

Abstract

Title of Thesis: Forest Conflicts' Influence on Local People's Livelihoods: A Case of Conflicts between Timber Companies and Farmers in the Mankranso District of Ghana.

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Off-reserves in Ghana provide an important source of timber resources for the wood industries and also livelihood support to forest fringe communities. However, over the past decades, there is overwhelming evidence of a decline in the maximum utilisation of forest off-reserves due to several factors. The management of off-reserves is faced with contested roles of the formal and informal institutions, both claiming access to timber and non-timber forest products (NTFPs), land and benefit-sharing rights. The institutional changes in the off-reserve areas have contributed to forest livelihood conflicts with nagging effects and deforestation through chainsaw operations and farmers' willingness to destroy trees in the off-reserve communities. This thesis describes both the formal and informal institutions in the context of the study area and how they impact forest conflicts dealing with crop damage compensation, access rights, benefit-sharing and land tenure disputes. The Sustainable Livelihood Framework by DFID in 1999 is used to measure the influence of forest conflicts between timber companies and farmers and the impact of these conflicts on the livelihoods of the farmers in the off-reserve area of the Mankranso District. The findings from the research show that forest conflicts have impact on social capital, natural capital and financial capital of the farmers and is concluded with a policy reform recommendation to secure farmers' access, tenure and benefit rights for a sustainable collaborative forestry management for the off-reserve areas of Ghana.

Keywords: Off-reserves, Forest Conflicts, Formal and Informal Institution, Livelihoods

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Glossary

Chieftaincy: Informal institutions using the skins and stools from the area

District: Decentralised and Politically demarcated area with some level of power

Forest Conflict: All forms of conflicts in the off –reserve that affect farmer,s livelihood

Gazette: Is the official processes of making formal institutions work and operate

Household: Consists of a person or a group of persons, who live together in the same house

Off-Reserve: All the reserves outside the gazetted forest reserves

Open Access: The problems led by formal and informal institution leading to forest illegibility

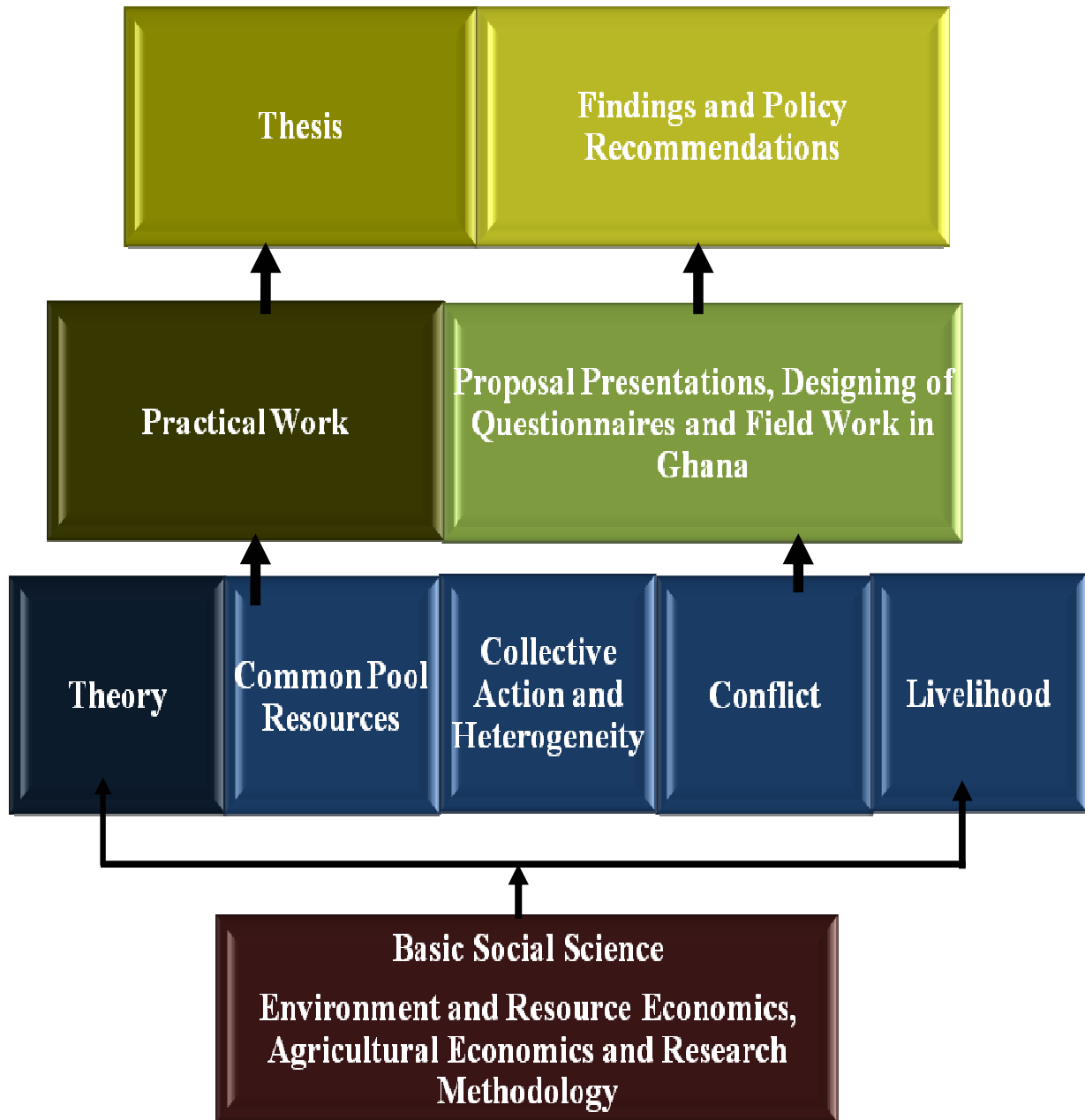
Rent –Seeking: Corrupt activities characterised in the forest sector and the off-reserve area

Social Capital: All resources that are connected to the social setting in the off-reserve area

List of Abbreviations and Acronyms

AAC	Annual Allowable Cut
CAP	Legislative Instrument in Ghana
CF	Community Forestry
CFC	Community Forestry Committees
CPR	Common Property Regime
DfID	Department for International Development
FAO	Food and Agricultural Organization of the United Nations
FC	Forestry Commission
FFC	Forest Fringe Communities
FGD	Focus Group Discussion
FSD	Forest Services Division
GDP	Gross Domestic Product
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HFZ	High Forest Zone
IAD	Institutional Analysis Development
IDS	Institute for Development Studies
L.I.	Legislative Instrument
MoP	Manual of Operations
MTS	Modified Taungya System
NGO	Non-Governmental Organization
NTFP	Non-Timber Forest Product
OASL	Office of Administration of Stool Lands
PRA	Participatory Rural Appraisal
REDD	Reduced Emission of Deforestation and Degradation
SLF	Sustainable Livelihood Framework
SPSS	Statistical Package for Social Science
SRA	Social Responsibility Agreement
TC	Timber Company
TREC	Timber Rights Evaluation Committee
TUC	Timber Utilisation Contract
TUP	Timber Utilisation Permit
UNDP	United Nations Development Program
USAID	United States Agency for International Development
VPA	Voluntary Partnership Agreements
WECD	United Nations World Commission on Environment and Development

Thesis Overview



CHAPTER ONE: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Background of the Study

This chapter introduces and gives an overview of the study. The major issues discussed in this chapter include: the perspective of the study and problem statement. It also looks at the research objective, the empirical research questions of the study, the significance and justification of the research and an outline of the study.

Forests are vital for the existence of life on earth. Tropical forests alone serve as a habitat for more than 13 million distinct species (Hammond, 1996). Worldwide, forests contribute to the livelihoods of almost 1.2 billion of the world's poorest people, according to the World Bank (Schroeder-Wildberg and Carius, 2003).

While examining the contribution of forests to sustainable livelihoods, Arnold defines forests as including "all resources that can produce forest products. These can be comprised of woodland; scrubland; bush fallow and farm bush; and trees on farm, as well as forests" (1998).

Arnold's definition focuses not on tenure or tree cover as the basis for defining a forest, but on the potential for creating products. Moreover, the contribution of forests is measured not only by the products they provide, but also by the non-tangible benefits they offer.

Ghana's forest plays a vital role in the country's economy. Timber export is a key medium of foreign exchange and many people in Ghana depend on the forest for their livelihoods.

The forestry sector currently contributes 6% to Ghana's GDP and accounts for about 12% of foreign exchange earnings. Ghana was once covered with 23.85 million hectares of closed forest of which 8.2 million hectares were in the high forest zones (HFZ) and 15.63 million hectares of savannah woodlands. The HFZ now stands at 21% of total land areas (Azu, 2002).

Unfortunately, these forest resources are being lost at an alarming rate over the years. Since 2003, about USD \$12.8 million of forest revenues are lost annually through illegal chainsaw operation activities (World Bank, 1999). As a consequence, loss of biological diversity, erosion and climatic changes have been on the rise. In Ghana, the annual deforestation rate of 1.71% led to a loss of one third of its forests in 17 years (1955-1972), and a further loss of 5.6 million hectares from 1977 to 1997 (World Rainforest Movement, 2004).

According to the FAO (2005), Ghana's mean annual rate of deforestation between 1990 and 2000 was 1.7%, which is above the regional rate of 0.8% and far above Asia's rate of 0.1% and South America's rate of 0.4%. Ghana has lost more than 90% of its high forest (Asibey and Owusu, 1982). The loss of forest resources covers a rate of about 75,000 hectares annually since the beginning of the 20th century to date and is caused by many factors such as agricultural expansion, unsustainable timber exploitation, illegal chain operations, encroachments, wildfires, population increase and technological advances among other influences (Asibey and Owusu, 1982).

The loss of the world's forests with its associated problems has reawakened the need for a greater collaboration between forest actors and beneficiary rural communities to ensure sustainability of the forest environment. Community-based management is increasingly viewed as the most appropriate arrangement for promoting sustainable development of natural resources. A common assumption is that the values of community members, often assumed to be homogeneous, foster successful outcomes (Gibson and Koontz, 1998).

Participatory forest management efforts by the government involving the local people in the management of forests date back to old traditional history of Ghana but were heavily promoted specifically in 1909. During this period, the British colonial government encouraged and co-managed the forests with landowners to protect forest areas from clearing for farms. From these attempts at participatory forest management to today's collaborative forest management, the government, more specifically, the Forestry Commission has always tried to involve landholding authorities, the forest officers, timber companies and local people in forest management (Asare, 2000).

The introduction of Community Forestry Committees in 2000 (CFCs) was a laudable and significant milestone in collaborative resource management system in Ghana. It sought to mobilize landowning communities' members into local forest groups. These groups serve primarily to assist in protection and management of the forest resources and not in the decision-making process (Asare, 2000; Asare, 2002).

In Ghana, numerous stakeholders, actors and interest groups are associated with forest resource management. They range from the traditional landowning authorities to the local community farmers and Non Timber Forest Products (NTFPs) gatherers. Some actors include the central government to local government, wood and non-wood industries and the general civic society (Owusu, 2003). These parties make diverse contributions to forest conservation and in return expect some form of benefit for this.

These collaborative and sustainable management practices in Ghanaian forestry are still not benefiting the very poor and marginalized farmers in the off-reserves due to the fact they are mostly well-written policies but are not implemented or well enforced and, above all, good governance and accountability are almost nonexistent. There are still no clearly defined formal and informal rules that govern the use of the forest and its resources, and there are many "forest law clashes" in most formal rules and regulations. These among other factors create resource utilisation conflicts in Ghana.

Many case studies have found that forest resources play a role in a particular conflict and forest-related conflicts have a lot of nagging effects for the environment and people (Le Billon, 2000; Kanaan, Thomason & Roule, 2003; Global Witness, 2004; Schroeder-Wildberg, Capistrano & Voils, 2004). Natural resource conflicts, particularly forest conflicts, are increasingly gaining a way into the Ghanaian "resource problem situation" as they are gradually attracting the attention of many government agencies, civil society organisations, non-governmental organisations and community-based organisations, as well as farmers groups. These mismanagements and conflicts are a result of multiple actors with diverse interests, perceptions, values and claims involved in the use and management of the forest resources.

Conflicts in forest management are inevitable due to the multiple-function and multiple-use nature of forests, as a result of which there is a wide array of stakeholders with varying and sometimes conflicting interests in the forest. These conflicts are diverse, but usually involve the problem of control, access and power of the actors (Marfo, 2006). Forest conflicts could have both negative and positive implications for development in forest management (Buckles, 1999; Doornbos et al., 2000). To further understand the implications of the forest conflicts for the livelihoods of the fringe forest communities, the relationship between timber companies and farmers were more deeply analysed in this study.

1.2 Problem Statement

Conflicts in human society date back to antiquity and studies into conflicts are manifested by the works of early social thinkers like Marx Weber (1904), Karl Marx (1818-1883) and the works of relatively recent social thinkers like Sachs and Warner (1995), Glasl (1997) and Collier & Hoeffler (1998). Such studies were necessitated by the realisation that conflicts have the tendency to both disintegrate and transform society.

Natural resource conflicts arise from competing claims over a single resource, overlapping and nested claims, conflicting sources of legitimacy and negotiations over the meaning of the resources (Dietz, 1996). Forest conflicts are inevitable as long as there are competing rights, claims, interests, values and power struggles that are enmeshed in complex institutions and multiple legal systems of land tenureship (Marfo, 2007). Forest conflicts arise when decision rights are ambiguously defined (Schmid, 1995).

All these are entangled in complex bundles of rights and interests and have been fields of power struggles (Marfo, 2003). Skewed power share among communities, timber companies and the Forest Services, as well as some other interest groups, show the distribution of control over the forest leading to conflicts. Access to and the use of these natural resources plays an important role in many conflicts.

Several authors (Anderson *et al.*, 1996; Ayling and Kelly, 1997; Ortiz, 1999) give insight that conflict over natural resources such as land, water, and forests is ubiquitous as they are featured mostly in Ghana resource curse problems. Humans everywhere compete for the natural resources they need or want to ensure or enhance their livelihoods and sustain their future. However, the dimensions, levels, and intensities of conflicts vary greatly. Forest conflicts may have class dimensions, putting those who own the resource against those who make the resource productive, but don't own it.

Forest conflict in Ghana is characterised by forest land use decision-making, state organisations forcefully taking some lands from farmers, benefit sharing of forest resources, access to timber and non-timber forest products, crop damage compensation payment and the appropriation of the social responsibility agreement between timber companies and forest communities in both off- and on-reserves. The attributes of forest conflicts range from the competing use of forest lands, illegal timber loggings and operations, limited respect of the forest laws, increasing poverty among forest fringe communities and inefficiency of the forest protecting agencies. These

resource conflicts are further characterised by unclear tenurial roles with a bundle of rights, unequal benefit, power imbalance, institutional gaps, poor governance, poor participation and informal property rights among others.

Fairhead and Leach (1998) as well try to connect the issue of deforestation and forest conflicts with colonial legacies that did not take into account indigenous forms of forest use.

Causes of forest conflicts could also be partly attributed to the multiple uses of these resources and the conflicting interests of the users of these resources.

The increasing competition for forest resources amidst the various stakeholders with diverse access routes is widespread, especially with the influence of current trends as globalization, decentralization and urbanization and their outcomes for rural communities. Along with these new needs and opportunities there are often tensions and conflicts, including disagreement over access rights and lack of consensus on management objectives (Castro and Nelson, 2003).

According to Gibson and Koontz (1998), forest conflicts occur when rules related to access to forest resource are not well-defined. Open access forests have less or unclear governance and hence are very prone to conflicts. Castro and Nelson (2003) highlight the importance of access in forest conflict when they explain that disagreement over access rights and lack of consensus on management objectives could increase forest conflict.

Formal rules and regulations and informal customary rules have also contributed to the causes of forest conflicts. Land resources in Ghana are governed by statutory and customary laws. This legal pluralism as observed by Kasansa and Kotey (2001) is poorly articulated and appears to be leading to further discord as the formal laws turn to surpass the traditional rules from the local indigenous people. According to Boni (2005), the state machinery tends to weaken the customary land tenure from traditional to continuously under review and being redefined.

Forest conflicts could degrade the environment, cause climatic changes, disrupt projects, undermine livelihoods and affect national policy on forest land use. More importantly, failure to manage forest conflict could lead to community level social unrest, hence resulting in policy derailment and societal disintegration.

Changes in climate are expected to have major negative consequences on the environment and the actors involved in the environmental use or resource use. There is unsurprising consensus that climate change will have disproportionately harmful socio-economic effects on developing countries' forest resources. Forest resource conflicts may lead to scarcity as a result of competition of the usage of natural resources such as forest and increased climate variability.

These formal rules and legalities are not well implemented as they mostly are not fully understood by forest fringe communities or, in some cases, are not in accordance to their informal rule and beliefs at the community level leading to rising conflicts among these two actors and sometimes even including other actors. USAID (2004) outlined the major causes of forest conflict as due to weak governance and rule of use, forest fringe communities' inability to define, secure and enforce their access rights, illegalities of timber harvest and grabbing of forest lands.

From the discussions, it becomes clear that the issue of power, access, heterogeneity and entitlements are important components of forest conflicts in Ghana. The importance of these studies has been that actions and outcomes of forest resource conflicts pervade spatial and institutional boundaries, set rules and sometimes, subvert established rules and norms, as a result of mobilisation and counter-mobilisation of influence and control not only by 'powerful', but also less influential stakeholders.

Mack and Snyder explained the dangers of forest conflicts about three decades ago, when they posed and answered the question, "What are the implications of the power factor for the problem of resolution and control of conflict?" ".....conflict is the clarification and stabilization of power relations, modes of resolution, which omit or cannot basically affect these relations and are likely to be ineffective" (1975: 242).

The entitlement and endowment of the forestry in southern Ghana has been faced with diverse conflicts. Forest conflicts arise when the interests of some stakeholders are not adequately considered in programmes, projects and policies on how forest lands are to be used and managed.

One of the most marginalized stakeholders has been the farmer. Farmers play an important role in the maintenance of on-farm timber trees by nurturing and protecting them from fire. However, farmers have no constitutional rights to an economic interest in naturally regenerating trees maintained on their farms (Kotey *et al.*, 1998). Also, concessionaires rarely pay sufficient compensation for damage made to crops on the farms during logging operations. As a consequence, the incentive has rather been for farmers to destroy timber trees or sell them to illegal chainsaw operators (Amanor, 1996). According to Boni (2003), one of the principal reasons for the rapid depletion of the forest environment has been the exclusion of the farmer from any sort of benefit from timber.

In both academic discourses and common parlance, a debate is ongoing as to how forest conflicts play a constructive and positive role or a destructive and negative role in development processes and how forest conflicts affect the livelihoods of forest fringe communities. On the constructive side, they are considered as a major cause of destruction of old socioeconomic and political structures and processes that must be eliminated in order to build new ones, only this can address the needs and demands of the emerging socioeconomic context. Attention to community level forest conflicts is important because their mismanagement may have direct effect on the forest, aside its adverse effects on stakeholder collaboration.

Natural resource conflicts often provide challenges to sustainable forest management and the daily activities of the forest fringe communities as well as have nagging effect such as loss of biodiversity and endangered species, forest revenues losses, illegal logging, violent conflicts in communities and poverty (Taylor, 1997; Applegate, Chokkalingam and Suyanto, 2001).

Forest conflicts widely affect the livelihoods of forest fringe communities. Even though most of the effects are not analysed, rather merely mentioned, there are few findings on the influence of forest conflicts on the livelihoods of farmers and communities around the off-reserves (Kaimowitz, 2001; Renner, 2002; Girot, 2002; Thomson and Kanaan, 2003).

The forest conflicts affecting the communities' livelihoods are becoming very relevant in natural resource research as it is now accepted as one of the key factors leading to poverty and degradation of Ghanaian forest and reserves. These conflicts have direct and indirect implications for livelihoods of the people near the forest resource, as they depend on these forest resources for their means of living (William *et al.*, 2004).

From the onset, it is clear that forest conflicts in Ghana exist and these are multifaceted, complex and do not lend themselves to easy analysis based on their sophisticated and heterogeneous nature. It is difficult to identify how formal rules and customary rules governing access to forest resources have influence on conflicts and how forest-related conflicts affect the livelihoods of farmers in the off-reserves. The emerging challenge is to understand the dynamics of forest conflicts in Ghana and how they interrelate with all the stakeholders involved and to contribute to the knowledge on forest conflicts and livelihoods based on common pool resource management.

It is against this background that the research focuses on the nature of forest conflicts and their influence on livelihoods of forest fringe communities in Ghana in relations to institutional issues.

1.3 The Context of Forest Conflict in Ghana

The focal point of the natural resource conflicts which occur in Ghana ranges from water-related and mineral-based to the increasing forest-linked conflicts based on access and utilizations of forest resources. Forest conflicts are found in forest reserves, as well as off-reserves and occur at many levels from local and regional to national levels.

A review of the contested grounds upon which conflicts have occurred in the evolution of forest policy in Ghana has been made by Kotey *et al.* (1998) based on the colonial land reforms and agriculture modernisation. Forest reserve creation dates back to the 1920s. The colonial masters created and made 11% of the entire country forest reserve, totalling 282 forest reserves. Traditional land rights were absolutely ignored in the entire process of "gazetting", or official decision-making, which brought numerous environmental problems in Ghana.

In an attempt to sustain the economy, cocoa farms were intensified by colonialists and more reserves to support cocoa farms were created, as they offered good climate conditions for the cocoa farmers. This attempt was resisted by traditional authorities of the forest fringe communities as access to land became an issue.

The issue of state laws and regulations on access to natural resources with customary rules and traditional norms began to clash after these proceedings. The institution of chieftaincy in Ghana is 'empty' without ownership and control over lands (Berry, 2001). This could be explained as the start of forest conflict in Ghana as the customs and traditions of local people were underrated

by the State laws and colonial machineries. Allodial title through the customary tenure system of stools, skins, and tindanas¹:

These symbols of stool and skins always represents past, present and future generations, it serves as a reminder of the necessity of sustainable resource governance.

If chief's actions contravene the interests of future generations, he can be deposed on these grounds. This is important to mention here because it shows that in terms of political theory, indigenous institutions have inbuilt requirements for sustainability, something western-style democratic or even capitalist business groups lack to this day, with global consequences which we are witnessing now were overlooked.

This came to play and continues until today as manifested in forest management, as many forest conflicts are rooted on these bases. Today the only way to acquire an allodial title is through the state or through a purchase or gift, which is to the disadvantage of the marginalised farmers (Da Rocha and Lodoh, 1999).

Most of the forest decrees that were passed later emphasised the de facto ownership of communities and de jure ownership of the State. These decrees have abolished most communal rights in forest reserve and undermined local people's access right. The Forest Services Division serves as the main link and forest fringe communities as the nominal link between landholding authorities and wood-based companies in Ghana. Wily *et al.*, (2001) explained that forest laws are contributing to forest conflicts in Ghana as they tend to benefit the powerful and strong and are to the detriment of the local people.

This further reveals that forest conflicts in Ghana are sometimes seen as an organisational issue due to the fact that there are so many offices created to manage the forest reserves and off-reserves. This leads to superfluous agencies having varying interests that clash with local interest and thus influence forest conflict situations in Ghana. The multiple stakeholders involved in local forest management create inconsistencies with the nature bureaucracies and operations. There are unclear roles in the institutionalization of forest management. Moreover, the centralization of the forest sector and its benefits of forest resources have created a struggle with communities. The continuous struggle between farmers and the state agencies on revenue has continued to date. As observed by Treue, "the numerous letters to the Forestry Department from disgruntled traditional and elected leaders of local communities from all over the high forest zone indicate that the problem has prevailed a long time" (2001:141).

Forest conflicts in Ghana could as well be linked with the increasing illegalities in the forest industry. Illegal chainsaw operations have increased in Ghana as most people involved in these operations claim it is their main source of livelihood. Out of 2.7 million cubic metres of timber harvested annually, about 1.5 million cubic metres are illegally harvested and have also decreased the domestic price, increased rent seeking behaviour in the forestry and made it more discouraging for legitimate timber logging.

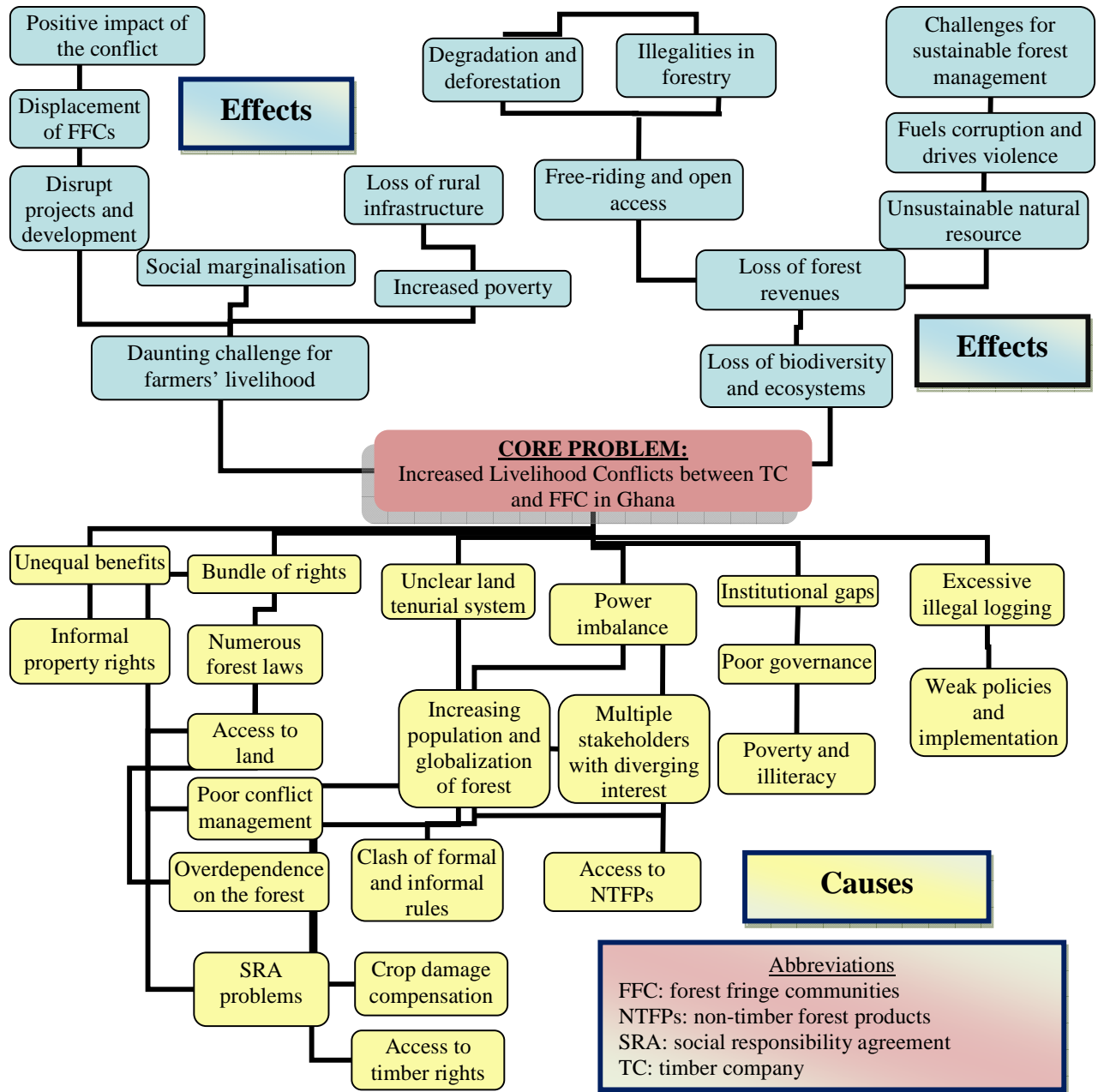
¹ Skins, stools and tindanas are traditional terms for landowners in Ghana. These titular heads are those responsible for communal land in traditional communities.

These illegal chainsaw operators sometimes have conflicts with timber operators over access and with farmers. The benefit of royalties from stumpage fees, social responsibilities from timber companies and access to timber and tree resources such as non-timber forest products (NTFPs) have influenced forest conflicts in Ghana as they all tend to benefit the powerful actors and not the farmers (Marfo, 2001).

The nature of forest conflicts in Ghana is a multifaceted problem as it involves several stakeholders such as farmers, timber operators, chainsaw operators, forest officers, non-governmental agencies and other interest groups in the area. The conflict could be at any level and does show a clear line link to any stakeholder, even though the major conflict is among farmers, timber operators and forest officers as key stakeholders in the forest reserves. Although many forestry-related studies in Ghana have mentioned the prevalence of conflicts, there are few studies (i.e. Kotey *et al.*, 1998; Marfo, 2001; Asante, 2005) that describe some of the conflict situations; however, their consequences are generally mentioned seldom.

There has been no mention or very insignificant findings on how forest conflicts affect livelihoods of forest fringe communities and farmers. The relationship between forest conflicts and the livelihood based on struggles between farmers and timber operators has been disregarded when looking at Ghana's forestry in a more empirical context.

Figure 1-1: Research Problem Analysis Tree



Source: own construct based on situational analysis

1.4 Research Objective

1.4.1 Overall Objective

To explore the formal and customary rules governing local people's access to forest resources and the implications and impact of forest conflicts on livelihoods of farmers.

1.4.2 Empirical Research Questions

1. What are the existing formal and informal rules governing local people's access to forest resources and its implications on forest conflicts?
2. To what extent do forest conflicts impact local people's livelihoods in terms of social, financial, and natural capital?

1.5 Significance of the Study

Firstly, across Africa, the appropriate mix of powers and functions of different local actors in resources management and forest land use is poorly defined. From the above background, one thing which is not yet clear, which this research seeks to explore is how or in what ways the co-management of natural resources and land use affects the social and livelihood of the rural poor who depend on this forest for their survival.

The research would like to examine the link between formal rules and legal frames on forest governance by the government and how both the formal and informal rules based on the customary and the traditions impact communities access to forest resources.

Secondly, it is very interesting to understand how forest fringe communities understand the conflict situations with timber companies and how they are affected by these conflicts in their livelihoods strategies and outcomes.

Finally, there is very little empirical data or experiences from which to derive the best local institutional agreements and formal institutional arrangements and their consequences for forest conflicts. These would be a contribution to rules in use and access mechanism to livelihoods of smallholders. As this research seeks to identify the forest conflicts between timber operators and farmers and how these conflicts affect the livelihood of the farmers.

1.6 Justification

Natural resource conflict in Ghana is very common. Forest conflicts, the most common and often devastating, in the forest regions lead to total destruction of the forest through illegal operators. This is mostly as a result of non-involvement of local people in the forestry as they are seen not as owners but caretakers and their rights are undermined by the state authorities and the timber companies.

My research in forest conflicts evaluate the various actors and the relationship between forest communities, timber companies and the Forest Services Division as well as the rules existing.

It as well examines how the arrangements affect the relations of all actors and their influence on forest conflict. Eventually, the various perceptions on formal regulations and informal rules on forest access and how that influence conflicts affect farmers' livelihoods.

Most forest communities believe that they have absolute rights and ownership of all resources in their vicinity. Entitlement encompasses three rights: the right to own resources, the right to use resources and the right to intervene in resource situations. Some resources cannot be claimed, like solar energy or air, or are hard to claim, like rainwater. Others capable of being claimed have been subject to increasing demands by individuals, communities, firms and government organisation.

These demand either ownership of the resource or a right to determine who can use it and in what way. These claims are the rights to own resources and they are often subject to a plurality of legal systems. In a local context these rights can be very complex (Dietz, 1996).

This research contributes to institutional theories of common pool resources use with particular focus on situations characterized by interactions of highly heterogeneous actors and forest livelihood conflicts.

Also, the southern district of Ghana has one of the most diverse tropical forest reserves in Africa in terms of timber production and has recorded a high number of conflicts in the area, without much research in to the main relations between these conflicts and the effects on the farmers' livelihoods. This research adds to the existing knowledge of how natural resource conflicts affect farmers in forest fringe communities in Ghana.

CHAPTER TWO: THEORETICAL AND CONCEPTUAL ISSUES

2.1 Introduction

This chapter reviews the literature on the topics categorised into theories of common pool resource management, legal pluralism, conflict, and livelihood theories. The focus of the review is to give more insight into the research topic and help develop a framework for the study.

2.2. Common Property Rights in Forest Management

The term “common property regime” (CPR) represents a set of institutions, regulations and management practices subject to collective decision making. It is the regime that distinguishes common resources, for example forest resources from open access resources when it is out of tenureship, which is unregulated and free for anyone to use (Adhikari, 2001). These resources include groundwater basins, irrigation systems and pastures. They are usually large and have multiple actors using them simultaneously and usually only include some potential beneficiaries.

Bromley categorised property rights into three sets of variables, “nature and kinds or rights, individual and groups to which these rights are vested in, and the object of social values to which property relations pertains” (1989). Forest rights are differentiated by different actors and with each actor having different interests in the forest resource based on the social setting of the environment.

The term ‘common property rights’, according to Fuys *et al.* (2006), refers to the kind of tenure that exists, not the resource itself. These rights take up a large share of communal access and allocation of use. In the case of forest resource management, the right could be based on the user right of the timber and non-timber forest resources based on the access of individuals and communities.

For about two decades, twentieth century ecologist Garrett Hardin's (1968) theory of the "tragedy of the commons" was the basis for a mainstream understanding of common property management problems. At that time, Hardin envisioned a pasture as an open area in which each herder received a benefit from addition of animals to graze on the pasture and only faced the problem of costs from overgrazing. The theory describes how people that are dependent on the use of common property resources will act “rationally” without restraint to maximise their personal short-term gain by overexploiting the resource (Hardin, 1968).

A property right can be described as “the authority to undertake particular actions related to a specific domain” (Commons 1968). Those rights are legitimized and recognized either by statutory law (formal property rights) or local arrangements (informal property rights).

Ostrom cited the intellectual root of common pool resource problems when she said that "what is common to the greatest number has the least care bestowed upon it"(1990).

Common property resources, however, provide essential ecological, economic, and socio-political services, as well as sustain millions of commons resource dependent livelihoods (Beck

and Nesmith, 2001; Adhikari, 2001; Fuys *et al.*, 2006). These resources are the source of livelihoods for most poor and marginalised resource-based communities as they do not have access to other non-natural resource assets such as training and education, technological and scientific developments and population control. This shows the difference between developed countries and developing countries in managing resource use for sustainability. Deininger (2003) confirms this by establishing the fact that the developing world shows a pervasive manifestation of ineffective property rights, which leads to unsustainability.

However, Demsetz (1967) explains that common property rights can benefit or harm to societies. Therefore, the State creates new property rights in the form of privatisation with a cost of internalization of externalities. Common property resource appropriators can create and sustain the management institutions that ensure equitable access and livelihood of the resource.

In her analysis of the problems in the management of common pool resources such as access to forest resources, Elinor Ostrom (1990) stated in her book, Governing the Commons: The evolution of institutions for collective action identified the following eight design principles as prerequisites for a stable common pool resource arrangement:

1. Clearly defined boundaries.
2. Congruence between appropriation and provision rules and local conditions.
3. Collective-choice arrangements allowing for the participation of most of the appropriators in the decision-making process.
4. Effective monitoring by monitors who are part of or accountable to the appropriators.
5. Graduated sanctions for appropriators who do not respect community rules.
6. Conflict-resolution mechanisms which are cheap and easy to access.
7. Minimal recognition of rights to organise.
8. Organisation in the form of multiple layers of nested enterprises, with small, local common pool resources at their bases.

In the context of forest rights in a common pool environment, rights could be further analysed and considered from at least two standpoints: (a) the ability of a group to exercise its property right to forest resources, in relation to competing claims from other interests (including the state), and (b) the ability of forest fringe communities to exercise their rights - particularly access rights – to the forest with regard to other interests, such as timber companies. In the case where the timber company benefits from total power, the timber company plays the role of privatisation of the resource use and decides to use the resource to benefit the forest fringe community or maximisation of their own private profit interest.

The issue of forest management as a common pool resource is critical for environmental sustainability, even though it is still a contested debate and has recently moved from its original solution-based and problem-solving approach to socio-ecological system and much more context specific (Agrawal *et al.*, 1999; Ostrom, 2007). In accordance to this method, the Ghanaian problem of forest management as a common pool resource is analysed in a contextual setting. The structure of property rights in Ghana has changed frequently since the colonial masters passed the Forest Ordinance of 1927 which vested total property right to the State and took the

rights of the indigenous (Antwi, 1992). This was manifested with the creation of reserves back in the late 1920s. The colonial masters turned 11% of the country into reserves and fifteen wildlife protected areas totalling 16% of the total land area were established and gazetted. This meant that the property rights of local fringe communities became more passive and a de facto right of ownership (Akyeampong *et al.*, 2006). Kotey *et al.* (1998) explain how forest land outside the gazetted reserves was appropriated in the 1920s for agricultural purposes and also undermined the access rights of forest fringe communities even though they are the managers of off-reserve forest resources.

Property rights were transferred entirely to the central government which now holds all forest right. Interestingly, no other African country has expanded its jurisdiction over allocating property rights over forest harvest to the same extent as Ghana (Gillis *et al.*, 1988). Gillis further wrote, as a result “Ghana’s forest is now even more vulnerable to the tragedy of the commons” than when property rights were vested in the traditional authorities and natives. The transfer has not changed access to the remaining forest and has virtually eliminated the limited enforcement of environmental safe guards, once overseen by the stools and skins.

Forest Services Division (FSD) and timber companies began to exercise more rights to the use and management of forest resources and undermined local people’s access. The new laws and regulations that abolished the traditional communal property rights to forest resources succeeded in creating non governance of forest resources in High Forest Zones (HFZs) of Ghana leading to open access problems such as illegal chainsaw operation, corruption and informal property rights and unclear access to forest properties.

The property and benefit sharing rights of forest resources in Ghana has been changing and Christian *et al.* (2009) identified four distinct regimes: the early regime with land ownership by communities, the post war regime with export-led exploitation, the 1962-1992 regime categorised by vesting all rights to the president in trust for the stool and the current regime from 1992 to today characterised by a power struggle among actors especially in off-reserve areas.

Mayers *et al.* (1996) support the common property right problem in Ghana’s forest by pointing out that successive legislation has left traditional authorities with little property rights in forest management. Despite the legal position of the traditional council as owners, the current property rights shifted as a result of colonialism, politics and economic dynamics. This is where forest conflicts emanate from, as the key landowning stakeholders are neither involved in the decision-making process nor negotiations for forest benefit and their property rights denied.

2.3 Heterogeneity and Collective Action in Community Forestry

Despite many valuable lessons that have been learnt regarding common pool regimes, the resource user’s attributes and relationships remain very puzzling. One such difficult question has been the impact of heterogeneity among the users of a community-based natural resource.

Recent literature suggests that success of the property rights regime is based on heterogeneity and collective action, hence an increase in common pool resource theorists’ interest in analysing the issue of heterogeneity and collective action in resource management.

The theory of heterogeneity on commons management is complicated and has become a subject of debate in recent years. Research has shown that different types of heterogeneity affect the sustainability, equity, and efficiency of commons management. Heterogeneity factors are defined as ethnicity, gender, age, origins, caste, religion, wealth, occupation, location relative to resource-use areas, reliance on the resource system, and patterns of resource use, divide and crosscut “community” (Poteete and Ostrom, 2004b). These factors could be directly related with forest resource management, but the setting might not be the same. Some common pool theorists however have different sources for heterogeneity.

The sources of heterogeneity are diverse and include differences in opportunity cost, appropriation skills, caste, gender, language, ethnicity, initial endowment, political influence, technology and local differences (Hackett, 1992), which might influence the cost-benefit sharing arrangement and thus equity of resource distribution. Velded (2000) specified the diversity of forms of heterogeneity by identifying five variables including: heterogeneity in endowments, political heterogeneity, wealth and entitlements, cultural heterogeneity and economic interests.

Baland and Platteau (1997) further assert that heterogeneity of endowments can be a trigger for collective action. This is concluded from the work of Mancur Olsen (1965) who hypothesised that those with more endowments usually have the most economic interests in collective action, and therefore will often pay the start-up costs to initiate it. This later came to be known as the “Olsen Effect”, a situation in which there is an exploitation of the poor by the strong and powerful. These schools of thought claim that the management of common pool resources would function well when there are few powerful institutions working for the rest. In the case of Ghana, this role would be played by the Forest Services Division and the highly sophisticated timber companies or even the well-networked chainsaw operators.

Boyce (1998), however, argued that inequality may have a negative effect on local level collective action since inequality may increase the scope for a powerful minority to impose rules of the game that benefit them at the expense of a large majority in the community. Greater homogeneity, on the other hand, promotes both equity and efficiency by facilitating the adoption of more coordinative and cooperative arrangements at the local level. In his simple theoretical model, Kanbur (1992) investigated the role of group heterogeneity in the success or failure of common property resource management. He argued that cooperative arrangements are less likely to succeed when agents are highly heterogeneous and existing arrangements are also likely to break down as a group becomes more heterogeneous. Lise (2000) suggested that intra-group inequality could undermine the willingness of poor people to participate in collective action since elite-devised management regimes rarely serve the basic survival needs of the poor.

Baland and Platteau (1997) also explain that those with less interests or ability to contribute to the costs of collective action will, nevertheless, cooperate because they can free-ride on the contributions of others. This is exactly the situation in Ghana, where the issue of forest resource management is characterised by the free riding situation of illegal chainsaw operations.

Bardhan and Dayton-Johnson (2000) extensively reviewed the case-study literature on heterogeneity and commons management. They noted a U-shaped relationship between

inequalities and commons management. Very high and very low levels of inequality are associated with better commons performance, while mid-range levels of inequality are associated with poor outcomes.

From the review on the theory of heterogeneity, there are two schools of thoughts that can be deduced. The first perspective is that cooperative behaviour is becoming very difficult in an economy with highly heterogeneous agents. Divergence of interest is most likely to emerge when socio-economically heterogeneous groups share common pool resource since their interests may differ (Kanbur, 1992; Kant, 2000).

Secondly, heterogeneity is conducive to collective action leading to the “Olsen Effect”, where the rich and the powerful will organise collective action in a more productive way to benefit themselves (Baland and Platteau, 1997). This second school of thought brings the link between heterogeneity and collective action in resource management. Both schools of thought are represented in Ghana and could be best fitted in some forest fringe communities in Ghana depending on the situation. However, it could be further explained that the second school of thought has not really helped in Ghana forest management, since the “Olsen Effect” has not had much positive implication in the forestry.

Collective action theory provides a good starting point for understanding the dynamics of cooperation in a heterogeneous setting from which commons management regimes are built. A well established theory about what affects people’s decisions to cooperate is described by Ostrom’s (1990) framework of an institutional-choice situation. She uses a general concept of rational choice where actors will consider expected costs and benefits which affect their internal norms and discount rates, and select strategies that are expected to result in greater benefit than cost. Ostrom (1990) again provides an example where the imposition of state control of the Nova Scotia fisheries resulted in disruption of local systems of management, conflict between different user groups and government authorities, and acceleration of unsustainable fish harvest. Literature on common pool resource management agrees that its conservation and sustainability is largely dependent on local people’s “cooperative capacity” – their ability to act collectively to achieve shared goals, and to solve collective action problems (McCarthy *et al.*, 2002).

A growing body of evidence from common pool resource theorists show that, in spite of various incentives against cooperation, local resource-user groups often find local solutions to collective dilemmas and devise institutions that manage common resources and allocate benefits equitably and relatively efficiently over the long term (Ostrom, 1990; Agrawal *et al.*, 1999). Collective forest management had been implemented in Ghana’s forest decentralisation attempts and community-based forest management with the creation of off-reserve, sacred and dedicated forests in some forest regions. Cooperative actions between local institutions can manage natural resources successfully, however, when resources are privatised or appropriated by the state, traditional user’s rights are seldom recognised. The result of this is the destruction of traditional entitlements systems and efficient arrangements that have evolved to suit local needs (Baland and Platteau 1996).

When multiple users of a common pool resource are dependent on that resource, each user is affected by the actions of others. Resource users will choose to work cooperatively towards

sustainable management of common-pool resources under certain conditions (e.g. “I’ll do this, if you do that,”) and if they expect that the long-term benefit of cooperation is greater than the long-term costs. Game theorists describe this as an equivalent retaliation or “tit for tat” strategy (Levi, 1988; Ostrom, 1990).

The new theoretical understandings are described in Kahan’s “reciprocity theory” (2002). The reciprocity theory underlines four important contributions to the collective action theory. Firstly, it asserts that resource users are emotional reciprocators instead of wealth maximisers. Secondly, the trust among the resource users may promote cooperation better than imposed material incentives. Further more, the rate of cooperation among a group can have multiple equilibriums. Lastly, tendencies towards cooperation vary between individuals in a group.

However, in resource management findings over the past years, there are few empirical examples of the effect of heterogeneity on common property forest management. Some existing empirical literature on community forestry (CF) in Nepal deals with income inequality and distributive issues to an extent (Richards *et al.*, 1999; Adhikari, 2001), but the role of heterogeneity on the performance of forest user groups (FUGs) is not explicitly considered. The impact of heterogeneity on collective action is an issue that is not yet fully understood and is the focus of much contemporary research in the common pool resource area.

Ghana’s forestry is characterised by different stakeholders with different interests who bring the issue of heterogeneity into play. The forest fringe community level already shows the structural and power variations from the Traditional Council, to the land owners and tenants, as well as farmers. For example, gender heterogeneity is manifested in the work of Nukunya (1972) in which women’s right to inherit, use, and own forest resources are weak and insecure whereas men have significantly more access to such resources.

In timber resource utilisation, timber companies and illegal chainsaw operator compete for the same resource (Marfo, 2001). In the Ghanaian forest sector, there is considerable domination of small-scale enterprises, as well as medium and large scale wood-based industries and their linkages between timber and non-timber interests are contributing to the issue of heterogeneity in the forest sector. Kyeretwie further emphasises on inequality of access and benefits from forest resources in Ghana (2008). Collective actions are clearly manifested in the various collaborative management of the forest and the challenges involved. These collective actions are in different phases, from the national to the regional and at the district forest zones.

2.4 Formal and Informal Rule in Forest Access

According to Ostrom (1990), formal and informal resource access and management rules have been found critical to inducing collective action and enforcement regulations in resource management.

The formal rules are those regulations and legislations enacted by the state in the form of acts, ordinances and laws. These constitute the non-state legal system. The informal legal system, however, made up rules in use based on custom, tradition, and folk laws. In the Ghanaian context

there is a clear phenomenon of legal pluralism as both rules co-exist and operate in resource management, especially in the forest sector.

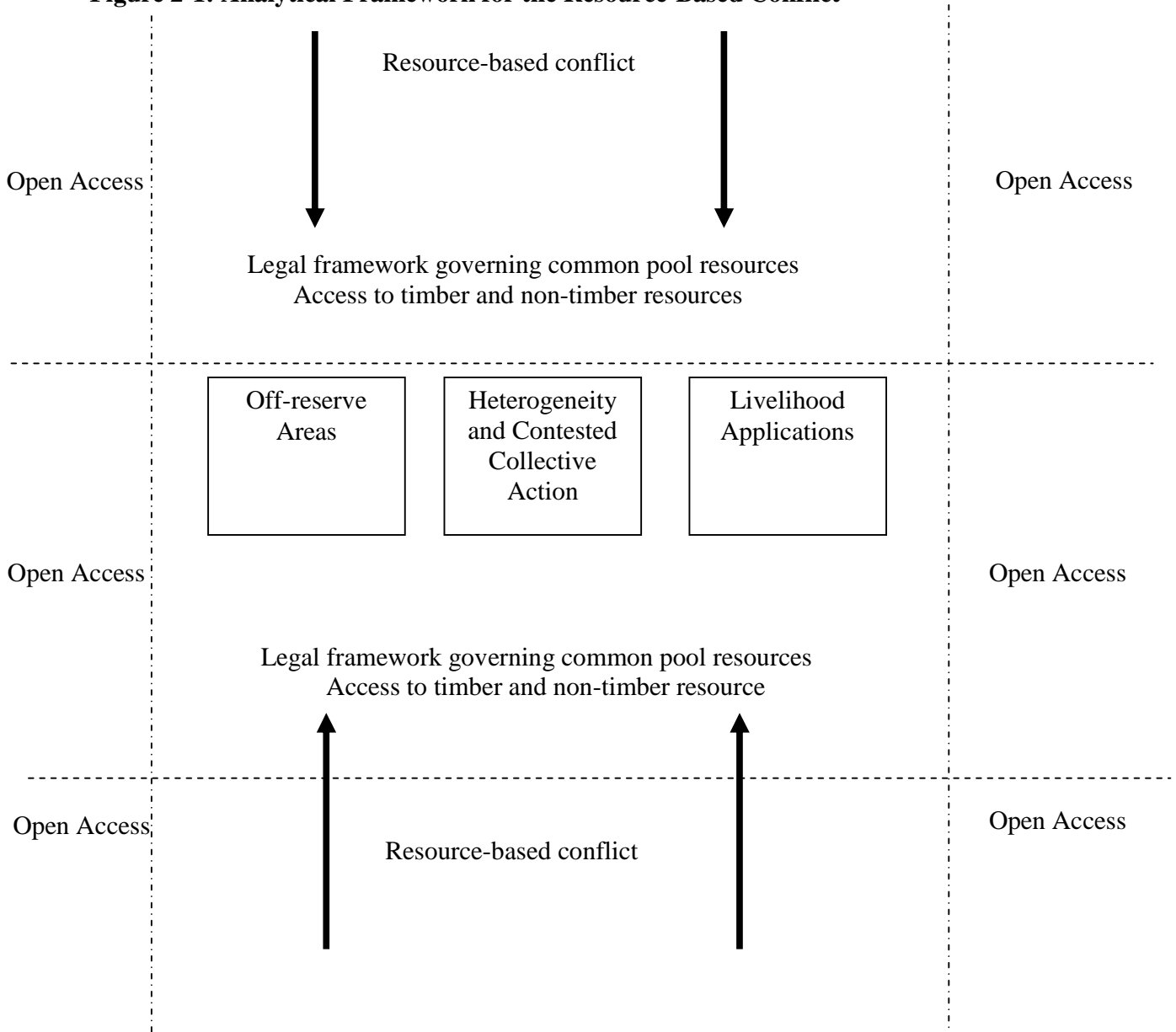
Many scholars have tried to explain the concept of legal pluralism. Vanderlinden (1989) define the concept as different legal mechanisms applicable to the same situation. Meinzen-Dick *et al.* (2001) link the concept to the co-existence and interaction of multiple legal orders within a social setting and Benda- Beckman (1997) includes parallel or duplicatory regulations.

Crock (2001) adds and comes to the conclusion that the theme of legal pluralism is relevant as it helps understand how non-state regulatory orders relate with state laws and how access is defined.

The concept of access describes all possible means by which a person is able to attain rights and benefits. Access has four different dimensions and can be described by a) those who have access; b) to what resources; c) in what ways and d) when (Ribot and Peluso, 2003).

According to Fortmann (1985), four different types of rights to trees can be distinguished, namely: a) the right to own or inherit trees, b) the right to plant trees, c) the right to use trees and tree products and d) the right to dispose of trees. There are both formal and informal regulations on how to gain access to these resources in Ghana. Entitlement and endowment models dismantle access into ‘rights and resources that social actors have’ defined as endowments and ‘alternative sets derived from the environmental goods and services over which social actors have legitimate effective command and which are instrumental in achieving well-being’ specified as entitlements (Leach *et al.*, 1999). In general, the legal framework governing forest access and natural resources in Ghana is complex and highly intertwined in both state and customary laws and practises (Boni, 2005). The Ghana Constitution of 1992 reaffirms the co-existence of both laws in Article 11, making the issue of legal pluralism state-promoted. The forest sector of Ghana has witnessed several conflicts related to the concept of formal and informal rule on access and benefit (Agyeman, 1994). Owusu (1996) argues that the customary and traditional jurisdiction is contested by the formal state laws on ownership and multiplicities of claims on access and benefit for forest resources. However, there are few local literatures linking the issue of forest conflicts to the issue of coexistence of the formal and informal institutions in Ghana.

Figure 2-1: Analytical Framework for the Resource-Based Conflict



Source: own construct based on theories from Bromley, 1991; Feeny *et al.*, 1990; Da Rocha and Lodoh, 1999; Velded, 2000; Glasl, 1997; Benda- Beckman, 1997; and Marfo, 2009.

This diagrammatic representation of the natural resource conflict situation in Ghana is drawn from the above-mentioned theories suggesting that Ghana’s current forest resource-based conflict is underlined by the issue of open access which is illustrated in the context. Formal and informal institutions on the governance of access to timber and non-timber resources, characterised by heterogeneity and contested collective action, are a central issue leading to forest conflict and open access in common pool resource management in Ghana. This is a hypothetical assumption based on the literature reviewed and the off-reserve forest policies reviewed in this study.

2.5 Forest Conflict and Livelihoods

Common pool resource management has been associated and is well documented with conflicts due to the heterogeneity, collective management challenges, as well as stakeholders with diverse interests, perceptions, values and claims involved in the use and management of these resources. Literature on natural resource conflicts continues to build up, highlighting several dimensions such as causes, social and ecological impacts and approaches to management (Walker and Daniels, 1997; Buckles, 1999; Castro and Nielsen, 2003; Turner 2004; Niemela *et al.*, 2005).

Sachs & Warner were among the first to investigate the relationship between resource abundance and economic development in Africa. They found that resource-abundant countries have stagnated in economic growth since the early 1970s (Sachs & Warner, 1995 and 2001). This conclusion was reached because many developing countries where their research was focused had lots of resource abundance and were still economically undeveloped because of the abundance, the inability to process for the benefit of the country and the rate of misuse.

The first to relate ‘the Curse of Natural Resources’ to conflict were Collier & Hoeffler (1998 and 2004). They argue that conflict emerges when the incentive for rebellion exceeds the cost. Access to natural resource revenues gives the rebels an opportunity to cover some of these costs (Collier & Hoeffler, 1998).

Collier & Hoeffler’s paper on ‘Greed and Grievance’ (2004) has become one of the most important studies in the field of conflict and natural resources within the resource abundance school. Collier & Hoeffler argue that rebels’ opportunity to finance a conflict or to acquire personal gain has more explanatory power than the grievance arguments, such as ethnic or religious hatred, political repression, political exclusion and economic inequality.

Most resource conflicts in Africa were and still are centred on how the resource abundance contributed to conflict and in the case of forest conflicts, how the forest were and are used in promoting armed and violent conflicts in some African states. It also embodied the use of the forest as a hiding ground for protection (Collier & Hoeffler, 1998; Deacon and Mueller, 2004; Homer-Dixon, 1999). Le Billion (2000) affirms this as well when he wrote that resource exploitation has caused most conflicts in Africa. However, forest conflicts in Ghana were not as widespread as other resource exploitations. Most of the forest conflicts were not so violent and the forest was not as well used for hiding as described.

Another school of resource conflicts was the concept of environmental scarcity and the rich volume of research based on it (Homer-Dixon, 1999). The vicious circle created by growing environmental scarcities ended in vastly increased social inequalities, a rapid increase in economically marginalised people, and, as a consequence threatened livelihoods. Leading to the forcing of those marginalised from that point on to utilise the resource unsustainably. It is important to note this is not the general situation in resource exploitation in Ghana and resulting in conflicts.

In contrast to the above-mentioned negative outcomes of forest conflict, there is increasing evidence in several case studies in which conflicts have yielded positive transformations and

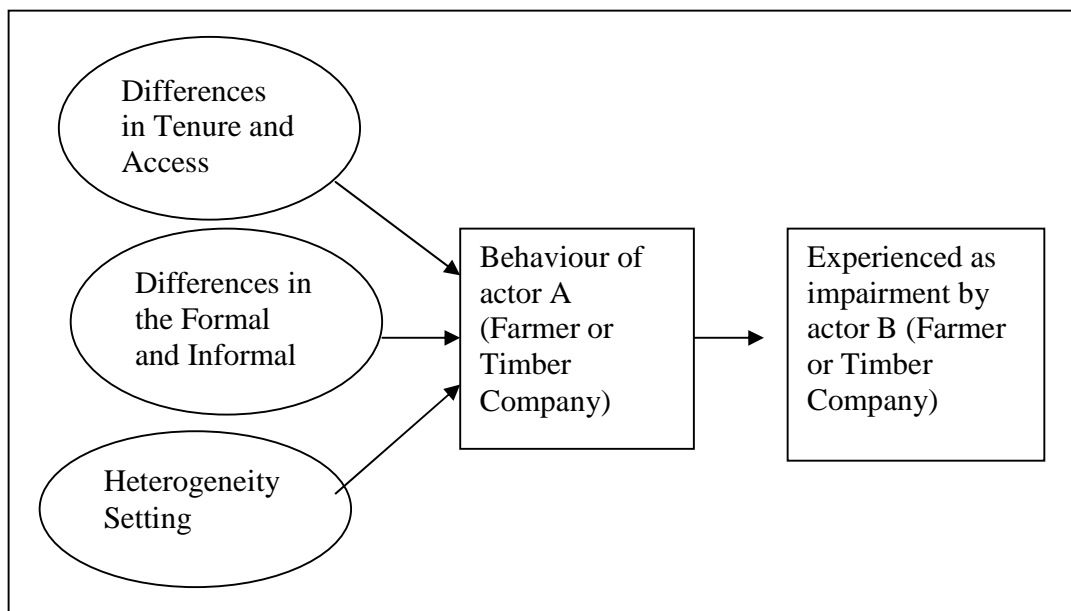
change by providing more equity and justice among forest users (Buckles, 1999; Doornbos *et al.*, 2000; Castro and Nielsen, 2003).

Conflict can be defined as “any relationship between opposing forces whether marked by violence or not” (Deloges and Gauthier, 1997, p. 4). As Ochieng Odhiambo notes: “Each party wants to pursue its own interests to the full extent, and in doing so ends up contradicting, compromising, or even defeating the interest of the other”(2000, p. 8). This makes natural resource conflict widespread, though much disagreement might arise over the explanation for this situation.

For a better understanding of forest conflicts, it is imperative to review the conflict theory by Glasl (1997). He developed a conflict model between two individual actors, conceptualising conflict as the result of influences on the behaviour of one actor A and how these behaviours are experienced as an impairment by actor B due to differences in perceptions, rights, power, emotions, and interests. In the Ghanaian forestry context, this concept is exemplified in the relationship between timber companies and farmers in the forest fringe community.

Glasl’s model was designed for interpersonal conflicts underlining a psychological process as opposed to social conflict, such as natural resource conflicts with interests and rights of ownership underlining. Yet, this model offers significant advantages, as it delineates conflicts from other social disagreement and, for empirical purposes, the issue of behaviours is very important in natural forest conflict cases.

Figure 2-2: Forest Conflict based on Glasl’s Conflict Model



Source: own construct based on Glasl’s Model (1997)

The Glasl Conflict Model is used for the study as it helps explain how the differentiated property rights, formal and informal regulations, along with heterogeneity in collective action affect the actors in the study. This model also helps explain how forest conflicts serve as impairment for livelihoods of the various conflict actors.

Pondy (1967) also explains conflict episodes and specific impairments. According to Pondy's view, the construction of episodes involves an interface of conflict actions that leaves an aftermath that affect livelihoods, which would pertain to the lives of farmers in the case of this study.

Livelihood is not an easily defined concept as it is multifaceted and there are varying approaches to conceptualisation. The usual definition by most development and social scientists is based on the one used by the UK's Department of Foreign and International Development (DfID, 1999) which incorporates the following factors:

“A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base” (Chambers, R. and G. Conway, 1992).

The livelihood approach is well supported by Shackleton *et al.* in the following statement: “A livelihoods approach starts off by focusing on people, their assets and their activities, rather than on sectors and their performance” (2008). Their definition of livelihoods could also be applied to forest-related livelihoods in Ghana. As the concern is toward the farmers' capacities to generate and maintain their means of living and enhance their well-being, as well as that of future generations.

Shackleton *et al.* still emphasize that "these capacities are contingent upon the availability and accessibility of options which are ecological, socio-cultural, economic, and political and are predicated on equity, ownership of resources and participatory decision making. The more pragmatic definition below highlights the importance of empowering individuals, achieving independence and dignity in providing for their basic needs" (2008).

Although forest-related livelihood has been mostly ignored by academia, there are some sources of literature available on the relevance of the forest to livelihoods.

Historically, political scientists have identified and described the “transforming structures” - in both the public and private sector – as those that “set and implement policy and legislation, deliver services, purchase, trade and perform all manner of other functions that affect livelihoods” (DfID, 1999).

Byron and Arnold (1999) further classified five different roles that forest resources can play in livelihood systems under five themes: central, major, minor, risk limitation and none.

Shanks and O'Reilly (2008) reaffirm this discourse and identify five main contexts of forest dependency based on geographical situation, the type of forest resource, the institutional context of forest management and different types of livelihood opportunities.

Sen (2001) related forest resources to social capital assets when she was conceptualising poverty as a capital deprivation. Ruiz-Perez *et al.* (2003) connect forest livelihoods with household income.

Brycesson 1999 explains that rural livelihood strategies in most forest communities include agriculture and forest gathering, however, emphasises on forest assets as a major source for livelihoods for farmers in off-reserve areas.

The relevance of NTFP (non-timber forest products) as a source of forest livelihoods captured the imagination of conservationists around the world when Peter *et al.* (1989) claimed that more money could be earned from tropical forests by collecting these products than from logging (Kaimowitz, 2004). The perception, that NTFPs are more accessible to rural populations, especially to the rural poor and that their exploitation is more benign than timber harvesting favoured NTFP becoming economically acceptable ecological option of development for forest fringe communities (Saxena, 2003; Myers, 1988). Forests could be more valuable to local users and, as a result, forest conservation is promoted (Plotkin and Famolare, 1992).

Fisher (2002) concludes this same linkage to non-timber forest products calling them "Silver Bullets" as they are mostly the major source of livelihoods for the poorest of the poor.

Small and medium scale enterprises are mentioned by Arnold *et al.* (1998) in explaining the role played by forestry in some communities and further predicted that 15 million Africans would access jobs in the forest sector in the coming years.

Despite the fact that forest sector contributes to livelihoods, there is still no clear quantification of the scale.

Rural communities depend on forest resources for shelter, food, medicine and other essential elements of their livelihoods. In Ghana, forest resources provide such products as wood fuel, wild vegetable, bush meat, medicinal plants, honey, nuts and mushrooms. Wollenburg and Nawir relate rural livelihood to non -timber forest products (1998). Falconer (2002) and Townson (1995) further detailed the contribution of NTFPs to rural livelihood in Ghana.

The situation is similar in the local Ghanaian forest economy, where small and medium wood enterprises in 2007 were more influential in the informal sector and declined in the formal sector, showing that livelihood of forest resources is much more important in the Ghanaian context as most communities are rural. The domestic market extensively depends on small and medium enterprises made up of chainsaw operation which presents a significant environmental problem and manifests in debates regarding their operations and relations to livelihoods.

Forest livelihood in Ghana is exemplified much more clearly in the off-reserve areas as most farmers live and depend on the resources close to them based on access. The off-reserve

resources include all resources outside the gazetted reserves and an important resource base of Ghana. Ghana's off-reserve land is totals to about 5.483 million hectares in the High Forest Zone. In the 1980s this sector was not just a livelihood support base, but contributed approximately 30% of the total of forest harvested. In the 1990s it even contributed to 70% of all timber harvested in the country (Agyeman *et al.*, 2004).

Farmers are the main managers of the off-reserves in Ghana as they nurture and sustain their survival on farms and off farms. Although dependent upon these resources, they are actors who least benefit from them.

The current benefit of timber revenues does not include farmers, even though they are the major stakeholder in maintenance of the forest resources as shown in the table below.

Table 2-1: Past and Current Reserve and Off-Reserve Revenue Allocation among Stakeholders

Stakeholders	Percentage of Revenue Allocated Accrued from Stool Lands as outlined by Article 267, Section 6 of the 1992 Republican Constitution of Ghana	Percentage of Revenue from Stumpage Fees Allocated	
		Forest Reserves	Off-Reserve
Forestry Commission	40	60	40
OASL (Office of Administration of Stool Lands)	10	4	6
District Assemblies	55	19.8	29.7
Stool Chief (Alienation Holder)	25	9	13.5
Traditional Council	20	7.2	10.8
TOTAL	100	100	100

According to Agyeman *et al.*, 2004 and Katako, 2004

This problem of benefit of forest resources by farmers in Ghana has been critically reviewed by many Ghanaian forest experts who claim that forest fringe communities need much more support for their livelihoods than available in the current benefit arrangement (Agyare-Kwabi, 2004; Amanor, 2004; Katako, 2004; Richard and Asare, 1999).

Forest fringe communities' lack of access and unequal benefit sharing of timber and non-timber resources in both reserves and off-reserves of Ghana have led to much degradation, deforestation, insecure land tenure and open access regimes in the forest sector of Ghana. These are characterised by illegal operations, forest livelihood conflicts, high level corruption, which are among a long list of resource problems in Ghana (Birikorang, 2001; Marfo, 2009).

Forest livelihoods conflict as the main issue analysed in this study includes all forms of conflicts in the forest reserve that have direct or indirect impact and influence on the lives of the farmers as discussed previously in the conflict theory.

De Soysa & Gleditsch *et al.* (1999), perceived livelihood conflicts with links between the forest activities and non-forest activities such as agriculture when they explain that, where land related conflicts among farmers occur, which affect their farming activities, they would, in the end, directly or indirectly affect their household livelihoods.

“The new conflicts may be traced to the loss of livelihood” (de Soysa & Gleditsch *et al.*, 1999, *ibid.* p 19). They, as well, concord to livelihood related conflicts as an important factor in the management of the commons.

From the literature based on conflicts and livelihoods reviewed, it would be much more appropriate to use the Sustainable Livelihood Framework of the DfID as the basic framework of the study. This approach will be fully described in the coming chapter.

CHAPTER THREE: METHODS AND MATERIALS

3.1 Introduction

This chapter is about the conceptual approach and research methodology used in the empirical studies. It gives a comprehensive approach to the materials and methods of the research, criteria for the selection of cases, location and description of the off-reserves of the Ahafo Ano South District, design and approach to the analysis and presentation of the data, as well as the limitations. The methodology includes the qualitative and quantitative techniques used in analysing and presenting data from the field. The conceptual and analytical framework developed in the context of access to forest resources and forest related livelihood conflicts using the Sustainable Livelihood Framework by DfID (1999) as the base is also discussed in this chapter.

3.2 Theoretical and Conceptual Frameworks

Adapting a conceptual framework for this research was very challenging as in all other research in common pool resources. Schlager (1999) tried to outline these challenges when he explained that to enhance precision in our conceptualization of public policy, it is important to distinguish between three conceptual levels: frameworks, theories, and models. At the broadest level, a framework organizes inquiry by specifying the general sets of variables of interest. A framework specifies classes of variables and outlining the relationships between them, providing a kind of intellectual scaffolding that gives a coherent structure to inquiry.

Numerous theories from a variety of disciplines may be compatible with a given framework, and selecting the most appropriate theory or theories depends on the particular phenomena to be studied.

There were several frameworks that came to mind during the research process; prominent among them were the Institutional Analysis Development (IAD) framework developed by Elinor Ostrom and other scholars associated with the Workshop in Political Theory and Policy Analysis at Indiana University, and the Sustainable Livelihood Framework (SLF) developed by The Department for International Development and associated with the work of Ashley *et al.* in 1998 of Overseas Development Institute. Ultimately, the framework chosen was an adaptation of the latter.

The SLF was adapted for this research for many reasons. First and foremost was the fact that the framework had been used for a significant amount research in developing countries but noticeably less research done in relation to common pool resource management as in the case of forest resource conflict (Scoones, 1998; DfID,1999; Ellis, 2000).

The very few researchers who applied the framework in the commons include Shepherd *et al.* (1999) and Warner (2000) based their analysis on actor-centred perspectives. It was, therefore, very interesting for me to use the framework and relate it to forest conflict as the framework offers a conceptual framework for understanding causes of poverty, analyzing relationships between relevant factors at micro, intermediate, and macro levels, and prioritizing interventions for rural settings.

Secondary, this framework was used because, based on the fact that it is holistic and centres on people and community livelihood, it offered a great chance to analyse the relationship between conflict and livelihoods, access to forest resources and how institutional structures work.

Murray explains that the SLF is people-centred, very dynamic in use and works to address sustainability, hence it served as a base to analyse my research (2000: 6).

Last but not the least, the framework is used by a growing number of research and applied development organizations, including the Department for International Development (DfID) of the United Kingdom, the United Nations Development Program (UNDP), Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) as well as non-governmental organizations (NGOs) such as CARE and Oxfam (DfID, 1997; Ashley *et al.*, 1999).

While each organization has its own variations on the framework, emphasizing different aspects, there are many common elements. This was also a motivation for me to adapt the framework and apply it with natural resource conflicts and make comparisons with others who have used the SLF.

3.3 Historical Roots of the Framework

Although the sustainable livelihood approach has been widely deployed as a guiding principle for rural development practice in the past eight or more years, there is no unanimity regarding the origins of this approach. Singh and Gilman (1999), for example, locate the emergence of the “sustainable livelihood concept” in the United Nations World Commission on Environment and Development (WECD) popularly known as the Brundtland Commission after the Norwegian Prime Minister who chaired it even though the notion of sustainability precedes WECD.

Ellis and Biggs (2001) suggest that the SLF originated from strands of livelihoods ideas developed through the 1980s and 1990s by Chambers (1983), Chambers and Conway (1992), Bernstein *et al.* (1992), and from famine analysis (Sen, 1981; Swift, 1989). This notwithstanding, it is clear the sustainable livelihoods approach is firmly rooted in multidisciplinary research, which explains why it has been applicable in multiple geographical regions and sectors.

In the 1997 White Paper on international development, DfID made the ‘sustainable livelihoods framework’ (or SLF) as a back bone to its strategy for pro-poor policy. In the 1980s the concept was in some examples of literature. Its inclusion in the White Paper marked its transfer to the policy domain and also into the academic limelight. A chronology of the history of the framework is in the appendix.

Most scholars of rural development however usually attribute the concept to Robert Chambers at the Institute of Development Studies (IDS). The key reference is the 1992 discussion paper he co-authored with Gordon Conway (Chambers and Conway, 1992). Here they offered a working definition that does not differ greatly from the definition subsequently adapted by DfID,

“A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable which can

cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long-term” (Chambers and Conway, 1992: 7).

This seems to be the most accepted definition and usually cited as it emphasises on livelihoods and sustainability.

In the late 1990s, Scoones at Institute for Development Studies (IDS) centred his work on the institutional processes (formal and informal institutions and organisations) which enable or act as a barrier to achieving positive livelihood outcomes and linked to the five capital asset (Scoones, 1998).

Sen (2001) adds the poverty dimension to the framework and defines poverty as a capital deprivation. The work of Baumann (1999) on political capital must be mentioned when looking at the SL framework in perspective as he added a new dimension of political resources in the concept which hitherto was not taken into account.

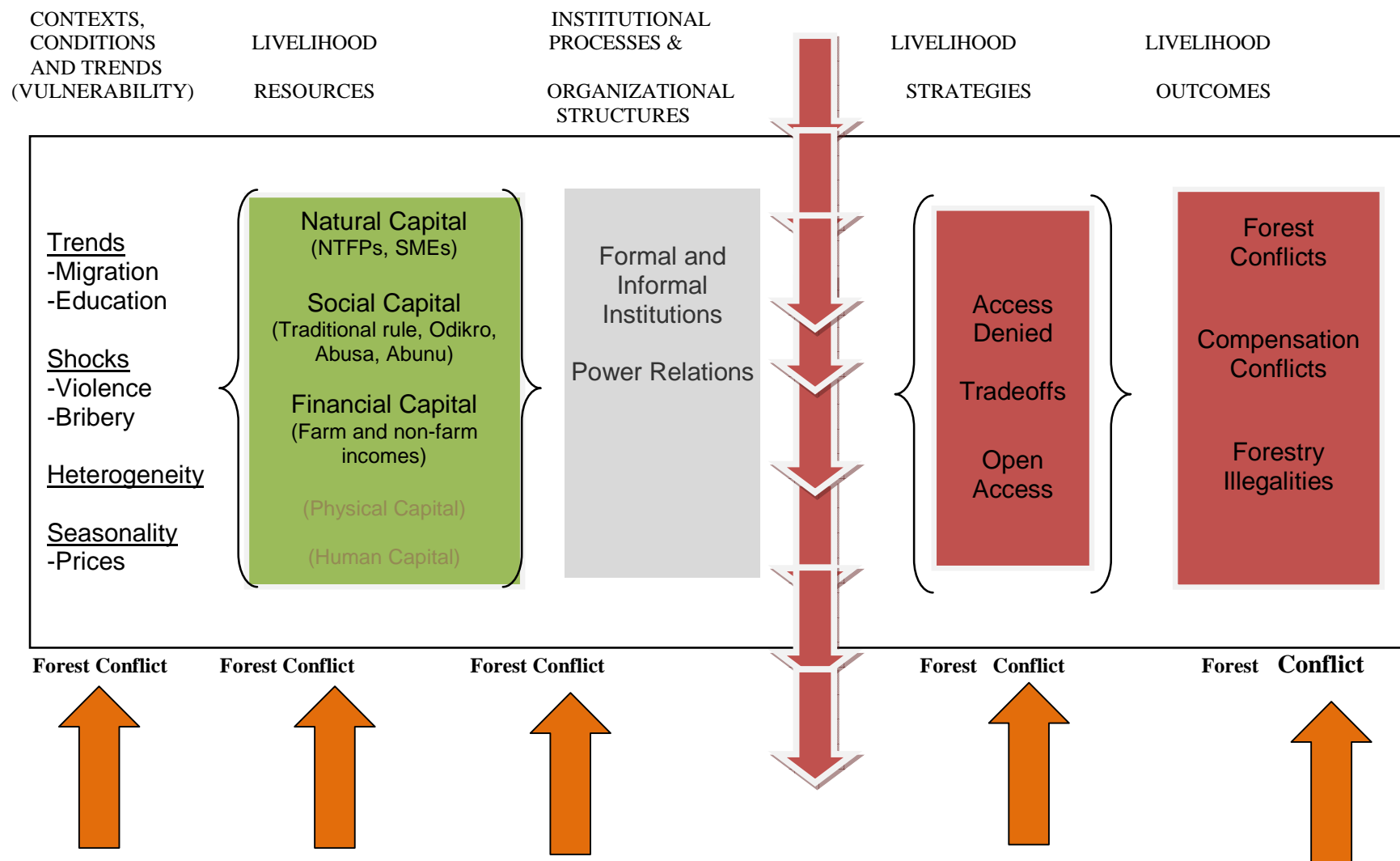
The major concepts of the framework were shaped in 1997 by DfID as:

- I. People-centred: beginning by understanding peoples’ priorities and livelihood strategies.
- II. Responsive and participatory: responding to the expressed priorities of poor people.
- III. Multi-level: ensuring micro-level realities inform macro-level institutions and processes.
- IV. Conducted in partnership: working with public, private and civil society actors.
- V. Sustainable: environmentally, economically, institutionally, and socially.
- VI. Dynamic: ensuring support is flexible and process-oriented.

These principles have brought a lot of different debates and have increased the different schools of thought based on the interests of the researcher or the organisation. There are some interested schools of thought focused on an assets-based approach and are based on the assets of the setting and various livelihood activities undertaken to develop (DfID, 1999; Ashley *et al.*, 1999). Another school of thought interested in sustainability of the environment and household livelihood security based on getting institutional and organisational settings right and the environment is at the centre of the entire process of the framework which guide the questions to be asked towards achieving this end (Scoones, 1998; Baumann, 1999). My research also focuses on the latter school of thought and looks more in depth towards forest governance and livelihood in the studies using the livelihood framework as the base.

The following figure explains the framework for the study which has five areas to look at: *the vulnerability context, livelihood asset, institutional processes and organisational structure, livelihood strategies, and livelihood outcomes.*

Figure 3-1: Conceptual Framework of the Study



Source: adapted from Scoones, 1998; Ashley *et al.*, 1999; DfID, 1999

First and foremost, in the livelihood assets to be looked at was the social capital of the framework. Social capital as a concept is difficult to define, for this reason there is no set and commonly agreed upon definition. The particular definition adopted by a study will depend on the discipline and level of investigation (Robison *et al.*, 2002).

This study defined social capital as assets that increase the non formal institutions in the farmer's environment such as social network, traditional rules and informal groups that influence farmer's access to the forest resources in the off reserves. The social capital in the community included the non formal rule that allows their access to timber and non-timber resources in the off reserve, the social network in the community and reciprocity among farmers in the community. Other social capital in the community included the role of the traditional authority often referred as the Odikro², and activities that support collective actions in the community such as Ndobua³, Abusa⁴ and as well as Abunu⁵. These are some of the social assets in the off-reserve farms that support their livelihood.

The second capital asset to be looked at in my analysis was the natural capital. Natural capital includes the air, water, soil, bio-diversity, landscape, and products from the land. The best way to conserve a community's natural capital is to convert it to other forms of capital in the community of place (Flora, 1999).

Natural capital is also used to refer to the natural resource stocks from which resource flows and services useful for livelihoods are derived. These include land, water, forests, air quality, erosion protection, biodiversity degree and rate of change, etc. It is very important as most farmers derive all or part of their means of living from natural resource-based activities. This is often the case for the poor stakeholders, but also affects the farmers in a more fundamental way, since water quality represents a basis for good health and other aspects of livelihood. Natural capital in the community is characterised with non-timber forest products (NTFPs) and, more specifically, medicinal plants which most of the farmers depend on for their livelihoods in the community.

Arnold (1999) reiterates the relevance of NTFPs for household livelihood, and the work of Julia and Towson (1992) concludes that many forest communities in Ghana heavily depend on forest resources for their livelihood and advocated for the policy reforms affecting farmers' access to NTFPs to be streamlined for sustainable livelihoods of rural communities.

Access to these natural resources in the community was very important for their household income of small scale businesses related to the forest such as woodcarving, baskets, firewood and charcoal among many others, food, housing, traditional medicine and bush meat. The natural resource in the community had direct influence with the vulnerability context as they depended a lot on this resource. Forest conflicts as shown in the framework had an adverse effect on access to this resource. In addition, the formal institutions had criminalised their access to natural resource and this has had a significant impact on livelihoods in the off-reserve.

² Odikro is a Twi nomenclature for the local traditional heads at the village level.

³ Ndobua is a Twi word meaning an exchange of unpaid labour at the community level.

⁴ Abusa is Twi for a local collective action process in the farm where the farmer and landlord equally share cash from the farm; the landlord does not farm, but only benefits from the cash because he has the land and the farmer provides both labour and seedlings.

⁵ Abunu is a Twi word defined as a local collective action process in which the cash is shared in the ration 1:2 between land owner and farmer as the land owner provides the farmer with initial capital to initiate the farm.

Last but not the least analysed in the frame of livelihood assets was the financial capital. This is the last asset used in the livelihood resources in the framework. Financial capital denotes the financial resources which people use to achieve their livelihood objectives. The definition used here is not economically robust in that it includes flows as well as stocks and it can contribute to consumption as well as production. However, it has been adopted to try to capture an important livelihood building block, namely the availability of cash or equivalent that enables people to adopt different livelihood strategies.

There are two main sources of financial capital. These are the farm-related and non-farm-related in the study area. The framework looked at how farmers got money from their farm crops (mostly cash crops like cocoa and plantain) and their relation to non farm income such as income from bush meat, land rented out in the process of Abusa or Abunu and small wood-based rural businesses and how they depended on these for livelihoods. This resource was very versatile and had sequencing and a substitute role among all the other assets since it could affect the other assets both directly or indirectly. The framework established linkages between forest conflicts and livelihoods using the livelihood resource based on the SL framework and this would be discussed in detail in the result chapter.

The next item used in the analysis was the institutional processes and organisational structure in the framework. These are the institutions, organisations, policies and legislation that shape livelihoods on the communities. They are able to significantly facilitate or hamper the development of livelihood strategies and access. This as well looked at the formal and non formal rules and their impact of forest livelihood assets already discussed. Using Scoones's (1998) analytical frame identified context, conditions, and trend, as well as livelihood resources.

The frame peruses that institutions and organizations influence access to livelihood resources. The issue of heterogeneity and forest conflicts was deeply assessed in this unit of analysis. This is due to the identification and review of many organisational structures, as well as formal and informal rules of forest access governance, affected by the issue of political relations and access rights. This could explain Toufique's suggestion that SL framework should be modified to include "political capital", because unequal power relations have influence over livelihood processes of the poor (1999:1, in Shankland, 2000).

The topic of power relation eventually comes up with the existence of "rights-claimers" and "duty-bearers" which is a coinciding perspective seen in my studies as the farmers and timber companies could be described on that level of duty-bearers and right-claimers, respectively.

The institutional process and structures are central and important as they operate at all levels and effectively determine access, terms of exchange between different types of capital, and returns to any given livelihood strategy (Shankland, 2000; Keeley, 2001).

This part of the framework could be called the most important and relevant aspects since institutions both formal and non formal have a lot of impact on livelihood as they make the process function and grant or denial access to resources and the interest of my research objective.

These institutions in my studies recognised the existence of a legal pluralism in the Ghanaian forest context and absolutely restrict people's choice of livelihood access, strategies, and outcomes and manifested by forest conflicts of all kinds and types in Ghana such as

compensation payment, land litigations, multiple stakeholders with diverging interests, open access leading to illegal operations among other and the adverse effects associated with them.

This brings the framework to a halt as shown in figure 3-1 as the subsequent sets of analysis for livelihood strategies and outcome seems unattainable given the forest livelihood situation in the off-reserves. However, for the sake of analysis and interest this set could be reviewed in the SLF.

Livelihood strategies are range and combination of activities and choices that people undertake in order to achieve their livelihood goals.

Hussein and Nelson (1998) propose that livelihood strategies are constructed in three main ways: agricultural intensification, diversification and migration. The key to understanding how the three intersect, is an understanding of how institutional arrangements determine people's entitlements.

These strategies as represented in the framework cannot be attained hence the framework is closed at the unit of livelihood strategies and outcomes because farmers are not able to adapt appropriate strategy for livelihood, due to forest-related conflicts.

The other option could be a renewable of forest governance policies to give much more access to the farmers and avoid the open access trade off or develop a sustainable livelihood system for farmers to supplement dependence on forest resources.

The last element on the framework to be analysed is the livelihood outcomes. These are the achievements of livelihood strategies, such as household income (e.g. cash), increased well-being (e.g. non material goods, like self-esteem, health status, and good living standard), reduced vulnerability (e.g. better resilience through increase in asset status), improved food security (e.g. increase in financial capital in order to buy food) and a more sustainable use of natural resources (e.g. appropriate property rights; reduced forest conflicts and illegalities).

This is a challenge at the moment in the forest fringe communities hence their livelihood outcomes are not attainable and most off reserves characterized by poverty, illegal chainsaw operation and non access and human right abuses.

The framework helped me to understand in detail the livelihood problems of the forest fringe community as well as see the relations with forest conflicts based on the formal and informal rules that operate in the forestry.

However, using the framework also came with some challenges in the processes as the conceptual framework is very holistic and very generic, hence it was very difficult to conceptualise most of the issues in the framework, like quantifying household income, poverty, gender relations and power relations. This affected the process of analyses as it was difficult to quantify and show the link with some of these social concepts in the framework. The framework had not been used extensively on the commons management was difficult to get enough literature on the relations of conflicts and livelihood framework.

Also the use of the framework was not very clear in some applications of local terms and settings and not all terms in the framework could be conceptualised in Ghanaian rural communities, therefore, I have made many adjustments to terminologies such as financial

capital and livelihood strategies. Marzetti (2001) echoes some of these criticisms of the SL framework based on her experience of trying to use the SL framework in Brazil. She suggests that the ‘policies, institutions and processes’ is an area where potential action gets ‘lost’. She found that the term ‘social capital’ could not be adequately translated into Portuguese and so was replaced by the ‘ability to influence policy making’. In defence of the framework as a tool for thinking, it is worth remembering the point made by Neefjes (2000) that it is only a tool and therefore should be adapted as necessary by those who use it.

3.4 Selection of the Communities in the District

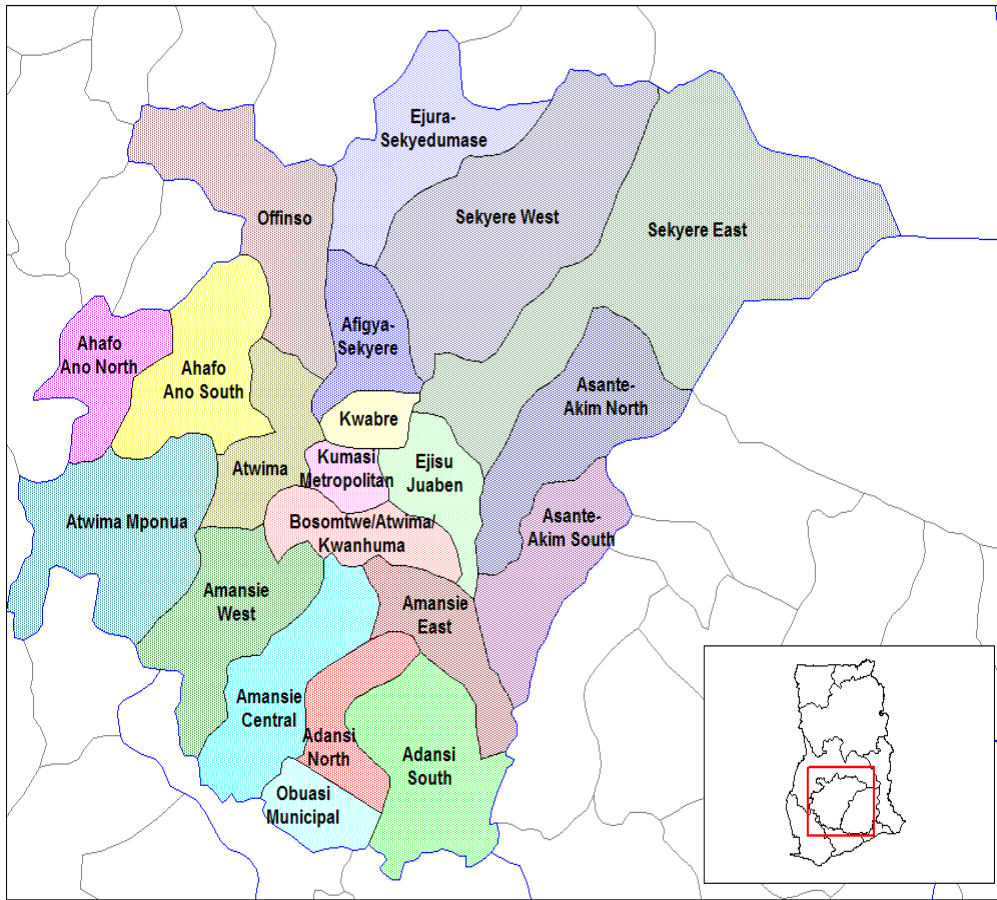
The Ahafo Ano South District is one of the 18 Administrative Districts of the Ashanti Region. It was carved out of the old Ahafo Ano District Council in accordance to the decentralization programme in 1988. The district has a lot of communities; however, few communities were selected for these studies. The Essienkyem, Pokukrom and Asude communities were selected for the case study based on certain criteria and justifications. First and foremost, it was based on their “forest dependence” (Arnold and Byron, 1984). The selected forest communities had forest resources as a major source of livelihood and the competition of access to these forest resources in the area.

The second criteria for the selection of the communities was based on the fact that these communities were off-reserves within the Ahafo Ano South political districts and Tano Offin and Nkwawie Forest Districts off-reserves, and have had past and present forest conflicts (Treue, 2001; Marfo, 2006). Off-reserves, for the sake of the research, mean the forest resource outside the gazetted forest estates and include regenerated farms and fallow lands in the Ahafo Ano South District of the Ashanti Region in Ghana. Forest conflict included all forms of disagreements and violence between timber companies and farmers in the forest fringe communities based on access rights to the forest resources in the study areas.

3.5 Profile of the Study District

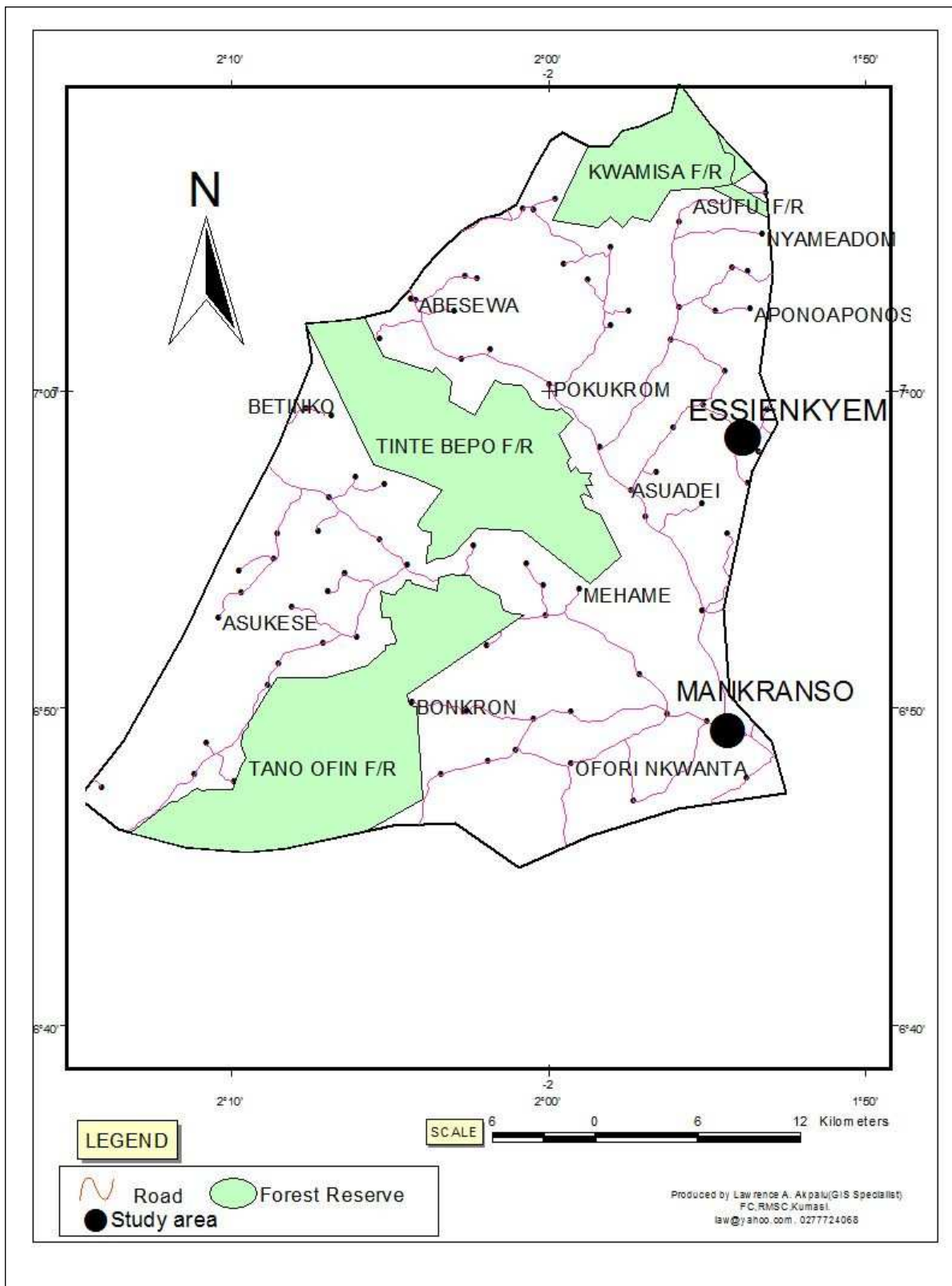
The district covers a total surface area of about 1241 km², representing 5.8% of the region’s total surface area. The district can be said to fall within the forest belt of Ghana. The district capital, Mankranso, is located 34 km northwest of Kumasi, on the Kumasi-Sunyani Highway. The specific off-reserves in the Ahafo Ano South political district where the research took place were Essienkyem, Pokukrom and Asuadei. These off-reserves can be said to be within the Tano Offin and Nkwawie Forest Districts, making the area a much more interesting zone to study. The district is divided into 10 Area Councils and sub-divided into 42 Electoral Areas.

Figure 3-2: A Map of Ashanti Region Showing the Study Communities and Environs



The district is located on latitude $6^{\circ} 42''$ N, $7^{\circ} 10''$ N and longitude $1^{\circ} 45''$ N and $2^{\circ} 20''$ W. It can be found in the north-western part of the region, bordered in the north by Tano District (Brong Ahafo Region), in the south by Atwima District, in the west by Ahafo Ano North District and in the east by the Offinso District, all in Ashanti Region (refer to figure 3-2).

Figure 3-3: A Map of the Study District Showing the Communities Studied



Other major settlements include, Ofori Nkwanta, Bonkrom, Mehame and Nyameadom. These communities are mostly off-reserves as well.

3.6 Relief and Drainage

The study district forms part of the Ashanti plateau. The topography is generally undulating; the most prominent feature is the range of hills, which stretches from west to northeast. The highest elevation is approximately 2500 ft above sea level and these include the Aya, Kwamisa and Tinte Hills. The Mankran, Abu and Aboabo rivers and their tributaries drain the district. Some areas fall within the Offin basin. The persistent clearing of the catchment areas of these rivers and streams for farming purposes has adversely affected their level of flow or volume. They have virtually become seasonal rivers. During the dry season when the rivers and streams dry up, several communities face acute water shortages, as the rivers are the major sources of domestic water supply.

3.7 Climate

The climate of the district is wet semi-equatorial. The mean monthly temperature is about 26° C. Maximum temperature of about 29° C is recorded in March and April just before the onset of the rainy season. The rainfall pattern consists of two rainy seasons. The major season is usually between March and July with June as the peak period. The minor season is between late September and November.

The mean annual rainfall ranges between 150 and 170 cm. Rainfall totals and incidence vary widely from year to year. The number of rainy days average about 100-120 days a year with 75% of these occurring during the major season. The months of December through March are virtually dry (Harmattan period). The relative humidity is high especially in the rainy seasons and early mornings.

3.8 Vegetation

The district lies within the green belt. The majority of the vegetation is moisture-laden semi-deciduous. The typical vegetation is basically determined by rainfall and ground water suppliers. The forest is rich in tropical hardwoods like Wawa, Esa, Kyenkyen, Odum, Kokrodua and Fruntum. The natural vegetation cover has been degraded into secondary forest in areas like Attakrom, Adugyama, Wioso and Mpasaso. Few areas outside the forest reserves have natural vegetation. The causes of deforestation in the district are:

1. Excessive and indiscriminate felling of trees especially by illegal chainsaw operators.
2. Systems of farming particularly shifting cultivation.
3. Uncontrolled bush fires.
4. Illegal chainsaw operations.

3.9 Main Reserves in the District:

1. Tinte Forest Reserve
2. Tano Forest Reserve
3. Opuro River Forest Reserve
4. Kwamisa Forest Reserve
5. Part of Asufufu Shelter Basin
6. Offin-North Forest Reserves

3.10 Major Feeder Roads

The main feeder roads in the district are:

- (1) Wioso-Domiabra-Mpasaso (26 km)
- (2) Fawomang-Sabronum (10 km)
- (3) Kunsu-Dotiem(13 km)
- (4) Pokukrom-Ahwerewam
- (5) Adugyama-Biemso No.1
- (6) Adugyama-Biemso No.2
- (7) Asuadei-Pokuase
- (8) Ahwerewam-Bretue-Sabronum
- (9) Jacobu junction - Asukese

Table 3-1: Maintainable Roads = 215 km

45%	GOOD
40%	FAIR
15%	POOR

Source: Department of Feeder Roads, Mankranso, 2002

Table 3-2: Non-Maintainable Roads = 205 km

12%	GOOD
30%	FAIR
58%	POOR

Source: Department of Feeder Roads, Mankranso, 2002

3.11 Demographical Characteristics

The total population of the district in 1984 was 81,828. However, the population of the district in 2000, according to the 2000 population and housing census was 133,632, representing about 3.7 percent of the region's total population of 3,612,950. The current projected population of the district is 142,046. Males constitute 55.2 percent and females represent about 44.8 percent. The gender ratio stands at 123.2 males to 100 females.

Using 1984 population as the base year, the annual growth rate is estimated at 3.1 percent. This growth rate is considered to be high compared to the regional rate 2.5%.

The district has an increasing population due to high fertility, low mortality and high immigration rates characterised in the area.

3.12 High Population Density

Ahafo Ano South District has a total land area of 1241 sq.km. However, the population of the district has been increasing at an alarming rate over the years. The following table shows the population density over the years.

Table 3-3: Population Densities

YEAR	TOTAL POPULATION	POPULATION DENSITY (SQ KM)
1984	81,828	65.9
1990	95,643	77.1
1995	111,678	90.0
2000	133,632	107.6
2002	142,046	114.5

Source: DPCU, Mankranso, 2002

Though the district is not overpopulated in terms of the number of people per square km, its population is quickly growing. The rapid growth is the result of a high birth rate and a considerable reduction in the mortality rate. The population growth rate is putting increasing pressure on the district's limited social infrastructure and other resources. It is, therefore, imperative to realize the importance of population programmes to balance the size of population with available resources.

3.13 Age Distribution

About 47% of the district's current population falls within 0-14 years whilst 15-59 year-olds constitute 40.5% of the population. The elderly, i.e. 60 years and above, make up 12.5%. This shows a high dependency ratio of 1:1.5. This is a major cause of rural poverty and deprivation as several households are unable to meet their basic needs such as food, health, education and clothing. Another implication of the youthful population is its potential to grow rapidly.

3.14 Household Characteristics

A household consists of a person or a group of persons, who live together in the same house or compound, share the same housekeeping arrangements and are catered for as one unit. The district has an average household size of 7. This figure is larger than the national average of 5, an indication that population management programmes have had little or no effect on the district's demography. The households are mainly headed by men.

In the district, 54.8% of households claim ownership of the dwelling units they occupy, while about 35.2% live in rented premises either for free or for a fee. Only 1.3% (252) of households lives in dwellings, which are public property, while private employers own 5.7% (Population and Housing Census, 2000).

Given that the average household of 7 is a mix of parents (head of household with or without spouse), children and other relatives, the ideal situation would be an average of 3 rooms per household. However, the existing situation in the district provides a picture of overcrowding or inadequate sleeping quarters, particularly when personal property occupies a sizeable portion of the sleeping rooms.

Table 3-4: Source of Cooking Fuel

Fuel	Frequency	Percentage
Charcoal	178	0.9
No cooking	608	3.1
Wood	17,208	89.6
Coconut Husk	29	0.1
Gas	87	0.4
Electricity	21	0.1
Kerosene	300	1.5
Other	769	4.0
TOTAL	19,200	(100%)

Source: Population and Housing Census Report, 2000

Table 3-5: The Structure of District Economy

SECTOR	PERCENTAGE OF LABOUR FORCE
Agriculture	63.2
Service	11.6
Industry	18.4
Commerce	6.8

Source: Population and Housing Census Report, 2000

Table 3-6: Major Crops in Metric Tonnes in the District

CROP	YEAR			
	2002	2003	2004	2005
Maize	13,447	13,447	13,468	14,221
Rice	2767.8	2,779.8	2,789.7	2,875.49
Cassava	102,612	103612	104,570.57	107,250.75
Yam	239	239	240.03	241.02
Cocoyam	92,223	92,224	92,217.62	90,147.2
Plantain	57,030	5,7530	57,975	58,969.9

Source: PPMED (MOFA), KUMASI, 2006

3.15 Data Collection Design and Process

3.15.1 Research Process

The case study approach was used in this research. In a case study, a unit is at first studied and explored to explain the complex behavioural pattern of the social milieu. According to Yin, “case study research excels at bringing us to an understanding of a complex issue” (1984). Based on the established parameter, case studies usually emphasize detailed contextual analysis of a limited number of events or conditions and their relationships. This approach to research has received criticism as they are inductive and small cases, and can be used to generalise.

However, it is still widely used in social investigations. I decided to use case study for this research because of the given time of my research and also the behavioural and complex nature of forest conflicts in Ghana. Moreover, from the introduction of the study I had an established and clear objective on forest conflicts and livelihood and to be applied to the study.

The case approach was conducted in the Essienkyem, Pokukrom and Asude off reserves of the Ahafo Ano South District of the Ashanti Region of Ghana to explore and analyse how formal and non formal rules and regulations influence forest conflicts and the impact of forest conflicts on forest fringe livelihoods. The case study approach was used and the communities were as set up for the studies because the study was exploratory and needed new knowledge on how timber companies’ forest conflicts related to livelihoods in the off reserves as an environmental problem in the district’s context, and above all describe the situation.

3.15.2 Unit of Analysis

In 2001, Bacho justifies the concept of unit analysis in these words, “In the study of any social phenomenon, it is perhaps safer to think of a giving unit of analysis to embody several other sub- social units”. It becomes the major entity of the studies. The unit of analysis of this study was farmers and timber companies operating in the off reserves. It also included some actors that were identified during the field work, such as chainsaw operators, the odikros, the district planners and some staff of the forest services division. Though all these actors were investigated, the major unit for the analysis was the farmer and timber operator, and the conflict situations between them as well as the impact on the livelihoods of farmers. The independent variables used in the research included the ownership titles of the farmers and their dependencies on forest resources for livelihoods and the concessions utilizations of the timber operators in the off-reserves.

3.15.3 Sampling Size

This research was purely qualitative and as this kind of research aims to provide an in-depth understanding of the world as seen through the eyes of the people being studied, I did not consider a large sample size. Given the time set of the research, I could not have taken a larger sample size for the studies. Knowing that the determination of sample size is a common task for many researchers and an inappropriate, inadequate, or excessive sample size continues to influence the quality and accuracy of research, I decided to do sampling of the farmers to be interviewed.

I used the stratified random sampling method which involved categorizing the farmers of the study district into mutually exclusive and collectively exhaustive groups. An independent simple random sample of the farmers was then drawn from each group. I did this by categorising the farmers into farmers in the off-reserve areas, those who had timber resources and non-timber resources on their farms and those who have had past and present forest-related conflicts on their farms. In the end, I took a sample size of fifty (50) farmers in the off-reserve communities for the research. The techniques provided a more precise estimate for the off-reserve community population being surveyed as they were heterogeneous and also helped in the statistical analysis of the research process.

3.16 Sources of Data for the Research

The data collected were mainly from two sources, primary and secondary. These were based on the research objectives.

3.16.1 Secondary Data

This source of data was collected to attain the first research objective which was to understand what were the existing formal and customary rules governing local people's access to forest resources and their implications on forest conflicts.

The main source of data collected to understand formal access rights to forest resources, and regulations on forest benefits were mainly based on existing secondary literature in Ghana. This was information, collected from already prevailing formal rules and tenure arrangement from acts and laws of the forest and land commissions, administration of stool lands and what other researchers and environmental organisations such as Tropenbos Ghana and Forest Watch, among others, have written on forest access rights and benefits in off-reserves of Ghana. A study of this documentation was thus used to understand these rules and regulations and how they relate with livelihood forest conflicts (Kasanga, 1988; Agyman, 1994; Benda – Beckman, 1996; Ayling *et al.*, 1997; Da Rocha *et al.*, 1999; Inkoom, 1999; Boni, 2003; Marfo, 2007 and 2009).

Secondary analysis and reviews involved the utilisation of existing data, collected from prior studies by researchers in order to pursue the first research interest and in relating it to informal and customary rules, the case study area's traditions and customs were also taken into account.

Some additional secondary data was collected from the Ahafo Ano South District Planning Unit, The Nkawie District Forest Services Division of the Forestry Commission, journals, documentaries and newsletters from Ghana.

3.16.2 Primary Data

The second research objective was to find out how forest conflicts impacted on local people's livelihoods in terms of social, financial, natural and physical capital. Primary source data was collected from the off-reserve areas and identified the informal institution in the study area.

Data from this source of research centred on the conflict situations between farmers and timber operators in the study area, taking into account both past and present conflicts.

Primary data were collected on farmers main source of livelihoods in terms financial assets such as household incomes, natural assets in terms of land, water, NTFPs, social assets like migration, social safety network, health assets and physical asset such as roads in the off reserve area and how timber companies influenced their livelihood assets. Most primary data were collected using Participatory Rural Appraisal (PRA) tools such as semi-structured interviews, participant observation and transect walks.

Figure 3-4: Pictures of Researcher Interacting with Farmers in the Area



To collect more primary data from the field, there was a recognizance survey taken during the first day in the field to preliminarily understand the research terrain and environs and help map up the procedure for the field interview.

These pictures were taken during the first day of the field visit and the recognizance survey to understand, first hand, the living situations of farmers and their livelihood sources, as well as, listen to their side of the livelihood story.

3.17 Method of Data Collection

3.17.1 Semi-Structured Interview

One of the key devices used in gathering information during the research was structured interviews. According to Ghosh (2000), structured interview is a systematic method of field investigation whereby a person formally meets his/her respondents and through the interaction he asks specific questions to find answers to his research problem. He further affirms that it is the best method of data collection in social research.

In the research, I used semi-structured questionnaires for most data on informal institutions on forest access in the off-reserve areas and as well their livelihood assets and problems. The questionnaires used in this research were prepared and coded before the field work as shown in the appendix page in order to facilitate easy coding and gather categorized data for analysis. However, most questions were open-ended as I wanted to listen to the farmer's livelihood strategies.

These questions primarily focused on their conflicts based on access, farmer's benefit of forest resources in the off-reserves and how forest conflict affected their livelihoods. There

were sets of questions following a similar order for timber companies and forest officers in the area.

In all, I administered fifty (50) questionnaires to the farmers as respondents. For the sake of time, other methods used for the studies and resources given at the time of the research, I used only twenty-five (25) questionnaires for the analysis of the problem. The farmers who were interviewed were from the Essienkyem, Pokukrom and Asude off-reserves of the Ahafo Ano South District. The interviews were conducted in their households and on their farms.

The advantages in using this method of data collection included easy standardisation of results through tabulation and some form of easy analytical process, as most of the questions were pre-coded. Also, as I could understand the local dialect (Twi) in the area, I had valid and reliable data from these interviews and two local research assistants also supported in this process. Above all, the method created a learning environment for both the interviewer and the interviewees as there was a lot of information sharing during the interviews.

The problems encountered in using the questionnaires included, a lack of funds to print more questionnaires to cover more respondents and some of the questions, according to respondents, were difficult to answer and they claim the whole process was time consuming. Finally, some women could not answer questions in the presence of their husbands, especially those interviewed at the household level.

3.17.2 Focus Group Discussions (FGDs)

A focus group discussion is an organized informal discussion between the researcher who usually serves as a facilitator and a group with a maximum of 12 participants. According to Kumephor (1999), FGDs allow for expression of views, opinion and counter opinion on attitude, beliefs and practices. I prepared a checklist of topical issues on the research and discussed with farmers who have had past forest conflicts. In each community visited, there was an organized focus group discussion among the farmers.

This tool gave the farmers an opportunity to express their views on how timber companies have affected their access rights and livelihoods in general. This tool helped the researcher to familiarize with the farmers as it created an “enabling and a conducive environment for all to discuss”. It also helped me to better understand the problems of these farmers when they described what they faced in detail.

The problems I had in using this tool were how to organize each study area for the discussion. It was almost always difficult to bring these farmers together, as they were always busy on their farms and in the evenings had less time as they were doing something at all times. Also, there was no easy avenue for these discussions as the communities lacked community centres.

3.17.3 Participant Observation

This is one of the Participatory Rural Appraisal (PRA) tools used during the research. Twumasi defined this tool as “a method of data collection whereby the researcher goes to live and participates in the daily activities of the people he is studying” (2001).

I took transect walks and critically observed all the activities in the communities, mostly on their farms and fallow lands. I observed their livelihood assets such as roads, shrines, water bodies, non-farm income activities and their social interactions as well as some concessions of timber companies.

This PRA tool was very relevant in the process of the data collection. It offered me the opportunity to look like a “rural off-reserve farmer” and truly understand their situation as I was with them on their farms and households in the field. I came to understand the matrix of the social settings and could easily crosscheck data on the field.

The problems posed by this method included; issues of note taking in recording most of the observations, as I could not observe and simultaneously make notations. Alongside the PRA tools, I tried to use my own thoughts and views on what I saw as I found it difficult to explain what I observed in social terms. As a result, I had to avoid infusing personal and subjective ideas in my observations of these rural farmers and their livelihood activities. During this process, I found it became difficult to disentangle the truth from the opinion.

3.17.4 Data Analysis

After the collection of the research data, analysis, interpretation and presentation were necessary to make the research process complete. Data analysis was made with reference to the research problems and objective. The first step in the analysis was critical examination of the assembled raw data from the field; in other words, not to let the data “remains meaningless heaps of material” as Young explained (1949).

Data collected was classified after the collection process. These categorisations were based on the formal and informal rules on access and benefits of farmers, how these two rules clash, the livelihood assets of the study area and how forest conflicts affect livelihoods of farmers in the study area. After the categorization, the next method of analysis was the coding of the data. In coding, the data were translated into symbols since the some of the questionnaires were pre-coded, it facilitated the coding process.

Thematic areas coded included formal and informal rules on access to off-reserve forest resources, sources of livelihoods in terms of social, physical, financial and natural capital as well as how conflict directly or indirectly affected these livelihood assets.

I used the Statistical Package for the Social Science (SPSS) data set to analyse quantitative data after the coding. This was based on the fact that many social researchers have adopted this tool for most social research (Landau *et al.*, 2004).

The SPSS is an integrated system of computer programmes designed for the analysis of social science data.

3.17.5 Data Presentation

After the analysis of the data, the data were presented in the form of tables and charts as well some descriptions. The statistical presentation helped to identify the central tendency (frequencies) of the research findings and also some distributions and averages on access and livelihoods impacts of forest conflicts.

3.18 Limitations of the Research

The research work was limited in several aspects. The researcher, however, tried to manage some of them. These limitations were:

Firstly, there was no full funding sourced for the research to enable a broad base research. Therefore, the researcher had to adopt a case study approach and sampling techniques to cover the entire study district. This financial constraint made the research work very difficult as the study required substantial funds to print questionnaires, community entry protocol observations, transportation and other logistics of field work.

Secondly, it was very difficult to get timber companies and chainsaw operators to make themselves available for discussion to get their side of the story. This was solved later with the help of the forest officers in the area who gave some contacts to reach timber operators to interview.

Finally, the factor of time also affected the smooth running of the data collection process. The data collection exercise coincided with the farming season; therefore, most of the people were tending to their economic activities. Related to this matter of time is the issue of punctuality, whereby most of the respondents failed to come at the set time for interviews and discussions. To deal with these factors, the researcher went to the field early morning when all the household members were present.

CHAPTER FOUR: FIRST OBJECTIVE RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents an analysis of the results and discussions from the empirical research based on the first objective of the research. The first section evaluates the formal and informal institutions of Ghana and how they have influenced access to land, timber and forest resources in the studied district in relations to benefits from these resources for rural livelihood.

4.2 Formal Institutions Affecting Access to Timber Resources in Off-Reserve Areas

In the following section a general overview and analysis of a body of rules, legislation and regulations that govern forest access in Ghana's off-reserve areas and the management of the forest and its resources are presented. Most of the institutions discussed here are state-based rules and laws that have been in operations since the forest gazettement started at the time of the then Gold Coast until today's current Ghana.

The table was created based on legal and formal literature reviewed and some critiques of the various formal institutions implemented from the era of the colonial-gazetted forest reserves creation to the current forest regulation on access and benefit of forest fringe communities in off-reserves.

Table 4-1: Chronological View of Some Formal Rules Affecting Forest Fringe Communities in Off-Reserve Areas in Ghana

Name of Rule and Policy	Year of Enactment and Operation	Content	Effects on Access Rights and Benefits of Farmers in Off-Reserves Areas
Timber Protection Ordinance No. 20 of 1907	1907	The first colonial law concerning timber production.	Prohibited the felling of immature trees of certain high value.
Forest Bill and Ordinance	November 9 th , 1911	Colonial Secretary claimed forest rights from indigenous in Gold Coast starting from the 1910 forest bill.	Colonial Secretary grants concessions, leases and licenses on behalf of the traditional owners of the land and restricted their right to gather forest products.
Land and Native Right and Forest Ordinance (CAP157, Section 4)	1927	“Native and Non-Native Lands” and Principle law of forest reserves defined.	Regulate “tribal lands” and forests for the benefit of the people. Criminalising the rights of locals with numerous offenses related to livelihoods.

Concessions Ordinance (136 section 30 and Timber Restriction Order, No.55)	1939	Regulates the grant of timber and land.	CAP 157 applied mutatis mutandis to offer reserves' land.
The Forest and Wildlife Policy and Trees and Timber Ordinance No.20 of 1948 (CAP 158)	1948	Government manages reserves and wildlife and regulates the timber industry.	Off-reserves converted to agricultural land for cocoa and systematic removal of all known timber species in off-reserves.
Administration of Lands Act, Act 123,124, 125,	1962	The state grants mining and timber rights of all stool lands.	State acquires land irrespective of land holding interest. All revenue is collected by the Administration of Stool Lands on behalf of the stools.
Trees and Timber Decree 1974 (NRDC 273)	1974	The Forestry Department to divide Ghana into districts and allot each district a locality mark.	The district forests were not created based on local existing traditions and structures and had more economic criteria without specific mention of the people and plants involved. Section 16(1): power to arrest without a warrant of locals who break offences.
Constitution of Ghana	1992; came in to effect in January 7 th . 1993	This gave birth to new forest law and regulations that defined benefit-sharing of forest resources and how to sustain the remaining forest for the future.	The new constitution looked at land rights, new reforms on benefit-sharing of revenues to include the traditional authorities, but little is mentioned regarding landowner and tenant benefits.
The 1994 Forest and Wildlife Policy	November 24 th , 1994	The policy provided a good strategic framework for actions within the forestry sector, enhanced conservation and allowed for minimal participation of local people.	The policy alienated actors, particularly forest owners and the traditional authority, in the consultative process and did not take into account the full participation of forest fringe communities.

Interim Measures to Control Illegal Timber Harvesting Outside Forest Reserves.	1995	Laid out procedures for felling of off-reserves, in terms of inspection by farmers, issuance of logging rights by the commission, post felling inspections and certification of conveyance.	This introduced a new system for the harvesting of off-reserve timber launching the farmer's right of veto and payment of compensation for crop damage. Non-timber forest products (NTFPs) are not mentioned.
Timber Resources Management Act (547)	1997	Timber rights granted under Timber Utilization Contracts (TUCs).	Gave more rights to local people, but rights to grant TUCs are still held by the Forestry Commission.
Timber Resources Management Regulations (L.I. 1649)	1998	Introduction of TUP (Timber Utilization Permit), terms and conditions of TUCs, granting timber rights, calculations of stumpage fees, registration and use of chainsaws, salvage of timber products.	Participation of the forest fringe communities is still minimized. Section 34 places landowners into non-accessibility of timber.
MoPs Section F, Controlled Timber Production Off-Reserve	1998	The focus was on managing and controlling of off-reserve logging, to regulate uncontrolled harvesting and enhance the collection of relevant fees.	An important aspect of the MoPs is the Social Responsibility Agreements (SRAs) which is not strictly implemented in most off-reserve operations with regard to laid out codes of conduct, social obligations and resource development.
Timber Resources Management Act (amendment) (Act 617)	April 18 th , 2002	Focused on the duration of timber and timber rights, incentives for investment and avoidance of expropriation.	Disqualification of illegal timber operations with much emphasis on foreign investment.
Timber Resources Management (Amendment) L.I. 1721	2003	Supported the competitive bidding process.	Section 13 (10) of the L.I. 1721 includes a lottery to allocate TUCs on competitive bidding. Consequently, the process becomes less transparent and fair.

Own construct based on Nii, K. (1998), Dominic, A. (2008), Treue, T. (2001) and Forestry Laws Simplified, (2003).

From the review of the state and formal institutions, the main tenure issues identified were based mainly on land tenure regulations, of which the forest fringe communities had some level of control. However, all the rights to the resources were vested to the president represented by the Forest Commission.

Access to timber rights and benefits from timber resources were granted by the Timber Resources Management Acts. Their subsequent amendments and reviews of other policies defined different access rights to permit, refuse, restrict, deprive or forbid, as well as give access with conditions. These can be clearly defined by the various actors in order of influence in the off-reserve areas: the Forest Services Division, Traditional Council at the uppermost level, the District Assembly, Stool Heads, Landowners and Tenant Farmers, respectively. The guiding rules for these access rights are based on if the timber resource is naturally grown for commercial use or non-commercial use or if self-planted. The majority of the existing rights are based on colonial trajectory that will be discussed more thoroughly below on the institutionalisation of the forest and the denial and criminalization of rights of access and benefit to local people.

From the chronology of the formal institutions in the Ghanaian forest, it becomes clear that the surplus of institutions are as result of colonial attempts to institute statutory laws, orders, rules, and regulations to govern the use of resources ranging from forest, minerals and land to other natural resources found in Ghana.

The earliest colonial authority began institutionalisation with the then called “Crown Land Bill” of 1894 which tried to usurp traditional indigenous rights and customary land tenure practices, and appropriate indigenous land. This same phenomenon seems to be reflected in the current access to land and forest resources in off-reserve areas.

The Ghanaian forest laws and rules differentiate between what is called forest reserves and off-reserves. This division started with forest reserve gazettement introduced in the Forest Bill and Ordinance in 1911 and later advanced by the Native Authority Ordinance No.18 in 1927, which upheld the declarations of off-reserves as well. Off-reserve areas are defined as all forest areas that are outside that which had been gazetted.

In the colonial parlance, off-reserves were termed “waste “and “uncultivated” forest land in the colony. Because there was no need for its sustainability, the people living in the off-reserves were also not taken into account in any laws formulated.

This colony approach made the formal institutions more extractive, still evident in the timber operations in off-reserves in Ghana today, as they are more extractive than productive.

As seen from the history of forest policies, the first policy affecting off-reserve areas in 1948 was most likely one of the policies that established a more progressive use of the off-reserve timber resources. However progressive this policy was, it neither attempted to sustain the resources in the off-reserve areas nor provided for the benefits of the future generations of communities living in these areas. Despite these characteristics, the 1948 forest ordinance

remains one of the core forest laws of Ghana's older edicts which did not seek to sustain the lives of forest fringe communities and their means of living.

Most of the formal institutions reviewed did not take the off-reserve areas into account since most of the laws were more focused on the reserve areas and how to maximize the utilization of the timber industry on these forest reserves.

The off-reserves areas in Ghana originate from trees retained or nurtured by farmers for sustenance. Although these areas were not generally taken into account, they function as an important source of timber for the timber companies, contribute to the national annual allowable cut and in the 90s contributed to log production to a degree that total logs produced increased by 70% (Forestry Department, 1999).

Moreover, the livelihoods of the forest fringe communities and their future generations depend highly on the off-reserves areas since they serve as a great source of their livelihood assets and are strategic in most rural areas. Byron and Arnold (1999) echo this point when they explain the role of the forest in poor people's livelihoods.

Falconer (2002) and Townson (1995) further detail the contribution of NTFPs to rural livelihood in Ghana. They explain that most people in forest fringe communities depend on these resources for their livelihood. Asibey (1986, 1987) calculated that 80% of rural people in Ghana depend on bush meat and other forest resources in off-reserve for their livelihoods. Other sources support the claim that forest fringe communities in Ghana depend on off-reserves for their household livelihoods. Although access to these resources have been proven to be vital to forest fringe communities, most policies and rules over the past decades in Ghana do not direct much attention to the role and rights to access and benefits of the landowners, tenants and the poor, marginalised farmers outside reserves.

History explains the current colonial trajectory and the disconnection between forest policies and people in the forest areas. Most of the forest laws passed resulted in the criminalization of the rights of farmers, landowners and tenants. The forest and all its resources are treated as belonging to the state and, on these grounds, most of the laws passed successfully transferred the access rights and benefits from the occupants of stools and customary owners of the timber rights to the president, on behalf of the "stools" and "skins".

The formal institutions were designed to control accessibility of reserves and off-reserve areas and terminated the rights of local farmers to the off-reserves. Their rights were termed as "vague claims and really illegal" (Mayer and Nii Ashie Kotey, 1996).

Mayers and Nii Kotey (1996) further explained that the tenure system is as a result of tradition, as well as colonial, political, social and economic dynamics. The institutionalised land and timber laws nationalised production of reserve forest lands and commercial timber in off-reserve, placing them in public domain and alienating rural farm families' and landowners' rights. Property rights were taken by the central government, which now disposes all forest rights. No other government has expanded its jurisdiction by allocating forest harvest rights to the extent that Ghana has, increasing its open access problem (Preprah, 1982b:11-170).

It is clear that the formal institutions restrict access and benefit to forest resources in Ghana. For example, the CAP 157; Section 22 incriminates any person who is present or fells, uproots, lops, damages by fires, cultivates farm or even erects any building in a forest reserve without the written consent of a competent forest authority. It goes on to include offences such as obstructions of the channel of any river or canal and trespassing of pasture cattle as liable to a summary conviction with a fine not exceeding 500 penalty units, imprisonment not exceeding two years or both.

Other laws outlined criminalised any act or attempt by forest fringe communities to access forest reserve without any formal consent of the state body. Such infringements of the law would be considered criminal and end in arrest without a warrant by a forest officer.

Most forest policy analysts have argued that the step towards regulation of the situation of off-reserve timber resources has been the introduction of Interim Measurements in the mid-1990s. This Interim Measurement laid out procedures for felling of off-reserves in regards to inspection by farmers, issuance of logging rights by the commission, post felling inspections and certifications of conveyance.

The Timber Resource Management Act (Act 547) was passed in 1997. With the passing of this act, off-reserve timber trees have been institutionalized. This has been furthered by the endorsement of the Timber Resources Management Regulations (L.I. 1649) in 1998 and the amendment of the Timber Resource Management Act in 2002 (Act 617). Although these legal measures have influences the issue of access rights and benefits to forest resources in off-reserves, their implementation procedures are not fully taken into account. As a result, the level of participation of farmers and tenants in these news institutionalisations of the off-reserve forest does not have as much influence on change, leaving the local people with low levels of participation and minimally enhanced benefits in the process.

The restrictions of forest fringe communities were based on access, as well as benefits of forest resources that were due them such as compensation payments, benefits of forest revenues accrued from royalties and social responsibilities agreements from timber operations.

According to Amanor (2004), the past and existing formal rules in the forestry sector do not provide an acceptable framework for equitable sharing of forest resources and the benefits that they provide nor do they intend to sustain resources in the off-reserve area. Rather, they enable and justify the appropriation of the benefits of forestry to a narrow sector of society; to the rich, powerful and politically well-connected, which usually include timber companies, forest officers, politicians and some traditional authorities, but exclude the farmer and tenants from benefitting from the off-reserve area.

This problem is so evident that Wily *et al.*(2001) concludes that laws on revenue sharing from stool lands are contradictory and fail to protect the local people. Marfo (2001) explained that the social responsibility agreements did not have any benefits for forest communities.

According to Opoku (2005), the forest policies and laws did not establish legislative programme for benefit-sharing and participatory resource management. Bilijo (2005) claims that poor post-independence policy-making is a result of the weak administration and post-

colonial legacies in Ghana's forest laws and policies. Consequently, colonial tendencies such as extractive attempts, excessive centralisation, complex bureaucracies and extensive disregard for local people are widespread.

In that perspective, one can conclude that there is an institutional problem in the forest sector and, most particularly, in the off-reserve areas of Ghana, as the focus of most laws and rules were centred on timber and forest resources and not the people and their livelihoods. The effects of these formal legal challenges have increased the open access problems (Bromley, 1991).

There is an increasing rate of chainsaw operations leading to an estimated 46% of the total timber harvested in 2001 (Birikorang). The World Bank and FAO claimed in 2005, since 2003 Ghana has lost approximately USD \$12.8 million of forest revenues to illegal chainsaw operations.

Moreover, 90% of Ghana's forest had been lost since 1940 (Asibey and Owusu, 1988). Rice and Counsell (1993) add to the evidence of institutional weaknesses leading to a growing deforestation rate of 2%. Over logging is a serious threat in Ghana's forest, the annual cut rate is 1.6–2.5 times higher than the optimistically calculated sustainable cut (World Bank 1988: cited in Sayer *et al.*, 1992).

Most off-reserves lack of tenure to land, timber resources and non-timber forest products along with inadequate compensation by concessionaires for damage to farms, have created a deterrent to plant or protect timber trees, as well as a strong motivation to destroy them before the concessionaire can harvest them or will end up collaborating with the chainsaw operator as this might offer higher payment.

Most recent research findings support this claim by farmers. The exclusion of the farmer from any rights or benefit from the timber has resulted in rapid forest degradation (Boni, 2003). Dudley *et al.* (1995) also support this discourse and relate forest farming and timber trade as the major cause of deforestation in their report *Bad Harvest*.

Shifting cultivation traditionally is the practice of most forest fringe communities as an approach to livelihood and this accounts for up to 70% of deforestation. Fuel wood and charcoal consumption account for 75% of all energy consumed in Ghana. The World Bank (1988, cited in Sayer *et al.*, 1992) estimated that in the period between 1986 and 2000, fuel wood consumption would rise about 2.8% per annum, compared to a decline in wood availability of 0.7% per annum. As fuel wood mainly comes from natural ecosystems, wood resources will become scarcer outside protected areas and pressure for wood within reserves will continue to intensify (Owusu *et al.*, 1989: cited in Sayer *et al.*, 1992).

This finding explains how the situation for forest fringe communities and rural tenants in their attempt to sustain their livelihood end up contributing to the loss of forest.

Forest- and land-tenure systems established by decree of the colonial masters and the various governments later accentuated through formal institutionalisation of the forest and executed by concessionaires have led to conflicts with local communities, despite the fact that the formal rules relating to land and tree use is intended to reflect the public interest in natural resource management.

The most serious consequences of these systems have been the numerous clashes of formal and informal rule leading to conflicts. Based on the Glasl conflict model from 1994, which emphasises the impairment of actor “B” by another “A”. This model applies in Ghana’s formal and informal rules with formal rule acting as actor “A” impairing informal rule, or actor “B”, usurping the rights of most traditional rules and rights of access.

The next discussion looks at some of the informal rules that influence access in off-reserve areas and how these interact with the formal rule and influence forest conflicts and livelihoods. It also presents some empirical results from the field, based on the research findings.

4.3 Informal Institutions’ Access to Timber Resources in Off-Reserves

Informal rules and institutions are all forms of rules, assets, culture and local terms of agreements that exist within a society. In Ghana, there are a lot of informal institutions participating in the management of forest resources, which will be categorized into access-based institutions, benefit-oriented institutions and sanction- and punitive-oriented institutions for the sake of this study.

Most of these informal rules are socially constructed and include the traditional system of inheritance and ownership, the traditional political systems characterised by the chieftaincy institution, local norms, values, taboos, social assets such as the social safety network, *abusa*, *abunu*, *ndobua*, *dwantoa* and informal sanctions that were meted out on those who broke local rules set by authorities during the course of history.

Before the formalisation of forest resource use and protection by the colonial masters, there were several local governance institutions that were culturally set up to manage forest and other natural resources. These institutions were later replicated by the post-colonial administration.

Traditional and customary rule had been in existence and functioned as such before colonialism. The later institutionalisation of this same existing informal rule led to a system of indirect rule and an extension of colonial regimes as a means to extract resources. The indirect rule was created because of the strength of the pre-existent informal rule and its importance in sustainable management.

The models of modernisation theory and change of rights by colonialists were meant to replace a traditional ‘backward’ rule that existed during pre-colonial times. Within this modernisation framework, customary land tenure was viewed as outdated. It did not provide individual farmers with secure and tenurial rights to land. Eventually, there was an accommodation between these approaches, which has resulted in the incorporation of a framework supporting the recognition of customary tenures within the evolutionary theory of property rights (Deininger, 2003).

The traditional land holding authorities held allodial titles on behalf of the communities. The customary land tenure system was based on values and norms of the particular forest fringe community (Meyer *et al.*, 1996).

Kasanga (2001) further explains that the customary rights were not subject to a hierarchy as most local people in the community had access to land and because, at that time, land was not commoditised. Land was culturally managed by the landowners who were made up of stools, skins, clans, families, tindanas and farmers. Their rights were usurped by the new institutionalisation and criminalisation of their access rights to land and its resources.

This lack of recognition of customary or informal arrangements results in land relations being largely unregulated and subject to a large number of abuses by both chiefs and bureaucrats, since there are few avenues through which people can gain access to land. This has enabled the customary authorities to engage in the multiple selling of land plots, since their transactions are largely unrecorded within the state system (Antwi *et al.*, 2003).

Meyer *et al.* (1996) pointed out that traditionally, timber rights were vested in the customary and landholding stools and authorities, which managed these resources.

Inkoom also wrote that “across Africa, the tropical high forest zone, the general customary law position is that things naturally embedded in growing on, attached to, flowing through, found on, etc. the land are held in trust for the community and administered by traditional authorities” (1999). This further supports the view that traditional institutions hold relevance in the management of natural resources and, most importantly, forest resources.

Successive legislations on land and forest policies have, however, left the holders of traditional rights with little decision-making power in the forest as with land discussed before. Traditional rulers who were keepers and administrators of natural resources are now mere nominal owners whose rights to share and benefit from revenues, access are given somewhat *ex gratia* from national government. Since colonisation to date, the informal rule has progressively been reduced in access and benefit rights to forest resources, decision-making and implementation. Some informal practices such as inheritance, taboos, resource-sharing practices, maximum utilisation of NTFPs for their livelihood activities have been affected by the formal rule.

The fragmentation of the institutional arrangement has led to several effects such as conflicts and deforestation as a result of the formal and the informal institutes. The legal pluralism in Ghana is not to the benefit of forest communities since they are disadvantaged and these have led to many problems at their expense, as a result of the formal rules’ dominance.

The debate as to which of the two rules is the major cause of the negative environmental effects and deforestation is global and not just in the Ghanaian forest sector. North (1990) explained that informal institution dominance in Africa has come at the expense of the formal institutions leaving overprotected property rights and has caused more harm than good. Ostrom (1990), however, supports the important role of the informal sector in the management of resources as most of them provide monitoring and sanctions, and seek to enhance participation.

It is perhaps for this reason why there have been several attempts in the Ghanaian context to reinstitute the informal sector and “formalise the informal” with acts and regulations that seek to enhance access and benefit to forest resources. The current collaborative forest management approach seeking more benefit from forest resources explains these discourses.

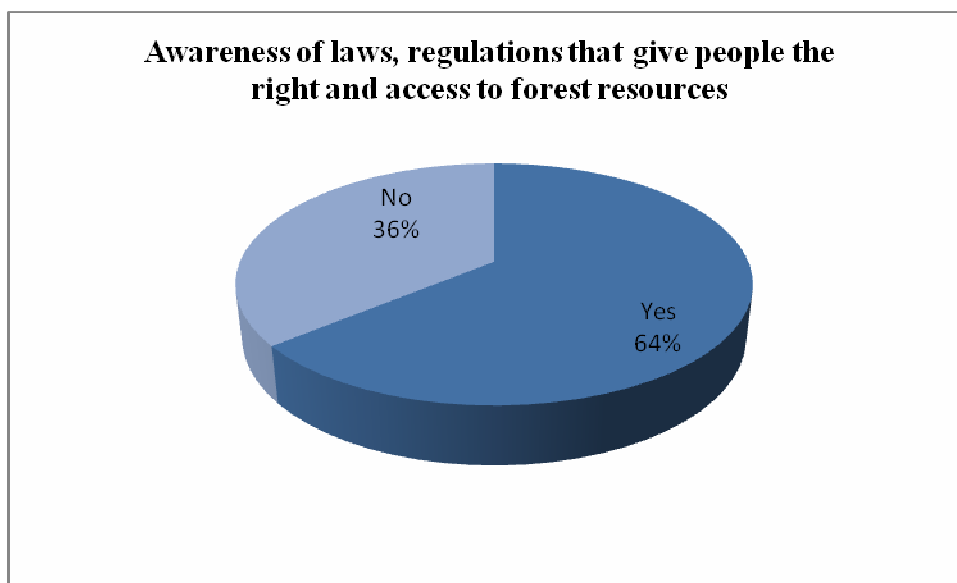
The Modified Taungya System (MTS) is a clear example of collaborative forest management using the method of plantation establishment in which farmers are allotted a parcel of degraded forest reserve to produce food and to help re-establish and maintain timber trees (Marfo, 2009).

This review of the informal institution is relevant because of the recent attempts to secure collaborative management which has its bases on the informal sector and land tenure security. Such collaborative management measures being implemented are the Reduced Emission of Deforestation and Degradation (REDD) for carbon credit in exchange for forest conservation and the Voluntary Partnership Agreements (VPA) with the European Union to combat illegal logging and contribute to sustainable management.

4.4 Field Findings on the Formal and Informal Institutions in the Study District

Forest-related laws, policies and regulations affecting access to timber trees in off-reserve areas consist of government documents that constitute part of land tenure legislation, tree tenure legislation, as well as associated benefits as reflected in the formal rules and forestry legislation that have been reviewed.

Figure 4-1: Rights and Access Awareness



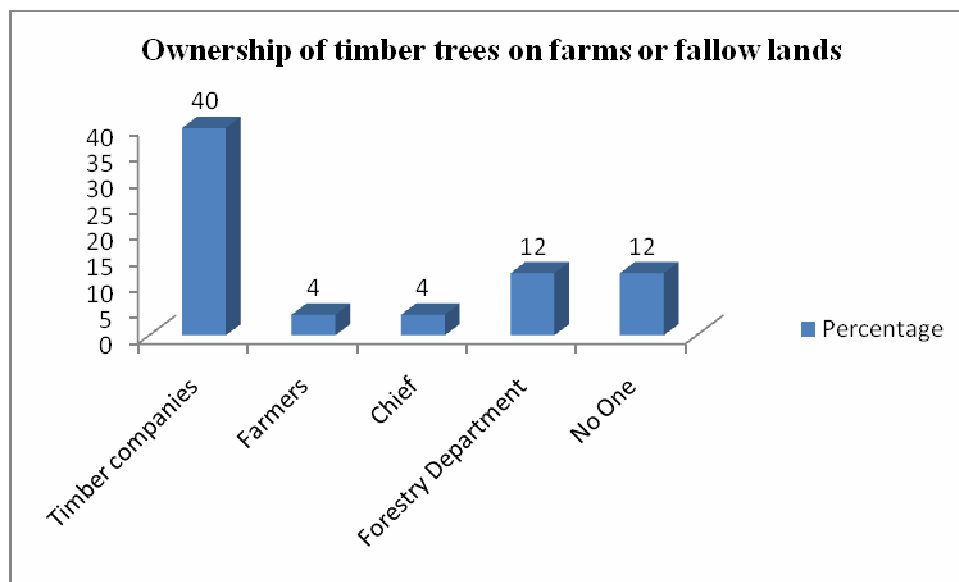
Source: Field Study, 2009.

Most of the selected farmers were not aware of their rights and access to forest resources in the off-reserve areas. This was based on the fact that most rules and regulations are only documented and written down, hardly accessible to the forest fringe communities. Most of the farmers were illiterate and could not understand these formal institutions and their operational terms used, being that their rights to access have been usurped without their involvement. Mayers *et al.* (1996) confirms the field study findings of a lack of rights of farmers on access to land and forest resources when they claim the traditional authorities have little property rights in forest management. This could explain why awareness of formal institutions is very minimal at the community level.

Those farmers who answered “No” meant that they were they were aware of their rights to access and this could be attributed to information transferred from the district forest guards in the area or they had some form of formal education.

The implication of farmers in the off-reserve not being aware of their rights to forest resources meant that the formal laws (Trees and Timber Decree 1974 [NRDC 273], Timber Resources Management [Amendment] L.I. 1721, Act 547/LI1649) among others were not very clear for most off-reserve farmers. The future implementation of forest policies and collaborative management in communities might fail as most farmers are still not aware of most of the set formal regulations, rules, and documented laws on the off-reserve area studied. The implementation of the VPA and other forest policies in the future with local communities would, therefore, mean much more awareness will be created of rights and benefits of communities since there was little evidence of this in the field work.

Figure 4-2: Timber Tree Ownership



Source: Field Study, 2009.

The figure gives a comparative overview of the ownership of timber trees in the off-reserve areas. Timber companies as important stakeholders in the off-reserve areas are clearly marked by their extensive ownership of timber trees, while farmers and traditional authorities show the least ownership of timber. The timber companies have very powerful and well-structured lobbying strategies for concession rights in both reserve and off-reserve areas.

Kotey *et al.* clearly state this by describing that, on the other hand, timber companies tend to combine political and financial clout. Through political connections, they have been able to “influence policies, stall legislation, and modify some working plan prescriptions, and [have been] largely responsible for the tardy revision of royalties” (Kotey *et al.*, 1998:79).

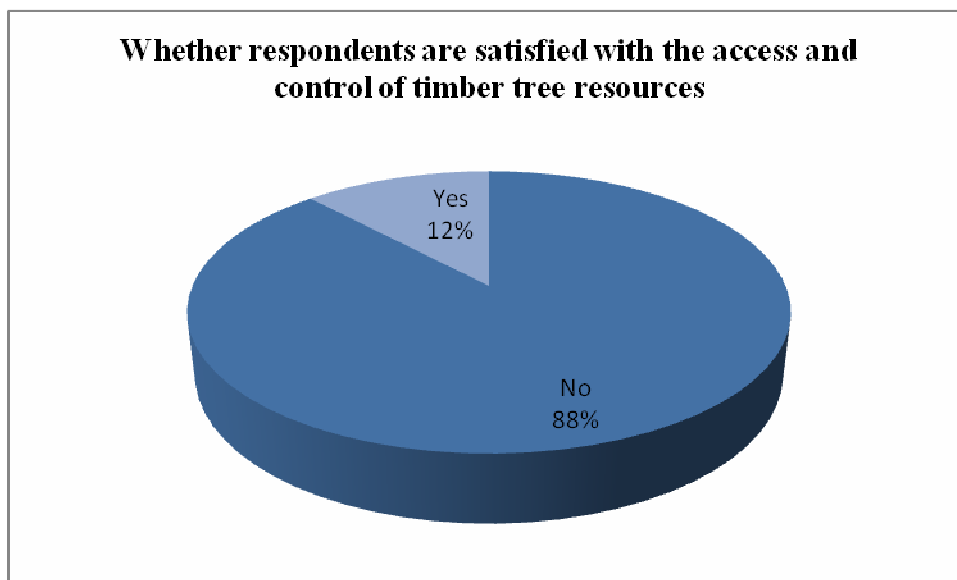
In most of the farmers’ farms and fallow lands, although the farmers are the caretakers and nurturers of the land, the land is actually owned commercially by timber companies.

This shows the level of inequality in the various stakeholders in the off-reserve. Lise (2000) suggested that intra-group inequality is within most forest areas and this has mostly a negative impact.

The forest department is second in figure 4-2 even though the formal legal rules states that they are owners of the timber trees and held in trust to the benefit of communities. This is as a result of the extractive nature of the Forest Services Division in line with the former colonial masters.

Most farmers proved they were unaware of who owns the timber as they answered, “No One”. This is based on the fact that, these farmers did not see the timber as belonging to the Forest Services Division and, as the farmers understood, they could easily sell this timber to chainsaw operators or decide to burn them as the timber resources do not benefit them directly.

Figure 4-3: Access Satisfaction



Source: Field Study, 2009.

From the figure previously discussed, it was clear that farmers were the least benefitting from timber rights in the off-reserves areas. This is again manifested here in their level of satisfaction of the access and control rights of resources. They are restricted from their access to collect NTFPs and benefits from the timber trees.

The few satisfied with the access and control were mostly farmers who had some contacts with the timber operators, illegal chainsaw operators and in most cases were cronies to the head of the village. This confirms Amanor’s findings in 1999, when he emphasised the exclusion of farmers in the forest based on formal rules established, such as the Concession Act of 1962 which vested all timber trees to the president in trust for the people, making rights to control, manage and log vested in the state.

He explains that in justifying the destruction of timber by citing the greater good of palm oil cultivation, farmers are employing a discourse which highlights the contradictions inherent in national and regional development policy and practise, while at the same time wreaking vengeance on the timber sector, its operators and managers.

Most farmers have now adapted a new strategy of killing the trees they find as they are not benefiting from the past and current arrangement of timber access and do not enjoy the benefits to enhance their livelihoods. The exclusion of the farmer from any rights or benefit from the timber, however, has resulted in rapid forest degradation (Boni, 2003). Boni's finding could further explain the findings on a high rate of loss in the off-reserve areas.

Most of the farmers interviewed were also not satisfied with the access and control of NTFPs. Of all respondents, 88% of them were not satisfied because they are regularly monitored by forest guards and, at the time of the research, most of them could not enter the off-reserves to collect NTFPs as the forest officers could potentially arrest them. The remaining 12%, however, answered affirmatively, claiming they could go to collect NTFPs at any time of the year. This could be based on their trust in the safety network in the community that could save them in case of a crisis.

Table 4-2: Benefit from the Modified Taungya System

	Frequency	Percent
No	23	92.0
Yes	2	8.0
Total	25	100.0

Source: Field Study, 2009.

The Modified Taungya System (MTS) was one of the collaborative approaches to enhance farmers' participation and ownership of forest resources.

The Modified Taungya System is a system in which farmers essentially are owners of forest plantation products, with the Forestry Commission, landowners and forest-adjacent communities as shareholders. All participants in the Modified Taungya System, including farmers, are eligible for a share of the benefits accruing from the plantation.

In the MTS, the estimated costs are discounted at rates of 6% and 10%, whereas the suggested benefits are 40% for farmers, 40% for the Forestry Commission, 15% for landowners and 5% for local communities (Agyeman *et al.*, 2004).

The Modified Taungya System, according to Birikorang (2001), has potential to lead to a win-win situation for all participants. However, to enable this, the following possible constraints need to be addressed:

- a loss of common property resources which could be of particular value to poor and vulnerable groups;
- a breakdown of social structure and community cohesion, arising from the empowerment of only some sections of the community (Butcher, 2001);

- differences in access to land, which may increase along gender and ethnic lines.

As shown in Table 4-2, most of the farmers questioned had no benefits attained by the MTS. This is due to the fact that the research area had not been selected as one of the MTS zones.

Table 4-3: Benefit from Crop Damage Compensation Payment

	Frequency	Percent
No	17	68.0
Yes	8	32.0
Total	25	100.0

Source: Field Study, 2009.

The Economic Crop Protection Decree of 1979 (AFRCD 31;47) mentions that it is illegal to damage crops on a farmer's farm when concessions are given to operate on the farm. If damage does occur, then there should be prompt payment. Inkoom (1999) noted that concession leases issued after this decree stipulated that compensation should be paid for any crop damage incurred during operations in accordance with the concession lease.

Many studies in Ghana have pointed out that, in many cases, compensation is either not paid or amounts paid are woefully inadequate (Treue, 2001; Amanor, 2002). Inkoom observed that "while compensation is paid by some companies, this is by no means the rule and in many places; farmers are destroying trees because of inadequate compensation" (1999:105). In the past, timber companies fell trees on farms with without their permission and the compensation paid was nothing of significance, if at all.

On farms, logging in Ghana has been characterised by forest conflicts related mostly with compensation payment and farmers usually have different coping strategies during such conflicts, such as avoidance, killing of the trees, cursing the company or resistance based on research work (Lambini et al., 2005).

Asare observed that: "The cocoa farmer has developed a more implacable hatred towards the timber contractor than the beasts that thrive on his cocoa fruits and seedlings, now they make sure that during the clearing of the forest every good quality timber tree is destroyed before the contractor menacingly invades his cocoa farm with a caterpillar" (1970:10). This situation is confirmed by my empirical findings, as 68% of the farmers, or the majority, did not benefit from crop damaged compensation when their crops were damaged by timber companies.

Interestingly, 32% of those questioned have had compensation due to the increased transparency and other reforms that oblige timber companies to be more responsible to the people and the forest. This could be the main factor in why some farmers have had their compensations paid. Although compensated, these farmers claimed these payments were not adequate compensation for the crops damaged.

Table 4-4: SRA Benefits

Benefit from Social Responsibility Agreements		
	Frequency	Percent
No	24	96.0
Yes	1	4.0
Total	25	100.0

Source: Field Study, 2009.

Under the Timber Resources Management Act of 1997 and its subsidiary legislation, prospective timber companies are required to present “proposals to assist in addressing social needs of the communities who have interest in the applicant’s proposed area of operations” (Timber Resources Management Act, 1997).

This was done as an “undertaking to provide specific social amenities for the benefit of the local communities that live in the proposed contract area” (Timber Resources Management Regulations, 1998).

The proposal forms part of the documentation to be evaluated by the competent authority, the Timber Rights Evaluation Committee (TREC), before the timber company is awarded the Timber Utilisation Contract (TUC). Once the TUC has been awarded, the company assumes an obligation to spend not more than 5% of the annual royalties accruing from its operations to support the development of local communities.

Before the enactment of these rules, timber companies were not constitutionally asked to make any payment of royalties to forest fringe communities, even though some did support communities with cola money during festival and other community activities.

However, with the enactment of the Timber Resource Management Regulations, timber companies are obliged to make payment to forest fringe communities.

Despite these promising regulation those forest fringe communities included in the case study did not benefit from any Social Responsibility Agreements in their communities over the past fifty years of their operations in the off-reserves. When asked individually, most of the respondents were not even aware of the SRA. In a focus group discussion, however, the village claimed awareness of the SRA but that the payments were not usually enough for the community. From observations and interviews, support was not evident at any level of the community including schools, clinics, roads constructed or any other form of support from timber companies to the communities studied.

Table 4-5: Access Views Considering Forest Policies and Regulations

Perception of Forest Policies and Regulations with Regard to Access of Forest Resources		
	Frequency	Percent
Policies and regulations are helpful for the forest	3	12.0
Policies and regulations are not helping the communities	15	60.0
No enforcement of laws from FSDs	5	20.0
Policies and rules contribute to conflict	1	4.0
Not aware of any policies or laws	1	4.0
Total	25	100.0

Source: Field Study, 2009.

From interviews and reviews, forest fringe communities are dissatisfied with the current forest policies and regulations since 60% from the total percentage feel impaired by forest policies. This coincides with the findings of many Ghanaian forest researchers who encountered problems in the institutional arrangement in the forest sector (Klutse, 1973; Owusu, 1996; Inkoom, 1999; Ribot, 1999; Marfo, 2004). From Table 4-5, it can be concluded that there are still some forest policies that need to be reformed in order to involve and give many more benefits to the forest fringe communities.

Reflecting on the finding, it appears the formal institutions have not fully been beneficial to the forest fringe communities despite several attempts to evolve and promote collaboration with farmers, landowner and small holders in the forest fringe communities. In spite of these attempts, there are still increasing forest conflicts in the forest fringe communities as result of these formal and informal institutions and the following sections are devoted to the effects of these forest conflicts on livelihoods of forest fringe communities.

CHAPTER FIVE: SECOND OBJECTIVE RESULTS AND DISCUSSION

5.1 Introduction

This chapter is a continuation of the result and discussion section but focuses on the second research objective, the influence of forest conflicts between timber companies and farmers as a result of the informal and formal differences and the effects on the livelihoods of farmers based on the social, financial and natural capital in the study areas.

From the above discussions, it can be concluded that the formal and informal rules in Ghana have resulted in several conflicts. The cause of this has been debated as due to the domination of the formal rule at the expense of the informal or vice versa. Although the formal ruling Institutions came later, they managed to overtake the existing rule in use in Ghana. Interestingly enough, over the past years, the informal institution have created a powerful interest in natural resource management and initiated a struggle for power and resource use (Benda-Beckman, 1997). The informal institutions are gaining strength in political behaviour and outcomes; the failure to consider their importance could lead to an institutional clash.

Informal and formal co-existence in resource management has become an important discussion among common pool resource scholars as they often realise the importance of the “reinstitutionalisation of the informal rule”. It is becoming increasingly clear that the informal institution matters in forest resource management but little research has been dedicated to this (Ostrom et al 2007, Agrawal, 2001).

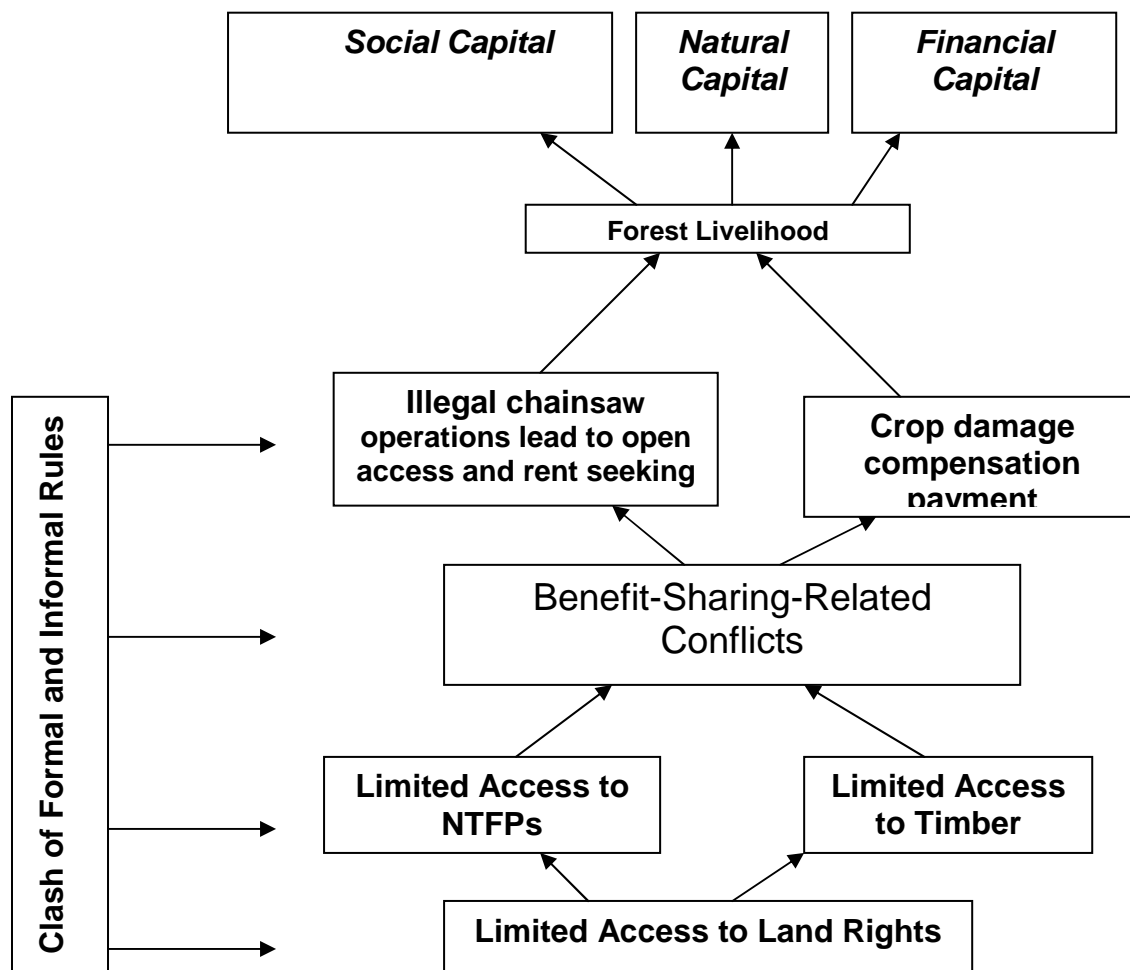
The legal pluralism in Ghana has led to several conflicts in the management of the forest resources. Forest-related conflict scenarios at the local level have involved those between community members and FSD on access to forest land for farming or NTFP collection, between farmers and timber concessionaires (contractors) on crop damage compensation payment as a result of logging on farmlands, between concessionaires or landowners on concession and forestland boundaries, as well as between ‘illegal’ chainsaw operators and the Forest Services Division.

These conflicts are mostly in the off-reserve area since timber resources are interspersed in communal lands, farmlands and community settlements, making off-reserve concession boundaries unclear (Marfo 2006). Most of the conflicts in the off-reserve forest fringe communities have had many effects on the livelihoods of the farmers.

5.2 Forest Conflicts Relating to Formal and Informal Rule Clash and Livelihoods

The figure below gives a comparative and dichotomous description of the conflict scenarios as a result of the informal and formal institution overlap leading to various conflict situations, including chainsaw operations as a result of open access from the legal pluralism and the effects on social capital, natural capital and financial capital of the forest fringe communities. The figure also reflects the empirical findings in the study communities.

Figure 5-1: Scenarios Due to Informal and Formal Institution Overlap



Source: Own construct based on empirical findings in the field, 2009.

5.3 The Influence of Forest Conflicts on Livelihoods of Farmers

From the framework of the study based on the Sustainable Livelihood Framework:

“A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long-term” (Chambers and Conway, 1992: 7).

Forest conflicts in off-reserve areas in Ghana have been numerous and have been experienced at various levels and scenarios in Ghana.

From literature reviews from Ghana, since the creation of forest reserves in the colonial days to date, conflicts have been prevalent in forest reserve areas. Given the multi-layer systems of

authority and control, multiple demands on forest lands and resources, spatial distribution of communities and the clash of state and customary laws (legal pluralism) at the local arena, these struggles and their various associated nagging effects remain continuous (Agyeman, 1994; Asare, 1998; Kotey *et al.*, 1998; Inkoom, 1999; Marfo, 2001; Treue, 2001; Amanor, 2004: 316).

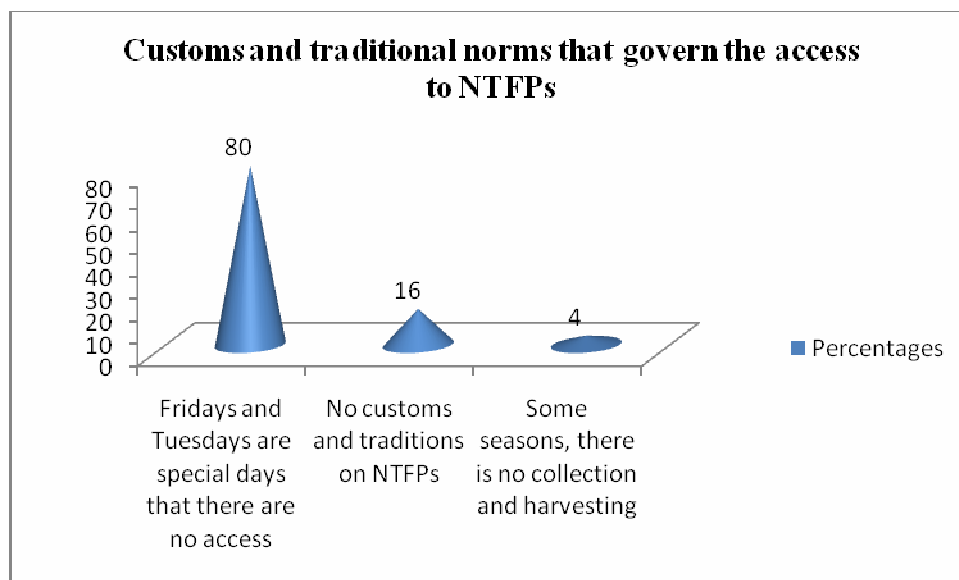
Little literature is, however, written on the influence of forest conflicts on the livelihoods of the farmers. The empirical research contributes to finding on the influences of these forest conflicts.

5.3.1 Forest Conflict Influence on Social Capital of Farmers

This study defined social capital as assets that increased the informal institutions in the farmer’s environment such as social networks, traditional rules and informal groups that influence farmer’s access to the forest resources in the off-reserves.

Other social capital in the community includes the role of the traditional authority, often referred to as the Odikro, and activities that support collective actions in the community such as Ndobua, Abusa and Abunu. These are some of the social assets in the off-reserve farms that support their livelihood. In the study areas, there are customs, norms and taboos that govern access, including days the farmers are not allowed to go to their farms, river sides, fallow lands or have access to NTFPs. Regarding social capital in the area, there were several forms of social capital that defined their access roles and how to manage the resources. These findings make evidence the relevance of social network and connectivity towards family and community.

Figure 5-2: Customs Governance on Access to NTFPs



Source: Field Study, 2009

The figure shows how the taboo days were very important to the forest fringe communities. These were days that communities did not go out for hunting, to the forest or perform any other activity that had influence on the forest resource of farm activity.

Table 5-1: SRA and Traditional Heads

What do you think of the role of the traditional head in the SRAs		
	Frequency	Percent
Odikros are not doing much in the SRAs	11	44.0
No idea	9	36.0
Collect money for development	5	20.0
Total	25	100.0

Source: Field Study, 2009.

Allodial rights are vested in chiefs who, through their political hegemony, are granted ultimate control over the land. This concept is ultimately derived a notion of communal land tenure in which the land is vested to the chiefs to manage on behalf of the community, or in which, as founders of the policy and the political order, chiefs acquired rights to the political allegiance of subjects on their land. This is essentially a political definition of land rights, which empowers chiefs as the trustees of communities to control land. Their ‘subjects’ (the peasantry) only hold user rights in land, which allow them the rights to use the land to make a livelihood, but not rights to sell the land. Only the products emerging from the use of land and from their labour belong to the subjects of the chief, such as the farm plot, but the actual land belongs to the chief.

During the colonial period, traditional chiefs were recognized as the local authority with rights over resources until 1951 when the Local Government Ordinance mandated the election of local councils. As a result, chiefs and traditional authorities, as well as forest owners were excluded from any consultative processes about forest management. Despite this attempt to deprive of influence, the role traditional authorities, including chiefs, village head and landlords in the protection and management of the environment, particularly at the community and local level, cannot be understated. As custodians of customary law and usage, they define the traditional norms by which the traditional society is governed.

The new collaborative forest management and the SRAs among other benefits have even offered chief more rights and benefits. Despite this measure to return traditional local influence, it became increasingly clear during the case study that the traditional heads of the village were losing their power, respect and satisfaction by their subjects as most of the timber companies have succeeded in getting traditional authorities to the side of timber operations.

In cases of conflicts, farmers have to cope with the situation alone because they assume that when they go to their chiefs their voices will not be heard. Wily *et al.* (2001) confirms this when he explained that stool rights are becoming contradictory and fail to protect ordinary people. Ribot (2003) confirmed this when he explained that most chiefs were not accountable to their people.

Thus far, the traditional council is held with respect and much more trust among its subjects, but as a result of timber exploitations and commoditisation, their rights and decision-making has been greatly influenced by timber companies and the timber industries.

This leads to the need to set up a better collaborative forest management system at the bottom level, since the main institution that it is based upon has lost its influence.

Table 5-2: Communal Benefit from TUPs

Communal Benefits from Timber Utilisation Permits from FSD		
	Frequency	Percent
No	24	96.0
Yes	1	4.0
Total	25	100.0

Source: Field Study, 2009.

The problem of the traditional rule and other factors such as the centralisation of the Forest Services Division and the direct communication with timber companies has made forest fringe communities unable to benefit from the Timber Utilisation Permit which they are constitutionally obliged to apply for in social development projects, such as school, clinic, community centre or their house projects.

This confirms Marfo's (2001) explanation that the forest resources benefited mostly the timber companies only to the detriments of forest fringe communities; timber companies are able to apply for Timber Utilisation Permits (TUPs), originally a sole right of forest communities for their social use. This explains how the forest fringe communities are deeply influenced by timber companies operations (Wily *et al.*, 2001).

Table 5-3: Conflict with Illegal Chainsaw Operations

Illegal Chainsaw Operations Cause Conflicts		
	Frequency	Percent
No	24	96.0
Yes	1	4.0
Total	25	100.0

Source: Field Study, 2009.

This figure further explains the reason behind forest fringe communities' preference to deal with chainsaw operators since they compensate the community at a higher rate and are usually from the forest fringe communities, or are locals. Birikorang (2001) estimated that a total harvest of 46% was illegal and most of the actors involved are farmers from off-reserves who were more willing to operate with illegal chainsaw operators. This is further supported

in the work of Stiglitz (1999) and Anderson (1994) where they write on social relations and social capital affected by different interactions.

5.3.2 Forest Conflict Influence on Natural Capital of Farmers

Natural capital includes the air, water, soil, bio-diversity, landscape, NTFPs and products from the land. The best way to conserve a community's natural capital is to convert it to other forms of capital in the community (Flora 1999).

Natural capital is also used for the natural resource stocks from which resource flows and services useful for livelihoods are derived (such as land, water, forests, air quality, erosion protection, biodiversity degree and rate of change, etc.). In the case study, some linkages between forest conflicts and natural resources in the study areas were found. Notably, among them was damage to medicinal plants as shown in the table below.

Table 5-4: Experience of Medicinal Plant Damage

Damage of medicinal plants		
	Frequency	Percent
No	15	60.0
Yes	10	40.0
Total	25	100.0

Source: Field Study, 2009.

The "traditional" medicine as primary healthcare is very important for the traditional healthcare delivery in many forest fringe communities.

This dependency on traditional healthcare is partly due to poverty, but also because traditional systems are more culturally acceptable and are able to meet psychological needs in a way western medicine does not. This is why Falconer *et al.* (1992) re-echoes the relevance of medicinal plants to livelihoods.

Most of the forest communities depend on medicinal plants for their healthcare and livelihoods. Medicinal plants are sources of healing and hold spiritual values. Most are used to cure and prevent ailments by the herbalists and spiritualists in the forest fringe communities (Falconer *et al.*, 1992).

From the survey, 60% of respondents claimed that timber companies operations have had influence on their access to medicinal plants due to their destructions during operations and techniques in operations.

The influence on natural capital in these forest fringe communities has also been apparent in the destruction of communities' roads. About of 92.0% of the respondents agreed that timber companies destroyed their roads with heavy trucks and machinery used in operations. About 8.0% claimed that there was no link to timber companies operations in their areas and the nature of their roads (Field Study, 2009). Some findings from other researchers support the though that timber companies are destroying roads of forest fringe communities.

Table 5-5: Destruction of NTFPs

Destruction of Non-Timber Forest Products		
	Frequency	Percent
No	2	8.0
Yes	23	92.0
Total	25	100.0

Source: Field Study, 2009

Arnold (1999) reiterates the relevance of NTFPs for household livelihood and the work of Julia Falconer (1992) concludes that many forest communities in Ghana heavily depend on forest resources for their livelihood and advocated for much policy reforms of farmers access to NTFPs to be streamlined for sustainable livelihoods of rural communities.

From the research finding, most farmers claimed that they were affected by timber operators which, in turn, affected their access to NTFPs, the major source of livelihoods. This usually was a result of timber operations which destroy some of the fruits, the gather, bush meat, and other valuable NTFPs in the off-reserve areas.

5.3.3 Forest Conflict Influence on Financial Capital of Farmers

There are two main sources of financial capital. These are the farm-related and non-farm-related in study area. Most of the farmers in the study areas attained their income from the harvest of cocoa and other cash crops such as plantain, cocoyam, etc. Other sources of income were from rental from land which was given out to migrant farmers. Peter *et al.* (1989) claimed that more money could be earned from tropical forests by collecting these products than from logging. Forests could be more valuable to local users, as a result, and forest conservation is promoted (Plotkin and Famolare, 1992).

Table 5-6: Reduction of Annual Income

Reduced Annual Income Influenced by Timber Operators		
	Frequency	Percent
No	4	16.0
Yes	21	84.0
Total	25	100.0

Source: Field Study, 2009.

Most respondents claimed that timber operators working on their farms affected their annual income due to non-compensation payments, which has and adverse effect on the household food supply, education of their children, health provision, among other necessities.

From these findings, it is increasingly clear that timber companies operations in off-reserves have had a great deal of negative influence on the livelihoods of the forest fringe communities.

CHAPTER SIX: CONCLUSION AND POLICY RECOMMENDATIONS

6.1 Introduction

This final chapter gives a summary of the research findings based on the set objectives of the research and concludes with some policy recommendations for livelihood forest-related conflicts in off-reserve areas and how to secure the tenure rights of farmers in this contested role of the formal and the informal institutions.

6.2 Major Conclusions on the First Research Objective

The first research objective was to analyse the contested role of the formal and the informal institutions in the Ghanaian forestry and access to forest resources and their impact on forest conflicts.

The institutionalisation of the forestry of Ghana dates back to the colonial period and this gave birth to a new ideology with new rules and new access rights that have since shaped the Ghanaian forest laws and regulation over the years by various passed acts, legislative instruments and interim measures.

Post-colonial governments and current governments have strictly followed most of the formal procedures for timber use rights and benefits. This has created new bureaucracies in forestry with extractive tendencies and hierarchical arrangements in the administrative processes, mirroring those of colonial administration.

From the chronology of the formal institutions in the Ghanaian forest it is clear that this overabundance of institutions are a result of colonial attempts to institute statutory laws, orders, rules and regulations to govern the use of resources ranging from forest, minerals, to land and other natural resources that are in the area.

Most forest laws restrict forest fringe communities from access rights to timber and NTFPs, as well as benefits of forest resources that are due to them, such as compensation payments, benefits of forest revenues accrued from royalties and social responsibilities agreements from timber operations.

These rules have restricted and, in some cases, criminalised the actions of farmers and created a new situation for forest fringe communities and rural tenants as they could not access forest resources that were close to them. This could have been the start of the open access forest resources problem in Ghana, ubiquitous in the Ghanaian forestry, riddled with illegal operations, rent seeking activities by actors, forest conflicts and deforestation. These effects are not only detrimental at the local level, but also contribute at the global level by affecting climate change in the long run.

These conflicts found in the research were a result of the shift of attention of the informal institutions to the colonial administration as the existing “rule in use” for forest management and the management of other common pool resources.

Informal rules and institutions are all forms of rules, assets, culture, and local terms of agreements that exist within a society before the formalisation process of access and benefit rights. The informal regulations were socially constructed and had in it the old adage of

sharing of resources for the benefit of all people and traditional chieftaincy, one of the oldest governance institutions in most African States.

There are some critics of the informal institutions who claim these institutions are outdated. Legal pluralism is manifested in the study context and this has a tendency to create conflicts as a result of the various interests of both the formal and informal establishments. However, the informal institution is still relevant since it has so many useful practises, such as sanctions and monitoring, which are very important for common pool management.

Moreover, the informal institutions could create a much more positive role in collective action and might assist in the implementation of most of the new approaches to forest governance and collaborative attempts by both national and international organisations and projects, as they have deep roots within the culture.

6.3 Major Conclusions on the Second Research Objective

The second research objective was to analyse the influence of forest conflicts between timber companies and farmers and how this impacted the livelihoods of the forest fringe communities, especially farmers.

The Sustainable Livelihood Framework of DFID (1999) was very helpful in the analysis of the impacts of forest conflicts on farmer's livelihoods. The framework had all the assets for livelihoods and their interaction with the livelihood strategies and outcomes.

From the research conducted, it became clear that Ghana's forest sector is faced with increasing forest-related conflict scenarios at the local level. These have involved those between community members and FSD on access to forest land for farming or NTFP harvest, between farmers and timber concessionaires on crop damage compensation payment, benefit-related conflicts based on SRAs, land disputes, conflicts between 'illegal' chainsaw operators and the FSD. Sometimes the conflicts are among the top level stakeholders in the forest sector, such as between the TC and FSD.

It became clear that these conflicts are mostly in the off-reserve areas since timber resources are interspersed in communal lands, farmlands and community settlements, making off-reserve concession boundaries unclear.

Forest conflicts in the studied off-reserves identified various form of effects of conflicts on livelihood ranging from social capital (SRAs, and taboos) and natural capital (medicinal plants, roads and NTFPs) to financial capital (household incomes and non-farm based activities).

From these empirical findings from the field it can be concluded that forest conflicts have negative effects on the livelihoods of forest fringe communities and most especially to the farmer who depend solely on the off-reserves areas for their livelihood. This calls for a harmonised policy review to curb livelihood forest conflicts in Ghana.

6.4 Policy Recommendations from the Studies

These recommendations have been after the research for policymakers, governments and the academic setting in the forest livelihood conflict in the Mankranso District of Ghana:

1. The strengthening of the informal institutions in off-reserve areas to help facilitate a much more appropriate approach to forest governance and help in the full implementation of national and international projects such as the Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD Programme) and the Voluntary Partnership Agreement (VPA). The informal institution, when strengthened, can assist to define rights and benefits of communities more clearly. Strengthened informal institutions also involve the participation of local people in the commons as their culture and belief systems are embedded in these institutions.
2. The formal institution must be reduced clearly and checked to avoid the numerous contradictions. A clear motivation from the Forest Commission to change the status quo must be shown. Many forest laws and agencies within the structural organisation of the Forest Commission are duplicated or excessive.
3. The benefit-sharing of off-reserves must also be readdressed and possible regulatory and legislative reforms for the off-reserves. The caretakers and manager of the timber should have a 50/50 benefit and payment of benefits should be ensured for the livelihoods of the farmer.
4. Forest conflicts must be fully addressed as the current legislation has neither developed nor implemented any approach to solve forest *conflicts* even though its effects are numerous on the forest fringe communities and the forest resources. New mechanisms must be adapted to manage the various conflict situations in the Ghanaian context, including the use of local informal institutions.
5. The consistent reported over-harvesting above legal limits in Ghana is mainly attributed to the extra-judicial supply arrangements. This does not promise future sustainability of our forest. Therefore, the Forest Commission (FC) should actively monitor and enforce the annual allowable cut (AAC) to ensure that these are not exceeded by timber companies.
6. The issue of chainsaw operations must also be addressed and efforts should be put in place to address the situation as it has a detrimental impact on Ghanaian forest. Accordingly, an alternative livelihood support for forest fringe communities must be attained, in the form of grass cutter rearing, poultry and other non-forest related income activities to help reduce the rate of illegal chainsaw operations and dependence on NTFPs such as bush meat in off-reserves.
7. The final recommendation is to further research into the formal and informal contested influence on access and resource benefits. This could further assist the extending of forest fringe communities tenure rights, security and more clearly defined roles. This will better assure that our remaining forest resources are sustainably managed for future generations.

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APPENDICES

Appendix 1: Sustainable Livelihood Framework

1987	The World Commission on Environment and Development publishes its report: <i>Our Common Future</i> (the 'Brundtland Commission report') (1987a)
1988	IIED publishes papers from its 1987 conference: <i>The Greening of Aid: Sustainable Livelihoods in Practice</i> (Conroy and Litvinoff, eds., 1988)
1990	UNDP publishes the first Human Development Report
1992	UN holds Conference on Environment and Development IDS publishes 'Sustainable Rural Livelihoods: Practical concepts for the 21st century' (Chambers and Conway, 1992)
1993	Oxfam starts to employ the SL approach in formulating overall aims, improving project strategies and staff training
1995	UN holds World Summit for Social Development UNDP adopts Employment and Sustainable Livelihoods as one of five priorities in its overall human development mandate, to serve as both a conceptual and programming framework for poverty reduction IISD publishes <i>Adaptive Strategies and Sustainable Livelihoods</i> (Singh and Kalala, 1995), the report of a UNDP-funded programme SID launches project on Sustainable Livelihoods and People's Everyday Economics
1996	<i>Adaptable Livelihoods: coping with food insecurity in the Malian Sahel</i> (Davies, 1996) is published by Macmillan DFID invites proposals for major ESCOR research programme on Sustainable Livelihoods. IDSled consortium wins the main award, with another award to ODG IISD publishes <i>Participatory Research for Sustainable Livelihoods: A Guidebook for Field Projects</i> (Rennie and Singh, 1996)
1997	White Paper on international development, <i>Eliminating World Poverty: A Challenge for the 21st Century</i>
1998	DFID's Natural Resources Department opens a consultation on sustainable livelihoods and establishes a Rural Livelihoods Advisory Group Natural Resources Advisers annual conference takes Sustainable Livelihoods as its theme and later publishes contributory papers: <i>Sustainable Rural Livelihoods: What Contribution Can We Make?</i> (Carney (ed.), 1998) SID publishes <i>The Sustainable Livelihoods Approach, General Report of the Sustainable Livelihoods Project 1995–1997</i> (Amalric, 1998) UNDP publishes <i>Policy Analysis and Formulation for Sustainable Livelihoods</i> (Roe, 1998)

	<p>DFID establishes the SL Virtual Resource Centre and the SL Theme Group</p> <p>IDS publishes ‘Sustainable rural livelihoods: a framework for analysis’ (Scoones, 1998)</p> <p>The FAO/UNDP Informal Working Group on Participatory Approaches and Methods to Support Sustainable Livelihoods and Food Security meets for the first time</p>
1999	<p>DFID creates the Sustainable Livelihoods Support Office and appoints Jane Clark as its Head</p> <p>DFID publishes the first <i>Sustainable Livelihoods Guidance Sheets</i> (DFID, 1999a); <i>Sustainable Livelihoods and Poverty Elimination</i> (DFID, 1999b); and <i>Livelihoods Approaches Compared</i> (Carney et al., 1999)</p> <p>Presenters at the Natural Resources Advisers’ Conference report progress in implementing SL approaches and DFID later publishes these in <i>Sustainable Livelihoods: Lessons from Early Experience</i> (Ashley and Carney, 1999)</p> <p>ODI publishes ‘Sustainable Livelihoods in Practice: early application of concepts in rural areas’ (Farrington et al., 1999)</p> <p>DFID establishes the Sustainable Livelihoods Resource Group of researchers/consultants</p> <p><i>Mixing it: Rural livelihoods and diversity in developing countries</i> (Ellis, 2000b) is published</p>
2000	<p>DFID commissions and funds Livelihoods Connect, a website serving as a learning platform for SLA</p> <p>FAO organises an Inter-agency Forum on Operationalising Sustainable Livelihoods Approaches, involving DFID, FAO, WFP, UNDP, and IFAD</p> <p>DFID publishes <i>Sustainable Livelihoods – Current thinking and practice</i> (DFID, 2000a); <i>Sustainable Livelihoods – Building on Strengths</i> (DFID, 2000b); <i>Achieving Sustainability: Poverty Elimination and the Environment</i> (DFID, 2000c); and more SL <i>Guidance Sheets</i></p> <p>The Sustainable Livelihoods Resource Group establishes a subgroup on PIP (Policy, Institutions and Processes)</p> <p>IDS publishes ‘Analysing Policy for Sustainable Livelihoods’ (Shankland, 2000), the final report from its ESCOR programme</p> <p>Oxfam publishes <i>Environments and Livelihoods: Strategies for Sustainability</i> (Neefjes, 2000)</p> <p>The Government publishes its second White Paper, <i>Eliminating World Poverty: Making Globalisation Work for the Poor</i> (DFID, 2000e)</p>

2001	DFID commissions research on further development of the SLA framework; practical policy options to support sustainable livelihoods <i>Sustainable Livelihoods: Building on the Wealth of the Poor</i> (Helmores and Singh, 2001) is published DFID organises SLA review meeting of officials, researchers and practitioners
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Source: William Solesbury 2003.

