

Climate Change Adaptation Mainstreaming at the Sub- National Level Development Planning: A Case of the Sekondi-Takoradi Metropolitan Assembly (STMA), Ghana

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Abstract

Climate change has been recognised as a key development issue in sub-Saharan Africa. This might be explained by the region's peculiar vulnerabilities that could be related to climate change. Climate change is expected to significantly affect food security, increase flooding and droughts in specific areas of the sub-region, affect the production of major export cash crops in Africa and affect the economies and livelihoods with the resultant negative impact on poverty reduction. One major way to offset or reduce the impact of climate change is climate change adaptation mainstreaming in the development planning process. This will acknowledge the expected development challenges posed by climate change and to fashion out strategies to deal with the impacts of climate change. This paper assesses climate change adaptation mainstreaming measures in the development planning process of the Sekondi Takoradi Metropolitan Assembly (STMA) in Ghana. The research focuses on two Medium-Term Development Plans (MTDP) of the Metropolitan Assembly. The objective is to assess the climate change resilient readiness and adaptation at the sub-national level and to draw local policy makers' attention of the consequences of ignoring climate change realities.

Keywords: Ghana, Climate Change, Adaptation, Local Level Development Planning, Resilience, mainstreaming

1. Introduction

The Intergovernmental Panel on Climatic Change (IPCC) defines climate change as any change in climate over time, whether due to natural variability or as a result of human activity (IPCC, 2007; cited in CARE International, 2010). Climate change is further explained by CARE International to represent "observed and projected increases in average global temperature as well as associated impacts (e.g. an increase in the frequency or intensity of extreme weather; melting icebergs, glaciers and permafrost; sea-level rise; and changes in the timing or amount of precipitation)" (CARE International 2010, p.8)

Climate changes have been attributed to excess release of greenhouse gases into the atmosphere. These greenhouse gases include Carbon dioxide (CO₂) Methane, Nitro oxide, Chlorofluorocarbons (CFC) and Sulphur hexafluoride. Since the start of the industrial revolution, the emission of greenhouse gases into the earth's atmosphere has increased significantly. This considerable increase in greenhouse gases may be attributed to the combustion of fossil fuels and tropical deforestation (IPCC, 2007; cited in International Union of Forest Research Organisations, 2010).

Climate change mainstreaming as used in this paper mean the process of integrating climate change adaptation into the development planning process. Climate change adaptation has been recognised by Ghana as very important in the attainment of sustainable development and Millennium Development Goals (MDGs). The Environmental Protection Agency (EPA) of Ghana has taken the lead in the conduct of climate change impact assessment in Ghana under the auspices of the Netherlands Climate Change Assistance Programme (NCAP 2), (EPA, 2008). However, little interest has been carried out on the extent to which climate change adaptation has been integrated into the development plans of Sub-National Governments (SNGs). According to Institute of Development Studies (IDS, 2006) not much research have been carried out on the extent to which climate change and other environmental related issues have been more broadly integrated within Poverty Reduction Strategy Papers (PRSPs).

Sub-national development planning was adopted as part of the decentralisation process of the governance in Ghana. To ensure a participatory approach in local level development process and to move away from the top-down approach to development planning, the Metropolitan, Municipal and District Assemblies (MMDAs) were mandated to prepare their development plans. The Local Government Act 1993, Act 462 recognises MMDAs as planning authorities (Republic of Ghana, 1993). The local level development plans were to be prepared with policy guidelines from the National Development Planning Commission (NDPC). The NDPC is to furnish the MMDAs with national policy direction from the respective sectors of the economy and to provide technical

guidelines for the preparation of local level medium-term development plans.

By implication, the determination of the direction of development at the sub-national level rests with the MMDAs. Although the Local Government Act 1993, Act 462 and National Development Planning (Systems) Act 1994, Act 480 recognise the role of Regional Co-ordinating Councils (RCCs), the RCCs are only enjoined to play a co-ordinating role to ensure a harmonised development planning process by the MMDAs. With the MMDAs now in charge of development planning, it becomes very relevant to understand how they are integrating climate change adaptation mainstreaming at the sub-national level in the Ghanaian context.

The rest of the paper is structured as follows: The second session, theoretical and conceptual overview, discusses issues as climate change and development, how the impact of climate change can be reduced, tackling climate change as an opportunity, climate change mainstreaming and conceptual framework. The third session discusses the methodology and introduces a climate change adaptation inventory. The last session of the paper discusses the results and conclusion.

2. Theoretical/Conceptual Overview

2.1 Climate Change and Development

The relationship between climate change and development has been recognised in the literature. Climate change has serious repercussions on development. Development is about expanding human potential and capabilities and expanding human freedom and choices (Sen, 1999). Climate change threatens to erode human freedoms and limit our choices (UNDP, 2007). It has been argued that the attainment of the MDGs will to a large extent depend on how climate change concerns are integrated into the implementation of the MDGs. The impact of climate change will exacerbate the plight of the poor and this demands careful attention. Ecosystem degradation and climate change are a growing threat to the livelihoods and well-being of the rural poor and their ability to lift themselves out of poverty, and will undermine efforts to accelerate and sustain progress toward the MDGs (World Resources Institute/ UNDP, 2010). Because the livelihoods of the poor, especially rural poor depend upon ecosystem services and goods, any adverse impact by climate change on ecosystems will greatly affect the livelihoods of the rural poor.

The impact of climate change on developing countries could even be more devastating. It has been estimated that 75 to 80 percent of the cost of damages caused by climate change would be borne by developing countries. A minimal rise of 2°C in world temperature is expected to result in permanent reductions in GDP of 4 to 5 percent for Africa and South Asia (World Bank, 2010). The world's 50 least developed countries suffer more than one-third of global human toll linked to climate change whilst emerging countries suffer nearly two-thirds. It has also been estimated that 80 percent of people that are at risk from climate-driven desertification reside in high-growth emerging economies such as China and India. Children living in South Asia or sub-Saharan Africa (SSA) account for over 80 percent of all registered climate deaths and 99 percent of all mortality that is related to climate change occur in developing countries (Fundacion DARA Internacional, 2010)

Agriculture which is the most popular economic activity and the main foreign exchange earning in developing countries is expected to suffer under climate change. In SSA rain-fed agriculture contributes some 30 percent of GDP and employs about 70 percent of the population (World Bank, 2010). The decline in agricultural productivity is expected to have a great toll on the economies of developing countries.

2.2 The Impact of Climate Change can be reduced

How the world's global economy will suffer from the full effect of climate change can be reduced and in some situations the effects are preventable. The recognition of the effects of extra greenhouse gasses emissions into the atmosphere and the institution of measures to reduce greenhouse gasses emissions will assist in the reduction of the impact of climate change in the near future. Such an action will require strong political will by governments of countries.

It has been recognised that proper risk assessment can assist in the reduction of the impact of climate change on human populations. The Climate Change Vulnerability Monitor 2010, identifies that today, disaster risk reduction – steps to reduce the impacts of possible environmental catastrophes is a well-developed field. Therefore while the risks of extreme weather are expected to increase, we know where the most acute vulnerabilities lie, and measures exist to reduce risks and exposure to populations and their economies (World Resources Institute, 2005; cited in Fundacion DARA Internacional, 2010).

Disaster preparedness plans for emergency situations such as building the requisite human resource capacity for disaster management; the institution of the necessary regulatory and legal framework to guide settlements planning and civil construction, provision of adequate shelter; and provision of the adequate logistics to the disaster management organisations can greatly assist in reducing the flood related disaster and to equip countries for emergency situations. Some of these measures will not require resources beyond the capacity of most countries in the world.

2.3 Tackling Climate Change is an opportunity

It has been observed that taking proactive steps to tackle climate change should not only be seen as a cost but sometimes as an economic opportunity. As noted by the Climate Change Vulnerability Monitor 2010, a number of responses could have positive economic outcome with extended benefits for socio-economic development that might far outweigh the negative effects of climate change (Fundacion DARA Internacional, 2010). At the micro level, the adoption of cleaner production measures by industries is sometimes able to ensure efficient use of raw materials, reduce energy consumption, assist companies to meet International Standard Organisation (ISO) standards and hence improve the social image of companies and generate economic returns.

Climate change adaptation also assists in sustaining ecosystem services and the provision of ecosystem goods which are very vital in sustaining rural livelihoods. It has been argued that in agro-ecosystems, sustainable farming practices such as contour tilling on hillslopes, agro forestry, organic agriculture and the use of vegetation buffer can assist in stabilising soil structure, increase fertility and raise soil water holding capability. According to World Resources Institute/UNDP (2010) these measures can increase productivity, decrease vulnerability to high intensity rainfall, floods and drought. The cumulative effect is the improvement in the well-being of the beneficiary communities.

2.4 Climate Change Adaptation Mainstreaming

Climate change adaptation is explained by the World Bank as “a comprehensive approach for reducing vulnerabilities of livelihoods and development processes to climate variability and change” (World Bank, 2009, p.43). This definition implies acknowledging the impacts of climate change, taking measures to reduce vulnerabilities to climate change, taking advantage of the perceived impacts of climate change and adjusting livelihoods to be resilient to the adverse effects of climate change. Adaptation is also about empowering people to cope with the impacts of climate change. It has therefore a close relationship with disaster risk prevention and reduction and livelihoods programming. According to United Kingdom Climate Impact Programme (UKCIP, 2004) it is seen as the process or outcome of a process that leads to a reduction in harm or risk of harm, or realisation of benefits associated with climate variability and climate change.

Climate change mainstreaming as used in this paper is operationalised to mean “the integration of adaptation objectives, strategies, policies, measures or operations such that they become part of the national and regional development policies, processes and budgets at all levels and stages (UNDP, 2005; cited in OECD/IEA 2006). CARE International (2010) identifies two reasons for integrating climate change adaptation into development programmes and projects. One reason is to reduce the possibility of climate change negatively affecting or negating the effectiveness and sustainability of development interventions; a process sometimes referred to as ‘climate-proofing’. Climate proofing contributes to sustainability of programmes and projects through a detailed analysis of the risks that climate change poses to programme and project activities, stakeholders and results and modification of the project design and implementation strategy to reduce risks.

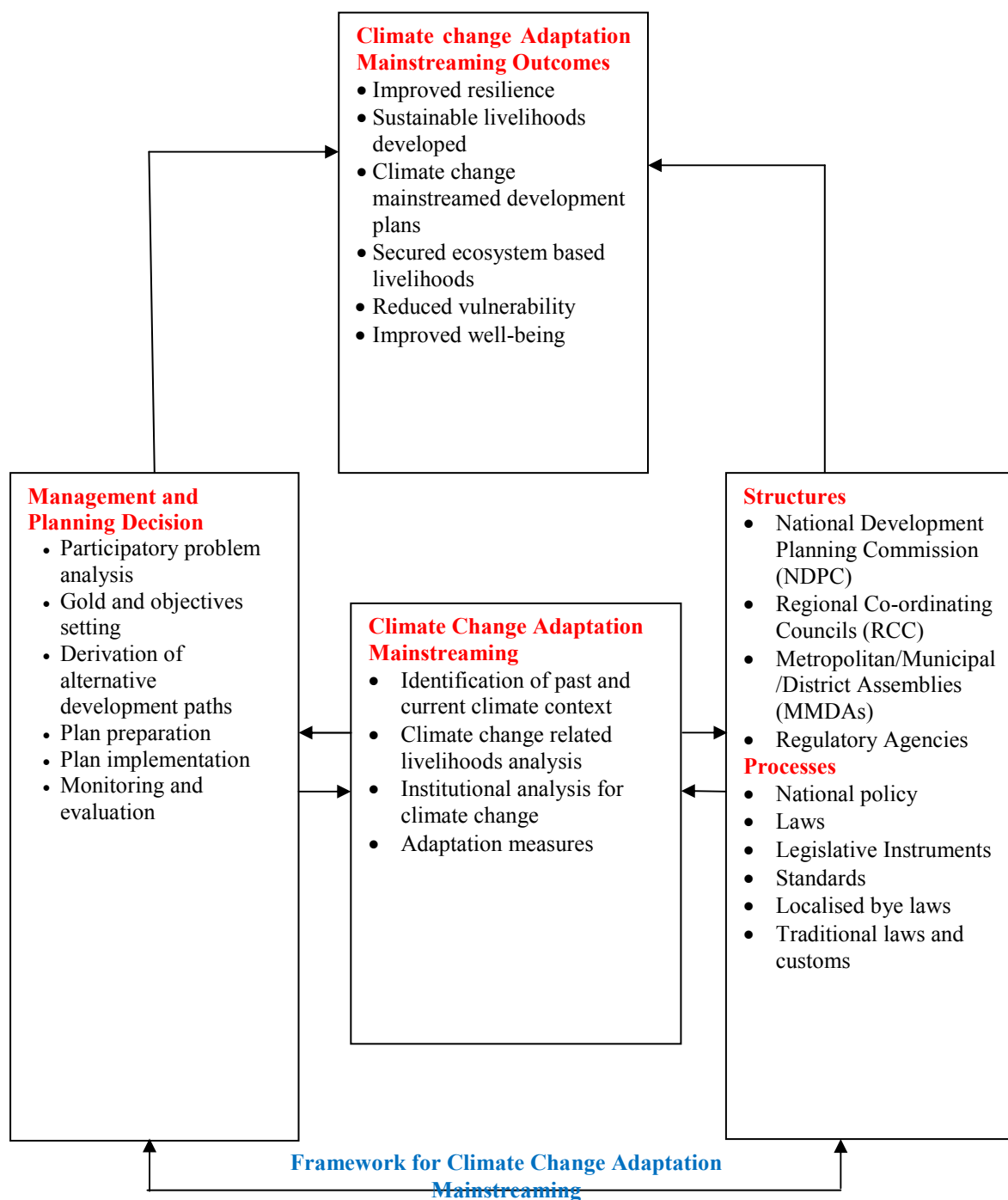
The second reason identified by CARE International (2010) for integrating adaptation is the argument that development programmes and projects have the potential of inadvertently reducing the adaptive capacity of communities to climate change or improving the adaptive capacity of communities to climate change. Hence a careful analysis of the vulnerabilities of people’s to climate change and modification of programmes and project strategies and activities to maximise their contribution to resilience, increase significantly the positive impact of development programmes and projects.

2.5 Conceptual Framework

Theoretically, the paper developed a framework to inform the climate change adaptation mainstreaming in the planning process with reference to the ‘New Planning System’ in Ghana (Figure 1). The new planning system in Ghana identifies some institutions that are charged with development planning. These institutional structures include the National Development Planning Commission (NDPC) which is responsible for national level planning and the development of guidelines for sub-national level planning. The Regional Co-ordinating Councils (RCCs) are responsible for co-ordinating the planning process of the MMDAs.

The MMDAs are responsible for district level development planning. Planning is however guided by the processes such as national policy, laws, standards, local bye laws and traditional laws and customs. Structures and processes indicated in the framework, shown in Figure 1 inform the planning process and hence climate change adaptation mainstreaming.

The actual planning process involves participatory problem analysis, goal and objectives setting, plan preparation and implementation, monitoring and evaluation as shown in the framework. The planning process should mainstream climate change adaptation measures. The outcome of mainstreaming climate change adaptation measures in the planning process include improved resilience to climate change, development of sustainable livelihoods, secured ecosystem based livelihoods, reduced vulnerability and improved well-being.



3. Methodology

The paper is essentially based on secondary data. It involved thorough desk review of two Medium Term Development Plans (MTDPs) of Sekondi Takoradi Metropolitan Assembly (STMA). These were the 2006 to 2009 and 2010 to 2013 MTDPs. The National Development Planning Commission (NDPC) is responsible for the provision of guidelines for the preparation of development plans in Ghana. The two guidelines that were issued by the NDPC for the preparation of the 2006 to 2009 MDTP and 2010 to 2013 MDTP were also reviewed to ascertain whether the guidelines contained specific instructions regarding how to mainstream climate change issues in the preparation of MTDPs.

In this respect, a climate change adaptation inventory sheet was developed and used to assess the extent to which climate change adaptation was mainstreamed in the planning process. Five (5) broad areas were reviewed. The areas were, the identification of past and current climate context; livelihoods analysis; institutional capacity for

disaster prevention and management; participatory planning; and some adaptation measures put in place in the plans. Nineteen (19) variables were further developed based on the main issues identified. CARE International (2010b) toolkit for integrating climate change adaptation into development projects assisted in the development of the variables. A four level likert kind scale was used in the assessment of the MDTPs namely: i) not addressed, ii) partially addresses, iii) addressed and iv) well addressed.

3.1 The Study Area

Sekondi Takoradi Metropolitan Assembly (STMA) covers a total land area of 49.78 km² with Sekondi as the administrative headquarters. STMA is bordered to the West by Ahanta West District, to the North by Mpohor Wassa East, to the East by Shama District Assembly and to the South by the Gulf of Guinea as illustrated by Figure 2 above. The Metropolis is located on the West Coast, about 280km west of Accra and 130km East of La Cote D'Ivoire (STMA 2010).

The rationale for choosing STMA is the fact that it is located along the coast and likely to suffer from a possible sea level rise which might be due to climate change. The Metropolis has also gained much attention in recent times since Ghana discovered crude oil and gas in commercial quantities in the Western Region of Ghana. The Metropolis also happens to be the capital of the Western Region with a significant rural population as shown in Table 1. The significant rural population calls for climate change adaptation measures that will develop resilient agricultural practices to reduce the vulnerability of farmers and develop sustainable ecosystem based livelihoods.

4. Results

As has been presented in Table 2, we have found that generally, climate change adaptation issues were not well addressed in the two MDTPs that were assessed. Out of the nineteen (19) variables that were used in the assessment, nine (9) were not addressed in the 2006 to 2009 MTDP. Four (4) variables were partially addressed with four (4) addressed and only one (1) variable being well addressed. The 2010 to 2013 MTDP however saw some improvement in incorporating climate change issues in the planning process. Four (4) variables out of nineteen (19) were not addressed, nine (9) partially addressed, four (4) addressed, and one (1) variable fully well addressed.

On infrastructural development, the 2006-2009 plan identifies the impact of unplanned development on flooding but the analysis was not related to climate change. The plan noted that improvement in the drainage system requires attention to avert flooding as water will always find its own level. The supply of water for domestic and industrial purposes in the metropolis was not analysed in relation to the possible impact of climate change on the flow of water to the waterheads for treatment and distribution.

Non-climatic related hazards were identified in the development plans. The population growth rate of the Metropolis was 2.8 percent during the 2009-2009 planning period. In the 2010 to 2013 MTDP the population of the Metropolis with a growth rate of 3.2 percent is projected to increase from 404,041 in 2010 to 444,752 by 2013

Agriculture accounts for 21 percent of economic activities in the Metropolis. Out of this figure, crop farming account for 14.5 percent while fisheries represent 6.5 percent. As one of the major themes in the government's Growth and Poverty Reduction Strategy II, modernised agriculture was a priority area for agricultural development in the 2006-2009 plan. Modernising agriculture also featured in the 2010 to 2013 MTDP. Infrastructure development, improvement in technology, access to credit, improvement in extension services and access to market facilities were proposed. The proposed measures were however not related to climate change analysis and measures to improve climate change resilience in agricultural production.

The identification of vulnerable groups for necessary measures to improve their resilience, reduce their vulnerability and introduce adaptation measures is important in mainstreaming climatic change adaptation. Although the 2006-2009 had strategies for the vulnerable and the excluded, the plan fails to identify climatic change related vulnerable groups.

The profile of the Metropolis is given by the two medium-term development plans (2006 to 2009) and (2010 to 2013) has very little on climate change related issues. The description of climate does not appreciate climate change issues and their effects or possible effects on the socio-economic development of the Metropolis. The National Development Planning Commission (NDPC) guidelines for the preparation of MTDP (2010 to 2013) was specific on the fact that MMDAs should analyse the impact of climate change relating to agriculture, marine ecosystems, coastal zone infrastructure, human health, biodiversity, water resources and wetlands (NDPC 2010, p8) as part of the district profile. This is however not reflected in the 2010 to 2013 MTDP. The 2010 to 2013 MTDP however identifies lack of awareness of climate change and its consequence as a major development issue.

The analysis of the inventory results indicate that the variables outlined in the framework were not properly adhered to in the two development plans studied. In this regard, it was difficult to appreciate how the outcomes in the framework could be realised.

4.1 Conclusion, Policy and Implications

This paper has revealed that in some situations there is dichotomy between what the NDPC guidelines stipulated and what is implemented during the preparation of the MTDPs. This may call for building the capacity of officers of the Metropolitan Planning and Co-ordinating Unit (MPCU) to equip them with the requisite technical skills that are required for climate change adaptation mainstreaming at the sub-national level. The capacity building effort should include equipping the officers with skills in Participatory Climate Change Adaptation Appraisal (PCCAA). This approach allows poor groups to identify the extent to which climate change related problems affect their livelihoods and community; uses participatory means to enable them to assess their vulnerabilities as a consequence of climate change; and assists in identifying interventions from the perspective of the poor (Moser and Stein, 2010). The participatory processes that are involved in the approach enable local community members to identify locally driven adaptation measures as well as appreciate new measures that are discussed with facilitators and accepted.

There is the need for the introduction of programme-project climate sensitivity check during the design of major projects. This will help check the extent to which the programme or project is climate sensitive. "All climate sensitive projects should identify relevant risks and adjust their activities/approaches accordingly (CARE International, 2010b p6)". There is also the opportunity for re-aligning projects that are already under implementation to be climate change sensitive. Mid-term evaluation and programme and project reviews provide opportunities, and flexibility, to modify the project design to take climate change adaptation into account (CARE International, 2010). Adaptation process should be mainstreamed into project monitoring and evaluation process. Monitoring and evaluation should be included in assessment of changes in adaptive capacity of target groups.

One crucial element for the development of the Metropolis is sustainable development. Flooding prone areas should be well identified in physical planning schemes with necessary recommendations on drainage systems to be put in place and the identification and protection of reserved and open spaces. We further recommend that MMDAs can adopt the framework in future development plan preparation in order to mainstream climate change adaptation measures in the planning process.

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APPENDIX

Table 1 :STMA-Projected Rural – Urban Populations

YEAR	TOTAL POPULATION	% URBAN	% RURAL
1984	249,371	59.6	40.4
1996	357,431	73.6	27.4
2000	359,363	69	31
2010	404,041	69	31

Source: Ghana Statistical Service (cited in STMA MTDP 2010 TO 2013)

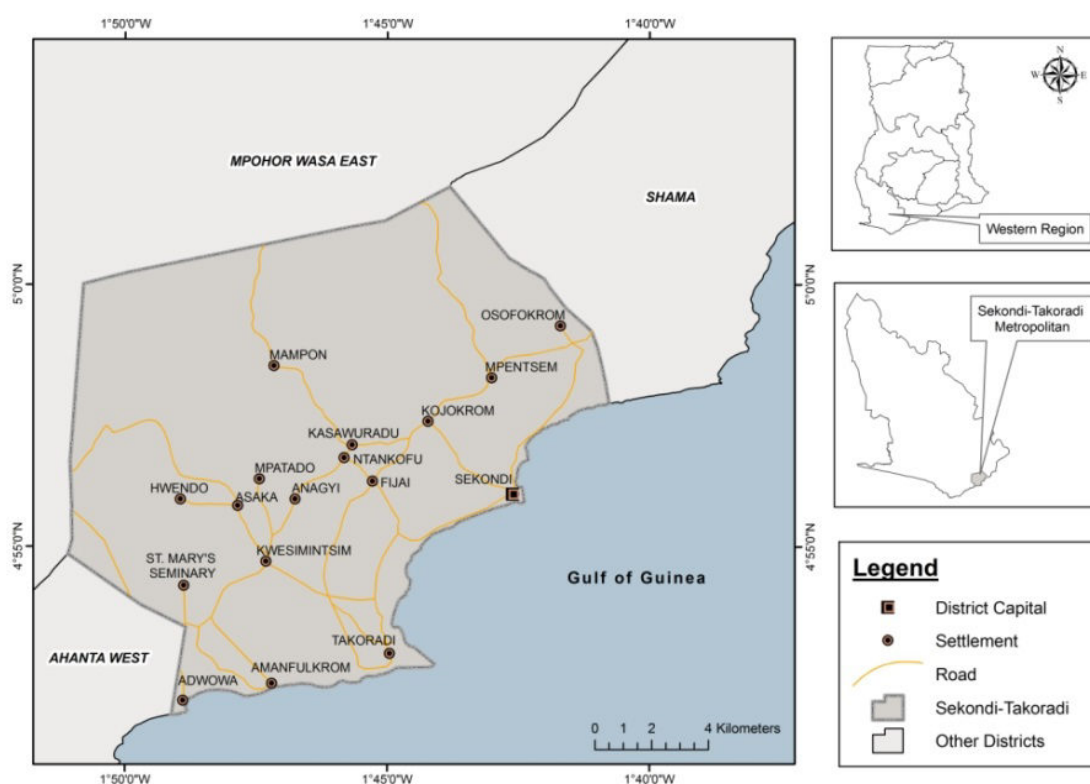


Figure 2: Study Area in National and Regional Context

Table 2 : Results of Climate Change Adaptation Inventory						
Main Issue	Specific	Planning Period	Not Addressed	Partially Addressed	Addressed	Well Addressed
Identification of Past and Current Climate Context	1. D-Plan identifies past and current climate hazards	2006 - 09				
		2010 - 13				
	2. Profile of District identifies past and current climate context	2006 - 09				
		2010 - 13				
	3. Plan identifies other non-climate-related hazards e.g. population and poverty	2006 - 09				
		2010 - 13				
Livelihoods Analysis	1. Plan identifies groups in the metropolis whose livelihoods will be affected by climate change	2006 - 09				
		2010 - 13				
	2. Plan identifies how current climatic hazards affect livelihoods and related resources of different groups	2006 - 09				
		2010 - 13				
	3. Plan identifies which livelihood resources are most vulnerable to climate change	2006 - 09				
		2010 - 13				
	4. Plan identifies livelihoods resources that are needed to build long term adaptive capacity	2006 - 09				
		2010 - 13				
	5. Plan identifies opportunities that exist for diversification of livelihoods	2006 - 09				
		2010 - 13				
	6. Plan identifies current coping strategies to assess their effectiveness.	2006 - 09				
		2010 - 13				
	7. Plan identifies socio-economic factors that increase people's vulnerability to climate change	2006 - 09				
		2010 - 13				
Institutional Capacity for disaster management	1. The plan identifies organisations responsible for disaster management and other adaptation measures	2006 - 09				
		2010 - 13				
Participatory Planning	1. Planning process is participatory	2006 - 09				
		2010 - 13				
Adaptation	1. Plan makes room for critical infrastructure e.g. roads, telecom	2006 - 09				
		2010 - 13				
	2. Plan indicates specific operational guidelines on how to take account of climate related issues	2006 - 09				
		2010 - 13				
	3. Plan support climate resilient livelihoods	2006 - 09				
		2010 - 13				
	4. Plan identifies and tackles infrastructural development with emphasis on households that are in more vulnerable locations	2006 - 09				
		2010 - 13				
	5. Plan identifies activities that protect and transform livelihoods	2006 - 09				
		2010 - 13				
	6. plan incorporates climate resilient agricultural practices	2006 - 09				
		2010 - 13				

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