

Mainstreaming Climate Change Adaptation into Development Planning in Ghana

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Abstract

This paper argues that sustainable development outcomes under climate change are the products of planned adaptation processes involving mainstreaming. The paper examines the extent to which climate change adaptation has been mainstreamed into development planning at the local level in Ghana. Ubiquitous drought and flood disasters in many areas in Ghana are manifestations that climate change can undermine or even reverse the success and sustainability of development interventions. Projections show that the frequency and severity of climate change induced disasters in Ghana will increase overtime. Apparently, the need to mainstream climate change adaptation into development planning at the national and sub-national levels cannot be ignored. In this vein, using the qualitative research approach involving the use of in-depth interviews, focus group discussions and content analysis of district development plans and annual reports, the study found that the mainstreaming of climate change at the district level in Ghana was at the elementary stage, which constitutes awareness creation. As a result, district development plans failed to address climate change adaptation adequately. The paper concludes that there is the need to raise awareness and build

local institutional capacities for mainstreaming climate change adaptation for sustainable development in Ghana.

Keywords: Climate Change, Mainstreaming, Development planning, Adaptation, Ghana

Introduction

Climate change is the greatest contemporary global threat to sustainable development, and the risks associated with climate change will become more severe over time. In recent years, the three northern regions of Ghana have witnessed climate change stressors such as floods, storms and droughts which aggravated the already poverty situation in the area (MEST, 2010; Yaro, 2010; Würtenberger, Bunzeck and van Tilburg, 2011). For instance, the 2007 flood disaster in Northern Ghana killed 31 people, displaced 102, 208 persons and destroyed 7,152 hectares of crops, 45 schools, 39 dams, 542 km of feeder roads and 58 bridges and culverts in the Upper East Region alone (NADMO-UER, 2008). Furthermore, in 2010, floods hit the Upper East Region destroying 3,877.9 hectares of crops and 5,512 houses and displaced 34,553 persons (NADMO-UER, 2010). In the Kassena-Nankana West District, 14,874 people were displaced by the 2010 floods (NADMO-UER, 2010).

To address the daunting challenges posed by climate change, policy design and implementation processes need cautious and collaborative crafting that respond to the needs of people at risk of climate change. Local and national plans and policies can play a critical role in shaping people's capacity to adapt to climate change (Kelly and Adger, 2000:330; Dazé, Ambrose and Ehrhart, 2009:3). Nelson and Agbey, (2005) and others such as Banuri and Gupta (2000), and Robinson and Herbert (2001) acknowledged that the improvement of adaptive capacity is a necessary condition for reducing vulnerability, particularly for the most vulnerable regions, district assemblies, and socio-economic groups. To them, the strategies required for the enhancement of adaptive capacity are essentially equivalent to those promoting sustainable development.

Apparently, mainstreaming climate change adaptation into development policies, plans, programmes, projects and budgets can minimize the likelihood of climate change undermining or negating the effectiveness and sustainability of development interventions (AfDB et al., 2002; MEST, 2010). This is what CARE (2010) described as climate-proofing – making development plans climate change resilient. Mainstreaming climate change into development policies, plans and budgets will also ensure that development activities contribute to people's adaptive capacity when possible, and do not inadvertently increase their vulnerability to climate change (Füssel and Klein, 2004; CARE, 2010).

Easterling, Hurd and Smith (2004) have also suggested that central and local authorities should undertake planned adaptation and integrate this in development planning in order to reduce the vulnerability of the poor. Easterling, Hurd and Smith (2004) has identified two types of adaptations; reactive (undertaken in emergencies) and anticipatory/planned (undertaken before impacts are apparent). Anticipatory adaptation can enhance people's capacities to cope with climate change by mainstreaming climate change into long-term decision-making. Furthermore, to increase the collective capacity of communities to adapt, there is the need to improve and strengthen human capital through education, outreach, and extension services and improve decision-making capacity at every level of human endeavour is immediate (Easterling, Hurd and Smith, 2004; Kok and de Coninck, 2007; UNFCCC, 2007).

In response to growing demands from the local and international levels, the government of Ghana has initiated efforts to mainstream climate change into national policy frameworks. For instance, climate change has been captured in the Ghana Shared Growth and Development Agenda (GSGDA) as a cross-cutting issue alongside gender and disability. Ghana has also successfully launched a National Climate Change Adaptation Strategy (NCCAS), National Climate Change Policy Framework (NCCPF) as well as a National Climate Change Master Plan. While these and other efforts at the national level have been widely acknowledged, it remains unclear the extent to which local authorities are mainstreaming climate change into local development plans. In view of this, this study seeks to assess the extent to which climate change adaptation is being mainstreamed into district development planning for sustainable development in Ghana with reference to the Kassena-Nankana West District. In more specific terms, the study explores the institutional capacity for mainstreaming climate change adaptation programs and projects into district and sub-district level planning using the Kassena-Nankana West District as a case study. It also examines the extent to which climate change adaptation is mainstreamed into local level plans.

Climate Change and Development Planning in Ghana: A Review of Policies and Strategies

Mainstreaming climate change into national policies and strategies has been a challenging issue in the fight against climate change in Ghana. For instance, the Ghana Poverty Reduction Strategy (GPRS I) failed to consider climate change (Nelson and Agbey, 2005) and the Growth and Poverty Reduction Strategy (GPRS II) broadly mentioned climate change and failed to align poverty reduction strategies to the impacts of climate change (Cameron, 2011). However, the last few years have witnessed significant strides in the development of national policies and strategies driven mainly by the quest to meet international requirements and the need to adapt and mitigate the effects of

climate change. Some of these efforts include the mainstreaming of climate change into the Ghana Shared Growth and Development Agenda (GSGDA I and II), the formation of the National Climate Change Committee (NCCC), the preparation of the National Climate Change Adaptation Strategy (NCCAS), the preparation of a National Climate Change Policy (NCCP) and the Ghana National Climate Change Master Plan (15 – 2020).

Ghana Shared Growth and Development Agenda (GSGDA) 2010-2013 (NDPC, 2010) and 2014-2017 (NDPC, 2014) represents a significant effort by the Government of Ghana towards mainstreaming climate change adaptation into national level policies. This national Medium-Term Development policy framework identified climate change as a cross-cutting issue affecting the achievement of national goals and priorities. Out of the seven thematic areas of the GSGDA, climate change is discussed in four themes, that is Enhanced Competitiveness of Ghana's Private Sector; Accelerated Agricultural Modernization and Natural Resource Management; Infrastructure and Human Settlements Development; Human Development, Employment and Productivity. GSGDA also provided the impetus for the mainstreaming of climate change at the local level through the Medium-Term Development Planning Framework (MTDPF) – planning guidelines.

Broadly speaking the GSGDA has promoted the awareness about climate change and triggered the mainstreaming of climate change into sectoral and local plans (NDPC, 2016). At the national level, the number of Ministries, Departments and Agencies (MDAs) integrating climate change into their national plans increased steadily from 4 sectors in 2013, to 5 sectors in 2014 and 6 sectors in 2015 (NDPC, 2016). Efforts within the framework of the GSGDA led to the formation of the National Climate Change Committee (NCCC), the development of a National Climate Change Strategy (NCCAS) and monumentally the nascent of the National Climate Change Policy (NCCP) Framework and the National Climate Change Master Plan. In addition, the GSGDA facilitated the establishment of Environments and Climate Change Units and Regional Environment Desks. Interestingly, a bill for the establishment of a National Climate Change Commission was also being considered (Cameron, 2011).

Despite this effort, the GSGDA has failed to address climate change holistically. The mere inclusion of climate change as a cross-cutting issue is not inadequate given the wide impacts of the climate change on the economy of Ghana. Cameron (2011) has argued that Climate change merits a chapter in the GSGDA after strong efforts by the EPA and the Ministry of Environment, Science and Technology (MEST). The GSGDA according to Cameron captures some helpful wording in relation to climate change for example, *sustainable natural resource management*, but broader policies relating to climate change are yet to be sufficiently developed or integrated into the work of line ministries and their sector programmes (Cameron, 2011).

preparation of the National Climate Change Adaptation Strategy (NCCAS) was precipitated by Ghana's quest to meet its commitments under the UNFCCC and the Hyogo Framework for Action (HFA) 2005 – 2015 among others (Nutsukpo, 2013). The basic goal of the NCCAS is to increase Ghana's resilience to climate change impacts now and in the future through improved awareness, effective mainstreaming and consistent efforts to reduce vulnerability in natural and social systems. This goal is expected to be attained by building capacities in the area of infrastructure and knowledge to deal with climate change impacts and to reduce vulnerability in key sectors, ecosystems, districts and regions of the country. The strategy is designed for a period of ten years that is, 2010-2020 with the opportunity for review by its multi-stakeholders. The NCCAS seeks to provide a uniform structure and methodology to promote the development of a more holistic and integrated national adaptation strategy.

The institutional framework for the implementation of the NCCAS puts MEST as the apex supervisory, liaison and coordinating agency. Thus, MEST is the lead institution to be supported by the National Climate change Committee (NCCC). The NCCC is responsible for the day-to-day management of NCCAS. In addition, NCCAS provides guidelines to MMDAs for the preparation of climate change adaptation programmes and projects and the allocation of implementation responsibilities between the district Assemblies and the sub-district local authorities at the community level. NCCAS has bestowed MMDAs with the responsibility of strengthening the Environmental Committees at the assembly level to prepare and implement detailed climate change adaptation projects at the local level with the assistance of decentralized departments, NGOs, CBO's, traditional authorities and the private sector.

At the sub-district level, NCCAS has prescribed a planning role for community level planning for climate change adaptation. Thus, at the community level, the Town/Area councils and unit committees are to prepare their own climate change adaptation plans and submit them to the district assemblies to be integrated into the District Plans.

At the regional level, the Regional Coordinating Council (RCC) has the responsibility for monitoring and evaluating climate change adaptation strategy and liaises with the monitoring team of the NCCC to facilitate the implementation of District programmes/projects. NCCAS also proposed the formation of a Climate Change Adaptation Committee (CCAC) at the RCC to be chaired by the Regional Planning Officer. NCCAS also assigned a collaborative and complementary role for NGOs and CBOs in awareness creation, research, monitoring, information sharing and capacity building across scales. The NCCAS also perceived capacity building of implementing agencies across all levels – national, regional district and community levels as essential for achieving success.

The National Climate Change Policy (NCCP) was launched in July 2014 to demonstrate Ghana's commitment to addressing climate change (Chibeze, 2015; NDPC, 2016). The overarching goal 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" (MEST, 2012: 1-8). This goal is to be achieved by four thematic areas; (1) energy and infrastructure, (2) natural resources management, (3) agriculture and food security and (4) disaster preparedness and response, and seven systemic pillars; (1) governance and coordination, (2) capacity building, science, (3) technology and innovation, (4) finance, (5) international cooperation, (6) information, communication and education, (7) monitoring and reporting.

The responsibility for tackling climate change under the institutional framework of NCCP is MEST and its agencies/departments especially the Environmental Protection Agency (EPA) and the National Climate Change Committee (NCCC). The NCCP designated the EPA as the lead institution to the United Nations Framework Convention on Climate Change (UNFCCC) and also as the main Country Implementation Institution (CII) for the technical coordination of activities on climate change conventions ratified by Ghana. On the other hand, the NCCC is given the onus of reviewing policies and programmes to complement national priorities and contribute to reducing greenhouse gas emissions, to increase carbon sinks and facilitate adaptation. In addition, a national climate change focal point has been established under the conventions and projects department to act as the desk for the implementation of climate change related issues. The duty of the climate change desk is to coordinate the activities of working groups and climate change study teams to support the implementation of climate change project activities.

The NCCP also encourages the institutionalization of climate change through the establishment of climate change units within key sectors notably, Forestry Commission and Energy Commission to handle the REDD+ and energy efficiency issues respectively. Also, the Ministry of Finance and Economic Planning (MoFEP) has created a unit for natural resources, environment and climate change to oversee, coordinate and manage financing and to provide support in natural resources and climate change activities. In addition, a Natural Resource Governance desk has been created at MoFEP to coordinate the budget support programme under the Natural Resource, Environmental Governance (NREG) programme and the Forest Investment Programme Initiatives. Broadly speaking, MoFEP coordinates all forms of support, domestic and international for climate change in Ghana.

The NCCP institutional architecture unlike NCCAS, has an exalted role for the NDPC which is tasked to translate climate change issues into planning guidelines and to ensure that MMDAs mainstream climate change issues into their policies, strategies and plans through the Functional Organisational Assessment Tool (FOAT). Besides these,

the NCCP identified the collaborative roles of the Ministry of Education in the area of research and capacity building, the erstwhile Ministry of Women and Children's Affairs for addressing the needs of women and children in climate change, Ministry of Roads and Highways in the promotion of environmentally sustainable transport modes and low emission transport systems, and finally Non-Governmental organizations (NGOs)/ Civil Society Organizations (CBOs).

Following the NCCP, the Ghana National Climate Change Master Plan (2015-2020) has been prepared by the NCCC under the auspices of the Ministry of Environment, Science, Technology and Innovation (MESTI). The National Climate Change Master Plan provides the details of how climate change programmes and actions identified in the NCCP can be mainstreamed and embedded in a time bound and budgeted manner, into annual work plans of implementing units (MESTI, 2015). Under the master plan, MESTI and NDPC are tasked to carry out sensitization programmes for MMDAs particularly district assemblies, NGOs and CBOs to deepen their awareness on the programmes and actions, and responsibilities of stakeholders identified in the mainstreaming process so far.

Overall, the policies and strategies for climate change have given much focus to national level institutions and interventions to the neglect of the local level. The GSGDA provided guidelines for the mainstreaming of climate change adaptation at the local level as a cross-cutting issue while assuming that existing institutional structures are adequate for addressing climate change issues. In addition, as argued by Cameron (2011), climate change deserves a thematic area in future policy frameworks. This will guarantee its inclusion in local level plans. The use of FOAT as a tool for mainstreaming without motivation or statutory support may not yield desired results. The establishment of a National Climate Change Commission will give impetus to the institutionalization of climate change. At the moment, the NCCAS has further overburdened the EPA with the additional task of playing a lead role in the implementation and coordination of climate change adaptation interventions in Ghana. As argued by Chibeze (2015), the EPA is small and heavily stretched. In addition, both the NCCAS and the NCCP lacked the local touch; the NCCP established climate change units and desks at the sectoral and regional levels without regards to local levels. In another perspective the roles given to NGOs and CBOs in the NCCAS does not reflect the reality on the ground. In reality, NGOs and CBOs have good track records in the implementation of projects, yet the NCCP assigned monitoring and awareness creation and capacity building roles to them. Also, the NCCAS sought to define a new institutional structure which appears to be parallel to the existing structure for development planning rather than mainstreaming into the existing structure. For instance, in the NCCAS institutional architecture, the NCCC issues guidelines for planning at the local level, a role played by the apex body for planning in Ghana – the NDPC.

The review of policies and strategies for climate change adaptation in Ghana gives an impressive outlook of the processes of adaptation in Ghana. Cameron (2011) has indicated that on paper, Ghana appears to be doing much better than her neighbours in terms of its responses to climate change. Yet at the local level, little is known about the adaptation processes and the extent to which they promote sustainable development outcomes.

Theoretical Framework

The United Nations Development Programme (UNDP) defined mainstreaming as the integration of adaptation objectives, strategies, policies, measures or operations such that they become part of the national and regional development policies, processes and budgets at all levels and stages (UNDP, 2005 as cited in Levina and Tirpak, 2006). Also, consistent with this view is the UNDP-UNEP concept which describes mainstreaming in climate change adaptation as the iterative process of integrating climate change adaptation into development policy-making, planning, budgeting, implementation and monitoring processes at national, sector and sub-national levels. Mainstreaming is perceived in this way as a multi-year, multi-stakeholder activity that exemplify the role of climate change adaptation in the promotion of well-being, pro-poor economic growth, and the attainment of the Sustainable Development Goals (SDGs) (UNDP-UNEP, 2011). It also involves working with different stakeholders in the field of development (ibid).

Adaptation to climate change like planning is a continuous process; it is not expected that adaptation can be dealt with at one time. Moreover, adaptation processes require regular revisiting of development policies, plans and projects as climate and socio-economic conditions change (OECD, 2009). This iterative attribute of mainstreaming makes it a development-oriented approach appropriate for addressing climate change adaptation challenges (Oates, Conway and Calow, 2011). As noted by Elsey, Tolhurst and Theobald (2005), the idea about mainstreaming is that, cross-cutting issues should be embedded in the activities of development, rather than being addressed as separate initiatives. Consequently, the mainstreaming approach has been lately adopted in the context of climate change.

Mainstreaming is not a new concept. The concept has been applied since the 1990s as a tool for tackling development issues such as gender inequality, environmental degradation, HIV/AIDS, disability and poverty reduction in the developing world (Oates, Conway and Calow, 2011; Lebel et al., 2012). Mainstreaming in adaptation to climate change hopes to extract useful lessons from these areas. One notable lesson was the Beijing Conference in 1995 (the Platform for Action at the Fourth World Conference on Women) where mainstreaming was adopted as a global strategy for the promotion of

gender equality. Though it had been incorporated in many policies in the developing world Moser and Moser (2005) and Lebel, et al. (2012:4) have observed inconsistencies in its implementation and conclude that, the outcomes for gender equality have largely remained unknown. Many barriers to mainstreaming gender still remain – a lack of meaningful participation and political commitment as well as persistent practices within organizations that continue to discriminate against women (Kusakabe, 2005 as cited in Kumari, 2013).

The mainstreaming approach was also applied in the Poverty-Environment Initiative to facilitate the integration of poverty and environment linkages in national development planning (UNDP-UNEP, 2008 cited in Lebel et al., 2012). The mainstreaming approach has also failed in this area, to achieve the recognition of the value of ecosystem services and environmental protection for human development (Lebel et al., 2012).

Notwithstanding the above challenges, mainstreaming remains the best approach for developing policies, plans and programmes to address key issues of development. Having recognised that climate change could significantly undermine development by threatening critical sectors and escalating the ubiquity and severity of natural disasters, there is the clamour to pursue mitigation measures as well as facilitate adaptation to unavoidable climate change impacts (Lebel, et al., 2012). To this end, the mainstreaming approach has been adopted as the strategy for addressing climate change impacts.

Huq and Ayers (2008) have described the process of mainstreaming climate change in a four-step framework (Figure 1). Huq and Ayers have indicated that the entire period of mainstreaming may take 5 to 7 years. The first step is about awareness raising and building scientific capacity. This involves sensitization about climate change impacts and research into current and future impacts, vulnerability assessment, profiling and mapping among others. The next step is about targeting information to key stakeholders and training policy makers to enhance their capacity for mainstreaming. Step 3 is for the implementation of pilot activities on adaptation and mitigation. At this stage, a collaborative effort involving the government, private sector and NGOs is required. The last stage in the mainstreaming process is where lessons from the implementation process are fed-back into policy and planning to make adaptation part of 'business as usual' condition. The framework also involves the process of 'learning-doing-learning' through the feedback process and acknowledges three (3) groups of key actors. The process is geared towards enhancing national capacity for adaptation.

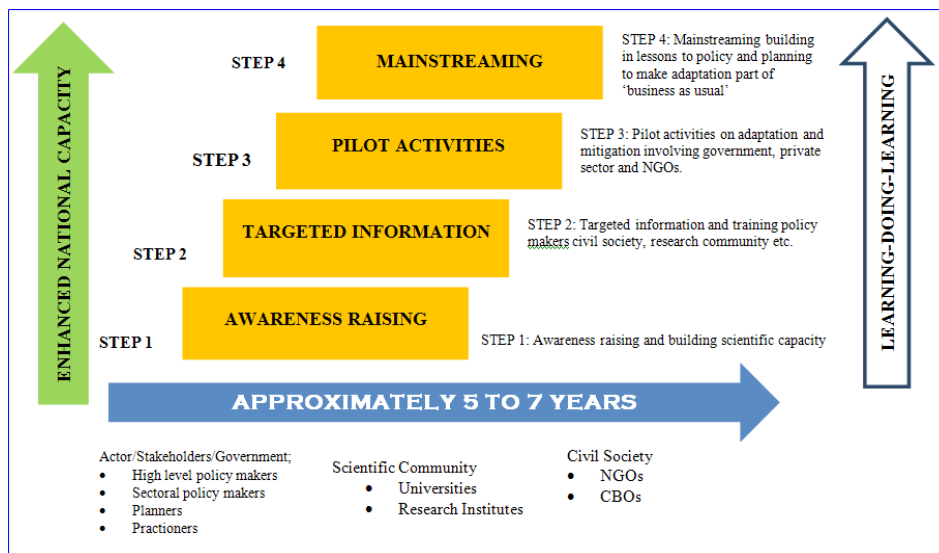


Figure 1: Four-Step Framework for mainstreaming adaptation

Source: Huq and Ayers (2008)

Huq and Ayers Four-Step framework is not foolproof. The framework has been criticized for ignoring critical issues such as governance, planning and implementation (Lebel et al., 2012). It equally assumes lack of knowledge of climate change to be the major constraint, and participation is driven by the need to mitigate and/or adapt to the risks of climate change (ibid). Despite its limitations, the Four-Step framework sheds lights on the process of mainstreaming in development countries and therefore useful for this study.

The Study Area

Kassena-Nankana West District lies in the north-eastern part of the Upper East Region of Ghana (see Figure 2). It shares boundaries with Burkina Faso to the North, Bongo District and Bolgatanga Municipality to the East, Kassena-Nankana East Municipal and Builsa District to the South and Sissala East District to the West.

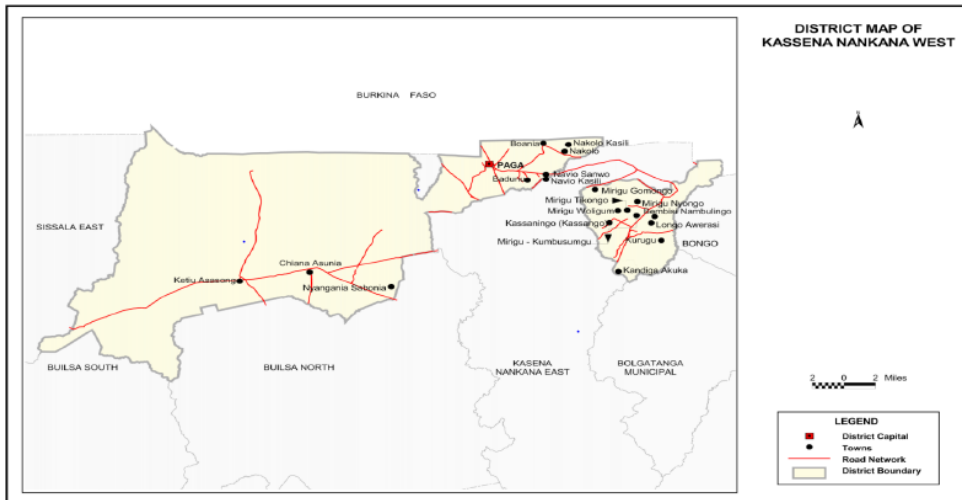


Figure 2: Map of Kassena-Nankana West District

Source: Ghana Statistical Service (2014)

The District is mainly drained by the Sissili River, the Atankwinde River, the Anayere River and the Asibelka River. Some few dug-outs (dams) and ponds are also available for livestock rearing, irrigation and domestic purposes. Most of these dug-outs are located in the central part of the District (Paga Area).

The District forms part of the sudano-sahelian climatic zone which is characterized by the dry and wet seasons. The climate is influenced mainly by two (2) air masses — the North-East Trade winds and the South-Westerlies (Tropical Maritime) (KNWDA, 2010; UNDP Ghana, 2010). The harmattan air mass (North-East Trade Winds) is usually dry and dusty as it originates from the Sahara Desert. The harmattan periods is often characterised by low relative humidity making rainfall virtually absent (UNDP Ghana, 2010).

Day temperatures, especially in February and March are as high as 42° C whereas night temperatures are as low as 13° C (UNDP Ghana, 2010). The district experiences the tropical maritime air mass between May and October with an average annual rainfall of 950 mm (ibid). The District also experiences high rate of evapotranspiration due to the combine effects of high temperatures and low vegetation (UNDP Ghana, 2010).

The vegetation of the district is mainly that of the Sahel and Sudan-Savannah types of vegetations, which consist of open savannah grassland and with deciduous trees (UNDP Ghana, 2010). Some of the most densely vegetated parts of the district can be found along river basins and forest reserves. Examples are the Sissili, Atankwide, Anayere and Asibelika basins, the Kayoro Forest Reserves. However, human activities have negatively

affected the vegetation of the district resulting in semi-arid conditions (KNWDA, 2010). The most common economic trees are the shea-nut, dawadawa, baobab, mango, nim and acacia. The low vegetation cover of the area hampers sufficient rainfall thereby reducing underground water supply.

Methodology

A qualitative research approach was employed in the study. The qualitative approach have received much attention in social science because of its ability to answer the *why* and *how* issues which characterizes much of social phenomenon (Berg, 2001). Unlike the quantitative approach that relate to the quantity of things (counts and measures), the qualitative approach relates to the quality of things (Berg, 2001:3). Quality here is used to refer to the what, how, when, and where of a thing, its essence and ambience (Berg, 2001:3). Qualitative research thus, refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of things. The qualitative approach is ideal for understanding multiple realities, as is the case in climate change phenomenon. In terms of theory, the qualitative research approach follows the constructivism claims to knowledge (Creswell, 2008:18). The qualitative approach is ideal for this study because climate change adaptation issues are descriptive in nature and perceptions and experience of people with regard to the climatic stresses are pertinent for understanding the different modes of adaptation.

In line with the qualitative approach, a cross-sectional case study design was adopted. According to Schel (1992) and Kumekpor (2002:102), the case study method provides a systematic way of assessing events, collecting data, analyzing information and reporting the results. It also enables the researcher to search deeper into the problem being studied and encourages the use of participatory rural appraisal (PRA) tools that have the advantage of facilitating participation and dialogue between researchers and respondents (Kumar, 1999; Owuor, 2010). Bell (2004) has also observed that, the case study research design is appropriate for studies that require in-depth information about a phenomenon within a limited period where a large-scale survey may not produce the true results. These unique qualities of the case study design make it ideal for the analysis of climate change adaptation issues.

The unit of analysis for the study were the district assembly staff, area councils, heads of decentralised departments/agencies, NGOs, Water Resources Commission (WRC) and the Environmental Protection Agency (EPA). These units constituted the respondents of the study and were primarily sampled by purposive sampling technique. The district assembly staff, area councils, heads of decentralised departments/agencies were selected based on their role in the planning process at the local level whereas NGOs, WRC

and the EPA were selected because of the collaborative roles they play in supporting the planning and development at in the study district.

In-depth interviews (IDIs) and focus group discussions (FGDs) were the main methods used for collecting primary data for the study. The FGDs were held at the area council level with assembly members as the discussants. In all, seven FGDs were conducted. The least number of participants in the FGDs was 6 and the highest was 10 participants. IDIs were held mainly with heads of decentralised departments/agencies; District Agricultural Development Unit (DADU), Ghana Health Services, Ghana Education Service, EPA, National Disaster Management Organization (NADMO), Town and Country Planning Department, Forestry Commission, WRC and the Environmental Sanitation Unit. Others that were also interviewed include District Coordinating Director, District Planning Officer, District Budget Officer, District Finance Officer, Head of District Building Inspectorate, the Presiding Member, District Finance Committee Chair as well as environmental NGOs [Organization for Indigenous Initiatives and Sustainability (ORGIIS) and World Vision Ghana]. The study also made use of institutional reports and action plans of the District Assembly, decentralised departments/agencies and NGOs.

Data from the study was analysed using content/thematic analysis.

The study considered two key variables; institutional capacity for mainstreaming and the level of mainstreaming. Drawing inspiration from Huq and Ayers (2008) Four-step Framework, institutional capacity was measured by the participation of staff in climate change awareness programmes and available institutional structures for mainstreaming. Mainstreaming was measured by the presence of the term 'climate change' in the Medium-Term Development Plans (MTDPs) and annual reports, climate change vulnerability assessment reports, disaster risk plans and specific intervention projects. These variables were measured at the district and sub-district levels.

Results and Discussion

Institutional Capacity for Mainstreaming Climate Change Adaptation

Effective mainstreaming depends to a large extent on the capacity of institutions to understand the climate change situation and to identify appropriate areas for intervention. Results from Table 1 show that, at the district level, out of seven (7) staff of the District Assembly that were interviewed, three (3) had participated in climate change capacity building programmes. Similarly, Table 1 indicates that two (2) out of eight (8) decentralized departments and agencies had participated in capacity building programmes on climate change. It was also observed that, existing capacity

building programmes targeted only heads of units, departments or agencies but not their deputies or assistants. For instance, the Assistant Planning Officer, the Deputy Coordinating Director and the Assistant Director of DADU were yet to benefit from any capacity building programme on climate change. It therefore implies that, the knowledge and awareness about climate change across all planning units in the District was low. For instance, some departments/agencies could not establish any link between their departments/agencies and climate change and hence, trivialised the effects of climate change on their units. The Environmental Sanitation Unit, Ghana Education Service and Ghana Health Service all described climate change as an environmental issue that had little to do with their units. They therefore did not see any reason to plan for climate change.

Table 1: Capacity building programmes for staff

Unit/Department/Agency	Staff	Capacity Building Programme	Year(s)	Organizers
District Planning and Coordinating Unit (DPCU)	District Planner	Yes	2012, 2017	NDPC/EPA
District Budget Unit	District Budget Offer	Yes	2012, 2017	NDPC
District Coordinating Unit	District Coordinator	Yes	2012	NDPC/EPA
District Agricultural Development Unit (DADU)	District Director	Yes	2012	MOFA/EPA
National Disaster Management Organisation (NADMO)	Coordinator	Yes	2012	NADMO/EPA
Building Inspectorate	Head	No		
District Education Directorate	Director	No		
Forestry Commission	Director	No		
District Health Directorate	Director	No		
District Finance Unit	Head	No		
Town and Country Planning Department	Head	No		
District Environmental Sanitation Unit	Head	No		

Field Survey (2017)

At the sub-district level, none of the area council members had benefited from any capacity building or awareness programme on climate change.

Largely, the awareness and capacity for mainstreaming climate change adaptation into development plans at the district and sub-district levels in the Kassena-Nankana

West District was low. Huq and Ayers (2008) and the UNDP-UNEP (2011) have identified awareness raising and the building of scientific capacity at all levels as preconditions for mainstreaming climate change adaptation into development planning. Development planning in itself is an enterprise that thrives on the knowledge and experience of actors such as planners and stakeholders. Therefore, planning for climate change adaptation cannot be effective in an environment where the actors involved in the planning process demonstrate limited knowledge about the phenomenon they are expected to address. In essence, what problems will they identify, define, analyse and what policies, plans, strategies, programmes and projects will they initiate and pursue about a phenomenon they are not so much aware of? The UNDP, UNCDF and UNEP (2010: 14) have indicated that local authorities can only plan for climate change when they have a reasonably good idea about local risks and opportunities and without this understanding local authorities are poorly placed to carry out climate-sensitive planning.

It has been observed that the knowledge and awareness about climate change among local governments in development countries is generally low. For instance, in the Asian-Pacific Region, the UNDP, UNCDF and UNEP (2010:18) have noted that local governments were not fully aware of what climate change means for them, their residents and jurisdictions. As a result, their ability to deliver public goods and services such as roads, schools, health facilities, water and sanitation facilities etc. that are adapted to climate change was doubtful.

It was also revealed that, there were no avenues within the existing planning structure for the mainstreaming of climate change. Climate change has been identified at the national policy document (Ghana Shared Growth and Development Agenda) as a cross-cutting issue alongside gender and disability. Experience has shown that, in the case of the mainstreaming of gender and disability, the building of institutional structures was a requirement for effective mainstreaming at the local level (UNDP, UNCDF and UNEP, 2010). For instance, a gender desk officer has been created at the District Assembly level and in some decentralised departments (E.g. Ghana Education Service) to facilitate gender mainstreaming of local development. In the case of climate change, the study found that there were no structures for mainstreaming. For example, the Kassena-Nankana West District Assembly had no climate change desk office which plans, facilitates and coordinates climate change adaptation programmes across the district. Also, the District Environment Committee proposed in the NCCAS for planning climate change at the assembly level, was yet to be formed in the study.

In addition, there were no statutory funding of climate change adaptation programmes and projects. According to UNDP, UNCDF and UNEP (2010), a greater degree of financial certainty is required for local authorities to respond to climate change-induced disasters. This is a challenge for deprived poor districts such as the Kassena-Nankana

West District. It is perhaps, only the most fiscally affluent local governments that are able to self-finance adequate responses to disasters (through contingency funds); majority depend on national hand-outs which are rare (for reasons of fiscal scarcity and concerns about fiduciary risk and transparency) and delayed. The respondents indicated that for climate change planning to be effective at the local level, it is imperative to make statutory arrangements for funding climate change projects. District Finance Officers gave the example of the case of disability where the Assembly is required to set aside a two percentage of the District Assembly Common Fund (DACF) for persons with disability. It was therefore argued that the government of Ghana could, through a legal arrangement, require local authorities to set aside a percentage of their revenue to finance climate change projects or set up a separate fund similar to the Ghana Education Trust Fund (GET-Fund) for the purpose of financing climate change interventions at the local level.

Mainstreaming Climate Change Adaptation into District Development Plans

District development plans constitute the entry points for mainstreaming climate change adaptation. In Ghana, Metropolitan, Municipal and District Assemblies (MMDAs) prepare periodic Medium Term Development Plans (MTDP) as their development imperatives. The MTDPs also constitute the response of MMDAs to the development challenges in their areas. As one of newly created districts, Kassena-Nankana West District prepared its first District Medium Term Development Plan (DMTDP) in 2009 for the 2010-2013 planning period. As a requirement from the National Medium Term Development Planning Framework (NMTDPF) developed by the NDPC, the District was to harmonize its development programmes, projects and activities around seven thematic areas; 1. Ensuring and sustaining macroeconomic stability; 2. Enhancing competitiveness of Ghana's private sector; 3. Accelerated agriculture modernisation and sustainable natural resource management; 4. Oil and gas development; 5. Infrastructure and human settlements; 6. Human development, productivity and employment; and 7. Transparent and accountable governance. In addition, the NMTDPF issued by the NDPC required of the Assembly to mainstream cross-cutting issues such as climate change, gender and disability into its development plans and budgets.

In the 2010-2013 and the 2014-2017 planning periods, the Kassena-Nankana West District rolled-out programmes and projects in the District Medium Term Development Plan (DMTDP) aimed at addressing the development challenges of the District harmonised in tandem with national priorities prescribed in the NMTDPF. The study did not identify direct climate change adaptation projects pursued in response to prevailing or anticipated climate change impacts or their effects. Climate change risk vulnerability

assessment at the District level was also lacking in the baseline survey of the DMTDPs. Similarly, disaster risk assessments and disaster risk preparedness programmes as well as early warning systems were equally nonexistent in the DMTDPs. A word search revealed that the term climate change was virtually absent in the DMTDPs. This finding appears to contradict annual progress reports by the NDPC that show that majority of MMDAs and MDAs have mainstreamed climate change into their MTDPs (NDPC, 2015; 2016). However, a content analysis of the DMTDPs identified some projects relating to environment, water resources and livelihoods (Table 2).

Table 2: Projects relating to the environment, water resources and livelihoods

Initiatives	Implementing organisation
Alternative livelihoods (bee keeping)	EPA/GEMP/CIDA, ORGIIS
Bush fire prevention	EPA/GEMP/CIDA, ORGIIS, World Vision Ghana
Construction of boreholes	KNWDA, WorldVision Ghana
Dams and dug-outs	GSOP/KNWDA
Tree planting	GSOP/KNWDA/EPA/GEMP/CIDA
Control of pest and diseases (livestock & crops)	DADU
Natural vegetation regeneration	ORGIIS, World Vision Ghana
Water and soil conservation	DADU
Integrated water resources management	EPA/GEMP/CIDA,
Environmental awareness	EPA/KNWDA, World Vision Ghana, ORGIIS

Source: Data from KNWDA, (2013)

The projects in Table 2 were pursued in response to prevailing environmental challenges such as desertification, deforestation, perennial bush fires, water scarcity, soil infertility among others as indicated in the district profile and the key development issues. Although these projects have the potential to reduce vulnerability to climate change and to enhance adaptation, they cannot be considered as climate change adaptation initiatives. A content analysis of the District Development Plan together with in-depth interview with ORGIIS, an environmental NGO operating in the Kassena-Nankana West District, revealed that climate change is not mentioned in the DMTDP. ORGIIS argued that, there is a distinction between climate change issues and environmental issues although, it is difficult to divorce climate change adaptation initiatives from initiatives targeted at improving the environment. ORGIIS noted that, the distinction between environmental issues and climate change issues lies in the motive for the formulation of the initiatives. Thus, climate change adaptation initiatives are aimed at addressing specific climate change impacts as well as building resilience against certain forms of vulnerabilities. On the other hand, environmental initiatives are aimed at solving

specific environmental challenges (e.g. desertification) which may not necessary stem from climate change.

At the sub-district level, the study found that development planning was ineffective. The District has eleven (11) area councils out of which seven (7) were functioning (KNWDA, 2014). Only Chiana and Mirigu area councils had office accommodation, the rest had none. Local participation in development processes in the District was hampered by the non-functioning of town/area councils. Consequently, none of the seven area councils had prepared development plans for the planning periods considered by the study. Therefore, mainstreaming climate change into community level planning as envisaged in the NCCAS cannot succeed without strengthening grass-root structures.

Albeit, the study area experiences high exposure and sensitivity to climate change (NADMO-UER, 2010; Derbile, 2010) with low adaptive capacity due to widespread poverty (UNDP Ghana, 2010) the District was yet to develop drought and flood response plans to cope with and mitigate the adverse effects of climate change on local development. Generally, Oates, Conway and Calow (2011) have observed that the mainstreaming of climate change at the local level in developing countries was yet at the elementary stages. That is, in the view of Huq and Ayers (2008), awareness raising and building of institutional capacities. In order to facilitate mainstreaming at this interface and beyond, a number of challenges needs to be tackled.

Conclusion

At the national level in Ghana, there have been appreciable efforts to mainstream climate change into development policies. However, at the local level, the study found that not much has been achieved in mainstreaming climate change into district level development plans. Capacity building for mainstreaming climate change was rather inadequate resulting in low awareness about climate change vulnerability and impacts. Disaster risk strategies and early warning systems for dealing with climate change related disasters were lacking. Generally planning for climate change at the district and sub-district levels were ineffective as there were no structures to facilitate the mainstreaming process. By implication therefore, the District's response to climate change was reactive (fire-fighting approach) mainly involving aid response to victims of climate change related disasters. Therefore, since sustainable development outcomes under climate change are the products of proactive/planned adaptation processes involving mainstreaming, then, achieving sustainable development through development planning under a changing climate remains a challenge in the Ghana.

The study recommends that the government (through the Environmental Protection Agency) and development NGOs and agencies should organize capacity building

programmes on climate change for District Assembly staff and staff of decentralized departments/agencies in order to enhance their capacity to mainstream climate change adaptation into development plans. This is because, the low level of awareness about climate change in the district implies that for mainstreaming of climate change adaptation to be successful, the capacity of staff of the District Assembly and the decentralized departments and agencies needs to be enhanced. There is the need to build local structures to facilitate mainstreaming both at the district and sub-district levels.

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