



# RESEARCH BRIEF – FEBRUARY 2015

## CLIMATE CHANGE AND DEVELOPMENT

### EXECUTIVE SUMMARY

What do we know about the impact of climate change on development goals? This research brief explores why aid for adaptation and mitigation is important for addressing climate change vulnerability in Africa. The brief covers climate funding for adaptation and mitigation programs and how climate-related activities within development aid programs are identified and tracked. While it is difficult to seamlessly track climate aid, challenges also exist when assessing how effective mitigation and adaptation activities are in reducing vulnerability and building resilience. It is especially difficult to distinguish the causal impacts of adaptation programs—whose benefits are unlikely to be seen for decades or generations—on societies' long-term ability to cope with a changing climate.

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### CLIMATE CHANGE IMPACTS ON DEVELOPMENT

The most recent report of the International Panel on Climate Change<sup>1</sup> identifies several common threats that climate change poses to developing countries. According to expert communities of scientists and development practitioners, climate change is contributing to more frequent and intense weather events, including floods, droughts, heat waves, landslides, forest and brush fires, cyclones, and dust storms. In more agrarian societies, steadily rising temperatures and significant changes in rainfall patterns due to El Niño and La Niña effects are causing shifts in the onset and duration of rainy seasons, thus increasing the probability and intensity of droughts and floods.

This creates serious risks for sustainable livelihoods and socioeconomic growth, particularly in lesser developed countries where the majority of agricultural or livestock production is undertaken by smallholder farmers and nomadic herders. In turn, floods and droughts can trigger or exacerbate food insecurity<sup>2</sup> and the spread of infectious diseases such as cholera and dengue fever. Warming temperatures in higher altitudes can lead to malaria outbreaks in areas once unaffected. Rising sea levels threaten densely populated coastal areas, which are increasingly vulnerable to climate-related disasters. In some instances, rising sea levels pose an existential threat to small island states.

### *Disproportionate Impacts on the Poor*

Poor and marginalized communities are especially vulnerable to the effects of climate change. They are more likely to live in places more susceptible to the risks of climate-related hazards, such as low-lying coastal areas and informal settlements. Lack of secure assets, property rights, and social and financial protection, including insurance, can mean the poor, especially women, often experience greater vulnerability in the face of climate change-related disasters. For example, in Sub-Saharan Africa women are the primary agricultural producers and account for nearly 80 percent of the household food production and nearly all child and elderly care.<sup>3</sup> Yet women often lack property rights and access to credit and other services, making them particularly vulnerable to both acute (sudden-onset or temporary) food insecurity and slow-onset, climate-related issues such as malnutrition and exposure of

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household members to climate-related malnutrition and diseases.

Poverty, development, and climate change are thus intimately linked. In the international development community, there is a concerted effort to identify and address the threats that climate change poses to sustainable socio-economic development through increased research, analysis, and direct interventions to address climate-related hazards. This is often referred to as *climate-resilient development*. Such development work encompasses a wide range of activities, including aid explicitly oriented around adaptation or mitigation work. Examples include reforestation, developing meteorological capacity and early warning systems, and climate-proofing water, agricultural, and transportation systems.

### *Disproportionate Impacts on Africa*

Sub-Saharan Africa is the region with the lowest carbon dioxide emissions in the world (0.8 metric tons per capita), yet is also the region most vulnerable to climate change.<sup>8</sup> Beyond weather-related exposure and other ecological factors, Sub-Saharan Africa's extreme poverty drives this climate change vulnerability. According to the 2013 World Development Indicators, the gross

**Adaptation:** "Adjustment in natural or *human systems* in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory, autonomous and planned adaptation."<sup>4</sup>

**Mitigation:** "An anthropogenic intervention to reduce the anthropogenic forcing of the climate system; it includes strategies to reduce greenhouse gas sources and emissions and enhancing greenhouse gas sinks."<sup>5</sup>

**Vulnerability:** "[T]he degree to which a system is susceptible to, or unable to cope with, the adverse effects of climate change including climate variability. Vulnerability is a function of the character, magnitude and rate of climate variation to which a system is exposed, its sensitivity and its adaptive capacity."<sup>6</sup>

**Climate and Disaster Resilient Development:** "A set of institutional arrangements, processes and instruments that help identify the risks from disasters, climate extremes, graduate and long-term climatic changes, and their associated impacts, and the design of measures to reduce, transfer and prepare for such risks. Climate and disaster resilient development combines development benefits with reduction in vulnerability over the short and longer term, using a development planning, multi-sectoral and multi-stakeholder approach."<sup>7</sup>

national income (GNI) per capita averages around \$1,600 across the entire region, with large populations in many countries falling well below the absolute poverty line of \$1.25 per day. This extreme poverty is exacerbated by weaknesses in governance and social safety net systems, as well as widespread conflict, which altogether undermine the ability of communities to cope with climate-related shocks and related cycles of chronic and acute food insecurity.

Ecologically, over 40 percent of the African continent is classified as drylands, with increased desertification particularly around the Sahel. These areas are prone to water scarcity, unpredictable rainfall patterns, and persistent occurrences of drought that undermine agricultural productivity, even as demographic trends point to a booming population, particularly in urban areas. In North Africa and the neighboring Middle East, the IPCC predicts that climate change will reduce rainfall by up to 30 percent by 2050, resulting in severe water scarcity and increased dependency on food imports in the wake of rapid population growth.<sup>9</sup> Climate change is in turn a risk multiplier in ways that directly affect the security and stability of African countries. Climate-related events, such as large-scale floods, landslides, and droughts, are often cited as contributors to conflicts over arable land and scarce resources, such as water and livestock. Though a causal link between resource scarcity and conflict has not been proven, there is growing evidence that conflict *is* more prevalent in the conditions that produce resource scarcity, namely those with extremely low and high levels of precipitation (drought and flood).<sup>10</sup> Africa has also witnessed considerable forced migration as a result of climate-related events, exacerbating already dire crises of internal displacement and cross-border refugee flows. These crises, in turn, could easily devolve into complex emergencies within and on the borders of fragile states, sparking wider regional insecurity.

## CAN AID HELP?

Many of the poorest countries in the world are highly dependent on international development aid and lack access to sufficient private sector capital to meet

investment needs in mitigation and adaptation. For example, in 2012 in Liberia—well before the Ebola outbreak in 2014—aid represented 36.1 percent of gross national income. With a GNI per capita barely over \$400 and a poverty headcount at nearly 64 percent of the population,<sup>11</sup> addressing climate change through extensive adaptation and mitigation programs remains well beyond the reach of the Liberian government.

There have been several attempts to estimate the economic costs of climate change adaptation in Africa. In 2009, African Development Bank President Donald Kaberuka argued that the world's advanced industrialized countries should commit \$40 billion per year in new money to help Africa address the consequences of global warming—an amount equivalent to the estimated three percent loss of gross domestic product (GDP) each year due to climate change.<sup>12</sup> The UNFCCC in 2010 reaffirmed that by 2030 the costs of climate change across Africa could be the equivalent of 1.5 to 3 percent of GDP each year.<sup>13</sup> Current estimates of adaptation costs alone in Africa range from the \$40 billion annually by 2020<sup>14</sup> to \$86 billion per year by 2015.<sup>15</sup> Globally the World Bank predicts that climate change financing to developing countries will require anywhere between \$37 to 50 billion per year up to 2030. One World Bank report estimates that this could rise to \$75 to 100 billion per year by 2050.<sup>16</sup>

*Current international development aid flows are insufficient to meet both the traditional needs of poverty alleviation and the emerging needs driven by climate change.*

Critically, the 2009 Copenhagen Accords assert that climate finance must be “new and additional” to current levels of official development assistance (ODA). ODA in 2013 totaled \$135 billion, according to the Organisation for Economic Co-operation and Development,<sup>17</sup> of which approximately \$40 billion went to Africa. Despite differences in cost estimates, there is one clear point of consensus:

To date, there are several global, multilateral, bilateral, and country trust funds that have been established to provide finance for climate change mitigation and adaptation programs in developing countries. These funds are tracked by the Climate Funds Update,<sup>18</sup> administered by the Overseas Development Institute and the Heinrich Böll Stiftung Foundation. Some examples of sources of climate change funds include:

*UN-REDD / REDD+*: Established in 2008, this global fund targets reductions in emissions from deforestation and degradation. It is administered through the United Nations Development Program, United Nations Environment Program, and the UN's Food and Agriculture Organization.

*Climate Investment Funds (CIFs)*: Established in 2008, the CIFs are administered by the World Bank in partnership with other multilateral development banks. The CIFs include the Clean Technology Fund, Strategic Climate Fund, Pilot Program for Climate Resilience, the Forest Investment Program, and the Scaling-Up Renewable Energy Program for Low Income Countries.

*Forest Carbon Partnership Facility*: Established by the World Bank, this fund leverages carbon-market revenues to sponsor projects to reduce deforestation and degradation. Similar funds include the AFDB-administered Congo Basin Forest Fund; the Amazon Fund administered by Brazilian National Development Bank and funded by Norway; and the Forest Investment Program.

*Global Environmental Facility (GEF)*: Established in 1991, the GEF is the financial mechanism for several international conventions related to climate change impacts, providing funds and technical assistance related to biodiversity, desertification, transboundary water management, and renewable energy projects, among others. Since 1991, the GEF has provided \$13.5 billion in grants and \$65 billion in co-financing for projects in developing countries. The GEF also administers the Least Developed Countries Fund and the Special Climate Change Fund.

*Green Climate Fund (GCF)*: First proposed in 2009 in Copenhagen at COP 15, GCF is intended to be a central operating entity for the financial mechanism of the UNFCCC and designed to ensure that the goal of \$100 billion per year in international climate finance is met, although the GCF to date lacks pledged funds and commitment from the private sector to meet its financial targets.

*Adaptation Fund*: Derived from a 2-percent levy on the sale of emission credits from the Clean Development Mechanism, this Kyoto Protocol Fund supports adaptation projects that meet the needs of the most vulnerable. Overall financing, however, is very small. In the past three years, the Adaptation Fund has dedicated only \$232 million to projects in 40 developing countries.

current international development aid flows are insufficient to meet both the traditional needs of poverty alleviation and the emerging needs driven by climate change.

Despite these high costs of addressing climate change, many African countries have started to pay serious attention to climate change issues, as evident in the growth of National Adaptation Plans of Action (NAPAs) and Nationally Appropriate Mitigation Actions (NAMAs). These national planning instruments

identify sectors and regions within countries that are at highest risk to climate change threats and recommend courses of action to reduce these threats and build resilience. Yet domestic institutional capacity and resources for climate change work are few and far between, leaving least developed countries especially dependent on international sources of climate finance. International funds to date have been more focused on mitigation projects, and financing tends to be absorbed primarily by middle income or emerging market

economies. Least developed countries' ability to access new climate funds continues to be hindered by the complexity of rules and regulations in international climate finance mechanisms.

### *Challenges to Tracking Climate Aid*

The international community has sought to track the amounts of development aid contributing to climate change mitigation and adaptation through fairly simplistic reporting guidelines included in the OECD's Creditor Reporting System. Data on climate aid comes primarily via two reporting mechanisms: The Rio Convention's *Mitigation Marker* that tracks mitigation finance and *Adaptation Marker* that tracks adaptation finance.

Both the Mitigation and Adaptation markers belie the complexity of discerning what development activities directly or indirectly facilitate mitigation and adaptation. In particular, tracking development aid for climate change *adaptation* is an inherently tricky task. On the one hand, development programs may explicitly target adaptation as a prime objective of interventions. For example, programs will seek to integrate components that "climate proof" existing development activities by adding in precise activities that address the threat of climate change—such as including climate change risk analysis—and specific safeguard measures to make new infrastructure projects—such as road construction—more resilient to climate-related weather events. Likewise, development programs may be designed to be "climate smart" by including educational or capacity-building elements to traditional interventions that directly address issues related to climate change.

The vast majority of aid programs also include activities that may not be explicitly motivated by climate change concerns or actively use the language of climate change to frame a development problem or solution. These development programs nonetheless engage in tasks that have a direct or indirect impact on reducing societies' vulnerability and increasing their resilience to climate change. In these cases, the adaptation activity is implicit or "mainstreamed" into

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the development program. New tracking standards developed by the multilateral development banks include means of measuring these less visible co-benefits, even when adaptation is not an explicit goal of a development intervention.

Taking into account these mainstreamed activities, estimates of the adaptation co-benefits derived via traditional development programs indicate that climate aid is a growth sector in development work. Nonetheless, methods of robustly reporting and monitoring climate finance remain nascent, despite strong international commitments to new and additional financing for adaptation. This leaves serious gaps in our knowledge about how much climate aid actually exists and how much is reaching developing countries that remain highly vulnerable to the myriad threats of climate change.

### DOES AID WORK?

Climate change poses a dramatic challenge to sustainable socioeconomic development and poverty alleviation. Yet precise cause-and-effect mechanisms are still poorly understood.

Moreover, challenges remain in assessing how effective mitigation and adaptation activities are in reducing vulnerability and building resilience. For example, it is exceedingly difficult to discern direct causal impact of individual mitigation programs on overall national or global carbon emissions. It is even more difficult to distinguish the causal impacts of adaptation programs—whose benefits are unlikely to be seen for decades or generations—on societies' long-term ability to cope with a changing climate.

International commitments to providing the finance for climate change mitigation and adaptation needs in developing countries have been thus far generous.

Fulfilling promises with actual funding, however, has proven more elusive. The momentum behind climate change aid is constantly threatened by numerous factors, including the inability to persuasively demonstrate the benefits of such aid, waning degrees of support for development in the wake of donor country financial crises, and skepticism over the very existence of climate change and the threats it poses to development.

Several issues shape the global conversation on climate change and development and the future of climate aid. Here are a few examples:

*First, few means exist for ensuring compliance with international commitments to new and additional financing for climate change adaptation and mitigation.*

Efforts to achieve consensus on how to track climate finance, with robust reporting mechanisms, have developed slowly and have not been uniformly adopted by multilateral and bilateral aid agencies. Monitoring of climate finance remains hindered by lack of clear and comparable data. As a result, it is nearly impossible to accurately estimate how well individual countries, and the international community as a whole, have fulfilled their promises made in Copenhagen in 2009. Accountability mechanisms at the global level thus remain weak.

*Second, a system has not yet been figured out for how to evaluate climate change aid to justify these expenditures.*

The global development aid industry is governed by a results-based management framework that demands evidence of aid being effective in reducing poverty and supporting economic growth and human development. Yet evaluating climate aid has proven very difficult. The absence of strong monitoring and evaluation frameworks creates challenges for scientifically discerning what works and does not work in climate aid programs. More critically, the lack of robust results also weakens the accountability of development aid agencies to both donor country parliaments and taxpayers, as well as recipients of climate programs on the ground in developing countries.

*Third, how will political support for climate aid be sustained in the future?*

In an era of economic austerity and increasing skepticism regarding aid effectiveness, it is not clear how long the momentum for climate aid will last. The dearth of impact evaluation results will inevitably undermine political support for climate finance, despite lofty commitments made during various international climate change negotiations. International financial commitments are in danger of remaining rhetorical without viable means of enforcing commitments through transparent reporting and monitoring mechanisms. Development work in general is prone to fall victim to passing fads and fashions; if climate change work is not fully mainstreamed into the operations, policies, and evaluation practices of aid agencies, it may quickly become “last year’s” development priority.

## CONCLUSION

Climate change adaptation and mitigation are likely to remain prominent in the post-2015 development agenda. The key challenge to making this agenda a reality will depend upon the international community’s willingness to invest in development assistance that addresses climate change vulnerability. As many advocates have argued, these investments will likely come only when the co-benefits of such aid are also recognized as central to the broader value proposition of climate funds for development. These co-benefits capture not only the direct impact of aid on reducing carbon emissions and building people’s capacity to deal with extreme weather events, but also the larger gains that result from focusing on society’s sustainable development and long-term resilience in the face of a warming global climate. 🌱

## ENDNOTES

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A photograph showing a person's hands operating a manual water pump. The pump is orange and green. Water is being dispensed from an orange spout into a blue plastic cup. Below the cup is a large metal bowl filled with water. To the left, another metal bowl contains green leaves. The background is a plain, light-colored wall.

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