UNIVERSITY OF GHANA

MAINSTREAMING CLIMATE CHANGE INTO DEVELOPMENT PLANS OF LOCAL ASSEMBLY'S IN TRANSITIONAL ZONES OF GHANA: A CASE STUDY OF TAIN DISTRICT ASSEMBLY

BY

THOMAS AGYEKUM KYEREMEH

(10301489)

THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MPHIL IN PUBLIC ADMINISTRATION

JULY, 2016

DECLARATION

I do hereby declare that this study is the result of my own research and that no part of this work has been presented for another degree in the University of Ghana or elsewhere. All references have been duly acknowledged.

I bear sole responsibility for any shortcomings.

…… ……

THOMAS AGYEKUM KYEREMEH DATE

(10301489)

CERTIFICATION

I hereby certify that this thesis was supervised in accordance with the procedures laid down by the University of Ghana.

……. …….

DR. ALBERT AHENKAN DATE

(SUPERVISOR)

DEDICATION

I dedicated this work to the Almighty GOD, my dear Mum and also to all my siblings.

ACKNOWLEDGEMENT

Indeed, working on this study was not easy but it served as a great learning experience. I am indebted to my supervisor, Dr. Albert Ahenkan for his timeless dedication during the supervision of this work.

I am also thankful to Prof. Kwame Ameyaw Domfeh for his expertise and support.

To my senior colleagues including Emmanuel Assiamah-Yeboah, Mark Owusu Fordjour, Kweku Koranteng, Edna, Dina, Musah, Linda, Portia, Shirley etc, I say thank you for your positive influence on my training.

I am much grateful to all the workers of Tain District Assembly (TDA) and all individuals who spent their invaluable time in supplying me with all the needed information for the study.

I say thanks to Mrs. Mary Larbi and Ernest Opoku and all my friends at the Public Administration and Health Services Management department (PAHS), UG.

TABLE OF CONTENTS

Contents **Page**

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

CSO	Civil Society Organization
DACF	District Assembly Common Fund
DADU	District Agricultural Development Unit
DBI	District Building Inspectorate
DBO	District Budget Officer
DCD	District Coordinating Director
DFO	District Finance Officer
DMTDP	District Medium Term Development Plan
DPO	District Planning Officer
EPA	Environmental Protection Agency
ESU	Environmental and Sanitation Unit
FC	Forestry Commission
FOAT	Functional Organization Assessment Tool
GHG	Green House Gas
GHS	Ghana Health Service
GMS	Ghana Metrological Service
GSGDA	Ghana Shared Growth Development Agenda

LADA	Local Assembly Development Agenda
MDA	Ministries, Departments and Agencies
MOFEP	Ministry of Finance and Economic Planning
NADMO	National Disaster Management Organization
NCCAS	National Climate Change Adaptation Strategy
NCCP	National Climate Change Policy
NDPC	National Development Planning Commission
NGO	Non-Governmental Organization
NRCD	Natural resource conservation Department
PM	Presiding Member
RCD	Regional Coordinating Director
TCPD	Town and Country Planning Department
TDA	Tain District Assembly

ABSTRACT

This study sought to examine the extent to which and how climate change programmes are being mainstreamed into Local Assembly's Development Agenda (LADA) in the Tain District Assembly (TDA). A case study design within the qualitative research method was adopted. Multi-stage sampling involving purposive technique was employed for the study. In-depth interviews were the instruments of primary data collection. The study found out that climate change concerns are yet to be well integrated into the district assembly planning process. The main initiatives taken concerning climate change in the Tian District include human/capacity development on climate change, modernization of agriculture in response to climate change and sustainable natural resource management. Other initiatives include integrated water resources management practices, integrated soil and land management and advancement of alternative livelihood strategies. The study argues that compared to other pressing global challenges, climate change is not well budgeted for at the District level to enable district assemblies respond adequately to this conundrum. The study also found out that there are no strong institutional structures for responding adequately to climate change issues within the District. The study concludes that the overarching challenges confronting climate change mainstreaming in the District includes the absence of clear institutional structures at the district level for dealing adequately with climate change, poor capacity building interventions and climate change education, poor budgetary commitment towards climate change related issues at the local assembly and limited collaboration between stakeholders. In order to address these daunting challenges posed by climate change, the study recommends effective capacity building, sensitization and awareness creation for stakeholders on climate change planning and strong budgetary commitment for climate change related issues by earmarking at least five percent (5%) of the annual budget statement of the district for climate change issues. The study further recommends that all Metropolitan, Municipal and District Assemblies (MMDAs) integrate climate change into their administrative and governance structures of the district. In this bid, the study recommends that at least a district climate change committee be formed or a climate change desk officer be engaged in the administration, governance, coordination and facilitation of climate change concerns in the district. Additionally, the study recommends the enforcement of requisite bye-laws on tree felling, chain saw operations and bush fires.

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.0 Introduction

This study explores the extent to which local assemblies are integrating climate change programmes into the district assembly's development agenda. In terms of financial commitment by district assemblies, the study examines the budgetary commitment/allocation available for integrating climate change programmes into local assembly's development plan. The study also assesses the institutional adjustments adopted by local assemblies to facilitate the smooth integration of climate change programmes into local assembly's development plan. This chapter provides a general background to the study, problem statement, objectives of the study, research questions, justification of the study and its relevance to the field of public administration, scope and limitation of the study, significance of the study among others.

1.1 Background to the Study

Over the years, concerns about climate change and sustainable development have gained considerable attention in all facet of planning and developmental discourse not only in advanced economies but equally in developing countries. This is evident from the fact that rainfall levels and patterns have been generally reducing and increasingly becoming erratic whereas temperatures in all the ecological zones are rising as greenhouse gasses emission rates are sky rocketing. Increases in the frequency of floods and droughts have also become eminent, changes in natural ecosystems appear to be very common, and ubiquitous shifts in the distribution of several species, among many others are now very pervasive. According to the IPCC (2007a), climate change conundrum is factual and even the most ambitious actions proposed to reduce

greenhouse gas (GHG) emissions may not completely translate into a halt or reverse of the current global warming trends. This phenomenon reiterates the need to device an uncompromising and overarching strategy and network for tackling issues of climate change. In terms of the continental impact of planetary warming, it is projected to vary, including changes to average and extreme temperatures, changes to precipitation frequency and intensity, sea level rise, and glacial melt among many others. UNFCCC (2008) reveals that, Africa's low-lying areas and island countries form the most vulnerable group in terms of impacts of climate change. This menace is even more problematic for developing countries like Ghana where the national economy is greatly dependent on climate sensitive sectors such as agriculture, energy, forestry and others. The National Climate Change Adaptation Strategy (NCCAS, 2011, p. 6) postulates that approximately 70% of Ghana's population depends indirectly or directly on agriculture (fisheries, crop and animal farming etc.) and forest sector for both timber and non-timber forest products as their source of employment and livelihood. This means that any changes in the climate will immensely affect Ghana's economy and its rain-fed agriculture in diverse ways such as shifts in growing seasons, biodiversity loss, sea-level rise, as well as increased frequency and intensity of extreme weather events such as heat waves, storms, floods and droughts (Agyemang-Bonsu et al., 2008; National Climate Change Policy, 2013).

Mitigating and/or adapting to climate change and its impacts, requires very competent and all - encompassing institutional structures capable of piloting human society away from perilous tipping points and irreversible change in the climate and guaranteeing sustainable livelihood for all citizens (Sowman & Brown, 2006). In Ghana, issues of climate change have gained momentum at both the highest political level and some other sectors of the economy. This is

evidenced from the drafting of the National Climate Change Policy in 2013 and other related policy documents and also the formation of the National Climate Change Mainstreaming Committee in 2015. In order to engender a complete and overarching achievement of the climate change programmes, it is intended that a conscious effort be made to mainstream the climate change programmes into a number of national development frameworks. For instance, the first face of Ghana Shared Growth and Development Agenda (GSGDA) (2010–2013) was facilitated by the National Development Planning Commission (NDPC). Also, thirteen Ministries and their associated departments and agencies are admonished to integrate the NCCP into their mandates. These MDAs included the Ministry of Local Government and Rural Development, Ministry of Environment, Science, Technology and Innovation, National Development Planning Commission, Ministry of Water Resources, Ministry of Communications (Ghana Meteorological Agency), Ministry of Education, Ministry of Lands and Natural Resources, Ministry of Health, Works and Housing, Ministry of Food and Agriculture, Ministry of Energy, Ministry of Gender, Children and Social Protection, Ministry of Roads and Highways, Ministry of Finance and Economic Planning. The idea is that the achievement of a sustainable development agenda demands a multi-sectorial approach from the top to the bottom.

Global trends in development reform and governance indicates that most countries have decentralized many hitherto state-held powers and responsibilities for revenue management, service and infrastructure provision, land use planning among others. Also, given that national governments in most countries and more predominantly in developing countries are not actively pursuing or mandating adaptation and mitigation planning, some local governments are taking the lead to avert the worst effects of climate change (Farrell, 2009). More importantly, the role of

district assemblies as a decentralized unit is highly uncompromising in the wake of climate change debate. District assemblies serve as a conduit for transferring developmental agenda of governments to local people who hitherto will be neglected in the daily developmental discourse. In terms of climate change vulnerability, local people are the most affected in Ghana even though emission rates are very high in the urban centres. As decentralization gain roots in Ghana, it is very important for institutions within the decentralized framework to form core in all developmental discourse such as climate change related issues. The argument is that, local people, majority of whom are farmers depend greatly on the natural environment and climate for livelihood (Lebel et al., 2012). In the event where the climate is overly polluted, these local people who are predominantly peasant farmers stand the highest risk of losing their source of livelihood. This makes the role of district assemblies and local level participation very imperative. Given that addressing climate change requires interdisciplinary approach as such assessments and follow-on planning aim to aggregate and reconcile diverse viewpoints from varied local level stakeholders and sectors, it is very vital to explore how climate change programmes have been integrated into the development agenda for local assemblies.

1.2 Problem Statement

The advent of democracy and its related phenomenon like decentralization in Ghana has resulted in radical political and legal reforms, new systems of governance planning and development. Again, formulation and promulgation of relevant policies and laws to consolidate democracy and decentralization in Ghana has also been done. These paradigm shifts have significantly transformed planning, decision making process, implementation, monitoring and evaluation of policy directions in various ways. Inherent in the principles of decentralization is the need to

boost grassroots participation, cooperation of the locals, and involvement of the commons, cultural and environmental justice through grassroots support and integration of national policy directions into Local Assembly Development Agenda (LADA). This paradigm has also necessitated a complete overhaul of the pre-existing centralization framework with regard to policy formulation and implementation. The Local Government Act 462 of 1993 mandates district assemblies to harmonize, co-ordinate, integrate, and execute programmes and projects under approved development plans for the district, and any other development programmes endorsed by ministries, departments, public corporations and any other statutory bodies in order to engender a complete development both at the national and local level (Ahwoi & Institute of Economic Affairs, 2010; Awortwi, 2011).

Quite consistent with the world-wide trend, the concept of climate change and sustainable development has become an indispensable phenomenon in development discourse, academic debate and government policies. The approach reflects the recognition that many decisions and activities have implications for the environment and that a separate environment department or agency cannot alone ensure that policies and plans across sectors take climate change concerns into adequate account. Therefore, it is imperative for local assemblies to integrate climate change programmes into local assembly development agenda.

Being influenced by these overarching global debates on climate change and recognizing the need for a national consensus on mitigating and adapting to climate change impacts has led to the drafting of the National Climate Change Policy (NCCP) and other related planning strategies such as the National Climate Change Adaptation Strategy (NCCAS) in Ghana. Additionally, the National Climate Change Mainstreaming Committee was formed in 2015. Ironically, in Ghana, climate change issues are still only facilitated well at the national level of governance but remain

a major challenge at the district assembly level. According to Mukheibir and Ziervogel (2007), local government institutions have limited financial resources and human capacity and they lack expert skills to deal with environmental problems; hence, current trend and impact of climate change problems had left majority of people at the local level devastated and most affected. This therefore establishes the need for incorporating climate change and its potential effects into policy making and planning on range of scales including national, regional and local spheres of government (Revi, 2008).

Moreover in most developed countries, inculcating climate change and sustainable development concerns into national development plans have emerged from the national level and trickled down to the local government institutions for grass-root participation later on (See: Adger et al., 2003, Ahmad, 2009, Agarwal et al., 2012). However, experiences from previous national policies have questioned the feasibility of gaining local participation when policies fail to capture their thoughts (Ahenkan et al., 2013). Undoubtedly, the umbilical linkages between environment and socio-economic development are unequivocal. This means that the attainment of national policies may not be successful at the local level if the policy process fails to involve local actors. Requisite inclusion of local assemblies through the local assembly development plan in the planning and implementation process will significantly affect the smooth implementation of climate change programmes at the grassroots.

Notwithstanding the overwhelming need to respond to climate change impacts at all levels of society, it appears little is being done to engender climate change integration in the local assemblies in Ghana after the adoption of the Ghana Shared Growth Development Agenda and Climate Change Adaptation Strategy and National Climate Change Policy. For instance, Adu-Boateng, (2015) opines that the extent to which national climate change programmes and policy

ideas are received and responded to at the sub-national government level is not well known. That is, the cascading effect of climate change concerns from the central government to local government institutions appears to have gained limited attention. Farell (2009) also posits that whether and how sub-national institutions are actually undertaking climate change mainstreaming as required in Africa where public sector capacity tends to be extremely limited is poorly documented. Existing research in Japan also suggests that climate change issues have been poorly integrated into various sectors of sub-national development agenda (Sugiyama & Takeuchi, 2008). Dumenu and Obeng (2016) argue that the assessment of local level impacts, vulnerability and adaptation is critical for the development of policy measures that address specific local needs and avoid one-size-fit-all measures that often result from national scale climate change assessment. The argument here is that the national climate change frameworks will be rendered a complete nuisance when it fails to attain the intended purpose for which it was drafted for the targeted population.

Also, institutional/structural mechanism needed to facilitate the smooth integration of the climate change programmes at the local government level appears to be non-existent. Musah-Surugu and Ahenkan (2014) avers that institutional support to integrate climate change into national development plans and local assembly development plans are very essential as it leads to context specific solutions for climate change constraints. The report further reveals that the institutional make-up of the district assemblies in Ghana requires some levels of alterations in order to effectively tackle climate change as a global conundrum. In planning and management policy, adverse social and environmental challenges continue to overwhelm existing practices and persist even after the application of best-known practices (Ludwig, 2001; Ritchey, 2005-2011). Developing countries such as Ghana still engage in "force of fragmentation" of climate change

concerns into local assembly development planning whereby stakeholders polarize around their views of a problem, thereby undermining collaborative problem solving (Conklin, 2001). Næss et al. (2005) further contend that when vibrant local structure and mechanism on climate change coincide with national level willingness, there is usually rapid response to climate change concerns. However, Füssel (2010) pointed out that climate change will not be reduced adequately by same tools and processes that pre-existed before its emergence thereby, announcing a salutary relationship between district assembly institutional and structural modification and the efficacy of climate change response. This suggests that action is incumbent, but action must implore mechanisms and structures different from those that have existed before the emergence of such a global challenge. For instance, the creation of climate change desk (Unit) or committee for each district will serve as a starting point to stimulate proper integration of climate change into local assembly development planning. Thus, the pre-existing traditional structures are still expected to facilitate the solution process of the climate change conundrum even though it is a contemporary issue. However, the overarching institutional architecture pre-established in the local assemblies tend not to be adequate in terms of dealing with the enormous complexities associated with climate change at the grass-roots level. This phenomenon is more problematic as the rhetoric on climate change mainstreaming keeps increasing quite alarmingly.

Moreover, studies on climate change mainstreaming in developing African countries appear to be at its infancy stage. Climate change is one of the most important challenges confronting developing countries. Even though more attention is required at the local level where the impact of climate change is very devastating and matters related to climate change are urgently needed, there appears to be a paucity of studies in these areas such as the transitional zones in Ghana. For instance, the few studies have been conducted in Northern and Savanna belt areas while little

attention has been accorded the middle belt or the transitional zones, even though the transitional zones in mid-Ghana continue to show similar climate change dynamics like the Northern and Savannah belt in recent times. In most cases, the few studies on climate change in the transitional zones in Ghana have largely bothered on climate change adaptation and mitigation with less emphasis on mainstreaming national climate change programmes as part of the local level development agenda.

A study conducted by Nelson, (2011) revealed that there are still minimal comprehensive records on decentralized institutions that have initiated formal climate change mainstreaming process in developing African countries. Furthermore, there is a very strong bias towards national level planning for climate change with little explicit attention on sub-national institutions like local government units in Ghana. Particularly in light of predictions that inhabitants at local communities in developing countries stand the highest risk of suffering most from climate change impacts, and given the strong linkages between climate change and development, international discussions among donors and in climate change policy circles have stressed the need to support local government units in developing economies to launch mainstreaming agenda (Mukheibir & Ziervogel, 2007). Archer et al. (2014) further averred that local governments lack financial resources earmarked for disaster risks, climate change planning, associated technical capacity or legal mandate is very clear. The few existing budgetary initiatives in Ghana are also saddled with delays and shortages. Therefore, there is the need to examine the budgetary and financial commitment towards mainstreaming climate change concerns into district assembly development plans.

While activities for climate change mitigation, or the reduction of GHG emissions, can still dramatically alter the intensity of the impacts of climate change, governments are now

increasingly recognizing the imperative for climate adaptation, or the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities as opposed to mainstreaming of both mitigation and adaption mechanism for all facets of national development including local areas (IPCC, 2007b). This study therefore examines the extent and how climate change programmes are being mainstreamed into local assembly's development agenda.

1.3 Objectives of the study

The general objective of the study is to examine the extent to which and how climate change programmes are being mainstreamed into development plans of local assemblies by employing Tain District as a case study. To achieve such a broader goal, the study is underpinned by the following specific objectives:

1. To assess the extent to which the Tain District Assembly has integrated climate change programme into local assembly's development agenda
2. To examine the budgetary commitment/allocation for integrating the climate change programme into the Assembly's development agenda
3. To investigate the institutional/structural mechanisms available for integrating climate change programmes into Tain district's development agenda
4. To explore the challenges faced by the assembly in mainstreaming climate change programme into LADA.

1.4 Research Questions

In an attempt to address the above objectives, the study is guided by the following useful research questions.

1. To what extent has the Tain District Assembly integrated climate change programmes into the local assembly development agenda?
2. What are the Assembly's financial/budgetary measures to mainstream climate change into its development agenda?
3. What are the structural/institutional mechanisms for integrating Climate Change into Tain District's development agenda?
4. What are the constraints faced by the Assembly in mainstreaming climate change into LADA?

1.5 Justification of the study and its relevance to the field of Public Administration

The field of Public Administration is concerned with the implementation of public policies and programmes. How best a policy is implemented determines the kind of support it elicits from all stakeholders. Therefore, if a policy has the requisite institutional and structural arrangement to champion it at all levels, there is the greatest tendency that all actors will play active role in the implementation process. Also, the involvement of beneficiaries at all levels of the policy process will propel a smooth implementation process.

Therefore, this study is relevant to the field of Public Administration in two ways: both in theory and in practice. In terms of theory, the study contributes to the already existing literature on environmental mainstreaming in developing countries. Specifically, the study fills a gap in

climate change policy mainstreaming as most of the related studies look at climate change mainstreaming in terms of either adaptation or mitigation and not the two at a time. The study also focusses on a decentralized institution - the Tain district assembly. In terms of practice, the study illuminates the need for policy makers, professionals and other actors within the climate change mainstreaming fraternity to beef up their game in less developed local areas. The research therefore, has a deep foundation in the field of Public Administration and the results hold relevance to public administrators, policy makers, the general public and other people in authority on best practices for managing climate change in local communities in Ghana.

1.6 Scope and Limitation of the Study

In terms of space and geography, the study covers the Tain District. The institutional scope entails the district assembly, assembly members, the various interest groups, media houses and relevant civil society organizations (CSOs) in the Tain district.

The Local Government Act of 1993, Act 462, the Ghana Shared Growth Development Agenda the National Climate Change Policy of 2013, the National Climate Change Adaptation Strategy of 2012, the Tain District Assembly's medium term development agenda among other related legal and policy frameworks were subjected to rigorous analysis and review.

Notwithstanding, the study is limited in some aspects which is very common to qualitative studies; the limitations of the study emanate from its scope and the methodology. In terms of scope, the study uses a case study approach which took into account only one district to generate findings that are generalized to the many other districts in Ghana and other decentralized institutions in developing countries. To an extent, this may not be a true reflection of other situations in several other districts that were not consciously studied. The study is also

constrained as public servants conduct demands workers to uphold the confidentiality clause and the oath of secrecy. Hence, some interviewees withheld information such as financing climate change mainstreaming among others that were relevant for the study. Notwithstanding these challenges, the study maintained reliability and validity by documenting the exact information gathered from respondents. In terms of methodology, the study uses qualitative research approach. Even though the study devised the right instrument to solicit responses with extensive cross examination of responses given by informants, not all stakeholders were sampled for the purposes of data collection.

In spite of these few challenges, the study was conducted in a standard way as pertains to all Social Science research process. Therefore, the conclusions and findings are highly reliable to the extent that several data sources were resorted to. Juxtaposing such cross examined responses to the literature, the study makes useful inferences and conclusions necessary for mainstreaming climate change into local assembly development agenda.

1.7 Significance of the study

The study holds numerous significance and its implications therefore cannot be overemphasized both in research and in practice. In terms of research and theory, the study proposes a conceptual framework which entrenches the collaborative governance concept to consider more collaborative agents in mainstreaming climate change into local assembly development agenda. The study highlights three (3) broad actors that must be considered in terms of building strong collaboration and synergy towards climate change response at the sub-national level. In addressing the phenomenon of climate change, scholars and policy makers have attempted to address it from other perspectives; however, it seems the concept of mainstreaming has been

relegated to the background. It is therefore, an area that begs for academic enquiry. There is the urgency to introduce the concept of climate change mainstreaming into the spectrum and subject it to rigorous analysis in order to aid policy makers in their 'policy assessment', 'policy adaptation' and 'policy succession' (Dunn 2004, p.45) or 'policy evaluation' (Dye 2008, p. 55), 'policy implementation' (Sabatier, & Mazmanian 1980) stages of the policy making cycle.

Moreover, the practical implications of the study lies in the fact that the study provides practitioners with a theoretically inspired understanding of integrating climate change concerns into local assembly's planning. Practitioners such as the district assembly, the business community, investors and individuals in the community will come to terms with the dynamics to consider in mainstreaming climate change into local assembly development planning after perusing this study.

1.8 Definition of Terminology

For the purpose of this research, the concepts and terminologies that were employed for the study should be restricted to these meanings.

Para-statal: This refers to an institution or organization that is owned and controlled either fully or partially by a country or a government.

Mainstreaming: Refers to a strategy or an approach for bringing developmental issues down to the centre stage, local level or sectors where hitherto were not well considered. The term 'mainstreaming' is often used interchangeably with 'integration'.

Transitional zones: Refers to the ecological zones between the tropical forest located within the south-west and Guinea Savanna areas of the Northern part of Ghana. It is located within the middle belt spanning between the Brong Ahafo and Ashanti regions of Ghana. In this study, the

Tain district is employed as a study area depicting a phenomenon in the transitional zones in Ghana.

Collaborative agents: Refers to both formal and informal groups that lock horns by liaising with each other to facilitate the policy process. They may be governmental, quasi-governmental organizations, private groups, organized community groups, media or traditional institutions.

1.9 Chapter Disposition

This study is organized into five main chapters. The first chapter provides a general introduction to the study by touching on the background, problem statement, objectives of the study, research questions and scope of the study. Chapter two presents the results of a review of relevant literature; the chapter is categorized into both theoretical and empirical literature. Theoretical literature attempts to elaborate on the definitional complexities of the concepts of climate change mainstreaming as well as its key indicators. It also discusses the concept of decentralization as well as Ghana's experience in the process. A review of empirical literature also helped to explore and analyse previous studies that relate to the topic with the view of identifying research gaps in climate change mainstreaming. The chapter concludes by discussing the theoretical framework within which the study was positioned.

Chapter three contains a brief description of the study area and the methodology of the study. The chapter basically presents the research paradigm and design; sources of data, sampling techniques and instruments of data collection. Chapter four focusses on data analysis and discussion of findings. Chapter five finalizes the study by presenting the summary of key findings, conclusions as well as recommendations.

1.10 Conclusion

This introductory chapter has provided a comprehensive overview and general introduction to the whole study. It has clearly outlined the problem statement as well as the objectives and the significance of the study among others.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews relevant theoretical and empirical literature on climate change mainstreaming into local assembly's development agenda and other related concepts used for this research. The theoretical reviews explore extensively literature on definitional complexities of climate change mainstreaming. The empirical reviews highlight the empirical work undertaken by various scholars with the goal of establishing relationships and identifying research gaps in those studies. This chapter also contains the theoretical framework underpinning the study. Regarding theory, the study adopts the collaborative governance theory in order to better situate the study in the discipline of public administration. A conceptual framework is also employed for better contextual understanding of the study.

2.1 Climate Change Defined

Over the last few decades, concerns over climate change have gained increased recognition in both international and national level development discourse. This is against the backdrop that impact of climate change affects environmental, economic and social well-being of people in diverse ways. IPCC, (2007c) defines climate change as the variations in the earth's climate over time either due to human activities or natural changes. The argument is that, these changes in climate must persist over a long period of time usually for a decade or more in order to contend that there is a climate change. The evidence further suggests that these changes in the climate may come from two main sources; that is either through natural sources or human activities. To corroborate the meaning of climate change, UNFCC (2007) contends that climate change is

attributable directly or indirectly to activities of humans that cause change in the global atmospheric composition in conjunction with natural climatic changes over a period of time. Climate change is altering long-term mean environmental conditions (air and sea-surface temperatures, annual rainfall, and sea level), multiannual cycles and short-term variability, including the frequency and severity of extreme climate events. From the above arguments, it is crystal clear that climate change could destabilize development significantly by menacing essential resources in communities, especially water bodies, and heightening the occurrence and severity of natural disasters (Lebel et al., 2012). More recently, in recognition that some climate impacts are now inevitable, there has been an upward push for adaptation and mitigation mechanisms in order to respond effectively to climate change impacts on both people and ecosystems.

2.2 The effects of climate Change

Climate change impacts on virtually all the sectors of the Ghanaian economy in various ways. This is manifested by the extent of exposure to the countless impact of floods, droughts, and sea erosion as the main drivers that appear to be pervasive in the country. Among all the sectors of the economy, the most affected are the economic, social and infrastructural sector (NCCAS, 2007). The aggregate effects on these sectors determine the impacts and vulnerabilities of various livelihood groups and places in the country.

2.2.1 Effect of climate change on the social sector

Among all the groups in the social sector, the health and sanitation sub-group continue to reveal major influences by the variations in the climate with great promise of experiencing even more

stress in the future (Hendrix, & Salehyan, 2012). Clearly, the increased incidences of water, air and food borne diseases are common due to the flooding, drought, heat waves, and dry winds among others. These predicaments further interact with the sanitation nightmare experienced in most urban centres in Ghana. Barnett, and Adger, (2007) contend that these climate change related challenges have resulted in multiple health risks, resulting in increased budgetary constraints with concomitant impacts on the National Health Insurance Scheme among other health relieve schemes. The argument here is that the ability of government, communities and other stakeholders to deliver social welfare services tend to be constrained variously as budgets are already stretched to the limit by other competing needs. At the local levels, local communities in Ghana tend to rely considerably on traditional knowledge and skills as a conduit to manage resources and also to support community livelihood due to increasing impact of climate change. Even though this appears to be a novelty by local communities, it is yet to produce the requisite impact in building resilience to climate change. This is evidenced in the increase in the incidence of malaria and cholera, guinea worm, incidence of cerebro-spinal meningitis among many others (Vincent, 2004).

2.2.2 Effects of climate change on the economic sector

The economic sector reveals a plethora of climate change related impacts with clear manifestations from the agricultural, energy, water, natural resources sectors of the economy. First and foremost, the agricultural sector which also tends to be the largest employer within the economy suffers the most from climate change. For instance, the distribution of rainfall within the Ghanaian economy appears to be the single most significant factor impeding the progress of the agricultural sector. Over the past decades, amount of total annual rainfall has fallen with significant degrees of variability. This tends to impact negatively on crop production and the

livelihood of many people in rural areas. This is against the backdrop that agricultural production in Ghana is predominantly rain-fed. Therefore, any changes in the pattern of the rain tend to have serious adverse implications on productivity (Kurukulasuriya, et al., 2006). Also, any changes in the climate which may result in rising temperatures and frequent droughts tend to heighten the incidences of bushfires and environmental degradation which subsequently impact negatively agricultural production. Asante (2002) suggests that in recent past, changes in the climatic conditions in Ghana have further deepened rural vulnerability to poverty and heightened the process of land degradation and desertification within the country. It can be deduced from the above that investments in agriculture will be very much expensive, unbearable, risky and less profitable. Another economic subsector that appears to have suffered from the climate change conundrum is water. Water offers great benefit to almost all the sectors of the economy such as agriculture, health, sanitation, energy, manufacturing, and also for domestic purposes. The argument is that reduction in total rainfall affects the generation capacity of the hydro-electric dams. Also reduction in rainfall tends to disrupt centralised water systems and subsequently deprive most communities from access to potable water for domestic and industrial usage. Unavailability of water also causes a reduction in social welfare as a result of the collective effects of lessening income from agriculture and inadequate water supplies, with high consequences on malnutrition and human health.

Moreover, the impact of climate change on other natural resources in Ghana cannot be overemphasized. Even though natural resources serve as a potent source of livelihood for a large portion of rural Ghanaians and the state, climate change is said to impact natural resources negatively during the last few decades. The increasing frequency of droughts is reducing biodiversity, while low levels of rainfall, high temperatures and winds exacerbate bush fires

which result in loss of natural resources. Therefore, sustainable management of these resources is crucial for producing food, income, tourism, foreign exchange and biodiversity needed for providing ecosystem services.

2.2.3 Effects of climate change on the infrastructure sector

Infrastructure facilities such as roads, dams, power distribution lines, homes, drains and all structures tend to create a congenial atmosphere for the conduct of other services by citizens. However, the impact of climate change on these infrastructural services tend to deteriorate the state and shape of these resources into bad state and shape which does not allow for people to put these provisions into adequate usage. For instance, climate change related disasters such as rainstorm, flood, drought and strong winds tend to damage most infrastructural facilities. In times of intense climatic impacts, infrastructure facilities such as roads and bridges are not able to withstand the shocks and therefore collapses. Within the coastal regions in Ghana, erosion aided by rising sea levels tend to destroy a substantial portion of the east coast of Ghana, carrying along millions of dollars of investments in infrastructure (NCCAS, 2007).

2.3 Climate Change Vulnerability

Climate change vulnerability continue to rise depending on the geographical location of an individual or community. This session highlight the concepts of vulnerability, classification of vulnerability and vulnerability of place and people.

2.3.1 The concept of vulnerability

Vulnerability as an emerging concept of climate change has gained continuous attention in contemporary literature due to its sensitive nature (Denton, 2002; Füssel & Klein, 2006). This is also against the backdrop that all kinds of natural and social systems have witnessed extensive

potential and observed impacts of climate change in recent past. IPCC (2007a) postulates that vulnerability is an integrative measure of the threat to a system. Vulnerability according to this perspective is a function of a system's exposure, sensitivity, and adaptive capacity (IPCC, 2007b; Sharma & Tomar, (2010). Similarly, Adger et al., (2003) indicate that vulnerability is the introduction of individuals or collective groups to livelihood stress resulting from the influences of such change in the environment.

Climate change vulnerability refers to the extent to which the livelihood systems of groups of people are susceptible to and their inability to cope with the negative effects of climate variations (Adger et al, 2003; Geest, 2004; Sharma & Tomar, (2010).). Füssel (2010) contends that the concept of vulnerability is almost useless when used in an interdisciplinary perspective without ascribing further explanations. This author further argues that the term vulnerability may be considered as internal or external depending on the issue under discussion. For instance, considering the terms from the natural hazards perspective, the food security perspective and the concept may be perceived as a starting point or end point among others. Vulnerability to climate change is a function of three major components. First and foremost is the exposure to climate variability and change, which refers to the degree of climate variability and change that an entity (a country, community, individual or ecosystem) experiences. Also, sensitivity to shocks and stresses emanating from the climate, which is an assessment of the amount of impact climate factors have on the entity. The final component is the adaptive capacity, which describes the ability of the entity to manage the negative impacts and take advantage of any opportunities that arise. Simply put, vulnerability is the extent to which an individual or group of people are susceptible to or unable to cope adequately with negative impact of climate change or any variations in the earth's temperature. Whereas there appears to be a definition complexity for

vulnerability, this study conceptualizes vulnerability to mean the inadequacy in capacity to adjust and to respond to shocks and stresses emanating from climate variability or change with rippling negative effect on the general wellbeing. From the above definitions, it can be deduced that understanding vulnerability includes identifying to what extent the system is sensitive to identified impacts based on available adaptive capacities. Clearly, knowledge about how vulnerable a system is and about the specific conditions that make it vulnerable, can help provide a foundation for developing actions that minimize the impacts of environmental change on people. Adjer et al. (2003) averred that the vulnerability of a society is determined by its development path, prior stresses, physical exposures, the distribution of resources, as well as social and government institutions that already exist. Changes in the rainfall pattern has great implications for local farmers in the transition and forest zones of Ghana where slight variations in weather conditions affect almost all economic, environmental and social activities. The idea is that the incidence of climate change inflicts severe and extreme environmental disorders on smallholder farmers within rural areas therefore causing unsustainable livelihoods within these communities.

2.3.2 Classification of vulnerability

Within climate change literature, there appears to be numerous classifications of vulnerability. To a large extent, vulnerability depends on the context, and the factors that make a system vulnerable to a hazard will depend on the nature of the system and the type of hazard in question. Certain factors are likely to influence vulnerability to a wide variety of hazards in different geographic and socio-political contexts. For instance, a household´s access to water, land and other resources is an important determinant of its vulnerability to climate change.

Scholars of climate change research such as USAID (2007); Eriksen et al. (2005); Fussel (2006); UN ECE (2001); Nelson (2011) suggest that the vulnerability of a system involves both an external dimension, represented by its exposure to climate change and variability, and an internal dimension, represented by its sensitivity to these factors and its adaptive capacity. It can be deduced from the above that internal vulnerability is concerned with the extent to which an entity such as individual, area or activity is susceptible to unpleasant weather variations. These internal factors tend to determine their impacts on a system. On the other hand, external vulnerability denotes the external stressors and shocks that a system is exposed to.

Moreover, some of these scholars opine that it is necessary to differentiate between current and future vulnerability. Tompkins and Adger (2003); Malone and Rovere (2004); Thomalla et al. (2006); Jones, et al. (2009) assert that current vulnerability refers to current climate changes that are not dependent on future variations in the climate, and the capacity of the existing system to withstand this variability. This position has been affirmed by UN ECE, (2001) which suggested that current vulnerability offers essential insights into the impending responses of the system to future events. Future vulnerability is also concerned with future climate situations and coping capability under a situation with a changing baseline and more severe and frequent extreme events (Thomalla et al. 2006; Jones, et al. 2004; UN ECE 2001). Some scholars noted that vulnerability also has geographical, social, economic, environmental and psychological aspects and not only physical aspects that need to be considered (Downing, et al. 2004; Malon & Rovere 2004; USAID 2007; Eriksen et al. 2005). The argument here is that classification of climate change vulnerability may take various shapes or forms. Therefore, it is incumbent that measures to aid in adaptation or mitigation to climate change impacts be churned out in a strategic and a tactical manner.

2.3.3 Vulnerability of places and people

Globally, various people in all places tend to experience vulnerability from climate change in one way or the other. However, different people at different locations may have different coping strategies that may be devised as a remedy to reduce the impact of climate change. IPCC (2007b) reveals that chances are very high that less developed countries are more vulnerable to climate change than developed countries. Füssel and Klein, (2006) note that a plethora of factors determine vulnerability to climate change in developing countries or emerging economies. Some of these factors include gender, age, geographical location, political affiliation, entitlements or access to resources and wealth, livelihood style among others. Differently put, vulnerability to climate change cannot assume uniformity among individuals and across places but, varies according to the socio-cultural axes of a community, an individual or society. In Ghana and also in most developing countries, climate change vulnerability is manifested through water availability, life and livelihood, essential infrastructure, human health, cultural heritage, biological diversity, land management, food security and agriculture, quality and accessibility, other environmental amenities and other socio-economic factors, especially poverty.

Less developed countries such as Ghana are particularly more vulnerable due to the over-reliance on climate-sensitive resources, and because these economies espouse relatively minimal ability to cope with the effects of climate change. Moreover, the impact of climate change may be extremely perilous for the accomplishment of development plans in most vulnerable households and communities in these developing countries (Easterling et al., 2004; Nelson, 2011). Lebel et al. (2012) also contend that in developing countries, individuals living in rural areas are very vulnerable, as they depend highly on the outputs from climate-sensitive ecosystems for livelihood including fisheries and agriculture. However, the vulnerability of urban poor in

developing countries are likely to be based on infrastructure and land development choices that propel settlements into flood-prone areas, potential landslide locations and other climate-related catastrophes. Climate change vulnerability tends to differ from one individual to the other and also from one place to the other. This also shows that individuals in developing countries appear to be very susceptible to the impact of climate change as against individuals living in relatively developed jurisdictions.

This study contends that in both rural poor and urban poor realms in developing countries, poverty hampers access to education, health care and other important services and resources. In addition, poor communities often lack the knowledge and resources to sufficiently adapt to mounting climate-related risks, therefore building up an "adaptation deficit" among resource constraint societies.

2.4 Transitional zone in Ghana and increases in vulnerability

Variations in the countrywide climate has been noticed and mentioned variously in Ghana. The idea is that climate change is not a new phenomenon as its incidence and impact is easily recognized in almost all facets of development. However, vulnerability to climate change appears to be changing with time depending on the location (Asante, 2002). Transitional Zone of Ghana refers to the ecological zones between the tropical forest located within the south-west and Guinea Savanna areas of the Northern part of Ghana. The transitional agro-ecological zone of Ghana is so named because it is located between the forest and savannah vegetative zones of southern and northern Ghana. This is located mainly in the Brong-Ahafo and Ashanti regions of Ghana (Abu et al., 2010). The zone, which was originally forested, has lost most of its cover and is now a derived savannah, and is the leading producer of grains, cereals and tubers in the

country. In recent times, commercial tree crops such as cashew have become popular. Variations in climatic and vegetative conditions have rendered the transitional zone and the southern part of Ghana more favourable for farming compared to the north. Normally, the major rainy season starts from late March until mid-July. This is usually followed by a short dry spill in July to August. The minor rainy season runs from September to October which precedes the long dry season from November to March. Owusu and Waylen (2013) indicate that the rainfall regime in transitional zones, like most parts of the country, is associated with a high degree of variability at the onset of each rainy season and particularly so at the beginning of the short dry spell. In other words, transitional zones in Ghana experience a changing manifestation of climate change vulnerability as the most predominant economic ventures depend solely on the climate (weather). Ghanaian food security depends largely on smallholder agricultural systems of Ghana's Transition Zone found in the middle belt of the country, which is known as Ghana's "breadbasket". Temperatures are generally high in Ghana and inversely follow the rainfall pattern with the lowest temperatures recorded in the south (Ahenkan & Boon, 2010). In the Transition Zone, a major challenge has been declining rainfall totals, increased variability, and shifts in the rainfall pattern in recent decades. Global changes in climate, natural variability, and changes in land use and land cover have been cited as the main causes of the changes in rainfall. Estimates by the Ghana Meteorological Agency (GMet) indicate that the situation could worsen as rainfall is projected to decline by 2.2 percent by 2020, 8.8 percent by 2050, and 14.6 percent by 2080 (Minia, 2004), even though other models are not certain of long-term projections. The ability to adapt to climate change will greatly depend on the capacity of regions, district assemblies, sectors and communities to cope with the impacts and risks of climate variability and climate change.

2.5 Mainstreaming Defined

Mainstreaming is a development concept which has gained continuous attention and application since the late 1990s. The concept offers a more effective means of tackling development issues such as gender inequality and environmental degradation among others in most developing countries. More often than not, the term 'mainstreaming' is used interchangeably with 'integration'. As noted by Levina and Tirpak (2006), UNDP defines mainstreaming as the integration of adaptation intentions, plans, strategies, policies and programmes into all levels and stages of national, regional and district development policies, processes and budgets. The idea is that planning at the national level provides the overall framework within which sectoral and other sub-national levels operate. Klein et al. (2005) also indicate that mainstreaming refers to the integration of information, policies, initiatives and measures to address climate change in ongoing development planning and decision-making at all levels of development. This means that the intentions of these national plans and programmes will produce its intended outcome when it is mainstreamed in the development agenda at the sub-national level. This rehashes the tenet that the national level houses the overarching policy goals from long-term visions and national development strategies which are later translated into action plans and budgets at all other sectors for development.

In order to put the meaning of 'mainstreaming' into proper perspective, this study regards the term to be the altering or adjusting of development plans or pathways formulated at the national level into local level development plan. Within this, mainstreaming has been termed as an 'holistic', all-encompassing or 'development-first' approach, whereby climate change initiative are integrated into development plans with the view of harnessing support towards climate change concerns.

Simply put, reducing climate change vulnerability and risks cannot be attained through separate and distinct initiatives but rather through an ongoing development policy-making, planning and activities involving all sectors and stakeholder (Klein et al., 2007; Olhoff & Schaer, 2010).

Succinctly put, Care International (2009) postulates that climate change mainstreaming can take the form of strategic mainstreaming where organisational and regulatory environment in which policies and programmes are planned and implemented adopts collaborative interventions. By way of illuminating the strategic mainstreaming debate, Olhoff & Schaer (2010) adds that this can include interventions such as building staff capacity and awareness, putting appropriate mechanisms and institutions in place and specifying entry points for climate change interventions.

UNPEI (2011) reveals that mainstreaming climate change refers to the iterative process which involves the integration of climate change considerations into budgeting, policymaking, implementation, evaluation and monitoring processes into all the levels of development such as national, sector and sub-national/regional stage. Mainstreaming allows for the involvement of all stakeholders in order to ensure human well-being, pro-poor economic growth, and achievement of the sustainable development goals at all levels. Similarly, the approach allows for a wide range of engagement between governmental actors, non-governmental actors, and all other stakeholder so that national level policies, measures and programmes will have a cascading effect at all levels.

2.6 Institutional and regulatory initiatives in response to climate change in Ghana

Globally, almost all countries have instituted numerous intervening measure in terms of setting up various institutions and regulatory frameworks in order to adequately respond to the incidence

of climate change. Likewise, Ghana has taken conscious efforts in order to integrate climate change concerns into the national development agenda. Ghana has ratified the UNFCCC, Hyogo Framework for Action (HFA) 2005-2015 and the Kyoto Protocols and other climate change related consensus on the global level into national development agenda. Since then, the Ghanaian government has instituted several national policy measures on climate change. In terms of the policy landscape, policy frameworks such as the National Climate Change Policy (NCCP) and the National Climate Change Adaptation Strategy (NCCAS) were drafted in 2013 and 2007 respectively and the Ghana Shared Growth Development Agenda (GSGDA I and II) among others as part of efforts to respond to climate change in Ghana. Institutions such as the Ministry of Environment, Science, Technology and Innovation (MESTI), has been charged to champion issues of climate change in the country. Dovers (2005) observes that climate change is a major contemporary challenge in sustainability but not a policy problem in itself. The idea is that climate change potentially degenerates into numerous policy problems that will be differently defined and dealt with through variable national policy systems and the structures and processes within those systems. It is a classic cross-sectoral issue requiring consideration of the policies and administrative mechanisms to formulate and implement concerns to respond adequately to climate change.

2.6.1 National Climate Change Adaptation Strategy (NCCAS)

In order to respond to climate change in a more proactive manner, the National Climate Change Adaptation Strategy (NCCAS) was formulated in 2007. This initiative was taken to facilitate the achievement of five (5) major objectives. First and foremost, the preparation of the document was aimed at the achievement of a consistent, comprehensive and a targeted approach to increase

climate resilience and decrease vulnerability of the populace. Also, the document is to further extend awareness and sensitization of the entire citizenry, especially policy makers on the importance of adaptation measures in national development process. Another reason for the preparation of the NCCAS was to position Ghana strategically to source funding for achieving national adaptation needs. Moreover, the NCCAS was prepared against the background that it serves as a catalyst for strengthening international recognition on the measures taking by Ghana towards climate change. Lastly, the goal for preparing the document is to facilitate the mainstreaming of Climate change and disaster risk reduction into national development plans. The plans for preparing this document is to be operational for ten (10) years starting from 2010 to 2020 within which period all stakeholders are expected to review the use of the tenets of the document. According to Agyemang-Bonsu et al. (2008), the main stakeholders for the implementation of the NCCAS are the Presidency, Cabinet, Members of Parliament and Members of the National Climate Change Committee, Ministries, Departments and Agencies (MDAs), the Metropolitan, Municipal and District Assemblies (MMAs), and all Civil Society Organisations (CSOs) and traditional rulers. The underpinning objective of the NCCAS is to intensify Ghana's resilience to climate change conundrum within the current dispensation and for the unforeseeable future times through capacity building in the area of infrastructure, knowledge to deal in order to handle the effects of climate change and also further lessen vulnerability in key sectors, ecosystems, districts and regions of the country.

2.6.2 National Climate Change Policy (NCCP)

The National Climate Change Policy (NCCP) represents Ghana's integrated response to the numerous constraints posed by climate change impacts on the country's socio-economic prospects. This was against the backdrop that evidence of climate change is already common

with direct manifestations of climate change easily recognizable through increasing temperatures; rainfall variability, including unpredictable extreme events; and sea-level rise. These manifestations affect various facets of Ghana's socio-economic structures, especially its high reliance on sectors that are particularly sensitive to climate change. Therefore, the policy was designed in 2013 with clear consideration of the national sustainable development priorities in order to provide a clear pathway for responding to the challenges posed by climate change within the current socio-economic context of Ghana. The policy also considers the potential opportunities and benefits of a green economy. The overarching vision of the policy is to ensure a climate-resilient and climate-compatible economy while achieving sustainable development through equitable low-carbon economic growth for Ghana. Moreover, the National Climate Change Policy offers strategic direction and coordinates issues of climate change in Ghana. There are three ambitious objectives of the Policy including the following:

- Effective and efficient adaptation,
- Social development, and
- Mitigation.

The policy further sets four clear strategies for addressing adaptation issues in Ghana. The thematic area identified for immediate action involves:

- Energy and infrastructure,
- Natural resources management,
- Agriculture and food security,
- Disaster preparedness and response.

The policy further indicates that smoothening out inequalities and building a more cohesive economy is very necessary for enhancing climate resilience and national development through a social protection and social safety for vulnerable individuals. This is due to the fact that human impact of climate change mostly fall on the vulnerable and poor in the society such as women, children, aged and the physically challenged. Therefore, a policy is required to build the capacity of citizens.

2.6.3 Ghana Shared Growth Development Agenda (GSGDA)

The Ghana Shared Growth Development Agenda (GSGDA I and II) functions as the national development policy framework for preparing medium term district/municipal and metropolitan development plans. Betsill & Bulkeley (2006), indicate that the GSGDA policy framework reveals seven (7) broad thematic areas with two of the core thematic areas being more crucial for climate change development planning in urban and rural areas. NDPC (2011) reveals that first and foremost, GSGDA provides for an accelerated agricultural modernization and sustainable natural resource management where the directive to address natural disaster risks and vulnerability as well as climate variability and change is a sub-theme. Secondly, infrastructure and human settlements is a broad theme for addressing settlement disaster prevention. In all these planning trajectory, local governments at all levels are expected to present strategies for addressing climate change in their development plans.

2.7 Integrating climate Change and sustainable development into local planning

Even though a complete understanding and appreciation of climate change impacts in global, regional, national models and scenarios is very imperative, it is even very much important to

understand local vulnerabilities based on local knowledge. This is by virtue of the fact that effective adaptation to climate change demands local knowledge, local competence, and local capacity within the local government setting for proper remedial measures. The emergence of climate change in recent years, as one of the greatest global challenge has led to many interventions and initiatives taken by stakeholders. The short and long term impact of climate change has been viewed as devastating, particularly to the poor communities in developing countries (Mukheibir & Ziervogel, 2007). Unprecedented weather condition, flood and drought are very disastrous and associated with climate change with huge impact to the processes of providing services such as water and electricity.

In the same way, economic activities and livelihoods which constitute the financial base for local economic development of a specific local area are also affected. This underscores the need to engage individuals, households, and community, local government structures and other non-governmental organisations with the requisite knowledge and capacity to deal with climate change conundrum. In the view of Bulkeley and Betsill, (2005), local level climate change is intricately linked with planning for sustainable local development. Schlenker and Lobell, (2010) explain that sustainability development is integrally associated with climate change.

To show commitment to the people, to respond to the impacts of climate change, and to contribute to the international effort to mitigate climate change, the Ghanaian government in consultation with other stakeholders have drafted the National climate change policy (NCCP), National climate change adaptation strategy, national climate change mainstreaming committee etc. However, these policies require a conscious attempt to integrate them into local level development agenda. Revi, (2008) opines that it is difficult for most district assemblies that are at risk from projected climate change conundrum to make resources and infrastructure planning

and management and increase the urgency of the need to adapt to municipal-level operation to the future effects of climate change.

Approaches to climate change adaptation and mitigation require both multilevel and multidimensional approaches. District level initiatives present an opportunity for local level participation in framing climate change plans and activities, with wider transformative potential for district governance. Mainstreaming climate change concerns into district assembly planning presents a wider package of approaches such as seizing processes of institutional reform as an opportunity to integrate community perspectives; institutionalizing new actors and approaches as a mechanism for scaling up multi-stakeholder approaches; ensuring top-down planning approaches are connected to local dynamics; and using participatory research to facilitate local communities in shaping planning processes.

2.8 Significance of climate change mainstreaming into district assembly development agenda

Agyeman-Bonsu et al. (2008) argue that mainstreaming reflect a potent tool for community-specific engagement and partnership for climate change mitigation and adaptation. The idea is that beyond the specific ministries concerned such as the ministry of environment, ministry of health, ministry of Agriculture, there must be an overarching framework to involve all relevant para-statal organizations. For instance, there is the need for collaboration among institutions such as the ministry of finance, health, agriculture and other subnational or local government assemblies to consolidate efforts towards a vibrant human resilience against climate change, economic growth, local level human development and climate change related poverty reduction. The need for a synergistic and collaborative approach for tackling the climate change conundrum

hinges on the fact that any conduct of unconcern will potentially compound the already existing vulnerabilities in rural areas. Ahmad (2009) also notes that this will further worsen the socio-economic plights, poverty, and undermined economic growth thereby posing a great restriction to the sustained achievement of sustainable development goals.

2.8.1 Aligning top-down priorities with local-level needs

Also, mainstreaming climate change concerns into district assembly development agenda requires that top-down priorities are aligned with local-level needs. Leck and Simon (2013) further indicate that mainstreaming at this level avoids mismatched of priorities across different levels of government. Therefore, a coherent top-level policy framework is significant in shaping the mainstreaming of climate change concerns into local and state-level planning. While the central government have the power to formulate all kinds of policies, the implementation of these policies rest on other para-statal institutions such as the local government units. Throughout this implementation process, vested interests play a critical role in shaping action, as do the character of the political economy of the State in terms of reigning party and political–bureaucratic relationships. However, if implemented in its true spirit, climate change initiatives taken so far by Ghana holds the potential for supporting locally led approaches to climate change through decentralization of functions to local bodies. This appears to be consistent given the regulatory and institutional architecture where district level development is a State subject, where both national level institutions partner various decentralized unit in building climate policy which reframes district-level development (Sharma & Tomar, 2010; Corfee-Morlot et al., 2011). Moreover, mainstreaming climate change into district assembly plans will enhance institutional mandates and proper application of existing regulations or policy framework for

community participation. Succinctly put, Næss et al. (2005) indicate that rapid response to climate change is achieved only when local level planning coincides with national level initiatives. Additionally, planning for any new challenge such as climate change, particularly for short- and medium-term actions, requires that the initiative be based on existing implementation frameworks of the district. The long-term actions could focus on bringing in the absent laws, regulations, and policies that could steer and sustain such efforts for other districts.

2.8.2 Improving institutional reform and using community-based development approaches

Globally, many local governments are beginning to engage in multilevel planning for climate change, and how initiatives should be strengthened by integrating community-based perspectives in a two-way process is still emerging (Agarwal et al., 2012). Ghana, just like most countries, has national climate change policies and programmes that considers risk prevention, mitigation, and adaptation, and preparing the national climate change response plan. These relatively new policies have limited consideration to commensurate the cross-cutting nature of climate change and the necessary interaction needed between land use, water use, and the environment and disaster- risk regulations. Consequently, advances in the national institutional architecture have not yet permeated well into sub-national levels (Næss et al., 2005). Archer et al. (2014) postulate that traditionally, communities have always developed strategies to cope with different environmental challenges in anticipation of government actions. Similarly, self-organized community groups exist, for example, issuing emergency warnings. Considering the nature of climate change associated risk, there is a great level of uncertainty that its effects on everyday life will be entrenched with high implications on community-based livelihood. Therefore, the

demands of local community may involve the consolidation of risk, for example, when informal settlements in flood risk areas are regularized in order to avoid social conflict arising from relocation among others (Almansi et al., 2014). Through these processes the opportunity for raising awareness on the nexus between urban and infrastructure planning, emergency management, housing, and urban services in the context of increasing climatic uncertainty, and the potential for reshaping socio-institutional relations emerges. Therefore, an opportunity to improve urban planning and poverty alleviation policies from a community base becomes inherent. Archer et al. (2014) indicates that local communities can generate strong and practical information and disseminate it, therefore propelling a multiplicity of options to engender more effective and cost effective actions in communities.

2.8.3 Using multi-stakeholder approaches to expedite national mainstreaming

"Partnership models" are increasingly being recognized as indispensable components of responding effectively to climate change in developing countries (Dyer et al., 2013). It is participatory approach involving a broad range of stakeholders in managing climate change which provides a great premise for planners to devise better strategies towards responding to climate change menace. That is, stakeholder engagement enables shared learning and widens commitment of organizations responsible for implementation to facilitate the implementation of selected strategies. Stimulating a smooth climate change mainstreaming process rests on having a wide cross-section of stakeholders. These stakeholders include civil society organizations and NGOs, state and para-statal organizations, academics, and practitioners, working with diverse district-level officials within the district management team, which formally agree with the district assembly, thus giving it the necessary institutional standing. Archer et al., (2014) contend

that building alliances between district-level actors and national actors tend to serve as incentives for replication and scaling up of climate interventions in district development plans.

2.9 Local level development planning in Ghana

The establishment of local sphere of government in Ghana continue to be a paramount move towards engendering successful delivery of service to the rural poor. Antwi-Boasiako (2010a) indicates that over the years, successive governments in Ghana have been preoccupied with tenets of decentralization in their quest to stimulate a countrywide socio-economic development. Ayee (2008) also argues that this preoccupation with decentralization is not only aimed at achieving socio-economic development but also to facilitate the attainment of political objectives like recentralization of power and legitimacy in the hand of ruling governments. Notwithstanding this fixation, Ayee (2008) further averred that decentralization has resulted in a mere recentralization and hence yet to produce the results expected. The decentralized framework in Ghana is noted for challenges such as dual structure in the hierarchical operations between the central and local government institutions, insufficient financial and human resources, and pseudo- political and bureaucratic commitment.

Decentralization policy in Ghana dates back to 1988 with supreme emphasis on political, fiscal and administrative decentralization. The underpinning principles under the decentralization policy is to enhance popular participation in terms of decision making, promote receptive governance at all levels of the state and also to facilitate effective and efficient governmental machinery and institutions for a responsible and accountable service delivery. The rationale behind this is to bring development to the door steps of the people. Sowman and Brown, (2006) further posit that beside decentralization, principles of public involvement, equity, cooperation

and integration, social and environmental justice, co-operation and integration are also deeply rooted in the decentralization debate. WDR W. (2010) notes that in line with the Local Government Act 462 and the decentralization process of Ghana, the Regional Coordinating Councils (RCCs) and Regional Coordinating Planning Units (RCPUs) are mandated to facilitate the preparation of district medium term development plans. The facilitating role involves offering relevant and timely information and resources for preparing the district development plans, monitoring the preparation of the plans as well as coordinating its harmonization with all national policies without deviation (NDPC, 2009). However, Adu-Boateng, (2015) indicates that it appears the role of Regional Coordinating Councils and RCPUs are mainly administrative with the preoccupation to formulate the development plan being abandoned in various district assemblies. Yet, the process of development planning requires that regional and local planning units collaborate to ensure that the plans are consistent with national priorities.

Metropolitan/Municipal/District Assemblies (MMDAs) are designated as planning authorities under the Local Government Act 1993 article 12(1). This grants the permission to prepare local development plans which results in a regional plan and finally national plan. The extent to which national policy on climate change are captured in the medium term development plan of various district assemblies will largely prompt stakeholders to take actions to respond to climate change.

Therefore, integrating climate change into decentralized frameworks in Ghana makes it more imperative and timely for districts to respond to climate change concerns. Climate change as a relatively new phenomenon demands the involvement and collaboration of all stakeholders to build a very potent and strong resilience.

2.10 Theoretical underpinnings for Mainstreaming climate change into district assembly planning

2.10.1 Introduction

Theories in social science are mainly constructed to enable researchers and practitioners to predict a behaviour, appreciate a phenomenon and also clarify social behaviours. Babbie (2013) observed that a theory is a set of interrelated constructs formed into propositions that stipulate the umbilical linkages among variables. This appears in a study as an argument, a discussion or rationale to help explain a phenomenon. This definition posits that theories are embodiments of knowledge that seek to offer explanation and understanding of a phenomenon or an observation. By implication, a theoretical framework refers to the theory or theories that serve as the foundation for an empirical study. This study indicates that national policies and plans drive resource allocation, and shape sectoral and sub-national plans. These national policies and programmes take the form of development frameworks either long term, medium term or short term. It further dictates the course of action and contains guidelines, principles, procedures and processes for policy formulation and planning at all levels of development. Several guidelines or frameworks have been proposed on how to mainstream climate change concerns into ongoing national development planning processes at the local level. Therefore, to better explain the extent to which climate change has been mainstreamed into local assembly development agenda, the study adopts the collaborative governance theory to underpin the study.

2.10.2 Collaborative governance theory

The post-New Public Management (NPM) era and its associated complexities have served as a necessary condition for a new governance approach based on ‘collaboration’. That is a network-

based model that links various state and non-state actors together to achieve a particular objective. The existing literature on collaboration and cooperation conceptualizes that every human is intrinsically egoistic and driven by self-interest; therefore, the need for collaboration among groups is for actors to view a project as mutually beneficial (Wondolleck & Yaffee, 2000). In terms of theory, numerous scholars link collaborative governance to the study of inter-governmental cooperation (Agranoff & McGuire, 2003; Imperial, 2005). In the same way, scholars such as McGuire, (2006) trace its roots back to the birth of American federalism where the most enduring model of collaborative problem resolution was much common. As pointed out by Governance (2015), collaborative governance theory appears to be very connected to Bentley's (1949) group theory. The ensuing theoretical reaction and evolution from Olson (1965) indicate logic of collective action, then to the prisoner's dilemma and game theory as averred by Dawes (1973), and further to the extensive common-pool resource literature as reinforced by Ostrom (2014). In management practices, the concept of collaborative governance has also gained roots in temporary literature. At its core, Kettl (2006) describes ''the collaboration imperative'' as cross-boundary and an all-encompassing approach for solving challenges in society.

Within the streams of theory and research, the concept of collaborative governance has been recognized and applied in numerous policy contexts. The most related studies adopting collaborative governance featured in local economic policy (e.g., McGuire, 2006), crisis management (e.g., Kettl, 2006; Farazamand, 2007), collaboration between environmental agencies and state and local public health departments (e.g. Daley, 2009), and on environmental issues such as the protection of open-spaces, natural resources management, forest management and climate change integration (e.g., Sowman, 2002; Quay, 2010). Similar to many social

sciences, the concept of collaborative governance appears to be at the heart of public administration and planning. Many public administration scholars view the concept of collaborative governance as a relatively new paradigm for city planning and governance in democratic states (Kettl, 2006; Governance, 2015).

Emerson et al. (2012) indicate that collaborative governance refers to a structure and processes whereby public policy decision making engages actors within public agencies, various levels of government, private and civic spheres to profitably attain the policy intentions that otherwise could not have been accomplished. Climate change as a relatively new challenge therefore requires a concerted effort in order to respond to it. This suggests that the urgency for multifarious and a consensual approach in order to respond effectively to climate change is very imperative. There is the need for collaborative governance theory to be used to explore the processes of participation within deliberative forums such as decentralized institutions, non-governmental organizations and media houses as a means of encouraging a more active and participatory policy implementation regime for climate change.

The justification for the use of collaborative governance theory in this study is due to the multifaceted nature of the theory and also due to the fact that it allows for all stakeholders to play an active role in responding to climate change as a global challenge. Also, the choice of the theory in this study hinges on the fact that it serves as catalyst for successful collaboration in local communities. Put succinctly, maximizing initiatives to climate change at all levels will be counter-productive if it fails to encourage a more holistic and integrated approach to climate change (Yeboah-Assiamah et al., 2016b). The argument is that these cross-cutting phenomena have far-reaching implications on the 'mainstream' activities of development. This demands that a synergistic and collaborative approach involving all stakeholders will serve as a potent panacea

to dealing with developmental constraints rather than being addressed in separate and disjointed space.

2.11 Conceptual framework

In order to better situate the theory of collaborative governance in the study, the synergistic approach to climate change mainstreaming is propounded as a conceptual framework. The framework emphasizes different stakeholders forging allegiance between state and non-state actors to prudently and methodically respond to climate change at the local level. The framework also contends that mainstreaming climate change concerns into local level development agenda, allows for multifarious and a synergistic atmosphere where all stakeholders contribute towards the process of responding to the global menace in a more pragmatic manner without rely totally on central level authorities.

The need for a more specific framework on climate change mainstreaming at the local level lies in the fact that the numerous existing models on collaboration and mainstreaming (such as collaborative governance) have failed to establish this linkage. Basically, the short-comings of the collaborative governance theory have called for an alternative explanation to mainstreaming climate change as a contemporary global challenge in district assembly development planning. Thus, the conceptual framework discussed in this section is an attempt to capture the understanding of the author about the concepts.

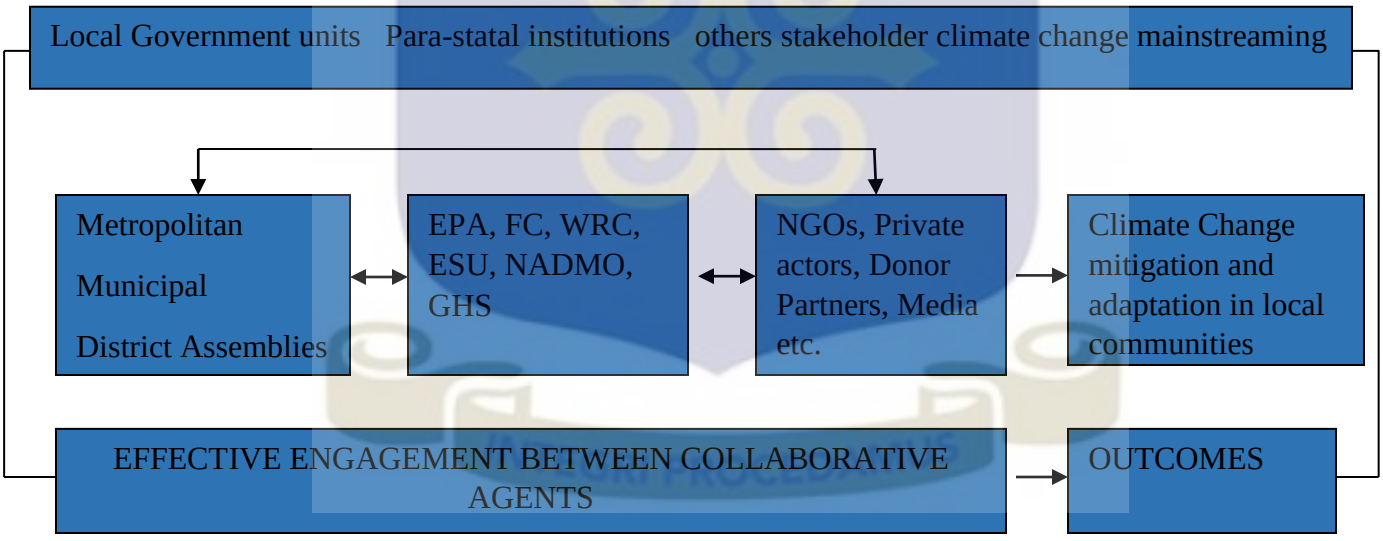
The conceptual framework -Synergistic approach to climate change mainstreaming presented in Figure 2.1 seeks to explain the urgency for collaboration in the climate change mainstreaming discourse with regards to responding to the phenomenon under investigation. The model is explained in two ways. Firstly, it highlights the collaborative agents for effective mainstreaming

of climate change concerns in one regard. Secondly, it provides the outcome of their collaboration on climate change response at the sub-national level. This development planning as model involves multifarious activities (see Figure 2.1). This comprises national level planning which also involves the formulation of policies, preparation of national policy frameworks/guidelines (e.g. NCP, NCCAS, GSGDA) by the NDPC, national level budgeting by the Ministry of Finance and Economic Planning (MoFEP), preparation of sectoral plans and budgets among others. At the regional level, plans prepared by the districts are harmonized to ensure compatibility with national policies and guidelines. The implementation of district plans is also coordinated at the regional level by the Regional Coordinating Directorate (RCD). At the district level, local plans are prepared in conformity with the national guidelines issued by the NDPC. District composite budgets are also prepared using the guidelines from the Administrator of the District Assembly Common Fund (DACF). The mainstreaming process involves the integration of climate change issues into national policies, plans and budgets, the inclusion of climate change issues in district plans and budgets and coordination of these activities at the regional levels.

In the model, mainstreaming require the involvement of numerous actors. Within these processes collaboration is required between the districts, para-statal institutions such as Environmental Protection Agency (EPA), Forestry Commission (FC), Environmental and Sanitation Unit (ESU), Ghana Metrological Service (GMS), Ghana Health Service (GHS), National Disaster Management Organization (NADMO) and other stakeholders. For instance, stakeholders such as NGOs, private partners, donor agencies, media, traditional authorities among others are very instrumental in the community planning process. The model argues that effective response to climate change will be engendered only after district assembly development planning engages

these 'collaborative agents'. Therefore, it should result in the informed inclusion of relevant climate vulnerability concerns into the decisions and institutions that drive national, sectoral, and local development policy, rules, plans, investment and action. This can be achieved through development cooperation between district assembly, para-statal institutions, Civil Society Organizations (CSO) and other partners. Local level institutions and processes are more likely to encourage a more holistic and integrated approach to climate change mainstreaming only when it plans to do so is inherent in the district level development plan and also involves all the key stakeholders as espoused in the synergistic approach to climate change mainstreaming model below.

Figure 2.1 Synergistic approach to climate change mainstreaming



Source: Author's conceptualization, (2016)

2.12 Conclusion

In this chapter, efforts have been made to define the concept of mainstreaming, climate change, climate change vulnerability. The chapter has also presented the effects of climate change, transitional zones of Ghana and climate change, institutional and regulatory initiatives in response to climate change. Furthermore, attempts have beeen made to shed light on local level development planning in Ghana, the collaborative governance theory and the conceptual framework underpinning the study. Moreover, the chapter has dealt with the definitional complexity of the concept as well as empirical studies on the concept of climate change mainstreaming.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter highlights the methodological techniques employed in the study and it is structured in two main sections. The first part of the chapter presents a summary of the profile of the study district (Tain district), while the second serves to highlight the method and instruments of data collection used in conducting this study. The research approach, research design as well as the sources of data are well explained. The chapter also presents the sampling techniques as well as instruments of data collection and rationale; ethical considerations and concept of reliability are treated in the chapter. Besides, the relevant protocols and guidelines that were observed throughout the entire process of field activities (before, during, and after) have been explained as well as the justification for the adoption of the qualitative approach for data collection and analysis of the study.

3.1 Tain District in Perspective

3.1.1 Location, Size and Physical Characteristics

The Tain District was created in June 2004, in the Brong Ahafo Region. It lies within latitudes 7 ½ and 8º 45` North and longitudes 2º 52`West and 0º 28` East. In terms of land area, Tain district covers 2,700sqkilometers (Tain District Assembly, 2015). The district shared common boundaries with Wenchi district to the East, Jaman North to the West, Sunyani west to the South and Berekum Municipal to the South West. Abu et al., (2010) indicate that it is also bounded by the Banda district to the North, La Cote d'Ivoire to the North West. Nsawkaw, the district capital

is 18 miles from Wenchi, the capital of Wenchi Municipal Assembly which Tain was carved out from in 2004.

The total population of Tain is 87,994 representing 3.8 percent of the regional population of 2,310,983. The distribution of the population by sex shows that there are more females (44,502 or 50.6%) than males (43,492 or 49.4%) residing in the district. In terms of density, with a land surface area of 1,829.84960 square kilometres and a population size of 87,994, the population density of the district is 48.1 persons per square kilometre (Adjei-Nsiah et al., 2010).

Localities with population 5,000 or more are classified as urban. On the basis of this classification, urban communities constitute the largest proportion (44,731 or 50.8%) with the rural population being (43,263 or 49.2%). The major occupation in the district is farming, constituting about 80.2% of the total population and the remaining 19.8% are in the other sectors.

3.1.2 Vegetation

The Tain district spans the moist semi-deciduous forest and the Guinea Savannah woodland vegetation zones. The Guinea Savannah woodland represents an eco-climatic zone which has evolved in response to climatic and edaphic limiting factors and has been modified substantially by human activity (Abdul-Ganiyu et al. 2013).

Tain District Assembly (2015) indicates that the original forest vegetation has been subjected to degradation, caused mainly by the indiscriminate bush fires, slash and burn agriculture, logging and felling of trees for fuel over the years. The cumulative effect is that secondary vegetation will continue to occur in cultivated areas. Timber species like Odum, Sapele, Wawa and Mahogany are found in places around the northern part of the district. In the semi-derived

savanna areas, there are the absence of large economic trees as a result of logging, charcoal burning and mechanized farming. The grooves show that with protection, forest in the area can be productive because the soils in the sacred groves appear more fertile compared to soils lying a few metres away which have been laid bare by intensive cultivation and other unsustainable uses. In the grooves, wildlife like deer and antelope are found. Other forest reserves like Sawsaw, Yaya and Bawa watershed are found in the district in abundance. The combination of the vegetation zones – guinea savannah, transitional zone and the forest permit the cultivation of a variety of crops – cereal, tubers and vegetables and even animal rearing.

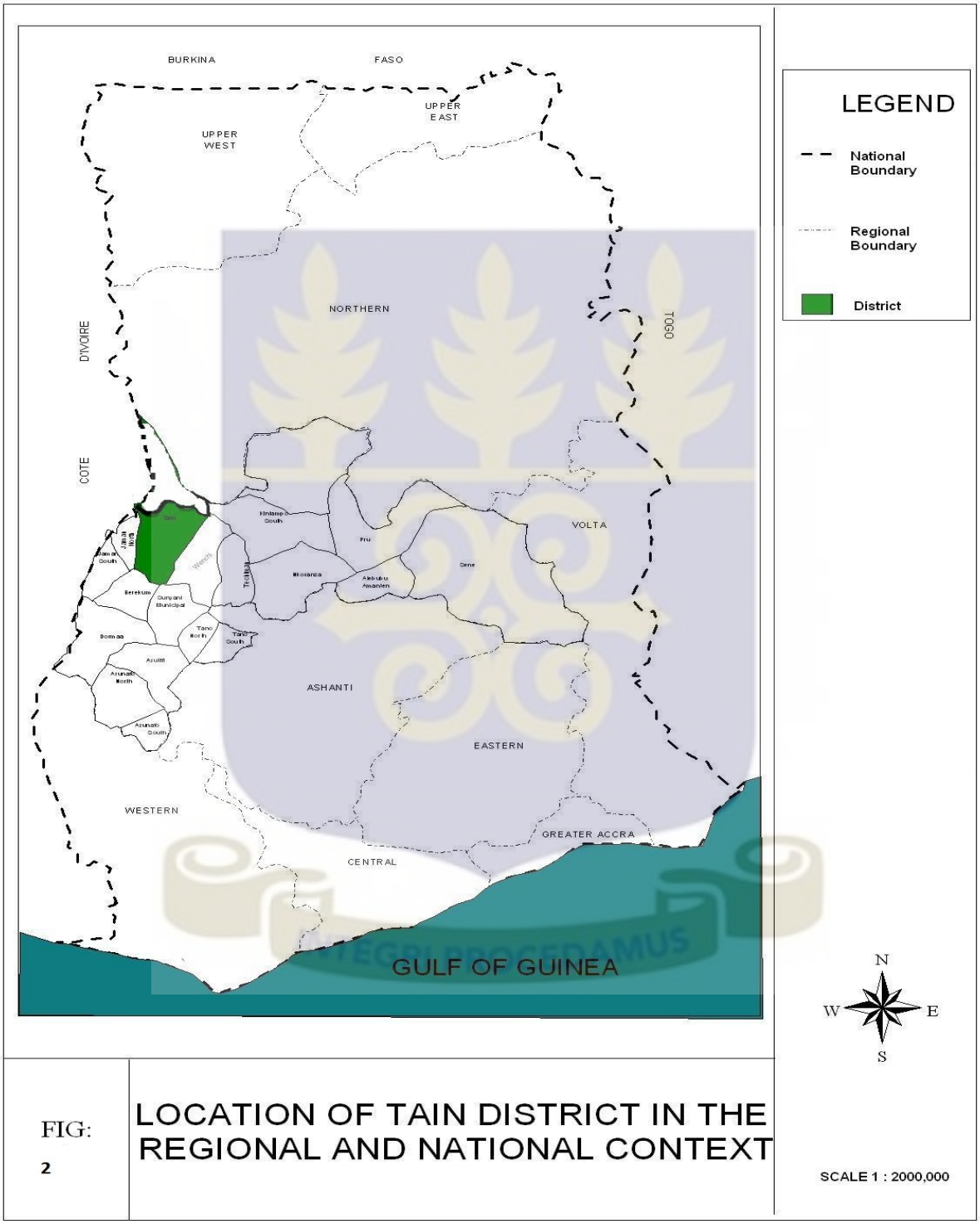
The forest reserves and the few groves around the water bodies in the district help to protect these water bodies like the Nyimpine and the Tain (Gyasi et al., 1995). This means these rivers could be good sources of water when constructing small town water systems in future and could also serve as irrigation facilities for numerous farming communities within the district. In addition, the existence of wildlife like deer and antelopes in the groove can serve as potential sources of tourism for the District.

The temperature in the Tain District is generally high averaging about 24.5^{o}C (779^{o}F) throughout the year (Tachie-Obeng, 2013). Average maximum temperature is 30.9^{o}C and minimum of 21.2^{o}C. The hottest months span from February to April during which livelihood become unbearable (Fosu-Mensah et al., 2012).

The district is also endowed with some tourist sites which include Archaeological site at Hani, an Ancient Cave Site at Begho (Nsesrekeseso), Twuntwu Chain Mountains, an ancient settlement at Minamanfo, Adawiaso (River Tain), an ancient site at Apayeso, Prego Ancient Remains, Menji Crocodile Pond, confluence of rivers Nyiepene and Tain at Tainso and Degedege Irrigation Dam.

None of these tourist sites has been developed yet and this when developed, can generate a lot of revenue for the district. Nature has also blessed the district with gold and sand deposits in abundance. Sand winning and gold mining are some of the mining activities evident in the district.

Figure 3.1 Location of Tain district in National and Regional context



Source: TDA, (2015)

3.2 Justification of study Area

The Tain district is one of the few Districts created in June 2004, in the Brong-Ahafo Region. The District lies within the transitional climate region of Ghana. The major occupation in the district is farming, constituting about 80.2% of the total population and the remaining 19.8% are in the other sectors. This suggests that climate change is a major concern since almost all of these farming practices engaged in by the people within this district largely rely on the climatic conditions. Thus almost all the 80% of the people engaging in agriculture in the district rely predominantly on rains. The urgency to conduct this study within the Tain district lies in the fact that, even though the climatic conditions throughout the country keeps changing, that of communities within the transitional zones are beginning to show different dynamics than it was previously. Though the numerous plans have been initiated at the national level, it is very necessary for these nationalistic policies to assume the requisite impact at the local districts. This urgency for a study within Tain district is justified by the fact that incidence of climate change keeps creeping through the confines of this area in a very fast and an unprompted manner. Consequently the cascading effect has been on the numerous poor rural farmers in the district. The idea is to find out how the Tain district is integrating climate change concerns into the local assembly development plans.

3.3 Methodology of the study

3.3.1 Research approach

To examine the extent to which climate change concerns have been mainstreamed into local assembly development agenda, there is the need for an understanding of the experiences and roles of important stakeholders in district assembly development planning. To adequately gather these experiences, this study employed a qualitative approach because of its suitability with

regard to studying people's experiences, priorities and current insights about relevant phenomena. Different stakeholders are involved in development planning under a decentralized system including policy makers, decentralized institutions, non-governmental organizations, Civil Society Organizations (CSO) and several other actors. The qualitative paradigm offers a useful platform in such situations where explanations, descriptions and interpretations of events by actors with different roles in a particular context are needed (Patton, 2002). Creswell, (2012) argues that qualitative approach serves as a means for exploring and understanding the meanings individuals or groups ascribe to a social or human problem. This approach serves as a potent tool for allowing a researcher to have an in-depth understanding of the phenomenon under discussion. As further indicated by Newman (2007), qualitative research involves the use of soft data in the form of gestures, impressions, symbols of the respondents. With such unique attributes of the approach, the researcher was able to make very strong interpretations during interaction with the respondents.

Besides, qualitative approach examines phenomena with regard to specific contexts, and ensures a deeper appreciation of important concepts regarding particular phenomena such as decentralization and local level planning. Also, there is an increasing preponderance for qualitative methods in recent years towards examining climate change mainstreaming. This is due to the flexibility that qualitative methods allow for the researcher to better investigate the multi- dimensional and multifaceted issues that characterize the discourse under investigation (Babbie, 2013).

In the study, the researcher sought to interact with local-level development agents with separate and distinct interest which made the use of qualitative approach most appropriate and more convenient. By adopting this approach, the researcher sought to interact with relevant officers in

the district assembly, the various interest groups, officers of para-statal institutions, media houses, relevant civil society organizations (CSOs) in the in the district which made the qualitative approach most appropriate.

Also, the choice of qualitative approach was to enable the researcher have a deeper information on how collaborative governance in the district provides a congenial framework for integrating to climate change concerns in the district medium term planning. Moreover, the approach is very appropriate in answering the questions 'how' and 'why', and is therefore very suitable to achieve the research objectives and to answer the research questions for the study (Berg, 2004). The choice of the qualitative approach was to enable respondents speak broadly on the major and specific objectives underpinning this study and also clearly bring out the experiences and understanding of respondents. The qualitative approach is ideal for this study since climate change mainstreaming issues are largely descriptive in nature therefore, perceptions and experience of people with regard to the climatic stresses are pertinent for understanding how climate change mainstreaming is conducted in the study location. The overarching justification for this approach is that the emotions, sentiments, frustrations as well as gestures could be interpreted to give more meanings to the study by using the qualitative approach. The concerns of the study is not focused on making generalizations but to explore other explanations for climate change mainstreaming in the district level development planning. Therefore, it was appropriate to adopt the qualitative approach.

3.3.2 Research design

The choice of the case study design and anchoring it on the qualitative research approach seek to elicit key information relating to the research problem and objectives from stakeholders. The

case study design enabled the researcher to collect information in a comprehensive and systematic manner. The researcher was therefore, able to obtain in-depth information relating to each research objective is because the method gave more room for participants to describe their thoughts in their own words and language, rather than that of the researcher. As Newman (2007) contends, the case study design also offers the platform to learn about complex instances based on a comprehensive examination of issues which are obtained through extensive description and analysis. Babbie (2013) further 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 more ideal for the analysis of climate change mainstreaming issues in local communities in transitional zones in Ghana. The use of this method facilitated an in-depth analysis of climate change mainstreaming initiatives and how these initiatives have been mainstreamed into development planning in the Tain district.

Moreover, since the study involves an in-depth analysis of an intervention and the context in which it takes place; a case study design is more supportive as it works in tandem with the objectives of the study. According to Berg (2004), case study design is appropriate in explaining causal links in interventions such as linking programme implementation with its associated effects. Since this study assessed climate change mainstreaming as a policy intervention in building a more climate change resilient district, the case study design was deemed more appropriate.

Furthermore, the appropriateness of the case study design lies in the fact that it allows for a better contextual understanding of the phenomenon under investigation. In this study, the case study design also allowed for the analysis of the process of mainstreaming that is taking place in Tain

district with respect to climate change. It also allowed for an in-depth analysis of the experiences and perceptions of respondents concerning climate change mainstreaming in the district. The study therefore used the Tain district as a case study area to obtain in-depth information about each objective under investigation.

3.3.3 Sources of data

The study used both secondary and primary data. The combination of these data sources was to provide enough empiricism to the work and to enable the researcher to cross examine each information or data gathered throughout the study. Such cross-checking was to increase the reliability of findings. Primary sources of data included in-depth interviews and semi-structured interviews of key informants and community members. The data from primary sources mainly comprised data collected from participants through in-depth interviews which followed the semi-structured approach and allowed participants to be greatly involved in the study process.

- **Primary sources of data**

In-depth interviews were conducted with key informants in order to know how mainstreaming of climate change initiatives manifest in the study area. In-depth interviews enabled the researcher to use a flexible topic guide with a loose frame of open-ended questions to explore experiences regarding climate change mainstreaming**.** This tool was used owing to the flexibility it offers in data collection since not all questions were framed ahead of time and allowed the majority of questions to be created during the interview process. This phenomenon enabled the researcher to probe for more details from interviewees depending on the responses given. The in-depth interviews were used because they afford the researcher the opportunity to seek the views and

experiences of key informants who understood the dynamics of the district assembly system as well as the role of other important collaborative agents in responding to climate change at the local level. Moreover, since this is a comprehensive investigation, depth of information was required, hence, in-depth interviews were deemed appropriate. This interviews offered a good platform for depth in data collection since interview times were longer and extensive probes were equally employed.

- **Secondary sources of data**

Secondary data for the study were sourced from District Medium Term Development Plans, District Annual Action Plans and budget documents as well as monitoring/progress reports. Other secondary data used were development plans and reports from decentralized departments/agencies. In addition, data was sourced from books, journals and internet archives. These documents were adequately perused and used in order to aid in an effective comparison. Data collation from the field interviews were further juxtaposed with the existing secondary data to check for consistencies and variations with the existing data.

3.3.4 Study population

The study population consists of Tain District Assembly, total number of officials in the district such as workers of selected para-statal organizations in the district, the various interest groups, media houses, relevant civil society organizations (CSOs) in the district.

3.3.5 Sampling Design and Sampling Procedure

Sampling design denotes the approach, methods, processes and procedures engaged in selecting respondents in order to achieve the objectives of the study. Kumar et al. (1999) argues that there are three main sampling designs which includes, random sampling, non-random sampling and mixed sampling techniques. Random sampling design is distinct from the other techniques as each element in the population must have an equal and independent chance of selection in order to engage in the study. Kumar et al. (1999) further indicates that the use of the random sampling design is largely dependent on the extent to which the researcher has access to information about the study population. Conversely, purposive sampling designs do not follow the theory of randomized sampling in the choice of respondents in the sampling population. Purposive sampling is used when the number of elements in a population is either unknown or cannot be individually identified (Kumar et al., 1999).

In line with the qualitative approach and the case study design chosen for the study, purposive sampling technique was used for selecting respondents for the study. The justification for purposive sampling in this study is to select very informative and a difficult-to-reach population in order to attain the objectives of the study (Newman, 2007).

3.3.6 Purposive Sampling Technique

In order to carefully select respondents, purposive sampling technique was used to select district assembly official, heads of institutions, heads of decentralized departments/agencies, media station and NGOs in the Tain district.

The following represents the respondent base of the study;

1**. District Assembly officials; (6)**

District Coordinating Director (DCD)

District Planning Officer (DPO)

The District Budget Officer (DBO)

The District Finance Officer (DFO)

District Building Inspectorate (DBI)

Presiding Member (PM)

Member of the Committee on environment

2. Decentralized Departments (5)

District Agricultural Development Unit (DADU) (2)

Town and Country Planning Department (TCPD) (1)

Natural resource conservation Department (NRCD) (2)

3. Governmental Organizations/Agencies (12)

Environmental Protection Agency (EPA) (2)

National Disaster Management Organization (NADMO) (2)

Forestry Commission (FC) (2)

Water Resources Commission (WRC) (2)

Environmental Sanitation Unit (ESU) (2)

Ghana Metrological Service (1)

District Health Service (1)

4. Non-governmental Organizations (NGOs) (3)

Social Development and Improvement Agency (SODIA)

Resource Link Foundation (RLF)

White Olive Foundation (WOF)

5. Media houses (1)

Radio Tain

Table 3.1 Summary of sampling techniques

	Respondent groups	**Sample size**	**Sampling Techniques**
1.	District Assembly officials	6	Purposive Sampling
2.	Decentralized Departments	5	Purposive Sampling
3.	Governmental Organizations/Agencies	12	Purposive Sampling
4.	Non-governmental Organizations (NGOs)	3	Purposive Sampling
5.	Media houses	1	Purposive Sampling
	TOTAL	**27**	

Source: Authors construct, (2016)

3.3.7 Research Instruments

A research instrument refers to the means or technique deployed in eliciting the data required for a study. The credibility of a research depends on the instruments or tools of data collection employed. Therefore, it is very important that the instrument deployed for the study in question becomes more appropriate and well suited for the study. The main instrument of data collection used by this study involves in-depth interviews anchored on a semi-structured interview guide.

3.3.7.1 In-depth interviews

As argued by Babbie (2013), in-depth interviews are very appropriate when researchers intend avoiding a leading on situation. By deploying an in-depth interview, respondents are expected to reply as freely as possible and as extensively as they wish and if their answers are not rich enough, the interviewer could probe further for details by asking follow-up questions where necessary. This instrument was very appropriate to get detailed information from informants' point of view at the individual level. The in-depth interviews were guided by a semi-structured interview guide which captured the main objectives of the study. The semi-structured interview guide enabled the researcher to ask probing questions to elicit detailed responses from informants. On the whole, each interview lasted for an average of fifty minutes to one hour. All the twenty-seven (27) respondents went through an in-depth interview process. The use of in-depth interviews enabled the researcher to obtain qualitative data on respondents' knowledge, perceptions and experiences about climate change measures instituted in the district and the extent to which the measures have been mainstreamed to enhanced sustainable development.

3.3.7.2 Direct Observation

Aside interviews, a field observation of the effects of climate change and the extent to which climate has been mainstreamed in the district were also utilised. Direct observation was used to obtain data on the sensitivity of agriculture, water resources and infrastructure to climate change in the district. The researcher was able to observe the physical effects of drought/dry spells on agriculture as well as the impacts of climate change on the Tain River and among others. Also, direct observation was used in the field to gather first-hand information about climate change mainstreaming initiatives pursued in the district to adequately respond to climate change. The justification for engaging in direct observation to corroborate the interviews was to allow for a more realistic findings.

3.3.8 Data Management

Interviews were conducted with the help of an interview guide which was categorized in various themes capturing the main objectives of the study or the various research questions. Proceedings of the in-depth interviews were transcribed, sorted out and reviewed thematically; in a way that clearly answered the research questions.

Thematically simply means that the researcher drew a table for each objective of the study; each table was then divided into five main columns. The first column has the designation of the informant, while the second column is dedicated for the responses given, the third column is dubbed agreements, followed by disagreements while the last column was used to identify the emerging themes in the responses. The subsequent rows were given to other informant using the same headings for the columns.

Similarly, tables were drawn for all the objectives and the researcher critically interpreted each response to elicit the main theme for the emerging trend and cross checked with other themes from other respondents, juxtaposed it with the literature and made meanings out of them. Each theme or unit was then analyzed qualitatively, to determine which themes occur most frequently, in what contexts, and how they are related to each other. In addition, relevant verbatim statements were quoted in the study where necessary under the themes for the sake of emphasis.

3.3.9 Reliability and Validity

Reliability and validity in research are very important components of every study since they underscore the strength of data upon which final conclusions will be drawn (Babbie, 2013). To ensure validity and reliability of findings, data was collected in two time periods after gaps were identified in the initial findings. In the second part of the data collection process, the researcher contacted some of the informants that were interviewed initially and asked questions which had been asked earlier even though some new questions were also added. Even though some respondents proved hesitant as they felt they had already answered such questions, the researcher managed to convince them by saying that he needed to ask again because they formed the basis upon which some few new questions could be asked. This enabled the researcher to check whether there could be some differences in the responses of the same respondents at different time periods.

Moreover, data was collected from a wide variety of stakeholders in the local level administration to reflect the varied interests in climate change mainstreaming. This also ensured that quality data collected as responses of different stakeholders were compared for similarities and differences where necessary and were factored into the analysis process. Again, the final

interpretation and conclusion were juxtaposed with the literature and other empirical studies relevant to the study to either verify or falsify the findings. This was to provide a firm literature foundation for the findings and to build on existing literature of knowledge.

3.3.10 Ethical Consideration

Recognizing the role of ethics in social science research, the researcher was very careful and took his time to acknowledge all protocols (Babbie, 2013). The study was firmly grounded in ethical procedures before arriving at the findings. First and foremost, the researcher obtained an introductory letter duly signed by the Supervisor from the Department of Public Administration and Health Services Management (DPAHSM) to the Tain district assembly and all institutions forming part of the respondents. This letter facilitated the data gathering processes of the researcher through diverse means as it smoothened access to the respondents.

The main heading on the interview guide which safeguards the confidentiality of responses was variously read to all informants before any interview session. In order to honour ethical considerations, the researcher stressed that the study would be used for academic purposes only. This to an extent cleared the doubts in the minds of respondents as most of them cooperated with the researcher by giving out relevant information. Also, interviews were conducted in confidentiality and privacy at a time fixed by respondents. Participants were also encouraged to freely give data without fear or favour since they were assured of anonymity throughout the entire research enterprise.

3.3.11 Conclusion

This chapter has adequately discussed the methodology adopted for the study. It started with a description of the study area, the research approach and design. It also described the methods of data collection and the justification for the choice of such methods. Besides, data management and analysis, measures to ensure reliability as well as ethical compliance were all addressed in this chapter.

CHAPTER FOUR

DATA PRESENTATION AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter presents and discusses the data obtained from the field to examine the extent to which the Tain District assembly is integrating climate change concerns into the district assembly development agenda. The chapter is structured along the objectives of the study and is therefore, analyzed thematically as follows: the extent to which local assemblies have integrated climate change into the assembly's development agenda; budgetary commitment/allocation for integrating climate change into local assembly's development agenda; institutional mechanisms available for integrating climate change programmes into local assembly development agenda and challenges faced by local assemblies in mainstreaming climate change programme into LADA. Direct quotations from informants have been used to show much emphasis where necessary.

The study initially sought to assess the knowledge level of participants as well as how climate change manifests itself in the Tain District. Climate change as a global conundrum tends to affect almost all facets of human life. Therefore, the knowledge of officials in the district assembly, as well as the other stakeholders on climate change through the district development planning is very important. Some participants demonstrated some level of knowledge on climate change issues. This is against the backdrop that some of the respondents have participated in a climate change conference/seminar organized in the regional capital for local development agents. The argument here is that once some of the actors of the district planning body appear to have an idea on climate change, it will be relatively easier to integrate it into the district development planning process. This appears to be consistent with the findings of Fosu-Mensah et al. (2012) who argue

that successful mainstreaming of climate change at the local level depends largely on the level of understanding of local planners. Respondents lamented on the negative manifestations of climate change in the District. For instance, the head of the Environmental Sanitation Unit (ESU) explained that:

> *''Climate change manifestations in the district are very obvious. Increase in the frequency of floods and droughts have also become eminent, changes in natural ecosystems appears to be very common, and ubiquitous shifts in the distribution of several species, among many others are now very pervasive within the Tain district. The changes in rainfall pattern are very clear as the rainy season do no longer occur between April and October. These days farmers cannot predict when the rains will fall neither can they predict when the rains will not fall''.*

4.1 Mainstreaming climate change into District Development Plans

The first objective of the study was to assess the extent to which Tain District has mainstreamed climate change into the district development plans. This is explained by the fact that district development plans constitute the entry points for mainstreaming climate change into local level development agenda. Antwi-Boasiako (2010a) indicates that the aim of adopting decentralization is to enhance development at the grassroots or sub-national level. Therefore, any threat against the quest for grassroots development must be well considered and integrated into the district development planning. In Ghana, MMDAs prepare periodic Medium Term Development Plans (MTDP) as a development imperative for the local area. The MTDPs also constitute the response of MMDAs to the development challenges within the local areas as against the countrywide development constraints. As a requirement of the National Medium Term Development Planning Framework (2010-2013 and 2014-2017), all the districts are expected to harmonize their development programmes, projects and activities around seven thematic areas. This includes ensuring and sustaining macroeconomic stability enhancing competitiveness of Ghana's private sector, accelerating agriculture modernisation and sustainable natural resource management, oil

and gas development, infrastructure and human settlements, human development, productivity and employment, and transparent and accountable governance. In addition, the National Medium Term Development Planning Framework (NMTDPF) demands the assemblies to mainstream cross-cutting issues such as climate change, gender and disability into its development plans and budgets.

In order to effectively explore the extent to which the Tain district has mainstreamed climate change concerns into the district development plans, respondents were interviewed on specific climate change initiatives that have been pursued by the assembly. The study reveals that some of the initiatives taken to respond to climate change in the district can be categorized into the following thematic areas including; human/capacity development on climate change**,** modernization of agriculture in response to climate change, sustainable natural resource management, integrated water resources management practices and advancement of alternative livelihood strategies.

4.1.1 Human/capacity development on climate change

The acquisition and application of climate change related knowledge and skills in solving problems emanating from climate change in society have remained essential aspects of the development efforts of the district (Adu-Boateng, 2015). The findings of the study suggest that medium term policies and initiatives on climate change that have been integrated in the district development planning include human development through capacity building and awareness creation for climate change related concerns. In terms of capacity building and awareness creation on climate change, it was observed from the field research that the district assembly had made some limited efforts to organize training sessions for some community members.

According to the study, community fora to sensitize communities within the district on the issues of climate change are on-going in nine (9) communities. However, these sensitization exercises do not include students. The study further reveals that education and awareness programmes were organized by some para-statal institutions both at the District and regional levels on environmental awareness/climate change. These include the EPA's annual Environmental Education and Awareness Creation Programme with emphasis on drought and desertification for selected local actors in the district. The findings of the study further reveal that The African Adaptation programme (AAP) capacity building of high level leaders in Ghana in 2011involved the District Chief Executive of Tain district, the District Coordinating Director as well as officers of other departments and agencies of the district who benefited from high level interactive workshops to create awareness on climate change and deliberate on how they could support mainstreaming of climate change in their various areas of authority. The study indicates that Radio Talk shows education/sensitization have also been organized by the district NADMO office on Tain FM for reduction of bushfire/forest degradation. The District Coordinating Director (DCD) put forward that:

> *''To some extent, we have attended a number of workshops and trainings on climate change organized by other stakeholders over the past few years. However, these training sessions are not adequate. The district is yet to organize one on its own since it is obvious that capacity to deal with climate change is necessary ''.*

The district manager for Environmental Protection Agency (EPA) explained that:

> *''As climate change reaches its apex in the district and more people are increasingly becoming vulnerable, there is the need to effectively build capacity of both planners and community members in order to respond adequately to this menace. Building effective capacity would not mean an annual ritual as recognized in recent past. Awareness and sensitization programmes must be more and easy for people to assess".*

To corroborate this position, the project manager for White Olive Foundation (WOF), an NGO based in the Tain district had this to say:

> *''It is very imperative for the district assembly to partner with other stakeholders like NGOs, para-statal institution and the general public. The idea is that climate change is a global threat therefore responding to it will require that all actors are fully trained and empowered for the challenge''.*

In spite of the capacity building processes, there is still much to be done. The idea is that climate change education, skills and training for district actors has been done but to a limited extent. The few sensitization activities are not done because of the initiative of the Tain district assembly but one spearheaded by other stakeholders such as NGOs and Radio Tain. As noted by Asante et al. (2015), the National Climate Change Policy is relatively new and therefore its dissemination has not reached all local governments. For example, the content of the NCCP and the responsibilities that this document places upon the MMDAs, were not acknowledged by most officers interviewed in the study location. This position is inconsistent with the views expressed by Geest (2004) who acknowledged that local communities have enough knowledge about climate change since they are the most vulnerable agents are therefore in a very good position to withstand the impacts. However, a contrary view by Laube et al. (2012) suggests that local communities are the most vulnerable in terms of climate change. It is therefore very imperative that recurrent empowerment and sensitization activities be carried out in these communities. In other words, despite these efforts for creating awareness on climate change, much still needs to be done in order to effectively respond to climate change. In short, for the district to respond adequately to climate change, it needs to build effective community capacity on climate change management. The findings of the study appear to be consistent with the position of Gyampoh et al. (2009) who postulates that climate change education and sensitization is still very limited within the local

communities. The point is that leadership and institutional framework to manage climate change risks and opportunities in an integrated manner at the local and national levels needs to be strengthened in the Tain district.

4.1.2 Modernization of agriculture in response to climate change

Agriculture is dominated by subsistent small holder production units with weak linkages to industry and the services sector in the district (Owusu & Waylen, 2013). This largely accounts for the over 80% of the population in the district engaging in one form of agriculture or the other yet with huge levels of poverty. The findings of the study suggest that climate change related occurrences in the district tend to account for the low productivity, low income and un-competitiveness in production, processing and distribution of the agricultural sector in the district. Given its central role in generating income and providing subsistence for majority of the people as well as its potential to lead the transformation of the economy, agriculture is expected to drive the new development agenda. This however, could not be realized in the wake of the climate change constraints that are evident in the district. The main focus of the district agricultural development policy over the medium-term is to accelerate the modernization of agriculture and ensure its linkage with industry through the application of science, technology and innovation. The idea is that modernized agriculture sector is expected to underpin the transformation of the district through job creation, increased export earnings, food security, and supply of raw materials for value addition and rural development as well as significant reduction in the incidence of poverty within the district. This will be complemented by an effective natural resource management and environmental governance regime.

Evidence from the field study shows that, to some extent, the district assembly together with its development partners have been able to institute some interventions geared towards modernizing agriculture in the district. For instance the District Agricultural Development Unit highlighted that:

> *''Due to the effect of climate change on agricultural production, the District has taken some steps with the help of our donor partners to train farmers on how to use improved seedlings and other advanced farming practices. Also, through stakeholder partnership, we have been able to construct an irrigation facility in the district for vegetable farmers''*

The study discovered that the district has trained some farmers on the use of improved seeds and planting materials, organized workshops to train some of the agro-chemical dealers on safe handling and proper use of agro-chemicals. The study further found that in order to encourage all year farming within the district, an irrigation facility has been constructed at 'Degedege' for vegetable farmers. The evidence suggests that these vegetable farmers are now able to do all year planting of their vegetables. Even though some interventions have been taken, it appears that not all farmers and agro-chemical sellers have access to such training sessions (Owusu & Waylen, 2013). The challenge is how to replicate these successes in other parts of the district and for other farmers who are engaging in other forms of agriculture.

Notwithstanding the interventions made so far towards modernizing agriculture and sustainable natural resources management, the study reveals that this trajectory of agricultural modernization has been plagued with challenges such as unreliable weather, high incidence of crop diseases continuous use of rudimentary methods of farming, low crop yield, inadequacy of irrigation facilities, adverse impacts of climate change on food security among many others.

The District Planning Officer (DPO) observed that:

> *''There is still more to be done in order to achieve the objectives of this initiative. We are taking these drastic measures because of the impact of climate change on our citizens. However, as you can see we need more to champion this huge task. The non-availability of resources is the major constraining factor that is impeding on our ability to achieve these plans. We also need a very strong stakeholder participation to achieve these objectives''.*

This reiterates the overwhelming need for the district to further integrate measures aimed at modernizing agriculture in the wake of climate change. Notwithstanding this initiative, key challenges such as vulnerability to environmental shocks, continuous flooding, drought, frequent bush fire, difficulties in resource mobilization tends to thwart the efforts towards modernizing agriculture in the district. The results confirm the findings of Nelson and Agbey (2005) who noted that the adaptive capacity of local government institutions to climate change appears to be low because they fail to completely achieve its intended purposes resulting from vulnerabilities from environmental shocks and human interventions such as delay in release of resources and support. The study further indicates that unattended areas such as low private sector engagement for climate change initiatives tend to explain some of the challenges facing the mainstreaming agenda.

4.1.3 Sustainable natural resource management

Managing natural resources in a sustainable manner remains a very important component towards climate change mainstreaming at the sub-national level (Boon & Ahenkan, 2012). This is mainly because livelihood at the local level largely depends on natural resources. Therefore, as climate change takes hold, there is an ever-growing need to develop and apply strategies that optimize the use of natural resources. Sustainable management of natural resources also demands

that an integrated soil and land management initiatives be considered with the aim of controlling soil nutrient depletion and soil erosion. Following from this, the findings of the study reveal that the district is endowed with numerous natural resources, including minerals, forest and wildlife, water bodies, land and quality soil. For the purposes of managing the available natural resources the district assembly has engaged in some levels of afforestation and targeted conservation of particular natural buffer systems in the district. For instance, the planting of 20,000 teak seedlings to ensure districtwide greening of vegetation has been undertaken.

The findings of the study also show that strategies such as controlled grazing and discouraging the keeping of large flocks at certain parts of the district have been put in place as a way of responding to the incidence of climate change. The district head for the Natural resource conservation Department (NRCD) explained that:

> *''The district has instituted some measures to enhance natural resources management. For instance, we have a tree planting programme that we are embarking on in the district. We have a SADA green project that we are rolling out at 'Namasa'-a town in the district. Through this project we have been able to plant a good number of climate friendly trees which are serving as a conservation zone in the district''.*

To corroborate this statement a district officer of the Forestry Commission (FC) opined thus:

> *''Natural resources and their management form a critical interface between climate change and development. The impacts of climate change can affect the quality and reliability of many of the services natural resources provide. On the other hand, natural resources play an important role and also serve as a first line of defense against climate change.*

He added that:

> *In the bid to integrate climate change into the district planning process, I can see the district engaging in Rose tree planting at 'Tainso'. The idea is to protect the Tain River from drying up during the dry season as witnessed in some years back. I think this is a bold step towards managing natural resources in the district''.*

The Presiding Member (PM) of the District Assembly also indicated that:

> *''Efforts being made so far can be seen in the enactment of some bye-laws that engender sustainable natural resources management. For instance, we must commend the district assembly for coming up with bye-laws on tree felling and bush fires''.*

However, the findings of the study reveal that even though some few actions have been taken in order to protect the natural resources base of the district for future generations, there appears to be many other challenges that need attention. Numerous natural resources management challenges appear to be evident in the district. Issues such as indiscriminate felling of trees, non-enforcement of bye-laws on tree felling, inadequate sanitation facilities to prevent open defecation, poor drainage system causing erosion and flooding in communities, inadequate access to potable water are very common within the district. The manager for Social Development and Improvement Agency (SODIA) lamented that:

> *''The district assembly is yet to undertake any enforcement of bye-laws on tree felling and bush fires. Bush fires and free-range logging are so pervasive in this district. The efforts to enact the bye laws were so commendable but the question is about their implementation''.*

According to the manager of White Olive Foundation (WOF):

> *''The district has not been able to cramp down the menace of chain saw and charcoal operations in the district for far too long. As stakeholders, we think the district must try and hold stakeholders meetings on chain saw and charcoal operations. This will enable us to come out with more practical strategies for reducing the inhumane activities in the district. So far, there are no Gazetted bye-laws on chain saw operations to check perpetrators of illegal felling of trees''.*

The study also indicated that the majority of the population of the district are farmers whose livelihoods are largely dependent on natural resources. It is therefore incumbent on all stakeholders to take clear-cut actions to sustain and properly manage the existing natural resources. Enforcement of bye-laws on tree felling and bush fires and gazetting bye-laws on

chain saw operations are most pressing since the impacts of these activities appear to be very paramount as regards climate change impacts. Over the years, the original forest vegetation has been subjected to degradation, caused mainly by the indiscriminate bush fires, slash and burn agriculture, logging and felling of trees for fuel. The cumulative effect is that secondary vegetation has become characteristic of cultivated areas (TDA, 2015). Timber species like Odum, Sapele, Wawa and Mahogany are found in places around the northern part of the district. In the semi-derived savanna areas, there are the absence of large economic trees as a result of logging, charcoal burning and mechanized farming. The grooves show that with protection, forest in the area can be productive because the soils in the sacred groves appear more fertile compared to soils lying a few metres away which have been laid bare by intensive cultivation and other unsustainable practices.

These observations reinforce the argument that even though natural resources serve as a necessary condition for livelihood at the local level, there appears to be limited initiatives by the district assembly to respond adequately to threats of climate change. An emerging body of evidence, exemplified by Ngigi (2016) indicates that communities at the sub-national level are more likely to experience the most negative impacts of climate change on natural resource mismanagement. However, attempts to mainstream measures to ensure proper and enhanced management of these natural resources in the wake of climate change is still at its infancy. This appears to be supported by the position of Yeboah-Assiamah et al. (2016b) who contend that sustainable natural resource management is very significant at the local level. The onus then lies on district assemblies to integrate policies and actions into the district assembly development plans for better actions to be taken at the local level.

4.1.4 Integrated Water Resources Management

The impact of climate change on resources is very widespread in all communities in Ghana (Musah-Surugu, & Ahenkan, (2014). This therefore makes it imperative for district assemblies to mainstream actions towards sustainable water resources management. The purpose of the integrated water resources management is to promote changes in practices which are considered fundamental to improved water resources management in the district. The process is comprehensive, participatory and involves planning and implementing water resource management programmes and developing initiatives that cater for the socio-economic needs of people in the Tain district while ensuring the protection of ecosystems for future generations. The findings indicate that initiatives regarding integrated water resources management adopted by the Tain district assembly involves buffer zone system and woodlots. Efforts are being streamlined for tree planting along the Tain River and the Nyimpene River which serve as a buffer zone system. The buffer zone system involves creating a buffer or barrier between a water body (river or dug-out) and farmlands to reduce encroachment on lands closer to water bodies. This usually involves the planting of trees along the river bank or within the catchment area of the dug-out. The trees serve as a break or buffer between the river or water body and farms. This is to help maintain the stability of the river to retain water at all times. The trees may be fruit trees, especially mango trees or woodlots such as acacia or teak trees. Be they fruit trees (for food) or woodlots (for fuel wood), the communities benefit from them and work to maintain them. In the words of a member of the Water Resources Commission (WRC) responsible for the district, he emphasized that:

> *''The forest reserves and the few groves around the water bodies in the district help to protect these water bodies like the Nyimpine and the Tain Rivers. This means these rivers*

could be good sources of water when constructing small town water systems in future and could serve as irrigation facilities for farmers around''.

The project is integrative because the Forestry Commission provides the seedlings, radio Tain helps with publicity, NGOs are involved, the local community assists while the Tain district does the coordination and supervision. This makes the project comprehensive, integrative and participatory, thus conforming to the principles of the integrated water resources management.

The findings of the study also show that the district has performed considerably well in terms of ensuring a comprehensive and integrated water resources management system. This is manifested in the remarkable level of improved water system in the district. The study found most of the integrated water resources management projects to be very beneficial and accounts for the significant improvement in drinking water of almost every part of the district.

By way of emphasizing the contribution of water resource management in the wake of climate change, the head of the Town and Country Planning Department (TCPD) indicated that:

''Due to the integrated water resources management system, the assembly together with NGOs, traditional authorities and para-statal institutions have improved water situations in the district. Based on the records, 57.2% of the population now have access to bore-hole/pump/tube well, 0.8% of the citizenry now use protected wells, 33. 0% now have access to and use pipe-born water (inside dwelling, outside dwelling and public stand pipe). Whereas 0.6% uses protected springs (0.6%)''.

Furthermore, he explained that:

''As it stands, the proportion using unimproved water sources is as follows:

i. *Unprotected well (0.1%)*
ii. *River/streams (6.8%)*
iii. *Dugout/Pond/Lake/Dam/Canal (0.6%)*
iv. *All others (0.0%)''.*

Evidence from the field suggests that at least nine out of every ten households (91.6%) in Tain district now have access to improved drinking water even though the impact of climate change on water resources is very prevalent. This is against the backdrop that water resources management appears to be very salient in terms of climate change mainstreaming process by the Tain district assembly. The district assembly through a partnership with NGOs and other stakeholders has been able to integrate vibrant water resources management system. Ahenkan and Boon, (2010) note that this reiterates the importance of water resources management in the wake of climate change. That is, every effort towards factoring climate change concerns into district assembly development frameworks must not be done is isolation with water resources management initiatives. Tachie-Obeng et al. (2013) supports this initiatives by adding that the first point of call for climate change mainstreaming is through a well-structured water resources management system where all stakeholders are integrated into the planning process.

4.1.5 Alternative livelihood strategies for responding to climate change

As the impact of climate change surges within local communities, it becomes more prudent for local actors to mainstream climate change into the development discourse (Boon & Ahenkan, 2012). The study located that as part of the district planning agenda, some effort has been made by initiating some alternative livelihood strategies to enable communities adapt considerably towards the climatic changes. This is against the backdrop that the critical role of alternative livelihood programmes in propelling economic growth and development in the wake of climate change has become very uncompromising. The study reveals that the Tain district assembly together with some para-statal institutions like the EPA and other stakeholders have pursued a number of alternative livelihood programmes aimed at facilitating effectivd response to climate

change in the Tain District. These include the training of women groups on alternative livelihoods ventures such as batik tie and dye making, soap and pomade making, cassava processing, mushroom production, for 100 unemployed youth among others.

The manager of a community based NGO called the Resource Link Foundation (RLF) highlighted that:

> *''The district assembly together with some stakeholders have helped in introducing some section of the community to alternative livelihood strategies to enable them respond adequately towards the impact of climate change. Some initiatives that come to mind are the soap making training, bee keeping seminars, grass cutter rearing training batik tie and dye sessions organized for the inhabitants in the community''.*

To corroborate this position, a member of the Natural Resource Conservation Department (NRCD) in the district added that:

> *''In areas such as Fula, Youmu-Abouso ,Jarro, Kwametenten, the district has organized technical trainings in soap making, batik tie and dye, beekeeping cassava processing, mushroom production, for 100 unemployed youth. This is aimed at enhancing the livelihood of people within the district as climate change surges up''.*

From the foregoing, it is adequate to submit that some level of alternative livelihood initiatives have been mainstreamed into the local assembly development agenda. This is to enable the local communities to respond to climate change concerns by using indigenous initiatives. Also, provision of alternative livelihood initiatives such as grass cutter rearing, bee keeping is so common in the district due to the involvement of key actors. This is against the backdrop that charcoal operations and other unscrupulous conducts heightening the impact of climate change are very pervasive in the district (Ahenkan & Boon, 2010). The bee keeping project is an alternative livelihood enhancing project aimed at controlling the menace of bush fires and the felling of trees for charcoal production.

However, the challenge of effectively mainstreaming these alternative programmes to manifest in the lives of the majority of the population in the district is still missing. Communities within the district are yet to desist from the numerous charcoal burning operations, illicit felling of trees, pervasive bush burning for game purposes among many others. The table below show some climate change related initiatives taken by the Tain district as means of responding to climate change as evident in the MTDP (2014-2017).

Table 4.1 Synthesis of climate change initiatives pursued by Tain district

	Initiatives	Status
	Train 4,000 farmers on the use of improved seeds and planting materials	on-going
	Organize 10 workshops to train all agro-chemical dealers on safe handling and proper use of agro-chemicals	ongoing
	Rehabilitate and construct 5 irrigation dams and educate farmers on their proper use	ongoing
	Construct 4 storage facilities	Not implemented
	Organize 9 community fora to sensitize communities on the issues of climate change	Not implemented
	Drill 84 boreholes in the district	Fully implemented
	Lobby for 6 small town water systems	Fully Implemented
	Organise task force annually to check for charcoal burners	Not Implemented

Source: Adapted from MTDP for 2014-2017 for Tain district (2016).

The central observations from the study indicate that though traces of climate change concerns can be realized from the MTDF of the district, it is very limited and not well integrated into the development planning of the district. This supports the findings of FitzGibbon and Mensah (2012) that mainstreaming of climate change at the district level is at the elementary stages even

though the impacts of local activities are widespread. Huq et al. (2004) and the UNPEI's (2011) frameworks for mainstreaming have identified awareness creation and building of institutional capacities as the entry points for mainstreaming. An effective institutional response to climate change requires strong coordination between the various implementing agencies and all stakeholders. However, in the Tain district, the strengthening of institutional capacity for mainstreaming climate change was yet to be achieved due to the lapse oversight and porous coordination. As a consequence, a vacuum exists regarding the institutional architecture, coordination and harmonization necessary for effective action on climate change at the district level.

4.2 Budgetary commitment/allocation for integrating climate change into district assembly development agenda

As stipulated in the Local Government Act (1993) section 92 (3) of Act 462, budgets of the various departments of the district assembly must be integrated into the composite budget to facilitate implementation. Consequently, the Composite Budget of the Tain District Assembly for the 2014 Fiscal Year and beyond is prepared from the Annual Action Plans lifted from the 2014-2016 DMTDP.

With respect to mainstreaming climate change, the study sought to uncover the budgetary commitments for integrating climate change concerns into the district assembly development plans. The findings of the study indicates that the National Development Planning Commission guidebook for the Medium-Term Development Plan represents the most significant policy instrument in terms of climate change mainstreaming in the districts. This document stipulates that MMDA, must integrate some level of climate change concerns in the budgeting process for

their districts. Also, some of the initiatives taken so far include the integration of climate change into the Functional Organisation Assessment Tool (FOAT) which is a prerequisite for budgetary allocations to District Assemblies development projects and programmes. This national level measure is used to examine a district's achievements against key development indicators and criteria or benchmarks which then determine budget allocations to the District Development Fund. Incorporating climate change in the FOAT is supposed to be motivation for districts to take climate impacts and adaptation seriously in their plans.

Moreover, the Ministry of Finance created the Natural Resources, Environment and Climate Change Unit in 2010 for the purpose of overseeing, coordinating and managing the financing of natural resources and climate change activities. However, the study shows that these initiatives are weakened as there are presently no active mechanisms to track resources generated for climate change actions within the district level and also the non-existence of structures to monitor the inclusion of climate change into district assembly budgets. Arguably, the absence of a clear financing scheme for climate change issues in the district tends to frustrate the mainstreaming process. This finding brings the argument of Thomas and Grindle, (1990) to the fore:

> *''Ultimately, the effectiveness of any policy is measured by its outcomes, as 'no matter how effective a policy may be at achieving certain goals in principle, it is useless if it cannot be implemented'' (1178).*

The study further reveals that whereas the district assembly had made some budgetary allocations for organizing capacity building workshop for members of DPCU on gender and disability mainstreaming in planning and budgeting at GHC 7,515.00 in 2014, climate change

mainstreaming was neglected (TDA, 2015). Furthermore, compared to other pressing global challenges, climate change is not consciously budgeted for to enable district to respond adequately to this conundrum. For instance, on capacity building, out of the total of GHC 42,720.00 allocated for capacity building exercises in 2014 within the district, no amount was allotted for climate change related capacity building activities by the Tain district assembly. Almost all the disbursement centred on revenue mobilization and clerical issues related to training sessions. Likewise, out of the GHC 373,442.00 allotted for prioritised projects for the utilization of the 2014 District Development Fund, no amount was designated for climate change related issues in the district. The District Planning Officer (DPO) lamented that:

> *''Fine, I am aware of something called climate change, however, the district has not yet considered it in our budgetary process. We do not have any specific allotments towards climate change but what we have is on environment and other issues that are climate change related. So far, we have not consciously included climate change into the district plans ''.*

To reaffirm this statement, the District Budget Officer (DBO) also said that:

> *''Regarding climate change related expenditure, it is not yet recognized through any specific tagging of expenditure within the district budget. Most climate change relevant expenditure captured in our 2015 budget for instance is concentrated in actions where tackling climate change is not a stated objective of the expenditure''.*

According to the study, climate change related expenditure has not been explicitly recognized through specific coding of expenditure as a policy theme within the district budget, although it has been incorporated in a number of national planning documents. Due to the absence of climate change as an explicit policy theme in the budget, attempts to estimate the level of climate change-relevant spending requires a manual review of all programmes and line items from the documents.

The findings of the study also shows that off-budget climate change related spending were also common in the district. Some NGO funding initiatives were not collated in a manner consistent to the district budget to allow for a comprehensive assessment of all related spending.

The table below indicates some climate change related budget items, the funding agents and the amount involved in those projects in 2014.

Table 4.2 Budgetary allocations on climate change related projects

AGENTS	DESCRIPTION OF PROJECT	(GH₵)
TDA	Mechanisation of 20 Boreholes district wide	180,000.00
	Provide opportunities for local participation that involves men and women making decisions and taking action using the natural resource management process	6,811
	Mainstream sustainable land and environmental management practices in agricultural sector planning and Implementation	500
	DONOR GRANTS	
AFD	Water and Sanitation Hydro-Geological Studies	13,060.00
IDA	Mechanization of 16 Boreholes	13,600.00
	POOLED FUNDING	
	Promote partnerships between the public and private sectors for the protection and conservation of water Resources	65,621

Source: Field report (2016)

In terms of legislative support for climate change, the study uncovers that there appears to be unconvincing oversight by the legislature to oversee climate change issues across the country and more importantly among all districts. That is, there is no clear parliamentary committee on climate change even though it is the greatest global challenge facing humanity. However, there

exists some level of interest by some parliamentarians on climate change though such groups do not have the same influencing potential as a select committee in parliament would exude. These partly explain why district budgets fail to adequately capture climate change related issues.

Asante et al. (2015) noted that the budget allocation for climate change related actions in the district indicates a very low base for the accomplishment of the objectives of the National Climate Change Policy (NCCP). At the national level, climate change related expenditure in 2014 is noted to have been approximately two percent of government expenditure and 0.5 percent of GDP. The results of the study appears to reaffirm the findings of Asante et al. (2015) who argue that much will have to be done at the local government level to secure implementation of the national climate change policy at all levels of development. This is against the idea that there is little awareness and education of what the national climate change policy is, what it needs to be done at the sub-national government, and the likely level of spending necessary. To corroborate the findings of this study, Buchner et al. (2014) assert that it is highly unlikely that the funds raised will be adequate to meet all identified needs emanating from climate change. This reinforces the position that effectiveness of public spending on climate change actions is fraught with enormous difficulties in local assemblies.

4.3 Institutional/structural mechanisms available for mainstreaming climate change

As posited by the WDR (2010), efficient and effective mainstreaming depends to a large extent on the capacity of the institutions to understand climate change situation and to identify appropriate areas of intervention. Huq et al. (2008) further postulate that enhancing institutional capacity and supportive structural mechanisms are very crucial for effective mainstreaming of climate change concerns into local level development planning.

4.3.1 Capacity building for policy stakeholders

Building a strong capacity among policy stakeholders remains very necessary for responding to climate change menace. Therefore, institutions including MMDAs are expected to take pragmatic measures to build the capacity of their workforce in that regard. The Tain District Assembly is no exception concerning capacity building for planners. Boon, & Ahenkan, (2012) show that policy stakeholders must be trained as part of institutional arrangements so that planning will be consistent with contemporary challenges. This underscores the imperativeness for building a strong capacity of district planners as an attempt to mainstream climate change concerns into LADA (Tompkins & Adger, 2003).

The findings of the study indicate that in the Tain district assembly, there exists differential capacities as far as climate change is concerned. The study uncovered that in terms of climate change awareness and training, some staff (approximately 30%) had undergone training or attended workshops or conferences to enhance their capacities. Officers include the District Chief Executive (DCE), the District Coordinating Director (DCD), the District Planning Officer and the Assistant District Planning Officer, the head of the district Environmental Sanitation Unit (ESU, the Director of MoFA and selected staff of NADMO with the district. The rest of the staff of the assembly and the decentralized departments and agencies of the Assembly had no capacity building training relating to climate change. The District Finance Officer (DFO) opined that:

> *''Building a strong capacity for mainstreaming has not been done for all policy stakeholders in the Tain District. Taking the district assembly for example, it is crystal clear that all the workers have not been trained on climate change related issues. Just some few people have gained such knowledge through a conference organized by the Regional Coordinating Directorate''.*

He further explained that:

> *''As it stands, the district has not been able to organize any capacity building session on climate change. Myself, I have not received any capacity building training despite the numerous threats posed by climate change in this district''.*

The findings of the study appears to be consistent with the findings of Bawole, (2013) which indicates effective integration cannot deliver its intended purpose unless there in an institutional arrangement to engage in capacity building for local planners and policy stakeholder. As evidenced in this study, even though some limited capacity building has been undertaken, there is still the need for all policy stakeholders to be well trained on climate change related concerns. The argument here is that Tain district assembly had limited capacity building training on climate change even though the impact of this conundrum is very clear in all facets of the district. The findings further reveal that the understanding of the departmental heads/agencies and training on climate change was low. This appears to be supported by the suggestions of Ahenkan et al., (2013) which posits that capacity for climate change concerns at the local level seems to be limited in diverse ways. Therefore the Tain district assembly must consciously plan to build the capacity of local planners and policy stakeholder. This will enhance climate change mainstreaming interventions in the Tain District.

4.3.2 Institutional involvement in climate change mainstreaming

Involving the entire institutional structure tends to engender smooth mainstreaming in all cases. As highlighted by Domfeh (2004), the quest for good environmental management interventions will only be attained when institutional structures are well engaged. Institutional involvement for climate change mainstreaming will demand that all the departments, para-statal institutions and other institutions at the district assembly level contribute towards the mainstreaming process.

The study uncovered that the main departments or units involved in climate change related issues are the District Agricultural Development Unit (DADU), Natural resource conservation Department, National Disaster Management Organization (NADMO) and Environmental Sanitation Unit (ESU). Not all the institutional structures at the district assembly involved in climate change concerns and the dynamics of this global threat. Consequently, climate change concerns are not well captured in the plans and budgets of the Tain district. The district director of Agriculture itemized that:

> *''The institutional involvement in climate change mainstreaming is very limited in the Tain District. For me, this accounts for the reasons why climate change has not been well integrated into the planning processes of the district. Just some few departments are engaged in climate change issues. Notwithstanding the threats of climate change to all sectors, others feel that it is not within their line of operations''.*

The position of the study appears to be in line with the findings of Asante (2002) who suggests that effective mainstreaming of climate change has not been attained in most districts due to limited involvement of other departments except the ones that directly involve in environmental concerns. It can be deduced form the above that effective mainstreaming of climate change into the development plans in Tain District will not be without a clear institutional involvement of the assembly. This also appears to be consistent with the findings of Crook and Ayee (2006) who postulate that responding to climate change and environmental challenges at the district level requires a concerted effort and an active institutional involvement regime. Quay (2010) further emphasizes that existing traditional governance approach at the local level always result in proper response to threatening environmental issues unless local level engagement is encouraged at the apex.

4.3.3 Formalism of institutional structures

Another overarching observation from the study is that institutional capacity for mainstreaming climate change into local level development planning also includes building strong institutional structures. As prescribed by NCCP (2013), MDAs are required to take frantic measures to integrate climate change concerns into the development plans of their sector. Also, it is enshrined in the National Development Planning Act, 1994 (Act 480) that all developmental functions of MMDA are expected to be consistent with the plans of the National Development Planning Commission (NDPC). Put succinctly, all developmental projects engaged in by all ministries and sector agencies including decentralized institutions are expected to be in tandem with the guidelines and stipulations of the NDPC. Needless to add therefore that responding adequately to climate change issues in the Tain district demands that structures enshrined in the NCCP such as climate change committee be equally formed at the district level. The study however uncovers that the Tain district continues to mimic what is often referred to as 'formalism' (Riggs, 1990) in its institutional structures. As recorded by Riggs (1990), there are often discrepancies between planned interventions and the ideal interventions executed even though the NCCP, (2013) and the NDPC Act 1994, (Act 480) prescribe that measures be instituted to engender climate change mainstreaming, there appears to be an institutional deviation from these norms. The District Director of Health (DDH) posited that:

> *''The institutional mechanism for responding to climate change measures is lacking. For me, there are numerous climate change related health constraints but there are no structures for solving them. I am aware the national planning agencies have a policy on climate change but I am yet to see the interventions inherent in the policy in the Tain district. For instance, the recent outbreak of pneumococcal meningitis in the district can be linked to climate change''.*

The DDH further lamented that:

> *''Climate change, coupled with severe drought, increased mobility of population and the coming on stream of new strains of organisms have largely accounting for changes in the epidemiology of Meningitis and the way it is occurring and spreading. Also, the outbreak of cholera and CSM has increased tremendously in the district. This therefore means the Tain District Assembly must formalize these tenets in the district development plans ''.*

To corroborate this position, the district manager of Natural Resource Conservation Department (NRCD) noted that:

> *''Tain district is yet to mainstream the measures by the NDPC and the NCCP into the district management system. For instance, there is a national climate change committee, this means that we can also do same at the district level. To the end that there is nothing of that sort in the Tain district, we can say that there are some deviations from the position of the policy.*

The manager of NRCD further explained that:

> *Notwithstanding the fact that the effect of climate change is very common, the Tain District is yet to take these institutional measures in place. For instance, non-timber forest resources such as snails, tortoises, numerous wild animals and many other environmental resources were very common. However today, the story appears to be very different as there is a very sharp contrast. Therefore the institutional response for district as prescribed in the policy needs to be streamlined''.*

The study observed categorically that unlike other cross-cutting issues like poverty eradication, gender and disability that have been mainstreamed into the administrative and governance structure of the Assembly, institutional arrangements for mainstreaming climate change was lacking in the Tain District. The study shows that notwithstanding the impact of climate change on sustainable development of the district, there are still no climate change desk officers, neither at the Assembly nor the decentralized departments/agencies of the Assembly. The study further contends that there has never been a district climate change committee to champion climate change related concerns in the district assembly. Clearly, planning for climate change was

lacking and even planning for development at this interface was largely ineffective. Are therefore not visible enough. It appears most of the initiatives, for coping with climate change were rather ongoing social interventions (Crook & Ayee, 2006). As a result, mainstreaming climate change concerns into the district assembly planning scheme even gives a big challenge.

4.4 Challenges faced by local assemblies in mainstreaming climate change into LADA

Mainstreaming climate change at the district level is saddled with a plethora of challenges (FitzGibbon & Mensah, 2012). The study therefore sought to uncover the constraints faced by the Tain district in mainstreaming climate change in the assembly's development agenda. The findings of the study reveal that challenges militating against climate change mainstreaming in the Tain district include the absence of clear institutional structures at the district level for dealing with climate change, climate change education, poor capacity building interventions, poor budgetary commitment towards climate change related issues at the local assembly and lack of active collaboration between stakeholders.

4.4.1 Absence of clear institutional structures at the district levels for dealing with climate change

Securing coherence on climate change actions across districtwide stakeholders is a major challenge in the absence of a well instituted structure or a focal coordination unit for climate change. The study observed the lack of key structures in the district. For instance, a key actor explained thus:

> *''There is no clear cut unit designated for dealing with climate change concerns. Unlike other issues such as gender and disability, climate change issues still fall within the broader scheme of things. Hence, there is no clear cut coordination and commitment towards managing climate change''.*

There is the need to set up a congenial institutional structure that makes the mainstreaming process friendlier (Schlenker & Lobell, 2010). What appears puzzling is that numerous cross-cutting issues such as gender, health, disability among others have been recognized in the MTDPF along with other issues for mainstreaming climate change into District Medium Term Development Plans (DMTDP). This tends to suggest that climate change is not one of the priority or important issues in the district. Unlike health, disability and gender, issues concerning climate change are yet to be mainstreamed into the administrative structure of the district assembly. Also, the non-existence of these administrative structures renders planning for climate change almost impossible and very difficult to engage in at the local level. The findings of the study indicate that for mainstreaming to be effective and more proactive, there is the urgency for at least a climate change desk officer if not a district climate change committee at the district assembly to advocate, facilitate and coordinate climate change related projects within the Tain District.

4.4.2 Poor capacity building interventions and climate change education

Raising awareness and building capacity of district level planners on climate change issues through tailored training opportunities appears to be underdeveloped in the Tain district. The study discovered that notwithstanding the importance of capacity building, sensitization and awareness creation for achieving successful climate change mainstreaming, there are still a section of the local level planners who do not possess any or have limited knowledge on climate change. As indicated in the findings of the study, some officials of the Tain district, managers of decentralized institutions in the district and some NGO operators among others have no or limited idea on climate change.

For instance, DPO explained that:

> *''Capacity for dealing with climate change issues is very limited. So far, the district is yet to organize its own training on climate change concerns. Specific training interventions into the various climate change concerns are very poor, whiles the manifestations of climate change in the district is very clear and glaring''.*

Taking cognizance of the fact that effective and efficient planning is contingent on knowledge and understanding of climate change, a comprehensive knowledge on risk assessment of current and future climate change impacts is imperative. Also, the existing vulnerability situation in the district in the wake of threatening change in the climatic condition serves as a necessary condition for facilitating planning and engendering a resilient community. The absence of these measures tend to endanger any planning process for climate change and makes it more reactionary other than proactive (Easterling et al., 2004; UNFCCC, 2006; IPCC, 2007b). At best, there is the urgency for better climate change training sessions so that the likely climate change outcomes of the district development planning are better understood and well integrated into the planning process. It is also imperative for planners and stakeholders to become the recognized focal persons for climate change issues in the district. This however does not come without requisite training and awareness sessions.

4.4.3 Inadequate budgetary commitment towards climate change related issues at the local assembly

Plans, objectives and strategies only get accomplished through efficient budgetary commitment (Buchner, 2014). However, climate change mainstreaming in the Tain district appears to suffer from a huge budgetary constraints. In fact climate change related concerns appear to be missing in the district assembly budget statement. The study discovered that nowhere in the budgetary statements from 2014-2015 was there a mention of climate change in the district budget. This

phenomenon is partly due to the lack of parliamentary oversight of the budget process as it relates to climate change expenditures. For example, the DBO averred that:

> *''There are no clear-cut commitments for climate change issues in the budget. What we do is the usual ongoing social interventions such as borehole drilling, responding to drought and other issues that may have climate change bearings. However, a deliberate attempt to capture climate change into the budget is yet to be seen. The lack of parliamentary oversight on climate change budgeting is also a factor as there is no oversight committee on climate change''.*

Therefore, the study contends that serious consideration should be given to establishing a parliamentary select committee on climate change. This will help to propel district assemblies to include budgetary allocations for climate change. Since there is no special fund set aside for championing climate change issues, the assembly is not mandated by law to spend a certain percentage of its annual funds on climate change. This leaves the mainstreaming of climate change at the mercy of policy makers and planners who decide whether or not to include climate change issues and if they should, the kind of issues that should be included.

The District Finance Officer (DFO) added that:

> *''since climate change is a cross-cutting issue which poses a challenge to sustainable development, it would be given attention if by statutory requirement the District is mandated to spend a percentage of the district revenue on climate change related issues''.*

4.4.4 Lack of active collaboration between stakeholders

Integration of climate change concerns into local planning processes provides a formalized channel for ensuring that community priorities and plans aim for resilient development, and gives local government the mandate to adapt their plans and budgets to local conditions and climate change impacts. Within this process, the importance of involving all relevant

stakeholders remains very cardinal since they bring a varied view for enhancing the mainstreaming process (Betsill & Bulkeley, 2006). However, the study reveals that active engagements of all stakeholders in other cross-cutting issues other than climate change are very common in the district. Regarding climate change mainstreaming in the district, evidence of the study suggests that stakeholder limitations on collaboration is very pervasive. This appears to corroborate the findings of (Dumenu & Obeng, 2016). For instance, the study indicates that other stakeholders are ill-informed about mainstreaming climate change into the district assembly development agenda. Meanwhile, effective mainstreaming regime requires that all stakeholders be involved in the planning and implementation face of climate change concerns.

4.5 Conclusion

The chapter attempted to present and discuss the findings gathered from the field. From the discussions so far, it is evident that for climate change to be well integrated into local assembly development plans there is the need to rehash three clear elements: (a) the adoption of overall policy regime that supports climate change expenditure at the sub-national level; (b) an institutional framework that facilitates climate change initiatives at the sub-national level (c) a financial mechanism through which climate change expenditure initiatives are channelled. Example, the national budget and other funding mechanisms. Such funding should support activities, projects and programmes that are recognised as being part of the national response to climate change.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a summary of the research findings and conclusions drawn from the study. The final part of the chapter provides recommendations based on the findings of the study.

5.1 Summary of Major Findings

This study sought to examine the extent to which and how climate change programmes are being mainstreamed into Local Assemblies Development Agenda in Ghana by employing Tain district of the Brong-Ahafo Region as a case study. The study adopted the case study design within the qualitative research paradigm. The study adopted purposive sampling techniques and all twenty-seven (27) respondents were interviewed individually. This section summarizes the key findings of the study and is presented thematically.

5.1.1 Mainstreaming climate change into District Development Plans

The study reveals that the initiatives taken to respond to climate change in the district can be categorized into the following thematic areas: human/capacity development on climate change, modernization of agriculture in response to climate change, sustainable natural resource management. Other initiatives include integrated water resources management practices, integrated soil and land management, advancement of alternative livelihoods strategies.

Regarding capacity building to respond to climate change impacts, the study found out that some level of education, capacity development and sensitization has been done in the district. However, not all the district planners and policy stakeholders have been adequately trained on

climate change issues. Moreover, these sensitization exercises did not involve the majority of farmers in the district as core target recipients. The study further reveals that these limited education and awareness programmes were organized predominantly by some para-statal institutions both at the District and regional levels on environmental awareness/climate change.

Also, evidence from the field study indicates that to some extent, the district assembly together with its development partners have been able to institute some interventions geared towards modernizing agriculture in the district. The district has trained some farmers on the use of improved seeds and planting materials, organize workshops to train all agro-chemical dealers on safe handling and proper use of agro-chemicals. The study further indicates that in order to encourage all-year farming within the district, an irrigation facility has been constructed at 'Degedege' for vegetable farmers.

The study further revealed that some initiatives have been taken to ensure natural resources conservation within the district. The district assembly has engaged in some levels of afforestation, targeted conservation of particular natural buffer systems have also been done to enhance conservations in the district. The planting of 20,000 teak seedlings for districtwide greening of vegetation is a case in point supporting natural resources conservation. The finding of the study also shows that strategies such as controlled grazing and discouraging the keeping of large flocks at certain parts of the district has been put in place as a way of responding to the incidence of climate change.

The findings of the research also indicate that initiatives regarding integrated water resources management adopted by the Tain district assembly involve buffer zone system and woodlots.

Efforts are been streamlined for tree planting along the Tain River and the Nyimpene River which serve as a buffer zone system considering the emergence of climate change.

As part of the district planning agenda, alternative livelihood strategies have been initiated to enable communities adapt considerably to climatic changes. The Tain district assembly together with some para-statal institutions like the EPA and other stakeholders have pursued a number of alternative livelihood programmes aimed at facilitating adequate response to climate change in the district. Notwithstanding these initiatives, the study discovered that these strategies factored into the district assembly's medium term development plan is not enough to match the impact of climate change in the district.

5.1.2 Budgetary commitment/allocation towards climate change mainstreaming

Effectively mainstreaming climate change in development planning requires that budgetary provisions be made to support the intentions and plans. The study therefore sought to find out the budgetary commitments towards integrating climate change concerns into the development of the district assembly development plans. The findings of the study indicate that as compared to other pressing global challenges, climate change is not well budgeted for at the district level to enable district assemblies to respond adequately to this conundrum. Climate change related expenditure has not been explicitly recognized through specific coding of expenditure as a policy theme within the district budget, although it has been incorporated in a number of national planning documents.

5.1.3 Institutional/structural mechanisms available for mainstreaming climate change

Efficient and effective mainstreaming depends to a large extent on the capacity of the institutions to understand climate change situation and to identify appropriate areas of intervention. The findings of the research indicate that the capacity of decentralized institutions weak as most local level planners have not benefited from adequate capacity building programmes on climate change.

Another overarching observation from the study is that institutional capacity for mainstreaming climate change into local level development planning is not limited to capacity building training alone, but the building of strong institutional structures for responding adequately to climate change issues. The study observed categorically that unlike other cross-cutting issues like poverty eradication, gender and disability that have been mainstreamed into the administrative and governance structure of the Assembly, institutional arrangement for mainstreaming climate change was lacking in the Tain District.

The study further shows that notwithstanding the impact of climate change on sustainable development of the district, there is still no climate change desk officer, neither at the Assembly nor the decentralized departments/agencies of the Assembly. The study further contends that there has never been anything like a district climate change committee to champion climate change related concerns in the district assembly.

5.1.4 Challenges faced by local assemblies in mainstreaming climate change into LADA

Mainstreaming climate change at the district level is saddled with a plethora of challenges. The findings of the study reveal that challenges militating against climate change mainstreaming in

the Tain district includes the absence of clear institutional structures at the district level for dealing with climate change, climate change education as well as poor capacity building interventions and poor budgetary commitment towards climate change related issues at the local assembly and lack of active collaboration between stakeholders.

The absence of clear institutional structures at the sub-national level for dealing with climate change makes it quite challenging and operationally unbearable to coordinate climate change related issues. The findings of the study show that in order to secure coherence for effective and efficient mainstreaming of climate change into local development agenda, there is the need to set up a congenial institutional structure that makes the mainstreaming process more friendly as argued by Keskitalo (2010).

Also, raising awareness and building capacity of district level planners on climate change issues through tailored training opportunities appears to be underdeveloped and not widespread in the Tain district. The study uncovered that notwithstanding the significance of capacity building, sensitization and awareness creation towards achieving successful climate change mainstreaming, there are still a section of the local level planners for example; decentralized departments and units in the district who do not possess any or have limited knowledge on climate change. This makes it problematic to plan for climate change when there is no in-depth knowledge about the phenomenon.

The findings of the study further reveal very poor budgetary commitment towards climate change related issues at the local assembly. There is no special fund set aside for championing climate change issues. Therefore, the assembly is not mandated by law to spend a certain percentage of its annual funds on climate change. This leaves the mainstreaming of climate

change at the mercy of policy makers and planners who decide whether or not to include climate change issues and if they should, the kind of issues from their discretion that should be included. To corroborate the findings of this study, Adu-Boateng (2015) equally argues that, non-existence of a clear budgetary commitment for climate change appears to account for the failure in mainstreaming climate change plans of MMDAs.

Moreover, an effective climate change mainstreaming regime requires that all stakeholders be involved in the planning and implementation phase of climate change concerns. However, the study reveals that active engagement of all stakeholders in other cross-cutting issues other than climate change are very common in the district. Regarding climate change mainstreaming in the district, the study reveals that stakeholder limitations on collaboration are very pervasive. This is largely attributed to the excessive bureaucracy in the administrative structure among other factors (Yeboah-Assiamah et al., 2016a).

5.2 Conclusion

This study sought to examine the extent to which and how climate change programmes are being mainstreamed into Local Assemblies Development Agenda using Tain district as a case study.

From the discussion and findings, the study draws four (4) conclusions.

Firstly, the study argues that climate change concerns are yet to be well integrated into the district assembly planning process. It can be concluded from the discussions so far that, even though climate change concerns are clearly spelt out in the GSGDA I & II, the district level integration is still at its infancy. The main initiatives taken concerning climate change in the Tain district includes human/capacity development on climate change**,** modernization of agriculture in response to climate change, sustainable natural resource management. Other initiatives include

integrated water resources management practices, integrated soil and land management, advancement of alternative livelihoods strategies.

Secondly, the study argues that compared to other pressing global challenges, climate change is not well budgeted for at the district level to enable district assemblies respond adequately to this conundrum. Evidence from the study suggests that climate change related expenditure has not been explicitly recognized through specific coding of expenditure as a policy theme within the district budget, although it has been incorporated in a number of national planning documents such as GSGDA I & II.

Thirdly, it can be deduced from the foregoing that there are no strong institutional structures for responding adequately to climate change issues within the district assembly. The study further contend that notwithstanding the impact of climate change on sustainable development of the district, there is no committee or desk designated for climate change concerns either within the Assembly or any of the decentralized departments/agencies in the district. The study further conclude that there has never been anything like district climate change committee to champion climate change related concerns in the district assembly.

Finally, the study observes and concludes that the overarching challenges militating against smooth climate change mainstreaming incudes the absence of clear institutional structures at the district level for dealing with climate change. The study also concludes that poor capacity building interventions and climate change education, poor budgetary commitment towards climate change related issues at the local assembly and lack of active collaboration between stakeholders are all challenges confronting the mainstreaming of climate change in development planning.

5.3 Recommendations

This sub-section provides recommendations based on the findings and conclusions of the study. First and foremost, it is imperative for district assemblies and decentralized institutions to make a conscious effort to mainstream climate change concerns into the district medium-term development plans. Climate change issues in the local assembly development plans must not be contradicted with other challenges but be clearly represented as climate change issues to avoid contradictions. Lackadaisically enforcing the concept will degenerate into a feeling of even greater levels of apathy among community members, therefore, the district assembly, decentralized institutions, NGOs and other stakeholders must make a conscious effort of including climate change issues in their quarterly or annual plans. However, as evidenced from this study, a lot more work needs to be done for climate change mainstreaming to be successful. This will include human development through capacity building, sensitization and awareness programmes.

5.3.1 Capacity building, sensitization and awareness creation for stakeholder for climate change planning

Mainstreaming climate change into local assembly development planning will largely be determined by the capacity of the planners. Therefore, for mainstreaming to be effective, it has to be grounded on reliable information on climate phenomena in the district. The study therefore recommends that capacity building, sensitization exercises, awareness creation and knowledge gaining sessions be organized for district assembly officials, staff of decentralized institutions, NGO practitioners and other stakeholders. Capacity development for community members and implementing agencies must be entrenched to traditional leaders, students and farmers within the

Tain district. Cutting edge conference and workshop on climate change will enhance the knowledge-base of sub-national planners therefore there is the urgency for climate change capacity building.

5.3.2 Strong budgetary commitment for climate change related issues

Proper climate change mainstreaming regime demands that budgetary commitment be made at a regular intervals for integrating climate change concerns into the district development planning. It study is therefore prudently recommends that a clear-cut budgetary commitment towards climate change be included in the annual budget statement for the district. This could take the form of a percentage of the annual budget amount. The study recommends that at least, climate change related issues should take five percent (5%) of the annual budget statement of the district total budgetary amount for the year. Recommendations put forward include the need for a district Task Force on Climate change-related financial disclosures and budgeting. At best, this task force must be tasked with supervising and ensuring that climate change concerns are integrated into district budget statements.

5.3.3 Climate change institutionalization

The study discovered that institutional mechanisms for climate change were non-existent in the Tain district. Moreover, mainstreaming climate change concerns into the district assembly system does not occur in a vacuum. It is therefore imperative for MMDAs to institutionalize mechanisms that will create an enabling environment for climate change mainstreaming. It is therefore recommended that the administrative and governance structure of the district assembly must create space for climate change concerns at the district level. To this end, the study further

recommends that efforts must be made to create a climate change desk office within the district assembly. In addition to the climate change desk officer, it is recommended that the district must initiate a process towards instituting a district climate change committee. For climate change mainstreaming to be effective and more proactive, there is the urgency for at least a climate change desk officer if not a district climate change committee at the assembly to advocate, facilitate and coordinate climate change projects within the District. The study argues that by so doing, both the district climate change committee and the climate change desk officers can coordinate and facilitate climate change concerns in the district.

5.3.4 Enforcement of bye-laws on tree felling and bush fire

The study contends that the indiscriminate felling of trees and the incidence of bush fire and its associated impact on climate change in the district is as a result of the lack of enforcement of bye-laws on tree felling and bush fires. Enforcement of bye-laws on tree felling and bush fire and the absence of gazetted bye-laws on chain saw operations are most pressing as the impact of these activities appears to be very paramount in the wake of climate change conundrum. The original forest vegetation has been subjected to degradation, caused mainly by the indiscriminate bush fires, slash and burn agriculture, logging and felling of trees for fuel over the years. The activities of charcoal operations as a commercial venture also needs attention of all stakeholders as climate change conundrum comes to the fore. Recommendations put forward to make up for the yawning gap between the impact of climate change and initiatives taken must include the enforcement of bye-laws on tree felling and bush fire in the Tain district. There is also the need for the district to gazette bye-laws on chain saw and charcoal operations and also enforce requisite laws in the district as the impact of these activities is so damming.

5.4 Areas for Further Studies

Further studies on the phenomenon of climate change mainstreaming into district assembly development plans could employ the quantitative paradigm to survey more respondents across the districts to better understand the perspective of the people on climate change mainstreaming. Wide scale quantitative studies could lead to valid generalizations.

Again, further research could assess variations in the extent of climate change mainstreaming between urban, peri-urban and rural assemblies and the factors underpinning contextual variations.

Finally, researchers could also expand studies on climate change mainstreaming among all transitional zones in Ghana or compare two or more districts within the transitional zone in order to better examine the extent of climate change mainstreaming into the development plans of local government outfits.

REFERENCES

Abdul-Ganiyu, S., Mfum, S. Y., & Apusiga, T. A. (2013). Assessing the performance of subinja irrigation scheme in the Wenchi Municipality of the Brong Ahafo Region of Ghana. *International Journal of Agriculture Innovations and Research*, *1*(6), 200-207.

Abu, M., Codjoe, S. N. A., & Sward, J. (2014). Climate change and internal migration intentions in the forest-savannah transition zone of Ghana.*Population and Environment*, *35*(4), 341-364.

Adger, W. N., Huq, S., Brown, K., Conway, D., & Hulme, M. (2003). Adaptation to climate change in the developing world. *Progress in development studies*, *3*(3), 179-195.

Adu-Boateng, A. (2015). Barriers to climate change policy responses for urban areas: a study of Tamale Metropolitan Assembly, Ghana. *Current Opinion in Environmental Sustainability*, *13*, 49-57.

Agarwal, A., Perrin, N., Chhatre, A., Benson, C. S., & Kononen, M. (2012). Climate policy processes, local institutions, and adaptation actions: mechanisms of translation and influence. *Wiley Interdisciplinary Reviews: Climate Change*, *3*(6), 565-579.

Adjei-Nsiah, S., Issaka, R. N., Fening, J. O., Mapfumo, P., Anchirina, V., & Giller, K. E. (2010). Farmers' perceptions of climate change and variability and existing opportunities for adaptation in Wenchi area of Ghana.*International Journal of Climate Change: Impacts and Responses*, *2*(2), 49-60.

Agyeman-Bonsu, W., Minia, Z., Dontwi, J., Dontwi, I.K., Buabeng, S.N., Baffoe-Bonnie, B., Yeboah, F.A., Ofori, E., Gyasi, E.A., Karikari, O., Dugan, E., Nelson, W., Agbey, S.N.D., Sagoe, R., Damptey, P., Mensah, A.T., Anim-Kwapong, D.J. and Frimpong, E.B.

(2008), Ghana Climate Change Impacts, Vulnerability and Adaptation Assessments. Allotey, J. and Mensah, L. (Eds). Environmental Protection Agency, Accra, Ghana.

Ahenkan, A., and Boon, E. (2010). Climate Change Adaptation through Sustainable Forest Management: A case study of Communities around the Sui River Forest Reserve, Ghana, prepared for 18th Commonwealth Forestry Conference. In 18th Commonwealth Forestry Conference.

Ahenkan, A., Bawole, N. J., & Domfeh, K. A. (2013). Improving Citizens' Participation in Local Government Planning and Financial Management in Ghana: A Stakeholder Analysis of the Sefwi Wiawso Municipal Assembly. *Journal of Public Administration and Governance*, *3*(2), 191-210.

Ahmad, I. H. (2009). *Climate policy integration: towards operationalization*. United Nations United Nations. Department of Economic and Social Affairs.

Ahwoi, K., & Institute of Economic Affairs (Accra). (2010). *Rethinking decentralization and local government in Ghana: proposals for amendment*. Institute of Economic Affairs.

Almansi, F., Hardoy, J., & Pandiella, G. (2014). Impacto del cambio climático en ciudades costeras del estuario del Rio de la Plata. *Medio Ambiente y Urbanización*, *79*, 217-237.

Antwi-Boasiako, K. (2010a). Administrative Decentralization: Should Districts and Regions elect their own Leaders in Ghana?. *African Social Science Review*, *4*(1), 3.

Antwi-Boasiako, K. B. (2010b). Public administration: Local government and decentralization in Ghana. *Journal of African Studies and development*, *2*(7), 166-175.

Archer, D., Almansi, F., DiGregorio, M., Roberts, D., Sharma, D., & Syam, D. (2014). Moving towards inclusive urban adaptation: approaches to integrating community-based

adaptation to climate change at city and national scale. *Climate and Development*, *6*(4), 345-356.

Asante, F. (2002). *Adaptation of farmers to climate change: a case study of selected farming communities in the forest-savanna transition zone of southern Ghana* (Doctoral dissertation, MSc dissertation, Department of Geography and Resource Development, University of Ghana, Legon).

Asante, F. A., Bawakyillenuo, S., Bird, N., Trujillo, N. C., Tagoe, C. A., & Ashiabi, N. (2015). Climate change finance in Ghana.

Awortwi, N. (2011). An unbreakable path? A comparative study of decentralization and local government development trajectories in Ghana and Uganda. *International Review of Administrative Sciences*, *77*(2), 347-377.

Ayee, J. R. (2008). The balance sheet of decentralization in Ghana. In *Foundations for Local Governance* (pp. 233-258). Physica-Verlag HD.

Babbie, E. R. (2013). *The basics of social research*. Cengage Learning.

Barnett, J., & Adger, W. N. (2007). Climate change, human security and violent conflict. *Political geography*, *26*(6), 639-655.

Bawole, J. N. (2013). Public hearing or 'hearing public'? An evaluation of the participation of local stakeholders in environmental impact assessment of Ghana's Jubilee Oil Fields. *Environmental management*, *52*(2), 385-397.

Bentley, A. (1949). *The process of government*. Evanston, IL: Principia Press

Berg, B. L., Lune, H., & Lune, H. (2004). *Qualitative research methods for the social sciences* (Vol. 5). Boston, MA: Pearson.

Betsill, M. M., & Bulkeley, H. (2006). Cities and the multilevel governance of global climate change. *Global Governance: A Review of Multilateralism and International Organizations*, *12*(2), 141-159.

Boon, E., & Ahenkan, A. (2012). Assessing climate change impacts on ecosystem services and livelihoods in Ghana: case study of communities around Sui Forest Reserve. *Journal of Ecosystem & Ecography*, *2013*.

Buchner, B., Abramskiehn, D., Stadelmann, M., Wilkinson, J., Rosenberg, A., & Mazza, F. (2014). The global landscape of climate finance 2014.

Care International, (2009). *Climate Vulnerability and Capacity Analysis Handbook. CARE International*

Conklin, J. (2001). Wicked problems and fragmentation. *Unpublished working paper*.

Corfee-Morlot, J., Cochran, I., Hallegatte, S., & Teasdale, P. J. (2011). Multilevel risk governance and urban adaptation policy. *Climatic change*, *104* (1), 169-197.

Creswell, J. W. (2012). *Qualitative inquiry and research design: Choosing among five approaches*. Sage.

Crook, R., & Ayee, J. (2006). Urban Service Partnerships,'Street-Level Bureaucrats' and Environmental Sanitation in Kumasi and Accra, Ghana: Coping with Organisational Change in the Public Bureaucracy. *Development Policy Review*, *24*(1), 51-73.

Daley, D. M. (2009). Interdisciplinary problems and agency boundaries: Exploring effective cross-agency collaboration. *Journal of Public Administration Research and Theory*, *19*(3), 477-493.

Dawes, R.M., 1973. The commons dilemma game: an N-person mixed-motive game with a dominating strategy for defection. *ORI Research Bulletin 13*, 1–12

Denton, F. (2002). Climate change vulnerability, impacts, and adaptation: Why does gender matter? *Gender & Development*, *10*(2), 10-20.

Domfeh, K.A. (2004). Managing the environment in a decade of administrative reforms in Ghana. *International Journal of Public Sector Management*, *17*(7), 606-620.

Dovers, S. (2005). Clarifying the imperative of integration research for sustainable environmental management. *Journal of Research Practice*, *1*(2), 2.

Downing TE, Patwardhan A, Klein RJT, Mukhala E, Stephen L, Winograd M, Ziervogel G (2004). Assessing Vulnerability for Climate Adaptation. In: Lim, B., Spanger-Siegfried, E., Burton,I., Malone, E.,and Huq,S.2004(ed). *Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures*. New York: United Nations Development Programme.

Dumenu, W. K., & Obeng, E. A. (2016). Climate change and rural communities in Ghana: Social vulnerability, impacts, adaptations and policy implications. *Environmental Science & Policy*, *55*, 208-217.

Dunn, W.N. (2004). *Public policy analysis: an introduction* (3rd ed.). Upper Saddle River, New Jersey: Prentice Hall.

Dye, T.R. (2008). *Understanding public policy* (12th ed). Upper Saddle River, New Jersey: Prentice Hall.

Dyer, J. C., Leventon, J., Stringer, L. C., Dougill, A. J., Syampungani, S., Nshimbi, M., ... & Kafwifwi, A. (2013). Partnership models for climate compatible development: experiences from Zambia. *Resources*, *2*(1), 1-25.

Easterling, W. E., Hurd, B. H., & Smith, J. B. (2004). *Coping with global climate change: the role of adaptation in the United States* (Vol. 40). Arlington: Pew Center on Global Climate Change.

Emerson, K., Nabatchi, T., & Balogh, S. (2012). An integrative framework for collaborative governance. *Journal of public administration research and theory*, *22*(1), 1-29.

Eriksen, S. H., Brown, K., & Kelly, P. M. (2005). The dynamics of vulnerability: locating coping strategies in Kenya and Tanzania. *The geographical journal*, *171*(4), 287-305.

Farazmand, A. (2007). Learning from the Katrina crisis: A global and international perspective with implications for future crisis management. *Public Administration Review*, *67*(s1), 149-159.

Farrell, A. P. (2009). Environment, antecedents and climate change: lessons from the study of temperature physiology and river migration of salmonids. *Journal of Experimental Biology*, *212*(23), 3771-3780.

FitzGibbon, J., & Mensah, K. O. (2012). Climate change as a wicked problem. *Sage Open*, *2*(2), 2158244012448487.

Fosu-Mensah, B. Y., Vlek, P. L., & MacCarthy, D. S. (2012). Farmers' perception and adaptation to climate change: a case study of Sekyedumase district in Ghana. *Environment,*

Füssel, H. M. (2010). How inequitable is the global distribution of responsibility, capability, and vulnerability to climate change: A comprehensive indicator-based assessment. *Global Environmental Change*, *20* (4), 597-611.

Füssel, H. M., & Klein, R. J. (2006). Climate change vulnerability assessments: an evolution of conceptual thinking. *Climatic change*, *75*(3), 301-329.

Geest, K. V. D. (2004). We're managing! Climate change and livelihood vulnerability in Northwest Ghana.

Governance, C. (2015). Stepping back, stepping up, and stepping forward: summary observations and recommendations. *Collaborative Governance Regimes*, 207.

Gyampoh, B. A., Amisah, S., Idinoba, M., & Nkem, J. (2009). Using traditional knowledge to cope with climate change in rural Ghana. *Unasylva*, *60*(281/232), 70-74.

Gyasi, E., Agyepong, G. T., Ardayfio-Schandorf, E., Enu-Kwesi, L., Nabila, J. S., & Owusu-Bennoah, E. (1995). Production pressure and environmental change in the forest-savanna zone of southern Ghana. *Global environmental change*, *5*(4), 355-366.

Hendrix, C. S., & Salehyan, I. (2012). Climate change, rainfall, and social conflict in Africa. *Journal of Peace Research*, *49*(1), 35-50.

Huq, S., Reid, H., Konate, M., Rahman, A., Sokona, Y., & Crick, F. (2004). Mainstreaming adaptation to climate change in Least Developed Countries (LDCs). Climate Policy, 4(1), 25-43

Imperial, M. T. (2005). Using collaboration as a governance strategy lessons from six watershed management programmes. *Administration & Society*, *37*(3), 281-320.

Intergovernmental Panel on Climate Change (IPCC). (2007a). Drivers of Climate Change. IPCC Fourth Assessment Report: climate Change 2007: Synthesis Report. Available at http://www.ipcc.ch/publications and data/ar4/syr/en/mains2-2.html

IPCC. (2007b). *Climate Change 2007 Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,* Annex I., Parry, M. L., Canziani, O. F., Palutikof, J. P., Van der Linden, P. J. & Hanson C. E., Eds., Cambridge University Press, Cambridge, UK.

IPCC. (2007c). *Impacts, Adaptation and Vulnerability. Summary for policy makers. Intergovernmental Panel on Climate Change*.

Jones, P. G., Thornton, P. K., & Heinke, J. (2009). Generating characteristic daily weather data using downscaled climate model data from the IPCC's Fourth Assessment.

Keskitalo, E. C. H. (Ed.). (2010). *Developing adaptation policy and practice in Europe: Multi-level governance of climate change* (pp. 1-38). Berlin: Springer.

Kettl, D. F. (2006). Managing boundaries in American administration: The collaborative imperative. *Public Administration Review 66*:10–19.

Klein, R. J., Eriksen, S. E., Næss, L. O., Hammill, A., Tanner, T. M., Robledo, C., & O'brien, K. L. (2007). Portfolio screening to support the mainstreaming of adaptation to climate change into development assistance. *Climatic change*, *84*(1), 23-44.

Klein, R. J., Schipper, E. L. F., & Dessai, S. (2005). Integrating mitigation and adaptation into climate and development policy: three research questions. *Environmental science & policy*, *8*(6), 579-588.

Kumar, V., Aaker, D. A., & Day, G. S. (1999). *Essentials of marketing research*. John Wiley & Sons Incorporated.

Kurukulasuriya, P., Mendelsohn, R., Hassan, R., Benhin, J., Deressa, T., Diop, M., ... & Mahamadou, A. (2006). Will African agriculture survive climate change?. *The World Bank Economic Review*, *20*(3), 367-388.

Laube, W., Schraven, B., & Awo, M. (2012). Smallholder adaptation to climate change: dynamics and limits in Northern Ghana. *Climatic change*, *111*(3-4), 753-774.

Lebel, L., Li, L., Krittasudthacheewa, C., Juntopas, M., Vijitpan, T., Uchiyama, T., & Krawanchid, D. (2012). Mainstreaming climate change adaptation into development

planning. *Bangkok: Adaptation Knowledge Platform and Stockholm Environment Institute*, 8.

Leck, H., & Simon, D. (2013). Fostering multiscalar collaboration and co-operation for effective governance of climate change adaptation. *Urban Studies*, *50*(6), 1221-1238.

Levina, E., & Tirpak, D. (2006). Adaptation to climate change. Key Terms.

Ludwig, D. (2001). The era of management is over. *Ecosystems*, *4*(8), 758-764.

Malone, E., & Rovere, E. L. L. (2004). Assessing current and changing socio-economic conditions, chapter 6. *Adaptation Policy Framework for Climate Change: Developing Strategies, Policies and Measures, UNDP*.

McGuire, M. (2006). Collaborative public management: Assessing what we know and how we know it. *Public administration review*, *66*(s1), 33-43.

Minia, Z. (2004). Climate Scenarios Developed for Climate Change Impact Assessment in Ghana. *Report prepared for the Environmental Protection agency under the Netherlands Climate Change Studies Assistance Programme (NCCSAP) Phase*, *2*.

Mukheibir, P., & Ziervogel, G. (2007). Developing a Municipal Adaptation Plan (MAP) for climate change: the city of Cape Town. *Environment and Urbanization*, *19*(1), 143-158.

Musah-Surugu, J. I., & Ahenkan, A. (2014). Rising to the Challenge: What sort of capacity does Ghana need to Adapt to Climate Change?. *Ethiopian Journal of Environmental Studies and Management*, *7*(1), 780-789.

Næss, L. O., Bang, G., Eriksen, S., & Vevatne, J. (2005). Institutional adaptation to climate change: flood responses at the municipal level in Norway. *Global Environmental Change*, *15*(2), 125-138.

National Climate Change Adaptation Strategy, Ghana (2011). Presentation by Ghana at the expert meeting on national adaptation plans. Don Chan Palace, Vientiane. LAOS. 15-17 September.

National Climate Change Policy (2013)

NDPC (2009). *Guidelines for the Preparation of District Medium Term Development Plans under the Ghana Shared Growth Development Agenda (2010–2013*). Accra: National Development Planning Commission.

NDPC (2011). *Guidelines for the Preparation of District Medium Term Plans under the Ghana Shared Growth Development Agenda*. Accra: National Development Planning Commission.

Nelson, D. R. (2011). Adaptation and resilience: responding to a changing climate. *Wiley Interdisciplinary Reviews: Climate Change*, *2*(1), 113-120.

Nelson, W., & Agbey, S. N. D. (2005). Linkages between Poverty and Climate Change: adaptation for livelihood of the poor in Ghana. *Technical paper*, *71*.

Neuman, W. L. (2007). *Basics of social research: qualitative and quantitative approaches* (2nd Ed.) Boston: Pearson.

Ngigi, S. N. (2016). *Climate change adaptation strategies: water resources management options for smallholder farming systems in sub-Saharan Africa*. New York, NY: The Earth Institute at Columbia University.

Olhoff, A., & Schaer, C. (2010). Screening tools and guidelines to support the mainstreaming of climate change adaptation into development assistance-a stocktaking report. *Screening tools and guidelines to support the mainstreaming of climate change adaptation into development assistance-a stocktaking report*.

Olson, M. (1965). The logic of collective action: public goods and the theory of collective action.

Ostrom, E. (2014). Collective action and the evolution of social norms. *Journal of Natural Resources Policy Research*, *6*(4), 235-252.

Owusu, K., & Waylen, P. R. (2013). Identification of historic shifts in daily rainfall regime, Wenchi, Ghana. *Climatic change*, *117*(1-2), 133-147.

Patton, M. Q. (2002). Qualitative interviewing. *Qualitative research and evaluation methods*, *3*, 344-347.

Quay, R. (2010). Anticipatory governance: A tool for climate change adaptation. *Journal of the American Planning Association*, *76*(4), 496-511.

Revi, A. (2008). Climate change risk: an adaptation and mitigation agenda for Indian cities. *Environment and Urbanization*, *20*(1), 207-229.

Riggs, F. W. (1990). *A Neo-institutional Typology of Third World Politics* (pp. 205-35). Boulder, CO: Lynne Rienner Publishers.

Ritchey, T. (2005-2011). *Wicked problems: Structuring social messes with morphological analysis Swedish Morphological Society*. *Available from www.swemorph.com*

Sabatier, P., & Mazmanian, D. (1980). The implementation of public policy: A framework of analysis. *Policy studies journal*, *8*(4), 538-560.

Schlenker, W., & Lobell, D. B. (2010). Robust negative impacts of climate change on African agriculture. *Environmental Research Letters*, *5*(1), 014010.

Sharma, D., & Tomar, S. (2010). Mainstreaming climate change adaptation in Indian cities. *Environment and Urbanization*, *22*(2), 451-465.

Sowman, M. (2002). Integrating environmental sustainability issues into local government planning and decision-making processes. *Democratising local government: the South African experiment*, 181-203.

Sowman, M., & Brown, A. L. (2006). Mainstreaming environmental sustainability into South Africa's integrated development planning process. *Journal of Environmental Planning and Management*, *49*(5), 695-712.

Sugiyama, N., & Takeuchi, T. (2008). Local policies for climate change in Japan. *The Journal of Environment & Development*, *17*(4), 424-441.

Tachie-Obeng, E., Akponikpe, P. B. I., & Adiku, S. (2013). Considering effective adaptation options to impacts of climate change for maize production in Ghana. *Environmental Development*, *5*, 131-145.

Tain District Assembly (2014). Composite Budget for the 2014 fiscal year. www.mofep.gov.gh/sites/default/.../budget/.../Kassena_Nankana_West.pdf.Accra

Tain District Assembly (2015). *Medium Term Development Plan 2014-2017, Nsawkaw*

Thomalla, F., Downing, T., Spanger-Siegfried, E., Han, G., & Rockström, J. (2006). Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation. *Disasters*, *30*(1), 39-48.

Thomas, J. W., & Grindle, M. S. (1990). After the decision: Implementing policy reforms in developing countries. *World development*, *18*(8), 1163-1181.

Tompkins, E. L., & Adger, W. N. (2003). Building resilience to climate change through adaptive management of natural resources. *Tyndall Centre for Climate Change Research Working Paper*, *27*.

UN ECE, (2001). Environmental Performance Review of Romania, as Discussed and Approved by the Eight Session of the Committee on the Environment Policy. United Nations Economic Commission for Europe, Geneva

UNFCC. (2008). "Compendium on methods and tools to evaluate impacts of and vulnerability and adaptation to climate change." UNFCCC Secretariat, with the services of Erica Pinto, Kay, R.C.and Travers, A., CZM pty. Ltd, Stratus Consulting Inc.

UNPEI (United Nations Development Programme–United Nations Environment Programme Poverty-Environment Initiative). 2011. *Mainstreaming Climate Change Adaptation into Development Planning: A Guide for Practitioners. Nairobi, Kenya*: UNDP-UNEP.

USAID (2007). Famine early warning systems network (FEWS-NET). http://www.fews.net/ (accessed 28 January, 2016)

Vincent, K. (2004). Creating an index of social vulnerability to climate change for Africa. *Tyndall Center for Climate Change Research. Working Paper*, *56*, 41.

WDR W (2010). Development and Climate Change. Washington: World Bank.

Wondolleck, J. M., & Yaffee, S. L. (2000). *Making collaboration work: Lessons from innovation in natural resource managment*. Island Press.

Yeboah-Assiamah, E., Asamoah, K., & Kyeremeh, T. A. (2016a). Therefore, Is Bureaucracy Dead? Making a Case for Complementarity of Paradigms in Public Administrative Thinking and Discourse. *International Journal of Public Administration*, *39*(5), 382-394.

Yeboah-Assiamah, E., Muller, K., & Domfeh, K. A. (2016b). Rising to the challenge: A framework for optimising value in collaborative natural resource governance. *Forest Policy and Economics*, *67*, 20-29.

APPENDIX

MAINSTREAMING CLIMATE CHANGE INTO LOCAL ASSEMBLY'S DEVELOPMENT PLAN IN TRANSITIONAL ZONES IN GHANA: A CASE STUDY OF TAIN DISTRICT ASSEMBLY

Interview guide for principal officers of the District Assembly

This semi-structured interview guide is designed to collect opinions on the extent to which climate change mitigation and adaptations programmes are been mainstreamed into Local Assemblies Development Agenda by using Tain district as a case study.
This research is in partial fulfillment of a Master of Philosophy degree in Public Administration at University of Ghana Business School.
Being a purely academic exercise, the research is not intended to probe the assembly nor people's private lives, neither is it intended to collect any information for government or any of its agencies. It is an independent academic research designed and executed by the researcher.
Any information provided shall be treated with strict confidentiality. Thanks for your cooperation.

A. Background Information of Respondent

1. Institution of Respondent……...
2. Designation of Respondent…….

B. The extent to which local assemblies have integrated Climate Change programme into Assembly Development Agenda

3. Please what is your understanding of climate change?

4. How does climate change manifest itself in the Tain district?

5. How has climate change affected activities in the district in these dimensions?

Economic
…….
Socio-cultural……...
Environmental……..

6. Describe the impact of climate change on the following in your district;
a) Agriculture
.....
.....

b) Water resources

.....

.....

c) Human health and security

.....

.....

d) Social Infrastructure

.....

.....

e) The environment

.....

.....

7. What specific Climate Change programmes and projects have been pursued by the assembly over the past four (4) years?

……

……

……

8. What specific programmes and projects have been pursued by organizations other than the Assembly?

Organization	Area/Field of focus	Initiatives	Duration of the programme
1.			
2.			

9. Were the initiatives (in Q.8) facilitated or coordinated by the assembly? If yes, explain

……

……

……

……

10. Do you include climate change issues in the District Medium Term Development Plan (DMTDP)? What climate change initiatives have been captured in the district development plans?

a) If yes, give examples (request for copy of DMTDP 2010-2014 for triangulation)

.....

.....

.....

b) If no, give reasons why?

.....

.....

11. What percentage of the initiatives was fully implemented? Explain why?

.....

.....

.....

12. Describe how the initiatives have affected the livelihood of the citizens in the District?

C. Budgetary commitment/allocation for integrating the Climate Change programme into local Assembly Development Agenda

13. How are climate change programmes funded by the district?

14. What percentage of the Annual budget is dedicated towards climate change concerns?

15. Have you ever received any funding aside the normal budgetary allocation from any organization?

Name of Organization	Amount Received	Initiatives for the fund	Duration of the programme
1.			
2.			

14. How essential is it for other stakeholders to financially support climate change mainstreaming in the Tain district? Explain

16. Describe the most pressing climate change areas that requires immediate financial support from stakeholders

17 What measures will you recommend for proper financing for climate change mainstreaming?

D. Structural mechanisms available for integrating climate change programmes into Local Assembly Development Agenda

17. Which department is particularly responsible for managing climate change concerns in the Assembly?
18. Has there been any structural changes in the district assembly structure to foster climate change mainstreaming in the district? Explain
19. Do you think the existing district assembly structure needs to be revised for proper mainstreaming of climate change concerns in the district?

20. What structure will you recommend for an overarching climate change mainstreaming in the Tain district

E. Challenges faced by local assemblies in mainstreaming Climate Change programme into LADA

21. What are some of the constraints faced by the Assembly in terms of climate change mainstreaming?

a. Financial……
b. Socio-cultural……
c. Environmental ……
d. Institutional and administrative……

F. Recommendation

22. What will be your suggestion for a workable climate change mainstreaming measures in the Tain district?

a. Administrative and institutional……

b. Financial and budgetary mechanisms……..

c. local-level participation…….

MAINSTREAMING CLIMATE CHANGE INTO LOCAL ASSEMBLY'S DEVELOPMENT PLAN IN TRANSITIONAL ZONES IN GHANA: A CASE STUDY OF TAIN DISTRICT ASSEMBLY

Interview guide for Heads of Decentralised Departments/Agencies

This semi-structured interview guide is designed to collect opinions on the extent to which climate change mitigation and adaptations programmes are been mainstreamed into Local Assemblies Development Agenda by using Tain district as a case study.

This research is in partial fulfillment of a Master of Philosophy degree in Public Administration at University of Ghana Business School.

Being a purely academic exercise, the research is not intended to probe the assembly nor people's private lives, neither is it intended to collect any information for government or any of its agencies. It is an independent academic research designed and executed by the researcher.

Any information provided shall be treated with strict confidentiality. Thanks for your cooperation.

A. Background Information of Respondent

1. Institution of Respondent……...
2. Designation of Respondent…….

B. The extent to which Decentralised Departments/Agencies have integrated Climate Change programme into Development Agenda

3. Please what is your understanding of climate change?

4. How does climate change manifest itself in the Tain district?

5. How has climate change affected activities of your department/agency in the district in these dimensions?

Economic
…….
Socio-cultural……...
Environmental……..

6. Describe the impact of climate change on the following in your district;

a) Agriculture
.....
.....

b) Water resources

.....

.....

c) Human health and security

.....

.....

d) Social Infrastructure

.....

.....

e) The environment

.....

.....

7. What specific Climate Change programmes and projects have been pursued by your department/agency over the past four (4) years?

……

……

……

8. What programmes and projects have been pursued **jointly** with organizations other than only yours?

Organization	Area/Field of focus	Initiatives	Duration of the programme
1.			
2.			

9. Were the initiatives (in Q.8) facilitated or coordinated by the assembly? Yes/No, explain

……

……

……

……

10. Do you include climate change issues in the Department/agency's Medium Term Development Plan (MTDP)? What climate change initiatives have been captured in the development plans?

a) If yes, give examples (request for copy of MTDP 2010-2014 for triangulation)

.....

.....

.....

b) If no, give reasons why?

.....
.....

11. What percentage of these initiatives were fully implemented? Explain why?

.....
.....
.....

12. Describe how the initiatives have affected the livelihood of the citizens in the District?

B. Budgetary commitment/allocation for integrating Climate Change programme into Department/Agencies Development Agenda

13. How are climate change programmes funded by your department/agency?

14. What percentage of the Department/agency's Annual budget is dedicated towards climate change concerns?

15. Have you ever received any funding aside the normal budgetary allocation from any organization?

Name of Organization	Amount Received	Initiatives for the fund	Duration of the programme
1.			
2.			

14. How essential is it for other stakeholders to financially support climate change mainstreaming in the Tain district? Explain

16. Describe the most pressing climate change areas that requires immediate financial support from stakeholders

17 What measures will you recommend for proper financing for climate change mainstreaming?

C. Structural mechanisms available for integrating climate change into Local Assembly Development Agenda

17. What department is particularly responsible for managing climate change concerns in the district?
18. Has there been any structural changes in the district assembly structure to foster climate change mainstreaming in the district? Explain
19. Do you think the existing district assembly structure needs to be revised for proper mainstreaming of climate change concerns in the district?

20. What structure will you recommend for an overarching climate change mainstreaming in the Tain district

D. Challenges faced by local assembly in mainstreaming Climate Change into LADA

21. What are some of the constraints faced by your department/agency in terms of climate change mainstreaming?

a. Financial……
b. Socio-cultural……
c. Environmental ……
d. Institutional and administrative……

F. Recommendation

22. What will be your suggestion for a workable climate change mainstreaming measures in the Tain district?

a. Administrative and institutional……

b. Financial and budgetary mechanisms……..

c. local-level participation…….

MAINSTREAMING CLIMATE CHANGE INTO LOCAL ASSEMBLY'S DEVELOPMENT PLAN IN TRANSITIONAL ZONES IN GHANA: A CASE STUDY OF TAIN DISTRICT ASSEMBLY

Interview guide for NGOs and Media Stations

This semi-structured interview guide is designed to collect opinions on the extent to which climate change mitigation and adaptations programmes are been mainstreamed into Local Assemblies Development Agenda by using Tain district as a case study.

This research is in partial fulfillment of a Master of Philosophy degree in Public Administration at University of Ghana Business School.

Being a purely academic exercise, the research is not intended to probe the assembly nor people's private lives, neither is it intended to collect any information for government or any of its agencies. It is an independent academic research designed and executed by the researcher.

Any information provided shall be treated with strict confidentiality. Thanks for your cooperation.

A. Background Information of Respondent

1. Institution of Respondent……...
2. Designation of Respondent…….

B. Climate Change Mainstreaming

3. How long have you been operating in this district?

4. What is the focus of your work in the district?

5. From your experience, and observations, what are the main development problems of the district?

6. To what extent do you think climate change is a problem in the district?

7. What are the climate change related challenges manifested in the district?

8. Describe the impact of climate change on the following sectors in the ditrict;

a) Agriculture

b) Water resources

c) Human health and security

d) Social Infrastructure

e) The environment

f) Others

9. Do you think climate change has been adequately mainstreamed into development plans/budgets in the district?

10. What are some of the climate change related programmes ever pursued (or yet to pursued) by your organization in the district?

10. How are you collaborating with the district assembly in mainstreaming climate change concerns in the district development plan?

11. What is your view on the administrative and institutional structure available for mainstreaming climate change concerns in the District?

12. In your opinion, what needs to be done (in these dimensions provided below) to mainstream climate change into district assembly development plans?

a. Administrative/ institutional structure

b. Budgetary/ Financial mechanisms

c. Community level involvement

MAINSTREAMING CLIMATE CHANGE INTO LOCAL ASSEMBLY'S DEVELOPMENT PLAN IN TRANSITIONAL ZONES IN GHANA: A CASE STUDY OF TAIN DISTRICT ASSEMBLY

Respondents

1**. District Assembly Staff; (6)**

District Coordinating Director (DCD)
District Planning Officer (DPO)
The District Budget Officer (DBO)
The District Finance Officer (DFO)
District Building Inspectorate (DBI)
Presiding Member (PM)
Committee on environment

2. Decentralized Departments (5)

District Agricultural Development Unit (DADU) (2)
Town and Country Planning Department (TCPD) (1)
Natural resource conservation Department (NRCD) (2)

3. Governmental Organizations/Agencies (12)

Environmental Protection Agency (EPA) (2)
National Disaster Management Organization (NADMO) (2)
Forestry Commission (FC) (2)
Water Resources Commission (WRC) (2)
Environmental Sanitation Unit (ESU) (2)
Ghana Metrological Service (1)
District Health Service (1)

4. Non-governmental Organizations (NGOs) (3)

Social Development and Improvement Agency (SODIA)
Resource Link Foundation (RLF)
White Olive Foundation (WOF)

5. Media houses (1)

Radio Tain

TOTAL RESPONDENTS (27)