



**Leveraging Decentralization to Enhance Resilience
Against Drought and Floods:
A Climate-Smart Governance
Response to Food Insecurity in Africa**

by

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I. Introduction

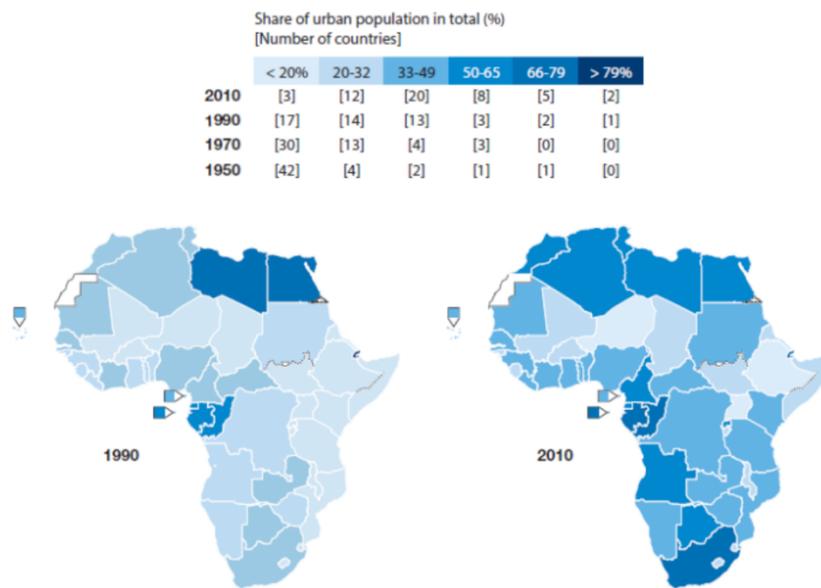
The worst excesses of the climate crisis will affect all regions in Africa, which already is impacted by devastating floods and droughts causing widespread food insecurity, water scarcity, and notable increases in the incidence of waterborne disease and malaria infection. The prevailing inflationary pressures in the global economy and the fiscal constraints that the African countries are facing due to the impact of the COVID-19 pandemic necessitate careful policy calibration regarding spending efficiency and investment prioritization. Since greenhouse gas emissions from African economies remain essentially negligible compared to the rest of the world's impact on the drivers of global warming, African governments and their international partners would be well placed to focus their efforts in the climate discourse primarily on adaptation and disaster risk management strategies that prioritize enhancing the resilience of urban and rural communities and infrastructure against drought and floods, two of the main types of climate-induced natural disasters impacting the continent. The wave of fiscal and administrative decentralization that has taken root in many African countries, and the wave of urbanization that is unfolding in parallel, can be effective entry points to introduce and implement such adaptation strategies.

This chapter begins with an overview of the impacts of climate change on a rapidly urbanizing continent, where the pressure to migrate is driven by food insecurity and diminishing livelihoods in rural areas. Section III describes the landscape governing climate policy and action within the context of the political, fiscal, and administrative decentralization that has taken place across the continent since the 1990s. Section IV expands on this narrative to focus on selected themes regarding climate adaptation and mitigation within the context of the urbanization trends which set Africa apart from the rest of the world. Section V pinpoints a menu of thematic priorities within this narrative for governments to leverage the power and momentum of decentralization to address urban and rural development challenges through climate adaptation and mitigation. Specifically, it proposes three priorities governments can incorporate into and take action through their existing strategic and policy frameworks today: (i) improving the information and capacity for understanding and managing climate and disaster risk at the subnational level, (ii) strengthening the policy basis for closing the resilient infrastructure gap at the national and local level, and (iii) leveraging indigenous and local knowledge in the design and implementation of adaptation measures that can be scaled up to inform national and subnational adaptation strategies.

II. The Impact of Climate Change on a Rapidly Urbanizing Continent

While Africa is one of the least urbanized continents, at an average annual rate of 3.5% it has sustained the fastest urban growth in the world in the last two decades (OECD 2022). This trend is expected to continue through 2050. The population of the continent is projected to double between now and 2050 to 1.5 billion, two-thirds of which will be absorbed by urban areas (UNHABITAT WFP 2022). Projections also

indicate that between 2010 and 2025, some African cities will house up to 85% of the entire population of the continent, and in 30 years from now, African cities will be home to an additional 900 million people (OECD 2022).



Source: Brookings 2020

These trends signal the pivotal role that planning, managing, and financing development in cities will play in registering progress toward the achievement of the Sustainable Development Goals in Africa. The continent still faces a serious urban infrastructure gap. Nearly 600 million people in Sub-Saharan Africa lack access to grid electricity—accounting for over two-thirds of the global population without power. India connected 100 million people to electricity in 2018, compared to just 20 million in Africa. Only 25% of households in small cities and 33% in large cities have access to piped water (OECD 2022). The demand for electricity is projected to quadruple between 2010 and 2040 as the need intensifies for more housing, public services, and income-generating activities in cities, putting pressure on African governments and their international partners to prioritize the expansion of essential infrastructure in urban environments.

The pressure to rapidly expand infrastructure in urban areas will need to be met with strategies that embed adaptation and resilience principles and standards to avoid being locked into capital investments that will not adequately rise to the challenges of the future. The pressing need to expand resilient infrastructure in urban areas is in many ways a consequence of the economic migration precipitated by diminishing livelihoods in rural areas. Agriculture accounts for about 30 to 40% of the GDP in Africa, and about 80% of Africans remain dependent on low-yielding, rain-fed agriculture (Brookings 2016). As Sub-Saharan Africa faces water shortages, the IPCC projects that rain-fed agriculture could contract by 50% in some African countries. The Sahara region alone will face agricultural losses between 2 and 7% of the GDPs of the countries in this region by 2100. Western and Central Africa are expected to have losses ranging from 2 to 4% and Northern and Southern Africa are expected to have losses of 0.4 to 1.3%. The Horn of Africa is currently experiencing one of the most severe droughts in recent history, with more than 15 million people acutely food insecure in Ethiopia, Kenya, and Somalia.

In Sub-Saharan Africa, food insecurity has long been associated with rural areas. The COVID-19 pandemic is changing the face of hunger, exposing the vulnerabilities of the urban poor (WFP 2022). 59% of Sub-Saharan Africa’s population lives in rural areas, a percentage that is consistently decreasing. In at least 49 countries in Sub-Saharan Africa, the socioeconomic situation of the urban poor has significantly worsened in recent years, with millions of people facing acute food insecurity and malnutrition. In 2020, an estimated 68.1 million people in the urban population were at risk of acute food insecurity in Sub-

Saharan Africa. The urban poor face unstable income flows due to their reliance on informal economic activities, live in overcrowded slums and informal settlements, and have limited or no access to basic social services including water, sanitation, health, and social safety nets. The increasing incidence and impact of droughts and floods due to changing climate patterns is only likely to worsen these realities.

III. Decentralized Climate Governance in Africa: An Opportunity for Adaptation

The Period of Independence through the 1990s: The Emergence of Environmental Protection as a Development Priority

Throughout the independence movements which began in the 1960s, the need to mitigate inter-ethnic conflict was an important consideration in framing the constitution and shaping the social contract in many African countries. The key debate during the early 1960s was between two major movements that respectively favored greater centralization versus greater decentralization of political power. Whereas in some countries such as Kenya the independence constitution emerged with significant powers devolved to the regions, over the next decades these powers were removed, and the power of the presidency was strengthened. By the 1990s, federalism had failed in most African states and of Africa's 54 countries, only Ethiopia, Nigeria and Somalia could be considered federations (Fombad 2018). Even as the overall economies grew and various ethnicities were represented to greater or lesser extents in national governments, there was increasing frustration among groups that felt excluded. The perceived high levels of corruption and the concentration of patronage among elites within a very limited set of ethnic groups paved the way for the social contract to begin to fray in many countries. The fiscal and administrative decentralization processes embedded into the constitutional and legislative frameworks starting in the 1990s have provided an important opportunity to strengthen ruptured social contracts. However, effectively implementing the constitutional and legislative changes in ways that increase citizen trust of, and perceptions of legitimacy of, the government, remains a significant challenge.

The movements to decentralize political, fiscal, and administrative decision-making have been underpinned by policies outlining the process for the devolution of service delivery in key sectors such as agriculture, water and sanitation, and energy. Environmental considerations have featured prominently and progressively in these policies. For example, Malawi's Decentralization Policy of 1998 assigned District Assemblies functions in sectors involving important environmental concerns, such as water, forestry, and agriculture. The Local Government Act of 1998 required the District Assemblies to assist the national government in preserving the environment through the protection of forests, wetlands, lake shores, and streams. Resilience related issues at the village level were to be overseen by forestry assistants and agriculture officers, who would sit in the village natural resources management committees, created under the Environment Management Act of 2017. Local natural resources management committees are mandated to prepare Local Environment Action Plans, which are expected to be consistent with the District Environment Action Plan and the National Environment Action Plan. Similar provisions feature in the decentralization policies of many other African countries.

While such policies and provisions suggest that environmental protection, as a core development objective, has been in the DNA of policy making across the continent, decentralization frameworks often fail to provide adequate resources and guidance to local governments for them to fulfill their intended mandate in this area. In South Africa, most of the climate change related sectors are concurrently under the purview of national, regional, and local authorities, and clear delineation of environmental and climate change governance responsibilities has yet to be legally and effectively institutionalized and funded. Services such as water resource management and electricity distribution involve both national government agencies and municipalities, which causes confusion in adaptation and mitigation activities and impede coordinated response to disasters. The Cape Town water crisis that unfolded between 2016 and 2018 is an example of the extent to which such institutional coordination issues can cause widespread disruptions in service delivery: the disconnect between planning for water, which is exercised at the national level, and the management of the water supply and distribution, which is performed at the local level, was among the root causes of the water insecurity crisis that the city experienced during this period.

The 90s through the Present: Mainstreaming Climate Priorities in Decentralized Governance Frameworks

Most African countries have developed some type of national policy framework to tackle the impact of climate change on their societies and economies. Such frameworks include national adaptation plans, national climate change action plans, national biodiversity strategies, and national climate change bills. Most of these frameworks build on the earlier iterations of environmental protection legislation and policies that took prominence starting in the 1990s and have become more comprehensive in nature as international and regional climate commitments became relevant, specifically around the Kyoto and Paris climate arrangements and the emergence of the Nationally Determined Contributions (NDCs). Very few countries have put in place legally binding instruments addressing climate change – Uganda is one of the few countries whose Parliament adopted a National Climate Change Bill in 2021. South Africa and Malawi are drafting a Climate Change Bill to ensure the enforceability of climate change actions and clarify the functional mandates of the stakeholders involved in the implementation of the climate change and disaster risk management agendas.

An effective intergovernmental scheme regarding climate-smart governance can cover a wide range of public sector functions. These can include political, fiscal, and administrative functions, which can be managed by subnational governments independently or in accordance with national priorities, mandates, and guidelines. Such functions can be administrative (e.g., zoning and land use, energy efficiency standards, emission standards, etc.), operational (e.g., development planning, budgeting, financial management, procurement, etc.), or related to information and data generation (e.g., vulnerability assessments, performance monitoring, monitoring the enforcement of environmental standards, etc.) They also can be political or fiscal in nature, through which the local governments can be given the authority to determine their own political priorities and raise the revenues needed to support it.

The mandate of most subnational entities and local governments regarding climate policy and action in the current policy frameworks are largely administrative across Africa. The emerging experience with devolving more administrative responsibility to subnational governments regarding environmental management and climate change concerns suggests that even when the regulatory framework elaborates on these responsibilities, appropriate coordination, funding, and capacity development mechanisms are often not in place to enable local governments to implement their mandates. For example, in South Africa, climate change issues are covered under the environmental department of municipal governments, but not all municipalities have such a department in place. When they do, these departments often face budget constraints and struggle to interject into the affairs of climate change related sectors. The crosscutting nature of climate issues requiring coordination and collaboration across ministries and agencies becomes a challenge when institutional coordination mechanisms are not clearly defined, as the City of Durban experienced recently in the process of trying to implement its adaptation plan. Disparities between municipalities regarding resources and capacity to develop mitigation and adaptation strategies hamper the “just transition” approach promoted by the national government. The climate change fora implemented in some provinces are not functional in all provinces and are not associated with the decision-making process at the national and local levels of government, as highlighted by the First National Climate Change Report issued in 2016.

The national planning and budgeting process is a good entry point for climate resilience considerations such as drought and flood mitigation measures to feature in local development plans. The preparation of local development plans has become standard practice in many African countries undergoing decentralization. Local land use plans are developed at the subnational level in many countries including South Africa, Malawi, and Kenya. Subnational governments are not required to develop adaptation and mitigation strategies and plans per se and most such strategies and plans are primarily evolving at the sector level. Nonetheless, national strategies and budget guidelines often mandate that environmental management guidelines issued at the national level (e.g., in Malawi and Rwanda) are expected to be

complied with in the formulation and implementation of the local development plans. In this sense, the current landscape assigns a compliance-focused role to subnational entities following a top-down approach, rather than promoting an explicit expectation that the local governments and communities should be responsible for proactively contributing to the national climate adaptation and mitigation dialogue through a bottom-up approach leveraging participatory processes and local planning.

An exception to this is Kenya, which recently adopted a decentralized model for adaptation planning where the central climate change and green finance unit sitting in the National Treasury asks all 46 counties to develop a county climate change action plan. These plans are then reviewed for alignment with the national strategies regarding climate change and approved for funding through a grant-based scheme supported by external financing. The action plans are expected to feed into the Integrated County Development Plans that the counties produce during the annual budget cycle. In Rwanda, the revised National Decentralization Policy of 2020 is expected to improve the capacity of district councils to better cope with climate change impacts and take effective adaptation measures. While implementing the policy, the Government intends to promote the consideration of climate change issues in District Development Plans. Similarly, in Ghana, while there is no requirement for subnational governments to develop decarbonization and adaptation strategies and plans, the national planning guidelines mandate the incorporation of climate change considerations in the planning, budgeting, implementation, and monitoring and evaluation processes of subnational entities.

IV. Urbanization in Focus: Bringing Sustainability into the Picture

The need to prioritize the resolution of the institutional coordination issues and capacity constraints alluded to above is especially urgent considering the urbanization trends previously referenced. The investment in urban infrastructure that is needed in African cities must not only carefully consider the resilience of this infrastructure to climate-induced natural disasters like droughts and floods, but also cater to the needs of a young population for whom the issues of inclusiveness, livelihoods, and livability will be particularly important. The demographic and urbanization trends suggest that the emissions that cities generate will become pressing health and wellbeing concerns unless mitigating actions are introduced such as car emission controls, cleaner heating and cooking sources, more sustainable waste management practices, and more reliance on renewables for power generation.

African cities are responding to climate risks and hazards through a variety of adaptation and mitigation actions. Some cities conduct flood mapping, plant trees, incorporate climate change into longer term planning, and take disease prevention measures (CPD 2020). Some municipalities have deployed disaster risk management tools such as risk and vulnerability assessments, crisis management protocols, and warning and evacuation systems. Increasingly more cities are beginning to talk about waste management, development of mass transit systems, reducing car emissions, and energy efficiency in buildings. In Cameroon, 50 municipalities have become members of the Global Covenant of Mayors for Climate and Energy, the largest global alliance for city climate leadership with over 10,000 city and local government members. More than half of these municipalities have committed to prepare a Local Climate Plan and seven have developed a Local Climate Energy Plan. Some of these plans were prepared through a climate-sensitive participatory budgeting process. Climate-sensitive Local Development Plans and Local REDD+ Plans have also been developed by ten other local governments using a participatory approach. Through sectoral policies, several local governments have also developed land management tools such as Urban Development Plans, Land Use Plans, and Sector Maps, which incorporate specific climate change aspects or elements (e.g., delimitation of flood zones, no-build zones, and green zones.) In Rwanda, the City of Kigali has a plan in the works for an electric-powered bus transportation system. Similar conversations are taking place in other African cities.

The ambition that these cities are showing with their intentions and planning is muted by familiar challenges regarding institutional capacity and resource constraints. For example, in Cameroon, the Municipality of Yaoundé has emerged as a pioneer in the development of Climate Change Action Plans; however, the implementation of its action plan continues to be a challenge due to a lack of resources. The

city developed an Action Plan for Access to Sustainable Energy and Climate in 2020, which outlined a strategy for achieving a 32% reduction in emissions by 2030 through measures including improving energy efficiency of buildings, optimizing urban mobility, and promoting decentralized energy production from renewable sources. The plan consists of a strategic and long-term vision and objectives, including commitments in key sectors, and detailed short-term actions that are consistent with the long-term strategy. However, to date this plan remains unimplemented due to limited resources and capacity.

Building and construction regulations can be a powerful tool and a quick win in promoting climate resilience and mitigation outcomes. Ghana introduced a comprehensive Building Code in 2018 modelled after the International Building Code. The Code mandates for construction materials to meet specified standards including climate and environmental considerations and specifies global warming potential and climatic criteria, as well as climate zones, wind regions, and seismic design categories. While training and sensitization were performed across government entities regarding the new Code, uptake and implementation of the Code appears to remain limited. An externally financed program, like the Kenya program referenced in Section III, is providing Performance-Based Climate Resilience Grants to communities who are building locally identified adaptation projects which meet the existing regulations. A similar externally financed program that is supporting decentralization outcomes in Malawi is financing construction projects at the local level in line with the recently updated building codes for road and other types of construction.

V. Thematic Priorities for a Medium-Term Vision to Enhance Resilience

The devastating floods and droughts that the continent is experiencing with increasing frequency and severity are causing widespread food insecurity and putting pressure on urban and rural stability and livelihoods. Considering the demands of the international climate agenda manifested through the NDCs and other international and regional commitments, which can become overwhelming, prioritizing mechanisms to enhance the resilience of urban and rural communities and infrastructure against drought and floods can provide the focus that national adaptation strategies and local development plans need. Three thematic priorities can help governments operationalize this focus: (1) improving the information and capacity for understanding and managing climate and disaster risk at the subnational level, (2) strengthening the policy basis for closing the resilient infrastructure gap at the national and local level, and (3) leveraging indigenous and local knowledge in the design and implementation of adaptation measures that can be scaled up to inform national and subnational adaptation strategies.

1. Addressing information gaps at the subnational level

Disaster risk and vulnerability assessments are the foundation for decision-making regarding investments in adaptation. According to the World Meteorological Organization, greater investment is needed in Africa's meteorological and hydrological services and weather tracking stations, both to ensure complete global coverage of weather and climate and to provide local data to plan for climate risks. Considering the level of data collection and analysis infrastructure and capacity needed to conduct disaster risk and vulnerability assessments, this function is often centralized at the national level. However, the analyses produced by these central agencies are not incorporated systematically in the public investment project appraisal and implementation processes. This includes the subnational level, where the public investment management frameworks across the continent are increasingly more delegating infrastructure development authority. The failure to consider such analyses in infrastructure development at the local level may severely impact the viability and sustainability of the critical systems underpinning water, transport, and energy management. These systems often interact with each other making the overall impact even worse – for example, water scarcity caused by droughts not only affects agriculture but also the production of energy for countries that rely on hydropower.

Cities and local governments that regularly conduct vulnerability assessments are more likely to incorporate resilience standards in infrastructure design and construction, adopt disaster-sensitive land use planning, promote climate-friendly investments, and restrict development in high-risk areas. The

ongoing trends in some countries to devolve disaster risk management responsibility to the subnational level (e.g., Malawi, Kenya, Rwanda) should be accompanied by a parallel investment in understanding the disaster risk exposure and vulnerability of the local geography particularly for high-incidence, high-impact disasters like drought and floods. More granular information regarding the risk exposure of various subregions would not only enable local governments to understand risk and consider mitigation measures leveraging locally available resources and knowledge, but also enable national governments to better calibrate the allocation of public investment, social protection, and disaster response resources.

2. Closing the resilient infrastructure gap

Between 2013 and 2017, the average annual funding for infrastructure development in Africa was \$77 billion—double the annual average in the first six years of this century. The impact of the COVID-19 pandemic on economic growth threatens this trajectory. Understanding the inefficiencies in government financing in the infrastructure sector and adopting principles to reallocate spending toward more efficient and sustainable outcomes at the national and subnational levels will be important for COVID-19 recovery and stimulus packages. To this end, many countries in Africa are undertaking reforms in the management of public investments to support competitiveness and service delivery outcomes. Kenya is reviewing its public investment portfolio to eliminate underperforming projects. It has prioritized investment in municipal infrastructure as part of a drive to provide 500,000 new affordable housing units in five years. Ethiopia is undertaking a similar exercise to attract global apparel manufacturers via the creation of industrial development zones.

While the immediate focus on competitiveness and service delivery is essential, these policy reforms also are an opportunity for public investment to play a key role in the transition to a green economy. Sustainable and resilient infrastructure is the backbone of economic development and a cornerstone of the Sustainable Development Goals. Finance and planning agencies in the region can use these reforms as an opportunity to develop coherent policy and legal frameworks governing climate-smart infrastructure investments and maintenance at the national and subnational levels, craft medium-term public investment plans addressing green transition goals, and develop strategies for financing these plans.

A coherent regulatory framework for green infrastructure governance would help to clarify the confusion in sectors regarding infrastructure development responsibilities. It also can help to identify the capacity constraints regarding infrastructure service delivery at the subnational level. Across Africa, the recent push to improve the management of public investments, state-owned enterprises, and public-private partnerships has resulted in a proliferation of legal frameworks and administrative arrangements that not always are consistent and synergistic regarding environmental standards and climate change considerations. For example, Ethiopia and Zimbabwe recently introduced into their national public investment project appraisal systems a screening process that considers various criteria relating to the proposed project's vulnerability to and impact on climate change. Kenya is considering the mainstreaming of resilience standards into its public-private partnerships framework, while its public investment management guidelines are largely silent regarding the specific treatment of climate risk in project appraisals. Governments in the region can benefit from an integrated governance framework for infrastructure investments that mainstreams nationally applicable emissions and resilience standards across national and subnational levels.

Addressing the disconnect between national and local development plans regarding climate action mentioned above can be operationalized through the development of Climate-Smart Medium-Term Public Investment Plans that delineate infrastructure needs at the national and subnational level and identify priority investments. Many governments in the region see capital budgeting as an annual exercise driven by budget limitations and political expediency. Where medium-term perspectives in planning exist, they are often aspirational and speculative. Efforts to modernize public investment management systems can be complemented with infrastructure service gap analyses incorporating green growth and climate resilience objectives in a whole-of-government way. This can inform the development of a Climate-Smart Medium-Term Public Investment Plan anchored in a strategy for a long-term transition to a capital stock that is green and climate resilient. In this sense, finance and planning agencies in the region will need to shift their thinking on green growth and climate resilience from one-off projects driven from the outside to viewing resilience as a recurring expense.

A structured process in this vein can inform the development of a resource mobilization strategy that underpins the Climate-Smart Medium-term Public Investment Plans. As fiscal pressures mount in the wake of the COVID-19 pandemic, governments in Africa will also need to deepen their access to innovative sources of financing including those earmarked for climate finance and social impact. Two forms of intergovernmental fiscal transfer mechanisms are most widely used in Africa to fund local governments: unconditional and conditional grants, the latter being most often used to finance capital expenditures. Not many countries earmark these transfers for adaptation or mitigation investments. Where they are earmarked, they are often funded through concessional external financing, such as in Kenya and Malawi. In South Africa, the Urban Development Grant was the only grant in Fiscal Year 2022 that encouraged the “development of a climate change mitigation and adaptation plan or strategy” as an allocation criterion. The Energy Efficiency and Demand-side Management grants, which aim at financing energy-efficient municipal infrastructure, support some mitigation objectives but do not specify the source of energy to be used and therefore do not explicitly promote renewable energy. Rwanda is in the process of developing a Local Government Own Revenue Mobilization Strategy, which does not consider any fiscal incentives for adaptation or mitigation measures in the treatment of property and rental income taxes or trade license fees. Considering the challenges subnational governments typically face in accessing green finance, central finance and planning agencies will need to understand the implications of introducing mechanisms such as budget reallocations, green bonds, dedicated national climate funds, insurance and guarantee financing for local projects, and national intermediary institutions such as subnational development banks to support local and regional green infrastructure outcomes.

Electrifying Africa: The Case for a Decentralized Approach

Governments in Africa are struggling to provide universal energy access. Africa’s highly centralized energy systems often benefit the wealthiest. Power shortages cost the region 2–4% of GDP annually and the poor are paying among the world’s highest prices for energy (Africa Progress Panel 2015.) While the lack of infrastructure is often cited as the most pressing challenge, the political economy of power generation and the role that local governments can play in transitioning to decentralized energy systems also warrant attention. In the energy sector, distributed systems are increasingly recognized for their potential to contribute to universal energy access goals in developing economies (UN 2018). The adjustment from national policies based on centrally managed grids towards more devolved power generation and distribution mechanisms such as “mini grids” can be a powerful tool to achieve the comprehensive electrification of the African continent. Such “off-grid” solutions can bring energy access and management into the arena of community governance while contributing to climate mitigation outcomes. Therefore, investing in understanding and developing such off-grid solutions should accompany the emerging trend for devolving energy sector governance and local governments should become key stakeholders in this dialogue.

3. *Engaging communities to leverage local knowledge and resources*

Africa has a rich record of understanding, skills, and philosophies developed by societies with long histories of interaction with their natural surroundings. Such knowledge can be instrumental in devising locally applicable adaptation interventions that can be scaled up and integrated formally into national and

subnational adaptation strategies. For example, in Ethiopia, Niger, and Rwanda, small-scale landowners have shown remarkable resourcefulness in adapting to climate risk, which is paving the way for the design of large-scale policy action regarding sustainable land use (Brookings 2016). Rwanda is deploying an ecosystem-based adaptation approach to restore degraded wetland, forest, and savanna ecosystems by planting climate-resilient species that offer numerous benefits for local people. In Ethiopia, the launch of the Green Legacy Initiative in 2019 to combat environmental degradation has enabled communities to plant up to 20 billion eco-friendly trees over five years and restore about 15 million hectares of forest. In Niger, ecosystem and community-based adaptation projects include intensifying goat breeding to help vulnerable women adapt to climate change effects, intensifying agroforestry practices and providing better seeds, and adapting pastoral and agricultural practices to the realities of climate change (UNDP 2012). The Green Climate Fund, the Global Environment Facility, the International Climate Initiative, and the IPCC all recognize indigenous and local people as key facilitators and stakeholders in advancing the adaptation discourse in Africa.

Take adaptation in the water sector as an example: according to the Global Adaptation Mapping Initiative (GAMI), Southern, West, and East Africa show high evidence of the influence of indigenous and local knowledge on the implementation of water adaptation responses in their NDCs. Irrigation, rainwater harvesting, water conservation, and ecosystem-based measures, mainly agroforestry, were the most implemented measures in these regions driven by local knowledge and insights. Irrigation was the most implemented measure, which includes the increased use of water saving irrigation methods, such as drip irrigation. Rainwater harvesting was the second most implemented measure, implemented through a variety of technologies, including in situ measures, rooftop water collection, valley tanks, pitting, contour bunds, rooftop harvesting for potable water, diversion weirs for irrigation, check-dam ponds, dugouts, and shallow wells. These were mainly household and individual measures influenced by local and indigenous knowledge.

Despite evidence that adaptation responses with the influence of indigenous and local knowledge show higher evidence of risk reduction compared to responses without it, only five African governments (Benin, Burkina Faso, Somalia, South Africa, and Zimbabwe) acknowledge and include indigenous and local knowledge in their long-adaptation planning. According to GAMI, about 33.3% of African governments are planning to expand irrigation capacity through improving irrigation infrastructure; 72% are prioritizing investments in infrastructure to increase reservoir capacity, rainwater harvesting, and large-scale dams; and 53% are targeting the development of policies and plans for sustainable water resources management that promote ecosystem-based responses. The incorporation of indigenous and local knowledge and stakeholders in the formulation implementation of these policies, strategies, plans would significantly enhance their effectiveness.

VI. Concluding Remarks

While the impact of the COVID-19 pandemic on agricultural production and global supply chains, exacerbated by ongoing geopolitical conflicts, is certainly to blame for the recent surge in food prices, the food insecurity crisis

Engaging Communities in the Preservation of the Ecosystem: A Market-Based Approach

A further related channel to leverage the engagement of local communities in strengthening their own resilience to drought and floods is through “Payments for Ecosystem Services” (PES) schemes and REDD+ programs that are becoming increasingly more widely used across the continent. PES is a market-based policy tool designed to facilitate effective and sustainable management of watersheds, considered especially relevant for Sub-Saharan Africa, where soil and watershed degradation are severe. The knowledge and insights of local communities in the design of PES projects is crucial: a study in Uganda regarding the experience with PES projects indicated a strong willingness of farmers to participate in a PES contract and found that most farmers were willing to adopt different conservation measures, even in absence of a compensation. The study revealed that farmers had a strong preference for individual over communal compensation, and that additional in-kind rewards in the form of labor assistance or tools increase the willingness to accept a contract. Such behavioral insights can make or break the return on investment from PES projects.

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is plaguing the continent today is a direct consequence of the long-term trends regarding climate change in Africa. This crisis has long been in the making. While addressing its root causes requires an unprecedented degree of international cooperation and coordinated policy action, which has proved elusive to date, treating its symptoms is in the control of African governments and their international partners.

Considering the multifaceted and complex nature of climate action and tightening fiscal resources, national and local governments in Africa would be well placed to select and prioritize the resilience of local communities against drought and floods in their development planning and implementation. Investments in infrastructure and social safety nets to build resilience against drought and floods should be a core component of local development plans. These investments should be promoted by central agencies through budgeting, public investment, and environmental policies and guidelines that govern the intergovernmental fiscal transfer schemes. Furthermore, central agencies should work closely with city and municipal authorities to resolve institutional coordination and capacity issues so that the current momentum for building livable cities can be prioritized in national policy frameworks and financed accordingly through concessional or other innovative financing mechanisms such as climate finance and green bonds. Understanding better the risk exposure of local communities, approaching the resilient infrastructure gap as a whole-of-government concern, and engaging local communities in the adaptation discourse can be the foundational principles underpinning these priority actions.

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