

RESEARCH  
REPORT  
OF GOOD  
GOVERNANCE  
AFRICA,  
WEST AFRICA

# BUILDING RESILIENT CITIES: ASSESSING GHANAIAN LOCAL AUTHORITIES MANAGEMENT OF FLOODING IN SELECTED CITIES



# How MMDAs in Ghana work with residents in flood prone areas to build resilient cities:

## The case of selected MMDAs in the Greater Kumasi and Accra Metropolitan Areas



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### **A BRIEF PROFILE OF GGA-WARO**

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Established in the year 2015, the GGA-West African Regional Office exists to promote good governance practices in Anglophone West Africa excepting Nigeria. The Regional Office uses results from scientific based research in a number of development topics to advocate for policy reforms, to train development actors, and to mobilise civil support for changes in governance and promotion of societal development.

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- Ghana CSOs Platform for the Monitoring of the SDGs
- The Ghana Urbanisation Think Tank (GUTT)

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*Aerial View of the city the of Accra*  
Source: <https://resilientcitiesnetwork.org>

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# Executive Summary

Climate change data over the past two decades shows that climate change is posing increased threats to cities as flooding, in many parts of major cities is becoming more pronounced. In the face of climate change effects, building resilient cities is the only option available to city managers. Perennial flooding across the major cities in Africa poses a significant threat to governments accelerated socio-economic development agenda. Lives have been lost, properties destroyed, people displaced, transport links disconnected, economic activities disrupted and livelihoods uprooted because of flooding. According to the UN Sustainable Development Goal 11, which focuses on making cities and human settlements inclusive, safe, resilient and sustainable, there is the need for city authorities to create green spaces and get a broader range of people involved in urban planning decisions. This will require designing and implementing climate smart human settlement plans and taking steps to improve infrastructure systems in existing flood prone settlements in the city. It follows that working with residents in flood prone areas of the city has the promise of building resilient cities in the face of the realities of climate change, yet we do not know the extent to which city authorities prioritize the urban environment and green spaces planning decisions. We also do not know how city authorities work with residents in flood prone areas around urban environment and green spaces towards making Ghanaian cities more resilient. Without a thriving urban landscape that puts the planet first while providing inclusive opportunities for its citizens. No city can position itself for long-term success and its prosperity, cannot therefore be sustained. So how do the natural environment and urban landscape feature in urban development plans of city authorities in Ghana? And how are residents in flood prone areas of the cities being involved in the decision-making process around urban natural environment and green spaces?

On the basis of these questions, the study sought to achieve the following objectives: How do the natural environment and the urban landscape in flood prone communities feature in the plans of cities? In what ways are residents in flood prone communities involved in the design and implementation of such plans? To what extent are they willing to participate in the decision-making processes around the natural environment? To what extent are residents in flood prone communities prioritizing green spaces in their use of the urban space? What lessons can be shared from the Greater Kumasi and Accra cases?

The study was carried out in the two cities in Ghana: Accra and Kumasi which suffer persistent flooding more than all other cities in the country. The study focused on the plans designed and implemented in the past 10 years from 2020. The contents of the plans were analyzed together with interviews with



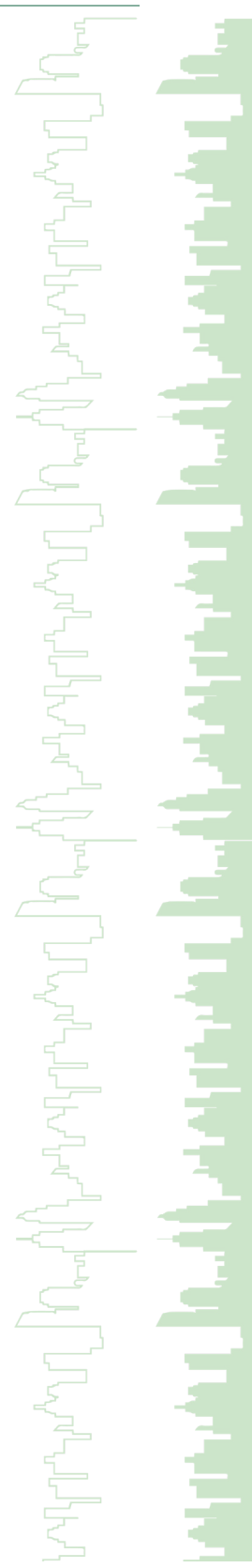
high profile officers and key informants in the management of flooding in these cities. Each of the city was zoned into three: Zone A, B, and C. The zones cover the Municipalities that suffer flooding. For the Greater Kumasi Area, these are Suame area, Tafo and Asokore Mampong areas. For the Suame area, the flood prone communities include New Suame (Akos Stream: Salfiya Junior High School Bridge to Anomangye fie linking Bohyen Drain), Breman, Abusuakruwa, Breman Central, Kronum Kwapra, Abuohia, Kyerease. The Tafo area covered include Boawin, Santan and Ahenbronum North. Those covered in the Asokore Mampong area include Asabi Junction: Sawaba New Site: Pelele (in between Asawase and Aboabo). For the Greater Accra area, Ablekuma West was covered to include Dansoman, Sahara, Gbegbeyise, Agege, Glefe, Opetekwe and Shiabu. For Korley Klottey, they are Christiansborg, Adabraka, Ministries, Asylum Down, and West Ridge. In the Accra Metropolis, Okponglo and Legon areas including Shiashi were covered.

For each zone, 200 house owners in the floodable communities were randomly selected for in-depth interviews. The interviews focused on their involvement in the design and implementation of plans by the city authorities and other stakeholders responsible for flood management. They also answered questions on the extent to which they are willing to participate in the decision-making processes around the natural environment and how they prioritize green spaces in their use of the urban space.

In addition to the face-to-face interviews with the high-profile officials, the key informants and the residents in the flood-prone communities, a good amount of the data was obtained from online, official sites of the relevant Municipal Assemblies and other government agencies responsible for and have interest in flood management in the two cities. The online resources were used to corroborate the primary data obtained. In many of the cases, the public officials interviewed were also made to validate some of the data obtained from literature sources.

Using findings from the reconnaissance survey and initial key informant interviews prior to the main study, we settled on the following possible reasons why residents in flood hazard communities in the city will participate in spatial planning decision-making, prioritize green space or not prioritize green space in their land use decision-making. For those who will NOT do so, the explanation could be that green space serves as refuse dumping grounds for people; hide-out for criminals, lunatics and drug addicts. Green space does not make the urban environment look clean and there is no space for green space development. For those who WILL prioritize green space, their reason could be that of beautification, regulation of flood water and regulation of temperatures. On the basis of these insights, each of the interviewees was made to select the one most important reason for either prioritizing or not prioritizing green space in their decisions.

Among the key findings is that first, the selected Local Governments recognize the important role of green space in the control of urban flooding. There are good initiatives to provide and protect green spaces in the cities. The





interventions recognize the role of residents in flood hazard communities with mechanisms to involve them in the design and implementation of plans. Second, the study revealed a strong desire on the part of residents in flood hazard areas to participate in green infrastructure decision-making. One of the important ingredients for successful design and implementation of spatial development plans is the role of city residents in the process, so to get their commitment is half-way through success. There is no likelihood that they will undermine the process. There is high tendency that they will fully support and make the process work. Third, there was strong desire among city authorities and local people to have aesthetically pleasing urban space. A good number of city dwellers in Kumasi and Accra will support efforts to create aesthetically pleasing city. A good proportion of the interviewees were already doing what they can in their own small way to make their neighbourhood and the city look clean and beautiful. This desire will provide fuel to spatial planning efforts towards making the cities resilient. It will further strengthen the desire to participate in the spatial planning process. Fourth, green space can be a good flood control strategy. There was high awareness among majority of the residents that the urban green space has a role to play in adapting to climate change and flooding events, this is a huge potential for city authorities to achieve resilient cities. This implies that the Assemblies enforcement of green space in the development permit application is in the right direction and needs to be adhered to by all developers in the newly developing urban fringes. Fifth, there is insufficient awareness among a good number of urban dwellers about the importance of green space in the urban environment. There were some urban residents whose views is that green space has no useful place in the urban environments and needs to be cleared out. This is good pointer to city authorities to work more to get the awareness level among city residents improved. Sixth, there were claims that green spaces can harbor criminals, lunatics, drug addicts and refuse dumping grounds. This should alert city authorities on how such areas are protected. This will require the strengthening of community volunteering and policing and neighbourhood watch activities.

On the basis of the findings, the policy options are first, the role of city residents in urban planning is key. There is the need for city authorities to create and sustain awareness among city residents that they have important role to play in achieving resilient city for all. The town hall meetings, community durbars, and political campaign platforms by local politicians should be used to create this awareness. Second, green infrastructure in climate change adaptation and flooding event management. Local government authorities should intensify the awareness campaign around the place of green space infrastructure in climate change and flooding event management. Again, the approaches listed to get city residents play their role in urban plan should be adopted. Third, law enforcement is key. The enforcement of urban planning and spatial development laws and bye-laws need to be strictly adhered to. This will require that development permit, development control and other such activities geared towards creating resilient cities should be adhered to by all.



# Chapter One

## Background to the Study



A picture of the Kumasi Kejetia Market  
Source: <https://web.facebook.com/blackstarofafrica>

## 1.1 Introduction And Background To The Study

Climate change data over the past two decades shows that climate change is posing increased threats to cities as flooding in many parts of major cities is becoming more pronounced. In the face of climate change effects, building resilient cities is the only option available to city managers (UN, 2015a). Perennial flooding across the major cities in Africa poses a significant threat to governments accelerated socio-economic development agenda. Lives have been lost, properties destroyed, people displaced, transport links disconnected, economic activities disrupted and livelihoods uprooted because of flooding.

According to the UN Sustainable Development Goal 11, which focuses on making cities and human settlements inclusive, safe, resilient and sustainable, among others, there is the need for city authorities to upgrade slum settlements; create green spaces, and get a broader range of people involved in urban planning decisions. This will require designing and implementing climate smart human settlement plans, and taking steps to improve infrastructure systems in existing flood prone settlements in the city (UN Habitat, 2015). It follows that working with residents in flood prone areas of the city has the promise of building resilient cities in the face of the realities of climate change yet we do not know the extent to which city authorities prioritize the urban environment and green spaces planning decisions and how city authorities Ghana work with residents in flood prone areas

around urban environment and green spaces can contribute to making Ghanaian cities more resilient.

The urban environment and green spaces offer nature-based solutions for climate resilience which is recognized by many as a strategy for adaptation to climate change (Vidal et al. 2022). Green spaces improve air quality, reduce noise and enhance biodiversity. They also moderate temperatures during hot periods and provide cool and shaded areas (Liu and Russo, 2021). Consequently, urban green spaces are becoming recognized as contributors to sustainability in international frameworks (Maes et al., 2019; Vidal et al. 2022).

***In the face of climate change effects, building resilient cities is the only option available to city managers (UN, 2015a).***





Birds eye view of the Achimota forest, Accra  
Source: <https://www.gbcghanaonline.com>

The importance of green spaces in the urban environment emerged strongly in the Chamber of Commerce Amsterdam's 5th edition of the Arcadis Sustainable Cities Index which examined urban sustainability through the lens of prosperity. It is argued that "in order to be truly sustainable, cities must look beyond economic development to the health of their natural environment and the quality of life of the people that live there (Amoako, 2012). Without a thriving urban landscape that put the planet first while providing inclusive opportunities for its citizens. No city can position itself for long-term success, and its prosperity cannot, therefore, be sustained" (ARCADIS, 2022). So how do the natural environment and urban landscape feature in urban development plans of city authorities in Ghana? And how are residents in flood prone areas of

the cities involved in the decision-making process around urban natural environment and green spaces? To what extent do current urban natural environment and green space management decisions point to resilient urban systems?

## 1.2 Study objectives

On the basis of the aforementioned questions, the study sought to achieve the following objectives:

- To understand how the natural environment and the urban landscape in flood prone communities feature in the plans of cities. Thus, how are city authorities prioritizing green spaces and green infrastructure?
- This objective should provide what can be described as "balance sheet" on



urban green space accounting. As the problem of flooding events is well documented and acknowledged by many authorities in the major cities of Accra and Kumasi, isolating and compiling the efforts and interventions in one document should give a clear picture about what has been done and what needs to be done.

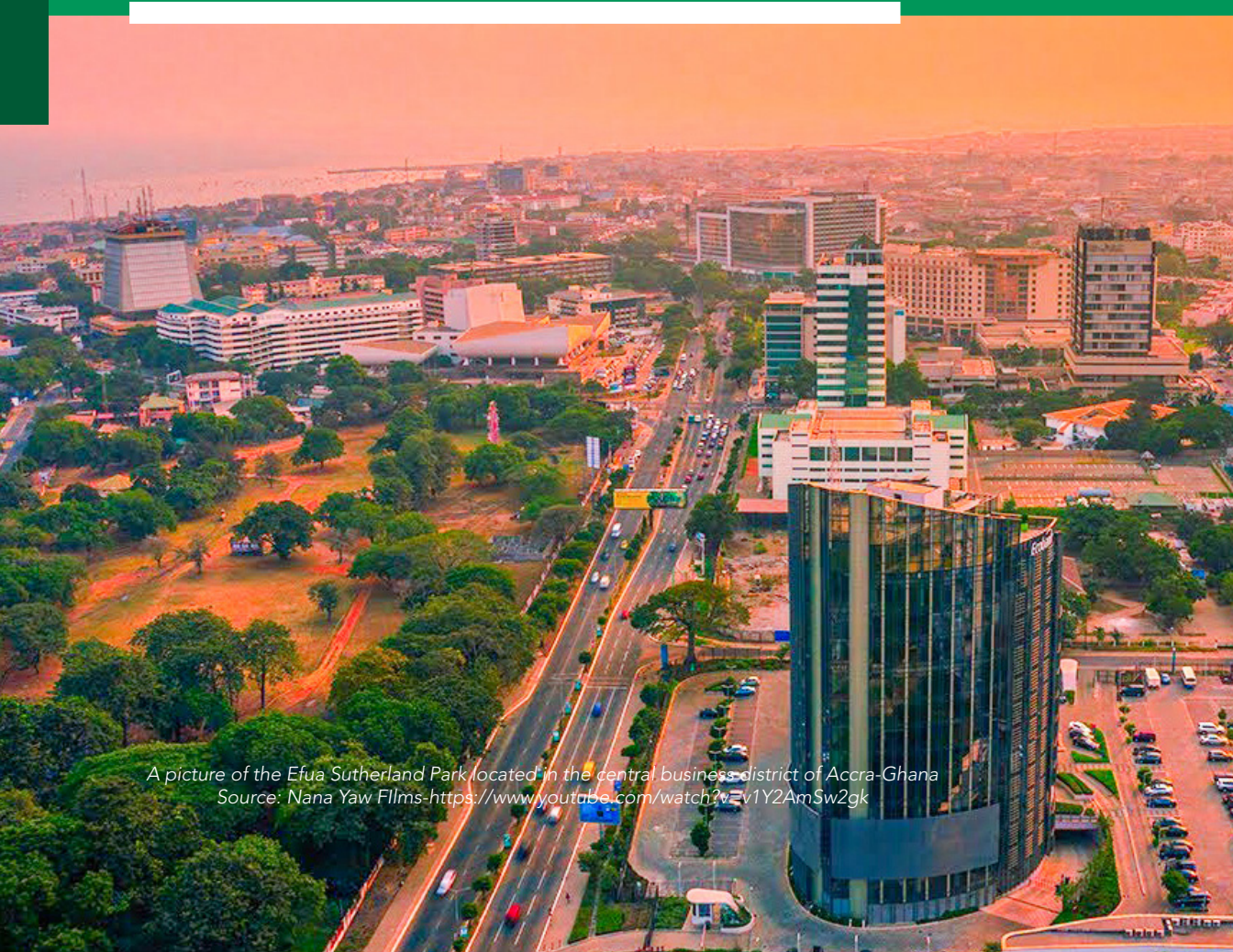
- To understand ways in which residents in flood prone communities are involved in the design and implementation of such plans and the extent to which they are willing to participate in the decision-making processes around the natural environment. As has been highlighted in the literature, the involvement of residence in flood hazard communities in the decision-making process is key. But are city authorities getting it right? What needs to be done to get it right? and are the affected people willing to play this important role in the process? Answering all these questions will also provide a “balance sheet” on citizens involvement accounting to enable city authorities and local residents work together to adapt to climate change and flood events.
- To understand the extent to which residents in flood prone communities prioritize green spaces in their use of the urban space. One way to successfully get residents in flood prone communities to cooperate and support urban planning efforts is that they themselves have taken some critical initiatives on their own to address the problems. Such initiatives are good opportunities for city authorities to leverage on in the design and successful implementation of resilient urban management plans.
- To highlight lessons that can be shared from the Greater Kumasi and Accra cases. The cities of Accra and Kumasi have very important lessons to share with fast growing cities such as Tema, Cape Coast, Takoradi, Tamale and Koforidua which have suffered from severe flood events in recent times. Until the past decades, these cities did not report on devastating flooding resulting in the loss of lives and property. This study should point to lessons for such cities and policy options for all stakeholders working to make Ghanaian cities resilient adapt more effectively to climate change and flooding.

### 1.3 Chapter conclusion

*It is important to note that the objectives as stated here are the requirements of the Terms of Reference (ToR) for the conduct of the study. Consequently, each of these requirements have been addressed as either a full chapter or a major component of a chapter. The next section of the report explores the bigger literature around climate change, urban flooding events and city resilience. This allows for the context of the study to be adequately explained.*

## Chapter Two

# Climate Change, Flooding And City Resilience



*A picture of the Efua Sutherland Park located in the central business district of Accra-Ghana  
Source: Nana Yaw Films-<https://www.youtube.com/watch?v=v1Y2AmSw2gk>*

## 2.1 Introduction

In this chapter, the concepts of climate change and flooding events have been unpacked. The response to climate change at the global level, the African continental level, West African regional level and Ghana have also been discussed. The concept of city resilience and how this has been used in this study has been explained. This is followed by a discussion on the role of urban planning in flooding events management towards building resilient urban settlements.

## 2.2 Unpacking the concept of climate change

Climate change is one of the most complex development issues affecting many countries globally. It has been a major part the development discourse of many countries and Ghana is no exception. The consensus is that climate change can be referred to as the increase or decrease in the average precipitation caused by land use changes and the anthropogenic increase in the concentrations of greenhouse gases, particularly carbon dioxide (CO<sub>2</sub>) in the earth's atmosphere (United Nations (UN), 2015b). This universal concern centers on the particular physical, economic, demographic, environmental, and other features prevailing in a particular geographic area (Awuor et al., 2008) resulting in significant influences on natural and human systems (Albeck-Ripka, 2019). A major outcome of this menace has been the hazards (droughts or floods) caused each year (Major & Juhola, 2021; Abdellatif et al., 2015; Aboagye, 2012).

Adaptation to climate change and flooding in cities is the concern of the Sustainable Development Goals (SDGs), particularly SDG 11, which seeks to making cities and human settlements inclusive, safe, resilient and sustainable, and SDG 13, focusing on taking urgent action to combat climate change and its impacts (Major et al., 2018). Climate change adaptation is both a part of sustainability and contributes to it, and if effectively tackled, societies will be able to achieve the many other elements of sustainability (UN, 2018a; Lee, 2010). It is argued that climate change is the biggest challenge with no single answer or no single solution making it a topical field of concern to many researchers as the world explores practical steps to respond (Lee, 2010).

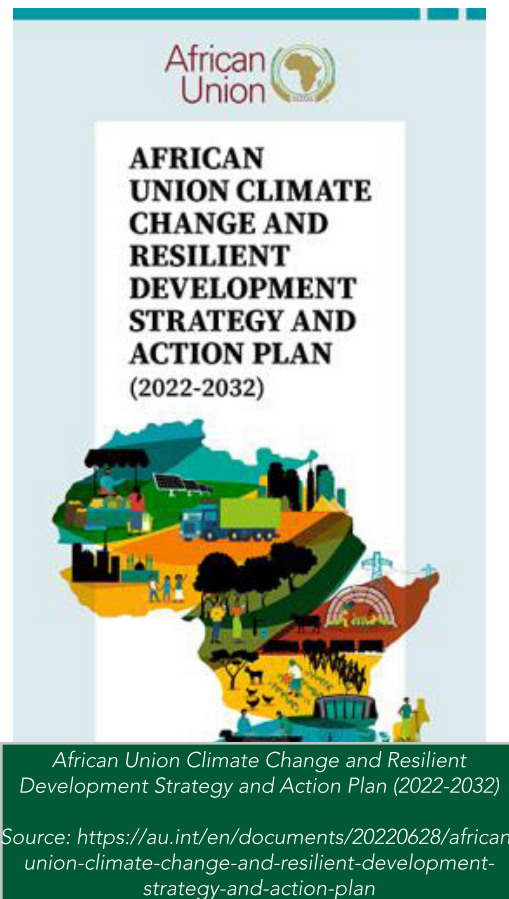
## 2.3 Global response to climate change

The international climate research community has concluded that human activities are changing the Earth's climate in ways that increase risk to cities (ActionAid, 2006; Adelekan, 2010; Alfieri et al., 2016). This argument focused on varied evidence, comprising the Earth's climate history, interpretations of changes in the recent historical climate record, evolving new patterns of climate extremes, and global climate prototypes (UN Habitat, 2011). Karki et al. (2011) have argued that a deeper understanding and anticipation of these changes enables cities prepare for a more sustainable future. Others such as Andersson et al. (2015) have therefore advocated for making cities more resilient to climate-related disasters and managing long-term climate risks in ways that protect individuals and encourage prosperity in addition to empowering them to reduce greenhouse gas emissions.

Santiago (2016) declared that globally, it is becoming increasingly important to assess how the changing climate will affect cities. This implies that the risks are not the same everywhere. For instance, sea level rise will affect the massive zones of urbanization clustered along the world's tidal coastlines and most significantly those cities in places where the land is already subsiding. In response to the wide range of risks facing cities in countries such as America, England, Europe among others and the role that cities play as home to more than half of the world's population, urban leaders are joining forces with multiple groups including city networks and climate scientists (Lawrence & Haasnoot, 2017). In Australia, the risk to coastal settlements, infrastructure, industries, and ecosystems

due to climate change could affect up to 247,000 residential buildings with an estimated replacement value of \$63 billion using 2008 values.

Lawrence and Haasnoot (2017) further explained that the global governance leaders are assessing conditions within their cities in order to take science-based actions that increase resilience and reduce greenhouse gas emissions, thus limiting the rate of climate change and the magnitude of its impacts (Rosenzweig et al., 2009). In the dilemma of responding to the global nature of the problem in September 2015, the United Nations endorsed the new Sustainable Development Goal (SDG) 11, which is to "Make cities and human settlements inclusive, safe, resilient and sustainable."





This new sustainability goal cannot be met without explicitly recognizing climate change as a key component. Likewise, effective responses to climate change cannot proceed without understanding the larger context of sustainability. The SDG goal 11 demonstrates actions taken to reduce greenhouse gas emissions and increase resilience to enhance the quality of life and social equity for the world as a whole (UN, 2015b).

## 2.4 Africa's response to climate change

Africa's Agenda 2063 is the blueprint and master plan for transforming Africa into the global powerhouse of the future. The blueprint is a strategic framework produced by the African Union (AU) with the determination to deliver on its goal for inclusive and sustainable development seeking to prioritize, among other things, inclusive social and economic development, continental and regional integration, democratic governance, and peace and security in Africa (Rapson et al., 2022). The AU Climate Change Strategy was developed as a 10-year strategic planning document aimed at addressing the impacts of climate change that hamper Africa's integration and development and as part of a proactive, collective effort to realize Agenda 2063.

In all these, AU CC Strategy aims to assist Africa to take advantage of the opportunities related to the transition to a low carbon emission green economy and green recovery efforts, acknowledging that Africa should embrace opportunities to catalyze socio-economic transformation towards a resource-efficient, environmentally sustainable, climate

resilient, and more equitable society (Zobolo, 2022). This implies that human well-being and economic growth will improve over the long term while mitigating the exposure to significant environmental risks and ecological scarcities for future generations. The key AU Climate Change Strategies are to build resilient capacities for adaptation, reduce the vulnerability of affected communities and manage the risks related to climate change and climate-induced extreme events, as well as unlock the benefits of the mitigation potential of the continent.

## 2.5 Response to climate change in West Africa

The Intergovernmental Panel on Climate Change (IPCC) Assessment Report 5 (AR5), published in 2013, revealed that global warming resulting from enhanced anthropogenic greenhouse gases (GHGs) and the effect on climate change in the West Africa region is scientifically well established. In fact, global warming has substantial consequences on precipitation and its variability, especially drought and flood episodes in the tropics covering West Africa (Zwiers et al. 2013; Giorgi et al. 2014a; 2014b), making West Africa one of the regions in the world most vulnerable to climate change (Boko et al. 2007; Hartmann et al. 2013; Karl et al. 2015).

Boko et al. (2007) established that, it is particularly true for cities in West Africa experiencing exponential population growth. Climate change and high population levels are leading to gradual land degradation, high water stress and scarcity with recurrent localized droughts and flash floods in West Africa cities (Lambin et al., 2003; Leh et al., 2013;

Carney et al., 2014). These conditions are expected to be exacerbated in the future and constitute significant threats to water resources, agricultural activities and ecosystem services (Lobell et al. 2011; Anyamba et al. 2014). While local populations have difficulties adapting to such conditions, the absence of governmental policies that would help to alleviate the consequences of future climate change adds another degree of vulnerability (Mohino et al. 2011).

Consequently, reliable adaptation methods are urgently needed in order to address the negative impacts of climate change and this requires the understanding of recent trends and the elaboration of robust climate change scenarios for the West African domain (Zahmatkesh et al., 2015; Yazdanfar & Sharma, 2015; Schewe et al. 2014). Recently, a more extensive study by Ibrahim et al. (2014) revealed that in the last two decades, not only have the annual precipitation total increased, but also the rainy days have been more frequent, leading to the partial recovery of precipitation amount. This recent precipitation recovery is largely attributed to the direct influence of higher levels of anthropogenic greenhouse gases in the atmosphere, along with changes in anthropogenic aerosol precursor emissions (Haarsma et al. 2005; Ackerley et al. 2011; Biasutti 2013; Dong & Sutton 2015). Although natural variability might have played an important role. In addition to the wetter precipitation trend, the prevalence of a higher inter annual variability, a delayed onset and an early retreat of the monsoon season in recent years over West Africa have been reported (Biasutti & Sobel 2009; Sylla et al., 2010a; Diallo et al., 2013; Seth et al., 2013; Hartmann et al., 2013).

## **2.6 Climate change and flooding events**

A major effect of climate change has been flooding events. Available statistics show that flood claims 20,000 lives and adversely claims 20 million lives worldwide yearly (Giorgi et al. 2014b). In addition, flooding can have devastating impacts that may cause major disruption to energy, water, communication, and transport, interfere with public services, have a significant impact on the environment and cultural heritage, cause pollution, cause changes to habitats, and cause migration. Floods are one of the most hazardous, frequent disasters in urban areas, and can cause enormous impacts on the economy, environment, city infrastructure, and society (Chang et al., 2013; Ashley et al., 2005; Zhou et al., 2017).

The effects of climate change on extreme precipitation and urban flooding have been well documented in several studies. For example, Ashley et al. (2005) showed that flooding risks in four UK catchments may increase by almost 30 times by the 2080s compared to current conditions around the year 2000, and effective adaptation measures are required to cope with the increasing risks in the UK. According to Larsen et al. (2009), it is estimated that future extreme precipitation will increase by 20-60% throughout Europe by 2071.

In Australia, the risk to coastal settlements, infrastructure, industries, and ecosystems as a result of climate change could affect up to 247,000 residential buildings with an estimated replacement value of \$63 billion using 2008 values.

On the African continent, flooding has become severe and more frequent in most cities with adverse repercussions for the urban poor and vulnerable (Douglas et al, 2008). The continent ranks second hardest hit by flooding after Asia (Tschakert et al., 2010) in terms of number of flood events, damage to property and deaths. In the last decade, the number of flood events recorded in Africa is higher than the rest of the world (Jha et al. 2011). In eastern Africa, between 2002 and 2006, over 210 persons died and thousands were made homeless. Countries most affected were Rwanda, Kenya, Burundi, Tanzania and Uganda (Douglas et al., 2008) and Ethiopia (UN Habitat, 2007).

The West Africa sub-region has had its share of the devastation effects of flooding events. Flood events in 1982, 1991, 1995, 1998, and 1999 affected more than 500,000 people in each case. In 2010 alone, over 1.7m people were affected by flooding with 52,000 cholera cases recorded in

its wake (Global Facility for Disaster Reduction and Recovery (GFDRR), 2011; Bariweni et al. 2012; Cobbina & Anane, 2016). Countries severely affected include Togo (200,000 people), Benin (680, 000), Nigeria (300,000), Burkina Faso (133,000) and Ghana (141,000).

In the past ten years Ghana has suffered many flooding events in 2007, 2010, 2012, 2015, 2018 and 2020. For the past five decades, the Ghanaian population has become increasingly urban with Accra and Kumasi being the fastest-growing cities (Yankson & Bertrand, 2012) and this presents some challenges. The Goil fuel station explosion in 2015 was both a flood and fire disaster that took many lives, properties, and livelihoods. Whenever floods occur, people are quick to attribute the cause to the effects of climate change and variability. Okyere et al. (2013) have identified that the increasing intensity and erratic nature of rainfall caused by climate change could make it easier to forecast natural disasters and hazards that might happen.

Nevertheless, climate change and variability are not enough explanations for the occurrences of floods in most urban spaces. Marks (2015) argued that the causes of floods in urban spaces are not limited to climate change and nature. The argument is that they are a result of human-nature interactions. Therefore, while a city may receive a heavy downpour, many human activities interact with the heavy downpour to create floods. This is the basis for building resilient cities.





The Airport City of Accra-Ghana  
Source: <https://asaaseradio.com>

## 2.7 When is a city resilient?

Resilient cities are cities that have the ability to absorb, recover and prepare for future shocks (economic, environmental, social & institutional). Resilient cities promote sustainable development, well-being and inclusive growth. The definition and use or application of the concept of urban or city resilience is rooted in the OECD definition of resilience. This sits in four major pillars, they are Economy (a diverse number of industries, a dynamic economy to generate growth, conditions allow innovation to take place, and people have access to employment, education, services, skills training); Governance (clear leadership and management, strategic and integrated approaches are taken by leaders, public sector has the right skills, government is open and transparent); Society (society is

inclusive and cohesive, citizens' networks in communities are active, neighbourhood is safe, and citizens enjoy healthy lives); and Environment (ecosystem is sound and diverse; infrastructure can meet basic needs, adequate natural resources are available, and coherent policy towards land use) (OECD, 2022).

## 2.8 The role of urban planning in flood management

As a global concern, managing the impact of climate change requires local action, and that the ability of governments and city authorities to initiate and implement interventions remains a pathway toward minimizing climate change effects (Khatri et al., 2013). Huuttoniemi and Williamo (2014) report a systems perspective



philosophy that provides insights from key national urban planning and climate change frameworks, as well as city authorities' perception of the centrality of urban planning in dealing with urban development and management issues including climate change. Komiyama and Takeuchi (2011), on the other hand, opined that global environmental and social changes experienced in cities have made it necessary for policymakers to reconsider and perhaps re-conceptualize the policy-making process. For a long time, strategies used to militate against floods exclusively involved hard engineering approaches such as building and fortification of dykes due to the stability of weather conditions, essentially precipitation and global temperatures. The times have now changed and interventions to mitigate floods increasingly have to be flexible to adapt to weather uncertainties and most importantly the role of residents in flood hazard communities in the city.

In addition, policies need to incorporate varied socio-economic aspects, to be sustainable and resilient. Before, during and after a flood event, the activities undertaken by the population at risk, by policymakers, and by emergency workers to reduce health risks are very critical in the management of flood events. Traditionally, the fields of engineering and urban planning aim to reduce the harmful effects of flooding by limiting the impact of a flood on human health and economic infrastructure (Parmesan & Yohe, 2003). This is accomplished by following construction codes and legislations aimed at relocating structures away from flood-prone areas, planning appropriate land use, and managing the costs of floodplains. Mitigation measures may reduce, but not eliminate major damage.

Technological advancement and growth of urban areas have led to the interdependency between water and physical planning during the post-2000 era. Inadvertently, in the dawn of the new era, it is recognized that society can play a vital role in the decision to manage flood events. This thinking has produced approaches such as Integrated Water Management (IWM), Integrated Water Resource Management (IWRM), and Adaptive Water Management (AWM) (Bressers & Lulof, 2010). The approach in which this study is rooted is the Adaptive Water Management and Adaptive Flood Mitigation strategies. These explore the concepts of interaction between long-term and short-term solutions, experimentation, and cooperation between previously isolated disciplines such as engineering and policy. The end goal is to maintain ecological resilience that allows the system 'to react to inevitable stresses' and 'generate flexibility in institutions and stakeholders' (Bressers & Lulofs, 2010). It is in this light that the issue of green space infrastructure is hinged. Similarly, this approach supports the role of flood victims in the decision-making process. The works of Ghana's National Disaster Management Organization (NADMO) and the Metropolitan, Municipal and District Assemblies' work in land use and spatial planning sit in this thinking.

The ability of city authorities to build climate-resilient cities is an important component of climate resilience planning. As the evidence has shown, cities have employed disaster management strategies such as early warning systems, fortification of dykes, and increasing drainage infrastructure capacity to mitigate against floods to varying extents. It is therefore worthwhile to investigate how adaptive policy influences the strategies jointly

designed; implemented with the people living in flood hazard communities to achieve resilience in the Greater Accra and Greater Kumasi contexts.

To foster resilience, more cities are looking into social involvement in preparation for and coping with floods. The involvement of varied layers of government, varied stakeholders, and the extent of cooperation to implement a policy presents an area in which more investigation and learning is useful. Urban climate policies should include equity and environmental justice as primary long-term goals. They foster human wellbeing, social capital, and sustainable social and economic development, all of which increase a city's capacity to respond to climate change. Access to land situated in non-vulnerable locations, security of tenure, and access to basic services and risk-reducing infrastructure are particularly important. Cities need to promote and share a

science-informed policymaking process that integrates multiple stakeholder interests and avoids inflexible, top-down solutions. Participatory processes that incorporate community members' views about resilience objectives and feasibility can accomplish this.

The issuance of Directives for Land Use and Spatial Planning to all Metropolitan, Municipal and District Assemblies by the Ministry of Local Government and Rural Development in 2022 further strengthens the mandate of city authorities in regards to the need to promote and share a science-informed policymaking process that integrates multiple stakeholder interests and avoids inflexible, top-down solutions. Participatory processes that incorporate community members' views about resilience objectives and feasibility is supposed to be the driving force in urban planning (see Box 1).

### ***Box 1: Directives for Land Use and Spatial Planning to all MMDAs***

#### ***ISSUANCE OF DIRECTIVES ON LAND USE AND SPATIAL PLANNING TO ALL METROPOLITAN, MUNICIPAL AND DISTRICT ASSEMBLIES***

*Metropolitan, Municipal and District Assemblies (MMDAs) are established by the Local Governance Act, 2016 (Act 936) and mandated under Act 936 and Land Use and Spatial Planning Act, 2016, Act (925) as planning authorities for their areas of jurisdiction.*

*MMDAs are thus required to execute their spatial planning authority through effective land use planning and management with the purpose of fostering sustainable development of human settlements, judicious use of land and overall socio-economic development of their areas of jurisdiction as prescribed in section 83 of Act 936 and section 34 of Act 925.*

*Sections 4 (c), (k), (l) and 125 of Act 925 and section 232 (1) of Act 936, empowers the Minister and Land Use and Spatial Planning Authority (LUSPA) to issue directives, regulatory notices and circulars to guide and regulate land use and spatial planning in the districts.*

*Pursuant to the above, the Minister hereby issues the following directives aimed at*

*strengthening the spatial planning and human settlement management function of MMDAs and enforcement of the statutory provision relating to land use and spatial planning as provided in Act 936 and Act 925.*

*The directives are also to promote transparency and accountability of MMDAs in the execution of their land use and spatial planning functions as well as to promote mutual trust between the general public and the MMDAs.*

*The Ministry also wishes to caution all public officials who fail to adhere to the land use and spatial planning laws and to indicate that the ministry will not hesitate to apply sanctions to all such persons.*

*In view of the above, the following directives are issued for immediate compliance by all the MMDAs.*

### **1. Spatial Planning Committee**

*1.1 In accordance with section 34 (2) of Act 925, the land use and spatial planning functions of the Metropolitan, Municipal and District Assembly (MMDA) shall be performed by the spatial planning committee of the Assembly.*

*1.2. As per section 42(1) and section 185 (5) of Act 925, MMDAs shall ensure that the physical Planning Department perform the secretariat functions of the spatial planning committee.*

*1.3. As per Regulation 8(2) (b) of L. I. 2384, all applications to the spatial planning committee shall be received by the secretariat of the Spatial Planning Committee (Physical Planning Department).*

*1.4. In accordance with section 123 (1) and (h) of Act 925 all approved permit shall be picked up from the secretariat of the Spatial Planning Committee (Physical Planning Department).*

### **2. Plan Preparation**

*2.1. All MMDAs shall ensure the preparation and revision of spatial development frameworks, Structure Plans, Local Plans and Rezoning Plans are undertaken in accordance with section 38 (1b), 40 (a) and 46 of Act 925; as well as section 83(b) of Act 936.*

*2.2. All MMDAs shall ensure that the physical development conform to an approved land use in accordance with section 38(1) and 79 of Act 925.*

*2.3. As per section 96(1&2) of Act 925, 103 of Act 936 and 117(1) of the Land Act 2020 (Act 1036), all MMDAs shall ensure that a persons shall not dispose of or let land or property of any purpose unless it is in conformity to an approved structure or local plan.*

*2.4. In accordance with Section 74 (2) of Act 925 MMDAs shall ensure that all structure and local plans are prepared by a qualified planner.*

### **3. Permit**

*3.1 All MMDAs must display permitting procedures and checklists for processing both planning and development permit applications on their notice boards, public data rooms, websites and other physically accessible places in accordance with Regulation 43 (3) of L. I. 2384.*

3.2 All MMDAs shall ensure that no physical development is undertaken without a planning or development permit as per sections 91(1) and 106 (1) of Act 936; 113 (1) and 117(1) of Act 925; and Regulations 45(2) and 43 (2) of L. I. 2384.

3.3 Section 113 (2) of Act 925 mandates LUSPA to prescribe the levels of permit to be issued by a district assembly. In this respect, Regulation 43 (2) of LI 2384 has prescribed planning and development permits as permit to be issued by the spatial planning committee. As per Regulation 45(3) of L.I. 2384, a development permit comprises both a planning permission and a building permission. Therefore, MMDAs shall: (a) cease issuing building permits; and (b) issue only planning and/or development permits

3.4. All MMDAs shall ensure that permits are issued within (30) thirty working days in accordance with Regulation 44 (10) of L.I. 2384.

3.5. All MMDAs shall ensure that applicants pay only processing fees at submissions and permit fees when approval is granted by Spatial Planning Committee with Regulations 55 (5) and (11) and 45 (10) of L.I. 2384.

3.6 Henceforth, no MMDAs shall take upfront, Payments for permit fees in any case as per section 116 of Act 925.

3.7. All MMDAs shall ensure a Land Use Certificate as an attachment to planning and development permit and zoning comments as set out in Form 43F of L. I. 2384 and in accordance with section 97(2) and (3) of Act 925 and Regulation 46(3a &b) of L.I 2384.

3.8. Land Use Certificate shall be based on approved local or structure plans as per Regulation 46(2) of L.I 2384.

3.9. The District Assembly shall ensure that all rezoning or change of use application of land are done in accordance with the laid down procedure as prescribed by section 93 and 94 of Act 925 and Regulation 33 and 34 of L.I 2384.

3.10. The District Assembly shall ensure that no rezoning of land is executed without approval from the District Spatial Planning Committee (Regulation 33 of LI 2384).

#### **4. Enforcement and unauthorized development**

4.1 MMDAs shall invoke or impose additional conditions to a permit where a developer does not comply with the conditions of the permit and the payment and of a penalty must apply in accordance with section 115 of Act 925 and Section 94(1b) of Act 936.

4.2 As per Section 117(2) of Act 925, any person who carry out any physical development without a permit commits an offence and the MMDAs shall prosecute the offender.

4.3. MMDAs shall without notice, effect or carry out instant prohibition, abatement, alteration, removal or demolition of unauthorized development if that breach is creating an environmental nuisance or interferes with the use of public right of space in accordance with Section 121 of Act 925.

4.4. MMDAs shall ensure enforcement (alteration, abatement, demolition) against unauthorized structures, especially those in unapproved areas as such riparian buffers, water ways, lagoons wetlands and infrastructure right of way as specified by Section 94 (1 &2) of Act 936 and Section 119 (1) of Act 925.



### **5. Public Space**

5.1. *As per Section 198 of Act 925, a public space is defined as an open area accessible to and used by the public including resource lands, urban utility space, riparian buffer zones, natural park areas, forest, urban parks, recreational areas, infrastructure right of way, and areas of cultural or historical interests.*

5.2. *The District Assembly shall ensure that no rezoning of public space is carried out without Parliamentary approval as prescribed by Section 93 (4) of Act 925.*

### **6. Public Participation**

6.1. *The District Assembly shall immediately establish a permanent Physical Public Data Room (PDR) at an openly accessible place to enable the public have access to information in accordance with Section 47 of Act 925 and Regulation 64(2) of L.I. 2384*

6.2. *In accordance with Section 170 of Act 295 and regulation 64 of LI 2384 the District Assembly shall keep the following documents in the Public Data Room for the general public:*

*(a) the District Spatial Development Framework; (b) the Structure Plan; (c) the local plan; (d) the zoning scheme;*

*(e) permits; (f) notices; (g) the scope of outsourced services for private entities; (h) records of public consultations; and (i) any other relevant document determined by the spatial Authority*

6.3. *In accordance with Regulation 64(3) of L.I. 2384, a Public Data Room shall be managed by the Planning Officer, assigned by the Physical Planning Department.*

### **7. Planning and Building Inspectorate Unit**

7.1. *All MMDAs shall establish Planning and Building Inspectorate Units as a measure to prevent a breach of the provision of Act 925 or a deviation from the its purposes in accordance with Sections 150 and 158 of Act 925.*

*All MMDAs are required to take note of the directives and comply accordingly.*

## **2.9 Conclusion**

*A major challenge in addressing climate change and flooding events in West African countries remain. In spite of the efforts made with some successes, laws and guidelines for land use planning and management are diverse, uncoordinated with a lot of centres of decision-making. A clear direction could then be for a systems perspective philosophy that provides insights from key national urban planning and climate change frameworks, as well as city authorities' perception of the centrality of urban planning in dealing with urban development and management issues including climate change. Again, policymakers would then need to reconsider and perhaps re-conceptualize the policy-making process in terms of which strategy has to be flexible to the unpredictability of weather change and changing societal demands referred to as adaptive flood mitigation policy in the context of this situation. The critical role of the residents in flood prone areas of the cities and how city authorities involve them should be a matter of policy and scholarly interest.*

# Chapter Three

## Approach And Methodology

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## 3.1 Introduction

This chapter describes the approach and methodology employed in the study. It explains the basis for the selection of the study cases, the data collection processes, procedures and protocols and how the data was analyzed.

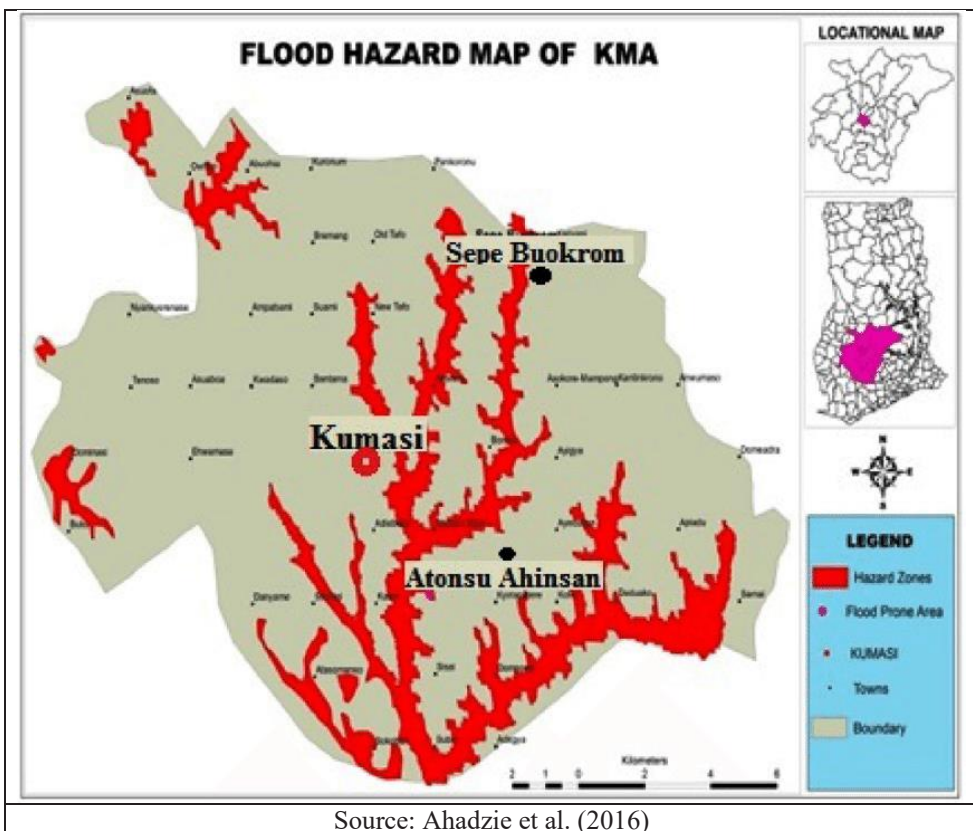
### 3.2 Selection of cases

The study was carried out in the two regions hosting the two cities in Ghana: Accra and Kumasi which suffer persistent flooding more than other parts of the country (see Ahadzie et al., 2016; Amoako & Frimpong Boamah, 2014; Rain et al., 2011). Reconnaissance survey was done in October 2022 and main data collection was done in November 2022. The Greater Accra area and the Greater Kumasi area as used in this study cover all the Metropolitan, Municipal and District Assemblies in these two regions. The study focused on the plans designed and implemented by the selected local government authorities in the past 10 years from 2020. The contents of the plans were analyzed together with interviews with high profile officers and key informants in the management of flooding in these areas. The high-profile official interviews addressed questions around the prioritization of green spaces by the local governments and how residents in flood prone areas are involved in the design and implementation of plans. Each of the two regions was zoned into three: Zone A; B; and C. The zones cover the Municipalities that suffer flooding. The Zones are based on the intensity and frequency of flood events. Zone A covers



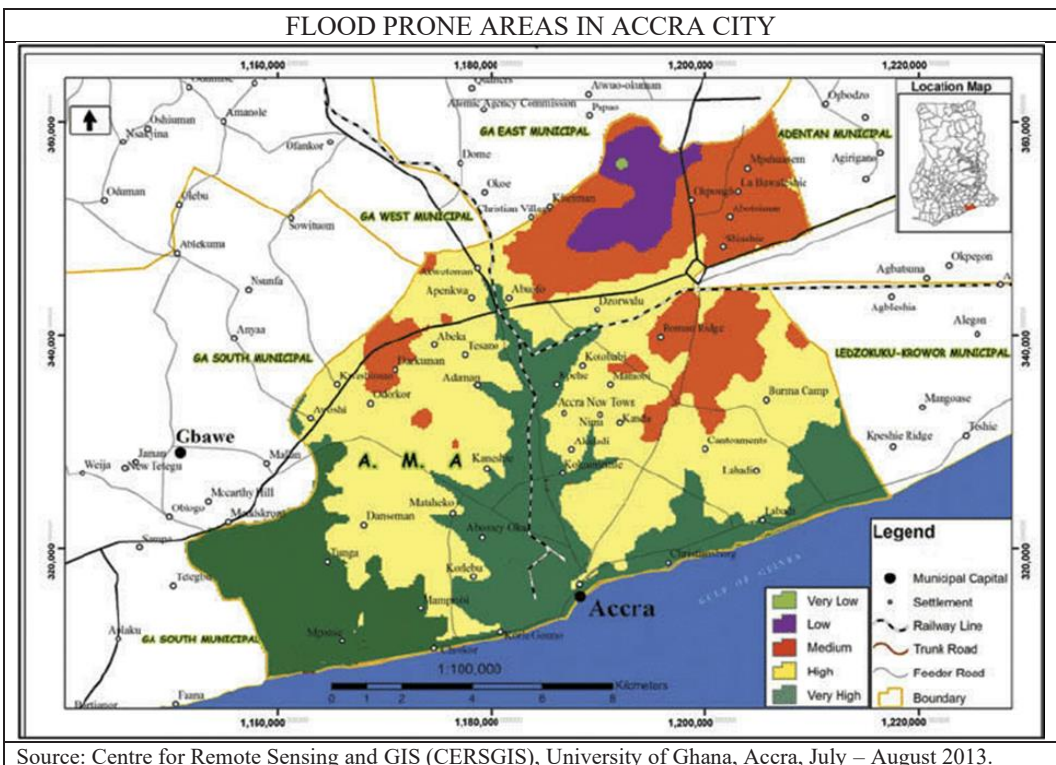
areas with frequent flooding at the slightest rains. This is followed by Zone B. Zone C is less flooded as compared to Zones A and B although it gets flooding sometimes. For the Greater Kumasi Area, these are Suame area; Tafo and Asokore Mampong areas (see Figure 1). For the Suame area,

the flood prone communities include New Suame (Akos Stream: Salfiya Junior High School Bridge to Anomangye fie linking Bohyen Drain), Breman, Abusuakruwa, Breman Central, Kronum Kwapra, Abuohia, Kyerease (Suame NADMO unit report 2021). The Tafo area covered include Boawin, Santan and Ahenbronum North. Those covered in the Asokore Mampong area include Asabi Junction: Sawaba New Site: Pelele (in between Asawase and Aboabo).



For the Greater Accra area, Ablekuma West was covered to include Dansoman, Sahara, Gbegbeyise, Agege, Glefe, Opetekwe and Shiabu. For Korley Klottey, they are Christiansborg, Adabraka, Ministries, Asylum Down, and West Ridge. In the Accra Metropolis, Okponglo and Legon areas including Shiashi were covered (see Figure 2).





For each zone, 200 house owners in the floodable areas or communities were randomly selected for in-depth interviews. The interviews focused on their involvement in the design and implementation of plans by the city authorities and other stakeholders responsible for flood management. They also answered questions on the extent to which they are willing to participate in the decision-making processes around the natural environment and how they prioritize green spaces in their use of the urban space.

### 3.3 Secondary sources of data

In addition to the face-to-face interviews with the high-profile officials, the key informants and the residents in the flood-prone communities, a good amount of the data was obtained from online; official sites of the relevant Municipal Assemblies and other government agencies responsible for and have interest in flood management

in the two cities. The online resources were used to corroborate the primary data obtained. In many of the cases, the public officials interviewed were also made to validate some of the data obtained from literature sources.

Using findings from the reconnaissance survey and initial key informant interviews prior to the main study, we settled on the following possible reasons why residents in flood hazard communities in the city will

participate in spatial planning decision-making and prioritize green space or not prioritize green space in their land use decision-making. For those who will NOT do so, the explanation could be that green space serves as refuse dumping grounds for people, hide-out for criminals and lunatics and drug addicts; green space does not make the urban environment look clean and there is no space for green

space development. For those who WILL prioritize green space, their reason could be that of beautification, regulation of flood waters, and regulation of temperatures. On the basis of these insights, each of the interviewees was made to select the one most important reason for either prioritizing or not prioritizing green space in their decisions.

### 3.4 Chapter conclusion

*The approach to the study is the most appropriate for this purpose. The key informant interviews, high profile interviews, house owners' interviews together with data from literature provide internal mechanisms for data reliability and validity. The findings and conclusions are therefore justified and sound as expected by the Terms of Reference.*

## Chapter Four

# How City Authorities Prioritize Green Spaces And Green Infrastructure



*The Rattray Park, Kumasi-Ghana  
Source: <https://bussinessghana.com>*



## 4.1 Introduction

In this chapter, the following questions are addressed: how do the natural environment and the urban landscape in flood prone communities feature in the plans of cities? Thus, how are city authorities prioritizing green spaces and green infrastructure?

### 4.2 City authority's prioritization of green spaces and green infrastructure

The study revealed that to a large extent, green spaces and green infrastructure are given consideration by city authorities in all the Metropolitan, Municipal and District Assemblies in all the 6 Zones covered in the study. There are however a good number of variations and uniqueness in terms of the prioritization of green spaces. This depends on the presence of ecologically sensitive areas such as wetlands, the frequency of flooding events in the Metropolis or the Municipality.

At the Kumasi Metropolitan Assembly, what was revealed in the plans of the Local authority which was corroborated with key informants and city officials' interview was that, in the process of plan preparation, ecologically sensitive areas, flood prone zones and green areas are protected by the creation of buffers and earmarking these zones for horticulture and tree planting projects. These buffer zones are established with

reference to Ghana's Buffer Zone Policy. Development applications that are contrary to the permissible uses within such enclaves are rejected during decision making processes. Priorities are given to green and ecologically sensitive areas by the demolishing of any structure or activity that doesn't conform to what has been approved in the planning schemes. Additionally, initiative to ascribe importance to green spaces and infrastructure, the Assembly has made it mandatory that all developments including residential should have spaces earmarked as green spaces. These requirements are considered in the approval of a development application submitted to the Physical Planning Department.

It was however found that, the requirements and the development applications for residential purposes should have green spaces only work for newly developing residential areas at the urban fringes. The enforcement of this requirement was not however effective as was narrated by more than 70% of landowners interviewed in this municipality. What one of them said which was common to all was that the green space can take a big part of the land which can be used to build shops in front of the property to earn additional income for the household.

In the Suame Municipality in the Kumasi area, the measures undertaken to promote green space and resilient infrastructure can be seen from the preamble of the plan. It states that the assembly through the



planning unit will promote the creation and adaptation of structures that are environmentally friendly. Consequently, a plan provides that each facility is planned with a landscape which leaves space for green areas. Green spaces are incorporated in the construction of truck roads. The planting of trees to protect water bodies and reserve areas, initiating of the green Ghana campaign with traditional authorities, civil societies, and other recognized groups, and the promotion of good sanitation campaign are the themes in the plans for green space programmes.

In the case of the Old Tafo Municipal Assembly, it was found that there are local planning schemes depicting the Natural Environment and the Urban landscape of communities within the Municipality. Additionally, all areas liable to flood and other hazards such as fires, pests and insect infestation are mapped out in the Municipal Medium Term Development Plan. Specific activities being implemented to prioritize green space and green infrastructure are championed by the assembly through the Physical Planning Department, the Municipal Agriculture Directorate, and the Environmental Health Unit. Together, they have developed a work plan for sustainable cleaning,

greening and beautification of the Old Tafo Municipal Area as part of the Ashanti Regional Coordinating Council's project of Cleaning, Greening and Beautification of all MMDAs within the region. The activities geared towards this include the planting of edible Tree Species especially shrubs and varied flowers along major roads in the municipality; landscaping and beautification of the frontage of the OTMA; landscaping along the Ghana Secondary Cities Roads; landscaping and beautification of the Tafo Cemetery.

The Asokore Mampong Municipal Assembly in its MTDP 2022-2025 through the physical planning unit seeks to promote the creation and adoption of structures that are environmentally responsible and resource-efficient throughout a building life-cycle from sitting to design, construction,



*Asantehene, Otumfuo Osei Tutu II and his daughter, Ohemaa Afia Kobi Ampem, joined other dignitaries to plant trees to as part of the Green Ghana project.*

Source: <https://www.myjoyonline.com/>

operation, maintenance, renovation and deconstruction. The assembly through the Agric department has prioritized the growing of terrace cropping to reduce soil erosion and conserve water; tree planting along banks of all major water bodies to reduce silting and pollution from human activities; intensive public education on indiscriminate disposal of waste; green Ghana campaign with traditional authorities, civil society, religious bodies and other recognized groups.

Local government authorities in the Greater Accra area also work to promote city resilience by implementing green space programmes. In the Korely Klottey Municipality, it was found that all components of the natural environment and urban landscape such as, local climate, soils, water bodies, flood risks areas, seismic affected areas, existing road and drainage network are considered in the plan preparation process of newly developing areas, as well as, areas experiencing redevelopment. Parameters such as buffers zones for water bodies, protected and reserved areas, height restrictions, among others, influence land use plans and zoning regulations. Green Space and Green Infrastructure are prioritized through strategies such as the protection of open spaces, buffer



*Efua Sutherland Children's park : a public park located in Accra*

Source: <https://tortoisepath.com/>

zones and wetlands from encroachment, encouraging developers to incorporate green rated fixtures as green roofs, rain water harvesting, solar lighting, on site treatment of liquid waste in their development through discounts on permit fees, enforcement of building /plot ratios and soft landscaping in development projects, and implementing greening and beautification of open spaces and Community right of ways projects in the city.

For the Ablekuma West Municipality, it was revealed that green space and green infrastructure have come under serious threat. Most of the reserved areas are being developed either with authorization from state actors or encroachment. This has led to the perennial flooding in the city centre. On the basis of this, the natural environment and urban landscape is an integral part of the planning process and it is very critical for a sustainable human settlement and making the urban area more resilient. During the plan

preparation, water bodies are delineated with adequate buffers, open spaces, areas for recreation among others. The challenge is at the stage of implementation where land owners lease these reservations out for other uses. There is also the issue of encroachment by squatters who have come to the city to seek greener pastures. Also lack of enforcement on the part of state actors lead to the loss of these natural environment.

A major attitude which undermines green space and green infrastructure in all the cases, as revealed by the city officials and house owners was the use of green spaces in the neighbourhood for the construction of shops. All the house owners justified this action on economic grounds as additional source of income.

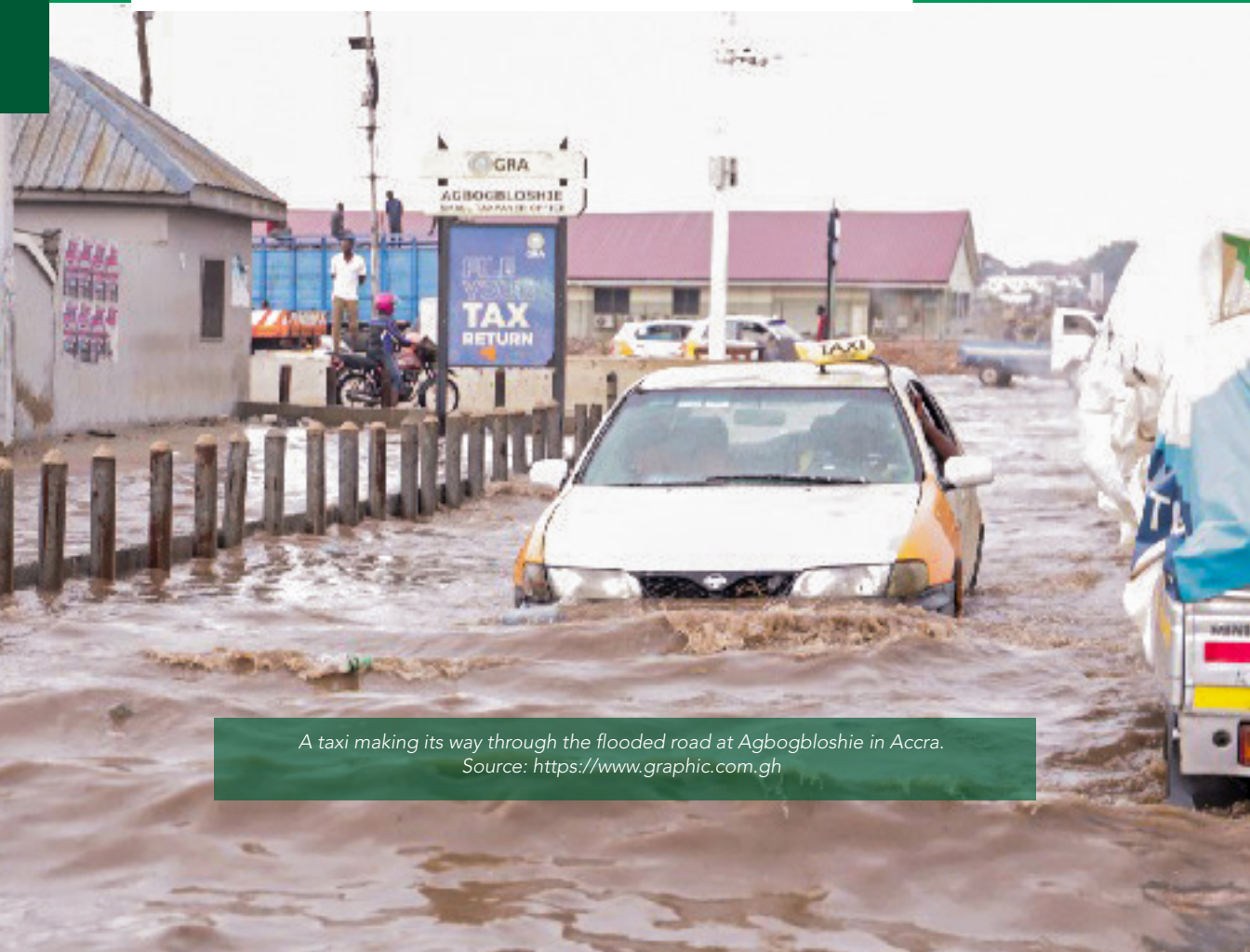
### 4.3 Chapter conclusion

*As the data and the discussions have shown, each of the local government authorities recognize the role of green space and green infrastructure in flood control towards making the urban areas resilient. There is some commitment towards greens space infrastructure development. A major contributory factor to successful design and implementation of plans is the involvement of residents in flood zones. The next chapter has addressed this.*



## Chapter Five

# The Role Of Residents In Flood Prone Communities In The Design And Implementation Of Plans



*A taxi making its way through the flooded road at Agbogbloshie in Accra.  
Source: <https://www.graphic.com.gh>*

## 5.1 Introduction

In what ways are residents in flood prone communities involved in the design and implementation of such plans? And to what extent are they willing to participate in the decision-making processes around the natural environment? This chapter responds to these two critical questions. The basis is that local residents matter in the efforts towards building resilient cities.

## 5.2 Involvement of flood prone communities in the design and implementation of plans

According to interviews with officials at the KMA, key informants and documentary evidence obtained, it was found that during the design and implementation of plans, all relevant stakeholders are engaged including community members and the local residing in flood prone communities most especially. The community engagement is organized to present the intentions of the Assembly to prepare plans and use the opportunity to educate the residents on the importance of the natural environment and green spaces in flood control and the need to preserve such areas. During such consultations, the views on how they want their community to be planned is solicited. Diverse views from these residents and their leaders are developed into proposals. The first drafts of the plans are presented to the community



*The Works and Housing Minister, Francis Asenso-Boakye on a working visit to the Ashanti Region to inspect communities affected recently by the floods*  
Source: <https://www.myjoyonline.com/>

for reviews. During the implementation stage, community consultations are also carried out to seek additional views and concerns in relation to one development or the other. Again, when the need arises for a revision in the planning scheme as a result of the dynamics with the changing face of an area, community residents are



consulted before the revision takes place.

With regards to the willingness to participate in decision making connected to natural environment, it has become the desire and heartbeat of a number of residents. This is as a result of the emergence of flooding and its related consequences that these residents face during heavy down pours. As a result, any engagement or consultation that has to do with the preservation of the natural environment is a critical issue that residents are willing to partake. City officials indicated that there are a number of instances the residents visit the Municipal Assembly to report or seek clarification on some developments they have identified within their community for which they believe will destroy the environment. One official noted that *“peoples’ awareness about the natural environment and the need to protect this is gradually*

*growing and thus, contributing to their willingness to participate in such discussion”.*

Unlike in the KMA, the case in the Suame Municipality suggests that residents in flood prone communities are not sufficiently involved in the plans by the Municipal Assembly to protect green spaces. This could be explained by the views of one of the officials that:

*“Although the residents in these flood prone communities would like to participate in the decision-making processes with regards to the environment, most of them are reluctant to do so due to distrust in the governance system. This distrust is as a result of the Assembly’s inability*



The Works and Housing Minister, Francis Asenso-Boakye together with experts from the Ministry that embarked on a day’s working visit to the city of Kumasi, to have a first-hand assessment of areas affected by recent floods.

Source: <https://www.kyfilla.com>



*to provide financial support to victims in these flood prone communities in the event of flood”.*

Officials at the Old Tafo Municipal Assembly indicated that residents in flood prone communities are involved in the preparation of the Medium-Term Development Plan and carving out of flood hazard areas in their localities. Opinion leaders, Traditional Authorities and members of their zonal councils are usually invited during stakeholder consultation meetings for preparing those plans.

The efforts by the OTMA is being supported by the residents in flood prone communities who are always willing to participate in the decision-making processes around the natural environment. They are willing to help protect the natural environment and also embark on other environmental restoration activities such as tree planting activities.

In the case of the Asokore Mampong Municipal area, we found that whilst some of the residents in the communities are willing to participate in the city authority's decision making around green spaces and natural environment protection, others are reluctant due to distrust in the governance system.

In the Korle Klottey Municipality, residents are involved in information sharing during the plan preparation through key stakeholder consultations, and town hall meetings. During major flooding events residents provide data on flood related effects on their neighbourhoods. According to key informants interviewed and corroborated by city officials and some

residents in flood hazard communities, due to the complex urban dynamics and lack of tenure security for most flood prone areas, the willingness to participate in the planning process is not always positive due to the constant threats of evictions by the Assembly. To overcome this problem, the Assembly uses unconventional approaches of discussing planning issues during stakeholder meetings to discuss the issue of green spaces and flooding and how their involvement in the process and cooperation can make things work to make the city more resilient.

The process of community involvement in green space decision making in the Ablekuma West Municipal Assembly was found to be similar to what exists in the other Municipal Assemblies. Residents and citizens are involved in the planning process through participation, consultation and knowledge sharing. These are usually done through community durbars, fora and publications online and social media. The study however found that there is low level of commitment to participation in the decision-making process by residents in flood hazard communities. City officials noted that the attendance to meetings to discuss flood issues is always low partly due to the fact that some of them may be squatting on unapproved lands. The Assembly therefore employs other means such as van announcement and posters to ensure that the Assembly's plans about green space and the protection of the natural environment for the purposes of flood management is delivered to the residents.

### 5.3 Willingness of residents in flood prone communities to participate

The claims by the city officials about the willingness of residents in flood hazard communities to participate in the decision-making process were discussed with the residents. The findings are presented in Table 1.

Generally, majority of house owners in all the 6 zones across the Greater Accra and the Greater Kumasi areas showed strong willingness to participate in flood management decision making by the respective Assemblies. What however stands out is that the highest response came from those residents in Zone A in the Greater Accra area which is 93%. In the case of the Greater Kumasi Area, 96%, 92% and 86% were recorded in Zones A, B and C respectively (see Table 1).

The reasons for the willingness to participate in the decision-making around green infrastructure were common to all the respondents in the two cities as noted by one of them that:

*Plans by the Municipal Assembly affect us and its about us so I have to be actively involved to be able to influence the process for the output to be more useful and beneficial to our community. It is my right and I have to exercise it. Even if the Assembly does not come to us for our views, we will go to them. We have been*

*going to them all the time to discuss this flooding issue with them and somehow, they listen to us (Resident in Zone A, Accra, November 2022).*

This is a huge potential for city authorities to leverage on to design and implement robust and more resilient green infrastructure plan to respond more effectively to climate change and flooding events management. Their willingness to participate implies that they will support the implementation of such plans. In fact, smooth and successful implementation of urban development plans has been a big issue to local government authorities across the country, and this is largely explained by inadequate involvement of the beneficiaries who are affected by the plan. In many of the cases, local people oppose the plan and undermine its implementation in many ways. To get such a response for flood management and green spaces development in these two cities should facilitate the work of the two Assemblies.

For those who claimed to be unwilling to participate in the decision making around green spaces, their major reason was that they do not see their contributions in the past being implemented by the Assemblies. They do not therefore have the motivation to respond to the calls by the Assemblies to think about the urban space management. Their reason can be summed up by what one of them said that:

*We have suggested to the Assembly to demolish all unauthorized structures in the*

*water ways for so many times but this has not been done. The flooding problems are mainly caused by encroachers who have reclaimed and developed the water ways and areas liable to flood. As you can see [pointing to developments about 100 meters away], all these houses should not be there as the place is a wetland. If the Assembly does not have the courage to demolish them then there is no need for us to attend meetings to discuss the same issue over*

*and over again if we all know what the problem is (Resident in Zone B, Kumasi, November 2022).* The claims of the Assemblies' inability to enforce development control laws were common throughout the 6 Zones in the two cities, even among those who were willing to participate in the Assemblies' business. Assembly officials and key informants who reacted to these claims however have the view that although the claims are genuine, the Assemblies are faced with many social and political constraints in the enforcement of their bye-laws. It must be noted that such political constraints and their effects on the performance of public institutions in Ghana and many parts of the developing world is well documented.

**Table 1: Willingness of residents in flood prone communities to participate**

Greater Accra									Greater Kumasi								
Zone A			Zone B			Zone C			Zone A			Zone B			Zone C		
Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total
185	15	200	123	77	200	121	79	200	192	8	200	184	16	200	171	29	200
93%	7%	100%	61%	39%	100%	60%	40%	100%	96%	4%	100%	92%	8%	100%	86%	14%	100%

Source: Field work, November 2022

## 5.3 Chapter Conclusion

*This chapter has shown that local government authorities faced with flooding events resulting from climate change are making the effort to build resilience and adapt effectively. They are doing this through the prioritization of green spaces and urban green infrastructure consideration in spatial development plans. Involving the residents in flood hazard communities is the second most important strategy the Assemblies employ. The political and socio-cultural constraints on them is real. The potential to minimize the negative effects on these constraints lies in the willingness of the community members to actively get involved in the decision-making process to work in a concerted way with the Assemblies. The willingness to participate is further unpacked in the next chapter.*



## Chapter Six

# Prioritization Of Green Spaces In The Use Of The Urban Space By City Residents



Aerial view of the Tetteh Quarshie Interchange in Accra, Ghana  
Source: <https://mtofstudiosgh.wordpress.com/>



## 6.1 Introduction

In this chapter, the question around the extent to which residents in flood prone communities voluntarily prioritize green spaces in their use of the urban space is addressed.

## 6.2 Do house owners prioritize green space in urban land use?

According to the data in Table 2, apart from Zone A in the Greater Accra area where majority of the respondents (77%) indicated that they prioritize green space in their urban land use decision-making, majority in the remaining 5 Zones noted that they do not do so. The figures obtained were 63% and 69% respectively for Zones B and C in the Greater Accra area. For the Greater Kumasi area, the figures were 81%; 58% and 87% respectively for Zones A, B and C. The reasons for prioritization of green spaces have been discussed in the next section.

**Table 2: Whether house owners prioritize green space in urban land use or not**

Greater Accra									Greater Kumasi								
Zone A			Zone B			Zone C			Zone A			Zone B			Zone C		
Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total
47	153	200	74	126	200	63	137	200	38	162	200	84	116	200	27	173	200
33%	77%	100%	37%	63%	100%	31%	69%	100%	19%	81%	100%	42%	58%	100%	23%	87%	100%

Source: Field work, November 2022

## 6.3 Reasons for not prioritizing green space in urban land use

The reasons for the majority who do not prioritize green spaces are presented in Table 3. Out of the 6 Zones, majority of the respondents in the 4 Zones mentioned “refuse dumping grounds” as their reason. They explained that some people take advantage of the green spaces in the community as refuse dumping grounds so it is not advisable to leave green spaces around their houses. This was explained by one of them as follows:

*I left a green area around my house but I had to clear it because each morning you find all kinds of waste in there. People come in the night to drop household waste. Some of the small-scale waste collectors sometimes drop what they have collected from homes here in the night. It was becoming too much for us so we cleared it (Resident in Zone B, Kumasi, November 2022).*

Claims of this nature was common and we corroborated them with our key informants. One of them supported this by noting that:

*What they are saying is true. The “aboboyaa” [informal*

*waste collectors using tricycles] people who collect household waste in the evening wait and drop them at vantage points in the city at night. The targets are green spaces in the city. It is very difficult to track and stop or prevent them from doing this. It is the reason why many landlords have cleared the green spaces at the frontage of their homes (Key Informant, Kumasi, November 2022).*

The aboboyaa people being referred to here by the respondents are the informal small-scale waste collectors who use tricycles to collect household waste (see images shown).



**Source:** <https://www.graphic.com.gh/features/features/the-ugly-side-of-aboboyaa-in-waste-collection.html>



**Source:** <https://www.happyghana.com/aboboyaa-waste-collectors-are-not-being-put-out-of-business-ministers-office/>

The claims by city residents about the negative aspects of the tricycle operators is supported by the Graphic Online in an article titled "**The ugly side of 'Aboboyaa' in waste collection**" on June 30th 2017. Part of the story is summed as follows:

*I watched in utter disgust as the motorized tricycle, popularly known as "aboboyaa", with stinking garbage on its exposed bucket cruised through a busy street of Kumasi at about midday. As the "aboboyaa" pulled away recklessly, the rider obviously was making nonsense of the rights of the other road users. For some time now, garbage tricycles in the cities, especially in Accra and Kumasi during the busy hours, is a daily nuisance that residents have come to live with. The nauseating smell emitted from the buckets of these tricycles pollutes the air and it is a health hazard. Some of the tricycles also litter the roads with garbage as they pull along on top speed - the very cities they want to help clean are made dirty by their movement.*

They are supposed to transport this to the waste disposal site in the city but sometimes this never happens. The informal waste collectors who were asked about this behaviour confirmed such practices with the explanation that sometimes their tricycles breakdown and they have to offload the waste in the nearby bush to send the tricycle for repairs.

The reason given by majority of the respondents in Zone B (65.9%); Zone C (38%) (all in Accra area) and Zone C (46%); Zone A (33%) (all in Kumasi) was that there was no space left around their property for green space. What this means is that they did not consider leaving a green space when they were developing the property (see Table 3). This is very common in many communities in Ghana where property owners fill the entire parcel of plot with buildings and concrete. One official noted that the recent practice of putting up shops in front of properties has come to take up green spaces that were initially reserved around homes. Some of the land owners who have replaced their green spaces with shops justified this on economic grounds as one of them said that:

*I am on retirement and since my income is not enough, I demolished the wall and the green areas to build these shops. I have rented three to people and my wife is using the third one as grocery store. This has helped us a lot (Resident, Zone C, Accra, November 2022).*

Table 3: Reasons for not prioritizing green space in urban land use

Region	District	Reasons*						Total
		Refuse dumping ground	Hide-out for criminals/lunatics	Doesn't make surrounding look clean	No space left for green space	Does not serve any purpose		
Greater Accra	Zone A	74 (48.3%)	31 (20.3%)	20 (13.1%)	17 (11.1%)	11 (7.2%)	153 (100%)	
	Zone B	11 (8.7%)	23 (18.2%)	3 (2.4%)	83 (65.9%)	6 (4.8%)	126 (100%)	
	Zone C	71 (51.8%)	11 (8%)	1 (0.7%)	52 (38%)	2 (1.5%)	137 (100%)	
Greater Kumasi	Zone A	93 (57.4%)	8 (5%)	-	54 (33.3%)	7 (4.3%)	162 (100%)	
	Zone B	73 (63%)	11 (9.5%)	2 (1.7%)	21 (18%)	9 (7.8%)	116 (100%)	
	Zone C	64 (37%)	23 (13%)	-	79 (46%)	7 (4%)	173 (100%)	

Source: Field work, November 2022  
 \*They were made to list only one most important reason



Another reason given for not prioritizing green space is that they can be hide-outs for criminals and lunatics. A good proportion of the respondents in all the 6 Zones had this opinion. The data in Table 3 shows that 20.3% (Zone A); 18% (Zone B) (all in Accra) and 13% (Zone C); 9.5% (Zone B) (all in Kumasi) have had experience with having criminals hiding in their green areas around their homes. Their common experience can be summed up by what some of them narrated:

### **Box 1**

*We used to have a lot of plantains, pear and orange tree here. We could harvest and share to our neighbours. We had to cut them off because criminals and drug addicts used it as their hide-out. On many occasions, we have had young people pursuing and apprehending thieves here (A resident in Zone B, Kumasi, November 2022).*

*Drug addicts come into our garden to smoke Indian hemp. The smoke will fill my window and my room all night long so I decided to cut the garden off and concrete the area. Now it has stopped (a resident in Zone A, Accra, November 2022)*

*A certain mad woman moved into this park around as her home. We would have allowed her to stay if she had not brought in all kinds of waste. In fact, she filled up the whole area with waste and she was terrorizing children so we decided to clear the area (A resident, Zone C, Kumasi, November, 2022)*

There were group of respondents whose reasons for not prioritizing green space is closely linked to the reason of green space serving as hide-out for criminals/lunatics and refuse grounds. Their case was that the green spaces around do not make the surroundings look clean (refer to Table 3). A key informant noted that many Ghanaians have the notion that all weed in our neighbourhood must be cleared to make the place clean. This is the reason why you find people using hoes to clear their neighbourhoods clean eventually resulting in bare ground and dusty environment. This is also the basis for those whose views are that green spaces do not serve any purpose (refer to Table 3).

All the reasons given point to a huge responsibility on the city authorities as they seek to make the cities more resilient to climate change and their effort at responding more effectively to flood events management. This will call for a concerted efforts by all stakeholders including the security agencies with regards to crime response and the Department of Social Welfare and Community development responding to social deviants. The local government authorities need to play a leading role in all these by effectively coordinating efforts and harmonizing resources across these stakeholders to respond to the issues.



*The Black star square , Accra- Ghana*

*Source: <https://www.wetravel.com/trips/the-gateway-experience-ghana-august-8-16-2024-maximum-impact-travel-accra-36982583>*

## 6.4 Reasons for prioritizing green space in urban land use

Three reasons emerged across the 6 Zones. These are for beautification purposes, for the regulation of flood waters, and temperature regulation (see Table 4). Beautification purpose was the top reason in Zone A in the Greater Accra area (79%) and Zones A and B in the Greater Kumasi area (82% and 75% respectively). Some of their explanations have been presented in Box 2.

### ***Box 2: Beautification reasons explained***

*I love green environment. It makes the place look nice and wonderful. It helps to bring you close to nature all the time. The flowers, the leaves and sometimes the fruits on the pear and the orange trees make me feel good (87-year-old house owner, Zone A, Greater Accra, November 2022)*

*Having the trees and the grass around the house is aesthetically pleasing. It is just nice and that is why I always mow the grass clean (65-year-old house owner, Zone B, Greater Kumasi, November 2022).*

*The green environment in our neighbourhood makes the place look like somewhere I lived in London. I like to maintain the trees and the grass always as I am used to having and living with the green environment. Without it the environment does not look nice at all (76-year-old house owner, Zone A, Greater Kumasi, November 2022).*

These reasons for prioritizing green space can be good opportunity for cities to champion the cause of creating aesthetically pleasing urban development plans which is one of the basic objectives of physical or human settlement planning. This will particularly work in the newly developing neighbourhoods. As indicated by all the District Assembly officials interviewed, the provision of green space in the plan or approval needs to strictly enforced.

The next most important reason why house owners prioritize green space is for the regulation of flood waters in the event of flooding during heavy downpours. More than 50% of house owners in Zones B and C (in Greater Accra area) and Zone C in the Greater Kumasi explained that the green space slows down the devastating effects of the flood waters. One of them explained this that:

The trees and the grass are able to check the flood waters from clearing away our homes. They also help the flood waters to stabilize and allows the ground to slowly absorb the flood waters. The last flood event which occurred in June 2020 cleared about 16 houses in our neighbourhood all because there are no trees and vegetation around those homes (House owner, Zone C, Greater Kumasi, November 2022).

To a large extent, it can be said that a good number of house owners in the two cities have some ideas about the importance of having the green space in the urban neighbourhood to regulate flood waters. It is another opportunity for city authorities to build on.

**Table 4: Reasons for prioritizing green space in urban land use**

Region	District	Reasons for prioritizing green space in urban land use					
		Beautification	Regulates flood waters	Regulates temperature	Total	Does not serve any purpose	Total
Greater Accra	Zone A	37 (79%)	7 (15%)	3 (6%)	47 (100%)	11 (7.2%)	153 (100%)
	Zone B	28 (38%)	41 (55%)	5 (7%)	74 (100%)	6 (4.8%)	126 (100%)
	Zone C	22 (35%)	40 (63%)	1 (2%)	63 (100%)	2 (1.5%)	137 (100%)
Greater Kumasi	Zone A	31 (82%)	7 (18%)	-	38 (100%)	7 (4.3%)	162 (100%)
	Zone B	63 (75%)	19 (23%)	2 (2%)	84 (100%)	9 (7.8%)	116 (100%)
	Zone C	1 (3.5%)	25 (93%)	1 (3.5%)	27 (100%)	7 (4%)	173 (100%)

Source: Field work, November 2022

\*They were made to list only one most important reason

Another very important reason for prioritizing green space is the regulation of temperature in the city (refer to Table 4). Apart from residents in Zone A in the Greater Kumasi area, all the others mentioned this. They all stated that the high temperatures especially at night is due to the concrete and bare grounds in many parts of the cities. They explained that the concrete absorbs the sunlight and heat in the day and emits it in the night making it difficult to sleep without a fan or air-conditioning.

## 6.5 Chapter conclusion

*The reasons for green space prioritization and non-prioritization by residents in the two cities provide good insight to urban planning to build resilient urban systems. They provide pointers to how local government authorities can work with urban residents for the design, smooth and successful implementation, monitoring and evaluation of spatial development plans as envisaged by the directives issued by the Ministry of Local Government and Rural Development and other similar provisions.*



# Chapter Seven

## Lessons, Conclusion And Policy Options



A picture of Adum-Kumasi, Ghana

Source: <https://blog.meqasa.com/why-you-should-consider-living-in-kumasi/>

## 7.1 Introduction

In what ways are residents in flood prone This chapter highlights the lessons learned from the Greater Kumasi and Accra cases that can be shared. Fast growing cities such as Takoradi, Tamale, Sunyani, Cape Coast and Tema have a lot to learn from the experiences revealed in this study that there are potentials for green space development and flood management that can be leveraged upon.

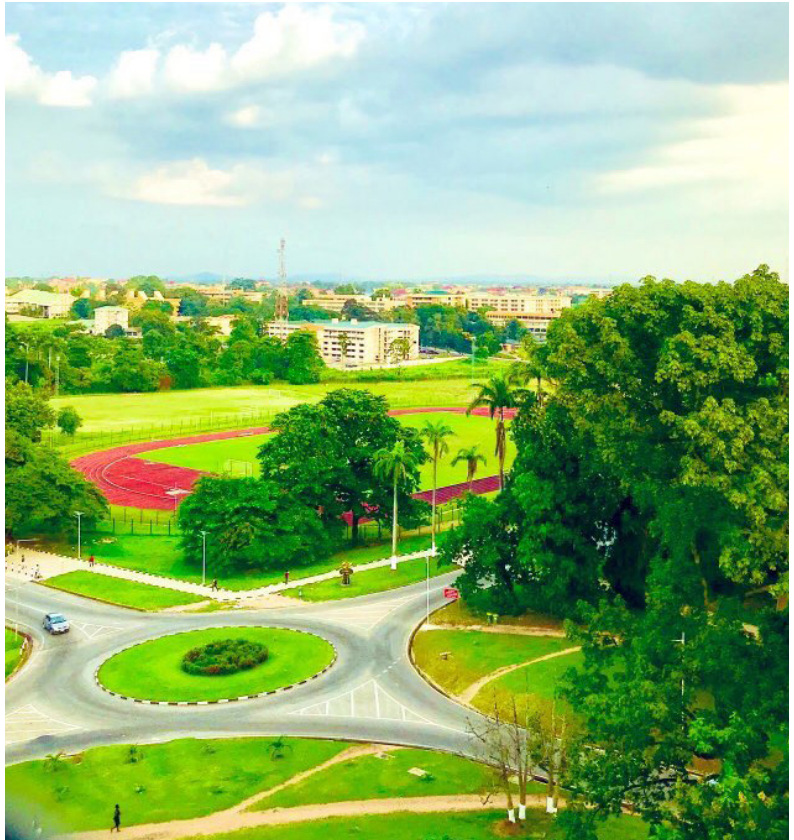
## 7.2 Lessons and conclusions from the study

### 7.2.1 Strong desire to participate in green infrastructure decision-making.

One of the important ingredients for successful design and implementation of spatial development plans is the role of city residents in the process. To get their commitment is half-way through success. There is no likelihood that they will undermine the process. There is high tendency that they will fully support and make the process work.

### 7.2.2 Desire to have aesthetically pleasing urban space

A good number of city dwellers in Kumasi and Accra will support efforts to create aesthetically pleasing city. A good proportion of the interviewees were already doing what they can in their own small ways to make their neighbourhood and the city look clean and beautiful. Again, this desire will provide fuel to spatial planning efforts towards making the cities resilient. It will further strengthen the desire to participate in the spatial planning process.



A picture showing Paa Joe Stadium situated in KNUST, Kumasi-Ghana  
Source: <https://asantemanweb.com/stunning-pictures-of-knust-kumasi/>

### 7.2.3 Green space as flood control strategy

The awareness among majority of the residents that the urban green space has a role to play in adapting to climate change and flooding events is a huge potential for city authorities to achieve resilient cities. This implies that the Assemblies enforcing green space in the development permit application is in the right direction and needs to be adhered to by all developers in the newly developing urban fringes.

### 7.2.4 Lack of awareness about the importance of green space in the urban environment

There were some urban residents whose views is that green space has no useful place in the urban environments and needs to be cleared out. This is good pointer to city authorities to work more to get the awareness level among city residents improved.

### 7.2.5 Green space can be hide-out for criminals, lunatics and drug addicts and refuse dumps

The evidence that green spaces can harbor criminals, lunatics, drug addicts and refuse dumping grounds should alert city authorities on how such areas are protected. This will require the strengthening of community volunteering and policing and neighbourhood watch activities.

### 7.2.6 Economic hardship undermine green space protection

This is further compounded by the reasons

why many will not leave green areas in the frontage.

## 7.3 Policy options

### 7.3.1 The role of city residents in urban planning.

There is the need for city authorities to create and sustain awareness among city residents that they have important role to play in achieving resilient city for all. The town hall meetings, community durbars, and political campaign platforms by local politicians should be used to create this awareness.

### 7.3.2 Green infrastructure in climate change adaptation and flooding event management.

Local government authorities should intensify the awareness campaign around the place of green space infrastructure in climate change and flooding event management. Again, the approaches listed to get city residents play their role in urban plan should be adopted.

### 7.3.3 Law enforcement is key

The enforcement of urban planning and spatial development laws and bye-laws need to be strictly enforced. This will require that development permit, development control and other such activities geared towards creating resilient cities should be adhered to by all.



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