UNIVERSITY OF EASTERN FINLAND

Faculty of Science and Forestry

EVALUATING THE IMPACT OF LAND TENURE SYSTEMS ON FOREST PLANTATION SCHEME IN SEFWI WIAWSO FOREST DISTRICT, GHANA

Justice Vengkumwini Niyuo

MASTER'S THESIS

BIO-ECONOMY AND NATURAL RESOURCES MANAGEMENT (ECORES)

JOENSUU 2016

Niyuo, V. Justice . 2016. Evaluating the Impact Land Tenure Systems on Forest Plantation Scheme in Sefwi Wiawso Forest District, Ghana. University of Eastern Finland, Faculty of Science and Forestry and CSIR-FORIG/UEF Graduate School, Master's thesis in Bio-Economy and Natural Resources Management (ECORES), 52p

ABSTRACT

Forest plantation development is increasingly seen as an important land use for livelihood improvement and sustainable forest management. However, land tenure issues have militated against the successful local participation in forest plantation development. To expand the current scope of plantation establishment, land tenure challenges must necessarily be addressed. This study assessed the impact of land tenure on the implementation of forest plantations by fifty-eight (58) farmers within the Sui River Forest Reserve. These farmers are members of the Sefwi Bodi community who are either native to the area or migrants who have moved in in search of farming lands.

The results show that, majority of farmers preferred planting cash crops such as cocoa, on their lands instead of trees. The reasons given for not planting trees are not related to the tenancy agreements. Instead, it was related to the size of land available to the family for food crop production. They suggested the farming lands were too small and tree planting will deprive them of their food crops. Thus, tree planting activities are more likely to enjoy greater participation of the local communities and be sustained over a long period if larger sizes of farming lands are made available to farmers. Land tenure and user rights are the most key debate issues over tree planting and other land uses in Ghana. But in this case, most of the people do not feel insecure about their land tenure. With this local confidence in land tenure, there is the possibility of encouraging local people to plant tree using a more improved integrated land use systems. A good example of an integrated system that can be encouraged is the Modified Taungya land use system. This approach should gain prominence in addressing some of the land degradation problem within Sui River Forest Reserve

Key words: Land Tenure System, Tree Planting, Farms Lands, Degraded Forest Reserve, Ghana

FOREWORD

In spite of the vital economic contribution plantation often provides to society, one of the potential major constraints to successful implementation of plantation program in Sefwi Wiawso Forest District is land tenure and its related challenges, such as litigation over land among the Forest Service Division (FSD) landowners and migrant-settlers of Bodi. It is for these reasons that this study was conceived to highlight the challenges of land tenure and provide some recommendations in addressing this issue.

I have received diverse support from many people during this study. My most thankfulness goes to the Almighty God for his great assistance to me all over the years in all my endeavours. Dr. Mark Appiah was my thesis supervisor. I am thankful to him for his Guidance.

My sincere thanks go to Dr Luke Cyprian Anglaare, Dr. Joseph Cobbinah, Dr. Andrew Akwasi Oteng-Amoako, Dr. Ernest Foli, Dr. Felix Amofa, Dr. Kofi Poku, Dr. Lawrence Damnyang and all the Lecturers at UEF-FORIG Graduate School, for their suggestions, encouragement and their precious time in answering endless questions and making constructive suggestions.

Again, I am thankful to my Mrs. Janet Niyuo (My wife), Eddigar Niyuo, Edna Niyuo, and Edith Niyuo for their encouragement, patience and support during my study period

I am also grateful to Badu Yeboah, Francis Ottopa, Joseph Tieyiri, and all colleagues at UEF-FORIG Graduate School who contributed in different ways towards my studies.

My sincere gratitude goes to all the 2014/2015 National Service Personnel at FSD- Sefwi Wiawso Forest District especially Kennedy Opoku and Kofi Anokye for their assistance in diverse ways.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

CLT	Customary Land Tenure
CL	Customary Law
FSD	Forest Services Division
GERMP	Ghana Environmental Resources Management Project
GIS	Geographical Information System
MLF	Ministry of Lands and Forestry
MTS	Modified Taungya System
NRMP	Natural Resources Management Project
UN	United Nations

1. INTRODUCTION

1.1 Background of the Study

Land tenure system is a very much complex since the system is derived from customary rules that do not have any fixed set of 'instructions for use' regarding land and other resources. The Customary Land Tenure (CLT) systems are based on informal local practices that vary from community to community and are usually flexible and negotiable through verbal agreements (Agbosu et al, 2007). According to Riddell, (1987) and Lowe (1986) it is mostly an expression of social relationship with a certain flexibility in adapting to change and addressing the interaction between society and its resources.

In Ghana where this study was conducted, for example, control and management of land can be put under three main categories which are stool lands (lands under customary laws), public lands (under statutory laws) and private lands (Appiah 2013). Under Customary Law (CL), the Chief in the traditional area becomes the custodian of the land and manages it on behalf of the local community (Appiah, 2001). About 80% of lands that are not under national reservation- those often in demand for forestry projects—are held under Customary Law, with different tenure and management systems (Agbosu et al, 2007).

Communities can have access to lands through customary inheritance practices, where land and associated resources can be passed on from father to son or parents to children or from one family member to another member of the family. Other means of acquiring land under CLT have been described by Kasanga (2002) and Agbosu et al (2007). They are through sharecropping, as practiced mainly by migrant farmers, and also by leasing land from indigenous family heads and traditional authorities. The terms and practices vary locally according to the settlement history of the traditional areas and land use practices. However, land secured under each of the avenues can still be redistributed to people outside of the original household through a system we could term as sub-leasing or sub-tenancy. Farmers who migrate to resettle in forest areas where farming lands are available often rely on sub-tenancy practices (Appiah 2001). Public lands, on the other hand, are those which are owned and managed by the state, such as the project lands in Dormaa,

Offinsso and Begoro. Public lands constitute about 20% of all of Ghana's lands (IUCN, 2007). The administration of these lands is now based upon statutory laws that outline what is acceptable and provide consequences for non-compliance. Under this system, land rights are allocated and confirmed through the issue of user titles.

A major problem that has not yet been addressed, but is attributed to land conflicts in Ghana, is the flexibility and the lack of written agreements under the CLT systems. This lack is believed to create the potential for wrong interpretations of responsibilities and specifications. Another major concern under the CLT system is that ownership can be claimed from "long use and association" with communal land. Unfortunately, tree planting, which is the main component of all of the forest carbon or reforestation projects, is considered to be one of the acts that can guarantee "long use and association" with a piece of land. As a result, tenant and sub-tenant farmers are often discouraged by land owners from planting trees or have no incentive to do so since they may not be beneficiaries of the planted trees (Appiah, 2001).

Another problem, this time at the national policy level, is that, although communities have rights to manage their own lands, when it comes to forests and timber trees on these lands under CLT systems (i.e., outside of reserves), as well as on the reserves, they are controlled by the State through the administration of the Forestry Department (FD) (Appiah, 2001). The allocation of tree-felling rights, the collection of royalties are done by the FD and they shares them among different stakeholders, excluding the local farmers who are actually working the land (Appiah, 2001). In Ghana, power is conferred on the Ghana Forest Services Division to have overall control of the permanent forest estate in trust of land owners in relation to the sustainable management of the nation's forest. The Forest Services Division, by its core mandate, excludes other users of the forest reserve other than those who only have the right of access to certain resources, such as firewood gathering, admitted farms and settlements. This policy appears to be misguided as this arrangement often gives local people no incentives or rights to prevent others from cutting down the trees which are found on lands under their management.

With increasing population in the forest fringe communities, including communities in the study area, the need for a secured and productive land for agriculture and other ecosystem goods and services has become an issue of concern for local communities Worldwide.

Because without a secured tenure there are no prospects for successfully involving local communities to engage in sustainable forest management, protection, biodiversity conservation, watershed management and coin forest plantation investments in the Sui River Forest Reserve Regarding the current study area, although Sui River Forest Reserve is vested in the State as trustee for the appropriate stool of Sefwi Wiawso under section 7 of the Administration of Lands Act, 1962 (Act 123) natives claim to have customary rights on Admitted Farms and settlements as long as they own the land. This has therefore led to the proliferation of illegal extensions of admitted farms, unauthorized building structures and relocation of erected Forest Reserve External Boundary Pillars of the reserve, illegal sales of forest lands by stool land owners to migrant- settlers, illegal surface mining activities, illegal farming activities, displacement of both external and internal boundary pillars, illegal expansion of admitted settlements, husbandry of domesticated animals, illegal felling of tress and creation of marketing centers of food crops in the reserve, thereby changing the integrity of the Forest Reserve. Such social relationships or arrangements by the community members who have access to the land need to be resolved before the local people and prospective investors would be able to make investments in forest plantation establishment on the degraded and deforested areas.

Consequently land tenure systems in this study area has become necessary to look at in view of the need for plantation establishment and to make sustainable forest management a reality in providing ecosystem goods and services and addressing global warming challenges issues. Since 1997, the United Nations Industrial Development Organization has indicated that “without rapid development of plantations, Ghana could well become a net importer of wood within 30 years. Notwithstanding this sounding projection, the issue of land tenure and customary claims over land for other uses by the study community has made it extremely difficult for investors and governments to effectively implement programs to restore degraded and deforested areas.

1.2 Problem Statement

In spite of the vital economic contribution plantation often provides to society, one of the potential major constraints to successful implementation of plantation program in Sefwi Wiawso Forest District is land tenure and its related challenges, such as litigation over land among FSD, landowners and migrant-settlers of the Bodi community.

The problem of land acquisition, litigation and customary claim to the right of admitted farms and settlements are causing insecurity in land ownership and hindering sustainable management of these resources including tree planting on degraded farm lands. Despite the significant contribution of tree resources to the local livelihoods and the and ecological well-being of the communities tree planting is still faced with the problem of poor community participation'

1.3 Justification of the study

Sefwi Bodi is one the fringing communities of the Sui River Forest Reserve. The main occupation of this Community is cash crop farming mainly cultivation of cocoa. The cocoa farming activities have and continue to degrade the forest reserve. Worst still, the tree tenure arrangement for this study area is unclear and insecure consequently preventing the land users from planting trees. With the increasing in the populations of communities in and around the Sui River forest Reserve, there is ever increasing needed to address the issues of land tenure to be able gain local participation in tree planting and other sustainable forestry practices

On this basis this study was conceived to investigate land tenure issues and the impacts of such arrangements on plantation establishments in the Sui River Forest Reserve and make recommendations as to how to mitigate land tenure conflicts in the area and be able to rehabilitate the degraded areas through plantations and promote sustainable management of forest resources in the area

1.4 Research Questions

The study seeks to find answers to the following research questions

I. What land use practices and livelihood options exist in the community?

II. How do the community members access lands for farming under the various tenancy Agreements?

III. What is the Community's perception on the Various Tenancy Agreements and preferences?

1.5 Study Objectives

The overall objective of the study is to evaluate the impact of land use agreements systems on forest plantation development schemes in Sui River Forest Reserve of the Sefwi Wiawso Forest District.

Specific objectives are;

I. To identify the land uses and livelihood options in the community

II. To determine how the community access lands under the various tenancy agreements and determine their perception on how these agreements are impacting tree planting activities or decision to plant trees and subsequently make recommendations regarding local people's preferences regarding those agreements.

1.6 Organization of the Thesis

This study is organized into five chapters. Chapter one, gives readers the description of the study, statement of the research problem, the general and specific objectives of the study, the justification of the study, and the organization of the study. Chapter two (2) focuses on the Conceptual Framework of the study. Chapter three introduces the methodology used in the study. It discusses the materials and methods for this study. Chapter four presents the results and the Chapter five the discussions on the study findings including conclusions and recommendations of the study.

2. THEORETICAL FRAMEWORK

2.1 Land Tenure System

The Natural Resource Management Dictionary (1996) defines land tenure system as the relationship established among humans regarding the various rights to own, use, and control of the resources on that land. Kasanga (1994) defined the system as a broad term covering all the relationships established among people, which determine their varying right in the use of the land. Also, land tenure is defined as the rights and responsibilities and restraints that individuals or groups of individuals have regarding land (McLaughlin 1981). Although there are different definitions for land tenure, they all have a central team around access, rights, ownership, utilization, and control.

Resource (land) access refers to the terms, arrangements, or rules and regulations governing control of or access to natural biophysical attributes regarded as valuable by society. The character or system of resource access is widely assumed to be an important determinant of the integrity of biophysical resources because the incentive to conserve them is to a large extent, inherent in it (Gyasi, 1994). According to Berry (1993), access mean the right to use or benefit from a productive resource, while control is the effective exercise of such access rights.

To have an access to resources, it means one has to get to and use that particular resource. For example, when a women have access to a forest (they should be able to collect fuel wood and other products from there) even though they do not own it. Unfortunately, the rights of the local land users are often limited only to the management of the resources. Worst still, if a land user has only the access rights to the resource but no has no control over it, he or she feels insecure in investing time and labour in the sustainable management of the resources, as the person controlling the resource may take it away at any time. Consequently, the user becomes less motivated to make long term investments in the land under his or her management, like tree planting trees or growing permanent cash crops such as cocoa, coffee and tea. The limited control of local people over land resources, even with access rights, has been a barrier to forest plantation establishment.

For this reason, local people should power over resources that goes beyond simply access rights. They should have the ability to both manage and make decisions about the resources utilization. For example, trusting the control of land resources in the hand of local people would mean that they can rent the resource out to someone else, harvest the trees and plant crops on it, or even sell it. Ensuring that local people can control their land resource will gives security to the user, and as a result they would engage in long-term investment and management of the resources. Resource control is the ability and willingness to exclude other users (Convery, 1995).

2.3 Principal Land Resource Tenures

2.3.1 Land and Tree Tenure Security

Land and tree tenure insecurity have significantly hindered tree cultivation in Africa including Ghana due to conflicts over benefits and user rights (Zhang and Pearse, 1996, Zhang and Pearse, 1997; Place and Otsuka, 2000; Qwubah et al., 2001; Quisumbing et al., 2001a). Tree Tenure, which is tenure with respect to economic trees, both planted and naturally occurring. The traditional definition of land use rights include using the above and below ground resources, but these resources exclude trees. For example, one can use the land for hunting, collecting of snails, harvesting and collecting fruits and herbs. But the right to harvest timber tree species is vested always in the paramount owner even when the land has been given out or sold. Individuals can only harvest economic trees when allocated to them. However, under freehold rights, individuals may be allowed to maintain and harvest trees they have planted or nurtured.

Generally, tenant farmers have less user rights than the indigenous people in an area. Often the tenant farmers who acquire agricultural lands are expected re-negotiate with his or her landlord if the he or she wants to change the land use to a different practice other than that which was agreed upon. There is often an opposition to migrate farmers planting trees as trees are considered as permanent features of a land-use system. As a result, landowners tend to consider the trees planting by migrant or tenant farmers as a way to perpetuate their stay on the land and eventually claim ownership of the land. With the exception of the Upper West Region where planted timber

trees may belong to the one who planted it whether the landlord or tenant, tenant farmers in other regions do not normally own the trees they nurture or plant on the land allocated to them. In some cases, except for commercial purposes, tenant farmers are often permitted to cut trees for domestic use. Tenants also are allowed to utilize other natural resources on their lands notably, snails, mushrooms, sand winning or stone quarry processing and wildlife, especially game.

2.3.2 Land and Tree Tenure in Forest Reserve

Under the Concession Act 1962, all timber resources, together with all forests that are reserved or lands that are subject to timber concessions within and outside the reserved forests are vested in the state on behalf of the communities (Concessions Act, 1962 (Act 124) section 16). The land resources are managed and administered by the government of Ghana through its agencies including the Ministry of Lands and Forestry (MLF) and the Forestry Department (FD). The stools, in theory, own the forest land and the timber trees on it. But in practice the land and tree resources are managed by the government without input by the stools administration or the local communities. The Ghana Government determines who, where and when one can access the forest resources in the forest reserves and areas outside forest reserves that fall under timber concessions.

The ownership of land cannot be not altered by its declaration as a reserve forest the under the Forest Ordinance (Cap. 157) Section 18(1). Thus, Reserve Forests can be managed by the owner or owners with the approval and direction from the Forestry Service Division, or approval by the Government at the option of the President (Section 18(2)).

2.3.3 Categories of Land in Ghana

Generally, five different categories of land can be identified in Ghana.

The State Land

The state land is the land that has been acquired by the Government compulsorily on behalf of the public or for public purpose under section 1 of the State Lands Act, 1962, (Act 125) as amended by State Lands (Amendment) Decree, 1968 (NLCD 234). There is a consolidated fund into which all the income generated from the land resources are paid.

The Vested Land

A vested land is a stool land that has been entrusted into the state on behalf of the stool under the Administration of Lands Act, 1962 (Act 123) section 7. The appropriate stool is paid all the income and revenue coming from the vested lands. It is often paid into the Stool Lands Account.

The Stool Land

The stool land is entrusted in the stool as a trustee for the local community, which is traditionally called 'oman'. "Oman" is headed by a traditional Chief. However, the stool lands are entrusted in the traditional Chiefs including Sub-Chiefs, or heads of family or clan or tribe or family concerned in a fiduciary capacity for his people. Thus, anyone who want to invest in stool lands may have to deal with different stakeholders who have varied interests or rights.

The members of a stool landholding group have usufruct rights which are equivalent to freehold. They can allocate portions of their land out for permanent development activities like coffee, cocoa, or oil palm farming or for building of houses. Such land mostly belongs to the community members who have secured interests in the land and can inherit land as well as alienate others.

Nevertheless, for any stool or head of a family to dispose of such lands, they will need the approval of the holder of the land. Under the Article 267(3) of the Constitution, it is required that a certificate is provided by the Regional Lands Commission that will ensure that any project activities carried out on stool lands or any disposition is consistent with the town development plan that has been drawn up by the town planning authority. The planning authorities are also

expected to consult with the traditional chiefs in all matters relating to the development and the administration of lands under stool chief (Article 267(7)). Under the stool land arrangements, the revenues are collected and disbursed by the Administrator of stool lands.

The Family Land

The family land is the land that is vested in the Head of the family on behalf of a family. The revenues accruing from these lands are managed by the family heads together with the rest of the family members but not the administrator of stool lands.

The Privately Owned Land

The privately owned lands fall under the category of lands with freehold interest of which an individual or group of people has purchased the land outright. This type of land is often obtained or purchased from people with family lands especially when a family member dies his or her property can be sold out.

2.3.4 Customary Land Tenures

It is difficult to define what a customary land tenure is because it does not lend itself easily to any precise definition. The reasons include the fact that customary land tenure cannot be of universal application as it varies from community to community. Also customary land tenure is continuously undergoing changes by the grafting on foreign legal concepts (Acquaye 1984). Nevertheless, there are some concepts on the customary land tenure.

According to the United Nations, customary land tenure is defined as the rights that one has to use land or dispose of his or her use-rights over that land which rest neither on the exercise of brute force, nor on evidence of rights guaranteed by government statute, but on the fact that they are recognized as legitimate by the community, the rules governing the acquisition and disposing of these rights being usually clear and generally known although not normally recorded in writing (Noronha and Lethem, 1983).

However, the UN definition is not perfect. It has been criticized by Simon (1981) because according to him, the definition does not address the important question of how they arrive at those rules at. He suggested that the customary land tenure rules are uncertain and find it very doubtful if many people will agree with the fact that such rules are usually explicit enough.

Noronha and Lethem (1983) also criticized the definition by pointing out that the use of the words "brute force" takes the reader back to Hobbes and the artificial reflections on life in the early days of man. According to Noronha and Lethem (1983), the definition is narrow and it excludes statutes recognising customary rights. It eliminates written codes and encourages customarily governance that the use and transmit property among many people.

Despite the fact that there is no single definition for customary land tenure it is generally comprises the rules that are accepted by people regarding the way in which land is held, used, transferred and transmitted (Noronha and Lethem 1983). These rules may sometimes have the backing of the laws that the courts can enforce even though the rules may not be written nor included in any statutes.

For this thesis, the latter definition is adopted. Because in Ghana, customary land tenure is recognized by statute law (Rakai 1995). Formal customary land tenures are those arrangements that are regulated by government laws and regulations and therefor are recognized officially (Rakai 1995). The universal classification of Ghanaian landowning groups; the universal rights of stool chiefs to administer their lands are some features of the customary land tenure. Informal customary land tenures, on the other hand, are the arrangements that are not officially recognized by the government, but are, nonetheless, practiced. This tenure is accepted as an unwritten terms of a customary practice, which includes complying with the traditional beliefs and customary taboos of an area.

2.3.5 Tenancy

Antwi (1992) reported that a tenancy agreement conferred upon the tenant, gave the tenant the right to occupy and to use the land as long as the tenant continued to observe and perform the terms and conditions upon which he/she was let in possession. He said, the essential matter of the

contract was that, land was not shared but only the produce of the farm (Nwabueze 1972; Bruce, 1988; Aina, 1990; Fourie 1994;). The following types of tenancy could be distinguished: share cropping, period tenancy.

Share Cropping

Share Cropping system has enhance the access to farming lands by the landlessness and and consequently improved the livelihoods of farmers engaged in share cropping. The practice has allowed the farmers who are without land gain access to land by engaging in share cropping arrangements better-off farmers who have lands but unable to farm all of it. Although such share cropping arrangements can be exploitative, they are known to provide a secured source of livelihood to significant number rural people (LEISA Magazine, 2003).

The share cropping system has become more common practice and socially accepted, and now a generally agreed and uniform rules that govern its practice have emerged across Ghana. In conflict situations, decisions are controlled by the landowner. This makes the resource-poor farmer disadvantaged. However, in a situation where the resource base of the tenant farmer is not adequate, the system offers significant help to resource-poor farmer. Consequently, share cropping has now become a viable and an acceptable tool for generating income for deprived local communities in Ghana (LEISA Magazine, 2003). Share cropping arrangements are based on the principle of mutual interest where both strangers and subjects could acquire this interest (Ollenu, 1962).

Kasanga, (1988) was of the view that share cropping was inimical to agriculture development since it bred absentee farming, contributed to the impoverishment of tenants and did not encourage them to take conservatory measures to safeguard land resources.

Abunu System

According to LEISA Magazine (2003) in the “Abunu” inputs and outputs with landowners are on 50% to 50% basis. Thus, the landowner provides land and some additional inputs (e.g. Seeds, fertilizer and labour). Arhin, (1985) found that the ‘Abunu’ arrangement, usual in Assin and

Wassa are especially among poor landowners who could neither afford to lose their land nor had no enough resource to cultivate large farms.

Abusa system

Antwi (1992) reported that with the 'Abusa' system, the landowner was entitled to one-third of the produce either in cash or kind.

Period of Tenancy

This is sub-divided into

(i) Ground rent
(ii) The growing tenure
(iii)The annual tenure

According to LEISA Magazine (2003), the land is hired on fixed terms by a resource-poor farmer under the ground rent system. The type of crop to be planted and how much of the harvest should be used to pay for the land will determine the fixed terms to be used

Antwi, (1992) explained that the tenant paid initial 'drink' fee to the landowner and then an agreement is reached with him to pay a fixed sum of money each year as payment for ground rent.

In some cases, according to LEISA Magazine, (2003) the landowners sometimes provide loans in kind (e.g. fertilizers and seeds) or cash. This loan should be paid together with his share of the produce. This kind of agreement encourages exploitation as the share cropper is responsible for any loss or damage caused by rainfall or natural disasters.

Antwi, (1992) realized that in the growing tenure, there is always agreement but where there is no agreement, the landowner is entitled to 500 heads of produce or (about a tenth of the produce) and the tenancy ceased after the crops had been harvested. With the annual tenure, he further said, the farmer has full right to cultivate his crops until the owner of the land terminates the agreement (Igbozurike, 1980).

2.4 Concept of Ownership

Ownership has become an important subject under plantation establishment and sustainable management of the forest (Kasanga, 1988; Benneh, 1989; Aidoo, 1996; Odoom, 1999). Ownership of things including land and its resources. It comprise of the right to physically use a thing, the right to get income and services from a thing and the power to manage and protect it from others (Nwabueze, 1972; Lloyd, 1962). But, in Africa the rights people can hold under some customary law may be only rights of use or occupancy (Nwabueze, 1972; Elias 1971). This inability to have complete control over the land show that individual right which is less than ownership. The only way in which a person can show that he or she is the rightful owner of a thing or land is if he or she can alienate it outright to any one he or she likes. The actual meaning of ownership is therefor within the power of alienation; which comprises the rights to be able to dispose of a thing. The right to disposal is the most conclusive form and valuable incident of ownership (Meek, 1957; Nwabueze, 1972, Igbozurike, 1980).

Group Ownership of Rights

The group ownership of land is one of the important features of customary land tenure (Acquaye 1984). The rights are normally held corporately by either by a tribe, or a village, clan, lineage, or a family. These groups base their controls over land on well-established principles that arise out of the relationship between the people and the local institutions that they have set up in their communities for their own governance (Herskovits, 1956) under a control described as communal ownership (Bruce 1988).

The first use of the word “communal ownership” with no individual rights whatsoever, was found to exist only as exceptional cases (Bruce 1998). The second connotation "a right of commons" whereby each member of a group uses independently the full extent of certain lands was associated mainly with grazing land and areas used for hunting and the collection of fuel wood, but not arable lands (Bruce 1998). The third connotation referred to significant group control, reflecting some group interest, over land that is allocated for the exclusive use of family members or individuals. The family members included extended family, a tribe, lineage, a village, or a clan

(Bruce, 1998). Group ownership is usually characterized by a common descent or common residence. Sometimes it is characterized by both characteristics. The third connotation is the context in which most local tenure regarding farmland is communal in nature (Bruce, 1998).

The family land remain the most important type of group landholding in Ghana. Although the word "family" has a clear meaning that can be seen the English dictionary, its meaning can vary from place to place. For example, in the Southern part of Nigeria, the word “family” is used as a social institution which consists of all the people who have descended through the same male line in a patrilineal or the female line in a matrilineal, society and they are all from a common ancestor. These group of people owe allegiance to the authority of the family head and legal successor to the said ancestral founder (Coker, 1966).

For other communities as suggested by Coker (1966), a family is a group of people that are very closely related. They are often known by a common name and they consists usually of a man and his wives and children, his sons' wives and children, his brothers and half-brothers and their wives and children and possibly near relations. Irrespective of the definition, the family the most important landowning unit under the customary land tenure. The family head often hold the land together for the entire family rather than being held individually because the size of the family increases and new generation of people are added to the family.

2.5 Transactions in Land

Lands in the rural areas are not always suitable for farming even though there be an abundance of land. Some are often severely degraded due to wildfires, over grazing, and logging. In an agricultural community such as the study area community, the area that are fertile usually attracted migrant farmers who are moving around in search of farming lands. Some people would eventually gain access to farming land in the process of migration which are usually based on certain tenure arrangements. Tenure arrangement in these lands normally does not allow outright sale, but various types of land transactions are permitted as described below.

- **Lease arrangement**

The usual form of a lease tenure which is very similar to that under the English law, is where a person grants a user right to another person for a specified duration, for a specific purpose (normally farming) in return for cash or some valuable material. The lease rent is now commonly paid in cash. It used to be paid in goods or services in the past.

The lands that are released for residential purpose are commonly granted to migrants and are usually for an indefinite period of the latter's sojourn. Although agricultural leases to migrants are usually for a specified farming duration, indefinite arrangements are still not uncommon (Aidoo, 1996; Benneh, 1989). The period of leasehold ranges from a year for the cultivation of annuals to 50 years for the establishment of tree plantations (Odoom, 1999). This is because the rotation period of tree crops are long (Evans and Turnbull, 2004), some landowners do not give out their lands for tree cropping. Landowners often see tree planting as a means by which the tenant farmer can perpetuate his or her stay on land and subsequently leading to the tenant claiming ownership of the land (Odoom, 1999).

- **Pledge**

Under the pledge transaction, land is used as a collateral security with which on can borrow money or to get services for credit. The one who pledges gives up the possession of the land to the pledgee until such a time that the debt will be paid. In many cases, the pledge sometimes merges into a sale of the land after the parties involve agree on a time limit after which the pledger can no longer redeem the land.

- **Gift**

Under the gift transaction, ones right to a land can be given to another person gratuitously. Often there are no prices or costs fixed for this transfer, nor are any pre-disposal conditions presented. The owner just have to transfer the land ownership to the beneficiary. Lands given as gifts are practices for different reasons. For example, a parent can give a land as gift to a child, which may not necessary be part of the child's entitled inheritance. Some people do this to circumvent inheritance provisions. For example on can give land as a gift to provide for to provide for a daughter where land is inherited only by sons.

- **Outright sale**

While land did not have an exchange value in times past, land is now being exchanged and sold for costly materials and cash. Not all communities have abundance of land for everyone so for such communities, their lifestyles have become sedentary in nature, forming a community that is closely knit together and living together as descendants of a common ancestor. The land available to the community is limited and are used as an indicator of wealth and value within the communities.

2.6 Land Tenure Considerations for Forest Plantation Development in Ghana

Land Title Security

Over the last few decades significant efforts have been made to enhance the livelihood conditions of local communities through plantations establishment. However, land tenure security is a pre-requisite for implementing a successful plantation development programmes as well as for implementing REDD+ activities that are aimed at mitigating climate change by reducing ongoing deforestation and forest degradation in developing countries.

Any potential investor in plantation development in Ghana would have to understand and deal with the following land tenure characteristics that are considered as disincentives for forest plantations development:

- Multiple stakeholders with different interests and rights in land leading to conflicting claims to ownership;
- The lack of boundaries demarcation; no reliable maps are available that show land boundaries
- Complicated procedures in the documentation of land transactions

Despite the above, challenges the statutory and customary laws in Ghana do not legally prevent anyone from securing a long-term access to land. If one can identify a suitable land that does not have conflicting claims, there is no legal limitations to one negotiating the rights to use the land for sufficient duration for plantation purposes if the landowner agrees to the purported land use.

A modified taungya system has been develop as one of the options to establish plantations while avoiding the complications associated with customary tenure (Appiah 2011). The modified taungya system (MTS) as a pilot forest rehabilitation method that encourages the planting of trees together with agricultural crops at the initial stages when plantation are being developed. The taungya system which was developed in Burma, was introduced in Ghana about five decades ago and has since been modified to rehabilitate and reforest degraded forest lands.

Under these system the Forestry Commission offer out degraded lands in forest reserves for the plantation establishment. Also, the Forestry Commission is also undertaking national mapping of stool/skin land boundaries using a Geographic Information Systems. The mapping is being carried out under the Ghana Forest Investment Programme. It would greatly reduce dispute associated with land boundaries.

In these regard, potential investors who plant establish plantations in degraded lands in the forest reserves in Ghana may have to work with the Forestry Commission and as well as the traditional stool occupants. However, the land and forest resources in the forest reserve are vested in the Government to be managed in trust for the stools. The landowners however retain significant rights through vestiture. They have:

- To be consulted
- The right to access the reserves for products and services to meet basic livelihood needs.
- The rights to benefit from exploitation the forest resource in their lands including Royalties etc.

Understanding of these rights can help potential investors to identify and engage with the key stakeholder in efforts to establish plantations in the degraded forest reserves.

A plantation system is a forest stand that have been developed through artificial means. Most often the demand for forest products and timber determine the type of plantations system to be developed which could comprise of a wide range of tree species that are needed to satisfy social, production and economic needs of people (Shepherd, 1986; Arnold and Dewees, 1995; Nyland, 1996; Evans and Turnbull, 2004). Most plantations which uses degraded agricultural lands,

provide employment to local people, and improve local economy (Evans and Turnbull, 2004). Several plantation projects have yielded attractive economic rates of return (Evans and Turnbull, 2004), and a wide range of benefits obtained through multiple uses of forest (Shepherd, 1986; Nyland, 1996).

Some of the goals for establishing forest plantations in Ghana include the production of raw materials for the timber industry, as well as reducing pressure on the natural forests, and developing fire breaks (Carpenter et al 2004). Teak *(Tectona grandis),* Cedrela *(Cedrela odorata), and* Wawa *(Triplochiton scleroxylon),* are the most widely planted species. The planting of local timber tee species have not had much success (IIED, 1993) but in recent years, interests in plantation development using local tree species than exotic ones, in Ghana are growing because of biodiversity and climate change concerns and the attractive market available for such species and a shortage of naturally occurring timber.

There are barriers that limit the development of tree plantations using local trees. These, include the way land is acquired, the lack of extension services and technical expertise, the insecure tree tenure arrangements, the high cost of establishment, the long gestation period, lack of credit facilities, and inability to control wildfire (Forestry Department, 1998).

2.7 Economics of Tree Planting

The potential for forest plantation to generate diverse benefits motivates people to invest in plantations. In addition to the countless environmental benefits such as tree sequestering carbon dioxide, providing homes for animals, and prevent erosion and more (Amacher et al., 1993; Dewees, 1995; Scherr, 1995; Mercer and Pattanayak, 2003; Otsuka et al., 2001;Cubbage et al. 2003), there are other economic benefits associated with plantation establishment. They include

- increasing the productivity of land otherwise abandoned due to degradation (Abbasi and Vinithan 1999)
- increasing the productivity of crops due to microclimate provided by vegetation cover
- timber for firewood and fencing and other construction purposes.

Thus, plantation benefits can be categorised into two groups namely the use and the non-use benefits. Use benefits include benefits that results from increased productivity of land by avoided degradation and use through recreation (Gillespie 2000). Forest benefits can be easily quantified especially where the products are traded on the market. Other forest benefits may not not traded on the market but they can be valued indirectly.

The costs of establishing plantation can be quiet expensive and mostly covering the following items:

- Labour for land preparation, planting, maintenance, weeding,
- Planting materials
- Transportation
- Field equipment
- Fertilization

The magnitude of benefits and costs associated with plantations can be assessed over a period of time, which has often ranged from 5 to 50 years (Li and Zhang, 2005). In addressing natural resource management, studies tend to include time frames of at least 30 years because the environmental benefits are realised only in the longer term. The fact that cost and benefits are incurred at differing times in a production process, cost and benefits, unless discounted over the time period of the assessment, cannot be directly compared in present day rates of the dollar.

Economic viability is indicated where the discounted value of benefits is greater than the discounted value of costs over the time period of study (Li and Zhang, 2005). However, many benefits and costs are not readily quantified as they are not traded in the market place, for example the benefit of increased biodiversity from rehabilitating a native vegetation area. Often time and resource limitations in a project dictate the extent of quantification of benefits and costs (Li and Zhang, 2005). The purpose of undertaking economic evaluations is to assist the decision making process by indicating whether a project/course of action is likely to result in a net benefit or cost to society. This does not necessarily require quantification of every benefit and cost. Threshold analysis can be used to indicate the magnitude of unquantified environmental benefits and costs required for a project to at least break even (Li and Zhang, 2005).

The lack of land tenure security have been reported to have huge impacts on the potential benefit accruing from trees to farmers (Zhang and Pearse, 1996; Zhang and Pearse 1997; Place and Otsuka, 2000; Owubah et al., 2001; Quisumbing et al., 2001a). It has been widely reported that farmers who hold a land with a secured land title are more likely to engage in tree plantations than those who do not have secured title. A clearly defined land tenure always provide the incentives and more of the economic benefits to their holders, and are likely to encourage tree plantation (Zhang and Pearse, 1996). Normally, the duration of the tenure determines whether farmers can plant trees or short term crops (Sellers, 1988; Pasicolan et al., 1997; Fortmann and Bruce, 1998).

In this regard the best incentive to be used in promoting tree plantations is to allow farmers to exercise their full rights over trees they cultivate (Treue, 2001). Until farmers' rights over trees they have nurtured or planted are clearly defined, they will not participate in tree planting and forest conservation practices. The assets such as labour and land that a farmer possesses are needed for successful implementation of community-based plantations system; a new tree-based system such as tree planting. Secure tenure has had a positive impact on the adoption of plantation development and other conservation practices (Glendinning et al., 2001; Pattanayak et al., 2003). For this reason, the evolution of property rights which has become a central issue in the political economy of development in Ghana is important (Besley, 1995).

In addition to other technical and economic factors that affects plantations development, the size of farm lands can be listed. Large farm land sizes often play a role in farmers' decision to participate in tree planting programmes (Thacher et al., 1997; Salam et al., 2000), although some studies (e.g. Otsuka et al. 2001) does not support this assertion.

Also, socio-demographic characteristics such as the age, gender, and educational level of farmers influences decision to participate in tree plantation activities or not (Mercer and Pattanayak, 2003). Generally, older farmers are far less flexible when it comes to tree planting than younger people and they are far less willing to engage long term and risky activity including silvicultural investment (Romm et al., 1987). However, it is not all ways the case that age influences tree planting (Thacher et al. 1997; Zhang and Flick 2001).

Education is known to significantly influence tree planting and conservation practices by farmers because it has been the a medium through which farmer have learnt about resource management (Thacher et al., 1997; Glendinning et al., 2001; Owubah et al., 2001). But, the level of education of household heads does not appear to impact tree planting (Otsuka et al., 2001; Mercer and Pattanayak, 2003). Instead household's ability to access information and get technical assistance helps them to improve the quality of household labour, and their willingness to engage in forestry activities including tree planting (Amacher et al., 1993).

2.8 Forest Tree Exploitation Conflicts

There is generally a lot of farming activities in the off- reserve areas in Ghana due to the increase in the growth of the rural population (Appiah et al 2010; Appiah 2011). Consequently there is increased competition for land in these area. Besides, in these areas, farmers consistently complain about how logging operation within their farms are destroying their crops. Several reports and studies and consultations with local authorities suggests that the techniques of skidding trees felled on farmlands is not appropriate: it is a very destructive method. Local farmers and other stakeholders now prefer processing of the felled tree in situ as they consider the effect of a felled tree, if properly, directed as tolerable (Appiah et al 2010; Appiah 2011). For local people, a share of about 30% of the lumber produced would be enough incentive for them to maintain trees on their farms.

Unfortunately, the farmers are not given adequate compensation for the damages caused to their crops by timber exploitation. Consequently, they either prefer to destroy the trees or connive with the chainsaw operators to cut and process the trees on the farm to be sure they can benefit from managing those trees. The Timber Resource Management Act, 1998 (Act 547), however require that a farmer agree to the felling of any tree on his farm to reduce the conflict described above.

3. METHODOLOGY

3.1 Study Area

The study was carried out at Sefwi Bodi, in the Sefwi wiawso Forest District within the Sefwi Municipality of the Western Region of Ghana. The Sefwi Wiawso Municipality can be found in the Northern part of the Western Region, between Latitudes 6^0 30' N and Longitudes 2^0 45' W. It covers an area of 1,557 km² with an altitude that ranges from 152–610 m above sea level (Vordzogbe *et al*. 2005). It shares boundaries with the Asunafo South District to the north, Juaboso District to the West, Bibiani District to the East and Asankragwaa District to the South.

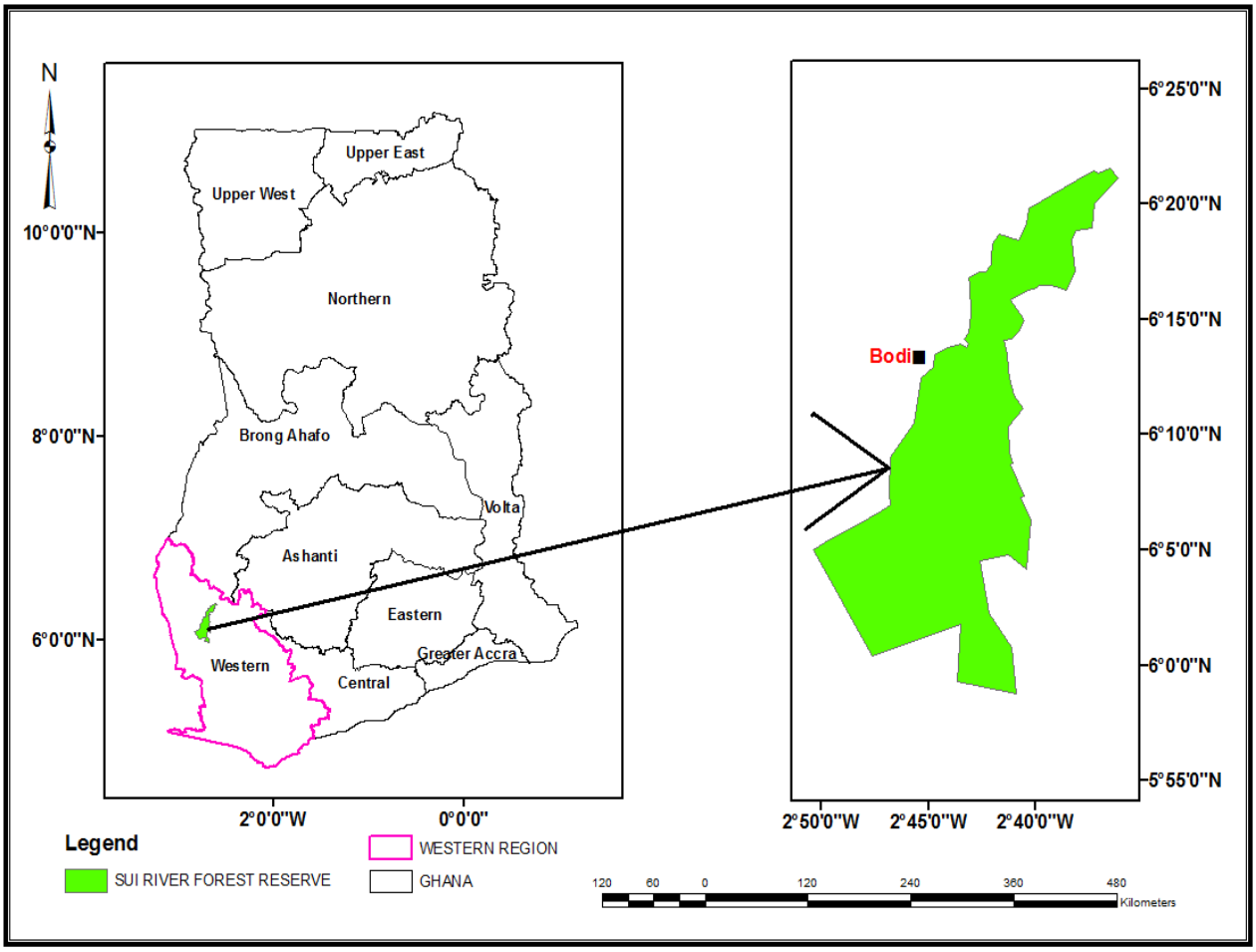

Figure 1. Map of Ghana Showing the study site in Sefwi Wiawso Forest District

3.1.1 Climate

The district lies in the wet semi-equatorial climate. Its mean monthly temperature ranges between 30^0C and 26^0C, with the lowest in August and the highest in March/April. The district enjoys heavy to moderate rainfall, with high annual rainfall amounts that ranges between 1,500–1,800 mm just like other parts of the region. It experiences two rainfall regimes. The major rainy season occurs from April to the end of July, while the period from September to late October is the minor wet season. The relative humidity is highest (75 -90%) during the rainy season and lowest (70-80%) during the rest of the year (Ghanadistricts.com, 2010).

3.1.2 Vegetation

Found within the moist semi-deciduous forest zone of Ghana, the southern portion is covered with tropical soft woods, whilst the northern sector is covered mainly with Guinea Savannah woodland (Appiah et al 2010; Appiah 2011). The forest cover in certain parts of the district is however, degenerating into the Savannah type through human activities, such as agriculture and settlement expansion. Agriculture is the main livelihood occupation in the District and a large proportion of the total local labor force are employed in it. Farmers in the study area cultivates the following major crops: cassava, groundnuts, maize, oil palm, yam, vegetables, plantain, citrus, cocoyam, coffee and cola. The service sector employs about 42.2% of the labour force in the district while industry also employs only 7.4% of the labor force (Ghanadistricts.com, 2010).

3.2. Sampling and Data Collection

The main entry point into the community was through the chief during which a reconnaissance survey was conducted to identify respondents. Purposive and Simple Random Sampling methods were used to select the respondents. Seventy (70) respondents were targeted during the data capturing process of which one (1) respondent was the stool landowner. Also, the District Manager, two (2) Range Supervisor , eight (8) Forest guards, two (2) Investors , two (2) Opinion leaders, twenty-five (25) Admitted Farm owners and twenty (20) Admitted Settlers, were also

selected for the data collection. The primary data for this study was collected through field interviews of these listed category of people. Additional main source of data was collected through review of existing reports and research papers on the subject (including district reports). The interviews were performed with a semi-structured questionnaire. All interviews were carried out using face-to-face approach. Supplementary data were obtained through field observations and group discussions to ascertain the impacts of land tenure system on Plantation Development in Sui River Forest Reserve. Data collected was focused on land uses, livelihood systems and farmers views on the land tenure and tree planting status.

3.3.1 Data Analysis

Data collected was analyzed by the use of Statistical Package for Social Survey (SPSS version 20) and results are analyzed using mainly descriptive (mean, standard deviations, frequencies, charts etc.) statistics.

4. RESULTS

4.1 Socio-economic Background of Respondents

Fifty- seven percent (57%) of the respondents interviewed were males and 43% of the respondents were female (Table 1). The ages varied considerably. In the study area, 30% of those interviewed were aged between 20 and 30 years, 59% were aged between 30 and 50years and 11% were above 50 years. When respondents were asked about their Immigration status, Sixty four percent (64%) of the respondents were Owner- Occupier only, 36% were Migrant- Settler-Farmers. Almost 70% of the respondents from the study area had been staying in the studied community for 30 years and more, 20% have been staying for 10-20 years and 10% for 1-9 years.

Table 1: Socio economic background of respondents

Sex	**Number of Respondent**	**Percentage (%)**
Male	40	57
Female	30	43
Total	**70**	**100**
Age		
0 - 19	0	0
20 - 30	21	30
30 - 50	41	59
Above 50	8	11
Total	**70**	**100**
Immigration status		
Owner –Occupier	45	64
Migrant -Settler –Farmer	25	36
Total	**70**	**100**

4.2 Land Acquisition (Access to Lands) by Respondents

Regarding the mode of access to land for farming, it was revealed that 61% of the respondents had access directly from stool land owners (communal lands), 19% of the respondents also said the land was passed on to them by family members (Family Land) and 20% were obtain land through other tenancy agreements with native or migrant settlers (Table 2).

Table 2: Mode of land acquisition in the study area by respondents

Land Acquisition	Number of Respondents	Percentage (%)
Communal Lands	43	61
Family Lands	13	19
Tenancy	14	20
Total	**70**	**100**

4.3 The Tenancy Agreements in the Study Area

When the respondents were asked about the kind of tenancy agreement they have, it was shown that most (81%) of them have contractual agreement with their landowner's whiles the 19% had no contractual agreements.

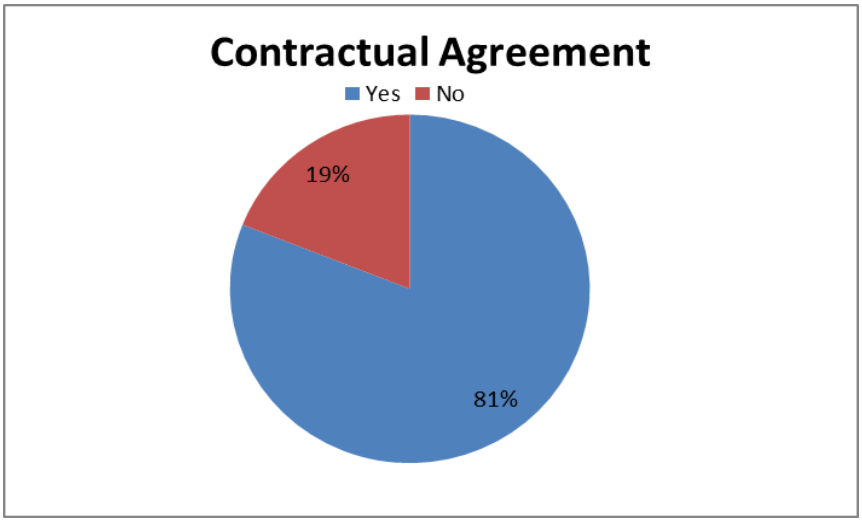

Figure 2: Tenancy agreements of respondents in the study area

4.4 Type of Tenancy Agreements and Perception on Favorability of Agreements

Figure 3 depicts the type of agreement that are entered into by the farmers and their tenants. It shows that about 67% of the respondents shared the farm proceeds on the abunu tenancy agreement whiles just about 15% were practicing the abusa tenancy agreement. The remaining 18% of the respondents had entered into various contractual agreements such as the abusa or abunu systems with added cost to the farmers and not the land owners. Majority of the respondents (81%) concluded that the Tenancy Agreements were always favorable to the Land owners and did not find such tenure arrangement secured whiles the remaining 19% agreed that since they have no land for farming the agreements were favorable to them.

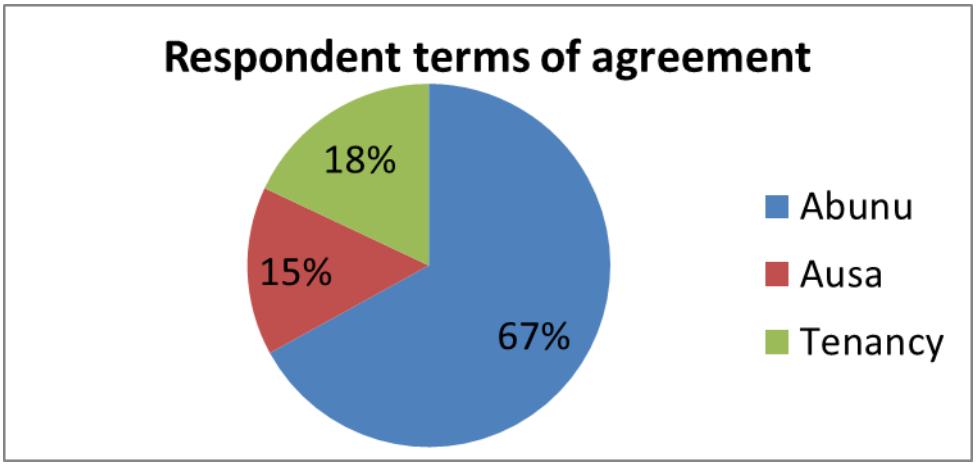

Figure 3: The main types of respondents' tenancy agreements

4.5 Land-use and Livelihoods of the Studied Communities

Figure 4, shows the various activities that the land are been used for. It shows that respondents (60%) uses the land for the cultivation of annual crops. About 35% of the respondents also are into Cocoa production. It can also be inferred from the graph above that, the 5% do use the land for Tree planting.

When asked about other livelihood activities they engaged in other than the mainland uses, the results (Figure 5) show that about 69% of the respondents had alternative forms of livelihood in

the form of ruminants rearing including goats, sheep, with 25% going into grass cutter rearing with the least of 6% going into beekeeping.

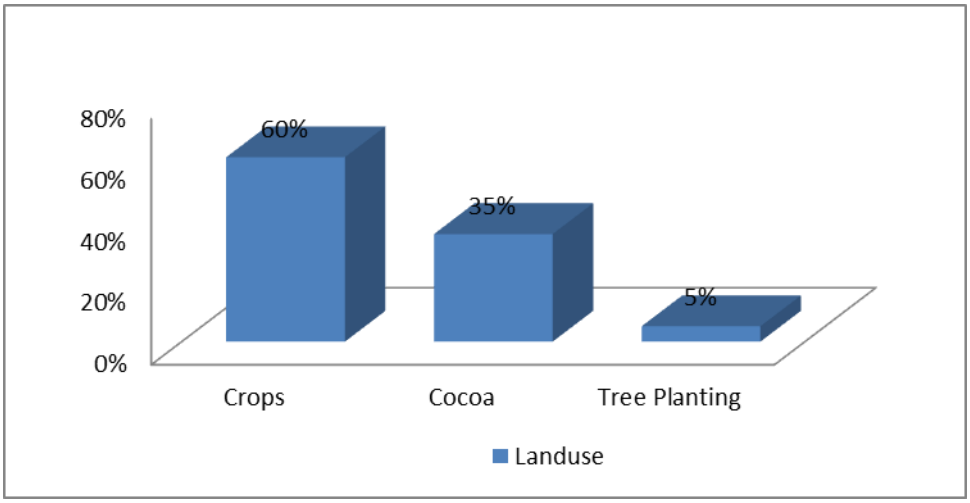

Figure 4: Major Land uses of the respondents

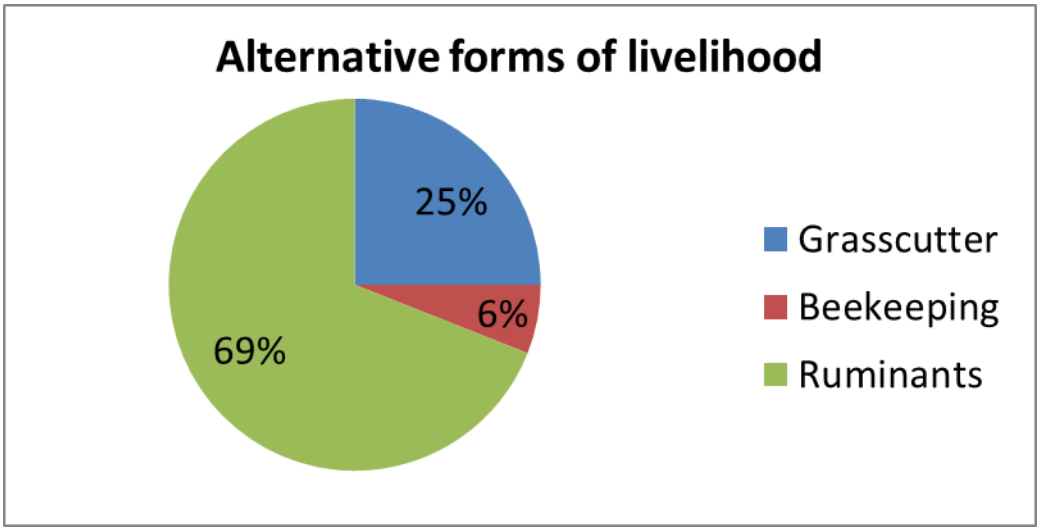

Figure 5: Alternative livelihood of respondents

4.6 Factor Impacting Land-uses and Livelihoods

When asked about factors affecting their land uses in a negative way, the respondents suggested that wildfire was a significant problem (76%) impacting negatively on farming systems and plantation establishments. About 12% of the respondents also believed that hunting was also causing problems for farming practices and tree planting as some of the wild fires are stared by farmers. It can also be inferred from the graph above that, quarrying and bad farming practices and grazing occupied 8% and 4% respectively as factors militating against sustainable land uses.

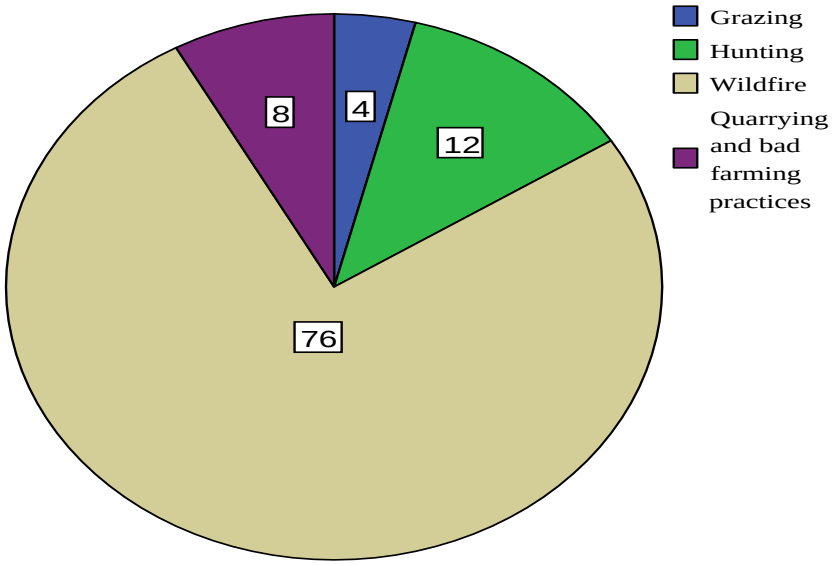

Figure 6: Other competing land uses

4.7 Tree Planting

Reasons for tree planting

The tree planting data shows that only 5% of the respondents planted trees on their farms. A majority (95%) of them did not plant trees. For those who planted, they did so to benefit from tree income in the long term. Others planted trees for environmental reasons and also for Non-timber forest products (Table 3) including fuelwood e.g (*Cedrela odorata)*, construction (e.g. *Triplochiton scleroxylon, Drypetes gilgiani*, *Garcinia afzelii*); Mortar and Pestle species (e.g.

Baphia nitida, *Milicia excelsa*, *Garcinia afzelii*, *Nauclea diderrichii*,); Medicinal species (e.g. *Khaya ivorensis, Ceiba Pentandra*, *Alstonia boonei*); Chewing stick species (e.g. *Garcinia afzelii, Garcinia cola, Baphia nitida*).

Table 3: Tree species of socio-economic significance to respondents planted under tenancy agreement

Tree Species	**Star rating***	**Other Socio-ecological value**
Khaya senegalensis	Green	Roofing, medicinal, timber
Cassia siamea	Other	Fuelwood, shade, Fence/windbreaks, carbon stock
Milicia excelsa	Scarlet	Roofing, medicinal, timber, sacred places
Triplochiton scleroxylon,	Scarlet	Timber
Nauclea diderrichii,	Scarlet	Timber
Khaya ivorensis	Scarlet	Timber
Alstonia boonei,	Pink	Timber
Ceiba Pentandra	Red	Timber, shade, soil improvement
Tectona grandis		Timber, fuelwood, Windbreaks
Cedrela odorata		Timber, fuelwood, Shade. Fence/windbreaks, carbon stock
Terminalia superba	Pink	Timber, fuel wood, carbon stock, shade
Cola nitida		Timber, medicinal, fuel wood, shade
Terminalia ivorensis	Red	Timber, canoe carving, fuel wood, Carbon stock, shade

(*This was developed by Hawthorne and Abu-Juam (1995). The species are assigned a star category based on its rarity in Ghana and internationally) (Green- No particular conservation required, Red= Common, but under pressure from exploitation. Need careful control, Pink = Common and moderately exploited as timber, Scarlet = species are the most overly exploited (>200% of AAC) (Appiah 2013).

Reasons for abstaining from tree planting

The overwhelming majority who did not plant tree attributed it to the small size of their farming lands and the fact that there were already a few naturally occurring trees species on farm lands.

5. DISCUSSION

5.1 Importance of Gender in Land-use

Numerous studies (e.g. Appiah, 2001; Appiah et al 2009; Appiah 2011), have shown that often women in rural areas have less access than men to productive resources, services and opportunities, such as land, livestock, financial services and education. However, this status of rural women come at high economic costs in the form of wasted human resource and low labour productivity that hinders local development and progress in agricultural improvement, and ultimately threaten local livelihoods and food security for local communities. For these reason projects involved in tree planting in this study area must utilize an approach that enhance the involvement of women in tree planting activities considering the fact that a significant proportion of the household are headed my women. The study reveals that women are almost wholly responsible for both productive and protective work as men. Ignoring gender needs and interests may defeat the objective of the project and thus reduce the level of participation of a section of the community crucial for a successful implementation of such land use activities and consequently improvement of local livelihoods. Mercer and Miller et al, (1998) and Aboagye et al. (2007) have observed a link between socio-economic improvement of farmers and participating in tree planting land use activities.

5.2 Respondents Tenancy and Land Tenure Arrangements

Unlike some rural areas in Ghana, the most of the residents in Bodi community are native to the area and suggest that they have direct control over land use activities in the lands. Migrant – settler farmers on the other hand compete with indigenes for access to land from the natives often at a less favorable land use agreement. According to Kasanga (1988), unlike indigenes, migrants do not have a right in communal lands. The fact that a good number of residents are natives may have long-term user rights to agricultural land and forest land. Thus, they may be motivated to plants trees on their land (Agyeman et al, 2003). The natives normally have uninterrupted access right to degraded forest lands that they need to meet their basic livelihood needs and the right to enjoy of the benefit accruing from exploitation and development of the degraded forest lands.

For the migrant farmers, not having the right to use a land area for a long period of time, and making decisions about the tree species that they plant there, or the system components that they could adopt reduces confidence in tenure security. Migrant who acquired land for agricultural purposes would be expected by his or her landlord to re-negotiate about the land use terms if he or she would like to adopt a different land use practice, for instance, tree planting. According to Bassey (1990), local farmers view tree planting on their lands as an extension of forest reserves, and an also extension of government control over their lands. This then provides the disincentive for such category of local people to engage in land and natural resources management for long-term productivity (Lawlor et al, 2013; CIFOR, 2003). Where there is some kind of arrangements for tree planting, the arrangements are often skewed in favour of the land owners (Bassey 1990).

Regarding those respondents who had access to privately owned lands, they could also plant trees without facing the obstacles of the migrant farmer. However, most of them preferred to plant food crops to trees as most of them want early maturing crop to meet their immediate household needs. Besides, they often have smaller land sizes making tree planting unattractive. Using family land for plantations had always been problematic as observed in the study area. Because if the head of the family has no interest in forest plantation establishment he or she influence the general decision the entire family against tree planting. This accounts for the low rate of tree planting on family lands.

81% of the respondents said they have contract agreements with their land owners and only 19% did not. Most land owners and tenants go on contract agreements in order to prevent conflicts and disputes. Sometimes some land owners demand for their lands when the tenant has already invested in the land and thus resulting in resistance by the tenant. In other developments, some tenants try to take total control and ownership of the land, so hence most tenants and land owners prefer contractual agreements to avoid conflicts.

Respondents preferred the abunu form of agreement to the abusa and tenancy agreements. Majority of farmers in the community preferred the abunu system. According to Marfo, 2009 it is mostly migrants who typically get the abunu and abusa form of land tenure agreements thereby proving that most of the land users in the community are migrants. The abunu is most affordable as the land owner would also provide some form of assistance aside the provision of land for farming hence the reason why most farmers prefer that system.

5.3 Land Tenure Impacts on Land-use and Livelihood Forms

Most respondents use the acquired land for planting food crops (60%) and others Cocoa (35%) with very few planting trees (5%). Most farmers prefer planting food crops because they are relatively easy and cheap to cultivate. Crop production is mainly traditional and generally near subsistence level as majority of the farmers do not have access to machinery for farming (ghanadistricts.gov.gh). The food crops have a shorter lifespan therefore making it possible for the farmers to harvest their produce in the shortest time possible. Cocoa on the other hand is difficult to maintain and cultivate but yet still very lucrative. Trees takes longer periods to mature for the farmers to get returns on their investment therefore resulting in very few people using their lands for tree planting.

The rearing of ruminants is the most practiced alternate form of livelihood for the farmers as compared to grasscutter rearing and beekeeping. The rearing of ruminants is less involving as compared to beekeeping and grasscutter rearing. With regards to the rearing of large ruminants, the farmer tend to have easy access to food and water as these animals can easily be guided to a water and food source. But with the case of grasscutter rearing the farmer would have to bring the feed to it as it stands a greater chance of escaping if released. The availability of a ready market is also a major factor in the decision by most farmers to select the rearing of large ruminants as the alternate source of livelihood.

Often land tenure insecurity is a hindrance to tree planting but in these communities, it was not mentioned as a factor militating against tree planting. Instead the size of farm land was the hindrance as most of they had less that 1.5 hectares of land that they wanted to use for crop

production. This results is supported by observations made by Appiah (2001) regarding tree planting by local people. For those who planted trees, the offered them a suite of benefits that are associated with NTFPs and ecosystems services. These benefits included for example, food, fuelwood and medicine. Those who planted trees are also expecting to generate higher income opportunities in the long-term in order to meet household cost including school fees and other goods and services that are normally not available to local people. In addition to these localized benefits, the restored degraded forest areas are expected to bring numerous benefits to the economy of Ghana through increased stumpage and carbon credit revenues (Appiah et al 2013; Damnyag et al, 2011).

5. 4 Implications of the Study and Concluding Remarks

Tree planting activities are more likely to enjoy greater participation of the local communities and be sustained over a long period if larger sizes of farming lands are made available to farmers. Land tenure and rights are at the core of most of the debate over tree planting and other land uses in Ghana (Ghana (Kasanga 2002; Agbosu et al. 2007). But in this case, most of the people are native to the area and do not feel insecure about their land tenure. With this local confidence in land tenure there is the possibility of encouraging local people to plant tree using a more improved integrated land use systems. A good example of an integrated system that can be encouraged is the Modified Taungya land use system. This approach should gain prominence in addressing some of the land degradation problems.

REFERENCES

Abbasi, S.A, and Vinithan, S. (1999) Ecological impacts of Eucalyptus tereticornis-globulus (Eucalyptus hybrid) plantation on a mining area. Indian For. 125:163–186

Aboagye, L.M, Obirih-Opareh, N., Amissah, L., Adu-Dapaah, H. (2007). Underutilsed species policies and strategies: analysis of existing national policies and legislation that enable or inhibit the wider use of underutilized plant species for food and agriculture in Ghana. Global Facilitation Unit for Underutilized Species (GFU) Via dei Tre Denari, 472/a, Maccarese (Fiumicino), Italy

Acquaye, E. (1984). Principles and issues in land tenure and rural productivity in the pacific islands.

Adeyoju, S.k. (1975). Forestry and the Nigeria Economy, Ibadan University Press, Ibadan, Nigeria. 299p

Agbosu, L. et al, (2007), Customary and Statutory Land Tenure and Land Policy in Ghana, ISSER Technical Publication No. 70.

Agyeman, V.A., Marfo, K.A., Kasanga, K.R., Danso, E., Asare, A.B., Yeboah, O.M., Agyeman, F. (2003). Revising the taungya plantation system: new revenue-sharing proposals from Ghana. Unasylva 212, vol 54

Aidoo, J.B. (1996) Our Common Estate Q Tenancy and the Land Reform Debate in Ghana. The Royal Institution of Chartered Surveyors, London, England. 13p.

Aina T. (1990). Health, Habitat and Underdevelopment in Nigeria: With Special reference to low income settlement in Metropolitan Lagos. The International Institute for Environment and Development (IIED), London.

Amacher, G. S. (1993). Corruption: A challenge for economists interested in forest policy design.

Amacher, G.S., Hyde, W.F., Rafiq, M., (1993). Local adoption of new forestry technologies: an example from Pakistan's northwest frontier province. World Development 21 (3), 445–453.

Antwi, L.B. (1992). Land and tree tenure and participatory forestry in Ghana. Unpublished report

Appiah, M. (2001). Co-Partnership in Forest Management: The Gwira-Banso Joint Forest Management Project in Ghana. *Environment, Development and Sustainability*, *3*(4), 343-360. http://dx.doi.org/10.1023/A:1020879510134

Appiah, M. (2011). Changes in species composition in a deciduous agroecosystem in Ghana following plantation establishment. *Agrofor. Syst*., *82*, 57-74.

Appiah, M. (2013). Tree population inventory, diversity and degradation analysis of a tropical dry deciduous forest in Afram Plains, Ghana. *Forest Ecology and Management* 295 (2013) 145-154.

Appiah, M., Blay, D., Damnyag, L., Dwomoh, F., Pappinen, A., & Luukkanen, O. (2009) Dependence on forest and tropical deforestation in Ghana. *Environ Dev Sustain, 11*(3), 471–487.

Appiah, M., Damnyag, L., Blay, D., & Pappinen, A. (2010). Forest and agroecosystem fire management in Ghana *Mitigation and Adaptation of Strategies for Global Change, 15(6)* 551-570. http://dx.doi.org/10.1007/s11027-010-9236-z

Arhin, K. (1985). The expansion of cocoa production. Working conditions of migrant cocoa farmers in central and western regions, Accra, Ghana. Unpublished report.

Arnold J.E.M and Dewees P.A. (1995). Economic factors in farmer adoption of forest product activities. Oxford Forestry Institute, Oxford University Press, Oxford, England. 292p

Bassey, E.E. (1990). Why People Don't Grow Trees: A Case Study of Nigerian Small Holders 30-31: In Ogunwusi, A. A (2013). The impact of forest policy and land tenure systems on bamboo development in Nigeria. Public Policy and Administrative Research Volume 3, Number 5, (ISSN 2224-5731).

Benneh, G., (1989). The dynamics of customary land tenure andagrarian systems in Ghana. In: Ghana, P. (Ed.), WCARRD; TenYears of Follow-Up, The Dynamics of Land Tenure and Agrarian Systems in Africa, Case Studies from Ghana, Kenya,Madagascar and Togo. FAO, Rome, Italy, pp. 34–97

Berry, J.W. (1993). Indigenous cognition: A conceptual analysis and an empirical example. In J. Wassmann & P.R. Dasen (Eds), Alltagwissen. Les saviors quotidiens. Everyday cognition. Freiburg: Universitatsverlag Freiburg

Besley, T., 1995. Property rights and investment incentives: theory and evidence from Ghana. Journal of Political Economy 103 (5), 903–937.

Boakye-Ampomasuh, J. (1992). Plantation Programme under the Forest Resources Management Project. Unpublished Memeo, FD Planning Branch. Forestry Commission, Ghana

Boateng, P. 1997. Regulatory, Economic and Policy Influences On Private Forestry Development in Ghana. Paper Presented at The Workshop On the Promotion of Community and Private Plantations in the High Forest Zone, 24-27 |March, 1997, Christian Village, Kumasi

Bruce J.W, 1998, Country Profiles of Land Tenure Africa, 1996, Research paper 130, Land Tenure Centre University of Wisconsin-Madison, USA.

Bruce, J.W. (Eds.) Fortmann, L., 1988. Whose Trees? Proprietary Dimensions of Forestry. Westview Press, Boulder, Colorado. 341p.

Bruce, J.W. 1990. Land Tenure Issues in Project Design and Strategies for Agricultural Development in Sub-Saharan Africa. Research Paper 128. Madison, Land Tenure Centre, University Of Wisconsin `90.

Carpenter, F.L, Nichols, J.D, Sandi, E (2004). Early growth of native and exotic trees planted on degraded tropical pasture. Forest Ecology and Management 196:367–378

CIFOR (2003). Exploring the Forest—Poverty Link: Key Concepts, Issues and Research Implications. CIFOR Occasional Paper No. 40.

Coker R.E (1966), Southern Historical Collection, The Wilson Library, University of North Carolina at Chapel Hill. Papers #3380

Convery, F.J., 1995. "Applying Environmental Economics in Africa," Papers 277, World Bank - Technical Papers

Cubbage, F.W., Snider, A.G., Abt, K.L., Moulton, R.J., 2003. Private Forests Management and Policy in a Market Economy. In: Sills, E.O., Abt, K.L. (Eds.), Forests in a Market Economy. Kluwer Academic Publishers, Dordrecht, The Netherlands, pp. 23–38.

Damnyag, L., O. Saastamoinen, M. Appiah, and A. Pappinen. 2011. Role of tenure insecurity in deforestation in Ghana's high forest zone. Forest Policy and Economics 14:90-98.

Dictionary of natural resource management (1996). The comprehensive, single-source guide to natural resource management terms: By Julian and Katherine Dunster. CAB International, Wallingford, 1996. 368 pp. ISBN 0 85199 148 3.

Elias, A., 1971. Personal communication. Instituto de Ciencia Animal, Habana (Cuba)

Evans, J., Turnbull, J.W., 2004. Plantation Forestry in the Tropics, 3rd Edition. Oxford University Press, Oxford, UK. 467p.

Forestry Department Head Office, 1998. Ghana Institute of Professional Foresters Newsletter 3 (1). 18p.

Fourie, C. (1994). ‘A new approach to the Zulu land tenure system: an historical anthropological explanation of the development of an informal settlement: unpublished PhD, Rhodes University, Grahamstown, South Africa.

Ghanadistricts.com (2010). Accessed on June 2, 2010, 3pm.

Gillespie, J.H. (2000). Genetic drift in an infinite population: the pseudohitchhiking model. Genetics 155:909-919 [PMC free article] [PubMed]

Glendinning, A.J., Mahapatra, J., Mitchell, C.P., (2001). Modes of communication and effectives of agroforestry extension in eastern India. Human Ecology 29 (3), 283–305.

Hawthorne, W. D. (1994). Fire damage and forest regeneration in Ghana. Forestry inventory and management project of the Ghana Forestry Department. ODA Forestry Series No. 4 p 1-18.

Hawthorne, W. D., & M. Abu- Juan 1995. Forest protection in Ghana with particular reference to vegetation and plant species IUCN/ODA Ghana.

Herskovits, M. J. (1956) American Anthropologist. Volume 58, Issue 4 August 1956 Page 734. 10.1525/aa.1956.58.4.02a00120

Igbozurike, U.M. (1980). *Nigerian land policy: an analysis of the Land Use Decree.* Department of Geography, University of Nigeria, Nsukka, Nigeria.

IIED, (1993). Study of Incentives for the Sustainable Management of the Tropical High Forest of Ghana. International Institute for Environment and Development, London, 249p. (Unpublished).

IUCN, (2007). Current knowledge of the impacts of genetically modified organisms on biodiversity and human health – an information paper.

Kasanga, K. (1994), "Land tenure, access to resources & decentralisation in Ghana" in The Dynamics of Resource Tenure in West Africa C. Toulmin et al (eds.), Oxford: James Currey.

Kasanga, K. (2002) 'Ideology and land policy in Ghana – the third way', Paper presented at USAID- and World Bank-sponsored side event to the World Summit on Sustainable Development, Property Rights: Reflection on Governance,Assets

Korem, A. (1985) Bush Fire and Agricultural Development in Ghana. Ghana Publishing Corporation. p 122-158.

Lawlor, K., Madeira, E.M., Blockhus, J. and Ganz, D.J. (2013). Community participation and benefits in REDD+: A review of initial outcomes and lessons. Forests 4(2): 296–318.

LEISA. (2003). Learning with Farmer Field Schools. LEISA Magazine for low External Input and Sustainable Agriculture, March, 19(1)

Li, Y., Zhang, D., (2005). A Panel Data Analysis of Tree Planting in the U.S. South. Working Paper, School of Forestry and Wildlife Sciences, Auburn University, Alabama, USA

Lloyd, P.C. (1962). Yoruba Land Law. London: Oxford University Press.

Lowe, A.V. (1986). Reflections on the waters: changing conceptions of property rights in the Law of the Sea. International Journal of Estuarine and Coastal Law 1:1-4

Marfo, E. (2009). Security of tenure and community benefits under collaborative forest management arrangements in Ghana. A country Report. CIFOR/RRI Research Report.

McLAUGHLIN, P.A. (1981). Revision of Pylopagurus and Tomopagurus (Crustacea: Decapoda: Paguridae) with the descriptions of new genera and species. Part I. Ten new genera of the Paguridae and a redescription of TomopagurusA. Milne Edwards and Bouvier. Bull. Mar. Sci., 31(1):1-30.

Meek .C.K. (1957) Land Tenure and Land Administration in Nigeria and the Cameroons. (London, 1957. H.M.S.O.: Colonial Office: Colonial Research Studies No. 22. 420 pp. Maps

Mercer, D.E., Pattanayak, S.K., (2003). Agroforestry Adoption by Smallholders. In: Sills, E.O., Abt, K.L. (Eds.), Forests in a Market Economy. Kluwer Academic Publishers, Dordrecht, The Netherlands, pp. 283–299.

Noronha, R., and F.J. Lethem. (1983). Traditional Land Tenures and Land Use Systems in the Design of Agricultural Projects. World Bank Staff Working Paper, no. 561. Washington: World Bank.

Nsiah-Gyabaah, K. (1996) 'Bush fires in Ghana'. *IFFN Country Reports*, No 15, pp 1-10.

Nwabueze, B.O. (1972). *Nigerian land law*, Nwamife Press, Enugu

Nyland, R.D., (1996) Silviculture: Concepts and Applications. TheMcGraw-Hill Companies, Inc., New York. 633p.

Obeng, S.G. (1994) 'Verbal Indirection in Akan Informal Discourse.' Journal of Pragmatics 21: 37-65.24.

Odoom, F.K., (1999). Securing land for forest plantations in Ghana.International Forestry Review 1 (3), 182–188

Ollenu, N. A. (1962) Principles of Customary Land law in Ghana, Sweet and Maxwell

Otsuka, K., Suyanto, S., Sonobe, T., Tomich, T.P., (2001). Evolution of land tenure institutions and development of agroforestry: evidence for customary land areas of Sumatra. Agricultural Economics 25, 85–101.

Owubah, K., LeMaster, D.C., Bowker, J.M., Lee, J.G., (2001). Forest tenure systems and sustainable forest management: the case ofGhana. Forest Ecology and Management 149, 253–264.

Pasicolan, P.N., Udo de Haes, H.A., Sijise, P.E., (1997). Farm forestry: an alternative to government-driven reforestation in the Philippines. Forest Ecology Management 99 (12), 261–274

Pattanayak, S.K., Mercer, D.E., Sills, E., Yang, J.C., (2003). Taking stock of agroforestry adoption studies. Agroforestry Systems 57 (3), 173–186.

Place, Frank,and Otsuka, K. (2000). "Population Pressure, Land Tenure, and Tree Resource Management in Uganda." Land Economics76 (2): 233-51.

Quisumbing, A., Aidoo, J.B., Payongayong, E., Otsuka, K., (2001). Agroforestry Management in Ghana. In: Otsuka, K., Place, F. (Eds.), Land Tenure and Natural Resource Management: A Comparative Study of Agrarian Communities in Asia and Africa. John Hopkins University Press, Baltimore, Maryland, pp. 53–96.

Rakai, M.E.T. & Ezigbalike C., & Williamson I., (1995), Traditional Land Tenure Issues for LIS in Fiji, Survey Review 33/258

Riddell, Roger C. (1987) Foreign Aid Reconsidered, Baltimore, MD: JohnsHopkins University Press.

Romm, J., Tuazon, R., Washburn, C., (1987). Relating forestry investment to the characteristics of nonindustrial private forestland owners in northern California. Forest Science 33 (1), 197–209.

Salam, M.A., Noguchi, T., Koike, M., (2000). Understanding why farmers plant trees in the homestead agroforestry in Bangladesh. Agroforestry Systems 50 (1), 77–93.

Scherr, S.J., (1995). Economic factors in farmer adoption of agroforestry: patterns observed in western Kenya. World Development 23 (5), 787–804

Sellers, S., (1988). The relationship between land tenure and agricultural production in Tucurrique, Costa Rica. In: Fortmann, L., Bruce, J.W. (Eds.), Whose Trees? Proprietary Dimensions of Forestry. Westview Press, Boulder, pp. 75–79

Shepherd, K.R., (1986). Plantation Silviculture. Martinus Nijhoff Publishers, Dordrecht, The Netherlands. 322p.

Simon Coldham (1981). Review of S. Rowton Simpson 'Land Law and Registration' Journal of African Law, 25, pp 45-46. doi:10.1017/S0021855300010962.

Thacher, T., Lee, D.R., Schelhas, J.W., (1997). Farmer participation in reforestation incentive programs in Costa Rica. Agroforestry Systems 35 (3), 269–289

Treue, T., (2001). Politics and economics of tropical high forest management: a case study of Ghana. Forest Sciences, vol. 68. Kluwer Academic Publishers, Dordrecht. 212p.

Vordzogbe V. V., Attuquayefio D. K., Gbogbo F. (2005). The Flora and Mammals of the Moist Semi-Deciduous Forest Zone in the Sefwi-Wiawso District of the Western Region, Ghana. West African Journal of Applied Ecology 01/2005; 8 (1):49-64.

Zhang .D. and P.H. Pearse (1996). Differences in sivicultural investment under various types of forest tenure in British Columbia. Forest Science 44(4):442-449

Zhang .D. and P.H. Pearse (1997). The Influence of the Form of Tenure on Reforestation in British Columbia. Forest Ecology and Management 98: 239–50.

Zhang, D., Flick, W., (2001). Sticks, carrots, and reforestation investment. Land Economics 77 (3), 443–456

Zhengxi, T., *et al* (2007). An estimate of Carbon emissions from 2004 wildfires across Alaskan Yukon River Basin. *Carbon Balance and Management* 2:12 pp.

APPENDIX

INTERVIEW GUIDE TO PARTICIPANTS IN THE STUDY AREA

SECTION A. SOCIO-ECONOMIC BACKGROUND OF RESPONDENTS

1. Name of respondent: ……. ……
2. Age: ……
3. Gender a. Male [ ] b. Female [ ]
4. Immigration status a. Owner – Occupier [ ] b. Migrant – Settler – Farmer [ ]
5. Duration of Stay in the community.……
6. How did you access the land for farming?
   a. Communal (stool land) [ ] b. Leasehold [ ] c. Freehold Privately owned land [ ]
   d. Tenancy [ ] e. State land [ ] f. Vested land [ ] g. Family land [ ]

SECTION B. OWNERSHIP STATUS

7. What is the size of land acquired for farming? ……ha
8. What ownership rights do you enjoy over the usage of land acquired?
   a. Land Lord [ ] b. Tenant [ ] c. Other [ ]

SECTION C. FORMS OF AGREEMENT

9. Were there any contractual agreements between you and any Land Lord to the usage of land? a. Yes [ ] b. No [ ]
10. If yes, what were the terms agreed upon? ……
11. If yes, how was the nature of terms? a. Favorable [ ] b. Unfavorable [ ]
12. Explain your answer to (11) above
    …….....
    .....
    .....
13. How long would you stay on the piece of land acquired?……
14. What preferred timber species do you plant? List them a. Exotic [ ] b. Local (indigenous) [ ]

15. What are your reasons for planting the trees?

……

.....

.....

16. Do landlords permit harvesting rights of fuel wood or firewood occurring naturally on farmlands? a. Yes [ ] b. No [ ]

17. On balance, which of the following do you consider favorable for tree planting?

a. Abusa [ ] b. Tenancy [ ] c. Huza [ ] d. Abunu [ ]

e. Abusa [ ] f. Pledge [ ] g. Gift [ ] h. Outright sale [ ]

18. What are your reasons for choosing one of the above?

……

……

……

……

SECTION D. ECONOMIC ACTIVITIES

19. What do landlords do that might inhibit planting or optimal management of trees?

……

……

……

20. Who owns the economic trees on the land acquired? a. Landlord b. Tenant

21. What alternative livelihood activities do you undertake in your community?

a. Grass cutter rearing [ ] b. Snails rearing [ ] c. Beekeeping [ ]

d. Mushroom production [ ] e. Others

22. If others, specify?

……

……

……

……

SECTION E. CHALLENGES

23. Do you receive any form of assistance from Formal Institutions? a. Yes [ ] b. No [ ]

24. If yes specify?

.....

.....

.....

25. If no,

specify?……

……

……

……

……

26. Do you have community nurseries? a. Yes [ ] b. No [ ]

27. Do you have community plantations? a. Yes [ ] b. No [ ]

28. Do you have Extension Personnel at your disposal? a. Yes [ ] b. No [ ]

29. Do you face a problem of competing land uses in your community?

a. Grazing [ ] b. Hunting [ ] c. Farming [ ]

d. Wildfire e. Quarrying [ ] f. Others…….

30. Do you suffer negative experiences from land reallocation in your community?

a. Yes [ ] b. No [ ]

31. Explain your answer to (29)

above.……

……

……

……