

Adapting Together, Thriving Tomorrow



Accelerating Climate Resilient Urban Development in Ghana: A summary of adaptation recommendations for cities, infrastructure, buildings and communities

Policy Brief



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1. Introduction: Climate Impacts and Urbanization in Ghana

As global temperatures continue to rise, the Government of Ghana is confronting the increased climatic stresses on its population, economy and environment through the development of a National Adaptation Plan (NAP) that identified medium and long term climate adaptation priorities. The acceleration of the climate crisis is happening alongside an urbanization process that is causing an expansion of urban areas, infrastructure and the built environment throughout the country which needs to be safeguarded against climate impacts.

Effective urban adaptation strategies are crucial to build resilience, protect livelihoods, and ensure sustainable development in Ghana's cities in the face of increased heat, flooding, droughts, and sea-level rise due to climate change.

However, there are several characteristics of urban areas that increase vulnerability to climate change and are challenges to building a more resilient future, including:

- **Rapid Urbanization:** Unplanned and rapid urban growth, in Accra and Sekondi-Takoradi, has resulted in inadequate infrastructure, especially transport, and housing, resulting in informal settlements. Over 40% of urban dwellers in Ghana live in **informal settlements** where they are highly susceptible to disasters such as floods and fires (World Bank Group, 2022).
- **Infrastructure Deficiencies:** Many urban areas lack robust drainage systems, reliable water and energy supply, and resilient housing, making them susceptible to climate impacts. Insufficient transport infrastructure limits evacuation efforts and emergency response during disasters (World Bank Group, 2022).
- **Environmental Degradation:** Pollution of water bodies and improper waste management exacerbate climate vulnerabilities. For example, drainage systems blocked by uncollected waste contribute to recurrent urban flooding (KCCI, 2023). In cities like Kumasi, high housing costs have pushed low-income families into informal settlements located in high-risk areas like floodplains or near open drains (World Bank Group, 2021).
- **Limited Financial and Technical Capacity:** Insufficient resources and expertise at the city level are already a major barrier for the implementation of effective adaptation measures and this will become more challenging as climate impacts increase.
- **Land Use Planning:** At national level, Ghana has zoning guidelines and planning standards in place from 2011, however enforcement of these guidelines and updates to ensure land use planning addresses climate challenges and rapid urbanization are a significant governance issue within Ghanaian cities.
- **Governance and Coordination Gaps:** Fragmentation of responsibilities among different government agencies and between national and Metropolitan, Municipal and District Assemblies (MMDAs) can impede integrated adaptation planning.

Recognizing these challenges and the importance of cities and infrastructure for the protection of the lives and livelihoods of Ghanaians, many priority actions have been identified through the NAP process as well as other assessments undertaken at national and local level. The following brief summarizes the relevant climate impacts identified through these processes as well as priority actions and concludes with recommendations for next steps.

2. Climate Impacts on cities, infrastructure, and the built environment

As part of the NAP process for Ghana, projections of potential future impacts of climate change on the country were undertaken. Although, there are a range of possibilities in terms of the extent to which temperatures will increase and how much precipitation will change based on how high greenhouse gas emissions continue to rise, there are some changes that are already being seen in Ghana's cities and can be expected to increase in the coming decades. These are summarized below with the related impacts on cities and the built environment including infrastructure, homes, neighborhoods and places of business and industry.

2.1. Heat

Across the country, temperatures have already increased by 1.0°C since 1960 and the rate of increase has been more rapid in the north of Ghana. Looking to the future, average temperature could increase by 2-3.5°C by mid-century and up to 4.5°C by the end of the century, again with slightly more rapid warming in the North (Government of Ghana, 2023, Summary for Decision Makers: Climate Projections and Climate Risks for Ghana).

In cities, due to the Urban Heat Island effect, these increased temperatures may be augmented by an additional 2°C to 4°C. This means that people living in Ghanaian cities, especially those in the north such as Tamale, could experience an increase of over 7°C by 2050 and almost 10°C by 2100. In Tamale, this could push the mean annual temperature close to 40°C by the end of the century.

High heat such as this can cause damage to many aspects of the built environment including transport, electrical and telecommunications infrastructure causing disruptions for businesses and schools. For example, increased temperature can degrade the binding on paved roads causing disruptions on major roads such as the Trans West African Highway. However the worst impact is on the 40% of urban Ghanaians who live in poorly designed houses, many with tin roofs, and cannot afford or access consistent electricity to cool their homes, resulting in risks for heat-related illnesses especially with children, babies, expectant mothers and the elderly.

2.2. Flooding & Sea Level Rise

Flooding is an existing and growing concern for Ghana due to a combination of factors, including the potential for increased intensity and frequency of heavy rainfall events throughout the country, sea level rise along the coast, increased urbanization and human settlements and infrastructure assets located in low-lying areas close to water bodies.

Approximately 25% of Ghana's population live in rapidly expanding, low-lying, densely populated coastal areas, such as Accra and Sekondi-Takoradi, that are especially at risk of flooding from storm surges exacerbated by sea-level rise. Ghana is experiencing sea level rise around 4mm per year, which is slightly higher than the global average and it is expected that sea-level rise on the Ghanaian coast would reach around 0.4m under a medium-emission scenario, increasing flooding and coastal erosion (World Bank, 2021. Ghana – Sea Level Rise).

Flooding in cities poses a risk to people, buildings and infrastructure located in flood plains, with dense urban areas experiencing the most severe impact. Where urban expansion in Ghana has converted coastal ecosystems, wetlands, mangroves, riverbanks and natural floodplains into extensions of the built environment, this has reduced natural drainage systems capacity to dissipate flood waters. In addition, constructed drainage

systems can be inadequate to absorb the increased frequency and severity of rainfall alongside the increase of impermeable surfaces, further extending the impacts of flooding.

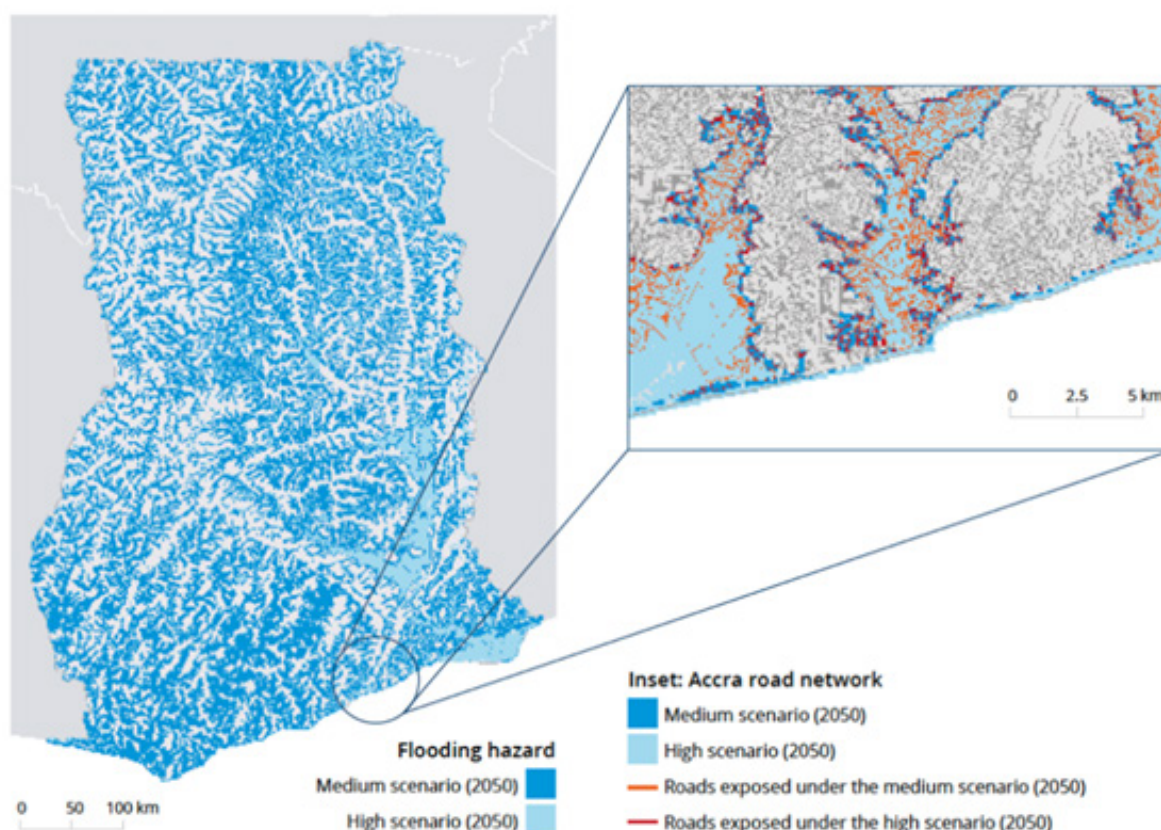
Damage to buildings as a result of floods can be due to direct inundation and/or a change in groundwater flow and soil conditions further factors that affect damage include flood duration, sediment concentration, flow velocity and contamination. Effects on buildings from flooding and sea- level rise include:

- Building collapse due to structural failure of building components or undermining/destroying of foundation
- Rain and moisture penetration into interior and/or contamination of interior from sewage, soil and mud leading
- Water damage to building contents and people's possessions

Buildings in coastal areas are especially susceptible to damage from floods caused by higher than average tides, heavy rain and onshore winds and loss or damage to property resulting from coastal erosion.

Flooding poses a threat for Ghana's infrastructure systems primarily in the form of inundation or destruction of energy, transport, and water infrastructure assets, or a reduction in the efficiency of dams and reservoirs through increased sediment transport. The figure below shows flooding hazards across Ghana but then specifically with relation to the Accra network of roads.

Figure 1: Flooding hazards in Ghana with a focus on Accra's road network. From Adshead, D. et al. 2022. Ghana: Roadmap for resilient infrastructure in a changing climate. MESTI, Accra, Ghana.



Heavy rainfall and flooding can also increase landslide risk which is particularly relevant for the sections of key national highways located in landslide hazard zones, including the N2, N6, and N10.

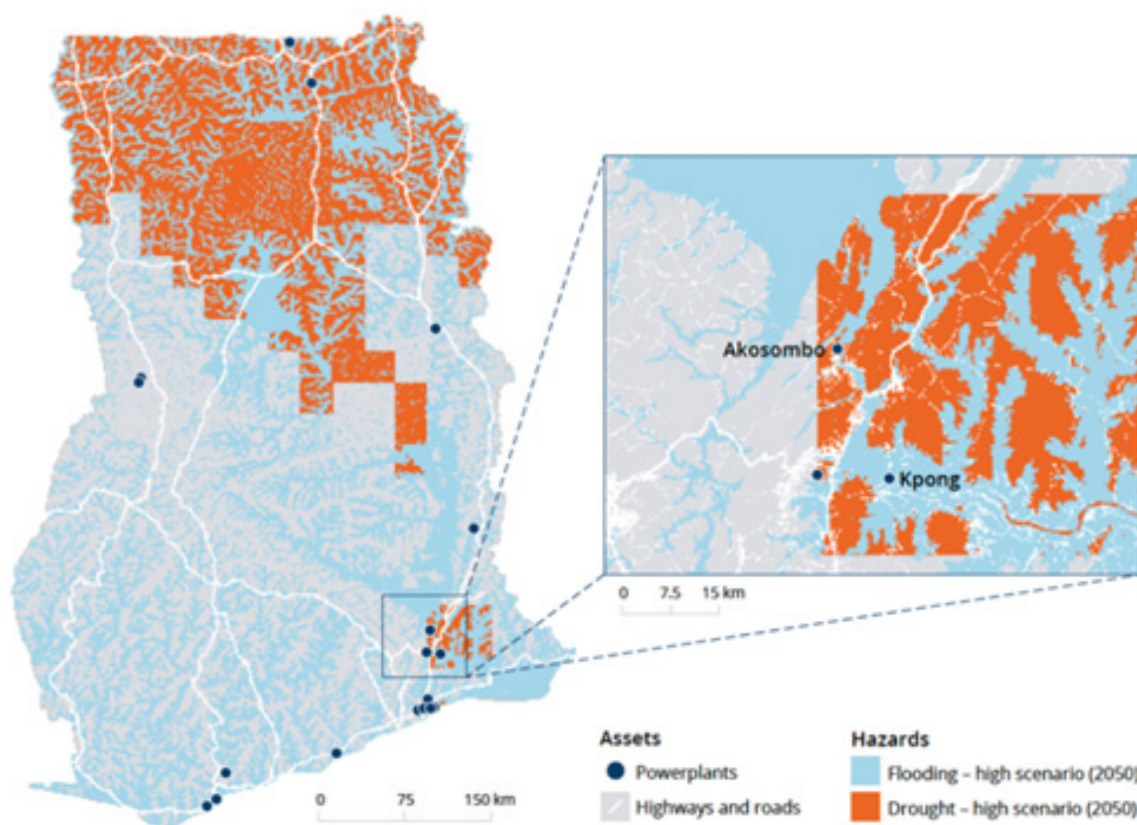
Impacts of flooding are not equally distributed or experienced by people with higher levels of vulnerability such as low-income individuals, people living in informal settlements and working in the informal economy, children, elderly, and people with disabilities with gender acting as a cross-cutting factor where women and girls within these groups have compounded vulnerability. These groups and individuals face increased difficulty in rebuilding after flooding events and are disproportionately affected by the loss of services from infrastructure failures as the result of climate change.

2.3. Drought

There is a potential for an increased risk of drought in Ghana as the result of a concentration of dry weather with increasing annual temperatures. Droughts also lead to direct impacts on buildings and infrastructure, especially affecting water supply and hydropower generation in Ghana.

Drought induced movements in soil can damage buildings and infrastructure as well as building materials, shortening their lifespan or even causing some materials to shrink and crack as moisture is lost. Droughts can also increase fire risks for structures.

Figure 2. Drought and flooding risks to powerplants and major roads. From Adshead, D. et al. 2022. Ghana: Roadmap for resilient infrastructure in a changing climate. MESTI, Accra, Ghana.



The clearest implication of drought for infrastructure in Ghana is the impact on hydropower generation. Reduced river runoff affects water supply and hydropower generation infrastructure, altering the viability of hydropower plants, which are the second largest source of Ghana's electricity and a critical component in expanding

access to electricity while keeping emissions low, in line with the Nationally Determined Contribution (NDC). In a study by the World Bank, hydropower energy production in the Volta Basin was found to be highly sensitive to climate change (Cervigni, R et al, 2017).

3. Urban Policy and Regulatory Landscape in Ghana

As part of the NAP process a **Review of Ghana's Building Codes and Standards** and a **Review of the Zoning Guidelines and Planning Standards of Ghana -2011** were undertaken. Both of these reviews critically evaluated Ghana's current building regulations, zoning guidelines and planning standards with a focus on their responsiveness to climate change. The tables below summarize the key findings in terms of relevant provisions and gaps/opportunities for how to improve the guidelines and codes to enhance climate resilience.

Table 1 | Gaps and Opportunities for climate resilience in Ghana's Building code

Relevant Aspect of the Building Code	Brief Description	Opportunities to build climate resilience	Gaps which may increase vulnerability
Development in Flood Hazard Areas	The Building Code discourages development in flood prone areas but also says it is permissible if buildings in flood hazard areas have elevated or floodproof lower floors	Encourage nature-based solutions such as greenspace or parks in floodplains to reduce flooding of residential or commercial areas	The current Code fails to consider how flood prone areas may expand due to changing trends in precipitation and would benefit from regular revisions to which areas are flood prone based on updated assessments
Fire Management and Safety and Fire Protection	The Code provides specific guidelines for ensuring fire safety and the use of smoke and fire detection devices as well as specifics on doors, windows, emergency exits, etc	Include information on fire-resistant building and construction materials	Recognize that climate change may increase the frequency and severity of fire outbreaks due to a combination of drought and heat waves and consider whether additional measures for fire prevention and suppression are needed
Energy Efficiency, Heating and Ventilation, and Green Building Requirements	Covers Heating, Ventilation and Air Conditioning (HVAC) systems and how these could meet green building standards; Energy Efficiency covers building ventilation, refrigeration, hot water systems and lighting system.	Chance to connect issues of heating, ventilation and AC to energy efficiency standards and sustainable and efficient energy systems; Enhance recommendations for cooling and incorporate nature-based solutions like green roofs, where appropriate	The definition of green buildings as provided by the Code are heavily reliant on foreign concepts and notions that fail to take into consideration Ghana's unique socio-cultural context with a focus on trapping heat within buildings instead of cooling Lacking reference to the life cycle of buildings and material sources and the related environmental impacts

Building Materials	Covers the quality, structures and design and utilization standards for building materials including concrete, steel, aluminum and wood	The Code in particular foregrounds the issue of plastic waste in Ghana and the opportunity to use innovative means to use plastic in building construction. The provisions include material designs, applications, construction and installations of plastics, foam plastic insulations, interior plastic finish and trim, and plastic composition among others.	Mostly references American and British building standards which do not provide an accurate reflection of what is required in the Ghana context. Lacking consideration of how higher temperatures and increasing heavy rainfall events might affect materials, including concrete and what different grades and quality of concrete might be needed
Plumbing and Drainage	Covers standards that regulate the design, construction, and installation of plumbing components, their use and maintenance and also governs the design, installation, and construction of drainage systems in buildings	Design plumbing systems that promote water conservation through the installation of low-flow faucets, showerheads, and toilets. This can reduce the demand for water and ease the strain on freshwater resources, particularly in areas prone to drought.	The Code does not address risks to plumbing and drainage from flood risk or water scarcity as a result of climate change and assumes a consistent water supply for buildings

Table 2. Ghana's Zoning and Planning Standards Guidelines and opportunities for climate resilience

Relevant Provision from the Ghana Zoning and Planning Standards	Brief Description of Existing Guidelines	Opportunities to build climate resilience
Agriculture Lands	Zoning guidelines distinguish between Rural A which is intended for low intensity agricultural use and only village settlements, not urban settlements but can be located close to urban settlements. While large scale industrial and commercial developments are not permissible in this area, there is an exception for extractive industries subject to an environmental impact assessment study. Rural A is intended to protect water supply catchments and prevent soil erosion and flooding Rural B is for areas of intensive cultivation, animal husbandry and plantations. Flood protection works are also permitted here but residential, large scale commercial and industrial development are not permitted. Also identifies sites for public open spaces including parks and gardens next to streams and ravines to protect waterbodies;	Lands that are reserved could be consciously or intentionally dedicated to afforestation, agroforestry and community-based land/forest management Despite the aims for Rural A zones to prevent soil erosion and flooding, forestry and industrial forests and plantations are permitted in this area.
Public Open Space Zone	Public Open Spaces include parks and gardens, small play areas, and open areas used for buffers between industrial and other land use activities. Most areas adjacent to streams and major drains will be zoned public open space and remain free of development. All land proposed for urban development which is below the 1 in 20 year flood level will be zoned public open space or other appropriate zone.	Need to update what land is part of the 1 in 20 year flood level based on climate change

Protected Coastal/Water Front Zone	Land in the Protected Coastal/Water Front Zone may be described as land within the immediate vicinity of a water body, which is subject to special protected status. The land may include beaches, lagoon sides, banks of rivers, lakes and other water bodies. The extent of the Protected Coastal/Water Front Zone shall be determined by the Planning Authority in collaboration with the appropriate state agency/agencies. All the coastal line which may be affected by coastal erosion, or a future rise in sea level will form part of a Protected Coastal/Water Front Zone to ensure that no development occurs.	Need to update with the latest sea level rise projections and increase in coastal flooding
Conservation Zone	Land in a conservation zone is intended to be retained in its natural or modified state for conservation purposes. A conservation zone may include areas of outstanding natural beauty, areas of religious cultural or archaeological importance, important forest, wild life and estuarine habitats, land in water supply catchments area endangered hills, slopes, fault line, etc.	Could consider an expansion of conservation zones with climate adaptation potential
Right of Way for Public Drains	Overland drainage flows shall remain free to any building or structure which may restrict flood flows. In the Central Business District and major Commercial Centers all drains should be covered and designed to meet flow capacity as determined	The Right of Way to accommodate flooding is stated as 1:50 year flood level for primary drains, 1:30 year flood level for secondary drains and 1:10 year flood level for tertiary drains, but need to make sure this is updated with the latest climate change information and flood risk projections Consider extending drainage coverage to all areas

Design Standards for Riparian Buffer Zones	Recommended Buffer Widths: Wetlands: 30 meters from perimeter as defined by high water elevation Municipal reservoir shoreline protective buffer: 60-90 meters Rivers/streams: Minimum of 10 meters If adjoining land use involves storage of hazardous substances or petroleum facilities	Consider revision to buffers incorporating the latest flooding projections Ensure enforcement of buffer areas is sufficient
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4. Priority areas for adaptation for Cities, Infrastructure, Buildings and community-led action

4.1. Cities and Disaster Risk Reduction Sector

Recognizing the importance of urban adaptation to protect lives and livelihoods and ensure sustainable development for the country, a sectoral plan for Cities and Disaster Risk Reduction was developed as part of the National Adaptation Planning process in the country that identified eight critical areas for adaptation in cities and corresponding actions in these areas, outlined in the table below.

Table 3. Summary of Priority Adaptation Actions for the Cities and DRR sector

Adaptation Options	Adaptation Actions
Urban and Rural Flood Risk Management & Resilience	- Community-based flood risk mapping - Hydrological model development - Flood risk management committees - Zoning regulation enforcement - Drainage system upgrades - Retention basins & green infrastructure - Early warning systems for floods - Community evacuation training & drills
Improving Water Supply & Sanitation in Communities	- Water resource vulnerability assessments - Urban water distribution upgrades - Enforcement against galamsey (illegal mining) - Community-led water source protection - Watershed rehabilitation - Public awareness on sanitation & illegal mining - Housing law enforcement (toilets) - Emergency water storage systems - PPPs for sustainable infrastructure

Strengthened Disaster Preparedness & Emergency Response	- Inclusive vulnerability assessments - Hazard and risk profiles for all districts - Resilient shelters construction - GNFS fire tenders & hydrants - Ambulance services expansion - DRR funds & local committees - Coastal protection & monitoring systems
Climate-Resilient Housing & Infrastructure	- Housing/infrastructure vulnerability assessments - Enforcement of resilient building codes - Retrofitting public buildings - Disaster-resilient housing reconstruction - Zoning enforcement (removal of illegal structures in waterways)
Sustainable Transport Systems for Urban & Rural Mobility	- Transport network vulnerability assessments - Elevated roads & bridges - Road reconstruction with resilient materials - Expanded urban/rural mobility systems - Public transport expansion (bus/train) - Road drainage maintenance - Energy-efficient transport (electric buses)
Drought-Resilient Agricultural Practices & Urban Food Security	- Irrigation, improved seeds, & storage facilities - Drought vulnerability maps & early warning - Small-scale irrigation & reservoirs - Agroforestry & drought-resistant crops - Drought contingency funds - Urban food banks & cold storage hubs - Soil conservation & farmer training
Ecosystem-Based Adaptation (EbA) for Urban & Rural Communities	- Ecosystem vulnerability mapping - Awareness campaigns on EbA - Restoration of degraded ecosystems - Community-led conservation & incentives

Coastal Resilience Against Sea-Level Rise & Erosion	Coastal protection (sea walls, mangroves, buffer zones) Resilient coastal building standards Relocation of vulnerable communities Coastal defenses construction/maintenance Research into nature-based solutions Community awareness & engagement
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4.2. Resilient Infrastructure

For the Infrastructure Sector, the *Ghana: Roadmap for Resilient Infrastructure in a Changing Climate* outlines key recommendations for strengthening Ghana's infrastructure against climate change impacts for energy, water and transport infrastructure:

Energy Sector Recommendations

1. Protect critical energy assets (e.g., Akosombo, Bui, Kpong dams) from droughts and floods.
2. Integrate climate adaptation into national energy policy and planning frameworks.
3. Upgrade design standards for generation and transmission infrastructure to reflect climate risks.
4. Increase maintenance funding for retrofitting and rehabilitation.
5. Promote renewable energy diversification and decentralized systems.
6. Address rural energy vulnerability through sustainable wood-fuel alternatives and cleaner cooking solutions.
7. Strengthen institutional capacity for climate risk assessment and adaptive planning.

Water Sector Recommendations

1. Strengthen integrated water resource management (IWRM) to move from reactive to proactive hazard management.
2. Protect and upgrade dam infrastructure (Akosombo, Bui, Tono, Weija, Veia).
3. Adopt nature-based solutions (NbS) such as watershed restoration and floodplain management.
4. Improve monitoring and data systems for hydrology and drought prediction.
5. Enhance maintenance and asset management for water facilities.
6. Improve access to water in drought-prone rural areas, focusing on women's needs and community-based systems.

Transport Sector Recommendations

1. Climate-proof roads, bridges, ports, and airports through flood-resistant design and maintenance.
2. Integrate climate risk assessments into transport feasibility studies and design standards.
3. Improve emergency repair funding and long-term asset management.

4. Enhance coordination among road, rail, and port authorities for resilience planning.
5. Adopt green and nature-based infrastructure (e.g., reforestation to reduce landslides).
6. Protect critical connectivity corridors to healthcare and markets in flood-prone districts.

The roadmap also identifies a pipeline of 35 priority projects in the three sectors as well as cross-cutting on building institutional and policy capacity. The roadmap urges Ghana to move from reactive repairs to proactive, systems-based resilience planning, combining technical upgrades, nature-based solutions, and governance reforms to safeguard the country's infrastructure and subsequently national development gains under a changing climate.

4.3. Sustainable Buildings and Construction

In 2024, the Ministry of Works and Housing in Ghana developed a Climate Action Roadmap for Buildings and Constructions with support from UNEP and UNOPS. The roadmap covers both mitigation and adaptation objectives for the building sector in five action areas: 1. Strategic priorities (enabling environment) 2. Spatial & urban development 3. Existing buildings 4. New buildings 5. Construction supply chain. The relevant recommendations for adaptation by Action Area are outlined below

Action Area 1: Spatial & Urban Development

- Prepare spatial plans for all regions/districts including urban growth boundaries.
- Revise zoning guidelines to require low-carbon building zones.
- Integrate climate adaptation and mitigation into zoning & spatial planning: reduce urban heat-island effect; enhance green/blue infrastructure.
- Conduct vulnerability assessments of cities to climate threats (e.g., floods, heat) and enforce zoning/land-use restrictions in sensitive areas.

Action Area 2: Existing Buildings

- Develop resilient green building guidelines and train building-professionals and local authorities on retrofitting/renovation of existing stock.
- Address inclusive-housing: upgrade slums, prevent new ones; ensure affordable & energy-efficient housing retrofit programmes for low-income urban households.

Action Area 3: New Buildings

- Integrate green-design and climate-change resilience into building codes and regulations for new buildings (public & private) to reduce embodied & operational emissions.
- Revise building regulation/by-laws, empower local authorities (MMDAs) to enforce climate-resilient construction standards.

4.4. Community-led Adaptation in urban areas

Empowering and engaging communities to lead on adaptation is critical for ensuring climate action prioritize the needs of communities in terms of meeting the demands for housing, basic services, education and health and ensuring access to livelihood opportunities while reducing climate risks and protecting the environment.

Community-led initiatives are often more effective because they are tailored to local realities and needs, promoting local ownership and social resilience. Initiatives that undertake urban community upgrading such as better drainage systems or security of tenure to reduce displacement risks or provide funds to upgrade housing against heat and flooding have the potential for multiple climate and development benefits in vulnerable urban communities in Ghana.

In Jamestown, Accra, community organizations designed and implemented projects improvements to public spaces, drainage, walkways, public toilets and shower houses, under the supervision of the city council, reducing flooding and improving sanitation (Shand, W. and Ndezi, T., 2025). These types of partnerships between local government and organized urban informal communities are opportunities to develop integrated, socially-inclusive and just urban adaptation initiatives that utilize the resources and knowledge of all stakeholders.

City officials in Accra also engaged with informal waste workers to identify how they can contribute to the city's climate goals mitigation goals on waste, recycling and methane emissions reduction and identified the need for further social protection such as access to insurance and health and banking services to increase their resilience to the impacts of climate change ([City of Accra, 2020](#); [C40 Cities, 2022](#)).

Although there is not a dedicated roadmap or sectoral plan for community-led adaptation in Ghanaian cities, some of the priority action areas for adaptation in cities identified through the NAP process highlight the importance of working with communities and provide entry points for further action.

5. Recommendations for Actions by Stakeholders in Ghana

Mainstreaming climate resilience into sustainable urban development, the built environment and infrastructure in Ghana requires the efforts of multiple stakeholders from national to local level working on both climate change and the development and management of cities. As Ghana's cities continue to grow, fueling further economic growth, at the same time that climate impacts intensify, there is no time to waste. The following recommendations are targeted to specific stakeholder groups that have key roles to play in ensuring a more sustainable and resilient future for the people and businesses from Accra to Tamale and all of the cities and urban areas in between.

National Government Ministries

Who: Ministry of Environment, Science, and Technology; Ministry of Sanitation and Water Resources; Ministry of Local Government, Chieftancy and Religious Affairs; Ministry of Lands and Natural Resources; Ministry of Works and Housing; Ministry of Roads and Highways; Ministry of Health.; Ministry of Finance

Recommendations for Action:

- Support the mobilization of resources for actions identified in the Cities/DRR sectoral plan, climate resilient infrastructure and buildings, and to the local level
- Coordinate funding and collaboration to ensure finance reaches the most vulnerable local communities such as people living in informal settlements, women and girls, the elderly, the disabled, migrants, youth and children and people working in the informal economy
- Ensure the on-going alignment of urban and climate policies at the national level to address both the changing climate and urbanization trends
- Support MMDAs in the localization of adaptation plans, development of local adaptation plans and local implementation

National Agencies

Who: National Disaster Management Organization (NADMO); Environmental Protection Agency (EPA); Ghana Meteorological Agency; National Development Planning Commission (NDPC); Hydrological Services Department; Department of Urban Roads; Land Use and Spatial Planning Authority (LUSPA); Department of Gender; Ghana Statistical Service (GSS); Water Resources Commission (WRC); Volta Basin Authority (VBA)

Recommendations for Action:

Ensure the coordination and sharing of data on climate, weather, urbanization and population for improved standards, adaptation and land use planning and oversight

Update Land Use Planning and Building guidelines as per the recommendations cited in previous sections to ensure infrastructure assets and the built environment are resilient to climate impacts

Build capacity at the local level for urban adaptation planning and provide support to the enforcement of environmental standards and land use planning and buildings codes

Metropolitan, Municipal and District Assembly (MMDAs) Recommendations for Actions

There are several MMDAs with significant urban populations for which local adaptation plans were developed as part of the NAP process, including Kumasi, Tema, Tamale and Sekondi-Takoradi. Next steps for these plans will be to undertake implementation where resources are available and/or to develop investment plans and identify funding opportunities to support implementation.

Several other MMDAs have development vulnerability and risk assessments and in some cases, such as Accra, Climate Action Plans which encompass both mitigation and adaptation and where critical projects are under implementation.

However, there are many MMDAs which have not had the opportunity to develop climate risk assessments and local adaptation plans so the critical next steps will be to either localize the recommendations identified at national level or develop local adaptation plans in these MMDAs.

Civil Society Organizations (CSOs) Recommendations for Actions

CSOs working with women, youth, informal settlements and other critical communities are important stakeholders and leaders of locally-led urban climate action. In some cases, these organizations may need more capacity on the development and design of climate adaptation projects. In other cases, they may have already started working towards understanding climate vulnerability in their communities and tailoring appropriate climate solutions but need support in accessing resources and connecting with funders. CSOs can also help to build awareness about climate risks as well as support adherence to environmental and land use standards at the community level.

Private Sector

Who: Engineers, architects and real estate developers

- Develop skills for the adoption of improved climate resilience standards and best practices for infrastructure and real estate development
- Communicate the business case and economic benefits for integrating adaptation into design for new construction as well as retrofitting
- Provide feedback and information to national and local governments to update land use planning standards and adaptation plans
- Collaborate with civil society to identify entry points for expanding mainstreaming of adaptation into urban development in Ghana

Development Partners, Donors and other funders

- Provide funding and opportunities to strengthen institutional capacities at local and national level for urban stakeholders, including CSOs and private sector
- Prioritize funding for urban resilience projects, especially those led by or benefiting vulnerable and marginalized groups such as people living in informal settlements, youth and children, people working in the informal economy, women and girls, the disabled, migrants and the elderly
- Facilitate further investments in infrastructure and disaster management initiatives.

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