BASELINE ASSESSMENT OF CLIMATE POLICY KNOWLEDGE AND UPTAKE BY CITIZENS

TRANSPARENCY INTERNATIONAL GHANA
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ACEP Africa Centre for Energy Policy

Baseline Assessment Of Climate Policy Knowledge And Uptake By Citizens

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List of abbreviations

AF - Additional Financing
ACEP - African Centre for Energy Policy
AGA - Anglo gold Ashanti
BECE - Basic Education Certificate Examinations
CCAC - Climate and Clean Air Coalition
GCARP - Ghana Climate Ambitious Report Programme
CREMA - Community Resource Management Area
COP - Conference of Parties
CSO - Civil Society Organisation
EIB - European Investment Bank
EPA - Environmental Protection Authority
EICCG - Extractive Industry and Climate Change Governance
FIP - Forest Investment Programme
GFW - Global Forest Watch
GCFRP - Ghana Cocoa Forest REDD+ Programme
GLRSSMP - Ghana Landscape Restoration and Small- Scale Mining Project
GSLERP - Ghana Shea Landscape REDD+ Programme
GSS - Ghana Statistical Service
GoG - Government of Ghana
GROWING - Generating Revenues and Opportunities for Women to Improve Nutrition in Northern Ghana
ILM - Integrated Land Management
IPCC - Intergovernmental Panel on Climate Change
LEAN - Landscape and Environmental Agility across the Nation
LEAP - Livelihood Empowerment Against Poverty
LPG - Liquefied Petroleum Gas
MOU - Memorandum Of Understanding
MESTI - Ministry of Environment, Science, Technology and Innovation
MMDA - Metropolitan, Municipal and District Assembly
NADMO - National Disaster Management Organisation
NCCAS - National Climate Change Adaptation Strategy
NCCP - National Climate Change Policy
NDC - Nationally Determined Contributions
OEDA - Obuasi East District Assembly

OMA	-	Obuasi Municipal Assembly
PNDC	-	Provisional National Defense Council
REDD	-	Reduction of Emission through Deforestation and Forest Degradation
RING	-	Resilience in Northern Ghana
SFC	-	Savannah Fruits Company
UNDP	-	United Nations Development Programme
VSLA	-	Village Savings and Loans Associations
WASSCE	-	West Africa Senior Secondary Certificate Examinations
WGDA	-	West Gonja District Assembly
WGMA	-	West Gonja Municipal Assembly
WVI	-	World Vision International

Executive summary

With an economy heavily dependent on climate sensitive sectors, Ghana has been undertaking activities aimed at reducing its contribution to, mitigating the impact of, and decreasing its vulnerability to climate change since its participation in the United Nations Conference on Environment and Development in 1992. Ghana developed the National Climate Change Policy (NCCP) to guide all national efforts to deal with climate change.

The *Strengthening Climate Governance through Social Accountability and Citizen's Oversight in Local Climate Initiatives* project is designed to enhance transparency and accountability in climate change-related public investments within the most affected districts in Ghana. The project aims to ensure that citizens are well informed and actively involved in climate governance, especially in decision-making processes related to climate policies and initiatives. The Obuasi East District and West Gonja Municipality, two of the project districts existing in different ecological zones (i.e., tropical evergreen rainforest and Guinea Sudan savanna zone respectively) within Ghana, were selected, and a baseline survey conducted in them to determine the current level of knowledge, awareness, and uptake of climate policies among their citizens.

The study adopted a mixed methods approach and sampled two main groups of respondents to constitute the sample. These are institutional key informants and household survey respondents. The study sampled 382 households and 13 institutional respondents from both districts.

Awareness levels for the concept of climate change were low, largely because the concept was alien to most local people. However, the practical effects of climate change were manifest, and respondents were highly aware and understood some of the linkages between local actions and how these have affected changes in the climate conditions. Implementation of policies on climate change in the districts was largely done by NGOs, sometimes with the collaboration of the District and Municipal Assemblies. Five challenges to the implementation of policies on climate governance and social accountability identified include illiteracy among local communities (low awareness of effects of livelihoods on climate change); weak enforcement of resource related laws (forestry, mining, etc): the high levels of poverty in local areas; inadequacy of resources for Municipal and District Assemblies and their decentralized departments; inadequate awareness of social accountability on the part of both MMDA staff and citizens; and weak multi-sectoral collaboration both

among local development actors and between local development actors and NGOs.

Section 1: Introduction

Since 1992, Ghana has actively engaged in efforts to reduce its contribution to climate change, mitigate its impact, and lower the country's vulnerability to its effects. As part of its obligations under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, Ghana developed the National Climate Change Policy (NCCP) to guide all national efforts to deal with our contribution to reducing climate change and to protect the national environment from the effects of climate change. The aim of the NCCP is:

> To ensure a climate-resilient and climate-compatible economy while achieving sustainable development through equitable low-carbon economic growth for Ghana (NCCP, 2013:ix)

The Ministry of Environment, Science, Technology, and Innovation (MESTI) is the main institution responsible for implementing the NCCP and this is achieved by working through a number of agencies to research and promote climate change issues. Owing to the multiplicity of effects of and contributions to climate change within societies, other institutions have played roles in the implementation of the NCCP. These other institutions include Ministry of Finance and Economic Planning, National Development Planning Commission, Ministry of Communications (Ghana Meteorological Agency), Ministry of Lands and Natural Resources, Ministry of Local Government and Rural Development, Ministry of Health, Ministry of Water Resources, Works and Housing, Ministry of Food and Agriculture, Ministry of Energy, Ministry of Education, Ministry of Gender, Children and Social Protection, and Ministry of Roads and Highways (NCCP, 2013: x).

The NCCP has prioritized five (5) main areas to tackle in achieving its aim. These include:

(i) Agriculture and Food Security
(ii) Disaster Preparedness and Response
(iii) Natural Resource Management
(iv) Equitable Social Development
(v) Energy, Industrial and Infrastructural Development

In view of the nature of the prioritized main areas and the list of implementing agencies, governance and coordination are a central feature of the NCCP, to allow it to create a broad constituency of key stakeholders that goes beyond

government to include the private sector, civil society, and communities. The participation of communities in the implementation of the NCCP and other programmes and projects on climate change will lead to the achievement of all the prioritized areas, including equitable social development, planned social change to promote the well-being of the population.

Though governance models require the participation of several forms of stakeholders in the process, state institutions still retain the mandate and resources to directly implement projects. There exist multiple hierarchical levels of delegation, which insulate state actors from being entirely held responsible for performance (Molyneux et al., 2012).

In such situations, a system (processes, norms, and structures) to ensure that public officials answer for their actions to the governed and undergo some level of sanctions if the performance is below the acceptable standard is needed. This process, according to Kuppens (2016: cited in Osei-Kufuor et al, 2014), is referred to as social accountability. Social accountability is introduced to connect citizens directly to public officials (Croke, 2012: cited in Osei-Kufuor et al, 2014). These initiatives are demand-driven and focus on citizens and their actions, being citizen-led and social in nature.

One such social accountability project is the Strengthening Climate Governance through Social Accountability and Citizen's Oversight in Local Climate Initiatives project, designed to enhance transparency and accountability in climate change-related public investments within the most affected districts in Ghana. The project is funded by the Extractive Industry and Climate Change Governance (EICCG) Fund under the African Centre for Energy Policy (ACEP) and implemented by the Transparency International Ghana The project aims to ensure that citizens are well informed and actively involved in climate governance, especially in decision-making processes related to climate policies and initiatives. Governance, by its very nature, emphasizes the involvement of all relevant stakeholders, especially those who do not have an authority conferred by regulations, like local communities, civil society organizations, and the private sector in these processes.

This project, among other things, aims to empower citizens with the tools, knowledge, and platforms they need to effectively participate in climate governance. Because the citizens in local communities are the most impacted by climate change, the project seeks to ensure that their concerns and perspectives are integral to policy formulation and implementation. Through

these efforts, the project not only strengthens the governance of climate-related public investments but also contributes to a more resilient and sustainable future for all Ghanaians, with particular attention to vulnerable communities. By prioritizing transparency, accountability, and inclusivity, this initiative highlights the critical role of collaborative and citizen-centred approaches in addressing the challenges posed by climate change.

Local knowledge on the causes of climate variability have largely corroborated the anthropogenic view of the causes of climate change, justifying the relevance of local knowledge in district development planning for achieving sustainability (File et al., 2021). In the implementation of projects, however, the baseline conditions within the project area (s) need to be determined to provide: a basis for the initial condition to allow for a determination of project progress; identification of gaps in the current state; and the definition of indicators. The results from the baseline activities guide the development of the intervention (https://www.evalcommunity.com/career-center/baseline-study-in-monitoring-and-evaluation/). The Obuasi East District and West Gonja Municipality are two of the EICCG project districts, and they exist in different ecological zones within Ghana, though both exhibited climate change-related factors like deforestation, illegal mining, bushfires, and land degradation (OEDA, 2018; Akyeampong & Xu, 2023; WVI, 2022; WGMA, 2022), though on different scales due to differences in ecological zones and resource endowments. It was therefore necessary to select these two districts so as to be able to determine their baseline knowledge level to inform the project.

Objectives

The general objective of this consultancy was to conduct a baseline survey of the current level of knowledge, awareness, and uptake of climate policies among citizens in targeted districts.

Specifically, the assignment sought to:

1. Conduct a detailed assessment of the current level of awareness and understanding of climate policies among citizens in the targeted districts, establishing a baseline for knowledge gaps;

2. Measure the current level of engagement in the design and implementation of climate policies/projects by citizens in the selected districts, identifying at least three key areas for improvement by 2025;

3. Analyse the involvement of local stakeholders, communities, government agencies, civil society organizations, and the private sector in climate

governance and social accountability, documenting at least five significant barriers to participation;

4. Deliver a comprehensive report with actionable recommendations to enhance citizen knowledge, policy uptake, and stakeholder involvement, aimed at improving overall climate governance in the targeted districts.

Section 2: Literature review

Introduction

This section presents a review of literature on the subject of climate change, climate change knowledge, climate chane policies. and capacity for uptake of knowledge on climate change generally, and in the selected districts. The selected districts are the Obuasi East District and West Gonja Municipal.

Climate variability and change

There has been confusion about the concepts of climate variability and climate change; however these are not the same. Climate variability generally explains the changes in weather conditions over any specified location over relatively short periods of time. Climate variability is the variation in the mean state of the climate and which may be due to natural internal processes within the climate system or in natural or anthropogenic external forcing. This change mainly takes place over relatively short temporal scales and is not persistent (Maritz et al, 2018). It can be raining in the morning over a place, and by the afternoon, the sun shines. These variations occur over hours, days, weeks, or even months. This is entirely natural and is happening in any climatic zone.

Climate change, on the other hand, has been defined by Houghton (2002) as changes in climate that are observed over time periods that make the new state of climate stable and consistent over time. These changes can be as a result of either natural or human activities or both. Change in the state of the climate that persists for an extended period, typically decades or longer (Maritz, et al, 2018).

Climate change according to Intergovernmental Panel on Climate Change (IPCC) refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the UNFCCC, where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability, observed over comparable time periods (IPCC, 2001).

The climate change being witnessed within the past and current decades is the elevation of global temperatures (Global warming). Global warming is the phenomenon where mean temperatures generally across the world are on the rise. Scientific evidence points to the elevation of concentrations of specific gases (greenhouse gases- methane, carbon dioxide, nitrous oxide, etc; ozone

depleting gases-Chlorine, Chloroflourocarbons; and aerosols- water droplets, dust, and carbon particles) in the atmosphere (Berlie, 2018; Hassan, 2024). The phenomenon of global warming has generated a lot of debates from the global scientific, business, and political communities.

The global warming debate centres on three main issues. The first issue is about whether climate change is caused by human activitites or is due to natural causes; the second issues is about whether the amount of warming is small or it is unprecedented; and the third issue is whether the use of fossil fuels is what drives the warming or rather natural drivers (largely solar and orbital)(Gerhard, 2004; Herath, 2011).

Ozone layer depletion is another factor leading to global warming. In this situation, chlorine-containing gases dissociate into chlorine atoms on exposure to ultraviolet light, which then catalyze the breaking up of ozone molecules in the atmosphere. Ozone is a form of oxygen that absorbs ultraviolet energy from the sun, resulting in relative cooling of the earth. Aerosols contribute to global warming, among other things, by altering the microphysical and chemical properties of clouds, affecting duration and their ability to either produce rain or to shield the earth from the sun. Dust, soot produced from biomass burning and industrial processes generate a wide range of aerosols (Hassan, 2024).

The arguments notwithstanding, there is widespread agreement among the key actors that the major impacts of climate change include extinction of many species, forced population displacement/migration, desertification, famine, drought, and chronic food insecurity, among many others (Berlie, 2018).

Climate change is the most significant problem for the global economy and politics, and it is also said to be the most controversial environmental problem facing the world currently (Huang et al. 2012). The natural causes of climate change include the influence of the Sun (Solar radiation-heat); shifts of planets in the planetary system, volcanic eruptions, movements of continental and oceanic plates; and changes in the geomagnetic field. Human-induced factors responsible for climate change include the greenhouse effect, hydrocarbon fuel combustion, Aerosols, Cement production, Land use, irrigation, deforestation, and agriculture (Yakovlev & Belyaev, 2023). Yakovlev and Belyaev (2023) further note that the anthropogenic causes of climate change have

impacted global climate change by a factor of eight times that of solar radiation.

In the discussions and activities on climate change and its interaction with human populations, three main components are considered. These are vulnerability of populations, mitigation of climate change and adaptation to climate change. These components are discussed further in the following sub-sections.

Vulnerability

Vulnerability is the extent to which any system is susceptible to the adverse effects of climate change and variability. IPCC (2001) discussed that vulnerability depends on the type of, magnitude, and rate of the climate change that impinges on the system and characteristics of the system, such as its sensitivity and adaptive capacity. In discussing vulnerability, climate-related hazards that can affect the ability of natural and human systems to provide services need to be understood. The extent and the length of the exposure of these systems to the environmental hazard are also important for understanding the vulnerability. Finally, an assessment of the hazard and exposure then determines the vulnerability of the system (Martiz, et al., 2018)

Natural systems are often vulnerable to climate change because of their limited capacity to adapt. IPCC (2001) lists some human systems sensitive to climate change water resources; agriculture and forestry; coastal zones and marine systems; human settlements, energy, and industry; insurance and other financial services; and human health. Though these systems are sensitive to climate change, their vulnerability varies with location, time, and social, economic, and environmental conditions.

In India, for instance, with small landholding sizes, inadequate infrastructure and support services, and dependency on rainfall, climate change has increased the socioeconomic vulnerabilities of the agriculture sector. The application of local knowledge, technological innovation, and improved access to infrastructure has been noted by Shinde and Modak (2013) to have the potential to reduce the vulnerabilities within the sector.

Mitigation

Global warming is caused primarily by the burning of fossil fuels such as natural gas, oil, coal, disel and petrol, which increases the concentration of gases such as cdioxide (CO_2), nitrous oxide (NO_2), and methane (CH_4) in the

atmosphere (Hassan, 2024) and the concomitant destruction of forests, which absorbs atmospheric carbon dioxide. Deforestation exacerbates the severity of global warming.

Mitigation is the process of eliminating or reducing the causes of climate change, by reducing the flow of heat-trapping gases (greenhouse gases) into the atmosphere (European Investment Bank [EIB], 2017) and reducing deforestation or forest degradation, and better still improving the stock of forests. Reducing and eliminating the emissions of greenhouse gases that humans reshape everything we do. This includes changing the way humans generate power for our production systems; how food is grown; how humans travel and live, and the products consumed (European Environment Agency, 2025).

Mitigation requires that human systems identify and use alternative energy sources to power our economies and survival, including solar, wind, geothermal, and other sources. If the alternative sources are renewable in nature and not greenhouse gas-generating, then it is good for mitigation (Shahzad, 2015).

Adaptation

Adaptation is the process through which systems are able to deal with the unavoidable effects of climate change by attempting to lower vulnerability and improve resilience. In many locations, climate change is inevitable, thereby justifying the need for adaptation (EIB, 2017). Adaptation is understood to be adjustments in natural and human systems as a response to climate change and its effects (IPCC, 2001). Adaptation refers to adjustments in decision environments to ultimately enhance resilience to observed changes in climate (Adger et al, 2007). Adaptation is a dynamic process influenced by several factors, including the economy, environment, natural resources, governance systems and institutions, human resources, and technology, among others. Adaptation includes both the activities to adapt to the change and also to take advantage of it.

The capacity to adapt does not necessarily result in adaptation; the process of translating capacity to action is often challenged by issues such as health stresses, environmental degradation, trends in global economics and politics, and violent conflicts, for example.

Climate change in Ghana

Climate variability and change are evident in Ghana as well. A repot issued by Government of Ghana in 2012 summarises that Ghana's economy is heavily dependent on climate-sensitive sectors, mainly, agriculture, energy and forestry and that temperatures in all the ecological zones of the country are rising while rainfall levels and patterns have been generally reducing and increasingly becoming erratic. The country has therefore, as part of its obligation under several global environmental treaties, developed several policies, strategies, and action plans to mitigate and adapt to climate change. Examples include Ghana National Climate Change Policy, Ghana National Climate Change Adaptation Strategy, Ghana's National Adaptation Plan Framework, among others. The Ghana National Climate Change Adaptation Strategy of 2012 has as its main objective to strengthen Ghana's adaptive capacity and resilience to withstand climate change impacts. The strategies adopted by the strategy include prudent management of water, land use, fisheries, health, agriculture, and energy, and the improvement of livelihoods and reliance on early warning systems (Government of Ghana [GoG], 2012).

It is projected that the climate in Ghana will witness significant rainfall variability in the forest zones, temperature spikes in the savannah zones, high flood incidences, and droughts (UNDP Ghana, 2021). Arhin (2022) notes that key climate change effects in Ghana include rising temperatures, reduced rainfall, incidences of weather extremes and disasters, drought-like conditions, and rising sea levels. These will have significant impacts on settlements and farming, affecting crop yields.

Climate change is caused by several factors, both global and local. In Ghana, File et al., (2021) argue that multiple factors at the local level contribute to climate change. These include: the felling of trees; bush burning; overgrazing; use of modern agricultural machinery and agrochemicals; and breakdown in spirituality, traditional religion, and values for biodiversity conservation. UNDP Ghana (2021) further notes that flooding episodes have been compounded by high-intensity rainfall, land degradation, and dumping of solid waste.

Slight variations in the temperatures and/or precipitation can affect crop production, and with agriculture being the highest employment option for most Ghanaians, the impact of climate change on farming is a critical issue. Tham-Agyekum, et al., (2023) documented nature-based solutions to climate change effects (planting shade trees, climate-resilient varieties, knowledge sharing, and efficient water management) having resulting in increased resilience of cocoa farmers in Ghana.

Efforts to combat climate change in Ghana

Ghana, as a signatory to the UNFCCC, has developed several policies, strategies, and action plans to achieve the objectives in response to climate change. A few of these efforts are discussed hence:

1. National Climate Change Adaptation Strategy (NCCAS) (2012): This strategy focuses on building Ghana's resilience to climate change impacts by improving infrastructure resilience, enhancing knowledge and capacity to address climate change impacts, and reducing vulnerability to climate change (Government of Ghana, 2012).
2. National Climate Change Policy (NCCP) (2013): The NCCP policy sets the legislative framework for addressing climate change in Ghana.
3. National Climate Change Master Plan Action Programmes for Implementation (2015–2020): For implementing the NCCP and NCCAS in ten core actions (The Ministry of Environment, Science, Technology, and Innovation (MESTI.2015).
4. Nationally Determined Contributions (NDC): As part of Ghana's obligations under the Paris Agreement of 2015, the country outlines its commitments to reducing greenhouse gas emissions and adapting to climate change in key sectors by determining its NDCs to the global response to climate change. Article 3 of the Paris Agreement requires communication on the NDCs of all signatories. Reporting on the NDCs is done with the view to achieving the reduction of emissions over time (UN, 2015). In view of this requirement under the Paris Agreement, the EPA works with various stakeholders to implement the NDC's various programs and actions and coordinates such effort within various sectors, including energy, transport, and agriculture, as well as implementing adaptation measures to build resilience to climate change impacts (EPA & MESTI, 2021). Updated Nationally Determined Contribution under the Paris Agreement (2020 - 2030). Accra, Ghana: Environmental Protection Agency and the Ministry of Environment, Science, Technology and Innovation.
5. Low Carbon Development Strategy (2016): This strategy outlines how Ghana can achieve greenhouse gas emission reductions while promoting sustainable development (Climate and Clean Air Coalition [CCAC], Not dated).

6. Ghana Climate Ambitious Report Programme (GCARP): This is a domestic Monitoring, Reporting, and Verification (MRV) system for greenhouse gas emissions in Ghana (CCAC, Not dated).
7. REDD+ Strategy (2016): Ghana, as part of its obligations under the UNFCCC, began the implementation of the REDD+ through this strategy as another approach to reduce the emission of greenhouse gases by addressing the drivers of deforestation and promoting forest restoration (CCAC, Not dated). REDD+ is made up of interventions that seek to reduce emissions from deforestation and forest degradation whilst incorporating conservation, sustainable forest management, and enhancement of forest carbon stocks in countries. The suite of interventions under the REDD+ in Ghana includes (Ghana National REDD+ Secretariat, Not dated):
    a. Ghana Cocoa Forest REDD+ Programme (GCFRP)(2020-2025), funded by the World Bank.
       The GCFRP has as its main objective to reduce carbon emissions resulting from cocoa farms expansion into forest areas through the promotion of appropriate climate-smart cocoa production systems to increase cocoa yields.
    b. Ghana Shea Landscape REDD+ Programme (GSLERP) (2021-2028), funded by the Green Climate Fund.
       The GSLERP aims to restore degraded savannah forests (degraded shea parklands). In order to achieve this, livelihoods in these areas were to be strengthened through enhanced ecosystem services. This is because Shea landscapes are important sources of carbon storage, and the harvesting of nuts from shea trees to extract shea butter is a key source of livelihoods in the savannah areas, especially for women in particular (Forestry Commission, 2025).
    c. Emission Reduction Programme for the Transition Zone
       This programme targets the transition zone because the forests within the transitional zone are highly susceptible to climate change and are threatened by virtually annual wildfires, affecting forest cover and biodiversity.
    d. Emission Reduction Programme for the Togo Plateau
       The Togo plateau which ranges the eastern corridor of Ghana, contains some of the highest carbon stocks in the country due to a mosaic of protected forests, off-reserve forest patches, high

biomass cocoa farms, and other complex agroforestry systems. It is also rich in biodiversity.

e. Emission Reduction Programme for the Coastal Mangrove
Mangroves, though very important stores of carbon, are noted to be highly vulnerable ecosystems along Ghana's coasts and inland waterways. This programme is to address the seeming lack of attention given to the protection of this critical but endangered ecosystem in the coastal zones of Ghana.

8. Ghana Forest Plantations Development Strategy (2016-2040): This strategy aims to tackle deforestation and restore degraded lands in combination with sustainable forest management (CCAC, Not dated https://www.ccacoalition.org/partners/ghana). The objectives include achieving a sustainable supply of planted forest goods and services to deliver economic, social, and environmental benefits (Forestry Commission, 2025).
9. Forest Investment Programme (FIP)(2012)/ Forest Investment Programme (Additional Financing) (AF) (2020-2023) funded by the World Bank
   The FIP aimed to finance country-specific efforts to address the underlying causes of deforestation and forest degradation and to overcome barriers that have hindered past efforts to do so. The FIP was implemented in the High Forest Zone of Ghana in the Western, Bono, and Ahafo Regions (*https://mlnr.gov.gh/programs-projects/ghana-forest- investment-program-fip/*). The FIP(AP) was an extension of the FIP to improve forest and tree management practices by cocoa farmers, Community Resource Management Area (CREMA) communities, and forest reserve managers to reduce forest losses and degradation and to demonstrate rehabilitation of Mined-out sites in selected landscapes in the High Forest Zones in the Bono, Ahafo, Bono East, Ashanti, Western and Western North Regions where deforestation and carbon sequestration potentials are high. The Project was also to finance the strengthening of government organisations in policy implementation, improvements in management practices in the field, capacity building, and communication (Forestry Commission, 2025).

Climate change in Obuasi East District

Factors that cause climate variability (change) were manifest in studies conducted in the Obuasi East Municipal Assembly (OEDA), and in districts

contiguous to it. These districts and the OEDA are homogenous with regard to climatic conditions, vegetation, and economic activities. The literature on the OEDA and its contiguous districts reflects the ecological resources and economic activities within them. The major drivers for climate change-related environmental issues found in the area are discussed in the following sub-sections.

Mining (legal/illegal)

Illegal mining was one factor researched in the area. Akyeampong and Xu (2023) found evidence that the expansion of illegal mining operations exacerbated environmental degradation and livelihood disruptions. The environmental effects included deforestation, land degradation, reduction in green spaces, reduction of farmlands, open pits left unreclaimed, and arbitrary diversion of rivers and streams. Local livelihoods have been disrupted because mining competes for arable land with agricultural activities. Large-scale mining is also undertaken in parts of the district and, in combination with the illegal mining, results in water and air pollution, biodiversity loss, and land degradation (Kwaning & Atteh, 2022). Mining has also led to extensive deforestation, soil degradation, and water pollution (Donkor, 2015; Kuffour et al., 2020; all cited in Ofori et al., 2024).

Deforestation/ forest degradation

Deforestation and forest degradation were twin environmental issues identified in the Obuasi area (including East/Municipal) (Adom, Reid, Afuye, et al., 2024). The area lost 414 hectares of natural forests between 2010 and 2023, and between 2001 and 2023, Obuasi Municipal area lost 6.42 thousand hectares (kha) of relative tree cover, equivalent to a 15 percent decrease since 2000 (Global Forest Watch, 2024). Some of the factors leading to deforestation and forest degradation include bad farming practices (slash and burn), bushfires, reduction in water volumes during the dry season, and the erratic pattern of rainfall (OEDA, 2018). OEDA (2018) further reported incidences of illegal lumbering in the district, which had the potential to lead to deforestation and loss of biodiversity. The deforestation and degradation have affected agricultural activities and also led to more windstorm disasters with their attendant problems (OEDA, 2018).

Amansie West and Obuasi East are located in similar climatic zones and are contiguous to each other. In a study of the diversity of species in Amansie West, Kuffour, et al., (2020) showed that trees and shrubs, and wildlife had lower

densities in mined out vegetation than in the unmined areas. There was also higher diversity of trees in the unmined vegetation. In order to mitigate the effects of forest degradation and deforestation, the Obuasi Municipal Assembly has engaged in tree planting exercises to combat the effects of climate change (OMA, 2020).

Land degradation

The scarcity of land in the Obuasi East District has led to the degradation of customary fallow lands for mining purposes (Kwaning & Atteh, 2022). The use of heavy-duty machines for the removal of the vegetation, topsoil, and subsoil in parts of the communities has also led to land degradation in the municipality (Kuffour, et al., 2020: Aboka, Cobbina, & Doke, 2018). In addition to the mining activities, bad farming practices (slash and burn) have also led to soil erosion in the area (OEDA, 2018).

Climate change in West Gonja Municipality

In the West Gonja Municipality, just as in the Obuasi East District, people have been using the resources available in the district to produce goods and services to secure their livelihoods. Some of these production activities, both legal and illegal, however, had implications on the environment in the district, and ultimately, on climate change. The following subsections discuss the activities that had the potential to contribute to climate change in the district.

Unregulated commercial charcoal production

Unregulated commercial charcoal production was rampant in the District, and this contributed significantly to severe deforestation (WVI, 2022; A Rocha, 2019). This unregulated charcoal production degrades the environment through forest degradation, soil fertility loss, erosion, biodiversity loss, wildfires, and air quality. WGMA (2021) also found that the forest degradation caused by the unregulated charcoal burning led to soil degradation and destructive rainstorms. Though charcoal is the major household cooking fuel, as in most parts of Ghana, the unregulated nature of its production created significant degradation in the District (SERVIR West Africa, Undated). The unregulated charcoal production has aggravated the climate change situation and contributed to prolonged drought and threats to food security in the District (WGDA, 2017).

Bushfires

The dry season in the Municipality begins around late October and lasts until April. The bushfire season generally begins around the same time but lasts for only about 14 weeks. This is because most of the open areas would have been burnt within that period. The Visible Infrared Imaging Radiometer Suite (VIIRS) reported about 1,077 fire alerts between the 19th of December 2022 and 23rd of December 2024 (Global Forest Watch [GFW], 2024). This implies that bush fires were rampant in the district (Amuka, 1990). These bush fires, in combination with unsustainable farming practices, contribute to severe deforestation and increasing vulnerability in communities (WVI, 2022; WGMA, 2022).

Dahan et al., (2024) projected the effects of bushfires in the district for the period 2022 to 2100 and found a reduction in rainfall over the period and an increasing temperature. This is because there exists a relationship between climate variability and bushfires in the savannah ecological zone (Dahan et al., 2023), and the increasing temperature and decreasing rainfall as a result of the increasing bushfire incidence will in turn contribute to more fire.

Illegal logging

Illegal logging of trees for sale and commercial charcoal production in the Municipality was identified as an activity that was increasing the vulnerability of communities (WGMA, 2022). Illegal rosewood logging was noted to lead to forest degradation, which in turn resulted in soil degradation and destructive rainstorms in the Municipality (WGMA 2021; WVI, 2022). This illegal activity further aggravates the climate change situation in the municipality, leading to prolonged drought, windstorms, and threats to food security (WGDA, 2017).

Vegetative cover loss

Several factors had combined to reduce the vegetative cover within the municipality. Some of the factors are bush burning, unsustainable farming practices, urbanization, and construction (WVI, 2022). Some communities experienced rapid forest cover loss (WGMA, 2022), and between 2001 and 2023, GFW (2024) found that the Municipality lost 142 ha of tree cover, equivalent to 22 percent. Trees were cut to open up the vegetation for open pit mining, and A Rocha (2019) suggested that the indiscriminate felling of trees for farming activities, and road construction led to a decline in the vegetative cover. Amuka (1990) expressed that the vegetative cover loss led to a decline in the animal species diversity within the municipality.

Traditional practices have been instituted to manage the level of vegetative loss (generally related to the sustainability of natural resources) in the Municipality. These include myths, proverbs, death threats, taboos, banishment, and "soothsaying" (Shanunu et al., 2022). More recent activities to manage the vegetative loss include such projects as Landscape and Environmental Agility across the Nation (LEAN) that includes Integrated Land Management (ILM) practices, conservation agricultural practices such as zero tillage, green manuring, burning-free, and mulching. This project aims to build farmers' resilience (WVI, 2022) and also to improve the food security of farmer-households by scaling up regreening practices (WGMA, 2022).

Illegal mining

Though not as widespread as in other areas in Ghana, like Obuasi East Municipality, illegal mining is practiced in the Municipality (WGMA, 2022), resulting in forest degradation, soil degradation, and river pollution (WGMA, 2021).

Overgrazing

Another activity that either negatively contributed to or affected the resilience of communities to climate change is the overgrazing of land (A Rocha, 2019). The overgrazing of the landscape is generally done by nomads with their cattle and sheep. Overgrazing in the municipality contributed to prolonged droughts, windstorms, soil erosion, and threats to food security (WGDA, 2017).

Section 3: Methodology

Introduction

The study adopted a mixed methods approach because the study needed to use both qualitative and quantitative research approaches to define, collect and analyse the data. A descriptive study design was used as it allows for a description of the levels of participation of citizens in climate governance and the challenges encountered in doing this.

These two districts were selected because they are both part of the Ghana Integrity Initiative's Strengthening Climate Governance through Social Accountability and Citizen's Oversight in Local Climate Initiatives Project, and a preliminary literature review of the project districts suggested further research in these two districts. The West Gonja Municipal Assembly, being in the Savannah vegetative zone of Ghana, and the Obuasi East District Assembly, in the Forest vegetative zone of Ghana, will present common objectives of mitigation and adaptation to climate change, and possibly, climate knowledge uptake, but differentiated causatory factors and effects.

Obuasi East District

The Obuasi East District Assembly (OEDA) is one of 43 Metropolitan, Municipal and District Assemblies (MMDAs) in the Ashanti Region. The OEDA was carved out of the Obuasi Municipal Assembly with LI 2332 of 2017 and was inaugurated in 2018. The capital is Tutuka. The District is located in the Southern part of the Ashanti Region, bounded to the North by Adansi North District, to the South by Akrofuom District, to the East by Adansi Asokwa District and to the West by the Obuasi Municipality. The District covers a total land area of 110sq km. From the 2021 Population and Housing Census, the District had a population of 92,401. At a growth rate of 1.7%, the population of the District is projected to be 98,904 in 2025. Agriculture and its related activities rank third in the order of economic activities in the Obuasi East District, employing about 25% of the working population. Agriculture is predominantly on small bases in the district. About 90% of farm holdings are less than 2 hectares in size, although there are some large farms and plantations, particularly for citrus, oil palm, teak, and cocoa. Major food crops grown are cassava, maize, yam, rice, and cocoyam. Vegetables like pepper, tomatoes, okra, cabbage, and legumes are also cultivated in the district. Livestock production, especially pig farming, is fast gaining acceptance in the district. Other animals reared are sheep, goats, and cattle. The district is endowed with a number of resources. The resources

include gold, rock, sand, stone, clay deposits, and forest resources. The vegetation is predominantly degraded semi-deciduous forest. The forest consists of limited species of hardwood, which are harvested as timber. Rocks in the district are mostly of Tarkwain (Precambrian) and upper Birimian formation, which are noted for their rich mineral-bearing potential. Areas around the contacts of the Birimian and Tarkwain zones, known as reefs, are noted for gold deposits. These mineral deposits provide a great potential for socio-economic development of the district. Jobs are created for the local people, and revenues derived from these resources are used to provide socio-economic infrastructure to quicken the pace of the district's development. The natural environment of the district is degraded to some extent. This takes the form of air, water pollution, and land degradation due to mining activities and deforestation. Efforts have been made on the part of the mining companies, particularly AngloGold Ashanti (AGA), in reclaiming lands where surface mining took place (Obuasi East District Assembly [OEDA] (2024).

West Gonja Municipality

The West Gonja Municipal Assembly is one of the seven Municipal and District Assemblies in the Savannah region of Ghana. It was established in 1988 as the West Gonja District Assembly by PNDC Law 207 as part of the then Northern Region. In 2004, the Central Gonja District was carved out of the West Gonja District by L.I.1775, and in 2012, the North Gonja District was further carved out of it by L.I. 2069. In 2019, Constitutional Instrument 115 (CI 115) was passed to carve out the Savannah Region from the Northern Region, with the West Gonja Municipal now belonging to the Savannah Region (//bdr.gov.gh/savannah-region/). The district capital is Damongo, which is also the regional capital and the seat of the Overlord of the Gonjaland, Yabgonwura.

The West Gonja Municipality lies within longitude 10 51 and 20 581West and latitude 80 321 and 100 21North and shares boundaries to the South with Central Gonja District, Bole and Sawla-Tuna-Kalba Districts to the West, Wa East District to the North-West, and North Gonja District to the East. The district has a total land area of 4715.9sqkm, part of which is occupied by the Mole National Park and Kenikeni Forest Reserve. The topography is generally undulating, with an altitude between 150-200 meters above sea level. Temperatures are generally high, with the maximum occurring in the dry season, between March/April, and the lowest between December/January. The mean monthly temperature is 27℃. The dry season is characterized by the Harmattan winds, which are dry, dusty, and cold in the morning and very hot

in the afternoon. Evaporation is very high, causing soil moisture deficiency. Humidity is very low in the harmattan period. Rainfall is bimodal, with the average annual precipitation being 1,144mm. The rainfall pattern is erratic, beginning in late April and ending in late October. The peak of rainfall is in June/July, with a prolonged dry spell in August. The rains are stormy and torrential up to 300mm per hour. Erosion and floods are common due to the torrential nature of the rains. The natural vegetation in the district is Guinea Savanna. The vegetative cover of the district is dictated by the soil types and human activities, including shifting cultivation, the slash and burn method of land preparation, and illegal chain-saw operations. The major tree species are shea, dawadawa, baobab, acacia, neem, and some ebony. The trees are scattered except in the valleys, where isolated woodland or forests are found. Most trees are deciduous, shedding their leaves during the dry season in order to conserve water. Grass grows in tussocks and may reach a height of 2.7m during the rainy season. The original vegetation in major settlements such as Damongo and Busunu has been destroyed by human activities.

The main economic activities in the District include farming, agro-processing, and trading in foodstuffs. Farming is the major economic activity in the District. The crops produced are maize, cassava, rice, yam, beans, groundnuts, and others. Animals such as sheep, goats, cattle, pigs, and fowls are also reared in the District. The District is a major producer of groundnuts, maize, and cassava in the region. Agro-based industrial activities focus on shea butter extraction, gari, and rice processing. Semi-permanent to shifting cultivation is practiced in the remote areas of the District, where land availability is not constrained and population density is low. Most farming practices involve the traditional labour-intensive type characterised by the use of hoes and cutlasses. Tractor services have become the dominant farming practice used by farmers in the District. Some farming populations also rely on animal traction. Agriculture in the District is predominantly small holder, subsistence, and rain-fed (West Gonja Municipal Assembly, 2019).

Sampling

Two main groups of respondents were selected to constitute the sample for the study. These are key informants and survey respondents. The key informants were either the focal persons or desk officers for climate change in the District Assemblies, the Departments of Agriculture and Health, Civil Society Organisations, or identifiable local authorities. Key informant interviews were administered to these respondents. The survey respondents

were made up of household representatives selected randomly across each of the districts.

According to the Ghana Statistical Service [GSS](2021), the population of the West Gonja Municipality was 63,449 in 2021 and Obuasi East District has a projected population of 98,904 in 2025. The combined population for both districts was therefore 162,353 people. According to Krejcie and Morgan (1970), a representative sample from a population of 162,353 is 384. The study attempted, therefore to interview 200 survey respondents in each of the two districts. Finally, the total sample size was 382 (181 in Obuasi East and 201 in West Gonja).

In order to deal with low response rates from the households, oversampling was used so as to bring the final sample closer to the representative size required. In each of these municipalities, because there was no sampling frame, multistage sampling was used to select communities, households, and respondents. Some of the issues that influenced the stages were rurality/urbanity, location within the district, and accessibility. In selected communities, the area was demarcated into four quadrants along the cardinal points, and households were selected using a randomly selected sampling factor. In the selection of household respondents, a conscious effort was made to select an equal number of both males and females by ensuring that the sex of respondents was alternated. In addition, respondents were not discriminated against on the basis of their age, disability or wealth index as long as they were at least 18 years old and could understand and communicate with the research assistants deployed to collect the household data.

The distribution of communities sampled in both districts is shown in Table 1.

Table 1: Communities sampled in both districts

Obuasi East District	West Gonja Municipality
Tutuka	Damongo town
Asonkore	Damongo canteen area.
TBoete	Boyanto

Wawase	Laribanga
Kwame Eduakrom	Murugu
Ahansoyewodea	Achubuchor
Brahabebome	Yipala
	Soalepe
	Busunu
	Langantre

Source: Field work, 2025

Methods of data collection and analysis

The first stage of the data collection was the review of existing reports, studies, and data on climate policy awareness, citizen engagement and social accountability in the targeted districts. The data collected helped the consultant to identify key gaps in knowledge and areas where citizens were already engaged in climate policy initiatives and social accountability. Content analysis was used at this stage to collect the data and thematic analysis used to compile information from the collected data.

The next stage involved the development of interview guides to interview key informants and a structured interview guide administered to the community members that were selected randomly from the targeted districts to assess the knowledge, attitudes, and practices of citizens regarding climate policies and social accountability. Structured interviews were administered to the survey respondents because of the low level of literacy in the district.

Two research assistants were hired in each of the Municipalities to assist with the data collection especially of the household respondents. The research assistant had to speak the local languages in the district (Obuasi East-twi; West Gonja-Gonja) fluently. All of them had a least a first degree in a relevant subject. They were then given a day's training on the conceptualization of the research, the methodology and the instrument administration.

A Google forms template was developed and used to collect data. During the first few days of the administration, the researcher downloaded the data from each assistant and issues emanating from the data collection discussed with each to guide the data collection. This ensured that the quality of the data collected was improved. Call backs were used to access difficult-to-access key informants; in a few cases, call backs were done at least four times.

The data from the interviews with the institutional respondents were transcribed and analysed thematically. In this case, the key themes that were emerging from the transcribed data were grouped together and analysed to support the data obtained from the structured interview schedule. The data from the structured interview guides were coded and entered into SPSS version 20 and means, standard deviations, frequencies, crosstabulations, graphs and chi-squared statistics were obtained from the data and analysed to describe, display, and establish relationships in the data. The major limitation in the Obuasi East Municipality was research fatigue on the part of the people, and in the West Gonja, the only limitation was the poor nature of most of the roads in the rural areas, affecting accessibility.

Ethical Considerations

Ethical practices were explained and discussed with the data collection team during pre-data collection training. Informed consent was obtained from all study participants after the confidentiality of their responses and their anonymity were assured to them before they were interviewed. The study did not collect data from minors.

Section 4: Findings and Discussion

Background characteristics of respondents

The subsection presents the background characteristics of respondents in the survey. The background characteristic, according to Mutalova and Newby (2004), is essential for the interpretation of findings and also provides a way to check the respondents' representativeness of the population.

There were generally two types of respondents sampled in this study. These are household and institutional respondents. The first part of this subsection presents the background characteristics of the household respondents. The second part of the subsection presents the characteristics of the institutional respondents.

Household respondents' characteristics

The study sampled 382 household respondents from both the Obuasi East District (181) and West Gonja Municipality (201). Table 2 illustrates the number of respondents and their gender.

Table 2: Gender of household respondent per district

District	Gender		Total (N/%)
	Male (N/%)	Female(N/%)	
Obuasi East	99(25.9)	82(21.5)	181(47.4)
West Gonja	124(32.5)	77(20.1)	201(52.6)
Total	223(58.4)	159(41.6)	382(100)

Source: Fieldwork, 2025.

Table 2 shows that 58.4 percent of the respondents were male; further, 52.6 percent of the respondents were sampled in the West Gonja Municipal. Table 3 displays the marital status of respondents.

Table 3: Marital status of respondents

District	Marital status				Total
	Married	Single	Divorced	Other	
Obuasi East	64(16.7)	107(28.0)	8(2.1)	2(0.5)	180(47.1)
West Gonja	136(35.6)	65(17.0)	0(0)	0(0)	201(52.9)
Total	200(52.3)	172(45.0)	8(2.1)	2(0.5)	382(100)

Source: Fieldwork, 2025.

From Table 3, in total, married respondents were the majority of the marital status of respondents. However, in the Obuasi East District, single respondents were in the majority, while in the West Gonja Municipal, the married were the largest category of the respondents. This situation can largely be explained by the fact that mining (i.e.,both legal and illegal ASGM as well as large-scale mining) predominant in the Obuasi East District, and this is largely a migratory vocation, so most of the people attracted into the district were single, chasing the gold.

The mean age of respondents in the Obuasi East District was 33.39 years, with a standard deviation of 12.31 years. In the West Gonja Municipality, the mean age was 35.18 years with a standard deviation of 11.27 years. The mean household size in the Obuasi East District was 5.08 people, with a standard deviation of 2.6 people and in the West Gonja Municipal, the mean household size was 9.27 people, with a standard deviation of 4.2 people.

The differences in the mean ages of respondents between the two Districts were not significant at a five percent significance level. An unpaired samples t-test performed to investigate the difference in the mean household sizes between the two Districts gave a p-value of 0.00, signifying that the differences in household sizes were significant at five percent significance. Therefore, households in West Gonja were significantly larger than Obuasi East District.

The level of completed education was also determined from household respondents. Table 4 displays the data obtained.

Table 4: Level of completed education

District	Level of completed education						Total
	None	Basic (BECE)	WASSCE /High school	Graduate	Post-graduate	Professional certificate	
Obuasi East	22 (5.7)	32(8.4)	44(11.5)	66 (36.7)	13(3.4)	3(0.8)	180(47.1)
West Gonja	53(13.9)	44(11.5)	71(35.3)	33(8.6)	0(0)	0(0)	201(52.9)
Total	75(19.6)	76(19.9)	115(30.1)	99(25.9)	13(3.4)	3(0.8)	381(100)

Source: Fieldwork, 2025,

From Table 4, the most prevalent level of completed education was High School (30.1%). There were, however, differences in the district distributions. In the Obuasi East District, graduates were the predominant respondents (36.7%). In the West Gonja Municipal, the predominant educational level was High School (35.3%). This is to be expected as the level of development in areas corresponds with access to educational facilities, and the ability of people to pay for higher education, leading to higher educational attainment. Obuasi East, being a municipality, is therefore expected to have higher educational attainment as compared to West Gonja, which is a District.

The last household background characteristic considered in this report is the major household livelihood. It is the livelihood activity of the household that will determine how much the household interacts with the environment, therefore, their assessment of the integrity of the environment. Table 5 illustrates the major household livelihoods of respondents.

Table 5: Livelihood of households

District	Livelihood of household						Total
	Agriculture	Services(education, security, health, etc)	Trade	Mining	Artisan	Other*	
Obuasi East	35(9.2)	53(13.9)	49(12.8)	18(4.7)	7(1.8)	19(5.0)	180(47.1)
West Gonja	166(43.4)	20(5.2)	8(2.1)	0(0)	6(1.6)	1(0.2)	201(52.9)
Total	201(52.6)	73(19.1)	57(14.9)	18(4.7)	13(3.4)	20(5.2)	382(100)

Source: Fieldwork, 2025 chi square=163.47, df=5, p=0.00

* includes charcoal burning, hunting, student, housewife

From Table 5, the most predominant household livelihood is agriculture (52.6%), which is higher than the national occupational data on Skilled agricultural, forestry, and fishery workers of 32 percent (GSS, 2021). At the individual district level, however, agriculture was the highest livelihood activity

in the West Gonja Municipality against services for the Obuasi East District. This difference was statistically significant at five percent significance (chi square=163.47, df=5, p=0.00), and this is consistent with the level of development of the districts.

Institutional respondents

The institutional affiliation of the institutional respondents is displayed in Table 6.

Table 6: Institutional affiliation of institutional respondents

Institution	District		Total
	Obuasi East	West Gonja	
Dept of Agriculture	2	1	3
Assembly	3	1	4
NADMO	2	1	3
Dept. of Social Welfare	2		2
A Rocha Ghana		1	1
Total	9	4	13

Source: Field work, 2025

From Table 6, all the respondents were either core staff of the Municipal or District Assemblies, except one who worked with a Non-Governmental Organisation (NGO), A Rocha Ghana. This NGO is an environmental conservation NGO focusing on natural resource governance, green livelihoods, climate change, species and habitat conservation, advocacy, and policy change. Even though several NGOs were implementing various projects in the selected districts, it was only A Rocha that was identified in the West Gonja Municipality with a functioning office and staff that the study could contact.

Level of awareness and understanding of climate change

The study asked about people's understanding of the concept of climate change. About 42.9 percent of the respondents (13.3% in Obuasi East and 69.7% in West Gonja) said they understood the concept of climate change. There were varied explanations of climate change, as many as the number of people who attempted to explain the concept. The concept of climate change, according to Jackson (2025), is:

Periodic modification of Earth's climate brought about as a result of changes in the atmosphere as well as interaction between the atmosphere and various other geologic, chemical, biological, and geographic factors within the Earth system.

From the definition of climate change, we note a few issues regarding modification (changes) in the weather conditions, a period for the change to take place, and the result of the interaction between the climate and several natural factors, including biological (containing human effects) ones. Based on this definition and the components noted, the knowledge of the respondents on what constitutes climate change is discussed.

The closest responses to the standard answer generally mentioned changes either in the weather conditions, atmospheric or climatic conditions of a place with either that it was caused by human activities, or a combination of human and natural causes.

Other responses considered climate change either as changes in temperature or rainfall in a place. Most of the few responses on the conceptualization of climate change rather perceived climate change in the two most prominent effects of climate change as is being experienced within the previous and current centuries, ie, temperature change (intense sunshine) and rainfall variation. The issue with this conceptualization is that it is not accurate, and it also ignores the other effects of climate change as is being experienced- the spread of invasive species, pests, and air mass flow disruption like El Nino and La Nina.

For the institutional respondents, 46 percent conceptualized climate change correctly, ie change in weather patterns over long periods of time, with the rest partially conceptualizing it. The frequency of correct conceptualization might be due to the educational levels of these respondents, which are substantially higher than the community members and their experience from their jobs. This notwithstanding, the majority response was wrong, implying that there were still issues with the conceptualization of the concept. In Zimbabwe, for instance, climate information and capacity development through education and early warning systems were insufficient and not reaching vulnerable groups adequately enough to enhance their ability to cope and adapt their livelihoods to the change (Jaka & Shava, 2018).

The proper conceptualization of climate change is a basis for any activity to improve the knowledge of people, and the need for this is critical. Moreover,

there was no local word in Twi (Obuasi East) or Gonja (West Gonja) for climate change.

During the data collection, for the respondents who were not aware of the concept of climate change, when climate change was explained to them, every one of them then understood it because they had either heard of a phenomenon with those characteristics or they had experienced its effects. The source from which people got information about climate change was inquired about. Table 7 shows the responses.

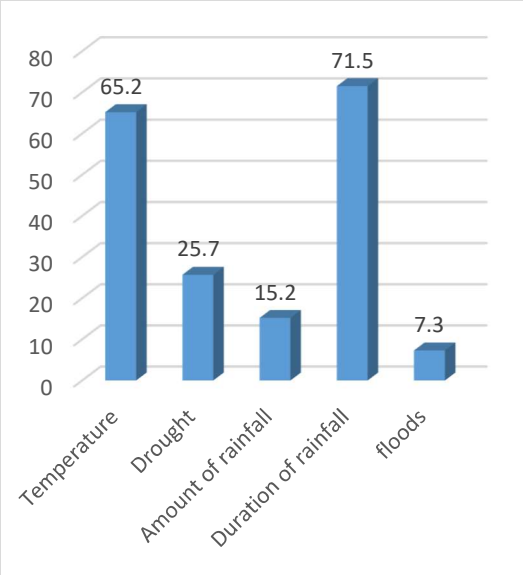
Table 7: Source of knowledge on climate change

District	Source of knowledge on climate change				Total
	Personal experience	Media-tv, radio, electronic, print	Formal education	Others	
Obuasi East	104(27.2)	24(6.3)	39(10.2)	14(3.7)	180(47.1)
West Gonja	180(47.1)	0(0)	21(5.5)	0(0)	201(52.9)
Total	284 (74.3)	24(6.3)	60 (15.7)	14(3.7)	382(100)

Source: Fieldwork, 2025 Chi squared value=62.863, df=3, p=0.00

From Table 7, the most popular source of information on climate change was personal experience or observation for the two districts combined; however, when the data was disaggregated for each district, the personal experience by people in the West Gonja Municipality was more significant than in the Obuasi East District. A chi-squared test at five percent significance returned a p-value of 0.00. The Obuasi East District had more diverse sources of information on climate change. The personal experience respondents had of climate change in the West Gonja Municipal can be leveraged in implementing projects on climate change in that district (and possibly similar districts in the Savannah zone of Ghana).

The household and institutional respondents' knowledge on the indicators of climate change was determined and is as shown in Figures 1 and 2, respectively.



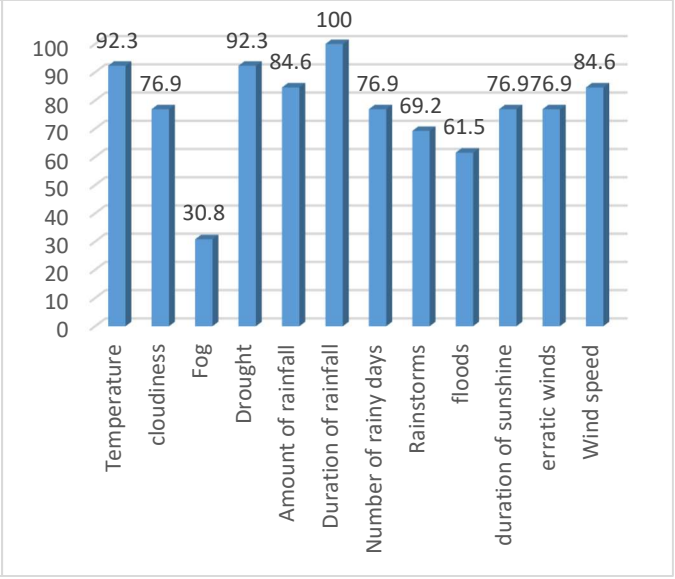


Figure 1: Indicators of climate change according to respondents, Figure 2: Institutional response on indicators of climate change

From Figures 1 and 2, a comparison of the indicators common to both groups of respondents shows that institutional respondents were more knowledgeable of the indicators of climate change (temperature, drought, amount of rainfall, duration of rainfall, floods).

The indicators of climate change, according to the household respondents per district, were analysed and are presented in Table 8.

Table 8: Indicators of climate change

Indicator	Obuasi East (%)		West Gonja (%)		Test values (χ^2,df,p)
	Yes	No	Yes	No	
Temperature	69.6	30.4	98.0	2.0	58.81,1,0.00
Shortened rainfall	47.5	52.5	93.0	7.0	96.8,1, 0.00
Low agric productivity	37.6	62.4	90.0	10.0	115.6,1,0.00
Pests and weeds	7.2	92.8	42.8	57.2	62.9, 1, 0.00
Droughts	8.8	91.2	40.8	59.2	60.0,1,0.00
Rainfall	47.5	52.5	93.0	7.0	96.8, 1, 0.00
Flooding	7.7	92.3	7.0	93.0	0.83,1, 0.845

Source: Fieldwork, 2025

From Table 8, the three topmost indicators listed were temperature (84.6%), shortened rainfall (71.5%), and low agricultural productivity (65.2%). Of all the indicators of climate change that were presented by the respondents in both districts combined, it was only Temperature (84.6%), Shortened rainfall (71.5%), and Low agricultural productivity (65.2%) that respondents listed. There were, however, differences in the relative frequencies of these indicators between the districts, except flooding, which showed no significant difference. Significantly, rainfall, temperature, droughts, plants and weeds, low agricultural productivity, and shortened rainfall duration were noted more in West Gonja Municipality than in Obuasi East District.

Though the definition of climate change notes both natural and anthropogenic causes of the change, in this study, the interest was to look at the anthropogenic causes because that is what humans can work on to stem climate change. Respondents self reported causes of climate change in both districts are displayed in Figure 3.

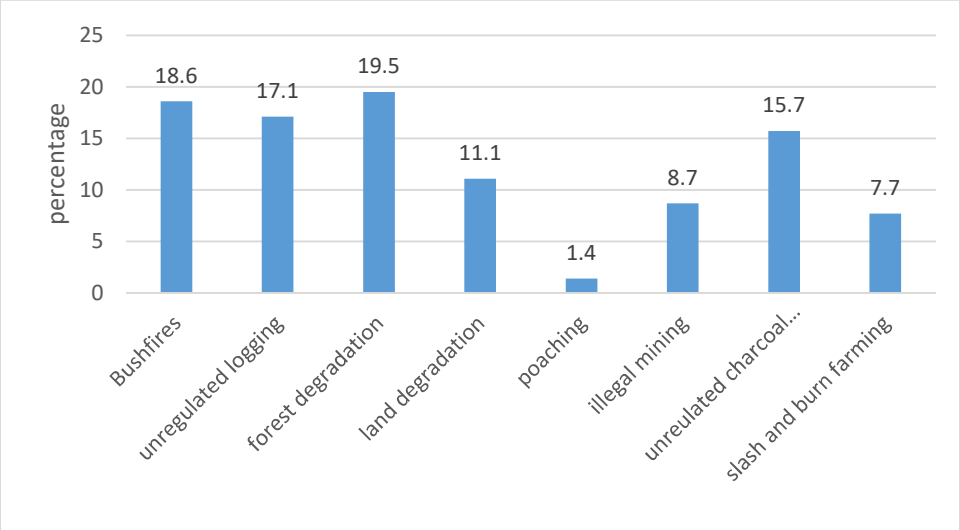


Figure 3: Sources of climate change in sampled districts
Source: Field work, 2025

Figure 3 shows that forest degradation (69.4%), Bushfires (67%), and unregulated logging (60.7%) were the three most frequent causes of climate change in both districts. However, the burning of fossil fuels (energy generation) and other activities that also generate greenhouse gases did not feature in the responses. The district-specific causes of climate change are displayed in Table 9.

Table 9:What do you think are the causes of climate change?

Cause	Obuasi East (%)		West Gonja (%)		Test values (χ^2, df, p)
	Yes	No	Yes	No	
Forest degradation	65.7	34.3	72.6	27.4	2.13,1,0.89
Bushfires	44.8	55.2	87.1	12.9	77.14,1,0.00
Unregulated logging	26.0	74.0	92.0	8.0	174.34,1,0.00
Unregulated charcoal production	20.4	79.6	87.6	12.4	173.93,1,0.00
Land degradation	37.6	62.4	41.3	58.7	0.55,1,0.262
Illegal mining	62.4	37.6	2.5	97.5	160.3,1,0.00
Slash and burnfarming	17.7	82.3	35.8	64.2	15.82,1,0.00
Poaching	7.2	92.8	3.0	97.0	3.55,1,0.049

Source: Field work, 2025

From Table 9, apart from forest degradation (p=0.89) and land degradation (p=0.262) that showed no significant difference in their reporting between the two districts, there were significant differences in the reporting of the other causes of climate change between the two districts. In the case of forest degradation, it was reported majorly for both districts, while for land degradation, it was reported minorly in both districts.

West Gonja Municipal reported significantly higher values for bushfires (87.1%), unregulated logging(92%), unregulated charcoal production (87.6%), and slash and burn farming(35.8%). It was only illegal mining that Obuasi East District significantly noted as a cause of illegal mining over that of West Gonja. The results reflect the environmental conditions and the economic activities prevailing in the two districts.

Poaching was listed as a cause of climate change, but though there was a significant difference in its reporting between the two districts (p=0.049), with Obuasi East reporting a slightly higher value of 7.2 percent, the difference was barely significant.

Even though respondents did not mention sources of energy in use for domestic and industrial purposes, further discussions and responses raised this issue. A few of the institutional respondents and a minority of household respondents mentioned the issue of the use of liquefied petroleum gas (LPG) in households. They discussed that most of the sources of domestic cooking energy (firewood and charcoal) contributed to global warming in two ways: they were extracted from cutting wood, thus deforesting the area, and they emitted gases that contributed to global warming.

In the mitigation of climate change, the reduction or elimination of these causes suffices. The 26th conference of parties (COP 26) to the UNFCCC held in Glasgow in 2021 stressed on the urgent need for efforts (including protecting, conserving and restoring nature and ecosystems; reduction of global greenhouse gas emissions, and development, deployment and dissemination of technologies to transition towards low-emission energy systems) aimed at mitigating climate change to be accelerated, reiterated and reinforced mitigation and new agreements to curb climate change.

In order for humans to survive in the era of climate change, there is a need for the adoption of adaptation measures. These were discussed with respondents in the study. Figure 4 illustrates the adaptation measures proposed by respondents in response to the climate change observed in both districts.

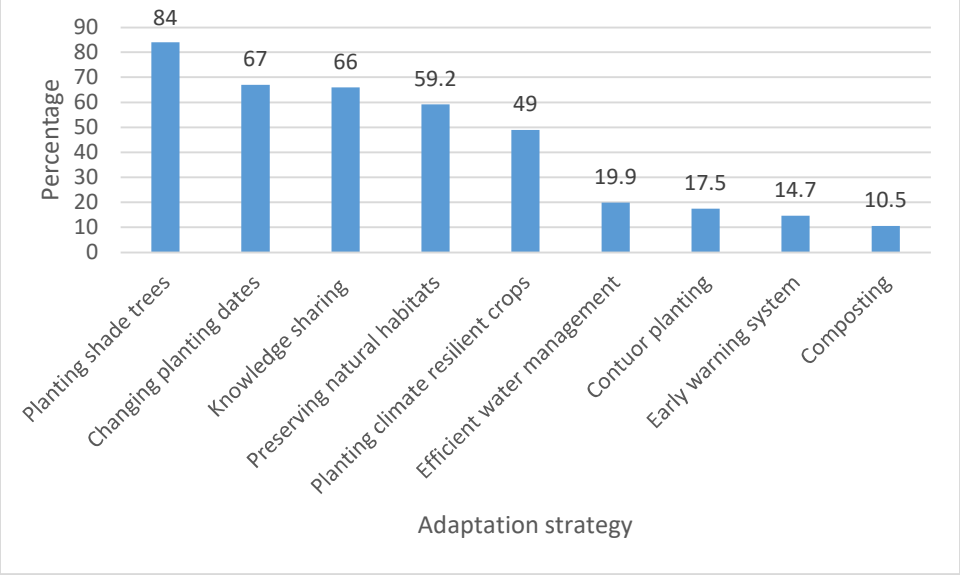


Figure 4: Adaptation to climate change in both districts
Source: Fieldwork, 2025

Planting of shade trees (trees in general)(84%) was the most prominent adaptation strategy proposed by respondents in both districts. This was followed by changing planting dates for crops (67%) and knowledge sharing on climate change (66%). The distribution of adaptation strategies per district is illustrated in Table 10.

Table 10: Adaptation to climate change per district

Adaptation	Obuasi East (%)	West Gonja (%)	Test values (χ^2,df,p)

	Yes	No	Yes	No	
Planting shade trees	71.3	28.7	95.5	4.5	41.74,1,0.00
Knowledge sharing	50.8	49.2	79.6	20.4	35.12,1,0.00
Changing planting dates	8.3	91.7	55.2	44.8	94.92,1,0.00
Preserving natural habitats	38.7	61.3	77.6	22.4	59.77,1,0.00
Planting climate resilient crops	30.4	69.6	65.7	34.3	47.45,1,0.00
Efficient water management	20.4	79.6	19.4	80.6	0.07,1,0.45
Contour planting	3.9	96.1	29.9	70.1	44.46,1,0.00
Early warning system	21.5	78.5	8.5	91.5	13.04,1,0.00
Composting	8.8	91.2	11.9	88.1	0.98,1,0.206

Source: Field work, 2025

As shown in Table 10, apart from efficient water management and composting, there were significant differences in the frequency of reported adaptation strategies between the two districts. The Obuasi East District reported significantly more on the early warning systems as a strategy, while the West Gonja Municipal respondents reported significantly more on all the other strategies.

In the adoption of LPG as a domestic and commercial energy source, the minority respondents who saw this as a cleaner source of energy, however, raised a few challenges to its widescale adoption. The major issue was that it was expensive for most households and small businesses to buy the cylinders and stoves, and even when they were able to buy these, recharging them when they were exhausted was still expensive for them. Others also raised the issue of accessibility to the LPG. The infrastructure to dispense the LPG was, even if available, only in the urban areas and most people incurred a lot of cost to access the dispensers and then pay for the gas. A few others raised the issue of the hazard attached to the use of LPG, ie fire and explosion risks. These prevented widespread adoption of LPG for both domestic and commercial applications.

Level of engagement and implementation of climate policies by citizens in the selected districts

Respondents were asked to list any social intervention project (nature-related) that was being implemented in their districts. From the institutional respondents, three respondents from Obuasi East and three from the West Gonja Municipality knew of any social intervention (nature-related) being implemented in their districts. Three out of the nine Obuasi East District Assembly respondents mentioned that the Minerals Commission educates citizens on the laws governing minerals like gold and the importance of preventing illegal mining. This was because mineral (including gold) is protected by law in Ghana, and there was a regulatory framework to protect them. Another respondent noted the Planting for Food and Jobs programme of the government.

In West Gonja, three out of the four institutional respondents noted Tree planting exercises by the Forestry Commission, early warning system instituted the by NADMO, Watershed protection projects, species protection, landscape restoration, woodlot establishment, and the Ghana Landscape Restoration and Small- Scale Mining Project (GLRSSMP) which focuses on restoring degraded lands and natural vegetation.

Various interventions were also mentioned by the household respondents, and these are displayed in Table 11.

Table 11: Nature-related social intervention projects in districts

Project/operation	District	
	Obuasi East	West Gonja
Galamstop/Vanguard	3	
World vision (LEAN)		36
RING		20
ARocha shea		8
Weekly sanitation	3	
Mutawatu/ Tamawute foundation		2
LEAP project	2	71
AGA malaria control	5	
AGA alternative livelihood	5	
VSLA		4
World Food Programme		3

GLRSSMP	1	3
GROWING		7
Green Ghana	6	
Total	25	152

Source: Fieldwork, 2025

There are more reported social interventions in the West Gonja Municipal (153) than in the Obuasi East District (25). Generally, respondents were unaware of nature-related social intervention projects in their districts. Two reasons might account for this it is either there were not many social intervention projects related to the environment, or there was poor publicity of interventions being carried out in the districts. Oduro-Ofori et. al (2021) found that about half of the Climate Change Adaptation Programs of District Assemblies in Ghana, planned from 2013 to 2021, were never implemented, and more than 70 percent of those implemented were not completely successful due to limited finance. This further explains why the respondents had low awareness of these intervention projects.

Table 11 shows that several projects were listed; however, not all of them were nature-related. These include projects that are either military operations (Galamstop/Vanguard), or livelihood (Livelihood Empowerment Against Poverty-LEAP; Village Savings and Loans Associations (VSLA)) or strictly nutrition (Resilience in Northern Ghana-RING; World Food Programme, Generating Revenues and Opportunities for Women to Improve Nutrition in Northern Ghana (GROWING).

The nature-related projects are A Rocha, Green Ghana, Ghana Landscape Restoration and Small Scale Mining Project (GLRSSMP), and World Vision Landscape and Environmental Agility Across the Nation (LEAN) projects.

The A Rocha shea butter project is made up of four Community Resource Management Areas (CREMAs) in the West Gonja Municipal. Within these CREMAs, there are nine women's cooperatives that collect shea fruits, process and market the shea butter. The project is co-partnered by the Savannah Friuts Company (SFC). The sponsors donated a shea butter processing facility at Murugu and eight warehouses to the nine shea cooperatives in the District. The Shea Women's Cooperatives use shea butter production as a way to conserve biodiversity in the Mole Ecological Landscape. Because of the benefits derived by the women in extracting the shea butter, they were motivated to conserve the shea trees, redirecting livelihood activities from

harmful extraction of natural resources (charcoal production, poaching, etc) and providing income to the household. These cooperatives have established a shea tree and other indigenous trees nursery to promote forest growth and to provide reliable sources of forest products, like the shea fruit. A Rocha is also implementing tree planting as part of a forest landscape restoration and sustainable wood energy to provide fast-growing wood species to substitute for the cutting of shea and other slow-growing indigenous trees for wood fuel.

The Green Ghana project is a state-sponsored project which a particular day of the year is set aside to plant trees across the country. The tree seedlings are provided by the Forest Services Division of the Forestry Commission freely to anyone willing to plant them. The project is to combat climate change, pollution, and biodiversity loss by promoting forests' growth. It was launched in 2020 and has been implemented yearly.

The Ghana Landscape Restoration and Small-Scale Mining (GLRSSMP) Project, according to EPA (2022), is a joint World Bank and Government of Ghana project to promote integrated natural resource management, thereby also increasing benefits to communities in the degraded landscapes in Ghana. The project is, among other things, to restore degraded lands for agricultural productivity; strengthen sustainable management of forest landscapes for biodiversity conservation and ecosystem services, and plan land use for integrated landscape management. The West Gonja Municipal is one of the districts the project is being implemented.

The LEAN project is an European Union-funded project being implemented by World Vision in the West Gonja using an integrated approach to build farmers' resilience by promoting sustainable environmental practices within the project areas. LEAN supports the conservation of biodiversity, improves the livelihoods of small-scale farmers, builds climate resilience, and reduces emissions from land use. The project builds the capacities of communities and small-scale farmers on integrated land management (ILM) practices. ILM includes such practices as zero tillage, green manuring, burning-free, and mulching (World Vision Ghana, 2022). The project also included training farmers and volunteers to reduce the incidence of bushfires in the areas.

Involvement of key stakeholders in climate governance and social accountability

This subsection discusses the involvement of various stakeholders in the nature-related social intervention programmes identified from the field, both in the design and implementation phases. Three major stakeholders were identified. These are the project sponsors, Municipal/District Assembly, and the beneficiaries (community members).

The responses on the participation of respondents in the design of these interventions for the combined districts are illustrated in Figure 5.

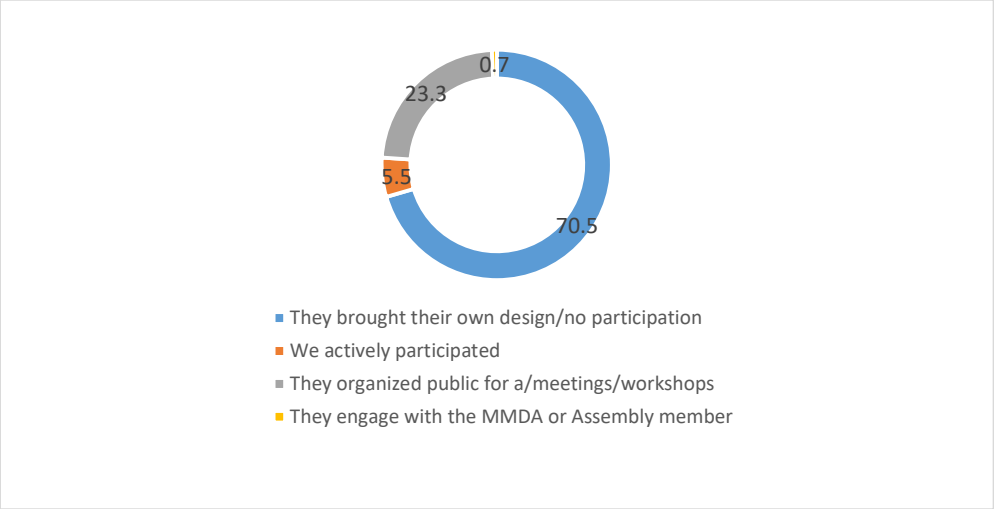


Figure 5: Participation of household respondents in projects' design
Source: Field work, 2025

From Figure 5, most of the participants(70.5%) indicated that the project's designers did not involve them in the design. The respondents noted that the project designers generally only organized either public workshops or meetings and introduced the projects as designed to them.

The other 29.5 percent of the respondents who noted there was a certain level of participation, the forms of participation included; the designers engaging with the people at fora and meetings where the respondents discussed how the projects must be designed (23.3), respondents actively engaging in the design(5.5%), or the designers engaging with the Assembly or Assembly members(0.7%).

One institutional respondent noted that community engagements were organised at which the design was discussed with the community members. Another institutional respondent mentioned that the community members provided information to the project design, as to how this was done it was not mentioned. These are the only ways the institutional respondent knew the stakeholders (apart from the project sponsors) participated in the designs.

Table 12 displays the responses of household respondents on their involvement in the design of the social interventions per the districts.

Table 12: Participation of the targeted people in project's design

Participation	District		Total
	Obuasi East	West Gonja	
They brought their own design/no participation	26 (25.3)	77(74.7)	103(100)
We actively participated	8(100)	0(0.0)	8(100)
They organized public fora/meetings/workshops	31(91.2)	3 (8.8)	34(100)
They engage with the MMDA or Assembly member	1(100)	0(0.0)	1(100)
Total	66(45.2)	80(54.8)	146(100)

Source: Field work, 2025 χ^2= 42.15, df=3

From Table 12, the proportion of respondents who said the organisations that brought the social intervention came with their own design without the participation of the beneficiaries was 74.7 percent in West Gonja Municipal and of the respondents who said there were public fora or meetings or workshops organized by the organisations, only 8.8 percent were from the West Gonja Municipal. This therefore indicates that, relatively, there was less participation of beneficiaries in this district as compared with Obuasi East.

A Chi-Squared test performed on the data returned a value of 42.15 with a degree of freedom of three. The critical value of chi-squared at five degree of freedom and a degree of freedom of three is 7.815. In comparison with the obtained value from Table 11 of 42.15, the obtained value is higher than the critical value; therefore, the differences in the districts are statistically significant. West Gonja had more of their projects being designed without the participation of the communities, while in Obuasi East, more community members participated in project designs at public fora or meetings. This finding is consistent with a study by Oduro-Ofori, Isahaka, and Opoku-Antwi (2021), who found that though local communities are experiencing the effects of climate change impacts, they do not participate in the design of policies or projects on climate change that directly affect them. These activities were largely top-down.

The next stage in the project cycle is implementation, and the participation of respondents in the implementation of the projects in both districts. Figure 6 shows the responses and the proportions.

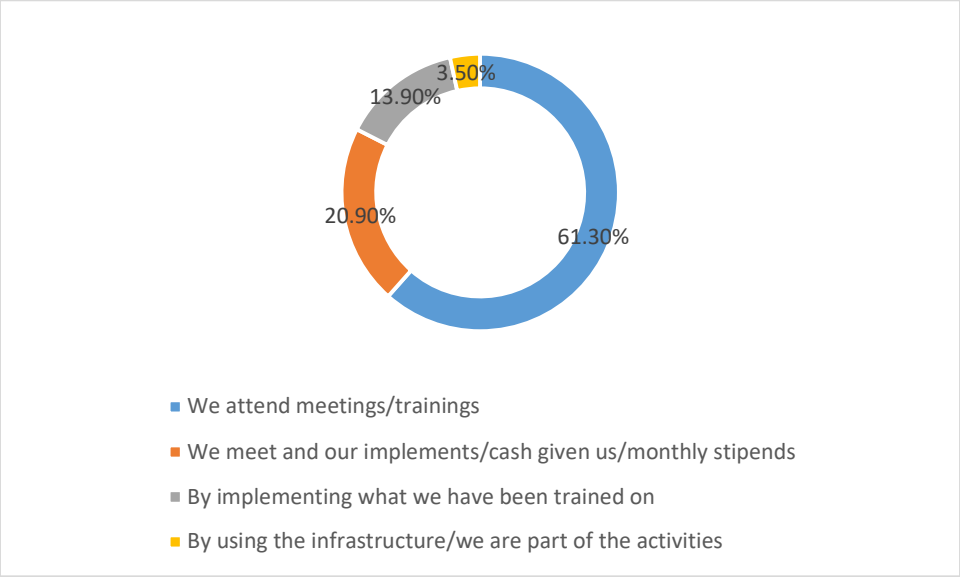


Figure 6: Participation of beneficiaries in the implementation of social intervention projects
Source: Field work, 2025

Figure 6 shows that meetings and trainings (61.3%) were the most used approach to implementation in both districts. This is consistent with the discussion on the types of nature-related social interventions in the sampled districts. Most of the projects were capacity building in scope; therefore, meetings and trainings appeared to suffice.

The modes of participation per district are illustrated in Table 13.

Table 13: Participation in the implementation per district

Participation	District		Total
	Obuasi East	West Gonja	
We attend meetings/trainings	21(29.6)	50 (70.4)	71(100)
We meet and our implements/cash given us/monthly stipends	9(37.5)	15(62.5)	24(100)
By implementing what we have been trained on	9 (56.3)	7(43.7)	16(100)

Using the infrastructure/we are part of the activities	1(25)	3(75)	4(100)
Total	40(34.8)	75(65.2)	115(100)

Source: Field work, 2025 χ^2=3.537 df=3

From Table 13, it can be deduced that the participation of respondents in training programmes in the West Gonja Municipal was 70.4 percent of that category; however, of the category of respondents who were implementing what the project had trained people on, Obuasi East was in the majority. This indicates that there was more training/meetings in the West Gonja Municipal, but there was more transfer of the knowledge to the field in Obuasi East.

A chi-squared test was performed on the data to determine if there were significant differences in the participation of respondents in the implementation of projects in the districts. The obtained value of 3.537 and a degree of 3, and the critical value at five percent significance is 7.815. Since the obtained value is less than the critical value, the differences were not statistically significant.

Submissions by institutional respondents on participation in project implementation included the beneficiaries engaging in on-farm demonstration of project objectives, and being part of implementation committees or attending meetings. For the engagement between the MMDAs and NGOs (project sponsors), two institutional respondents also noted that the NGOs generally engaged with the Planning Unit, Assembly persons, or departmental heads to deliberate on either design or implementation of projects. The other response was that workshops are organized by the NGOs at which the Assembly staff either invited or nominated to participate and contribute to discussions.

Social accountability

In this sub-section, issues regarding the numbers of NGOs engaged in social interventions involving food security, disaster management, and general nature-related activities and their interactions with the stakeholders in the district are discussed. The interaction between the Municipal or District Assembly and citizens in the sampled districts and ancillary activities will also be discussed. Table 14 is an illustration of the mean number of NGO/CSOs institutional respondents in the sampled districts.

Table 14: Mean numbers of NGO/CSOs engaged in various social accountability projects

NGO/CSO engaged in:	District	
	Obuasi East (Mean)	West Gonja (Mean)
Nature related	6.0	5.0
Food security	4.0	5.3
Disaster management	3.0	3.3

Source: Field work, 2025

It is worth noting that in the Obuasi East District, most of the institutional respondents had no idea of the number of NGO/CSOs engaged in nature-related social accountability projects in the municipality. Generally, it was only three of the nine respondents were selected. In the West Gonja Municipal, generally, it was only one of four institutional respondents who had no idea of these NGO/CSOs.

The engagement of the Assembly with citizens on climate change, vulnerability, food security, and agricultural productivity was enquired about. From the institutional respondents, one response was annually, another quarterly, and then one other respondent noted it was organized between two and three times a quarter. Various other non-specific responses, like most often, often, or not too often, were also given. On the issue of the regularity of the release of information from the Assembly to the NGO/CSOs and communities. Only one respondent gave a specific period for the release of information to the public. In this case, it was annually. Another respondent said it was infrequent. The other responses include very often or very regular, or often; these are very subjective responses, which do not work very well for the implementation of principles of social accountability.

From the household respondents, Figure 7 illustrates their response on the frequency with which the MMDAs interacted with them.

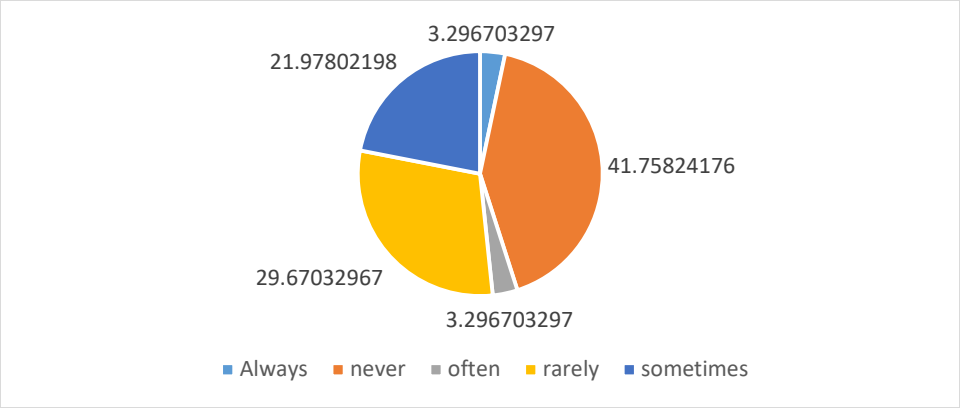


Figure 7: Frequency of Assemblies interaction with communities
Source: Field work, 2025

The most predominant response from the household respondents was that the Assemblies never interacted with them (41.8%) on nature-related social interventions (Climate change, vulnerability, natural disasters, food security, agricultural productivity). The second highest response was that the Assembly rarely (29.7%) met with them. These responses explain why the institutional respondents were mostly using subjective assessments of the regularity with which they engaged with the local communities. The interaction between the Assemblies and the communities was not good enough to promote social accountability.

The major reason given by the institutional respondents to explain why the Assemblies were not able to organize more frequent engagements with communities was that the Assemblies had inadequate funds and the capacity to organize these fora for the necessary interactions. Also, the implementation of the climate change adaptation projects was mainly constrained by inadequate funding (Oduro-Ofori, et al., 2021).

The most cited reason from household respondents on the paucity of engagements between the Assemblies and communities was that unless there was an incident (flooding, illegal mining, illegal logging, extreme temperature, drought, food shortages, etc), the Assembly does not act as if it were necessary to meet the communities. From the household respondents, a few of them believed that because citizens do not make time to meet the Assemblies at such fora, the Assemblies do not regularly organize these programmes.

The discussion on the regularity of release of information from the Assemblies to the citizens and of engagement of the Assemblies with the citizens does not exhibit excellence in social accountability.

Section 5: Conclusion

At the end of the study, the current level of awareness of climate change and its related issues in the district was dependent on whether the issue was conceptual or practical. Awareness levels for the concept of climate change were low, largely because the concept had no local translation, and the concept was alien to most local people. However, with regard to the practical effects of climate change that were manifest in the districts, respondents were highly aware and they understood some of the linkages between local actions and how these have affected changes in the climate conditions. The other issue was with the broader issues of climate change and how specific human activities (livelihoods, lifestyles etc) affected climate change at the global and even local level; the understanding of these aspects was low. Capacity building on the conceptualization of climate change, global warming, their effects on the environment and societies, their causes, mitigation and adaptation are critical issues to be addressed in these areas.

Implementation of policies on climate change in the districts was largely done by NGOs, sometimes with the collaboration of the District and Municipal Assemblies. In a few instances, local people were involved in the project design through their participation in public fora organized for such purposes. Communities participated more in the implementation of the projects by attending meetings or workshops organized to train them or to build their capacity, and also implementing the knowledge they had acquired. Others also received either cash transfers or supplies for undertaking the project activities on their farms. Three key areas for improvement include higher levels of participation of project beneficiaries in project design; support in identifying either climate friendly sources of domestic energy or making the sources of domestic energy supply more sustainably obtained; and, the introduction of alternative, climate friendly sources of livelihood or making the livelihoods of the beneficiaries climate friendly.

In the practice of climate governance and social accountability in the districts, there were generally two leading actors. The first were NGOs, sometimes with their local representatives, and the Municipal and District Assemblies, with their decentralized agencies. The Municipal and District Assemblies implemented their programmes on their own with the participation of the local community at the implementation stage; they only engaged civil society organisations when they needed resource support from them. The NGOs also implemented their programmes on their own with the involvement of the

local communities, mostly at the implementation stage, but they often informed Municipal or District Assemblies as a way of gaining community entry into the areas. The local people are mostly beneficiaries of the benevolence of either one of these two major actors, and they did not know of their rights to be informed regularly by the Assemblies on the projects being undertaken their jurisdiction and to also request the same of the Assemblies. Five challenges to the implementation of policies on climate governance and social accountability identified include: Illiteracy on the part of local communities (low awareness of effects of livelihoods on climate change); weak enforcement of resource related laws (forestry, mining, etc): the high levels of poverty in local areas which confines most people to be concerned with only bread and butter issues; inadequacy of resources for Municipal and District Assemblies and their decentralized departments; inadequate awareness of social accountability on the part of both MMDA staff and citizens: weak multisectoral collaboration both among local development actors and between local development actors and NGOs.

Summary on indicators

In this section, a list of indicators that have been developed both from the interaction with respondents (both from what was discussed and those that emerged from the interaction) have been compiled to guide follow-up studies into the same issues in the sampled districts and other relevant areas. Table 15 displays these indicators.

Table 15: Indicators on baseline climate change awareness, participation, social accountability, and their levels

Issue	Indicator	Level (%)/ N
Awareness and understanding of climate policies/projects	Knowledge on concept of climate change	
	Knowledge on the causes of climate change	
	- Forest degradation	19.5
	- Bushfires	18.6
	- Unregulated logging	17.1
	- Unregulated charcoal production	15.7
	- Land degradation	11.1
	- Illegal mining	8.7
	- Slash and burn farming	7.7
	- Poaching	1.4

	Knowledge on indicators of climate change	
	- Temperature	65.2
	- Droughts	25.7
	- Duration of rainfall	71.5
	- Amount of rainfall	15.2
	- Flooding	7.3
	- Shortened rainfall	-
	- Low agric. productivity	-
	- Pests and weeds	-
	- Fog	-
	- Cloudiness	-
	- Rainstorms	-
	- Duration of sunshine	-
	- Erratic winds	-
	- Wind speed	-
	Knowledge on vulnerabilities to climate change	
	Knowledge on mitigation measures	
	- Forest protection/improvement	-
	- Reducing bushfires	-
	- Regulated logging	-
	- Regulated charcoal production	-
	- Land improvement	-
	- Elimination of illegal mining	-
	- Improved farming practices	-
	- Conservation of wildlife	-
	Knowledge on adaptation	
	- Planting trees	84
	- Knowledge sharing	66
	- Changing planting dates	67
	- Preserving natural habitats	59.2
	- Planting climate resilient crops	49
	- Efficient water management	19.9
	- Contour planting	17.5
	- Early warning system	14.7
	- Composting	10.5
	- Designing climate smart buildings	-
	Knowledge on climate change policies being implemented in the area	

	Sources of information on climate change*	
	- Personal experience	74.3
	- Media-tv, radio, electronic, print	6.3
	- Formal education	15.7
	- Others	3.7
Level of engagement in design and implementation of climate policies/projects	Participation in policy/project design	28.8
	Participation in policy/project implementation	30.1
Social intervention	Citizens have a right to information from the Assemblies	-
	Assemblies have a responsibility to provide information to citizens	-
	Number of formal engagement of Assembly with communities for general interaction on projects/year	-
	Number of times information released to communities/ year	-

*Technically, not an indicator, but very relevant for awareness creation

Recommendations

Based on the findings from the baseline assessment conducted in Obuasi East District and West Gonja Municipality, the following actionable recommendations are proposed to enhance citizen knowledge, increase climate policy uptake, and strengthen stakeholder participation in climate governance:

1. Enhancing Climate Change Awareness and Education

- MMDAs and environment-related NGOs must develop and implement local language IEC materials (e.g., radio dramas, posters, infographics) tailored to non-literate and rural populations to explain climate change concepts, impacts, and citizen roles.
- The state (Ministry of Education, Ghana Education Service) should integrate climate change education into local school curricula and adult

literacy programs, with specific content on adaptation, mitigation, and sustainable livelihoods.
- MMDAs and environment-related NGOs must leverage local FM stations and community gatherings to disseminate consistent, accessible climate information.

2. Promoting community-based climate action platforms

- MMDAs, with support from NGOs, need to establish Climate Change Citizen Watch Groups in each district to serve as conduits between communities and MMDAs on climate-related projects.
- The Forestry Commission, MMDAs and environment related NGOs should support and expand existing CREMA structures to incorporate environmental monitoring and feedback loops on climate interventions.
- MMDAs, and environment related NGOs should conduct quarterly community dialogues with stakeholders (assemblies, NGOs, traditional leaders, women/youth groups) to identify challenges, co-design interventions, and build trust.

3. Increasing support for local adaptation strategies

- MMDAs (Department of Agriculture) and environment related NGOs should provide training and resources for farmers to adopt climate-smart agriculture practices, such as planting resilient crops, mulching, zero tillage, and efficient water use, especially in West Gonja.
- Forestry Commission, MMDAs (Department of Agriculture) and environment related NGOs should scale up access to tree seedlings and extension services to support afforestation and reduce land degradation and charcoal dependence.
- MMDAs (Department of Agriculture) and environment related NGOs should support smallholder farmers with access to weather information, early warning systems, and market linkages to improve resilience.

4. Strengthening social accountability mechanisms

- NGOs and MMDAs should train MMDA staff and CSOs on participatory planning and social accountability tools, such as scorecards, budget tracking, and community report cards.
- NGOs and MMDAs should ensure transparency in project design and implementation, by publicly posting budgets, timelines, and roles for nature-related projects in accessible community locations.
- NGOs and MMDAs should institutionalize regular stakeholder feedback sessions at the district level to monitor progress and allow citizens to voice concerns or recommendations.

5. Addressing barriers to clean energy adoption

The state (Ministry of Energy) should:

- Subsidize access to LPG stoves and refill cylinders, especially for vulnerable households in West Gonja, to reduce reliance on charcoal and firewood.
- Invest in decentralized energy infrastructure, such as community LPG filling stations and solar energy systems, to make cleaner energy more accessible and affordable.
- Partner with the private sector and NGOs to conduct safety education campaigns on LPG use to alleviate fears of fire hazards.

6. Fostering stronger NGO-MMDA collaboration

MMDAs should:

- formalize collaborative frameworks between them and NGOs/CSOs, including Memoranda Of Understanding (MOUs) that clarify roles in joint climate initiatives.
- Create a District Climate Coordination Committee comprising MMDA departments, NGOs, and traditional authorities to improve project synergy and avoid duplication.
- Support NGOs to build permanent local presence through co-funding or office space, particularly in areas like Obuasi East, where engagement was lower.

7. Strengthening Monitoring and Evaluation (M&E)

Environment-related NGOS should:

- Develop and apply standardized indicators to measure citizen awareness, participation, and climate adaptation practices annually.
- Conduct midline and endline evaluations to track project progress and adjust strategies based on data and community feedback.
- Document and disseminate best practices from each district to support learning and scale-up in other regions.

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