Urban Informality

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KEY MESSAGES

- The intersection of rapid urbanization with informality in work and housing poses significant challenges for adapting to the impacts of climate change. Approximately 60 percent of urban residents in Sub-Saharan Africa live in slum areas, and the informal city is growing, not shrinking.

- Many of the policy challenges of adaptation in informal settlements have to do with the tension between formal governance mechanisms and the realities of the informal city and economy. For example, National Climate Change Adaptation Plans prepared by African governments tend to overlook the threats to the informal city.

- The scale and complexity of the climate-informality nexus means that many stakeholders have a role to play in adapting to climate change, from national and local governments to community associations, non-governmental organizations, and finally the residents themselves.

- A detailed case study of Accra in Ghana illustrates the challenges of inclusive planning for climate change adaptation within African cities. These range from the lack of capacity or funds in the local governments entrusted with implementing plans made at the national or regional level, to the push-and-pull of political economy dynamics

among a broad swathe of relevant stakeholders. This problem is replicated in other African cities, with variations dependent on the degree of decentralization of power and money.

• The reforms necessary for a comprehensive adaptation strategy in the informal city have to be considered as part of a medium- to long-term agenda. So it may be that the best policy measures in the short term involve minor, low-cost, in situ adaptation investments and increased coping measures. If done well, these actions could help build up the needed trust and political capital for more transformative reforms.

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In Africa, the main action for climate change that needs to be undertaken is for adaptation. Adaptation to climate change is a regional and women's issue. We believe that climate action has to be regionalized. And we want local territories and regions to be at the heart of adaptation measures to climate change in Africa. UCLG Africa proposes that we organize a forum of cities and territories for accelerating resilience and mobilizing climate financing."

Fatimetou Abdel Malick
President of United Cities and Local Governments Africa

INTRODUCTION

Sub-Saharan Africa is both the poorest region in the world,[1] and the one that is urbanizing most rapidly.[2] Urbanization usually has positive benefits for economic development as it is associated with structural transformation (which provides better jobs and higher incomes); economies of agglomeration (which promote better-functioning factor markets, exchange of information and technology transfer, and ultimately more rapid productivity gains); and better-quality public services, owing in part to a density effect on the cost of reaching people with services. Higher incomes and more accessible and higher-quality public services usually mean higher welfare. Research suggests that this is true for most large African cities because urban areas offer higher returns to human capital, resulting in an urban wage premium, and offer equal or better non-monetary amenities compared with rural areas.[3]

Yet Africa's rapid urbanization at low levels of national income, combined with insufficient structural transformation, has also brought major challenges. The populations of major cities, especially the capital cities, are expanding rapidly due to both migration (from smaller cities, towns, and rural areas) and natural population growth, which in most countries has been high in the last 20 years. Provision of water supply, sanitation, energy, transport, and other urban services has not kept up with population growth in larger African cities, nor has the supply of durable housing.

Migrants are overwhelmingly young and male, usually looking for work.[4] Steady jobs are in short supply, as lower income levels are associated with fewer high productivity wage–earning jobs. This results in more employment[5] in household farms and firms—the self-employment and contributing family worker activities commonly called the informal sector.

The intersection of rapid urbanization with informality poses significant challenges for adapting to the impacts of climate change. Within urban areas, individuals and households who work and live in informal conditions are particularly vulnerable to climate change risks such as flooding, excess heat, and drought.[6] They also lack the resources to finance needed adaptations for their households and within their communities. Although these issues are not unique to Africa, the region's rate of sea-level rise

exceeds the global mean rate, extreme temperature events are becoming more frequent than they were a decade ago, and climate-related hazards are becoming a major driver of population displacement.

African cities already offer evidence of the exposure and vulnerability of urban residents. Although Africa made up only 17 percent of the world's population as of 2019, the World Meteorological Organization (WMO) has estimated that it accounted for 35 percent of deaths from extreme weather events from 1970 to 2019.[7] For example, cyclones Idai and Kenneth affected over 2 million people in Southern Africa in 2019, causing death, disease outbreaks, and displacement due to loss of housing and infrastructure.[8] The 2022 floods in Durban, South Africa, killed more than 400 people,[9] while a devastating flood in Greater Accra, Ghana, in 2015 killed about 200 people and affected the homes and other assets of more than 46,000.[10] A mudslide and flood on the edge of Freetown, Sierra Leone, in 2017 left more than 1,100 people dead or missing.[11] By mid-August 2022, floods had affected 17 countries in West and Central Africa, impacting more than 700,000 people and displacing more than 100,000.[12] At the same time, water scarcity is a growing problem in African cities, and several have regularly instituted mandatory water cuts and/or reduced hours of water supply in response to droughts. One of the best-known water crises occurred in 2017–18 in Cape Town, where the city warned that without severe restrictions, it would run out of water.[13]

In part, lack of services and poor quality of housing are a result of the urban population's low incomes, which limits the ability of national and subnational governments at all levels to collect taxes needed to fund these investments and also limits the capacity of urban households to pay for durable housing and service delivery. At the same time, political economy dynamics and insufficient state capacity remain binding constraints to adopting and implementing necessary adaptations to improve the livelihoods of those living and working in informal conditions.

Focusing on African cities, this chapter addresses these challenges at the intersection between informality in housing and employment, and climate change adaptation. Following a brief review of the economic and political forces perpetuating the informal city, the chapter presents a discussion of the threats that advancing climate change poses for

communities of people living and working informally. A framework is articulated that illustrates the links between climate change threats and informality while also delineating the necessary interventions to address these threats. In doing so, the framework emphasizes that political economy (dis)incentives and limited state capacity impede countries in moving from statements of intent to implementing new policies that would create a more equitable and sustainable city for all.

The framework is illustrated with a case study of Accra, Ghana, which epitomizes the challenges of many of the region's urban agglomerations struggling to manage informality and climate change. Through literature review and interviews with national and city decision-makers, as well as with residents in informal communities, the chapter identifies the current state and trends in adaptation awareness and resources as well as the incentives and constraints to action. Although both the climate threats and the political economy of urban governance are context-specific, Accra well illustrates the challenge of inclusive planning for climate change adaptation within African cities, the oppositional incentives and lack of trust between formal and informal systems of governance, and the inertia within the current system that needs to be overcome to develop effective, affordable coping strategies and adaptation investments. The chapter concludes with some suggestions on next steps for Accra and similar Africa cities.

INFORMALITY IN URBAN AREAS: CAUSES AND CONSEQUENCES

While informality in employment and informality in housing have different causes and consequences, they are interlinked phenomena with a similar underlying origin—low income. Informality in this chapter refers to the informal sector, defined as production units owned by an individual or a family unit that are not constituted as separate legal entities independent of their owners. Typically, they operate with little organization and on a small scale. Earnings depend on income after costs of production; they are commonly called "nonwage earnings" or gross profits.[14] In Africa today, about 65 percent of total employment is in the informal sector.[15]

Production unit informality is closely related to economic transformation. In a very basic, subsistence economy where the household is the unit of production, everyone works in the informal sector. As an economy grows and specialization ensues, larger businesses are created that employ people in wage jobs. An expanding state creates legal structures that enshrine the rights and responsibilities of both companies and their shareholders, and the employees of these companies. The transition from an economy dominated by informal production units to one dominated by formal production units formally employing workers can take decades or centuries. Urbanization and the creation of formal firms usually go hand in hand.

Most African countries are in transition from a mostly informal to a mostly formal economy, but at a disappointing pace. Importantly, Africa's urbanization is not following the historical pattern of today's higher-income countries, where industrialization and the creation of larger formal firms in urban areas fueled urbanization by increasing demand for labor, pulling the working-age population from rural areas and towns into emerging cities. Most African countries have not been able to match the share of employment or value added from formal firms that today's high-income countries had at African levels of urbanization.

As a result, new wage jobs are not yet employing the majority of the labor force in African cities.[16] The reasons for the African pattern are complex, and include both the natural resource curse, which induces industrialization but does not create formal jobs outside the private sector,[17] and globalization and technology, which make it harder for late industrializers to develop a job-creating manufacturing sector.[18] As a result, both migrants from other parts of the country to Africa's larger cities as well as urban natives are forced to create their own employment by starting a business in the informal sector. Regardless of which factors dominate in a particular context, the important point is that the informal sector is not likely to disappear soon.

Informality as a household living standards outcome is commonly referred to as slum dwelling, because informal housing tends to be clustered within defined communities. Informal housing is defined by the absence of at least one of the following:[19]

- Durable housing of a permanent nature that protects against extreme climate conditions

- Sufficient living space, which means not more than three people sharing the same room
- Easy access to safe water in sufficient amounts at an affordable price
- Access to adequate sanitation in the form of a private or public toilet shared by a reasonable number of people
- Security of tenure that prevents forced evictions

The first four conditions create substandard shelter, while the fifth refers to the conditions of occupancy, but is usually found alongside the first four.

Informal housing conditions are created by, and persist because of, an inadequate supply of adequate and affordable shelter. Limited development of urban sites for affordable housing, as well as the low incomes of both recent migrants and city natives, reduces demand for durable, higher-quality housing and has caused the growth of informal housing developments. These developments sprout and grow on unoccupied land that is often unsuitable for development owing to hilly or low-lying terrain, or at the periphery of the city. As of 2018, an estimated 56.2 percent of urban residents in Sub-Saharan Africa lived in slum households, more than twice the global average.[20]

A critical factor reducing the supply of informal housing in African cities is a lack of clear and uniform property rights and a well-functioning land market with low transaction costs. Insecurity of tenure, especially in slums that started out as squatter settlements, usually precludes the provision of public urban services such as utilities, garbage pick-up, roads, even safety.[21] Either the formal legal system or the policies of public utilities may prohibit service provision. But even if a slum is a legal development of an Indigenous community, it is often unfeasible for public utilities to provide services because roads and pathways within a slum are not wide enough or suitable for utility infrastructure.

Informality in employment and housing are thus two sides of the same coin of underdevelopment. Lack of employment opportunities for a growing urban workforce creates the need for an entrepreneurial and survivalist informal sector, earning modest income. Lack of affordable housing, as well as the income to purchase it, means that those who work in the informal sector have to live and often work in slums. Slums are hubs of informal economic activity, including the provision of basic services such as water supply, sanitation, transportation, energy, and education that the state refuses to supply (or supplies only at a low quality and with a lag). Whole informal developments exist where unregistered small-scale economic activity is conducted out of slum dwellings or by people living in unregistered, illegal or partially legal housing, all without any state protection of any rights.[22]

In such situations, informal economic and daily living activities compete directly with formal, state-sanctioned businesses and housing for access to urban land, especially if they operate side by side. An example is the street vendors who leave the slum every day to find customers in other parts of the city—in formal market structures built with public or private funds, or on public streets and transport hubs. Depending on their location, they may interact with representatives of the formal economic and administrative structures such as the police, tax collectors, or local business owners who supply them with goods to sell.[23] They then return home to their community of informality.

Slum communities establish their own rules governing the activities of their members and often establish member-based organizations for collective action. Communities may be organized by location and neighborhood, or by trade (street vendor, tailor, hairdresser, bar owner, etc.). Leaders of these organizations interact with formal political and economic authorities, including national and local governments and elected representatives to the political system, with each side sometimes courting the other and building trust and sometimes shunning or opposing the other, and using the other for their own gain where possible. These relationships can take on a formal and long-term character, such as the relationship between Ghanian informal sector organizations, trade unions, and the national Government.

Large-scale solutions to the conundrum of urban informality have not been found in Africa. The share of the labor force working in the informal sector is positively associated with labor force growth and negatively associated with economic growth.[24] One recent study estimated that it could take over 100 years to reduce the share of employment in the informal sector by 10 percent on average in Africa.[25]

Solutions to slum growth are equally difficult, despite increased attention from a range of external donors and advocacy organizations.[26] One solution often used is relocating the residents, demolishing existing structures, and rebuilding with more durable structures that have secure tenancy and access to urban services. This option is often sought by developers. However, the cost can be very high, with many costs not born by the developer, such as the cost of police and other agents of the state to enforce the eviction, the cost of new housing for the evicted, the negative effect on the livelihoods of slum dwellers who may depend on central city access or access to customers within their slum community, and the investment costs to provide the needed utility services (which could be borne by developers but more often are partially or completely shifted to the state).

An alternative is slum upgrading, involving legalizing or formalizing the land rights of residents in the existing settlement, state provision of some basic utility services (such as water supply or electricity), the delineation of land for transport services, and the provision of low-cost financing to allow residents to undertake housing improvements themselves. Slum upgrading requires the state to relinquish its own ownership rights and settle other outstanding claims to the land, policies that may be resisted by elites and the formal administration. Slum upgrading also risks further entrenching poor people on marginal land unsuitable for housing development (e.g. floodplains).

Meanwhile, the informal city is growing, not shrinking. The urban population continues to expand. With economic transformation, a growing share of the urban labor force is able to find wage jobs in factories, stores, warehouses, and offices, but the absolute size of the informal labor force continues to grow. Migrants help create new slums on peripheral land, previously used for farming, sometimes with the help of "brokers" who buy farmland from traditional leaders and then resell the land to migrants (without secure title), or to developers who create new suburbs. The city continues to sprawl.

THE INTERSECTION OF URBAN INFORMALITY AND CLIMATE CHANGE

Advancing climate change will impact the whole city via more extreme weather events—flooding, extreme heat, and drought—that threaten the assets, livelihoods, and welfare of Africa's urban population. Residents living in informal settlements and working in unsheltered locations within such cities are particularly vulnerable for four reasons:

1. **Increased days of high-intensity, heavy precipitation** are expected to flood houses and places of work, destroying household and business assets. Livelihoods will be disrupted. Flooding will also damage roads, blocking access to the rest of the city, including access to customers, suppliers, and services (e.g. healthcare). Power systems can be damaged by high winds or flooding causing a loss of service. Flooding also carries waste, including toxins, into the water supply, endangering health. Overall city storm drainage systems in Africa are poor or nonexistent, especially in informal settlements.[27] Standing water combined with poor sanitation facilities increases the likelihood of exposure to waterborne diseases such as cholera, dysentery, and typhoid, and creates a breeding ground for vector diseases like malaria.

2. **Days of excess heat** can contribute to the "urban heat island" effect, which occurs when temperatures exceed those in surrounding rural areas due to greater heat absorption by built-up surfaces and densely constructed buildings. Excess temperatures can cause heat stroke, rash, and edema in poorly ventilated homes and markets, endangering the health of urban residents and lowering productivity. Residents living in substandard housing or working out in the open will suffer the most. For instance, a study of excess heat in Nairobi's informal settlements revealed that poor ventilation contributed to high mortality for older adults and more respiratory illnesses for young children.[28]

3. **Increased drought** will create challenges for water supply, causing residents to pay more and/or travel longer distances for clean water. Drought may also raise fire risk in areas where slum residents cook over open fires. Drought also can reduce hydropower resources, exacerbating electricity shortages and costs for informal businesses. Drought in rural areas spurs migration to cities, placing additional burdens on infrastructure and competition for employment.

4. **Higher sea levels and higher tides** will increase flooding in Africa's low-elevation coastal zones

where population growth is expected to increase in the coming decade.[29] Higher sea levels could also compromise freshwater supply for urban areas through increased salinity.
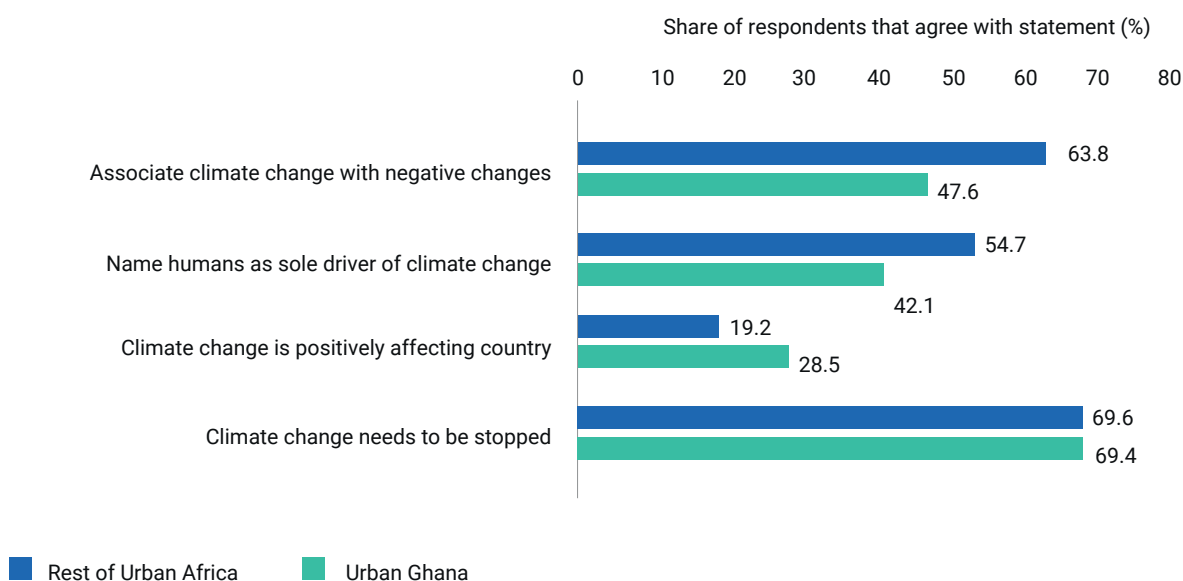
These shocks collectively exacerbate the vulnerabilities of the urban poor living in informal settlements and/or working in the informal sector. Beyond the impacts on livelihoods, assets, and physical health, the toll of such shocks on mental wellbeing is sizeable due to the trauma of loss, financial hardship, and uncertainty about the future.

Overall disaster preparedness in African cities (e.g. early-warning systems (EWS), emergency shelters, and other coping mechanisms) is quite low. In fact, the rate of implementing multi-hazard EWS is lower in Africa than any other region of the world.[30] This leaves residents, communities, and the public sector unprepared when shocks occur. Extant safety nets are largely informal, family- and community-based. Where public programs exist, the COVID-19 pandemic revealed that cash transfer safety net programs disproportionately favor the rural poor and ignore the millions coping in the urban informal sector.[31]

Even monitoring of the impacts of natural disasters such as heatwaves is limited.[32] National Climate Change Adaptation Plans prepared by African governments tend to overlook the threats to the informal city. For example, Ghana's 2015 plan focuses almost entirely on the challenges to the agricultural sector and rural areas. Ghana's more recent infrastructure adaptation plan covers the whole country, but once again does not discuss the plight of residents lacking infrastructure services when extreme weather events take place.

While the need for adaptation interventions is clear, the multifaceted nature of climate change threats creates complexities for informal communities. Public opinion polling of urban residents by Afrobarometer across 34 countries between 2016 and 2018 revealed that 63 percent had, on average, heard of climate change.[33] Among those urban residents who had heard of climate change, about two-thirds associated climate changes with negative changes in their lives, while 20 percent felt that climate change is positively affecting their country (Figure 1). This limits the capacity within the informal city to unify around short-to medium-term coping actions and advocate for medium- to long-term solutions.

Figure 1. Perceptions of Climate Change: Urban Africans and Urban Ghanaians

Share of respondents that agree with statement (%)

Statement	Rest of Urban Africa	Urban Ghana
Associate climate change with negative changes	63.8	47.6
Name humans as sole driver of climate change	54.7	42.1
Climate change is positively affecting country	19.2	28.5
Climate change needs to be stopped	69.6	69.4

■ Rest of Urban Africa   ■ Urban Ghana

Source: Afrobarometer, Round 7.[34]

Note: The sample consists of 806 urban respondents in Ghana and 12,004 urban respondents from 33 other African countries. Samples exclude those who had not heard of climate change.

The required interventions are technically straightforward, and include:

- Threat assessments and development of disaster preparedness plans (including for post-disaster financial support)
- Education of the population on the growing climate threats and how these will impact their lives
- Public awareness campaigns for behavior change to reduce threats (e.g. proper waste management, fire dangers during droughts) and on what affected populations can do in case of a climate disaster emergency
- Financial and other support for improvements in existing structures, and new building codes to help ensure that new structures can withstand extreme weather (as well as the means to enforce them)
- Development and implementation of plans for needed new infrastructure investments such as durable roads, storm drainage systems, water supply and sanitation and solid waste disposal
- Strengthening of safety net programs

However, implementing these different interventions requires tackling a broad range of capacity shortfalls and political economy dynamics among a broad swathe of relevant stakeholders (Figure 2). Such stakeholders typically include various ministerial agencies, and, in more decentralized countries, municipal authorities, elected and appointed. City residents are important stakeholders, and can be represented by civil society organizations such as formal and informal business and housing associations, by traditional leaders, as well as by elected representatives. These associations may have overlapping, cross-cutting, and sometimes oppositional policy positions. The private sector, including the real estate and construction sectors,

Figure 2. Climate Change Adaptation and Informality in African Cities
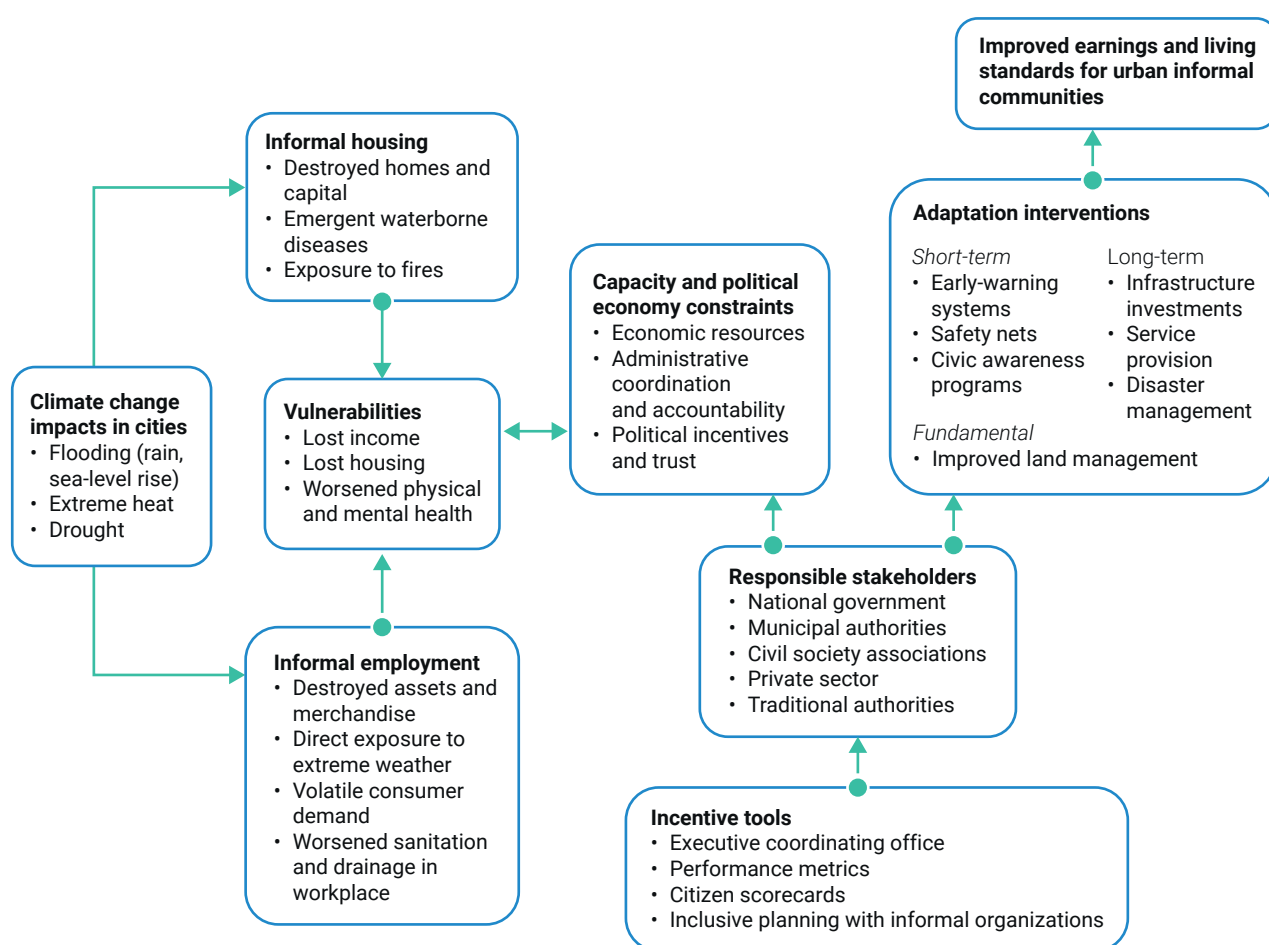
as well as owners of businesses that make and sell goods and services, are also stakeholders, and exercise voice through their own associations and informal relationships with elected leaders. This range of stakeholders implies that capacity-strengthening efforts need to be multifaceted and tailored to a range of participants.

The complexity of the climate-informality nexus means that many stakeholders have a role to play. Vertical coordination is needed between municipal governments and their national counterparts, especially in areas where there are concurrent responsibilities or where local governments lack sufficient resources to meet their functional mandates. Since climate impacts often cross jurisdictional boundaries, particularly in metropolitan areas, horizontal coordination across subnational governments is also needed. Informal sector organizations may have trouble advocating for their interests within this maze of responsibilities and accountabilities, and could require targeted capacity strengthening to better understand current threats and viable adaptation interventions and thereby more effectively advocate their preferences to decision-makers.

Effective climate adaptation strategies require clarity and transparency around who has rights to occupy urban space under what conditions, and who is responsible for financing and investing in needed infrastructure and supplying necessary urban services to informal communities and places of work. This usually means improving land titling, registration, tenure arrangements, and administration, so that residences and workplaces are legally occupied and given the legal right to demand services. This may require a change in the mindset of elected and administrative authorities. Government authorities, both national and local, have often been more interested in attracting investment for tourism, business, and high-end housing, while having few incentives outside of electoral periods to provide goods and services to the informal city. This has led to land deals that displace the urban poor from their housing, communities, and places of work—including from informal markets, sidewalks, medians, and city parks, as well as designated locations where the informal sector traders aggregate to meet their customers and ply their trades (e.g. clusters of informal repair people). Traditional authorities, having

Photo: peeterv/iStock

lost land rights to the state and private developers, often choose to collude with developers for selective gains within a non-transparent land tenure and allocation system. In this environment, extending protections to the urban poor is a low priority for those holding power.

Community members also face conflicting incentives. Within informal settlements, members are also informal providers of services to their communities, including waste collection, water delivery, and toilet rentals; since they are earning money from the status quo, and uncertain of how upgrading of such settlements would affect their livelihoods, they often have minimal incentive to support needed reforms. These dynamics can contribute to high levels of mistrust of authorities that undermine efforts to address climate change. For instance, in Lagos, Nigeria, residents of informal settlements have in the past ignored government typhoon warnings and refused to evacuate because they feared the

government would use such evacuations as a pretext for demolishing their homes.[35] Public sector efforts to increase trust in government are essential for any climate interventions to work because communities will be less likely to register for safety net programs or agree to investments if they are skeptical of the public sector's intentions.

Facing up to the threat of climate change and developing and implementing effective climate adaptation plans therefore requires tackling these binding constraints through a range of incentive tools. Some of these include supervisory delivery units within the office of the executive (president, prime minister, governor, or mayor) or the creation of a distinct coordinating office or agency within one ministry, such as finance, environment, or urban development. In these cases, government actors should be compelled to collaborate on multisectoral issues and given distinct deliverables. Incentives to deliver can be bolstered through complementary

public administrative tools, such as performance contracts whereby the performance of ministries is publicly disseminated, enhancing accountability. Bottom-up options, such as citizen scorecards, can rebuild trust when they are collaboratively developed between representatives of informal associations and public actors, the private sector, and traditional authorities. This can involve joint development of priority issues areas, delineation of who is responsible for delivering on each priority, and a collective mode of scoring progress that is tracked on a periodic basis and shared with the rest of the community.

Ultimately, extant laws on land and work need to be revisited and reformed, potentially recognizing in situ land rights in informal settlements hitherto considered illegal and reversing the penalization of certain types of informal work, such as street vending, that are common in much of Africa. While the need for these reforms is recognized, political economy dynamics reduce decision-makers' appetite for actually implementing this type of reform. Instead, an inertia among many stakeholders has been bred, and a potentially unstable and unsustainable status quo perpetuates. In such an environment, the most likely next steps in adaptation are reactive, short-term coping measures to help the informal city when disaster strikes or climate stresses emerge. Less extensive or expensive pre-disaster adaptation measures might be feasible as well, such as expanded weather tracking and information provision by the national authorities together with community-based EWS, or individual and community measures to reduce the impact of climate stress on households such as painting roofs with solar-reflective white paint to reduce heat retention. If done well, these actions could help build up the needed trust and political capital for more transformative reforms, recognizing that the reforms necessary for a more comprehensive adaptation strategy have to be considered a medium- to long-term agenda.

In the next section, we examine the case of Accra, Ghana. We use this framework of vulnerabilities, stakeholders, and the incentives and constraints to action to delineate the issues and challenges the informal city within Accra faces as extreme weather events become more common.

Photo: Delali Adogla-Bessa/Shutterstock

CASE STUDY: Accra, Ghana

Ghana is a lower-middle-income country that has experienced substantial economic growth and urbanization over the last several decades. Prior to the onset of the COVID-19–induced recession, annual per capita GDP growth was consistently positive since 1984, averaging 2.8 percent, and an estimated 57.3 percent of the population lived in urban areas as of 2020, compared with 31.2 percent in 1980.[36] Along with natural population growth, much of this urbanization is driven by migration from the poorer northern regions to cities in the Greater Accra and Ashanti regions, exacerbated by drought conditions in the Northern Savannah zone. Ghana's growth has not translated into enough structural transformation,[37] resulting in a lack of productive formal employment.

Well recognized as one of Africa's most robust democracies, Ghana has a vibrant civil society environment, replete with organizations representing the interests of the urban poor and informal workers. Among others, such organizations include the Ghana's Federation of the Urban and Rural Poor, the People's Dialogue on Human Settlements, Slum Dwellers International, the Informal Hawkers and Vendors Association, and the Union of Informal Workers Associations. At the same time, electoral

competition between the two main parties, the National Democratic Congress (NDC) and New Patriotic Party (NPP), has contributed to the persistence of political clientelism and the selective allocation of goods and services.[38] Weak state capacity likewise frequently is identified as a major challenge in Ghana for implementing strategic plans and policies, including those that could facilitate structural transformation.[39]

These political and capacity dynamics have direct implications for addressing climate change threats facing the country. Ghana is typical of other littoral countries in the region that are increasingly affected by the impacts of climate change, including more volatile shifts in rainfall and heat. The number of flood incidents has increased notably since the country's independence, with the Emergency Events Data (EM-DAT) recording 23 flooding disasters in the last 20 years compared with only four during the 1981–2000 period.[40] Qualitative interviews with residents in different parts of Ghana also indicate strong, subjective perceptions of increased flooding during the annual June to September rainy season.[41] However, as seen earlier in Figure 1, overall awareness of the causes and effects of climate

change is lower in urban Ghana than in urban Africa as a whole.

The capital city of Accra—commonly called the Accra Metropolitan Assembly (AMA)—is one of Ghana's 261 Metropolitan, Municipal, and District Assemblies (MMDAs), which are the administrative unit of local government.[42] As shown in Figure 3, the AMA, with a 2022 population of 2.6 million, is part of the larger Greater Accra Metropolitan Area (GAMA), which has a regional population of almost 5 million, or about 15 percent of the total population of Ghana. As Ghana's economic powerhouse, the AMA has expanded tremendously in recent decades. Approximately 2 million people from GAMA and beyond commute into the city every day.

In response to rapid population growth, the administrative units of Ghana have been continuously divided, leading to a somewhat fragmented municipal governance. In 2019, the AMA was divided into three sub-metros—Ablekuma South, Ashiedu Keteke, and Okaikoi South—each of which has its own chairperson.[43] Collectively, there are 20 electoral areas within the AMA for the purposes of electing assembly representatives, and three parliamentary constituencies. The GAMA contains an additional 24 MMDAs. All MMDAs are managed by a head appointed by the President (called a Metropolitan Chief Executive or MCE in metro areas). Legislative power rests with the assembly members, 70 percent of whom are elected on a non-partisan basis in local elections, while a further 30 percent are appointed by the President. Members of Parliament representing the constituencies in each district are ex officio members of the MMDAs legislative body. Given the strong role of the President and the national government within Ghana's political system, Accra's MCE (the mayor) as well as the heads of neighboring municipalities enjoy considerable power, while elected assembly representatives have limited authority to shape and guide local adaptation strategies.

Accra's low-lying elevation, at −4 to 130 meters above mean sea level, makes it increasingly vulnerable to climate change-related weather patterns. In addition to flooding caused by increased rainfall, Accra receives water runoff flowing downwards from other municipalities. The city is also affected by fluvial floods—those caused when excessive rain causes

Figure 3. Map of MMDAs comprising Greater Accra Metropolitan Area
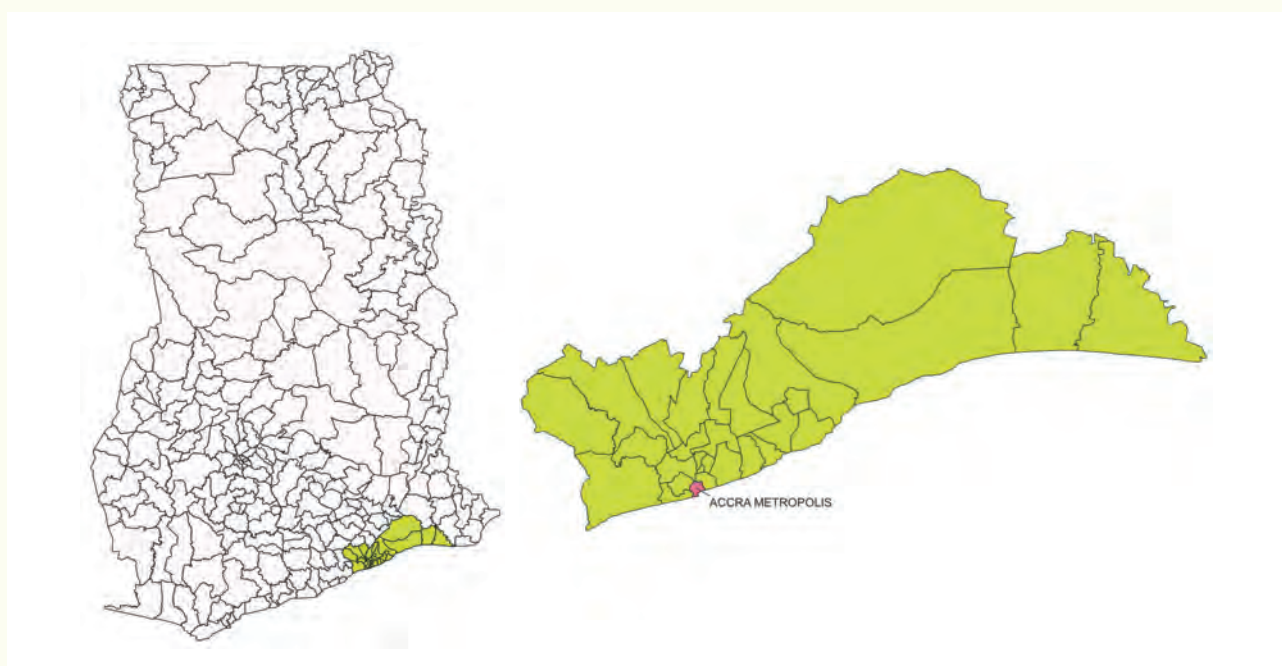
Source: Authors' layer created from ArcGIS Hub. Original layer of districts created on October 9, 2019.

inundation of the Odaw River, the Korle Lagoon, and the Onyasia River—as well as pluvial foods caused by the growth in impervious surface areas (i.e. pavements and buildings), insufficient drainage, and construction on waterways due to increased population density. As one member of the Adabraka Odawna Market Women and Traders' Association noted, "Even when it's not raining, we have to be on guard and on the lookout because the Odaw River rapidly swells up with upstream flood water which can suddenly flow into our home and the market without warning."[44] Due to insufficient waste collection and prevailing attitudes about disposal among residents, trash is often dumped in drains and water streams, complicating rainwater management during periods of heavy rain.

More than half of the flooding incidents since 2001 have affected Accra or Greater Accra. While the floods of June 2015 garnered the most media attention due to their devastating toll, claiming 150 lives, the collective impacts on health and productivity from flooding become more pervasive each year. Foot rot and electrocutions from hanging wires in standing water have been reported as common challenges faced by communities in Accra's informal settlements.[45] Studies of the impacts of the 2015 floods on those living in informal communities are telling; two years after that incident, one-third of informal households reported they had not yet recovered economically.[46]

The non-farm informal sector is the most important source of employment for Accra's labor force, followed closely by wage employment of all types, although about one-fourth of wage employment is informal (Table 1). Nearly 20 percent of Accra's labor force reports performing agricultural work on their own land; this is mostly young people who may be going to school part-time.[47] Women and older people are more likely to work in the informal sector while men and younger people are more able to secure wage employment (Table 2). While wage workers tend to report a regular 40-hour work week, people operating informal businesses may work fewer hours or they may report a substantially longer work week (Figure 4).

Table 1. Structure of Employment in Accra Metropolitan Assembly

| Sector of work	Share
Employment in the informal sector	**42.1**
Non-agric self-employed with employees	6.8
Non-agric self-employed without employees	32.5
Non-agric contributing family worker	2.8
Wage employment*	**39.7**
Paid employee	31.6
Casual worker	5.3
Apprentice	2.6
Other	0.3
Agricultural employment**	**18.3**
Total	100

Source: Data from GLSS7, 2017. Notes: *Most paid employment is likely to be formal; all other wage employment is informal. **Consists mostly of youth and women tending to household gardens. Some sell surplus production in the market or to wholesalers.

Table 2. Structure of Employment in AMA by Gender and Average Age

Category	Share that is female (%)	Average age (years)
Informal sector	69.8	41.6
Wage employment	34.7	36
Agricultural employment	48.4	19.6
Total	52.0	35.4

Source: Data from GLSS7, 2017

Figure 4. Distribution of Hours Worked by Employment Type
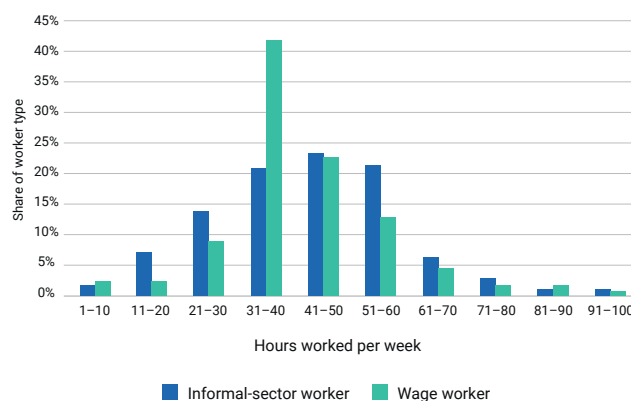
Over 60 percent of the city's households live in substandard, informal housing (Table 3).[48] There are approximately 78 slums within GAMA,[49] and it is the residents in these slums whose wellbeing is most directly affected by climate change adaptation options. People living in informal housing are not more likely to work in the informal sector (Table 4), in part because wage employment includes casual wage workers and apprentices, whose income may be even lower than those owning an informal business. Also, almost one-fourth of households contain both people who engage in wage work and people working in the informal sector. About two-thirds of households in informal housing have at least one member who works in the informal sector, indicating a high level of vulnerability in this group.

About 30 percent of people working in informal sector businesses do so from their own home, making them most vulnerable to extreme weather events, as a flood could destroy their inventory and assets (Table 5). Of these, about half live in informal dwellings, which are the least resistant to flooding (Table 6). Another one-fourth do business on the street, either from a fixed location or from wherever they can. This group is vulnerable to extreme heat from heat islands as well as to loss of inventory and customers from flash floods. Since they store their inventory and tools at home, those who live in informal dwellings are among the most vulnerable in this group as well. During droughts, they can also be susceptible to price inflation by "water mafias"—the tanker suppliers and sachet water retailers—who provide water to those unconnected to the pipelines of Ghana's water utility company.

As in much of Africa, the persistence of slums in Accra reflects a dualistic housing market that favors affluent residents and reflects longstanding practices of land mismanagement and overlapping tenure claims. High-end, gated communities and apartment complexes have expanded in Accra, but such housing is unaffordable to most residents. Most of this housing is built by private developers on either state land or customary land that was acquired by the state.[50] Lack of affordable housing pushes many of the urban poor into dense settlements, some of which appeal to migrants from specific parts of the country.[51]

Table 3. Distribution of Households by Type of Dwelling

	Share (%)
Formal dwelling	36.7
Informal dwelling	63.3
Total	100.0

Source: Data from GLSS7, 2017

Table 4. Type of Employment by Type of Dwelling (non-agricultural employment only)

	Wage employment share (%)	Informal sector share (%)	Total share (%)
Formal dwelling	40.6	41.3	40.9
Informal dwelling	59.4	58.7	59.1
Total	100	100	100

Table 5. Where Informal Activity Takes Place in Accra

Work location	Share (%)
Home	29.5
Store/shop	17.9
Street not at a fixed location	14.6
Market	13.4
Street at a fixed location	10.8
Workshop	3.8
Construction site	2.4
Lorry park	2.1
Other	5
Total	100

Table 6. Work Location by Dwelling Type (non-farm informal sector employment only)

	Formal dwelling share (%)	Informal dwelling share (%)	Total share (%)
Work from home	13.4	15.6	29
Street	9.7	15.8	25.5
Market	5.3	8.1	13.4
Other	13	19.2	32.2
Total	40.9	59.9	100

The settlements though vary immensely in terms of the degree of land tenure security.[52] Specifically, some of these slums are illegal/extralegal, meaning that the residents lack the right to live and work in the community. Old Fadama is an example of an extralegal settlement on state land, sitting on the wetlands of the Korle Lagoon with little private value. Others are considered Indigenous settlements where customary tenure remains, the landlords are Indigenous leaders, and residents are therefore not under threat of eviction. But residents usually do not have secure land titles. In Accra, there are several settlements of the Indigenous Ga community that fall into this category (e.g. Jamestown). A third category of settlements are those on land purchased from either customary leaders or the state (e.g. Nima).

Any climate change adaptation interventions aimed at improving the resilience of Accra's most vulnerable communities require engaging with at least three sets of distinct relationships: within communities, between communities and the AMA, and between the AMA, the GAMA and national Government. More specifically, within informal settlements, residents' access to land and services, as well as protection from eviction, depends heavily on complex forms of transaction and loyalty with traditional authorities, local power brokers, and politicians from the main political parties.[53] As in other parts of the world,[54] party politicians may encourage "forbearance"—refraining from enforcing the law—in extralegal settlements where they obtain votes, or they may criticize the bureaucrats from the AMA for pursuing evictions or "decongestion" campaigns that remove vendors from the streets.[55] There are also dense linkages among community members who rely on each other for services and protection, including kaya bolas (informal waste collectors) who remove trash from settlements and markets, sometimes by dumping it into waterways and drains.

The relationship between informal communities and the AMA is also critical. Due to Ghana's extensive decentralization processes, the MMDAs have functional autonomy over many areas relevant to the livelihoods of the urban poor and for addressing climate change adaptation. According to the Local Governance Act of 2016, these areas include pursuing public works and basic infrastructure; developing, improving and managing human settlements; maintaining the MMDA's environment;
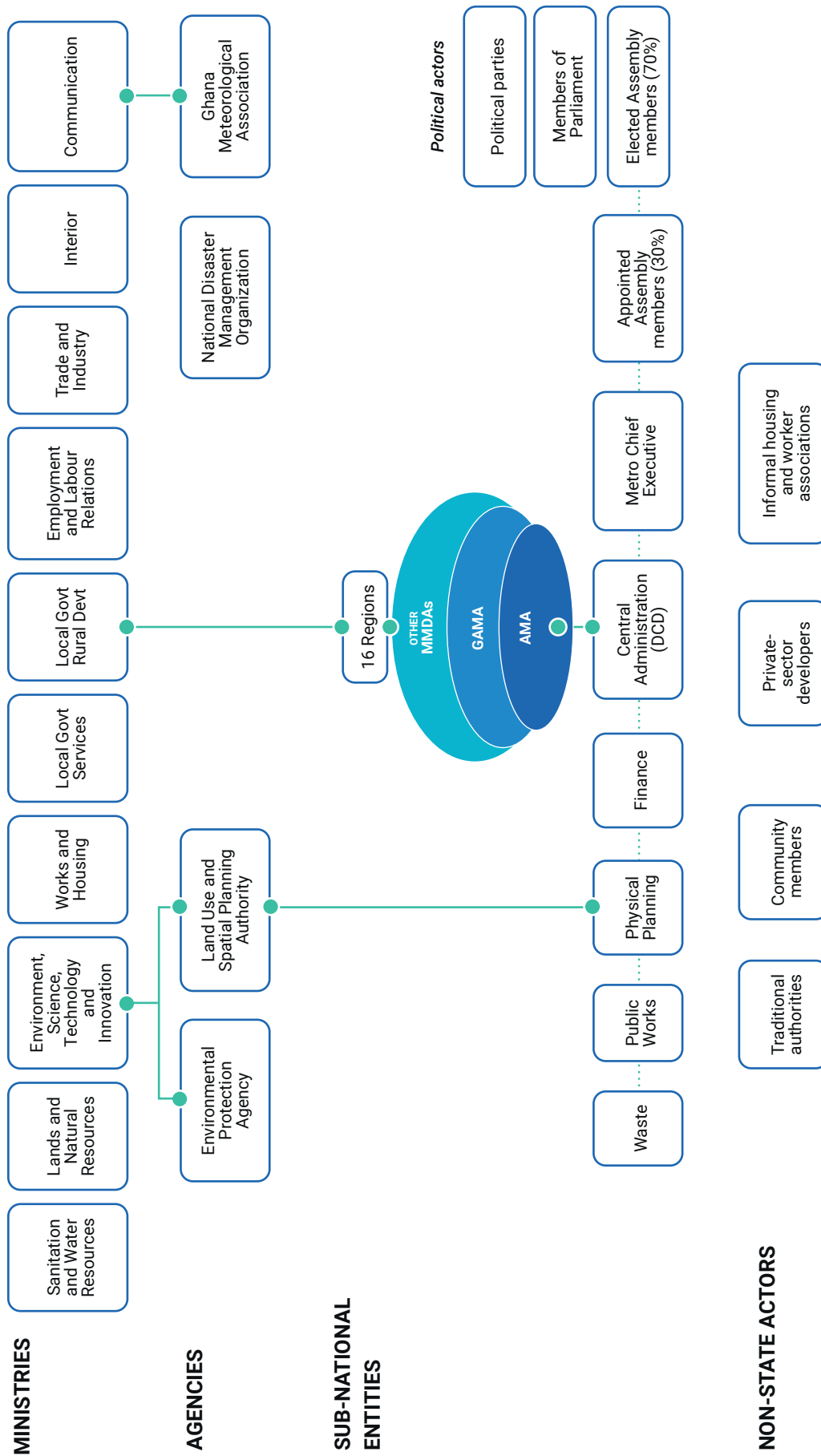
and effectively mobilizing resources needed for the development of the MMDA. Because MMDA chief executives (mayors) are appointed by the President, they have little downward accountability to citizens, and several of Accra's mayors have pursued eviction campaigns of extralegal settlements as well as "decongestion" campaigns against informal workers, especially street vendors,[56] executed by the Accra police force counter to the wishes of elected AMA elected representatives. In other cases, however, the bureaucrats within the AMA lack the resources, logistics, or workforce to enforce their by-laws, or face interference by politicians. This can allow unplanned development to proceed.[57] Perhaps because of these dynamics, surveys by Afrobarometer repeatedly show that Ghanaians perceive their MMDA administrations to be unresponsive to their concerns and have low levels of trust in them.[58]

In addition, as noted above, there is a complex institutional setting whereby the AMA is embedded within the GAMA and the Greater Accra Region but is also divided into sub-metro authorities. This institutional setting means that there are clear issues of coordination that emerge when dealing with interjurisdictional development challenges, such as those created by climate change. Finally, several types of interventions require guidance and support from national-level actors, including the Lands Commission, the Ministry of Housing, the Ministry of Sanitation and Water Resources, the National Disaster Management Organization, and many others. For example, even if an international finance institution is financing a project in the AMA or GAMA, because it is a sovereign loan or credit, the national ministries would necessarily be involved. Figure 5 provides a stakeholder mapping of these top-down, bottom-up, and horizontal relationships.

Climate Adaptation in Accra

The threat of climate change has not gone unnoticed by Ghana's policymakers. Ghana has had several different urban planning and climate adaptation plans over the years, many of which recognize that the urban poor and those in informal communities are most at risk. These include Ghana's National Urban Plan (2012), which advocated in situ upgrading instead of evictions of extralegal settlements, the National Environmental Policy (2014), and the National Housing Policy (2015). These were

Figure 5. Stakeholder Mapping of Actors and Institutions for Climate Adaptation in Informal Settlements

MINISTRIES

- Sanitation and Water Resources
- Lands and Natural Resources
- Environment, Science, Technology and Innovation
- Works and Housing
- Local Govt Services
- Local Govt Rural Devt
- Employment and Labour Relations
- Trade and Industry
- Interior
- Communication

AGENCIES

- Environmental Protection Agency
- Land Use and Spatial Planning Authority
- National Disaster Management Organization
- Ghana Meteorological Association

SUB-NATIONAL ENTITIES

- Waste
- Public Works
- Physical Planning
- Finance
- Central Administration (DCD)
- Metro Chief Executive
- Appointed Assembly members (30%)

16 Regions

OTHER MMDAs
GAMA
AMA

NON-STATE ACTORS

- Traditional authorities
- Community members
- Private-sector developers
- Informal housing and worker associations

Political actors

- Political parties
- Members of Parliament
- Elected Assembly members (70%)

formulated, however, under the NDC government. When the NPP administration came to office in 2016 (it was reelected in 2020), new plans were developed, including the Accra Resilience Strategy, supported by the 100 Resilient Cities initiative. This strategy also has a strong emphasis on working with informal-sector organizations.[59]

In 2018, under the leadership of the Environmental Protection Agency, with support from the Ministry of Finance and the National Planning Development Commission, the national Government published a framework for the production of a new National Adaptation Plan (NAP).[60] The intention was to lay out a new, bottom-up approach to the NAP process and provide a reference point for bringing together various adaptation planning efforts from different sectors, subnational structures, and scales of decision-making. The framework attempts to align the NAP process with existing policies, strategies, programs and adaptation research, while serving as a basis for stakeholder engagement.

Photo: Slum Dwellers International

Nonetheless, there are various concerns about the political will and institutional capacity to implement such goals. Drawing on interviews with Government representatives and focus group discussions with informal-sector organizations, this section highlights extant approaches to climate adaptation and informality in Accra and explains why a more holistic and proactive set of actions is needed.

Extant Approaches to Adaptation

With guidance from the Land Use and Spatial Planning Authority, MMDAs have the primary mandate to engage in development planning. Efforts to train the AMA on flood risk assessment to inform planning decisions has been affected by insufficient funding and a lack of demand by the local authorities. Future efforts to train MMDA planners to integrate climate risk assessments into their land-use assessments need to also involve MCEs and district coordinating directors (Figure 5) since these are ultimately the main decision-makers at the local level.

Thus far, infrastructure investments have tended to dominate the Government's response to adaptation. These include paving alleyways within informal settlements and markets to reduce flash flooding as well as improving primary and secondary drains. Under the Greater Accra Resilient and Integrated (GARI) Development Project, supported with US$200 million in financing from the World Bank, rehabilitating infrastructure to improve the management of the Odaw River is a priority. Drainage investments, though, are medium-term solutions since they require at least three to four years to complete.

Planning duplication is also problematic as other ministries, particularly the Ministry of Works and Housing, also have slum upgrading strategies. The Ministry of Works and Housing is interested in expanding access to more energy-efficient materials to deal with excess heat. Key among these include replacing sandcrete (a mixture of cement and sand) with interlocking bricks (a mixture of laterite and cement) that retain cool air better, as well as micro-roofing tiles that improve ventilation much more than the zinc or aluminum roofs currently used. While there are aspirations to increase access to such materials as part of slum upgrading projects, no settlements currently use these, and some means of subsidizing access to such materials would be needed for poor households.

Such investments are necessary but not sufficient, and proactive planning remains a major gap. The National Disaster Management Organization (NDMO) under the Ministry of the Interior (Figure 5) plays a critical role in flood and other emergency rescue operations but does not engage in prospective assessments of potential risk scenarios. Within the settlements, there are few officially designated safe havens for flood victims except for a religious building or school that the community has chosen to use. Addressing how to help those in the informal sector appears to be a notable gap in the policy discussions around climate adaptation. Current donor-funded "green jobs" projects focus on activities and jobs that are primarily in the formal sector.

Coordinating Mechanisms and Financing

Most ministries now have designated units to focus on climate, environment, and/or flooding. To improve coordination, a bill has even been tabled in Parliament to create an institution that solely deals with flooding. The coordinating councils of the country's 16 regions also help with managing climate plans across multiple MMDAs, while within the MMDAs, the district coordinating division helps facilitate integration of climate-related plans across departments.

Ministerial volatility is, however, one challenge for implementation. For instance, after an extensive study on slum upgrading completed in 2015, the Ministry of Local Government had prepared a slum upgrading strategy. Yet, momentum was derailed when this was allocated to the newly created Ministry of Inner-Cities and Zongo development in 2017. The abolition of the latter ministry in 2021 further affected project implementation, including of the World Bank-financed GARI project noted above.

Within the MMDAs, another challenge is insufficient financing, which further derails holistic planning processes. Funding from either the intergovernmental District Assemblies Common Fund (DACF) or from internally generated revenue is typically allocated to one-off, visible investments in communities, such as toilets, streetlights, or clinics, which can be easily quantified in annual performance reports.

Land Rights and Community Trust in Government

In Ga Mashie, which encompasses several Indigenous settlements of the Ga people that include Ussher Town and Jamestown, slum upgrading has been pursued since 2015 under UN-Habitat's Participatory Slum Upgrading Program (PSUP). The existence of the Ga Mashie Development Agency (GAMADA), which was established as a quasi-local government agency in 2006 and integrated into the AMA in 2010, facilitated such upgrading. In addition, the fact that the land is owned by the Ga and their families meant that there was less concern about the Government's motivations, and disputes over tenure are less common. The upgrading project involved first interviewing residents to ensure a sound understanding of their needs and priorities.

By contrast, upgrades to deal with climate shocks have been much more challenging in the extralegal settlement of Old Fadama. There, residents note they have received assistance from the People's Dialogue on Human Settlements. Mistrust of the AMA, though, is high, undermining any Government attempts to address flooding. In fact, respondents have been reluctant to speak about flooding out of fear of eviction. Such fears are not entirely misplaced; the AMA has several times tried to resettle parts of the community into a new area called New Fadama, but residents often return or new ones take their place. The attraction of Old Fadama remains its strong link to employment opportunities; one of Accra's biggest markets, Agbogbloshie Market, is close by, and it is the center of "bulk breaking activities" where food comes in from around the country and is then broken down into smaller quantities to be sold throughout the city. As a traditional authority that is a member of the Old Fadama Informal Housing Neighborhood Association conveyed, "This community is here to stay. See how extensive this place is and how brisk business and commercial activities thrive here, especially for the women traders and cooked food sellers."[61] Efforts at resettlement that fail to account for the need of residents to be proximate to employment opportunities are rarely successful. Politicians from both the NPP and NDC have been maligned for promising to protect the residents during campaign periods only to abandon them after elections take place.

Building trust requires continuous communication between citizens and the Government, which can be facilitated through community associations. Within Old Fadama, there is an association consisting of 16 representatives of recognized tribes who convey

community preferences to the AMA, opposition leaders, and Government officials who visit the community. This coordinating association works with local NGOs (such as the People's Dialogue), INGOs, and donors for technical assistance and to try to obtain funds for slum upgrading and to help coordinate and integrate donor projects. Other options for building trust include citizen scorecards (Figure 2) that are based on performance indicators agreed on through a consensus between communities and their local governments. Such indicators can be tracked over time and shared in regular community meetings as both a way of ensuring accountability and to mitigate volatility in decision-making that often occurs as governments change and politicians forget previous promises to their constituents.

> **"**
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> **Extreme weather and rapid changes to Ghana's climate present a profound risk to key sectors of Ghana's socioeconomic development. Infrastructure in these sectors are the bedrock of the country's economic growth and development."**
>
> **Dr. Kwaku Afriyie**
> Minister of Environment, Science, Technology and Innovation, Ghana
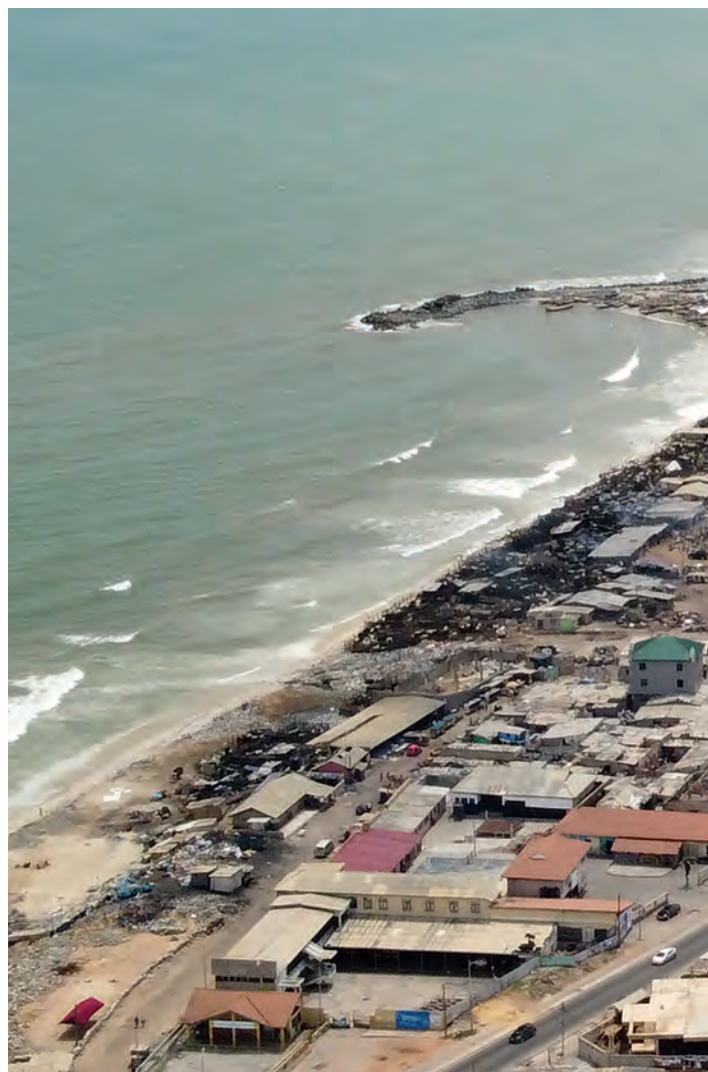
CONCLUSIONS

Climate change scholars highlight the need for transformational change within urban areas to meet the coming climate challenges, and to avoid locking in unsustainable practices. In cities such as Accra, with overlapping mandates for action but weak accountability structures, envisaging the planning, financing, and implementation process for transformational change is difficult. Some climate adaptation plans, such as Accra's Resilience Strategy, do articulate objectives and intentions toward the transformational, and recognize the needs and rights of the informal city. However, actual inclusive, transformational change seems improbable as long as informality is seen as illegal, the land on which informal settlements are located is contested, and alternatives to informality
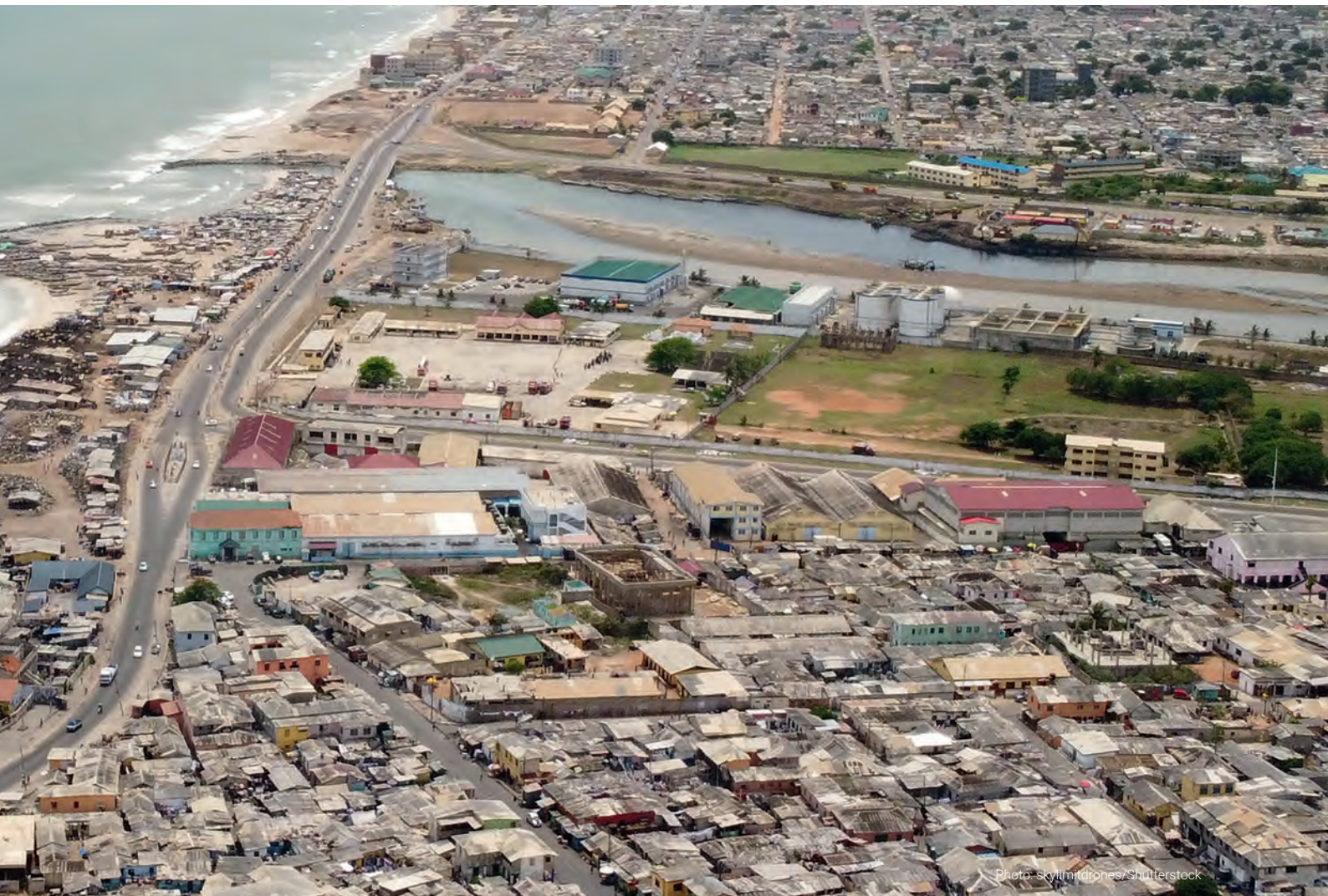
are largely unavailable. Moreover, a deteriorating fiscal environment in Ghana and many other African countries limits financing for needed public investments in urban services, further constraining implementation of NAPs.

Local governments such as the AMA are closer to their citizens' needs. The AMA and other MMDAs have been assigned many of the responsibilities for the planning, project development, and implementation that effective adaptation strategies involve. Yet these entities often lack both the funds and the capacity to undertake these responsibilities. Thus, plans and frameworks articulated by the national or regional government mostly represent unachievable intentions. This problem is replicated in other African cities, with variations dependent on the degree of decentralization of power and money.

Consequently, the most inclusive approaches in the short to medium term likely will involve minor, low-cost, in situ adaptation investments, and increased coping measures. As the example of Accra shows, simply advancing proactive climate change–induced disaster planning could benefit city residents living in communities of informal housing who work on the street or at home. Partnerships between a leading national ministry, the regional coordinating council, the AMA, and community groups for the purpose of effective disaster management could produce results if they were focused on a limited set of coping outcomes.

More broadly, recognizing land rights in slums and the right of the informal sector to occupy urban spaces in order to work would itself be transformational, even if it is only step one on a long path toward adaptation. The problem for African cities such as Accra is that the time clock on climate change is advancing, and therefore the cost of the current inertia is rising.