

THE URGENCY OF NOW

WHY GHANA MUST SCALE UP CLIMATE ADAPTATION AND HOW IT'S LEADING THE WAY

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INTRODUCTION

Ghana stands at the frontline of the climate crisis. In the past few decades, the country has experienced at least three **major droughts and 19 large floods**, affecting over 16 million people and causing at least 444 deaths. According to Prince Asamoah (2023), flooding has become Ghana's second most frequent natural disaster (after epidemics), with estimated economic losses of about **\$1.7 billion** between 2013 and 2023. These sobering statistics underscore the urgency for climate adaptation now. Ghana's leaders recognize that without accelerated adaptation, climate impacts, erratic rains, rising heat, coastal erosion, and extreme storms, will undermine decades of development gains. As former **President Nana Akufo-Addo** warned, "We are at a crossroads. If we want our continent to thrive, we have to adapt to climate change. And, to achieve this, adaptation financing needs to start flowing at scale". The good news is that Ghana is not only ramping up adaptation at home, but also emerging as a regional leader in resilience-building.

This publication examines Ghana's current climate adaptation strategies (from national plans to local actions), real examples of projects on the ground, while highlighting the gaps that still need to be filled and clear recommendations for scaling up adaptation.



GHANA'S CLIMATE ADAPTATION AT A GLANCE: KEY INDICATORS OF CLIMATE IMPACTS, ADAPTATION PLANS, AND NEEDS

Indicator	Value / Status
People affected by droughts and floods (past decades)	16+ million (with 444+ lives lost)
Economic losses from flooding (2013–2023)	US <u>\$1.7 billion</u>
National adaptation measures in Ghana's 2020–2030 NDC	13 programs (7 unconditional, 6 conditional)
Expected beneficiaries of NDC climate actions by 2030	38 million people
Estimated annual cost for adaptation by 2030	\$2 billion per year
Climate finance to Ghana (2011–2019) spent on local adaptation	3.5% (of \$1.3 billion total climate funds)
Cost to protect high-risk coastal communities (est.)	<u>\$1.14 billion</u> (for sea defense walls nationwide)



GHANA'S NATIONAL STRATEGIES FOR CLIMATE ADAPTATION

Ghana has developed a robust framework of policies and plans to tackle climate change adaptation. The country's strategic approach is anchored by its National Climate Change Policy (**NCCP, 2013**) and National Climate Change Adaptation Strategy (**NCCAS, 2012**), which set out a vision for climate-resilient development. Building on these, Ghana formulated a National Adaptation Plan (NAP) Framework to integrate adaptation into all aspects of planning. The NAP process aims to mainstream climate adaptation into fiscal policy, regulations, and development activities across sectors and local governments. Notably, the Environmental Protection Agency (EPA) serves as the national coordinating body for climate adaptation efforts, under the oversight of the Ministry of Environment, Science, Technology and Innovation (MESTI). Climate change units have been established in key ministries, agriculture, forestry, energy, health, gender, and more, ensuring that each sector incorporates adaptation into its policies. This whole-of-government approach reflects a "whole-of-Ghana" vision for resilience.

In a bold move that underscores the national importance placed on climate action, Ghana appointed a Minister of State in charge of Climate Change in 2025, one of the few countries in Africa to designate a portfolio solely dedicated to this issue. This political innovation reflects the government's recognition that climate change is not merely an environmental challenge but a cross-cutting development threat that demands high-level oversight and coordination. The Minister works closely with the Ministry of Environment, Science, Technology and Innovation (MESTI), the Environmental Protection Agency (EPA), and other relevant ministries to drive climate policy, monitor progress on adaptation and mitigation, and ensure Ghana meets its international commitments under the Paris Agreement and Sustainable Development Goals.

Additionally, Ghana has signaled its commitment to a just and inclusive energy future by expanding the Ministry of Energy's mandate to include Green Transition. This institutional rebranding aligns with the country's ambition to diversify its energy mix, promote renewable energy, and phase out reliance on fossil fuels, while ensuring that no one is left behind. The Ministry is tasked not only with managing energy production and distribution but also with fostering sustainable energy innovations, supporting off-grid solutions for rural areas, and developing climate-smart energy policies. These shifts in governance structure serve as strong signals to both domestic and international stakeholders that Ghana is serious about leading a whole-of-government and whole-of-society transition to climate resilience and green growth.

A centerpiece of Ghana's strategy is its **Updated Nationally Determined Contribution** (NDC) (2020-2030) under the Paris Agreement. Ghana's updated NDC outlines 47 climate actions (34 mitigation and 13 adaptation measures) across seven priority sectors.

Crucially, these adaptation actions, which cover agriculture, water, forestry, health, infrastructure, disaster risk management, and more, are expected to “benefit cumulatively nearly 38 million people” by 2030. In other words, essentially the entire projected population of Ghana stands to gain resilience from the NDC programs. The NDC’s adaptation component includes 7 unconditional measures (which Ghana will fund or implement on its own) and 6 conditional measures that depend on external support. Examples range from promoting climate-smart agriculture and climate-resilient infrastructure to strengthening early warning systems and social safety nets. “Ghana believes that if no rapid action is taken now, the future cost will be prohibitive...responding to climate change is top on the national development agenda,” the **NDC** document asserts. Indeed, Ghana’s government has recognized that proactive adaptation today will save lives, protect livelihoods, and avoid far higher losses down the line.

Institutional leadership has been key to Ghana’s progress. The EPA leads climate data tracking and adaptation reporting, and a National Climate Change Committee provides cross-sector coordination. The **National Development Planning Commission** (NDPC) has issued guidelines requiring all Metropolitan, Municipal and District Assemblies (MMDAs) to mainstream climate adaptation into their medium-term development plans and budgets. Through programs like the **UNDP-UNCDF** Local Climate Adaptive Living Facility (LoCAL), Ghana trained planners in all 16 regions to incorporate adaptation actions at the local level. This ensures that adaptation is not just a lofty national goal, but a practical reality in community development plans, from flood-proofing village infrastructure to climate-proofing local agriculture. “*We are accelerating and scaling up our efforts to build climate resilience across our country through adaptation action,*” wrote Dr. Henry Kwabena Kokofu, Executive Director of Ghana’s EPA, in the nation’s **first Adaptation Communication**, stressing that protecting development gains and achieving the Sustainable Development Goals depends on climate resilience.

Ghana’s commitment to adaptation is visible on the ground through numerous projects and initiatives. These efforts span climate-smart agriculture, improved disaster preparedness, coastal protection, and resilient infrastructure, among others, bringing the NDC and NAP priorities to life with tangible results.

- **Climate-Resilient Agriculture and Water Management:** In the drought-prone northern savannah, programs are boosting farmers’ ability to cope with erratic rainfall and heat. **An Adaptation Fund project** of \$8.2 million (implemented by UNDP in the year 2015-2022) targeted communities in Upper East, Upper West, and Northern Regions to improve water access and diversify livelihoods. By building small reservoirs, promoting irrigation and rainwater harvesting, and introducing drought-tolerant crops and new income sources, this project enhanced the adaptive capacity of thousands of rural households.

Northern Ghana is highly vulnerable – rains are decreasing and becoming more erratic, and severe floods in 1999, 2007, and 2010 affected over 300,000–600,000 people at a time in these regions. Through livelihood diversification (e.g., agro-processing, beekeeping, climate-resilient crops) and community water infrastructure, farmers are better cushioned against droughts and floods. The government has also invested over \$100 million since 2016 in the northern drylands to build resilience for smallholder farmers and protect fragile ecosystems. These investments, often with support from partners like the World Food Programme and USAID, are helping to secure food security in the face of climate stress.

- **Early Warning Systems and Disaster Risk Reduction:** Strengthening Ghana’s preparedness for extreme weather is a top priority. The National Disaster Management Organization (NADMO), Ghana Meteorological Agency, and Hydrological Services are expanding early warning coverage for floods, storms, and droughts. Ghana has been part of a regional effort to implement impact-based early warning in the Volta River Basin, which spans six West African countries. A project funded by the Adaptation Fund from 2019–2024 has improved flood forecasting tools (the **VOLTALARM** platform) and community alert systems, benefiting an estimated 23 million people across the basin. Locally, students and researchers have **piloted simple flood alert technologies** like rain-triggered siren systems to warn residents in flood-prone neighborhoods. These initiatives complement Ghana’s push to achieve 100% coverage of Multi-Hazard Early Warning Systems in line with the UN’s “Early Warnings for All” campaign. By investing in modern weather radar, community radio alert programs, and disaster preparedness training, Ghana is making strides toward preventing climate hazards from turning into humanitarian disasters. Every cedi spent on early warning is an investment that pays off multiple times by saving lives and property.
- **Coastal Protection and Resilient Infrastructure:** Along Ghana’s 560-km Atlantic coastline, sea level rise and erosion are wreaking havoc. Communities like **Keta, Ada, and Ada Foah** have watched homes, roads, and schools literally swallowed by the sea. In response, Ghana has undertaken a series of coastal defense projects. Over the past decade, the government invested nearly \$670 million in seven sea defense initiatives to protect vulnerable stretches of the coast, including the high-profile Keta Sea Defense Wall, a combination of rock revetments and groynes that was completed in 2014. The Keta project alone cost about \$90 million and has successfully shielded a portion of the Keta municipality from erosion. Yet, it also illustrates the challenges of adaptation: hard defenses can shift erosion further down the coast, as neighboring communities like Blekusu have experienced increased erosion since the Keta wall was built. Moreover, extending sea walls to all at-risk coastal towns is financially daunting, an estimated \$1.14 billion would be required to protect the most exposed communities nationwide.

Ghana is therefore exploring more sustainable, nature-based solutions such as restoring mangroves, enforcing sand mining bans, and developing an Integrated Coastal Zone Management plan. Meanwhile, in cities like Accra, climate resilience is being built into infrastructure: the \$200 million Greater Accra Resilient and Integrated Development (GARID) project (with World Bank support) is improving stormwater drainage, flood management along the Odaw River, and solid waste systems to reduce flood risk in the capital.

Each of these instances demonstrates Ghana's determination to translate plans into action. Real people are benefiting: from the farmer in Navrongo who now has a dry-season irrigated plot, to the fisherman in Ada who sees new mangroves shielding his village, to the Accra market trader whose shop is less likely to flood thanks to cleared drains. These stories of impact on the ground are why Ghana is often cited as punching above its weight on climate adaptation in West Africa.

GAPS, CHALLENGES, AND THE NEED TO SCALE UP

- **Financing Shortfall:** Perhaps the greatest constraint is finance. Studies show Ghana will need on the order of **\$2 billion per year** by 2030 to implement desired adaptation measures and build climate-resilient infrastructure. Yet current funding falls far short. International climate finance to Ghana has been growing but is still inadequate, and often skewed towards mitigation. Between 2011 and 2019, Ghana received about \$1.3 billion in climate-related funds, but only **3.5%** of that was dedicated to adaptation initiatives benefitting local communities. This means community-level adaptation, where needs are most felt, remains woefully underfunded. Ghana's government has committed some of its own scarce budget resources to climate programs (as noted, hundreds of millions have been spent on sea defenses and resilience projects), but fiscal constraints (exacerbated by debt and the COVID-19 fallout) limit how much more can be allocated. The result is a sizable adaptation financing gap. Without additional grants and concessional loans from international partners, many planned adaptation projects (especially the NDC's "conditional" measures) cannot be realized. Innovative financing mechanisms and private sector investment are urgently needed to complement public funding.
- **Policy and Legislative Gaps:** While Ghana has strong policies, implementation lags in some areas. For instance, Ghana does not yet have a dedicated Climate Change Act. A climate change bill that, among other things, would enshrine adaptation commitments into law and possibly establish a climate fund, has been under discussion but not passed. The absence of a legal mandate can reduce the urgency ministries and districts attach to adaptation actions. Mainstreaming efforts are still uneven, some local assemblies lack clear guidance or resources to integrate climate risks into every project.

Additionally, coordination between agencies can be improved. Ghana's EPA and NADMO, for example, must work in lockstep to translate climate risk assessments into disaster risk reduction on the ground; siloed efforts dilute effectiveness. Strengthening the institutional framework through legislation and clearer mandates would help sustain momentum across election cycles.

- **Capacity and Data Challenges:** Building resilience is not just about money, it's also about skills, knowledge, and systems. At the local level, many district planners and engineers are only beginning to incorporate climate projections into their work. There is a need for ongoing capacity building on adaptation planning, project design, and access to climate finance. Likewise, Ghana needs to enhance its climate data and information services. As the Adaptation Communication noted, creating an "adaptation data-sourcing architecture" is a priority. This means improving climate monitoring (weather stations, flood modeling, etc.) and establishing databases to track adaptation actions and their impacts. Currently, data on climate risks, such as detailed flood maps or drought vulnerability indices, are not uniformly available for all districts, making it hard to target interventions. The lack of granular data can also lead to "averaging" of risks that masks local hot spots. Investments in Ghana's meteorological and hydrological services, as well as in research institutions, are needed to provide the information base for adaptation decisions.
- **Local Implementation and Inclusivity:** Despite efforts toward decentralization, not all local governments have the capacity or funds to act on climate adaptation. Some districts have excellent adaptation action plans on paper but struggle to finance projects like reinforced culverts or community tree planting. Ensuring that adaptation reaches the most vulnerable populations – rural women, smallholder farmers, urban slum dwellers – remains a challenge. Social inequities (land tenure issues, gender disparities, poverty) can limit certain groups' ability to adapt. For example, women farmers might lack access to credit for resilient seeds, or fishermen in informal settlements may be excluded from relocation plans in flood-prone areas. Ghana must continually work to make its adaptation efforts inclusive and pro-poor. Local knowledge should be leveraged: as Dr. Mbungu highlights, the traditional strategies used by communities "should inform policy and implementation strategies" Scaling up locally-led adaptation, by directly funding community initiatives and involving local leaders in project design, is both a challenge and a necessity.
- **Maintaining Momentum Under Economic Strain:** Finally, Ghana's ability to sustain and scale adaptation is being tested by current economic strains. High inflation, debt service burdens, and recovery from the pandemic create competing priorities for limited public funds. There is a risk that adaptation projects could be delayed or deprioritized in favor of immediate economic relief. However, climate impacts will not wait.

This makes it all the more urgent to integrate adaptation into core development programs (so it's seen as part of economic growth, not an add-on) and to secure external support that eases the fiscal pressure. The cost of inaction, in lives and in cedis, far outweighs the cost of proactive adaptation. As President Akufo-Addo aptly noted, "financing climate adaptation...is much more cost-effective than paying the bills every time they are due for increasingly frequent and severe climate shocks"

In light of these challenges, what steps can Ghana's policymakers and development partners take to close the gaps? The next section provides clear recommendations to ensure that Ghana not only keeps its lead on adaptation, but truly scales up resilience for all its people.

RECOMMENDATIONS: SCALING UP ADAPTATION IN GHANA

Adaptation in Ghana is at a pivotal moment, progress is evident, but much more remains to be done to safeguard the country's future. The following recommendations chart a path forward for national policymakers and international supporters to accelerate and broaden climate adaptation:

1. Mobilize and Increase Adaptation Financing: *Close the financing gap by tapping new sources.* Ghana should continue to advocate internationally for dedicated adaptation funding, for example, operationalize the Global Goal on Adaptation and push donors to fulfill the \$100 billion annual climate finance pledge with a balanced share for adaptation. Development partners (bilateral and multilateral) must ramp up grants and low-interest loans for Ghana's adaptation priorities, as outlined in the NDC and NAP. Innovative mechanisms like climate debt swaps, green bonds focused on resilience, and insurance schemes (for crops, infrastructure, etc.) should be pursued. In addition, we must proactively mobilize domestic resources to fund core adaptation priorities. This includes mainstreaming climate actions in the annual national budget, setting up a national climate adaptation trust fund, and creating fiscal incentives for businesses to invest in green resilience. Climate levies on polluting industries, solidarity taxes on luxury emissions, or proceeds from the petroleum revenue fund could be partially allocated to finance adaptation. Ghana's financial institutions can also be encouraged to develop climate-smart credit lines for farmers, SMEs, and local governments undertaking adaptation projects. Such domestic resource mobilization not only builds fiscal autonomy but also demonstrates political commitment, which in turn can unlock greater international support. Every dollar invested in adaptation in Ghana (whether for flood defenses, climate-smart farms, or early warnings) will save several dollars in avoided disaster losses. Prioritizing adaptation finance is both prudent and lifesaving.

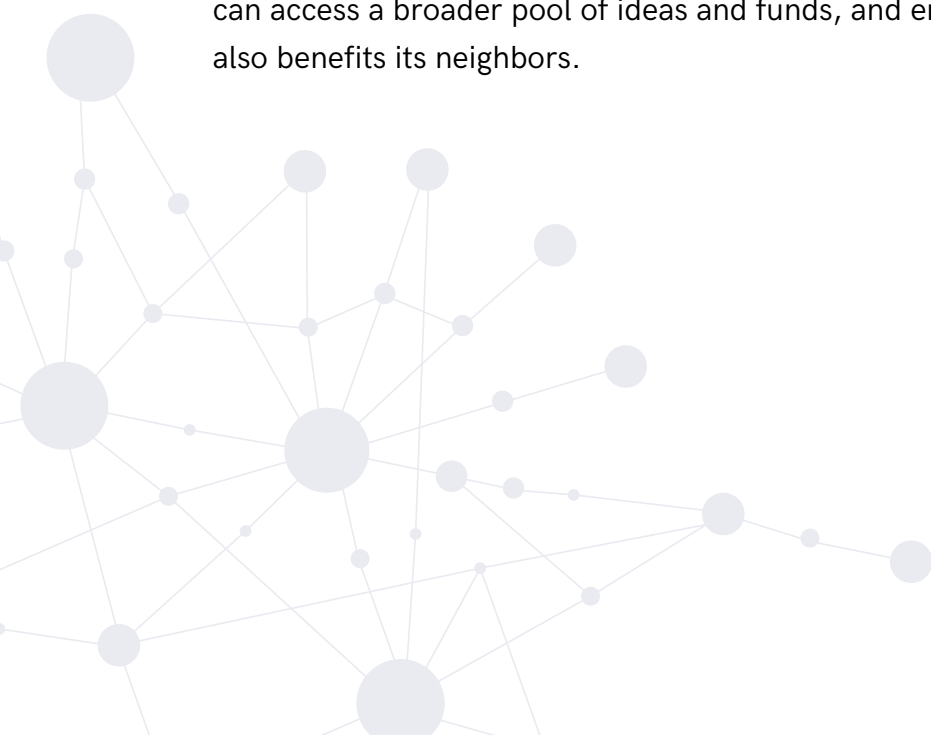
2. Enact and Enforce Supportive Climate Policy: *Strengthen the legal and policy framework for adaptation.* Ghana's Parliament and government should expedite the passage of the proposed Climate Change Act (or relevant legislation) that cements climate adaptation as a national priority. Such a law could formalize the roles of institutions like the EPA, NADMO, and sector ministries in adaptation, set targets (e.g., number of communities with early warning coverage, percentage of budget for adaptation), and potentially establish penalties or incentives for climate-resilient practices. It should also empower local governments with clearer mandates and resources for adaptation. Beyond new laws, fully implementing existing policies is key – for instance, enforcing land-use regulations to prevent building in floodplains, and strengthening the ban on sand mining to protect coasts. Policy should also encourage nature-based solutions (like restoring wetlands for flood control and reforesting watershed areas) as cost-effective adaptation. By updating building codes, agricultural extension guidelines, and development planning regulations to account for future climate risks, Ghana can "climate-proof" its growth.

3. Build Capacity and Knowledge for Adaptation: Invest in human capital, data, and technology to support resilience. A national adaptation effort is only as good as the people and information driving it. Ghana should expand training programs for officials at all levels, from meteorologists and agricultural extension officers to urban planners and engineers, on climate risk assessment and adaptation techniques. This includes technical skills (e.g., using climate models, designing resilient infrastructure) and project development know-how to access funds (writing bankable proposals for the Green Climate Fund, etc.). At the community level, public education campaigns can raise awareness on practical adaptation measures (rainwater harvesting, drought planting calendars, tree planting for windbreaks). Improving climate data is equally crucial: Ghana's hydro-meteorological network should be upgraded to provide high-resolution climate projections and real-time hazard monitoring. Support from international partners (like WMO and research institutions) can help create downscaled climate models specific to Ghana's regions, informing everything from crop choices in the north to dam management on the Volta. Moreover, establishing an open-access Climate Adaptation Knowledge Portal for Ghana would allow data, best practices, and case studies to be shared among policymakers, researchers, and communities. Empowered with information and skills, Ghanaians at all levels can make better decisions to protect themselves against climate impacts.

4. Empower Local Adaptation and Inclusive Participation: *Put communities at the heart of adaptation efforts.* Adaptation succeeds when it resonates with those most affected. Ghana should continue to deepen the locally-led adaptation approach. This means directly funding community-driven projects, for example, providing small grants or climate resilience funds that local governments and civil society can access for initiatives like elevating homes, diversifying livelihoods, or developing local drought plans.

At least 10% of climate finance to Ghana could be earmarked for community-level adaptation to ensure resources reach the grassroots. Strengthening the involvement of women, youth, and indigenous knowledge holders in adaptation planning is also essential. Traditional practices (such as water conservation methods used in Ghana's dry north, or community bylaws that protect sacred groves/mangroves) should be integrated into modern adaptation strategies. Consultation processes for adaptation projects must actively seek input from vulnerable groups including farmers, fisherfolk, the urban poor, so that interventions address their specific needs and avoid maladaptation. By "listening to those on the frontlines," as climate experts advise, Ghana can design adaptation measures that are culturally appropriate, socially accepted, and therefore more sustainable. In practice, this could involve establishing local adaptation committees or using existing community structures (like disaster volunteer groups or water user associations) as platforms for decision-making and feedback on adaptation actions.

5. Strengthen Regional Collaboration and Partnerships: *Leverage West African cooperation and international support.* Climate change knows no borders as floods and droughts often affect entire regions. Ghana should continue to play a leadership role in ECOWAS and the African Union to promote adaptation across West Africa. Joint initiatives, such as shared early warning systems (e.g., for the Volta Basin), regional research on climate-resilient crops, or coordinated coastal zone management, can amplify Ghana's efforts and create a buffer of resilience around the country. Development partners (UNDP, World Bank, AfDB, GCF, etc.) should be engaged in multi-country programs that benefit Ghana while fostering peer learning. For instance, Ghana could partner with Côte d'Ivoire and Togo on managing coastal erosion hotspots, or with Burkina Faso on adaptive water management for shared rivers. These partnerships bring additional expertise and resources. Furthermore, international support should align with Ghana's identified priorities (NAP/NDC) and use country systems where possible, this boosts efficiency and local ownership. By acting as a regional convenor and forging South-South collaborations, Ghana can access a broader pool of ideas and funds, and ensure that adaptation success in Ghana also benefits its neighbors.



CONCLUSION

Ghana has made admirable strides in climate adaptation, from solid plans and policies to real projects saving lives and livelihoods. It stands as a beacon of what is possible in West Africa, proving that proactive adaptation is achievable even for lower-middle-income countries. The climate crisis, however, is accelerating, and the window to act is narrow. Ghana must therefore not only maintain its efforts but significantly scale them up. This will require unwavering political will, support from development partners commensurate with the challenge, and the continued resilience and ingenuity of the Ghanaian people. As floods, droughts, and storms test the nation's mettle, Ghana's response, adapting in real time, building for the future, will determine whether it thrives in the climate era. The urgency of now cannot be overstated: by acting decisively on these recommendations, Ghana can safeguard its hard-won development and remain a leader lighting the way toward a climate-resilient future.

ABOUT

Penplusbytes is a not-for-profit organization driving change through innovations in the following key areas: using new digital technologies to enable good governance and accountability, new media and innovations, climate and well-being, and enhancing oversight for effective utilisation of mining, oil and gas revenue and resources.

