

Influences of Climate Change on Land Governance in Naaha Community in Wa West District

Dr. *Abdulai Darimani*

Local Government Capacity Support Project (LGCSP)

Ministry of Local Government and Rural Development (MLGRD), P.O. Box M50, Accra, GHANA

Tel: +233-240-869-263 or +233-208-152-184 Email: abdulaidarimani@yahoo.com

Abstract: Land is an important natural and environmental resource. In Naaha community of Ghana, the livelihoods of many households depend on land. Yet, the quality of land is undergoing severe degradation manifested in poor crop yield. The poor quality of land is induced and exacerbated by the adverse impact of climate change and climate variability, as manifested through extreme weather events, ranging from the oscillation of droughts and floods, soil erosion and siltation of various water bodies.

This paper assesses how climate change impact influences land governance in Naaha Community in the Wa West District of Upper West Region. The paper applies a qualitative research method to gather and analyze data to determine specific land governance institutions and practices created as a result of climate induced land degradation. Achieving a better understanding of climate-related induced local practices and institutions will contribute to institution-building for climate change adaptation, mitigation and disaster risk reduction in rural communities. The understanding will also contribute to improving the theoretical concept of natural resources governance. This study shows that land and land-based resources constitute a central arena in which the impacts of climate change manifests in Naaha community. These impacts trigger autonomous adaptation strategies that take place within the framework of local customary land tenure and management system.

JEL Classifications: Q24, Q54, Q56

Keywords: Climate change, Land governance, Customary land tenure, Naaha community

1. Introduction

In recent times, land governance is gaining increased recognition in development discourse. Over the last 10 years, the expressions “land governance” or “governance of the land sector” and, consequently, “good land governance” have been raised by the international community of land experts as concepts emerging from a series of principles, conditions or success factors necessary for the establishment of sound land sectors (Jorge, 2010). Improved land governance is increasingly recognized as critical for ease of access, equity and enhanced quality, and has become one of the main driving objectives in support of land administration, management and reforms.

The increasing recognition of land governance as a development issue underlines its central role in development and the rights of vulnerable social groups. Land is an important natural and environmental resource providing space for settlement, agriculture and all manner of economic and social activities. Development practitioners of all persuasions recognize that a well-functioning land sector can boost a country’s economic growth, foster social development, shield the rights of

vulnerable groups and help with environmental protection (Klaus, et al., 2011). In most rural areas in Sub-Sahara Africa land still remains the only life pad from which many households launch their diversification and survival strategies (Akuffo, 2009 and Bryceson, 2000). The low levels of non-agricultural activities leaves majority of the rural population directly dependent on land for livelihood. The high level of direct dependence gives land a special place in rural communities. Land is not simply a source of livelihood or factor of production but also an intangible object which defines a constellation of social, religious and political relations (Darimani, 2010).

The significance of land in the economic and socio-political organization of peoples and nations has fostered the evolution of a variety of governance principles and mechanisms for land access, distribution and utilization. Over the last few years there have been numerous land reforms in an effort to decentralize the management and simplify access to land (Delville et al., 2009). Ghana has carried out land reforms to re-examine existing access and control over land as well as promote easy access and ensure equity. One of such reforms is the Land Administration Project (LAP) which was implemented to promote boundary demarcation, ease of access through established community land registries or secretariats. This paper assesses the influence of climate change impact on land governance in Naaha Community in the Wa West District of Upper West Region.

2. Statement of the Problem

Climate change and variability has become a major threat to sustainable development. According to Henry (2007) the observed impacts of climate change and climate variability include more intense and longer droughts and flooding, widespread change in extreme temperatures, changes in biodiversity, increased water stress especially in tropical regions, increased risk of extinction of plant and animal species and reduced yields up to 50 per cent by 2020. In the case of sub-tropical and tropical regions, a temperature increase above 1.5-2.5⁰C is expected to lead to a decline in agricultural productivity of crops such as maize and wheat, and there is growing evidence that some crops are already being affected adversely by climate change (Henry, 2007).

Land is one of the areas in which the impact of climate change is clearly manifested. The quality of land is undergoing severe degradation as illustrated by increased erosion, poor crop yield limited access to land and land base resources such as wildlife and fruits. (Palmer et al., 2009 and Philip et al., 2011) have argued that the quality of land and land rights of the poor and vulnerable are increasingly affected by climate change impacts such as natural disasters and floods resulting in crop failures and diminishing access to land based resources. The situation has resulted in increased poverty and exposure to risks and vulnerability of the poor (Palmer et al., 2009 and Philip et al., 2011). According to the Wa West District Assembly (2006), productivity of crops is declining due to a combination of factors such as inadequate rainfall, low soil fertility and low technology. Rainfall distribution and amount in the whole district are concentrated within the second and third quarters of the year. Similarly, the production of livestock has not been encouraging due to inadequate water resources and fodder all year round. Low crop and livestock productivity is a major cause of poverty in the District (Wa West District Assembly, 2006).

In Naaha, the livelihoods of families and households depend essentially on land. Land provides the spine for agriculture and other social activities. A given parcel of land in the community is put to multiple uses including the cultivation of crops, production of livestock and economic trees as well as for settlement, and hunting. Land is required not simply as a basic factor of economic production but also as an asset which is closely linked to individual and community identity and history, as well as cultural and religious values and practices. Several decades ago,

fertile land in Naaha was abundant and crop yield was very high. Access to land base resources such as game and wildlife, wild fruits, and roofing poles were easy due to their readily availability. The availability of fertile land and land base resources provided diversity of options and opportunities. For instance, a farmer could combine crop and livestock production with hunting and weaving.

In Naaha, the quality of land is undergoing severe degradation as a result of the impact of climate change. Evidence of the negative impact of climate change on the quality of land is clearly manifested in the community by insufficient and unpredictable rainfall, poor soil fertility, seasonal uncontrollable floods and droughts. The annual incidence of floods and droughts has resulted in declining soil fertility. The poor quality of soil has resulted in drastic fall in the yield of various crops (see Table 1). Most farmers in Naaha have abandoned the cultivation of guinea-corn due to poor yield occasioned by poor soil fertility. This is a crop whose cultivation was predominant in the community some forty years ago.

Table 1. Comparative Crop Yield Per Hectare of Land in Naaha

Crop	Standard Yield (Tones)	Average Observed Yield (Tones)	Percentage Fall in Full Yield (%)
Millet	0.8-1	0.2	80
Guinea-corn/Sorghum	0.8-1	-	100
Beans	1.1	0.2	81.8
Corn/Maize	1.2	0.8	33.3
Groundnut	1.4	0.6	57.1

Source: Field Work, 2012

In addition to the poor crop yield diversity and access to land based resources is diminishing. Certain fruit-bearing trees like *jinbirun*, *dajuo*, *sunsugree* and *bayolee* are no longer easily visible or accessible as the case was some forty years ago. Similarly, some animal species have completely disappeared from the community due to destruction of their habitats. Two major streams proximate to the community (*Nuohi-kolee* and *Juni-pie*) which were sources of water for various purposes since the 1920s have all silted with sediment loads from floods and erosion. The poor quality of land and the depletion of land based resources have diminished options and opportunities they hitherto provided in the community.

3. Research Objectives and Area

This paper assesses the influence of climate change impact on land governance in Naaha Community in the Wa West District of Upper West Region. The specific objectives are to:

- 1) Identify the specific nature of customary land tenure and management system in the study area.
- 2) Identify local specific climate change induced institutions and practices of land governance in the study area.
- 3) Contribute to institution-building for climate change adaptation, mitigation and disaster risk reduction in rural communities.

The study was conducted in Naaha in the Wa West District of Upper West Region (Figure 1). The 2010 National Population and Housing census puts the total population of Naaha at 611 representing 3.23% of the total population (18,924) of Wa West District. Out of the total population of the community 286 are males and 325 are females. Naaha is one of the oldest communities in the

then Wa District until it was made part of Wa West District by virtue of the Executive Instrument No. (E.I. 15) of 15th December 2003 and Legislative Instrument (L.I. 1795) of 17th March, 2004.

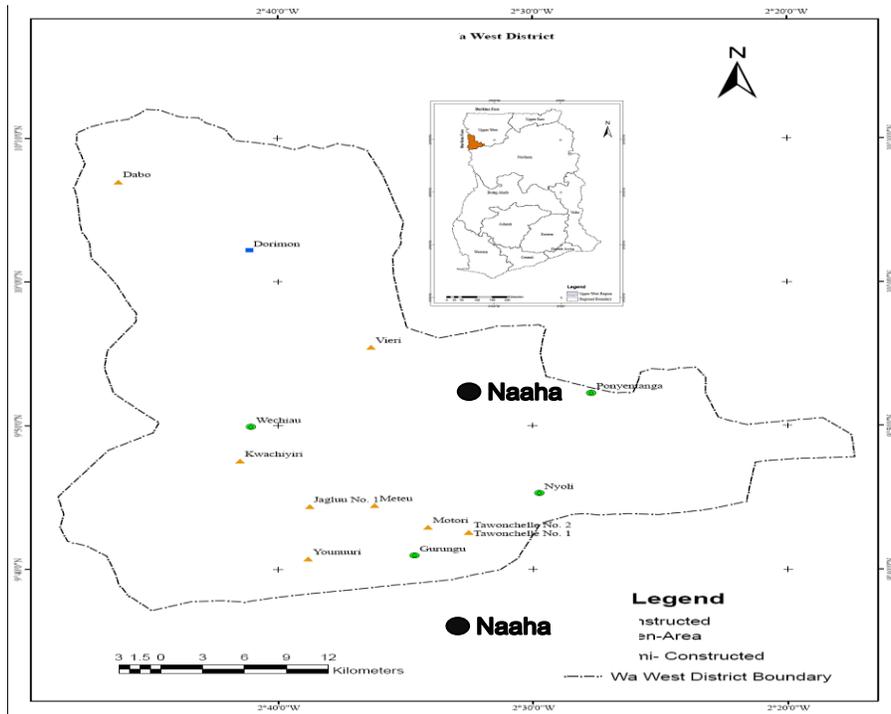


Figure 1. Map of Wa West District showing Naaha

History and tradition revealed that the land under occupation was settled upon through discovery by the forefathers of the present generation who happen to be hunters, several years ago. Two brothers migrated from Issa capital of the newly created Dafiama-Busie-Issa District in the Upper West Region. One of the brothers decided to settle at Sing in the Wa Municipal Assembly and the other settled at Naaha near a spring called *Bubulee* (Figure 2). The people of the two communities (Sing and Naaha) have since remained brothers.



Figure 2. *Bubulee* Spring and Shine

There are four sections in the community. These are Boriyiri, Yipaala, Chokori and Iwieleyiri. Communal work and contribution are often organized according to the four sections. All of the four sections have customary interest in the land of Naaha. Agriculture is the main economic activity in the community accounting for over 90 per cent of the workforce in the community. Agriculture in the community involves the cultivation of crops and production of livestock. Most farmers combine the cultivation of crops with livestock production. The main crops grown by farmers are millet, maize, groundnut, beans, yam and cowpea. The livestock that farmers keep include cattle, goats, sheep, fowls and pigs. The vegetation of the area is tropical Guinea Savannah characterized by short to medium size trees.

The choice of this community for the study was based on a number of factors including the researcher's personal exposure to the community, an increase in land related conflicts in the area, the complete absence of group hunting which was an annual ritual in the area, and the willingness of the people to volunteer information when the idea to carry out this study was first discussed with a cross-section of the community. Naaha alone was selected due to time and resource constraints as well as the need to narrow the boundaries of the study to manageable size.

4. Conceptual Issues

The section of the paper explored the conceptual issues to place the study in appropriate context, establish a clear framework for analysis and provide basis for understanding the empirical findings. The section begins by defining governance and land governance as an aspect of governance. It proceeds to establish the theoretical framework to provide a practical basis for applying the theory in practice.

4.1 Conceptualizing Governance

According to Cleaver and Franks (2005), "the concept of governance, as employed in development thinking, is characterized simultaneously by a diversity of definitions and by a surprisingly degree of concurrence on what the abstract principles of *good* governance are." The UNDP (2001) defines governance as "the exercise of economic, political and administrative authority to manage a country's affairs at all levels". The UNDP definition emphasizes the way in which authority is exercised within the domain of the state and draws attention to the involvement of all sections of society. Others such as (Steiner et al., 2003; and World Bank, 1992) see governance as an exercise of power and authority in the management of a country's economic and social resources for development. These definitions pay attention to the exercise of power as a key dimension of governance. Dwivedi (2002) defines governance as "a system of values, policies, and institutions by which a society manages its economic, political, and social affairs through interaction within and among the state, civil society and private sector". This definition emphasizes the systemic and value oriented nature of governance. It sees governance as emanating from a context which is socially recognized by a particular society or group.

Governance is also seen to comprise technical and political dimensions (Bonnie, 2001; Darimani, 2011; Graham et al., 2003 and Wood, 2005). While the technical dimension focuses on the effectiveness and efficiency of the system, the political dimension concentrates on building relations with a variety of actors in the system. Building such relationships entails responding to a number of critical questions such as how decisions are made and implemented, who is involved, who is accountable to the decisions made and how those in power are held to account (Darimani, 2011).

Another approach to conceptualizing governance is to characterize it as *good* or *bad*. Cleaver and Frank (2005) noted that "governance is often used as an expression of *doing things right*, and that therefore it is intrinsically *good*." However, if governance denotes complex relationships between and among actors, then governance can be *bad* or *good* for certain actors. It is not always the case, for instance, that processes which are participatory would necessarily lead to outcomes that are beneficiary to all actors involved.

Finally, Durant, et al. (2004) consider governance as "the ways in which societies worldwide have sought to advance their legitimate interests in reducing environmental and natural resources (ENR) risks, in ensuring that citizens' rights are protected equitably from these risks; and in allocating roles, responsibilities, and resources more rationally to afford the greatest protection to all." This definition highlights governance as processes, mechanisms and actions taken to ensure

that individuals and the larger society are protected from risks and to do so requires assigning roles, responsibilities and resources. The roles and responsibilities may be allocated between individuals and institutions, and once assigned society have specific expectations for them to deliver. This paper sees governance in a localized and context specific concept about how climate change influences the way in which a community manages land for livelihood, the specific institutions that have emerged and the rules and norms that guide their practice in the management of land.

4.2 Land Governance

The focus of this paper is land governance. Delville, et al (2009) argue that land governance has long been the subject of analysis which converge on three basic principles: (i) Recognizing the diversity of tenure systems; (ii) Recognizing the central role of land administration; and (iii) Putting in place accessible and responsive institutions that are capable of defining territorial strategies at different levels, enforcing laws and resolving conflicts over land. Palmer D. et al (2009) define land governance as a “process by which decisions are made regarding the access to and use of land, the manner in which those decisions are implemented and the way that conflicting interests in land are reconciled”. The two definitions of land governance clearly show that land governance is an aspect of governance incorporating many of the elements that describe the concept of governance.

Local communities have historically relied on customary systems in regulating the quality and use of land. Delville (1999) identifies three common principles of customary land tenure present in traditional rural communities in Africa i.e. (i) rules governing access to land and resources are integral part of the social structure; (ii) tenure is inseparable from social relationships; and (iii) the usage of land confers certain rights. According to Delville (1999), these principles are implemented and arbitrated by customary authorities, whose legitimacy usually derives from prior occupancy and religious alliance with the spirits of the place or from conquest. According to Shazali and Ahmed (1999), within the communal land ownership system from 1821 to 1884 in the Sudan, land use was legitimized through membership of the group or the “tribe”. With respect to improving the quality of land, Hilhorst (1998) points out some of the strategies used by traditional rural communities for land management to include crop rotation, long-term fallow and respect for local authorities and regulations. Hilhorst (1998) cited as an example, the presence of elaborate set of rules in Southern Mali with respect to hunting to protect females in gestation or with the young.

4.3 Theoretical Assumption and Framework

The underlying assumption of this paper is that climate change impact and variability has necessitated local specific autonomous governance responses. The approach is to use the DPSIR (Driving force – Pressure – State – Impact – Response) framework to analyze and understand how climate change impact influence land governance in Naaha community. The DPSIR framework was proposed by the European Environment Agency (1999), in line with ideas about environmental indicator frameworks of other organizations, such as the Pressure-State- Response scheme of the OECD (1991, 1994) and the Driver-State-Response concept of the UN Commission for Sustainable Development (UN 1997). The DPSIR framework describes the causal link between economic activity (**Driver**), the burden on resources (**Pressure**), the condition of resources (**State**), the diminishing quantity and quality on human well-being (**Impact**) and actions/measures to minimize, avoid, prevent or adapt (**Response**).

For the purpose of this paper, this framework is applied to the link between climate change impact and land governance (Figure 3). Climate change is largely induced by human activity. The desire to continuously satisfy human needs and improve quality of life results in extraction of land and land base resources (boxes 1 and 2). The extraction of land and land base resources, their

processing into materials and products and the subsequent use and disposals put burden on the land (3). The degree of the burden determines the condition of land in terms of quality and access (box 4). The state may trigger specific actions in terms of policy or practical measures. Box (5) impacts occur and take the form of loss of quality of land, restricted access and diminished options and opportunities. The degree of the impact leads to response (6) to improve the productive capacity of land (1) or alternative measures to improve the quality of life (2). This framework is applied to determine how the influence of climate change impact influence land governance in practice in Naaha.

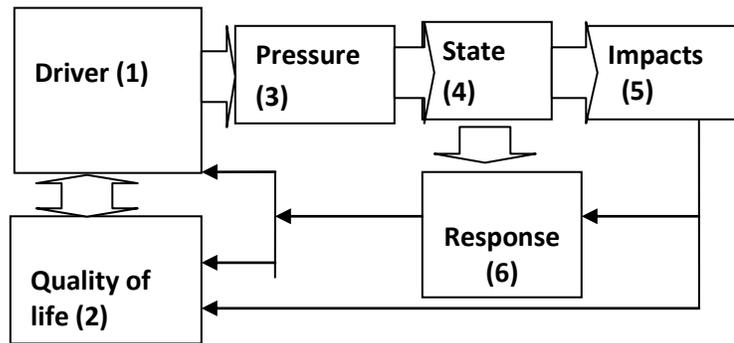


Figure 3. The DPSIR Framework

5. Methodology of the Study

A qualitative approach was used to gather and analyses data on the influence of climate change on land governance in Naaha. Data was obtained from primary and secondary sources. Primary data was collected from men, women and youth of Naaha community with the capacity of providing information required of the paper. Other informants included Assembly members, traditional authority (Chiefs and Tendambas), and staff of Non-governmental organizations (NGOs) working on land and climate change, Wa West District Assembly, Wa West District Office of National Disaster Organization and other decentralized departments of the District. Some respondents were used to identify other key informants (snowballing) for interviews. In some cases, follow-up interviews were conducted on the phone to cut down on cost. The data gathered included the nature of customary land tenure and management system, institutions for land management, local specific practices including norms and rules that emerged for land management arising from climate change impact and differential impact based on gender. Data gathering was done from November 2012 to January 2013.

The main instruments used for gathering data were focused group discussions, semi-structured interviews and field observations. Data collected from both primary and secondary sources were analyzed and interpreted in line with the research objectives.

6. Findings and Discussions

This section presents the findings and discussions of the field study. It begins with highlights of the specific nature of customary land tenure and management system in Naaha and proceeds to discuss Climate induced land management institutions and practices in the community. As a precursor to the discussion on climate induced land management practices the paper outlines the interpretation of climate change impact by the community and proceeds to identify local specific climate change induced institutions and practices of land governance in Naaha.

6.1 Customary land tenure and management system in Naaha

Gyapong (2009) argues that two systems of land administration operate in the vast majority of Sub-Saharan African countries i.e. customary and state land administration systems. In Ghana, the two systems of land administration have been operating side by side (Kasanga and Kotey, 2001). However, the customary land tenure and management system is about the oldest system of land governance and prevalence in nearly all societies in Ghana. The customary sector holds 80 to 90 percent of all the undeveloped land in Ghana with varying tenure and management systems (Kasanga and Kotey, 2001). In both state and customary land tenure systems, various institutions administer land under rules, regulations and procedures. Under the customary land tenure system in Ghana, for instance, land is administered by chiefs, *Tendambas* (*First settlers*), individuals and head of families. According to Kasanga and Kotey (2001) “although the British administration appointed chiefs for many societies in Northern Ghana and attempted to create larger political units, there has always been a clear distinction between the duties of such a chief and those of the ‘*tendamba*’. The traditional rights of the latter over land have, by and large, remained, in spite of the greater prestige which the appointed chiefs enjoy as a result of their role as spokesmen of the people to government.”

The customary land tenure system and management of land in Naaha shared key elements of the customary land tenure and management system in Northern Ghana. There is a clear distinction between allodial title holders and “strangers”. Allodial title is acquired by first settlement, and individuals and families with allodial title can mediate to allocate land for “strangers”. However, there are unique features of customary land tenure and management to Naaha. The *tendambas* are also the royals of the community. The senior most surviving male father is usually the head of the community and seniority follows a genealogy of fathers, sons and grand-sons. The community head executes land governance for and on behalf of the people through an organized division of functions (Figure 4). The position and role of the *tendana* is assigned and functional in nature.

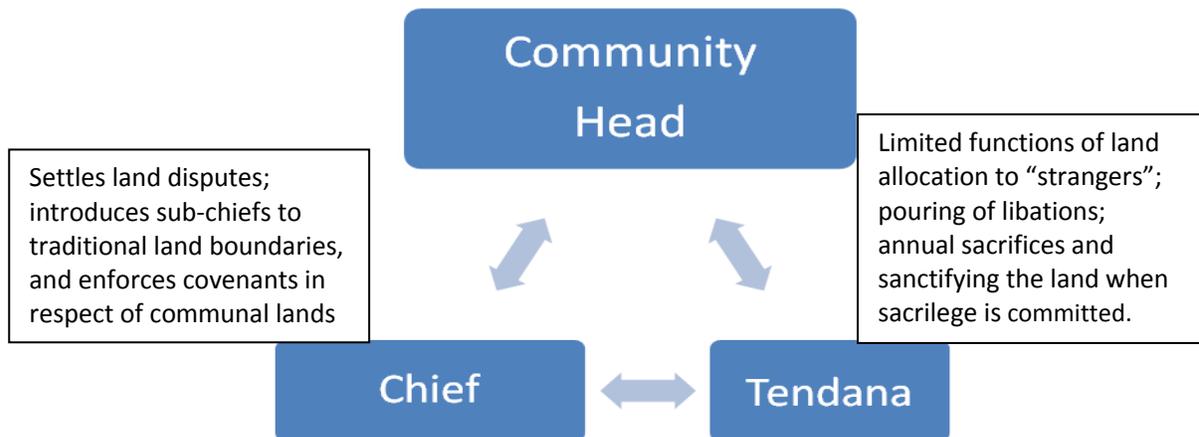


Figure 4. Relation of Customary Land Management Institutions in Naaha

In relation to land, the head of the community has historically delegated part of his authority and functions between sections of the community. One section known as *Chokori* has been assigned limited functions of land allocation to “strangers”; pouring of libations; annual sacrifices and sanctifying the land when sacrilege has been committed. The head of this section may be seen as the defacto Tendana but only in functional terms. Two other sections namely *Yipaala* and *Boriyiri* ascend to the chieftaincy in rotation. In relation to land, the chief of Naaha settles land disputes; introduces sub-chiefs to the traditional land boundaries and enforces covenants in respect of communal lands. Sanctions against trespassers are imposed in council and compliance is enforced either by the chief or the tendana as the case may be. It is understood that all of these functions are implemented for and on behalf of the head of the community. Both the chief and tendana report to the head of the community. For instance, this paper found that the head of Naaha community Kwame Dondori, not the chief nor the defacto *Tendana*, is the plaintiff in a statement of Claim to the High Court of Wa on November 25, 2009, (*Kwame Dondori of Naaha vrs Naa Dramani Adama and others of Tanina*) in a land dispute involving Naaha and Tanina.

There is a history behind the head of the community playing the dual role of land ownership and chieftaincy title. During the fractecital wars, an invading force of Ndewura Jakpa attacked the ruling clan of Wa (*Wa Nabiihi*). The Wa-Naa at the time Wa-Naa Tangile sought help from Naaha to defend the Wa Nabiihi. The people of Naaha responded by offering support which helped in the defeat of the invading forces of Ndewura Jakpa. In appreciation of the valuable role played by Naaha for the important victory, Wa-Naa Tangile in council with all the ruling gates of Wa declared that the people of Naaha would continue to elect their chief.

Individuals and families from the allodial title holders in Naaha have secure, alienable and inheritable rights to land. Despite the passage of the Intestate Succession Law, 1985 (PNDCL 111) which introduced a uniform system of intestate succession in Ghana, customary inheritance practices in which land is inherited through the male is still being practiced in Naaha. Migrant individuals and families who wish to settle or acquire a parcel of land must seek permission of the head of the community through the chief of Naaha or any of his sub-chiefs or individuals with allodial title. If permission is sought through an individual the first point of call is the head of family to inform him of the request. The head of family may personally lead the stranger to the chief who would convene a meeting of elders in the house of the head of community to make a decision on the request. Once permission is granted, the stranger is informed.

The land belonging to Naaha has attracted thousands of migrant farmers leading to the creation of settlements such as Kindoma, Sugu, Weli-yiri, Da-eyiri, Daribaa-yiri, Kuunchile-yiri, Danaa-yiri Kongolimo/Toma-yiri and Ponyentanga. In the case of migrant farmers, a date is set aside for the *tendana* to offer sacrifice to a particular shrine where the migrant farmer would settle asking for blessings on the use of the land. The migrant farmer is responsible for providing the materials for the sacrifice. The materials for sacrifice are shared among the persons present. If it is a four-legged animal, the hind-leg is normally reserved for the head of the community or his representative. At the end of each harvest, migrant farmers are required to bring a *head* of guinea-corn or millet for each farm to the elders of the community. The tendana and chiefs receive the collections which are subsequently shared among the sectional heads of the community. The tendana and the chiefs usually have the largest share apparently to compensate for the amount of work they invest in land governance.

Among migrant farmers and allodial title holders, customary method of land management also includes mixed-cropping, mixed-farming, fallow-phase and selective-logging. These practices have persisted over decades through generations and have kept land quite viable for productive uses. Trees in the bush and those preserved on farms are the property of the allodial title holders and could be harvested or cut. However, in recent times, migrant farmers are allowed to harvest trees on

their farms but they are under obligation to permit allodial title holders, their children and wives to enter and harvest some of the fruits of economic trees like sheanuts and dawadawa. This arrangement is to provide incentive for migrant farmers to protect economic trees. With respect to harvesting of economic trees, it appears to operate on first come basis. However, migrant farmers are not permitted to harvest economic trees on farms belonging to allodial title holders. This arrangement is noted to be a major source of routine dispute with some resulting into clashes between farm families. In focus group discussions an average of ten cases of dispute over the harvest of economic trees occur each year.

6.2 Climate induced land management institutions and practices

The struggle around climate change is not about whether the phenomenon exists or not. Rather it is about how to adapt and mitigate the impacts and respond to the risks. Ministry of Environment, Science and Technology-MEST (2012) has reported that an “increase of 1 °C has been observed over the past 40 years (1960 – 2000). Recent projection estimates temperature increases of 1.7 °C to 2.04 °C by 2030 in the northern Savannah regions, with average temperatures rising as high as 41 °C. Also, there is uncertainty on rainfall – it may increase, or it may decrease. The “analysis of the 40 year data trends shows a progressive rise in temperature and decrease in mean annual rainfall in all agro-ecological zones in Ghana with projected estimates of 0.6 °C, 2.0 °C, and 3.9 °C by the year 2020, 2050 and 2080, respectively” (Agyemang-Bonsu, *et al.*, 2008 cited in MEST, 2012).

The study found clear manifestation of the impact of climate change on the land of Naaha (Figure 5). The evergreen grass, flowers and creepers that used to lace the tropical guinea savannah trees giving it the amazing and romantic scenery and providing fodder and manure has severely deteriorated. In most parts of the community the land has become bare with isolated economic trees like shea, dawadawa and baobab. There is also competition for land due to the influx of Fulani herdsmen from neighbouring Burkina Faso. As at December 2012, thirteen different Fulani herdsmen and their households were found to be settled in the community with their herds of cattle. The impact of climate change is certainly one of the push factors for the Fulani pastoralists from Burkina Faso.



Figure 5. Section of bare land of Naaha

During interviews, respondents used lack of knowledge of certain plant and animal species, poor soil fertility, unpredictable rainfall pattern, floods and the prevalent of “*moving ants*” as proxies for the manifestation of the impact of climate change in the community. Field interviews also revealed that the identified impacts of climate change have cumulatively contributed to increased degradation of land thereby constraining access to livelihoods in the community. It was observed that the impacts on land degradation were differentiated. In terms of energy needs women were the most victims as they now spend longer hours, distance and much money to find wood fuel or charcoal for cooking. In addition, some women shoulder the burden of care for the households as their husbands migrate to the south during the long dry seasons. Differences were also observed between those with skills and well connected to networks on one hand and those without networks

and special skills. Those with skills and well connected to networks or centres of power were able to adapt by deploying their skills and networking relations to alternative and additional livelihood strategies. In a focus group discussion it was reported that one farmer was able to harvest over one hundred maxi bags of maize despite the poor quality of soil. The meeting attributed this performance to the farmer's ability to access improved techniques of land through networking relations. But those with less skills and networking relations constitute the majority in the community.

In addition to the customary land holding and management institutions, an eight member land allocation committee has been established by the community with clearly defined responsibility of allocating land to strangers for building and providing leadership on conservation projects. Two representatives from each of the four sections of the community constitute the eight member committee. The committee has responsibility for electing its chair and secretary. As at December 2012 Seidu Bukari and Issahaku Sanseun were the Chair and secretary respectively. The power to withdraw a member from the committee is vested in the respective community sections. The committee can only report any wrong-doing of a member to the section he comes from for the appropriate sanctions. The committee reports to the community at meetings convened by the chairman in the compound of the head of the community.

Keeping separate farms for different crops has emerged as a land management practice in Naaha which was unknown about forty years ago. Individuals now keep separate farms for certain crops such as maize, millet, rice and groundnuts. Keeping all manner of crops on one parcel of land is no longer a preferred farming practice in the community. The practice of keeping separate farms is prevalent and meant to guarantee a certain minimum yield per parcel of land. In an interview with Mallam Iddrisu (January 1, 2013) on why they keep separate farms he said:

“We keep separate farms because “the strength of land is finished” (meaning the fertility of land has diminished). You can no longer inter-plant maize or millet with beans. You can inter-plant millet with yam, or groundnut and millet but not guinea-corn or sorghum with groundnuts.”

The cultivation of tree plantation has emerged as a way of maintaining and securing permanent tenure rights. Traditionally, male members of a family in Naaha have equal right to uncultivated fallow land of their grandparents. Such uncultivated or unoccupied parcels of fallow land could either be bequeathed to nephews or allocated to other male members of the extended family, in accordance with the decision of the family head. Individuals now resort to the development of tree plantations as a way of enjoying exclusive or much longer tenure rights. Over one hundred and fifty individual farmers were interviewed on tree plantations. The results showed that one out of every three farmers in the community is keeping some parcel of land for tree plantation either on their farms, portion of a family fallow-land or a piece of land targeted for future farming. Some migrants also planted trees to demonstrate their interest on the land or discourage the allodial title holders from allocating such a piece of land to fellow migrants or strangers. This was found to be prominent in peri-urban areas like Tomayiri/Kongolimo and Ponyentanga along the Wa-Kumasi highway.

The community has also resorted to protection and conservation of land and vegetation. In 1998, the community established a reserve known as Yoboli Community Reserve. Yoboli is a stream located in an area that was almost a forest. The stream became silted and the forest was fast depleting through various human induced activities such as bush fires and logging for roofing poles and backyard gardens.

The Yoboli Reserve was established as a strategy to preserve the local tree species. Since its establishment in 1998, the community has been successful in protecting the reserve from bush fires (Figure 6 on the next page).



Figure 6. Portion of Yoboli Community

Further, the community has imposed a three year gardening cycle. The three year gardening cycle means that members of the community would not be allowed to harvest trees for the purpose of making gardens for a period of three years. In Naaha, individual men and women keep backyard gardens in addition to their bush farms. They harvest branches of matured trees and young trees to serve as fence for the gardens. This practice contributes to the deteriorating state of the vegetation. In 2011, the community met and decided to impose a three year cycle moratorium for harvesting trees for the purpose of making gardens. This action was taken in response to the deteriorating quality of the vegetation and to allow for self-regeneration especially of young trees.

Farmers in Naaha also use crop rotation as land management strategy. The farmers rotate between crops that take on chemical fertilizers and those that do not on the same parcel of land. This means that the land on which crops that take on chemical fertilizers are grown is used to grow crops that do not take on fertilizers the following year. In an interview, the farmers reported that yam, beans and groundnuts do not do well when they apply chemical fertilizers on them. However, maize, corn, millet and rice do very well with the application of fertilizers. All the farmers interviewed in the Naaha community indicated that they apply chemical fertilizers on their land to improve its fertility. They also reported that the three year duration of cultivating a virgin or fallow land before applying chemical fertilizers has been shortened to two years due to reduced fertility of the land. Sandaa Kwame a farmer lamented thus: *“We used to cultivate new land for three years before we think of applying fertilizers. Now in two years, you must apply fertilizers or loss all your crops.”* The use of chemical fertilizers especially in indiscriminate ways contributes to further environmental pollution.

Within the settlement of Naaha two important observations in relation to land use were made. Firstly, there was a changing pattern of buildings from thatch houses with bricks to cement concrete block buildings. As at 2007 there was no a single concrete cement block building in the community. In December 2012, there were three completed concrete cement block buildings in the community. Four others were under construction, and three others had gathered materials ready to commence concrete foundation. Secondly, sufficient spaces are allowed between new and emerging buildings unlike in the past when buildings were constricted. These observations point to specific response to climate change impact. The concrete cement block buildings could withstand floods better than the thatch buildings while adequate spacing between buildings would facilitate free flow of floods water and air for cooling temperatures. Further, farmers have developed closed relationship with the migrant Fulani herders for their mutual benefits. Among the migrant Fulani herders, some manage their own cattle but the vast majority combines their cattle with that of local residents. This arrangement was found to provide protection for the Fulani herdsmen while helping the local residents to benefits from the special skills the Fulani herders have for cattle management.

7. Conclusion and Recommendations

This study has shown that land and land base resources constitute a central arena in which the impacts of climate change clearly manifested in Naaha community. These impacts trigger autonomous adaptation strategies that take place within the framework of local customary land tenure and management system.

There are customary land governance institutions and practices unique to Naaha. These institutions and practices are undergoing modifications occasioned by the impact of climate change and climate variability.

The impact of climate change on land has differential impact which supports the widely held view that poorer people and communities usually fare much worse than richer people or communities, for the pretty obvious reason that the poor have less to invest in practical coping and general livelihood activities and strategies.

Human capabilities were found to be an important adaptation strategy for climate change. People with skills and well connected were found to be critical actors in shaping their own livelihood under the poor quality of land.

On the basis of the forgoing the paper makes the following policy recommendations:

- State policies and programmes towards climate change adaptation and mitigation should take into account existing customary land tenure and management institutions and practices.
- Secondly, climate change adaptation and mitigation strategies including disaster risk reduction and response in local communities should not only build on community autonomous adaptation strategies but also recognize the differentiations that exist according to gender, skills and power relations.
- Land reforms for whatever purpose should recognize the central role of customary land tenure institutions in land governance.
- Support for land improvement measures and actions is crucial if programmes of the Savannah Accelerated Development Authority (SADA) are to benefit the poor and help to alleviate poverty in rural communities in northern Ghana.
- Poor rural communities often suffer from many pressures which economic progress could alleviate. It is therefore recommended that climate change adaptation and mitigation strategies should necessarily integrate poverty eradication and economic development through sustainable development.

References

- [1] Akuffo, K. (2009), "The Conception of Land Ownership in African Customary law and Its Implications for Development", *African Journal of International and Comparative Law*, 17(1): 57-78.
- [2] Bryceson, D. (2000), "Rural Africa at the Crossroads: Livelihood Practices and Policies, *Natural Resources Perspectives*, Overseas Development Institute, No. 52, April 2000, London. (Online) Available at: <http://www.odi.org.uk> (downloaded in December 2012).
- [3] Campbell, B. (2001), "The Role of Multilateral and Bilateral Actors in Shaping Mining Activities in Africa in Mining, Development and Social Conflicts in Africa", *Third World Network-Africa*, Accra pp3-39.
- [4] Cleaver, F. and Franks, T. (2005), "Water Governance and Poverty: A Framework for Analysis", BCID Research Paper No.13, December 2005, Bradford Centre for International Development, University of Bradford, pp.2-16.
- [5] Darimani, A. (2011), *Effective Environmental Governance of Gold Mining in the Obuasi and Birim North Districts of Ghana*, PhD Dissertation, School of Environmental Science and Sanitation Studies, University of Ghana, Legon, Ghana, pp.45-46.
- [6] Darimani, A. (2010), "Mining Boom and Enclave Economy: Development Impact and Challenges in Mining Areas", In: Gavin Hilson (Ed), *Enclaves of Wealth and Hinterlands of Discontent: Foreign Mining Companies in Africa's Development*, Third World Network-Africa, Accra, pp.52-62.
- [7] Delville, P. L. and Durand-Lasserve, A. (2009), "Land Governance and Security of Tenure in Developing Countries", White Paper, French Development Cooperation, Paris.
- [8] Delville, P. L.(1999), "Harmonising Formal Law and Customary Land Rights in French-Speaking West Africa", Issues paper no. 86, International Institute for Environment and Development, London, p.1.
- [9] Durant, R. F., Fiorino, D. J., and O'Leary R. (Eds) (2004), *Environmental Governance Reconsidered Challenges, Choices and Opportunities*, Cambridge, Massachusetts, and London: MIT Press, p.2-45.
- [10] Dwivedi, O. P. (2002), "On Common Good and Good Governance: An Alternative Approach", In: Olowu D., and Sako S. (Eds), *Better Governance and Public Policy*, Bloomfield, United States of America: Kumarian Press Inc., p. 37.
- [11] Graham, J., Amos, B., and Plumtre, T. (2003), "Governance Principles for Protected Areas in the 21st Century: A Discussion Paper, Institute on Governance, Parks Canada and the Canadian International Development Agency", Ottawa, Canada, p.1.
- [12] Gyapong, P. (2009), "Assessing Customary Land Tenure Institutions for Land Administration in Ghana: Good Governance Perspectives Case Study of Gbawe, Greater Accra, Ghana", International Institute for Geo-Information Science and Earth Observation, Enschede, The Netherlands, p.13.
- [13] Henry (2007), "Climate Action, Sustainable Development International in Partnership with the United Nations Environment Programme", (UNEP), London, Nairobi.
- [14] Hilhorst, T. and Coulibally, A. (1998), "Elaborating a local convention for managing village woodlands in southern Mali", Issue paper No.78, International Institute for Environment and Development, London, p.3.
- [15] Jorge, A. and Espinoza, S. (2010), "Improving Land Sector Governance for the Achievement of Sustainability, an Assessment of Chile's Land Tenure System", Institute of Geodesy, GIS

- and Land Management, Technische Universitat, Munchen, Munich, Germany. (Online) Available at: www.landandpoverty.com/agenda/pdf (Downloaded in December 2012).
- [16] Kasanga, K., and Kotey, N. A. (2001), "Land Management in Ghana: Building on Tradition and Modernity", International Institute for Environment and Development, London, pp.13-15.
- [17] Klaus, D., Harris, S., and Tony, B. (2011), "The Land Governance Assessment Framework: Identifying and Monitoring Good Practice in the Land Sector", World Bank, Washington DC.
- [18] Kwame Dondori vrs Naa Dramani Adama and Naa Sidiki Dadjiema (2009), Statement of Claim Order 11 r 1 (1) of CI 47 High Court, Wa AD 2009.
- [19] Ministry of Environment, Science and Technology-MEST (2012), National Climate Change Policy (Draft), MEST, Accra, p.3.
- [20] Palmer, D., Fricška, S., and Wehrmann, B. (2009), "Towards Improved Land Governance, Food and Agriculture Organization of the United Nations", United Nations Human Settlements Programme.
- [21] Philip, K. T., Peter, G. J., Polly, J. E., and Andrew, J. C. (2011), "Agriculture and food systems in sub-Saharan Africa in a 4°C+ world", *Journal of Philosophical Transactions of The Royal Society (A)* 369, 117-136 pp.124-128 (Online) Available at: <http://rsta.royalsocietypublishing.org/> (Downloaded in December 2012).
- [22] Shazali, S. and Ahmed, A.G.M. (1999), "Pastoral land tenure and agricultural expansion: Sudan and Horn of Africa", Issue paper No. 85, International Institute for Environment and Development, London, p.3.
- [23] Steiner, A., Martonakorca, H., and Guzioca, Z. (ed) (2003), *Environmental Governance Source Book*, United Nations Development Programme-UNDP Regional Bureau for Europe and the Commonwealth of Independent States, Bratislava, Slovak Republic, pp. 15-18.
- [24] UNDP (2001), "Governance for Sustainable Human Development: A UNDP Policy Document", (Online) Available at: <http://magnet.undp.org/policy/summary.htm> (Downloaded in February 2006).
- [25] Wood, A. (2005), "Demystifying Good Governance: an Overview of World Bank Governance Reforms and Conditions", briefing paper presented at the Falls Meeting of International Monetary Fund (IMF) and World Bank Group (WBG) in Washington DC, United States of America, pp. 3-37.
- [26] World Bank (1992), "Governance and Development", World Bank, Washington DC, USA cited in Santiso Carlos, Good Governance and Aid Effectiveness The World Bank and Conditionality, *The Georgetown Public Policy Review*, 7(1): p.5.