with adaptation and resilience. The intention of this work is to develop a framework for and examples of meaningful accounting of climate spending that is transparent, easy to understand, responsive to the circumstances of poor countries and that can be adopted by MDBs. This report aims to provide MDBs with concrete, practical, actionable advice on moving from concepts to meaningful practice of climate adaptation, with the understanding that poor countries will need resources not just to adapt to immediate climate and weather events but also more broadly to build resilience.

We consider the following questions:

1. Why is climate adaptation important?
2. What actions should MDBs take to address the need for adaptation finance?
3. What kinds of investments are needed to build climate resilience?
4. How do we measure success?

Our recommendations incorporate the individual views of working group members, as well as findings from a review of the literature on climate adaptation finance. In brief, we recommend that the MDBs:

- 1. Internalize the case for financing adaptation as key to climate resilient development and inclusive and sustainable economic growth**
- 2. Rebalance portfolios to prioritize affordable finance for adaptation in low- and lower-middle-income countries**
- 3. Develop clear criteria for the selection of mitigation-related projects in low- and lower-middle-income countries**
- 4. Operationalize the 2015 Common Principles**
- 5. Prioritize investments that maximize development and adaptation synergies**
- 6. Acknowledge the role of energy in adaptation**
- 7. Evaluate outcomes of adaptation portfolios**

RECOMMENDATIONS

1. **MDBs must internalize the rationale for financing adaptation to climate and identify effective ways to support more climate adaptation.**

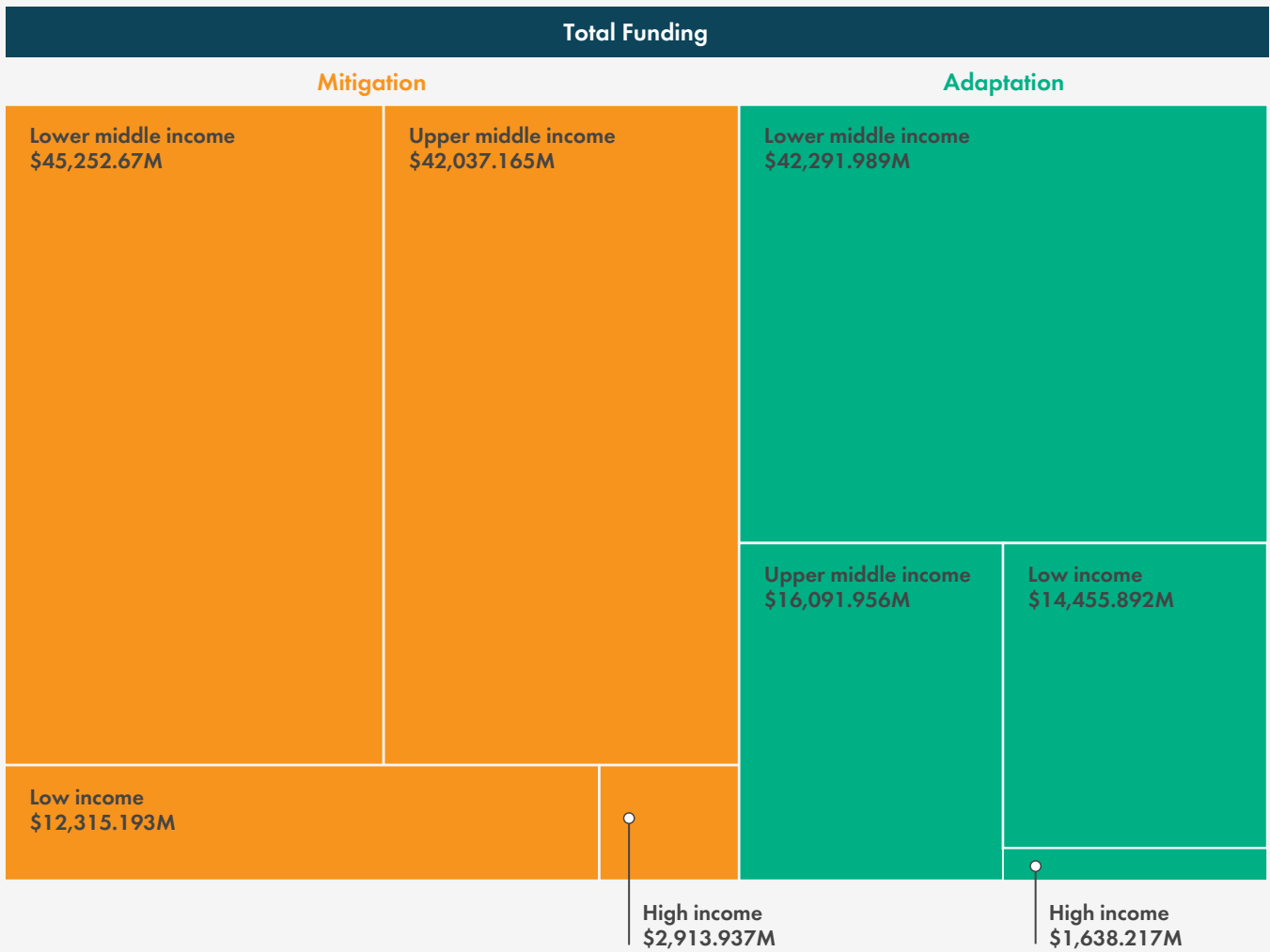
Managing the impacts of natural climate variability is itself a huge challenge. On top of that, climate change exacerbates certain types of events. Adaptation investments are “all hands on deck”-type interventions so that low-income countries will be able to withstand both the adverse effects of natural variability and that of climate change-induced phenomena such as extreme heat and coastal flooding. Over the long term, these investments build capacity to adopt new technologies including those that might lower carbon emissions. Advances in adaptation can mean the difference between minimal and catastrophic loss of life. Anticipatory action is far more cost effective in climate-vulnerable low-income countries, where delays can result in escalating damage costs. MDBs should assess their entire portfolio to ensure proper integration of adaptation objectives and practices.

2. **MDBs must rebalance portfolios to lend more for adaptation relative to mitigation and provide more grant-based funding in low- and lower-middle-income countries to ensure no additional debt burden. A shift to grants will require new resources from rich country shareholders.**

Adaptation is not prioritized over mitigation in low- and lower-middle-income countries. An examination of the World Bank’s climate portfolio of over 2,500 projects between 2000 and 2024 reveals a focus on mitigation (see Figure R.1). Of the total amount of \$177 billion spent on climate finance for all countries between 2000 and 2024, 58 percent was directed to mitigation while adaptation projects received 42 percent. Lower-middle-income countries received just over \$42 billion in adaptation financing, while low-income countries only received slightly more than \$14 billion. Mitigation spending is \$45 billion and \$12 billion for lower-middle- and low-income countries, respectively, even though they are relatively low-emitting. For the period 2020-2024, the ratio of mitigation to adaptation spending is 54 percent to 46 percent. The share of a project loan allocated to adaptation and/or mitigation components is calculated as a percentage of the total loan, up to 100 percent. Most mitigation projects are valued at less than 100 percent of the loan, but more mitigation projects (15 percent) are valued at 100 percent of the loan as compared to adaptation projects (6 percent).

This trend extends beyond the World Bank. Looking across the MDBs, 37 percent of \$60.9 billion spent on climate finance in low- and middle-income countries in 2022 went to adaptation, while 63 percent went to mitigation. Of total climate finance invested across all economies in 2022,

Figure R.1: World Bank Climate Finance: 2000-2024



Source: World Bank Projects Database. GNI per capita is calculated using the Atlas method and is not PPP adjusted.

just a quarter was committed to adaptation finance. Seven of the 10 MDBs included in a joint report on MDB climate finance reported portfolios in low- and middle-income countries skewed towards mitigation.

MDBs must prioritize concessional funding for adaptation over mitigation in low- and lower-middle-income countries, with a preference for grants wherever possible. Vulnerable countries must have the resources they need to adapt to climate and weather shocks, while also building capacity to prevent losses from future weather events.

- MDBs should set clear public criteria for selection of mitigation-related projects in low-income and lower-middle-income countries. Mitigation-related projects are most justified when they are consistent with providing long-term development needs – for which useful criteria include using a co-benefits rubric and attention to mitigation-adaptation linkages – and ensuring no additional debt burden.**

The application of these criteria should be particularly stringent for low-income countries that contribute a negligible share (<0.5 percent) of global emissions. The case for attention to low-carbon development is stronger for LMICs, particularly those no longer eligible for concessional loans (i.e., IDA).

The case for a focus on development needs and avoiding mitigation that has only tenuous connections to development is underscored by current emissions patterns:

- Low-income countries—the poorest countries in the world who are recipients of concessional (i.e., IDA) funds— are responsible for less than 0.5 percent of global emissions. Assuming these countries grow at 5-8 percent per year with proportionate emissions growth, in 2035 they would still be responsible for only 1-2 percent of today's global emissions, and still a small share of likely future emissions. The expenditure of \$12 billion on mitigation for this group is hard to justify.
- Lower-middle-income countries eligible for concessional (IDA) loans are responsible for just 4 percent of global carbon dioxide emissions. At 5 percent growth per year until 2035 with proportionate emissions growth, they would make up only about 5 percent of today's global emissions and still under 10 percent if global emissions halved. Lower-middle-income countries that are no longer eligible for IDA support are responsible for 11 percent of global emissions, and at 3 percent growth would account for 18 percent of today's global emissions with a higher share if global emissions halved. The case for investing in low-carbon development is stronger for this group, particularly those no longer eligible for IDA support.

- MDBs must do more to operationalize the tracking of climate projects as specified in the Common Principles for Climate Change Adaptation Finance Tracking, which MDBs adopted in 2015. To be truly transformative, MDBs must also track the impact of projects on women and girls and on marginalized communities.**

The Common Principles provide guidance on how to identify climate objectives of a project. This Joint Methodology, updated in 2022, involves the following three steps:

1. Set out the project's context of vulnerability to climate change.

2. Make an explicit statement of intent to address this vulnerability as part of the project.
3. Articulate a clear and direct link between the vulnerability and the specific project activities.³

A plain reading of a sample of documents on climate projects, however, shows that these steps are often incomplete or missing entirely. Where climate adaptation tags are ambiguous, the problem appears to reflect the lack of clear definitions or parameters guiding the World Bank's adaptation activities. Several hundred projects that are tagged with a 20 percent climate share or less do not show a clear or immediate link to climate change. Projects on tax reform, payments systems and financial access, COVID-19 response, digitization of government services and salaries, early childhood development, public utility reform, macroeconomic reform, and trade logistics, are tagged with a climate change label, often without explanation.

MDBs must fully operationalize the methodology to which they are committed and build a more intentional portfolio on climate adaptation. For climate finance to be truly transformative, moreover, it must track the impact of projects on women and girls and on marginalized communities, for whom evidence shows there is a differentiated effect of climate. Current data from most MDBs including the World Bank do not disaggregate climate finance by gender. MDBs should provide data on the proportion of their climate finance that integrates gender equality objectives and explain how funded climate change projects support gender equality objectives. This action will facilitate tracking outcomes of gender-relevant climate finance from MDBs.

5. MDBs must prioritize investments that maximize development and adaptation synergies, in agriculture and other sectors. They must draw upon best practices and consider multisectoral and programmatic approaches to boost resilience. MDBs should rely on interventions that are proven to work at scale, based on scientific data, and incorporate local knowledge.

Although adaptation activities can vary significantly, there are broad areas we know make society more resilient to climate extremes that result from both natural variability and climate change. Investments in flood management, demi-lunes and other rainwater harvesting techniques for land restoration, nutrient-dense crops, seed diversity including hybrid and native seeds, and reliable weather forecasting, can help farmers adapt to climate. Ecosystem-based adaptation can be truly transformative by integrating the sustainable management, conservation, and restoration of ecosystems to reduce climate-related risks while simultaneously providing social, economic, and environmental benefits. Multisectoral, programmatic approaches that promote investment in a wide range of resilience capacities can help to boost overall resilience. Climate-proofed infrastructure should be inclusive of and accessible to all members of society.

Identifying vulnerabilities and plans to address them will depend on both scientific data and the specific context, which MDBs acknowledge in their Joint Methodology. Capacity also matters. The Adaptation Fund's Direct Access Modality for national implementing entities might serve as a model: It is a suite of granting mechanisms that reduces transactions costs and helps countries overcome capacity and readiness issues. And while the ability to scale is important, innovation for climate adaptation should not be ignored. MDBs could create dedicated funding windows for pilot projects and innovation in climate adaptation, allowing for the development and scaling of new, context-specific solutions to open new pathways for resilience.

6. MDBs must recognize the role of energy in adapting to climate. Mitigation measures should not undermine the achievement of sufficient and affordable energy in low- and lower-middle-income countries.

All countries will require a minimum level of continuous power to cope with extreme weather and climate events. Access to affordable, reliable energy is central to the proper functioning of farms, businesses, schools, and hospitals and for the operation of early warning systems in extreme weather or climate events.

The World Bank has committed to providing electricity access to 300 million people in Africa by 2030.⁴ But the MDBs must do more—they must recognize the Modern Energy Minimum, defined as 1,000 kilowatt hours per person per year. The Modern Energy Minimum was endorsed by African governments at the 2022 Sustainable Energy for All Forum in Kigali, Rwanda. It is a benchmark that defines the level of energy access necessary to meet essential household and production needs, but is also important for coping with extreme heat, variable rainfall and other climate events.

7. MDBs must evaluate their climate portfolio every five years, using quantitative and qualitative tools, with the results made public and monitored annually to track progress.

To date, there is little evaluation of climate spending by MDBs. For example, the World Bank's Independent Evaluation Group, which assesses the effectiveness of the World Bank's projects and programs, is yet to carry out an evaluation of the Bank's spending on climate change.

Independent evaluation can only be undertaken if there is an evidentiary base of self-evaluation. In other words, each project completion report must present a picture of climate accomplishments, so that an aggregate picture might be constructed every five years. A significant proportion of MDB projects (usually around 20-25 percent of the portfolio) is from Development Policy Financing, a form of budget support where climate outcomes will be more challenging to

measure and/or need to be measured differently. Ex-ante, an evaluation framework might be put in place to prevent goal-shifting. Outcomes can be improved only if impartial evaluations are conducted and made available to the public, ensuring that lessons learned are applied to future projects and programs.

Multilateral banks must establish clear means by which external observers can assess the value of projects and programs. Quantitative metrics could include absorptive capacity indicators such as the proportion of households or communities that can cope with shocks on their own once the project has been completed; and adaptive capacity indicators such as the proportion of households or communities that are able to preemptively implement behaviors or activities based on prior experience with weather and climate shocks. Qualitative measures might include experience-based assessments or descriptions of improvements in institutional capacity for climate adaptation. Adaptive learning processes, where adaptation projects and programs are continually refined based on evolving climate risks and local feedback, should also be incorporated.

INTRODUCTION

Poor countries are not responsible for climate change. Forty-eight sub-Saharan African countries—home to roughly one-eighth of the world’s population—account for not even 1 percent of cumulative global greenhouse gas emissions. Global emissions would increase by only about 1 percent in these 48 African countries if they tripled electrification with the use of natural gas.⁵

Poor countries are paying for the carbon emissions of advanced industrialized economies by suffering through extreme heat, recurrent drought, and coastal flooding, among other disasters.⁶ To enable countries to respond to climate change, the Intergovernmental Panel on Climate Change (IPCC) outlines two broad categories of action: *adaptation* and *mitigation*. Adaptation, under the IPCC definition, refers to “the process of adjustment to actual or expected climate and its effects.”⁷ Mitigation, under the IPCC definition, refers to “human intervention to reduce the sources or enhance the sinks of greenhouse gasses.”⁸ Mitigation, in other words, is necessary for slowing down the pace of climate change, while adaptation is necessary for dealing with the immediate impacts of weather and climate. Both adaptation and mitigation efforts are needed to make communities, countries, and the world more resilient to weather- and climate-related events.

Vulnerability to the climate is not felt evenly across the world, however, and countries’ capacities to manage extreme weather and climate events are highly unequal. Poor countries do not enjoy the same level of resilience afforded by paved roads, reliable power, buildings built to code, warning systems, food security, cold storage systems, and other infrastructure, enabled by decades of fossil fuel use in rich countries. There are also differences in governance capacity and institutional frameworks between rich and poor countries, which has enabled the development of such infrastructure to support resilience.

The challenge in the development finance space is to build practices that are both informed by the things that we know work and accountable to the people intended to benefit from development projects. But climate finance has been plagued by indecision and contentious debates around the relative roles and responsibilities of rich and poor countries. The annual Conference of the Parties (COP) gathering of world leaders on climate change, for example, approaching its thirtieth year of negotiations, has followed a predictable pattern: splashy rhetoric from rich countries about the need for transformational change, agreeing to nonbinding commitments to support poor countries’ adaptation plans, yet limited follow-through on those commitments.⁹

Commitments have also been declining.¹⁰ Although rich countries agreed to mobilize “new and additional” climate finance between 2020 and 2025 with a goal of \$100 billion annually, this goal was

met only in 2022, and it is not clear whether financing was additional or simply moved from development to climate projects.¹¹ At COP26 in Glasgow, rich countries committed to doubling adaptation finance by 2025 (from 2019 levels). A lack of a common definition has made it easier for providers to take shortcuts in meeting targets by adding projects that are marginally related to climate goals.¹² Overall, investments in adaptation are much less than what is needed.¹³

Some new sources of climate finance, moreover, are in the form of loans that will result in higher levels of debt, as is the case with multiple Just Energy Transition Partnerships (JETP). For example, 94 percent of the JETP in Senegal announced in 2023 will come in the form of loans,¹⁴ while 97 percent of the JETP in South Africa will be delivered as loans.¹⁵ For many low- and lower-middle-income countries (such as Senegal), taking on additional debt on top of already significant debt burdens may hinder adaptation efforts and overall development. These loans, moreover, have not been disbursed in a timely manner.

Other aspects of the current climate financing landscape present further challenges to poor countries' adaptation and resilience efforts. Official development assistance has been decreasing, resulting in diminishing funds available not just for climate adaptation but for development overall. This trend means fewer resources for climate finance are available to poor countries through pooled financing mechanisms. Poor countries rely on multilateral development banks (MDBs), especially for concessional financing that is not otherwise accessible.

The private sector is risk-averse in poor countries, making it unlikely that private-sector sources will fill this financing gap. When it comes to financing adaptation specifically, the private sector is especially unlikely to fill the gap; in Africa, for example, for the period between 2019 and 2022, development finance institutions provided 63 percent of adaptation finance, while less than 3 percent of adaptation-specific activities receive financing from the private sector.¹⁶ Not only is there a growing need, but funding climate adaptation in poor countries is a commitment and a responsibility enshrined in Article 4 of the United Nations Framework Convention on Climate Change (UNFCCC); it is not and should not be considered charity.

While shareholders in rich countries have been pressuring MDBs to expand investments in climate, the results so far have been variable. Although global climate finance doubled between the periods of 2019–2020 and 2021–2022, global adaptation finance, as a share of global climate finance, decreased by two percentage points across the same periods.¹⁷ Only about one-fifth of total global adaptation finance flows went to Africa in 2021–2022, despite the region being among the worst-hit by climate change.¹⁸

The Paris Agreement stipulates that half of climate finance to developing countries should be allocated to mitigation and half to adaptation, yet in practice it is estimated that only 5–10 percent of

total climate finance went to adaptation.¹⁹ The adaptation finance gap, in other words, is significant.²⁰ Analysis of the World Bank's climate portfolio shows that it is skewed towards mitigation, while there is little by way of standardized reporting on climate-related outcomes.²¹

This working group was convened to explore how development banks can more meaningfully support poor countries with adaptation and resilience. The intention of this work is to outline principles for and examples of meaningful accounting of climate spending that is transparent, easy to understand, and responsive to the circumstances of poor countries, and which can be adopted by MDBs. This report aims to provide MDBs with concrete, practical, actionable advice on moving from concepts to meaningful practice of climate adaptation, with the understanding that poor countries will need resources not just to adapt to immediate climate and weather events but also more broadly to build resilience.

The choice of this working group to focus on MDBs results from several factors. First, the World Bank is the largest provider of development finance to poor countries. The World Bank and other MDBs have a significant advantage in their ability to finance adaptation projects and to fund projects at scale. World Bank money can also attract other investors to projects, so as an entity, it can be successful at leveraging additional financing. Second, the World Bank has set ambitious targets for climate finance in low- and middle-income countries. These commitments present an opportunity to improve the quality of these large-scale investments so that they have and demonstrate clearer value as climate change mitigation and adaptation projects. Third, MDBs have a broad mandate to reduce poverty and improve well-being; this mandate overlaps with climate adaptation goals.

The scope of this working group is focused on the role of MDBs in climate finance. This focus does not reflect a value statement on MDBs' position within the climate finance ecosystem; rather, it is informed by the role MDBs already occupy and a motivation to support them in maximizing the positive impact of their projects in countries most vulnerable to climate and weather events. Where relevant, other players in the climate finance space are discussed, with a view to understanding MDBs' place in the climate ecosystem.

Key questions considered by this working group include:

1. Why is climate adaptation important?
2. What actions should MDBs take to address the need for adaptation finance?
3. What kinds of investments are needed to build climate resilience?
4. How do we measure success?

The following report reflects the individual views and discussions between working group members, as well as findings from a review of the literature on climate adaptation finance.

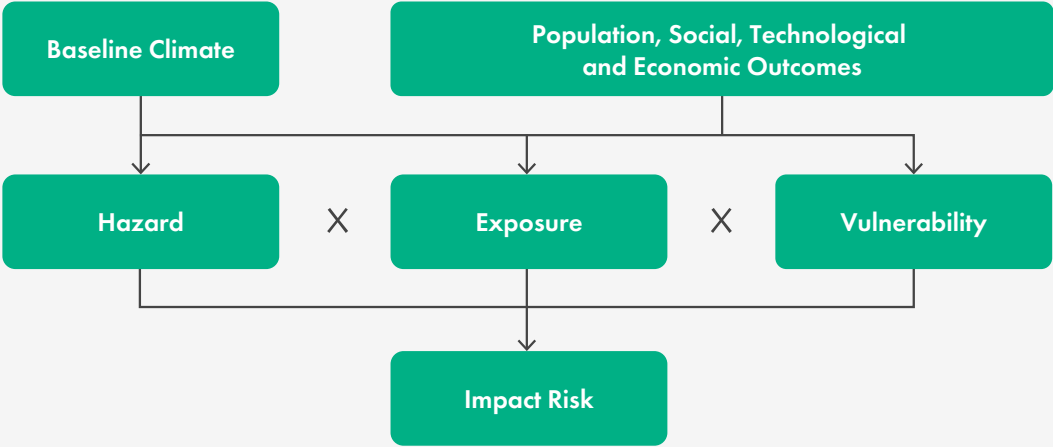
SECTION A

**THE IMPORTANCE OF
CLIMATE ADAPTATION**

While humanity has benefited from a long period of relative climatic stability, history is rife with examples of devastating climate events that have claimed thousands, or even millions, of lives.²² At the same time, we have found tremendous success strengthening our defenses against natural disasters. Climate adaptation is not a new phenomenon driven by government initiatives or international conferences. Rather, it represents humanity's ongoing efforts to reduce vulnerability to the environment through socio-economic development, technological progress, and the rule of law.

The risk of adverse consequences from weather and climate phenomena can be thought of as the interaction of three components: *hazards* (physical weather and climate phenomena such as wildfires, extreme temperatures, extreme precipitation, droughts, and hurricanes); *exposure* (people or assets in the path of hazards); and *vulnerability* (the propensity of people or assets to be adversely affected by the hazard).²³ Figure 1 describes the interaction between hazard, exposure, and vulnerability.

Figure 1. A simplified model of contributing factors to overall impact risk of weather and climate phenomena



Much of the discussion on climate change is focused on reducing greenhouse gas emissions. Reducing emissions is critical to prevent further increases in hazards in the long term. Only focusing on mitigating hazards, however, can be counterproductive to reducing overall climate impact risk, especially in low-income countries. Focusing only on hazards can distract from reducing exposure and vulnerability, which are often much larger drivers of damage.²⁴ Depending on the context, reducing the exposure and vulnerability components of climate impact risk may have higher returns—especially in the short term—than efforts to reduce hazards via mitigating emissions.²⁵

Mitigating emissions is of course a critical component of averting negative impacts of climate change, and expanding focus on exposure and vulnerability does not mean reducing focus on mitigation or casting mitigation aside. With limited resources, however, there are trade-offs that must be recognized. For the same budget, an overemphasis on mitigation at the expense of adaptation will be counterproductive in the medium and long term for overall climate action. Adaptation efforts in many instances are precisely what is needed for poorer countries to build absorptive capacity to adopt emission reduction technologies. Over the long term, investments in adaptation that build resilience are likely to garner more support for climate action.

With more climate change—induced weather and climate extremes occurring annually, reducing and averting emissions to curb the frequency and intensity of such weather and climate extremes should be a priority. An inordinate focus on hazard reduction without an attendant focus on exposure and vulnerability, however, might increase the risk of overall negative climate impacts because the successes in hazard reduction could be offset by unaddressed high levels of vulnerability. Therefore, to reduce overall climate impact risk, it is important to prioritize all three components of risk: hazard, exposure, and vulnerability.

Extreme events and consequences

What drives these extreme events? In two important areas, evidence shows that a warmer climate is responsible—coastal flooding (sea level rise) and extreme heat.²⁶ For these hazards, there is a strong signal-to-noise ratio on climate change as the driving factor. Furthermore, the evidence is strong that all contemporary warming is anthropogenic and that global temperatures would be flat or slightly cooling were it not for anthropogenic greenhouse gas emissions.²⁷ Long-term changes in extreme heat and sea level rise are a direct consequence of that human-caused background warming.

For extreme heat, quantified with the annual maximum daily temperature at any given location, we expect an increase in most locations roughly in line with local annual mean temperature. Due to land amplification of warming, both annual maximum daily temperature and the annual mean temperature over land are expected to increase roughly 50 percent more than the global mean.²⁸ So for global warming of 3 degrees Celsius, we would expect extreme daily temperatures over most land to increase by roughly 4.5 degrees Celsius. This proportionality holds with rarer events such as those that occur once every 50 years, and there are no locations where we do not expect extreme heat to increase.²⁹ Thus, all population centers should be prepared for extreme heat to increase by several degrees Celsius this century.

Extreme heat has profound impacts on low-income countries, exacerbating existing vulnerabilities and creating new challenges across various sectors.³⁰ Increased temperatures lead to a rise in

heat-related illnesses such as heat stroke, dehydration, and respiratory issues. Extreme heat is linked to higher mortality rates, particularly among vulnerable populations like the elderly, children, and those with pre-existing health conditions. High temperatures can also contribute to the spread of vector-borne diseases such as malaria and dengue fever, which thrive in warmer climates. Extreme heat can reduce crop yields due to heat stress on plants, leading to food shortages and increased prices. The combined effects of reduced crop and livestock productivity threaten food security, particularly in regions already facing hunger and malnutrition.

Extreme heat exacerbates water scarcity by increasing evaporation rates and reducing the availability of freshwater. In regions where access to clean water is already limited, this can lead to severe water shortages. Competition for limited water resources can lead to conflicts, both within and between communities, further destabilizing regions. As living conditions become unbearable due to extreme heat, people may be forced to migrate to cooler areas, leading to increased urbanization and strain on city resources. Extreme heat can lead to habitat loss and the decline of biodiversity, thereby negatively affecting ecosystems on which some low-income communities rely. In extreme cases, whole communities may be displaced due to uninhabitable conditions, leading to humanitarian crises.

The impacts of extreme heat are not evenly distributed. Low-income populations who may lack access to air conditioning, healthcare, and other adaptive measures are disproportionately affected. Extreme heat can damage roads and power grids—essential infrastructure for adaptation—thus creating a vicious cycle in these regions. This trend exacerbates existing inequalities.

There is appreciable local variability in **sea level rise** due to local land subsidence and uplift, as well as varied wind patterns and local ocean warming. Still, the background sea level is rising, currently at a rate of 0.37 meters per century. It will continue to rise due to thermal expansion of the ocean and net ice mass loss from Greenland and Antarctica.³¹ Global mean sea level rise is projected to rise roughly 0.5–1 meters over the 21st century, and regional sea level rise for the majority of locations will be within 20 percent above or below the global mean sea level rise.³² Thus, most coastal locations should be prepared for over half a meter of background sea level rise, which can translate into much larger areas of water inundation for a given extreme event such as a storm surge.

Sea level rise affects everything from ecosystems and agriculture to human settlements and economies. It accelerates coastal erosion, leading to the loss of land that many communities rely on for housing, agriculture, and infrastructure. In low-income countries, where resources for protective measures such as seawalls are limited, this can result in significant displacement and loss of livelihoods. Coastal ecosystems such as mangroves, coral reefs, and wetlands are also threatened by rising sea levels. These ecosystems are crucial for protecting coastlines, supporting fisheries, and providing resources for local communities.

Higher sea levels lead to more frequent and severe flooding, particularly in low-lying areas. This not only damages homes and infrastructure but also displaces people, often permanently. Fertile coastal farmland can also be lost to sea or become too salinized for agriculture. The associated loss of coastal habitats can reduce fish stocks, a crucial source of protein and income for many communities in low-income countries. As coastal areas become uninhabitable, people are forced to migrate, leading to overcrowded urban areas and increased pressure on infrastructure and resources. Increased flooding can lead to the spread of waterborne diseases such as cholera, especially in areas with inadequate sanitation and healthcare systems.

For other hazards, natural variability of climate dominates the climate change signal on planning timescales of 30 years, and on local spatial scales.³³ On these shorter, localized scales, weather is still determined more by the roll of the atmospheric dice than by greenhouse gas emissions. Also, there is no coherent trend over the length of observational datasets for floods,³⁴ droughts,³⁵ hurricane activity,³⁶ or wildfire activity³⁷ where future projections are highly uncertain and depend very much on human land use and land management. That said, an analysis of common disasters in Africa from 2008 to 2018 found that natural hazards such as droughts, floods, and storms most frequently triggered these disasters, affecting 157 million people and resulting in 47,543 deaths.³⁸

Events caused by natural weather variability are *no less devastating*, and we are nowhere near sufficiently adapted to them. Floods, droughts, hurricanes, and wildfires are detrimental to human life and property. These and other climate impacts are captured by a body of literature demonstrating³⁹ substantial⁴⁰ economic⁴¹ impacts⁴² from weather⁴³ variability⁴⁴ in the historical record. If we were truly adapted to our climate, the global economy would be insulated from the environment, and we would have no forced displacement, no billion-dollar disasters, and no observable relationships between weather and economic outcomes.

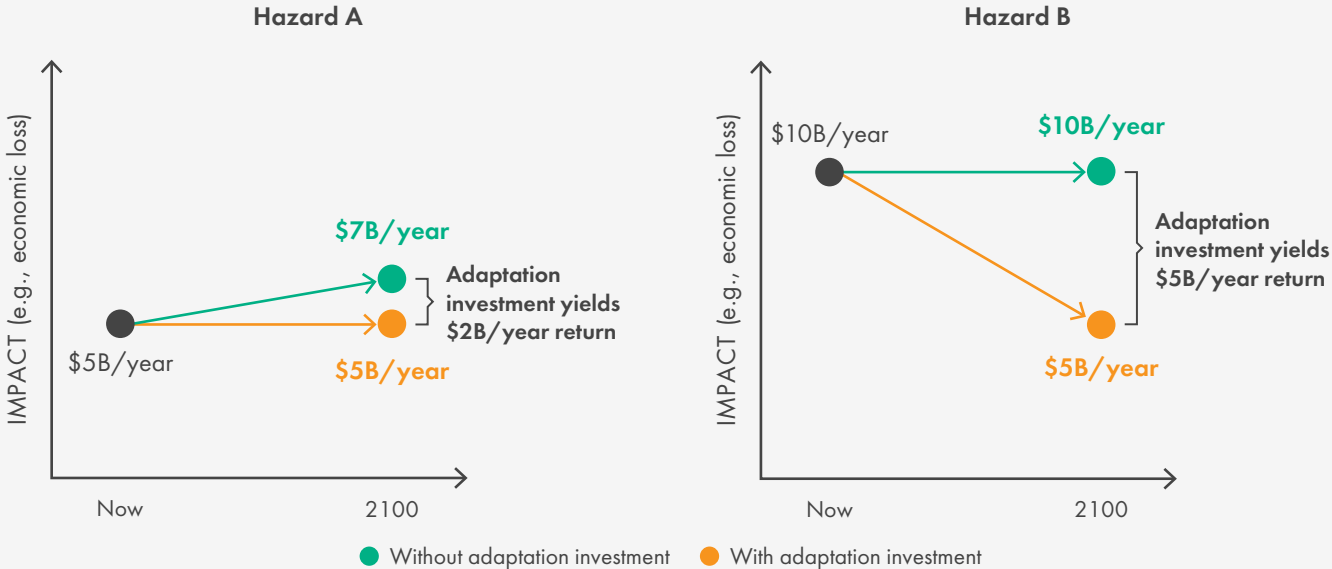
Some hazard trends, such as historical and projected decreases in extreme cold,⁴⁵ are moving in a benign direction. Nonetheless, cold-related deaths far outnumber heat-related deaths,⁴⁶ and events such as the 2021 Texas power crisis demonstrate far-reaching societal vulnerabilities even in high-income countries.⁴⁷ We need increased climate adaptation even in rich countries, and even for those phenomena for which climate change is “helping.”

Baseline impacts

The baseline impact of a hazard cannot be left out of decisions on how best to adapt to climate, and a projected change in a hazard does not necessarily make it a priority in adaptation investment. Figure 2 illustrates this point. Consider Hazard A, which is expected to become more destructive in the future, and Hazard B, which is not expected to become more damaging. Adaptation investment for

Hazard A completely negates its enhanced destructiveness, which makes it appear to be a successful investment. If we invest in Hazard A at the expense of Hazard B simply because Hazard A is projected to change and Hazard B is projected to remain constant, however, we will be making a mistake. The return on investment is higher for Hazard B (\$5 billion per year) than it is for Hazard A (\$2 billion per year).

Figure 2. Natural variability



Even at the starting point for low-income countries (and for all countries), there is considerable vulnerability to natural variability. In other words, adapting to the baseline is itself a huge challenge, on top of which we have climate change, making certain types of weather events much worse. Climate events such as extreme heat and coastal floods, along with droughts, hurricanes, and wildfires, present significant obstacles to human progress. For low-income countries especially, then, adaptation can make an enormous difference in reducing vulnerability to the effects of weather and climate, and in minimizing damage caused by weather and climate events. Advances in adaptation can minimize loss of life and damage, while also making communities more broadly resilient.

SECTION B

**THE MULTILATERAL
DEVELOPMENT BANKS
AND CLIMATE ADAPTATION**

In 1992, Al Gore termed adaptation to be “a kind of laziness, an arrogant faith in our ability to react in time to save our skin.”⁴⁸ If this argument had some resonance then, it is completely untenable now. Climate adaptation—the set of actions that societies take to protect their populations from extremes, such as storms, floods, droughts, heat waves, and cold snaps—works. It includes all the things people in rich countries take for granted: well-constructed buildings that withstand disasters, dikes and dams that protect from floods, air conditioning and cold storage for food and medicines, early warning systems, well-equipped first responders, and evacuation routes along well-paved roads.

Multilateral development banks—the largest providers of finance—are overwhelmingly funding more climate mitigation than adaptation in poor countries. Adaptation is intrinsically linked with development; you cannot have successful development without adaptation and vice versa. By de-prioritizing adaptation, development banks such as the World Bank risk keeping impoverished countries poor and at greater vulnerability to catastrophic weather- and climate-related disasters.

In recent years, the World Bank and its regional counterparts have been under immense public pressure, mostly from the richest shareholders, to expand their climate portfolio. Led by the World Bank, MDBs have set ambitious targets to finance climate change mitigation and adaptation projects in low- and middle-income countries. As a result, their climate portfolios have undergone a significant expansion, especially after the publication in 2016 of the first [World Bank Group Climate Change Action Plan](#).

Too often and because of this push to expand climate portfolios, the *amount* of finance has become a proxy for *outcomes* in agenda-setting and strategy at both MDBs and bilateral agencies. For example, much of the World Bank reform agenda under discussion by the Bank’s shareholders over the past few years has focused on optimizing the institution’s balance sheet to scale up climate finance, with less of a focus on *how* the Bank is programming its climate finance. How the World Bank’s climate projects reduce emissions or support poor countries build resilience is consequently unclear.

Poor countries are not high emitters

The push for MDBs to link their investments to addressing climate concerns stems in part from a fear that, unless developing countries take action to decarbonize now, their economic growth will lead to vast emissions that will derail all global efforts to limit climate change. It also arises from climate colonialism—where rich countries are pushing responsibility for climate change onto poor countries without themselves taking sufficient action to account for their own responsibility in increasing carbon emissions.

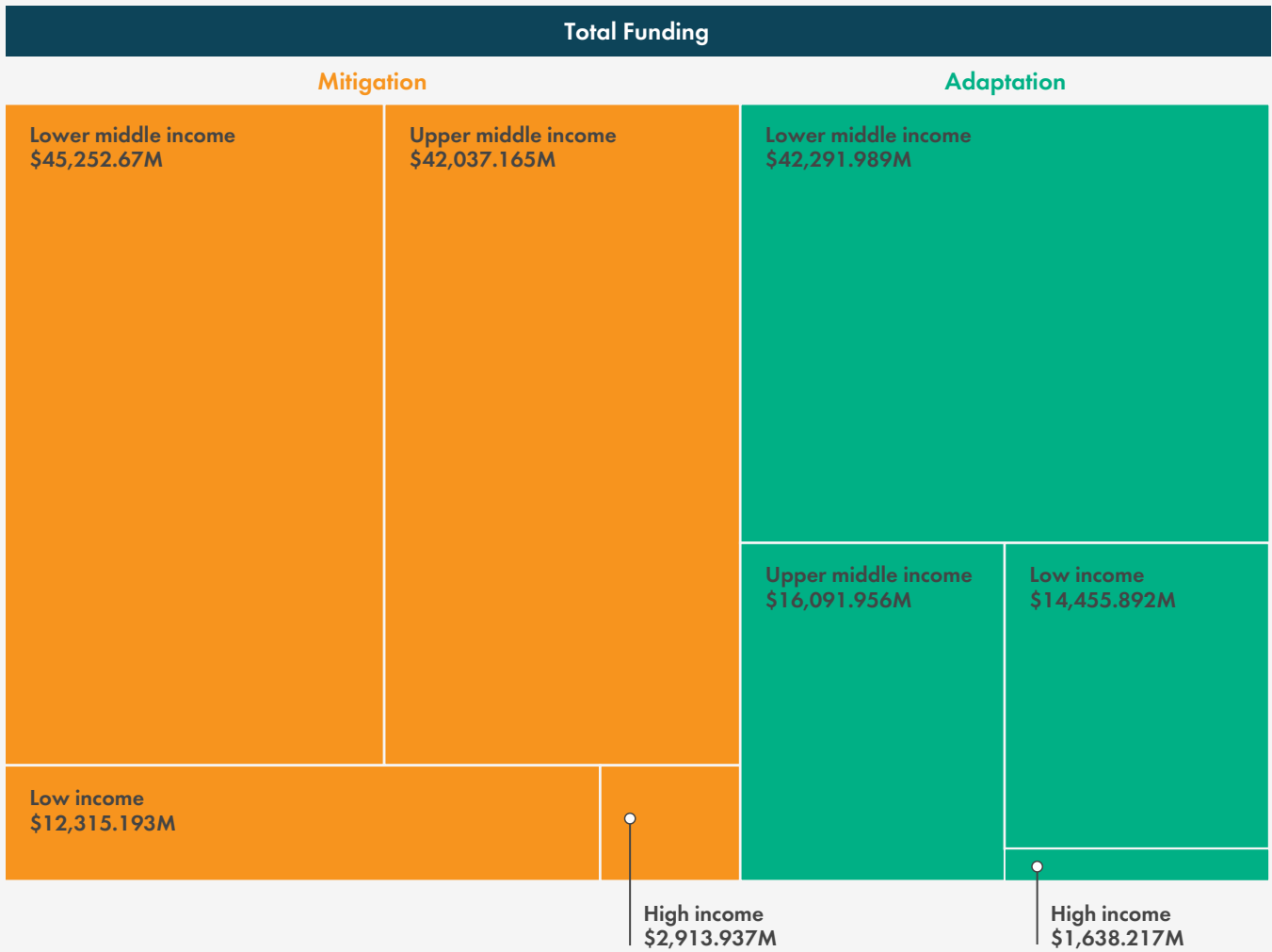
Research by economists at the World Bank shows that ending extreme poverty will have a negligible effect on emissions.⁴⁹ The fact is that emissions from poor countries will remain very low for decades to come, even if their economies grow rapidly and they do not take action to reduce emissions. If rich countries slashed emissions to the most aggressive targets plausibly imaginable, poor countries' emissions would still be a small portion of the global total:⁵⁰

- Low-income countries—the poorest countries in the world who are recipients of concessional (IDA) funds—are responsible for less than 0.5 percent of global emissions. Assuming these countries grow at 5-8 percent per year with proportionate emissions growth, in 2035 they would still be responsible for only 1-2 percent of today's global emissions, and still a small share of likely future emissions. The expenditure of \$12 billion on mitigation for this group is hard to justify.
- Lower-middle-income countries eligible for concessional (IDA) loans are responsible for just 4 percent of global carbon dioxide emissions. At 5 percent growth per year until 2035 with proportionate emissions growth, they would make up only about 5 percent of today's global emissions and still under 10 percent if global emissions halved. Lower-middle-income countries that are no longer eligible for IDA support are responsible for 11 percent of global emissions, and at 3 percent growth would account for 18 percent of today's global emissions with a higher share if global emissions halved. The case for investing in low-carbon development is stronger for this group, particularly those no longer eligible for IDA support.

Climate finance and the multilateral development banks

An examination of the World Bank's climate portfolio of over 2,500 projects between 2000 and 2024 shows that the Bank has a climate portfolio skewed towards mitigation (Figure 3). Of the total amount of \$177 billion in financing for all countries, 58 percent of its climate financing was directed to mitigation, while adaptation projects received 42 percent. Low- and lower-middle-income countries—those with annual per capita income of less than \$4,255—have received a total of \$56 billion in adaptation financing as compared to \$58 billion in mitigation spending. Figure 4 shows mitigation and adaptation spending for the period 2020 to 2024; the share of adaptation funding has risen in recent years to 46 percent, while mitigation is at 54 percent. The share of a project loan allocated to adaptation and/or mitigation components is calculated as a percentage of the total loan, up to 100 percent. Most mitigation projects are valued at less than 100 percent of the loan, but more mitigation projects (15 percent) are valued at 100 percent of the loan as compared to adaptation projects (6 percent).

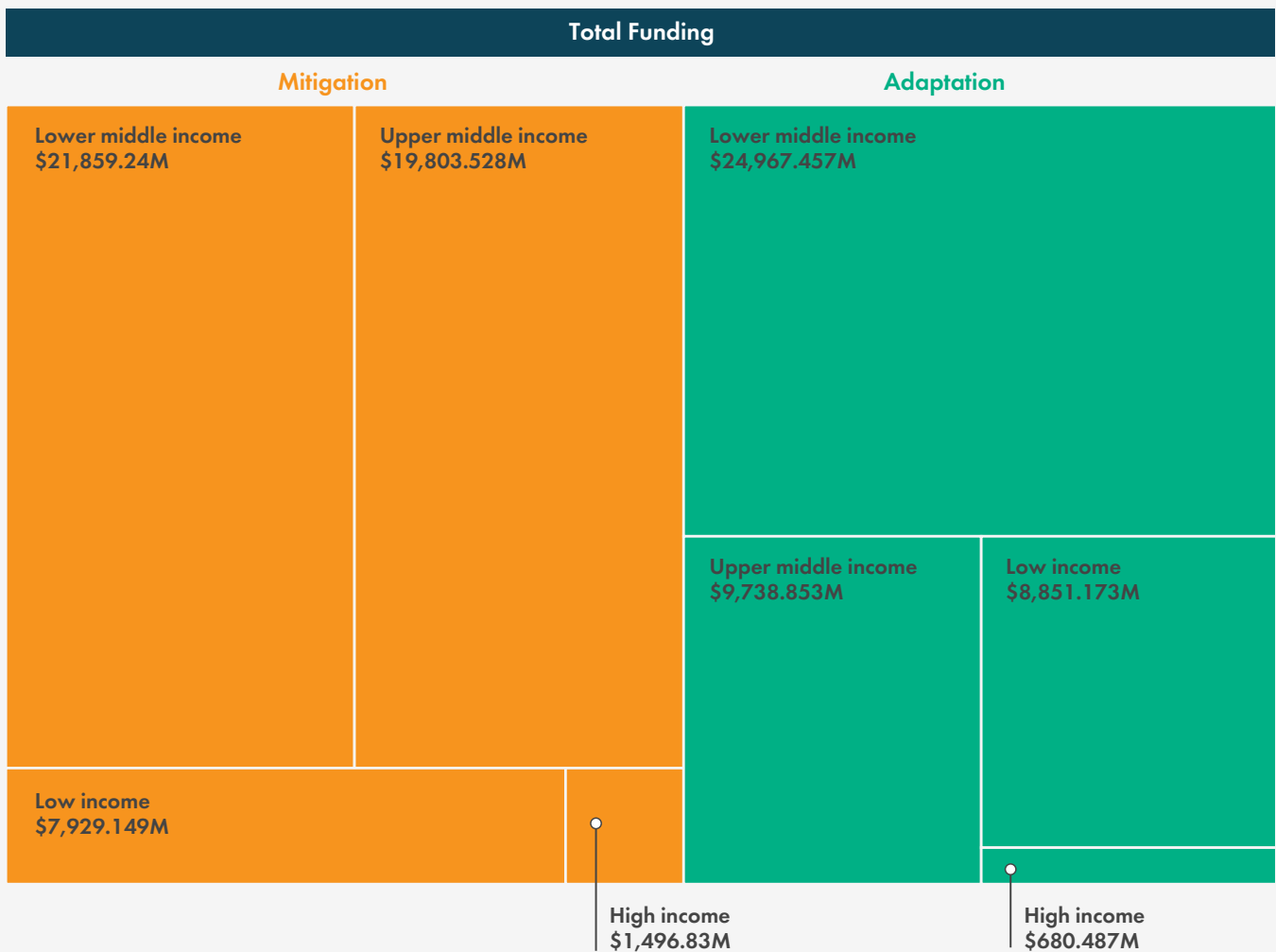
Figure 3. World Bank climate finance, 2000–2024



Source: World Bank Projects Database.

Note: GNI per capita is calculated using the Atlas method and is not PPP adjusted.

Figure 4. World Bank climate finance, 2020–2024



Source: World Bank Projects Database.

Note: GNI per capita is calculated using the Atlas method and is not PPP adjusted.

What’s worrying is the rising debt associated with climate projects, even though low-income and lower-middle-income countries are low emitters of carbon. These countries, already grappling with unsustainable debt levels, are now shouldering additional debt to address climate change, a problem they did not create. A report from the nongovernmental organization Development Initiatives highlights the significant debt burden from official bilateral assistance for climate, even when lending is on concessional terms.⁵¹ A new wave of debt threatens to deepen the financial vulnerabilities of these countries, potentially sparking crises that could derail their economic stability and hinder global efforts to combat climate change.

About 3.3 billion people live in countries that spend more on interest payments than on either education or health.⁵² The African Development Bank estimates that Africa's total external debt stands at \$1.15 trillion. Africa will pay \$163 billion to service debt in 2024, up from \$61 billion in 2010.⁵³ High debt burdens divert resources from development projects to debt servicing, limiting infrastructure and social investments. We have seen this play out before. Countries may face difficulties in repaying loans, leading to default or the need for restructuring, which can damage economic credibility. Governments may cut spending on essential services such as healthcare and education to prioritize debt payments.

Spending by the World Bank seems to run counter to the notion that adaptation should be prioritized over mitigation in low-income countries or that increasing debt burdens risks stalling development progress. Scaling energy access, paving roads, and other vital components of development in poor countries are key to making countries more resilient and will not contribute significantly to total global emissions. Poor countries are much more vulnerable to climate and weather shocks; adaptation should be a higher priority than mitigation.

Spending on mitigation in poor countries must have a dual purpose. It should not only reduce emissions but also contribute to the country's development through adaptation co-benefits, such as investing in public transport, high-speed rail, or improvements in economic infrastructure. Mitigation efforts should prioritize overlap with climate adaptation, meaning that projects should also help communities become more resilient to climate impacts.

Many middle-income countries, particularly lower-middle-income countries, do require financing to support climate adaptation and mitigation. As such, there is client demand for this type of activity. Countries classified as middle-income encompass a wide range of capacities, needs, and experiences, with three-quarters of the world's population living in the 105 cumulative countries in this income classification group (51 lower-middle and 54 upper-middle).⁵⁴ But low-income countries need even more help; they are at the greatest disadvantage in terms of accessible climate finance for adaptation. Many of these countries are also in climate-vulnerable sub-Saharan Africa, making the need for adaptation finance even greater.

The World Bank's project selection criteria do not appear to be guided by the evidence that poor countries are mostly in need of adaptation finance. Despite the Bank's stated commitment to split its climate finance investments evenly across mitigation and adaptation,⁵⁵ its climate portfolio shows an underfunding of adaptation, particularly in low-income countries, where it is needed most. Projects devoted solely to climate change are more likely focused on mitigation, even in countries with low emissions.

This trend extends beyond the World Bank. Looking across MDBs, 37 percent of \$60.9 billion spent on climate finance in low- and middle-income countries in 2022 went to adaptation, while 63 percent went to mitigation.⁵⁶ Of total climate finance invested across all economies in 2022, just a quarter was committed to adaptation finance.⁵⁷ Seven of the 10 MDBs included in a joint report on MDB climate finance reported portfolios in low- and middle-income countries skewed towards mitigation.

Mitigation takes precedence not only in climate finance portfolios but also in the legislative environment. The World Bank published a reference guide in 2020 on climate change framework legislation, which puts forward a guide for countries to use in assessing framework laws.⁵⁸ While adaptation is mentioned multiple times throughout the document, the guide is skewed towards decarbonization and emissions (i.e., mitigation). Notably, the guide asserts that “all countries, developed and developing, will need to decarbonize their economies if they are to deliver sustainable, resilient, and inclusive growth.”

National legal frameworks are indeed an important component of responding to climate change and building resilience, but the diversity of national contexts necessitates different kinds of climate laws with different sets of objectives, especially when trying to target adaptation. The World Bank’s reference guide’s prioritization of emission targets is not appropriate for all countries, particularly climate-vulnerable developing countries. An alternative approach better suited to adaptation is an “enabling approach to climate law,” in which climate considerations are embedded throughout political decision making such that climate is mainstreamed in the *process* of governance rather than limited to specific regulatory outcomes.⁵⁹ Similarly, the starting point for creating national climate laws and legal frameworks could be climate governance functions, or the essential functions necessary to respond to climate change with the required scale, strategy, and coordination.⁶⁰

The World Bank’s 2021–2025 Climate Action Plan, meanwhile, emphasizes “key systems transitions” in five areas that it identifies as important for both mitigation and adaptation.⁶¹ What is clear from the Action Plan, however, is that decarbonization and reducing emissions takes precedence over adaptation, even in poor countries. In the case of energy, for example, emphasis is placed on reducing emissions in high-emitting countries and pursuing low-carbon energy pathways for poor countries.⁶² This ignores the reality of poor countries—that low-carbon baseload energy is yet only possible with hydroelectric or geothermal power, such as in Kenya. Wind and solar are intermittent and cannot provide baseload energy unless storage costs decline significantly.

Explanations for the mismatch in MDB climate finance

There are several possible explanations for why MDB financing skews towards mitigation. For one, mitigation is more straightforward to measure and report on relative to adaptation, as mitigation primarily relates to reducing or averting carbon emissions. The universe of possible variables to measure reductions and prevention of emissions is much smaller than the universe of possible variables to measure or assess adaptation. Adaptation encompasses a wide range of interventions and associated objectives that can overlap substantially with other development activities and can require more qualitative approaches to assessment.⁶³ Given the pressure to scale climate finance, MDBs could be prioritizing what seems like the easiest way to show results quickly.

MDBs may simply find it easier to do large-scale mitigation projects in middle income countries. In theory, multilateral banks work together with country governments to decide what project to finance; in practice in poor countries, this process less frequently involves a balanced negotiation and instead follows more of a prescriptive model. Numerous factors influence this situation, such as the perception at multilateral banks that poor countries do not have the capacity (e.g., financial, legal, institutional, and/or human capital) to manage grants or loans and the perceived risk of corruption or fraud.

Low-income countries may be seen as less able to absorb and manage large sums of money relative to middle-income countries. It may not only be a perception issue; some poor countries might indeed lack the capacities required to manage large, administratively complex loans from multilateral banks. Consequently, multilateral banks may prefer to work with middle-income countries that have prior experience working with the banks because it seems like the easiest option. But again, poor countries are in greater need of adaptation finance, so the (real or perceived) challenge of lending to poor countries must be overcome. Staff at MDBs may also be under pressure to prioritize ambitious mitigation targets, in keeping with the preferences of their richest shareholders. As such, there is a risk of crowding out adaptation projects, even in the poorest countries.

That said, low-income countries in especially climate-vulnerable regions with limited access to public or private finance for climate adaptation should be prioritized in MDB climate portfolios. MDBs mobilize the largest amount of development finance and can work with governments, making them in theory well placed to deliver on adaptation finance.⁶⁴ Private-sector investment is generally limited in poor countries, while the growing debt burden of poor countries is also transforming into a debt crisis. Overall development funds are shrinking, moreover, which makes MDB resources particularly important for poor countries when combined with the lack of private investment and constrained domestic resources.

Tracking adaptation finance

The MDBs recognize how intertwined development and adaptation are and the need to disaggregate activities “to reduce the scope for over-reporting of adaptation finance.”⁶⁵ The MDBs, together with the International Development Finance Club, adopted the Common Principles for Climate Change Adaptation Finance Tracking in 2015, prompted by this recognition of the difficulty in disentangling solely adaptation finance from development finance.⁶⁶ The MDBs’ joint methodology for identifying what counts as adaptation finance, updated in 2022, involves the following three steps:

1. Set out the project’s context of vulnerability to climate change.
2. Make an explicit statement of intent to address this vulnerability as part of the project.
3. Articulate a clear and direct link between the vulnerability and the specific project activities.⁶⁷

In the updated Joint Methodology, MDBs further stated that they made changes to recognize the centrality of adaptation to development. The 2022 Joint Methodology indicates that, consequently, a broader range of activities can be counted as adaptation finance:

“Adaptation is no longer viewed purely as an add-on to development investments, but rather as an imperative for putting development on the path to resilience. As a result, adaptation support has expanded from traditional infrastructure sectors to a wider range of sectors, such as education, health, social protection, financial services, and research and innovation for adaptation solutions.”⁶⁸

It is true that adaptation is not an add-on to development and instead is intimately linked with development conceptually and practically. However, the rationale for counting projects or components of projects as climate-related—or more specifically, adaptation-related—should be clearly explained. The lack of clearly described causal relationships between investments and outcomes makes it more difficult to account for how money is allocated and why certain projects are prioritized over others. Currently, small shares of projects are being allocated to climate adaptation on an ad hoc basis, thereby raising concerns about the validity of climate portfolio totals.

The MDBs’ Joint Methodology offers guidance for differentiating adaptation projects from development projects by categorizing the types of activities MDBs consider adaptation finance (Table 1).

Table 1. A summary of MDBs’ three types of activities categorized as adaptation finance

	TYPE 1	TYPE 2	TYPE 3
Description	Activities that integrate measures to manage physical climate risks and ensure that the project’s intended objectives are realised despite these risks	Activities that directly reduce physical climate risk and build the adaptive capacity of the system within which the activity takes place	Activities that contribute to reducing the underlying causes of vulnerability to climate change at the systemic level and/or removing knowledge, capacity, technological, and other barriers to adaptation
Inclusive of	Adjustments or improvements required to ensure that the project performs well against experienced and anticipated impacts of climate change	Typically identified based on a robust understanding of physical climate risks faced by the system within which the project takes place— activities that are themselves adjusted to cope with experienced and anticipated impacts of climate change	Supports adaptation beyond its immediate scope by creating enabling conditions for policy and regulatory environment developments, physical or natural asset enhancements, capacity strengthening, technology developments, or knowledge enhancements— activities that are themselves adjusted to cope with the experienced and anticipated impacts of climate change
Adaptation finance	Adaptation is not the primary objective of the activity.	Adaptation is one of the objectives of the activity.	Adaptation is the primary objective of the activity.

Source: Adapted from Joint Methodology for Tracking Climate Change Adaptation Finance (2022).

Despite the guidance, there is often no clear rationale for why projects are tagged as climate related.⁶⁹ Indeed, a report on bilateral climate finance reporting concluded that greater transparency, including links to documentation and separate tracking of disbursements, is necessary to enhance clarity on the effectiveness and impact of bilateral climate finance.⁷⁰ The report also noted the lack of clarity on actual impacts of investments in climate finance and recommended that at minimum, ex ante impact should be reported in climate finance. The same set of recommendations is relevant for MDBs to ensure accountability of public money and effectiveness of climate finance. Ensuring clear rationales and direct links to adaptation objectives and outcomes in project documentation would help MDBs improve both transparency and potential effectiveness of their climate portfolios.

MDBs must build on their agreed-upon framework to further operationalize complementarity and causality in their climate strategies and investments. For example, Type 1 activities showcase how

to conceive of adaptation as an enabling factor of sustainability of MDB investments in the longer term. Presumably, MDBs want an infrastructure project such as a bridge to have longevity beyond the lifespan of the investment. Assessing climate vulnerability beyond the lifespan of the investment and planning for how to address that vulnerability—with or without MDB continued investment—can help in this regard.

Identifying vulnerabilities and plans to address them will depend on the specific context, which again MDBs acknowledge in their Joint Methodology.⁷¹ This process should involve extensive consultation with and leadership from local voices, as will be further discussed below.

Country ownership

Country ownership of climate adaptation projects should be a guiding principle in climate finance. Adaptation projects must be chosen in close consultation with client countries, be based on scientific data, incorporate local and indigenous knowledge where possible, and engage communities most impacted. At present, local leadership and ideas are not sufficiently incorporated into climate finance decisions at the World Bank or at other multilateral banks.

This unbalanced situation is not limited to the climate space. Indeed, bilateral agencies such as USAID have been struggling to realize their localization agenda, which aims to shift more of USAID funding to local organizations rather than large international NGOs.⁷² In climate finance (as in many other sectors), local and grassroots organizations are crowded out from multilateral funding by large intermediaries and by complex funding models and application processes, resulting in just 10 percent of climate funds going to local-level activities.⁷³ The Adaptation Fund and the Green Climate Fund (GCF) both have direct access funding windows, but these comprise a relatively small fraction of total adaptation finance flows.

For multilateral banks, the lack of country engagement may reflect the pressure that they are under from their richest shareholders. First, some of these shareholders are interested in rapidly scaling up the implementation of climate projects. MDBs may therefore be incentivized to choose what seems fastest and easiest to implement. Working with local or grassroots organizations might require providing additional technical guidance or financial resources, which may make it seem easier to work with international contractors or NGOs.

The aversion to risk and pursuit of the highest chance of success makes sense, but it is not the optimal approach to climate finance, neither in terms of project success and value nor in terms of climate justice. There are processes, however, that can improve accessibility of climate finance for local organizations and ways of partnering with countries in a way more driven by country ownership.

On the former, MDBs could implement quotas for international intermediaries as the Adaptation Fund has done, outline the specific process by which it (the MDB) will make accessible climate finance to local organizations, and if feasible, adopt different investment criteria for smaller organizations with less capacity to absorb multimillion-dollar loans or grants.⁷⁴

Another existing mechanism to draw from and build on is the World Bank's Country Partnership Framework (CPF). The Bank uses this framework to guide its work with member countries and to assess the effectiveness of World Bank country programs.⁷⁵ The framework follows a four-step process, which involves identifying the biggest constraints to poverty reduction, identifying areas where the World Bank can have the most value added, and undertaking performance and completion learning reviews. The process involves reviewing the country context and relevant documents (e.g., national strategic plans and poverty assessments) and consulting key stakeholders to inform the priorities of the World Bank's programming in the country. Using existing mechanisms such as the CPF to accommodate new objectives can build genuine country ownership.

Countries fall into different spaces on a continuum from pure adaptation (for example, a seawall) to a blend of adaptation and development outcomes. The challenge of defining adaptation is likely a factor in why MDBs prioritize mitigation in their climate portfolios, but it also underscores the value and necessity of country-owned processes for determining what counts as adaptation finance. A country-driven approach can present opportunities to define the space for what is considered resilient development, especially from the vantage point of local voices.

Another important dimension of country ownership in climate finance is the role of Nationally Determined Contributions (NDCs). Each country party to the Paris Agreement is expected to submit every five years a detailed plan for how the country intends to support climate mitigation and adaptation.⁷⁶ Not all countries have the capacity to define what adaptation projects and programs should look like. A collaborative platform established by MDBs where countries can share successful adaptation strategies and learn from each other could supplement country definitions. Such a platform could foster a more dynamic and interactive knowledge exchange among countries. In 2024, UN Climate Change launched a capacity-building portal aimed at coordinating learning resources for countries.⁷⁷ The portal is browsable by topic, resource type, region, and language. To avoid duplicating efforts, this portal could be further curated to create an adaptation sub-platform.

Capacity building for climate change still needs to be clearly defined.⁷⁸ A 2022 *Climate Policy* Special Issue explores the topic of capacity building for addressing climate change, covering themes such as building local capacity for adaptation, international capacity building under the UNFCCC, and implementation of capacity building programs.⁷⁹ The Special Issue underscores the importance of integration of capacity building and of local voices and countries themselves determining what capacities are needed.⁸⁰

Defining what capacity is needed, determining how to strengthen it, and supporting capacity building efforts is imperative in climate adaptation. While some international guidance is needed, capacity building should come from within and not be outsourced, not least to avoid external dictation that ignores local context. The World Bank and other MDBs can support countries in building the institutional capacity to “own” climate resilient development plans. The CPF process, for example, was cited as a participatory process that accounts for country preference. If adjusted to include climate, this could be a worthwhile avenue for the World Bank to pursue.

There are other resources available that can inform how multilateral banks engage in dialogue with countries to ensure country ownership rather than prescription. The Africa Policy Research Institute, for example, released a report in May 2024 that examined adaptation policies, strategies, and practices in three West African countries.⁸¹ The report highlighted that local actors are often missing from the design and implementation processes, and showcased locally led adaptation (LLA) strategies that helped address this gap. The report further underscored the gap in available resources for West African countries to implement their NDCs and capacity limitations. For the international community, the report authors recommend integrating LLA strategies and practices into national and global climate goals, strengthening capacity building, increasing climate finance for LLA specifically and access to that finance among local actors, and increasing resources for locally embedded knowledge and climate research.

Programmatic investment

The World Bank and other MDBs need not limit investments in adaptation to projects. Programmatic financing can have far-reaching, broader impacts relative to more narrowly defined projects. Programmatic and technical assistance provided through MDB investments, for example, have historically brought about whole-sector reforms and changes in the direction of the economy, showcasing the potentially enormous impact programmatic funds can have. Siloed project-specific investments can make it easier to track specific outcomes and account for spending, but they may be counterproductive to broader development and adaptation goals. One approach is not necessarily better than the other; rather, MDB shareholders should consider the tension created by incentives to bean-count (i.e., to quantify and report on narrowly defined outcomes and dollars spent), the potential limitations bean-counting induces, and the relative complexity of climate adaptation. Too broad a definition for adaptation, as previously noted, makes it easier to tag everything as adaptation and thus more difficult to track, so this tension requires special attention.

Deciding which programmatic areas to focus on will depend on country-specific needs and local contexts. Programmatic financing can take many forms. Again, complementarity within MDBs,

with countries' national strategic and action plans, and with other climate actors can help guide considerations. The process by which these determinations are made will inform how much countries and impacted communities "own" MDB-funded projects and programs.

When determining the design process for creating adaptation finance projects or programs, MDBs should reflect on the following question: How does the bank approach adaptation in ways that reflect local contexts and local understandings of local contexts (not outside consultants' understanding of the context)? The process by which countries' national action plans were written, moreover, also may influence the level of ownership. In both instances, financing and implementation plans produced in a consultative, transparent way are more likely to yield successful results.

MDBs in the climate ecosystem

There needs to be a better balance in the World Bank's and other MDBs' climate portfolios such that poor countries receive their fair share of adaptation finance, specifically the amount required to support country-defined climate adaptation goals. To get there, multilateral banks must build trust with poor countries by first acknowledging that adaptation to climate is a serious undertaking that requires substantial resources. To build trust, multilateral banks should also reflect on their mind-sets and approaches to working with poor countries on climate adaptation, especially in relation to the perceptions of risk.

How the World Bank and other MDBs fit within the wider climate finance ecosystem or how they intend to position themselves among other climate actors is still a work in progress. Whether MDBs are best suited to lead on climate finance relative to other actors in this space is beyond the scope of this work; regardless, MDBs mobilize billions of dollars and have the potential to benefit member countries' climate adaptation efforts if they (the banks) are more intentional and impact-driven in their investments.

Each bank, bilateral agency, and vertical fund operating in the climate space has their own set of goals related to climate. Let's look at the GCF and Adaptation Fund as examples. The GCF, established by the UNFCCC following the Paris Agreement, is the largest vertical fund for climate focused on mobilizing climate funds specifically for developing countries. The GCF targets investments in least developed countries, small island states, and African states. Its approved project portfolio totals \$58.7 billion; the GCF implements 270 separate projects, 40 percent of which are in Africa.⁸² Its portfolio is fairly evenly split across adaptation and mitigation. The Adaptation Fund, another large vertical climate fund, also invests in developing countries but only for adaptation and resilience projects and programs. The Adaptation Fund provides grants, including for project formulation and

readiness, and makes awards not exceeding \$20 million per project or program per country.⁸³ Its largest regional portfolio is in Africa, followed by Asia/Asia-Pacific and Latin America/Caribbean.

Multilateral banks with climate portfolios will naturally have some overlap with these two funds, and each bank with its own set of priorities and strategies will need to consider how it complements the work of these vertical funds and other sources of climate finance. Both funds to varying degrees prioritize countries and communities most vulnerable to climate change and country or community ownership of projects and programs. The Adaptation Fund is more localized and laser focused on adaptation, whereas the GCF has a broader mandate, though both operate exclusively in developing countries. The Adaptation Fund has a relatively small budget, having only mobilized about \$1 billion in the last 10 years. The GCF, while larger, also does not provide adequate levels of funding to the most vulnerable countries.⁸⁴ While both funds are helping to address the adaptation finance gap in poor countries, significantly greater resources need to be mobilized to fully close the gap.

Stronger cooperation and coordination with vertical funds and other actors such as regional banks, which are more experienced in dealing with poorer members, can improve the accessibility of adaptation finance for poor countries. The African Development Bank (AfDB), for example, launched the Africa Adaptation Acceleration Program with the Global Center on Adaptation in 2021, a program designed to scale adaptation and close the adaptation finance gap in Africa.⁸⁵ The AfDB also introduced a Climate Action Window through the African Development Fund to reach African low-income countries and the Adaptation Benefit Mechanism designed to mobilize adaptation finance through certificates of benefits.⁸⁶ Sixty-two percent of the AfDB's climate portfolio is allocated to adaptation finance, reflecting the priorities of its member countries.⁸⁷

As another example, a pillar of the Islamic Development Bank's (IsDB's) 2020–2025 Climate Action Plan is leveraging resources through blended finance and innovative platforms such as a green *Sukuk*.⁸⁸ The IsDB additionally outlines using a bottom-up approach to set its climate finance targets, in which it calculates financing needs based on regional hubs' commitments, goals, and projections. Fifty-four percent of the IsDB's climate finance in low- and middle-income countries is allocated to adaptation finance, again more closely reflecting the priorities of member countries relative to the broader trends in MDB climate finance.⁸⁹

Complementarity should guide not only MDBs' strategy in relation to other actors but also within their existing and future development investments. Poor countries are dealing with multiple inter-related development challenges that broadly would benefit from more coordinated, strategic action. Interventions can and often do have overlapping and/or parallel objectives, and projects can achieve multiple objectives through a single intervention. Likewise, investments in adaptation can easily and often do overlap with other development objectives, which makes disaggregating results even

more important. MDBs would benefit from viewing climate investments as complementary to their existing investments rather than competing to be part of the climate space or counting development activities as climate because of this overlap.

Finding opportunities to harmonize these different yet overlapping objectives while clearly linking activities to adaptation would benefit both development and adaptation. Given the inherent linkages between development and adaptation, assessing complementarity in financing and impact could form a basis for how to prioritize adaptation projects—that is, projects that principally address climate adaptation together with social services, infrastructure, agriculture, job creation, and other important aspects of development. Consideration of how adaptation projects contribute to wider socio-economic development in countries in which projects are implemented can enhance the value and effectiveness of those adaptation projects, as will be discussed further in subsequent sections.

We know how to harden societies against climate extremes. The challenge in the development finance space is to more clearly build practices that are both informed by the things that we know work and are accountable to the people intended to benefit from development projects. In the next section, we discuss some examples of best practices in climate adaptation, including multisectoral approaches that are effective in achieving multiple objectives.

SECTION C

**ADAPTATION
IN PRACTICE**

There are a multitude of possible approaches to adaptation and many examples from which to draw that illustrate what kinds of investments MDBs can make to support countries and communities adapt. The following section highlights some examples of activities that support adaptation and build societal resilience to weather and climate. This section includes examples of more narrowly defined projects that directly address the consequences of some observed or anticipated change in climate, as well as broader activities that have development co-benefits. Adaptation requires not just technical solutions but also political ones, so financing and policy examples are also included.

In this section, examples were chosen based on a review of the literature, working group member insights, and the following guiding questions:

1. Does the activity have a clear rationale and causal chain for tagging a project as climate adaptation?
2. Is there a clear understanding of how the activity helps the country or community adapt to climate change and weather variability? Are there quantitative or qualitative measures that can assess the adaptation benefit of the activity?
3. Is the activity tailored to the local context and is there evidence that local voices were centered throughout the process?

These examples are meant for illustrative purposes only and do not reflect a value statement on other kinds of adaptation activities or investments. There are likely many more examples that demonstrate these principles. While these examples have been selected based on their merits as adaptation finance, they are in no way intended to represent the best possible adaptation activities. What is the most relevant, useful adaptation activity for a given community or country will necessarily be context dependent.

On process: Design and implementation

For adaptation finance to be effective, MDBs must not take a one-size-fits-all approach. As suggested by the third guiding research question for selecting illustrative examples, adaptation activities—and indeed, all development activities—should be defined according to local needs, priorities, and contexts.⁹⁰ What works well in one context may not be replicable or appropriate in another context, especially programmatic interventions. If successful adaptation projects are intended to be replicated across different environments, rote replication will not suffice. In such cases, projects should be continuously improved based on lessons learned, evolving conditions in these countries, and input from stakeholders.⁹¹

To address MDBs' hesitancy to work with poor countries perceived to be lacking in capacity, the maxim "learning by doing" applies both ways here. Capacity is often understood as technical- and skills-based resources, but MDBs would benefit from using a "place and practice based, iterative, and temporally extended concept of capacity."⁹² This conceptual approach can be extended to adaptation. At present, finance institutions do not adequately draw from more diverse forms of knowledge, so local knowledge is not sufficiently informing adaptation and adaptation capacity strengthening activities, to the detriment of efforts to adapt.^{93,94} While there has been ample rhetoric around country ownership and localization in development in recent years, there is still a long way to go to "not merely including but centering marginalized groups as the fundamental bedrock for capacity building efforts" and adaptation efforts.⁹⁵

The Global Commission on Adaptation's Principles for Locally Led Adaptation Action, endorsed by over 100 organizations including the World Bank,⁹⁶ are a useful resource here. The principles include devolving decision making to local institutions and communities, addressing structural inequalities contributing to vulnerability, providing accessible and predictable funding, adopting flexibility in financing and programming, and incorporating both indigenous and scientific knowledge into adaptation decisions.^{97,98} The Pan-African Climate Justice Alliance also promotes bottom-up approaches to climate change, recognizing that marginalized groups (e.g., pastoralists, women, young people, people with disabilities, and Indigenous peoples) most vulnerable to climate change are often missing from policy and financing discussions and should be included.⁹⁹

A just transition, moreover, extends beyond the definitions used by the World Bank or International Labor Organization, which focus on green jobs in a green economy, instead necessitating a transformation of values. This approach means centering people impacted most by climate injustices, accountability for climate and economic injustices, and solidarity across local, regional, national, and global levels.¹⁰⁰ MDBs must approach adaptation in ways that reflect local contexts and local understandings of local contexts, rather than an outside consultant's understanding of the context.

How countries develop, moreover, matters; some pathways to development are less equitable than others and may entrench climate injustices. In a warming world, some pathways are also more resilient than others. There are development and growth choices that could be suboptimal in that they make a country less resilient than it otherwise could have been or even put a country on a lower resilience pathway that is difficult to get out of later. For example, countries in the process of urbanization that build cities around private rather than public transit infrastructure put themselves on a less resilient path long term. Conversely, there are opportunities to build resilience through choices of pathway. MDBs must always operate under a "do no harm" principle: adaptation projects or activities should not be prioritized at the expense of broader development or other activities that would improve societal resilience.

The role of energy

Access to affordable, reliable energy is central to climate adaptation. For many low-income countries, the path forward includes significant investments in renewable energy, including solar and wind, as well as geothermal and hydroelectric power where available. All countries will require baseload power—the minimum level of continuous power that is required to meet the energy demands of a grid over 24 hours.

There is a body of work that shows the link between energy and life outcomes. For example, energy is a component of what Rao and Min define as a “universal, irreducible and essential set of material conditions” for achieving basic human well-being.¹⁰¹ The World Bank has committed to providing electricity access to 300 million people in Africa by 2030 as part of its broader efforts to achieve universal energy access in line with the United Nations’ Sustainable Development Goal 7. But the MDBs must also recognize the amount of energy that is needed for climate adaptation—to build and operate early warning systems, construct resilient homes and factories, power hospitals and schools, and provide medicines that require cold storage.

MDBs must recognize the Modern Energy Minimum (MEM), defined as 1,000 kilowatt hours per person per year. While this is a benchmark that defines the basic level of energy access necessary to meet essential household and productive needs, it also serves as a good measure of energy needed to adapt to climate. It sets out the minimum amount of energy required to support essential services such as lighting, communication, refrigeration, and clean cooking fuels (especially in rural communities). The standard of 1,000 kilowatt hours per year also supports broader goals of sustainability by encouraging the use of clean and renewable energy sources to meet these basic energy needs.

African governments endorsed the MEM during the 2022 Sustainable Energy for All Forum in Kigali, Rwanda. The endorsement was part of broader discussions on energy access, where African leaders, policymakers, and international stakeholders emphasized the importance of establishing minimum standards for energy access across the continent. The MEM framework was backed by the African Union and other regional bodies as part of their commitment to achieving sustainable energy goals and addressing the significant energy access gaps that still exist across the continent. It aligns with ongoing efforts by African nations to implement policies that support the continent’s transition to renewable energy and to meet global climate targets while ensuring that all citizens have access to affordable, reliable, and modern energy.

Cross-cutting examples of discrete and programmatic adaptation activities

MULTISECTORAL AND PROGRAMMATIC APPROACHES

Multisectoral, programmatic approaches that promote investment in a wide range of resilience capacities (e.g., economic, human capital, psychosocial, disaster risk reduction, access to markets, services, food security, and infrastructure) provide successful examples for how to boost overall resilience:

- An impact evaluation of a five-year, USAID-funded multisectoral project in Ethiopia assessing the project's impact on households' resilience and resilience capacities found positive results of the intervention package. Following weather-related shocks such as droughts, households that participated in the program saw a 40 percent lower decline in food security relative to nonparticipants and saw improvements in economic and other sources of resilience capacity.¹⁰² Based on these and other findings, the evaluators concluded that "greater impacts are achieved when interventions from multiple sectors are combined than when they are implemented separately."¹⁰³
- A USAID-funded resilience project in Ethiopia combined water, sanitation, and hygiene (WASH) with natural resource management, including the following components: increased access to water sources, improved access to sanitation, enhanced awareness of hygiene, and improved rangeland management practices. This package of interventions incorporated climate adaptation by integrating WASH with natural resource management and considering the context of droughts within pastoralist communities. An evaluation of this three-year project found that it was effective across indicators measured, achieving, for example, a 60 percent increase in the number of sufficient latrines.¹⁰⁴
- The Financing Locally-Led Climate Action Program (FLLCA) is a Program-for-Results (PforR) initiative supported by the World Bank and other donors, designed to address climate challenges at the local level. This program aims to empower local communities to take the lead in climate change adaptation and mitigation efforts, enhancing their resilience to the adverse impacts of climate change. The program emphasizes climate action at the local level, recognizing that communities are at the forefront of both climate change impacts and solutions. It supports local governments and communities in managing and implementing climate resilience projects that are tailored to their specific needs and vulnerabilities. The PforR financing mechanism links the disbursement of funds directly to the achievement of specific, measurable results rather than to traditional investment inputs. Under this framework, funds are only released as agreed-upon outcomes or results are achieved.

- The FLLCA supports projects aimed at increasing resilience in areas such as agriculture, water management, disaster risk reduction, and urban development. It promotes the involvement of local governments and communities in the planning, decision making, and implementation process of climate-related projects. It also includes capacity-building measures, enabling local governments and institutions to manage and deliver climate programs effectively. The program strives for inclusive climate action, ensuring that vulnerable groups such as women, youth, and marginalized communities are actively involved in the decision-making process and benefit from the projects. It aims to focus on integrating indigenous knowledge and practices into climate resilience efforts. There is no information yet on implementation as the project is still at an early stage, but from a design perspective, it embodies several principles of local ownership.
- Multisectoral strategies to address the nexus of health and climate are particularly valuable and needed.¹⁰⁵ Climate and weather events influence human health in a myriad of ways, including food security (e.g., crop yields and food storage), disease activity (changes in zoonotic and vector-borne disease transmission¹⁰⁶), and air and water pollution. The One Health approach recognizes the interconnectedness of human health, animals, and ecosystems and can be used as a framework for addressing these domains jointly.¹⁰⁷ The Jigjiga One Health Initiative in the Somali Regional State of Ethiopia, for example, used a One Health approach to strengthen both pastoralists' health and resilience and that of their livestock. The initiative involved iterative discussions with pastoralists, the research team, and health authorities to identify needs and interventions to address those needs.¹⁰⁸
- The United Nations Development Programme's Resilience Hub for Africa is focused on integrated resilience, pursuing a whole-system programmatic approach to bolster overall resilience across the continent and across sectors.¹⁰⁹
- Vietnam's Mekong Delta region supports the livelihoods of its over 17 million inhabitants yet is especially vulnerable to climate change, experiencing worsening flooding extremes and land erosion. The World Bank's Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project, operational from 2016 through June 2024, was implemented through Vietnam's Ministries of Natural Resources and Environment, of Planning and Investment, and of Agriculture and Rural Development.¹¹⁰ The project featured tailored strategies and objectives to each of the Delta's four distinct hydro-ecological zones, such as managing floods in the Upper Delta and coastal protection in the Peninsula.¹¹¹

Project activities included diversifying crops and livestock, formulation of an integrated Regional Master Plan for resilience, construction of flood management infrastructure, and adoption of nature-based land management practices.¹¹²

When interventions are packaged together targeting multiple areas of vulnerability simultaneously, households are better able to cope with climate- and weather-related shocks. Replicating these successes in other contexts is possible, provided the package of interventions is tailored to the specific priorities and needs of the communities in which the package is implemented.

DISCRETE ADAPTATION PROJECTS

Although adaptation activities can vary significantly, there are broad areas we know make society more resilient to climate extremes that result from both natural variability and climate change. The following examples of investments that support adaptation reflect diverse geographies and contexts to show what can work in different settings. To avoid entrenching development strategies that make countries less resilient or dismissive of local and indigenous forms of land management, MDBs must recognize potential trade-offs and power imbalances and tailor interventions to the specific context in which they are implemented.

Further, none of the following interventions by themselves will solve adaptation; complementary policy, finance, and programming measures are also needed. Care is also needed in selecting measures as risk reduction measures can have unintended consequences; evidence suggests that reducing risk drivers in one area “can unintentionally lead to an increase in one of the other risk drivers.”¹¹³

A. Withstanding landslides and floods: Building codes and flood management

Building codes, the rules that govern the design and construction of buildings, are an important part of climate adaptation. These codes vary across countries, but all set minimum standards for safety in the event of shocks and disasters such as floods or landslides to minimize the risk of loss and damage.

Schools, hospitals, homes, and other built structures designed and constructed to code improve resilience to disasters such as earthquakes, floods, and landslides. Yet in poor countries such as Niger, temporary structures account for nearly half (47 percent) of school infrastructure.¹¹⁴ Governance challenges can also limit code compliance and code enforcement. Investing in compliance with local building codes that account for local hazards, risks, and other context-specific structural adjustments such as retaining walls, elevated foundations, and stilts can enhance

school infrastructure resilience.¹¹⁵ Incorporating hazard maps and other risk information into the construction of new schools and other buildings can also reduce the risk of catastrophic damage caused by disasters.¹¹⁶

Nature-based solutions, which originate from local practices and techniques, present accessible and scalable interventions in poor communities. Traditional irrigation methods such as irrigation canals and channels used to redirect flood and storm waters towards agricultural fields help manage the risk of flooding while simultaneously benefitting crops. In flood-prone Yemen, these and other community-centric methods are vital for reducing damage from floods, preventing soil erosion, and preserving crops amidst a largely counterproductive policy environment.¹¹⁷

The Netherlands also uses nature-based solutions in its flood management. In 2007, the Dutch government launched the Room for the River project, which restores natural flood plains of four rivers, allowing for better control of flood waters.¹¹⁸ Other countries with low-lying areas vulnerable to flooding have translated these successful practices to their own country contexts. Bangladesh, for example, implemented a Delta Plan developed with Dutch expertise and established a cooperation with the Dutch government in 2019 aimed at knowledge sharing and capacity building around water, coastal zone, and flood management.¹¹⁹

B. Rainwater harvesting for land restoration and better crops

Like flooding, sustained drought and variable rainfall can have similarly catastrophic consequences for agriculture, local economies, and food security. Rainwater harvesting techniques such as the construction of demi-lunes are proven strategies for adapting to rainfall variability and improving soil and water retention. Demi-lunes are semi-circular ditches that collect rainwater, prevent soil runoff, and improve the nutrient density of soil. Demi-lunes are useful in both agricultural contexts and for growing other types of plants such as grasses to restore rangelands. Demi-lunes are relatively inexpensive and easy to construct and require minimal maintenance.

In areas such as the Sahel with high levels of land degradation and variable rainfall accompanied by vulnerability to drought, demi-lunes offer a low-cost, efficient strategy for improving soil degradation and adapting to a variable climate. A randomized evaluation of demi-lune training and cash transfers implemented in Niger found that training increased adoption of demi-lunes among farmers, which in turn increased crop production, reduced land degradation, and increased agricultural revenue among intervention households.^{120,121} The intervention has since been scaled to 400 villages in Niger, with plans to continue scaling.¹²²

Investments in adoption of demi-lunes and other forms of rainwater harvesting could potentially be expanded across the Sahel and beyond. Other arid and semi-arid countries, which span across most continents, stand to benefit potentially from using this low-tech solution that not only directly addresses adaptation (rainfall variability and land degradation) but also overall resilience (via income generation and nutrient density of crops). Additional investments could be made to identify regions most likely to benefit from rain harvesting techniques and to adapt demi-lune training to “match local languages, crops, and existing practices.”¹²³

C. Hybrid and native seeds and new fertilizer

To further improve crop yields and food security, MDBs can also invest in hybrid and native seeds that are resilient to climate and weather shocks. New research from Chris Udry and colleagues suggests that seeds tailored to African microclimates may have far higher returns than fertilizer or other inputs.¹²⁴ Farmers in Rwanda saw a 53 percent rise in legume yield after using a variety bred by the Pan-African Bean Research Alliance to be more climate resilient.^{125,126} The Lebanon-based International Center for Agricultural Research in Dry Areas breeds seed varieties for climate resilience while also conserving biodiversity by drawing from a wide range of varieties stored in gene banks.¹²⁷

Seeds are a relatively easy intervention for adaptation in that they require no specialized training for uptake on smallholder farms, which comprise most African farms, though hybrid seeds do usually require synthetic fertilizer use. New seeds can also address problems arising from monoculture such as a diminished diversity of plant varieties and increased crop vulnerability to pests, soil erosion, and disease, and vulnerability to total crop failure in an extreme weather event. Hybrid plant seeds can be tailored for qualities that make them more resistant to these vulnerabilities; some types of native seeds have also naturally evolved with the climate to adapt to local conditions. Conserving plant genetic diversity is vital for sustaining food systems, local ecologies, and soil quality.

Hybrid seeds are not always an appropriate or desired solution and by themselves may be inefficient to improve crop yields, again underscoring the need to identify adaptation projects in a consultative, participatory way with the people intended to use the intervention. Patent-protected hybrid seeds can be expensive and unaffordable for smallholder farmers,¹²⁸ and there are concerns about monopolization of the global seed supply.^{129,130} MDBs, and the World Bank in particular, should not limit or control what kinds of seeds farmers can grow, store, and share¹³¹ or impose conditionalities on financing that forces countries to only use particular types of seeds.¹³²

Beyond improvements in water resources, access to fertilizer may also help to raise crop yields (crops produced relative to farmed land area). Low crop yields contribute to food insecurity as well as biodiversity destruction to create more farmland.¹³³ Synthetic fertilizer maximizes the amount of nutrients in the soil available to crops, making it possible to yield more food from a smaller land area. The European Union, North and South America, and Asia use on average between 135 kilograms and 187 kilograms of synthetic fertilizer per hectare, while Africa uses about 26 kilograms per hectare of cropland.¹³⁴ Synthetic fertilizer use comes with concerns about overuse and pollution; education about management practices and assessing nitrogen use efficiency (the ratio of crops to fertilizer or manure) is needed to accompany scaled use of fertilizer.¹³⁵

In May 2024, African Heads of State and Government endorsed the Nairobi Declaration at the Africa Fertilizer and Soil Health Summit, committing to, among other things, tripling domestic fertilizer production by 2034 and providing tailored support to at least 70 percent of smallholder farmers to ensure efficient fertilizer use.^{136,137} MDBs can support adoption of next-generation fertilizers, including green fertilizers and biofertilizers, through technical support and training. Green fertilizers supply the same nutrients as synthetic fertilizers but are produced using renewable power instead of fossil fuels.¹³⁸ Biofertilizers, or microbial fertilizers, are growth-enhancing microorganisms that promote nutrient uptake in plants.¹³⁹ These kinds of fertilizers can boost crop yields while curbing reliance on synthetic fertilizers but need to be tested in different country contexts before scaling.¹⁴⁰

D. Digital weather forecasting, hydromet services, and early warning systems

The ability to predict weather and climate variability is an important component of adaptation. Weather forecasting and data can help provide advance notice when extreme weather is imminent, allowing countries and communities to prepare. Early warning systems for hurricanes, earthquakes, floods, and typhoons enable people to evacuate or seek shelter and plan ahead to reduce risk.¹⁴¹ Weather forecasting is also important in agriculture, where such information can help farmers make decisions about planting and harvesting schedules, along with precautionary measures in the event of storms.¹⁴² Evidence suggests forecasting information can boost farm labor productivity.¹⁴³

Yet Africa experiences a dearth of up-to-date weather radar stations, with only 37 spread unevenly across the region, just 6 percent of the total number of stations in the European Union and United States combined.¹⁴⁴ Africa more generally lacks monitoring and early warning systems for hydrological and meteorological (hydromet) hazards; only 40 percent of the population

is covered by an early warning system.^{145,146} With disaster risk increasing worldwide but especially in Africa and Asia, these early warning systems are crucial for saving lives and preventing damage. Hydromet systems in African countries could save \$35 billion in combined livelihood and asset losses.¹⁴⁷

Indeed, early warning systems can make the difference between dozens or thousands of deaths, as was the case with Hurricane Ida in the United States and Tropical Cyclone Idai in East Africa, respectively.^{148,149} Implementation of early warning systems in Mozambique after Cyclone Idai led to greater resilience to Cyclone Freddy in 2023.¹⁵⁰ Early warning and early action are also critical for building household resilience and reducing spend on humanitarian response. A USAID study on the economics of drought resilience found that 30 percent of humanitarian spending by donors in Kenya, Ethiopia, and Somalia could have been saved with earlier action.¹⁵¹

Investing in weather forecasting infrastructure such as digital weather forecasting and in hydromet systems tailored to regional variations would support adaptation. MDBs could support country efforts to invest in hydromet services,¹⁵² staff training to interpret forecasting data, and better use of existing data from space-based hydromet assets. African countries could also benefit from investments in satellite-based observation systems and remote sensing technologies. These tools could be paired with crowdsourced data collection to improve weather predictions in real-time. Also, using mobile platforms to collect and disseminate local weather data through SMS-based systems could help address gaps in rural and remote areas with minimal infrastructure thereby reducing cost.

Cooperatives and local networks of disaster and hazard alert systems are also models of LLA that would benefit from further investment. The Women I TokTok Tugeta network in Vanuatu, for example, trains women across five islands to study and deliver weather forecasts and issue warnings when forecasts predict damaging weather.¹⁵³ Platforms that disseminate weather forecasts in local languages, voice-based alerts for illiterate populations, and specialized platforms for marginalized groups such as those with disabilities are other opportunities for investment. These systems should also incorporate indigenous and local knowledge to enhance credibility and engagement with local communities.

E. Anticipatory cash transfers

The effectiveness of cash transfers and direct cash assistance in humanitarian and poverty reduction contexts is well established.¹⁵⁴ Cash transfers allow people experiencing extreme poverty to access medicines, purchase food, or procure other essential goods and services, while leaving the decision to prioritize their needs in their own hands.¹⁵⁵ Anticipatory cash

transfers in the event of climate shocks can improve resilience to weather and climate variability. Evidence from Bangladesh showed an increase in pre-emptive action such as evacuation with anticipatory cash transfers, a decrease in likelihood of going a day without food, and fewer lost assets.^{156,157}

Anticipatory cash transfers provide an effective, cost-effective adaptation strategy for all types of climate shocks. Cash transfers also have direct benefits for poverty reduction and well-being. MDBs can invest in anticipatory cash transfers by, for example, supporting a “superfund” that covers multiple hazard types and geographies and uses existing social protection systems.¹⁵⁸ A superfund would streamline implementation of anticipatory cash transfer schemes, thereby improving efficiency. Anticipatory cash transfers would be useful in both rapid onset and slow onset weather and climate events.

Current models of anticipatory transfers do not always reach the most vulnerable populations due to data gaps and corruption; targeting mechanisms should account for these challenges and use payment systems that do not inadvertently exclude already vulnerable groups such as remote and unbanked populations.

MULTILATERAL CLIMATE FUNDS

The Adaptation Fund and Green Climate Fund, with their focus on providing climate finance to low- and middle-income countries, help fill the adaptation finance gap, but they are vastly underfunded and cannot by themselves meet finance needs of low- and middle-income countries. Nevertheless, their investment activities provide examples from which to draw for supporting adaptation.

A. The Adaptation Fund

Through the Adaptation Fund’s Readiness Programme for Climate Finance, developing countries can access funds designed to “help strengthen the capacity of national and regional implementing entities to receive and manage climate financing.”¹⁵⁹ The Adaptation Fund offers this support through a range of modalities, including South-South cooperation grants, project formulation grants, project scale-up grants, and technical assistance grants. This suite of granting mechanisms helps countries overcome capacity and readiness issues, which helps countries access climate finance that might otherwise be out of reach.

The fund also introduced the direct access modality for national implementing entities (e.g., government agencies and ministries). This modality allows countries to “access financing and manage all aspects of climate adaptation and resilience projects, from design through

implementation to monitoring and evaluation."¹⁶⁰ Enabling countries to access funding directly by removing intermediaries reduces transaction costs and can enhance the local community focus relative to indirect access modalities.¹⁶¹ The Adaptation Fund has committed nearly \$180 million total to 32 national implementing entities, half of which are in least developed countries or small island developing states.¹⁶² Much more funding is required to meet both funding needs and country appetite for direct access modalities for adaptation.

B. Green Climate Fund

A \$33.2 million, six-year Green Climate Fund grant in Rwanda, under implementation since May 2019, showcases a crosscutting investment strategy.¹⁶³ The 2022 annual performance report for this grant described establishment of soil erosion control measures such as bench terraces, use of “improved” seeds and fertilizer which boosted crop yields by 7–22 percent, construction of rainwater harvesting tanks, and rehabilitation of 360 hectares of degraded forest.¹⁶⁴ These activities helped boost community members’ incomes, improve nutrition, and diversify livelihood sources.¹⁶⁵

REGIONAL COLLABORATION AND LLA

Regional collaboration enables harmonization of policies and strategies for climate adaptation. The African Adaptation Initiative, created in 2015, works with African and global partners to drive adaptation action in the region, by and for Africa.¹⁶⁶ Among its programs is the Adaptation Finance Academy, a “capacity-building effort to increase the ability of African stakeholders to develop large-scale, highly effective adaptation programs and mobilize climate finance.”¹⁶⁷

A. Rural communities’ adaptation practices to land degradation in southeastern Nigeria

A May 2024 report produced by the Africa Policy Research Institute identified case studies of LLA practices and actions in three West African countries: Ghana, Nigeria, and Senegal. As one example, a case study in the report discussed the challenge of gully erosion in southeastern Nigeria and its subsequent effect on land degradation. Communities in this region draw from traditional practices and local knowledge to reduce erosion on roads and cropland.¹⁶⁸

LLA practices and strategies used by community members in Abatete, a town in Anambra State, included “planting erosion-resistant trees at soil/gully erosion sites, laying sandbags at active gully erosion hotspots, constructing high ridges and mounds around vegetable beds, placing logs in shallow ditches, and practicing contour ploughing and mixed cropping.”¹⁶⁹

SECTION D
MEASURING
SUCCESS

To date, there is little evaluation of climate spending by the multilateral development banks. For example, the World Bank's Independent Evaluation Group, which assesses the effectiveness of the World Bank's projects and programs, is yet to carry out an evaluation of the Bank's spending on climate change. Development outcomes can be improved only if impartial evaluations are conducted and made available to the public, ensuring that lessons learned are applied to future projects and programs. All MDBs must carry out evaluations of their climate programs at least once every five years.

Multilateral banks must establish clear means by which external observers can assess the value of projects and programs. Each project or program, if designed through a consultative and transparent process, should be tailored to the specific country or community context with accompanying tailored metrics and expected outcomes. Indicators and measures of success depend entirely on what specific aspect of climate vulnerability within a specific community, or communities is being targeted.

This section does not present universalized metrics or criteria against which all adaptation finance should be measured, but rather principles and considerations that can help inform MDBs in decision making around how to monitor and evaluate adaptation investments. Some examples of metrics are also included for illustrative purposes.

Processes for selecting adaptation and resilience indicators

VULNERABILITY CONTEXT AND DIRECT OR INDIRECT ADAPTATION BENEFITS

First, the three steps outlined in the MDB's Joint Methodology provide a reasonable starting point for identifying information that would be useful to track. These steps include laying out the climate vulnerability context and describing how specific project activities achieve a reduction in climate vulnerability.¹⁷⁰ If MDBs choose to use a broader definition of adaptation that includes contributions of socio-economic development towards resilience and MDBs consequently count development co-benefits as adaptation, that rationale should be made explicit and explained, including any assumptions made in project documentation. If adaptation benefits are indirect in this way, MDBs could further categorize as low, moderate, or high co-benefits with clear associated criteria for each category.¹⁷¹

In the case where direct benefits are expected from a project, project documentation should include an explicitly stated theoretical or empirical direct link and/or rationale from existing research. MDBs can also leverage scientific models where appropriate to provide ex ante estimates for reporting adaptation potential. The World Bank's Resilience Rating System (RRS), developed in 2021, is a methodology intended to assess the extent to which project designs adequately account for climate risk and incorporate adaptation measures.¹⁷² Lessons learned from piloting the RRS in 21 countries

through IDA19 worth \$2.92 billion in investments included the need for climate expertise, climate risk data, and robust baseline data for designing and monitoring resilience projects.¹⁷³

While designing adaptation projects and programs, the time horizon for activities is also important to consider. Adaptation may be difficult to measure on shorter timelines since outcomes can take years to materialize depending on the activity. When establishing these time-bound metrics, it will be worthwhile for MDBs to use locally relevant indicators and metrics that resonate with local countries' priorities and accurately reflect their adaptation needs instead of global goals proposed by the UN and other international agencies, which may not necessarily align with national and regional action plans.

LOCALLY-LED ADAPTATION AND INCLUSIVE STRATEGIES

The entire process of designing adaptation projects and programs to address specific vulnerabilities should more generally open space for local voices in defining what counts as adaptation and resilience. Consideration of inconsistency with “community-driven priorities for climate adaptation and resilience,” however, is included in the third step of a three-step process MDBs use to determine the alignment of their direct investment lending operations with Paris Agreement goals.¹⁷⁴ Global frameworks and strategies at present insufficiently prioritize local actors in the design and implementation of adaptation projects.

At minimum, project documentation should include information on communities and community members intended to benefit from the project. MDBs should have clear criteria and a transparent, consultative process for identifying communities vulnerable to specific climatic shocks. Setting the agenda, deciding “which local adaptation technologies to implement,” and implementing activities should all happen through the leadership of local actors, since this strategy is more effective than top-down adaptation approaches given local actors' irreproducible knowledge and understanding of local contexts.¹⁷⁵ Case studies from West Africa,¹⁷⁶ East Africa,¹⁷⁷ and elsewhere¹⁷⁸ demonstrate how to implement locally led adaptation principles in practice.

Criteria 5 and 6 of the International Union for Conservation of Nature's Global Standard for Nature-based Solutions (NbS) also provide useful indicators for ensuring that the design and implementation processes of adaptation activities are inclusive and transparent. Criterion 5 (interventions “are based on inclusive, transparent and empowering governance processes”) includes the following indicators: “A defined and fully agreed upon feedback and grievance resolution mechanism is available to all stakeholders before an NbS intervention is initiated”; and “Decision-making processes document and respond to the rights and interests of all participating and affected stakeholders.”¹⁷⁹ Criterion 6 (equitable balance of trade-offs in land and natural resource management) includes the

following indicator: “The potential costs and benefits of associated trade-offs of the NBS intervention are explicitly acknowledged and inform safeguards and any appropriate corrective actions.”¹⁸⁰

An integral element of locally led, inclusive adaptation strategies is recognition of structural heightened risk to weather and climate extremes experienced by marginalized groups such as women, children, people with disabilities, Indigenous peoples, and elderly people. Gendered impacts of climate change^{181,182} are well documented,¹⁸³ as is the “benefit multiplier” effect of incorporating a gender lens in adaptation finance.^{184,185} Nevertheless, women remain underrepresented in climate finance, and existing processes for data reporting on gender-responsive climate finance make it difficult to ascertain how much funding is actually going towards it.^{186,187} Women are underrepresented in adaptation initiatives despite having on-the-ground knowledge of climate change and weather extremes, knowledge that often is not reflected in policy and financing decisions.^{188,189}

Incorporating a gender lens into climate finance could look like conducting a gender analysis at the outset of the design and consultation process, which can inform gender-responsive activities and targets; it can also look like training women smallholder farmers, collecting and analyzing gender-differentiated data, and including gender-differentiated activities and indicators in project documentation.¹⁹⁰

DEFINING SUCCESS

Determining whether an adaptation investment is successful extends beyond indicators narrowly linked to activities completed during the investment period. Indicators of success could also include metrics related to the longevity or sustainability of the project. An infrastructure project comprising bridge construction, for example, would require ongoing maintenance and oversight beyond the duration of an investment period to ensure continuing benefit and value of the project. Sustained, predictable, flexible financing has been identified as an important component of adaptation partly because of the ongoing need to invest in adaptation efforts.

Examples of indicators for project longevity or sustainability could include whether countries have been equipped with institutions, processes, personnel, and/or other resources to support, maintain, and/or update the project or program after funding stops. Evaluation of adaptation projects could also assess the extent to which the project enhanced capacities at the household level by including metrics that measure capacity of household members to build resilience. These metrics could include:

- Absorptive capacity indicators, such as the proportion of households or communities who can adopt effective coping strategies in response to shocks on their own once the project has been completed; and

- Adaptive capacity indicators, such as the proportion of households or communities who can pre-emptively implement behaviors or activities based on prior experience with shocks.

Success should further be defined as achieving the project goal first and foremost, but also achieving the goal while limiting negative externalities as much as possible. Negative externalities in the agriculture sector, for example, could include income source losses, destruction of traditional practices, environmental degradation, and greater labor requirements.¹⁹¹ MDBs cannot by themselves identify all possible trade-offs or negative externalities and as such must be guided by communities and countries themselves in thinking through what adaptation projects are needed and how adaptation projects will fit within the local economy, ecology, and society.

In addition to limiting negative externalities, success should be defined as limiting the risk of maladaptation, which increases vulnerability to climate change. This outcome can include rebounding vulnerability (or returning vulnerability) and shifting vulnerability (redistributing vulnerability).¹⁹² Maladaptation can be infrastructural (e.g., building seawalls inadvertently increasing vulnerability by averting seawater drainage or altering sediment deposits), institutional (e.g., overreliance on one adaptation strategy at the expense of other important strategies), and behavioral (e.g., creating labor shortages).¹⁹³

Anticipating maladaptation can be difficult because adaptation is both a process and an outcome.¹⁹⁴ Climate, economic, and social conditions change over time, potentially affecting the utility of an adaptation strategy. Investing in understanding the local context from the perspective of the people living within that context in which an adaptation project is to be delivered, however, can reduce the risk of maladaptation and increase the likelihood of success of the project.

Because adaptation is best understood as both a process and an outcome, adaptation requires continual, iterative learning by doing. Evaluation approaches for adaptation projects and programs, therefore, should build in opportunities for stocktaking and assess if and where adjustments need to be made. Adaptive learning processes, where adaptation projects and programs are continually refined based on evolving climate risks and local feedback, should be incorporated. Flexibility in monitoring could look like building in contingencies (e.g., if x happens, adjust to y) and continually engaging with project implementers and participants.

QUALITATIVE AND QUANTITATIVE METRICS FOR ASSESSING ADAPTATION FINANCE

Indicators are but one component of the monitoring, evaluation, and learning ecosystem that ideally should facilitate iterative, collaborative, adaptive implementation of adaptation finance. Determining which metrics and indicators to use in assessing adaptation projects and programs

must again come from an assessment of the local vulnerability context and the local community itself. While there is no one-size-fits-all approach for designing and implementing adaptation strategies, there are some common categories and sector-specific examples that can also form a basis for identifying relevant variables for measuring resilience. In selecting variables to measure, however, MDBs should be mindful of the potential administrative burden placed on countries or communities for reporting to ensure an appropriate balance. All MDBs, moreover, should track actual disbursements made against commitments.¹⁹⁵

Numerous adaptation strategies exist and have been implemented for floods, drought, extreme heat, coastal erosion, and other frequently occurring climate extremes, as well as for specific sectors. Where MDBs support countries in adapting to these events, MDBs should draw from relevant examples to determine appropriate metrics. For example, the International Fund for Agricultural Development's Adaptation for Smallholder Agriculture Programme (ASAP) uses a standardized monitoring and evaluation framework featuring a predetermined list of adaptation results and indicators from which project teams can select as relevant to the project context. The ASAP Results Management Framework is organized into three tiers: Tier I, indicators linked to the Sustainable Development Goals and global context; Tier II, development results indicators; and Tier III, operational and organizational performance.¹⁹⁶ Examples of impact indicators in Tier II include the following: "the number of people with substantial gains (20 per cent or more) in production of agricultural products"; "the number of people with greater value of product sold (20 per cent or more) in agricultural markets"; and "the number of people that live in households where women have improved economic participation measured by decision making over income sources (10 per cent or more)."¹⁹⁷

In an infrastructure and livelihoods project in Bangladesh, ASAP's logical framework in practice looked like this: gender-disaggregated number of people receiving services through the project; child malnutrition reduction; market access measured by traffic volume on relevant roads and volume of marketed goods; construction of protection works (e.g., killas protected by plants); and numerous other indicators.¹⁹⁸ The logical framework also includes a column for any assumptions made, such as in the possibility of natural disasters or food price fluctuation.

The MDB's 2024 Common Approach to Measuring Climate Results includes sector-specific example indicators as well. These indicators include:

- "Volume of water and/or provided to people in a water-stressed context"
- "Number of [people] with access to health emergency management for acute and chronic physical climate-related stressors"
- "Number of people with access to energy"

- “Size of terrestrial and aquatic areas protected and with improved climate risk management”
- “Number of [people] gaining access to social protection and climate finance products specifically targeting more climate resilient livelihoods”¹⁹⁹

Descriptors such as “improved climate risk management” and “climate resilient livelihoods” should be further defined to ensure clarity around what these outcomes mean in practice. Improving access to basic services such as water, sanitation, and energy, moreover, all constitute resilience-building outcomes, though if metrics capturing this information are reported on, MDBs should include an explicit rationale for how this supports adaptation within the project or program context.

Quantitative metrics will not always be sufficient or appropriate for evaluating adaptation projects and programs, and for all metrics, MDBs should be mindful of what they are incentivizing when selecting what to measure. Qualitative metrics—along with emerging methods of evaluation and new and advanced approaches—can complement or replace quantitative metrics to better capture complex aspects of adaptation that may not be quantifiable. The MDBs’ Common Principles for Climate Change Adaptation Finance Tracking also notes the utility of qualitative assessments in disaggregating adaptation activities in projects when project-specific data is insufficient.²⁰⁰

Beyond drawing from existing examples, MDBs should also support countries in co-creating and designing local success indicators that reflect the specific climate vulnerabilities and adaptation needs of each community. Local data collection frameworks could be integrated into global adaptation tracking systems to foster both context-specific and scalable metrics.

NATIONAL ADAPTATION PLANS

As part of the Paris Agreement, countries develop National Adaptation Plans (NAPs) that identify climate vulnerabilities along with potential strategies to address those vulnerabilities. Fifty-eight developing countries have submitted NAPs.²⁰¹ Countries also prepare Health National Adaptation Plans, which focus more specifically on health-related impacts of climate change.²⁰² While countries have identified monitoring and evaluation as a priority for achieving NAPs, support may be needed in identifying appropriate indicators to monitor, and investment is needed in strengthening national monitoring and evaluation systems and data collection.²⁰³ In other words, countries may have identified indicators but do not have sufficient data collection systems in place to monitor progress against indicators. MDBs could support country efforts to improve monitoring systems.

Countries themselves see a range of variables as measurable in their NAPs. Indicators cover a range of areas, including institutional capacity, individual capacity of public officials, information

ecosystems, and how adaptation is mainstreamed in development projects. Countries may take one or several of the following approaches: assessing adaptation activities' implementation status and evaluating the integration of adaptation in development, climate adaptation outcomes, and the NAP process itself.^{204,205} Countries use both qualitative and quantitative methods to track outcomes related to NAPs and usually include sector-specific and thematic breakdowns.²⁰⁶

EX-ANTE EVALUATION

MDBs might implement a well-designed assessment framework that is integrated into the project processing cycle, to ensure that approved projects are aligned with adaptation goals. For credibility, ex-ante evaluation should be undertaken by a unit that is separate from the unit processing the project. An ex-ante evaluation framework should ideally be aligned with ex-post evaluation so that the latter is linked with the design and approval process. Therefore, when an ex-post evaluation is carried out, there is no goal shifting. Integration of ex-ante and ex-post evaluation creates a continuous feedback loop where lessons learned from implemented projects can inform the design of subsequent projects. Ex-ante evaluations may also help to ensure that top-level goals are reflected at the level of operations.

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