Securing Rights to Wood Resources for Charcoal Production in Ghana

A case study of the Atebubu-Amantin District

Lawrence Kwabena Brobbey, Joseph Asante, Eva Kyei Sampong,
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TBI Ghana, March 2015

List of Acronyms

BAC	Business Advisory Centre
DA	District Assembly
EC	Energy Commission
FAO	Food and Agriculture Organisation
FC	Forestry Commission
FIP	Forest Investment Programme
FSD	Forest Services Division
GPRS	Ghana Poverty Reduction Strategy
HFZ	High forest zone
IIED	International Institute for Environment and Development
LI	Legislative Instrument
NTFPs	Non-timber forest products
REDD	Reduced emission from deforestation and degradation
SNEP	Strategic National Energy Plan
TBI	Tropenbos International
TBI GH	Tropenbos International Ghana
USAID	United States Agency for International Development
WB	World Bank

Executive Summary

The charcoal enterprise in Ghana has for decades provided the bulk of the energy needs of majority of urban households; contributed to the household incomes of both urban and rural dwellers; and provided a source of employment for many during off-season farming. The taxes and levies from the charcoal trade serve as a major source of revenue for district assemblies in the producing areas.

Charcoal production has long been seen as a business of choice for the rural poor, seen as "dirty" or "technically backward", and a driver of deforestation by some scholars. About 80% of charcoal production occurs within the forest-savannah transition and savannah woodlands in Ghana where the ecosystem is rather fragile. Little attention has been paid by policy makers to the way charcoal is produced, transported, sold and consumed (i.e. the value chain). However, 80% of the urban population in Sub-Sahara African countries depend on it as energy for cooking and heating.

This study was conducted in three (3) communities in the Atebubu-Amantin District of Ghana to assess the mechanisms applied by the upstream actors of the charcoal value chain (i.e. producers) to gain and maintain access to raw materials (i.e. wood) for charcoal production. The study formed part of the Forest Connect project on '*Rights plus action to pilot a sustainable and legal model for charcoal businesses in Ghana*', financed by the International Institute for Environment and Development (IIED).

The study revealed that wood for charcoal production is treated as an open access resource by members within a particular community. Community members have free access, withdrawal and management rights. Nobody is excluded or alienated on the basis of gender, social relations and ethnic

background. Access to wood is guided by customary rules or agreement between the tree/land custodian and the charcoal producer. Custodians of land and/or traditional authorities charge 20% of produced charcoal as cost of wood. These arrangements are documented but are not implemented to the letter.

The major sources of wood for charcoal production are fallow lands and farms. As such statutory bodies like the Forestry Commission (FC)[1], Energy Commission (EC) and District Assemblies do not regulate wood for charcoal production. Charcoal producers confirmed the contribution of the charcoal business to their livelihoods. The District Assembly estimated that over 2,000 people are engaged in charcoal production at the District and also acknowledged the contribution of levies and taxes from the charcoal trade to the Assembly's internally generated fund.

Both the producers on one hand and the Assembly on the other hand attributed the decreased vegetation in the areas to the use of trees for charcoal production. The producers now have to travel long distances in search for wood and are currently using tree species they hitherto considered to be of poor quality for charcoal. They are however prepared to replenish the resource base through woodlot establishment, but would need financial and technical assistance. The Assembly however considers charcoal production a menace and is finding means to discourage or ban its production in the district.

The Forest Investment Programme (FIP), the Strategic National Energy Plan (SNEP) of 2006-2020, and the draft Bio-energy Policy offer some form of hope for charcoal producers to establish woodlot and plantations to replenish the resource base to enable them stay in business. FIP aims at addressing

[1]The Forestry Commission mainly manages the forest reserves and only gives out timber rights in the off-reserve areas.

the underlying drivers of deforestation (which includes charcoal production) and catalyses transformational change by providing upfront investment to support the implementation of the REDD+ strategy, and generate information and experience for policy and regulatory changes. It will provide incentives to conserve or plant trees in off-reserves.

Recommendations have been made for the creation of charcoal platform for all stakeholders to dialogue on issues affecting the charcoal value chain; enforcement of the existing governance arrangements relating to access to wood; introduction of carbon tax on produced charcoal; the establishment of integrated woodlots to ensure sustainable supply of wood; and comprehensive studies and improvement on the entire charcoal value chain.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Charcoal is an important source of energy in Ghana and constitutes a major source of livelihood for people in areas endowed with woodlands suitable for charcoal production. It is used by 80% of Ghanaian households as primary or secondary source of energy for cooking and heating (Anang *et al.,* 2011).

An estimated 400,000 people who support over one million dependants, are engaged in charcoal production in the northern and transitional zones of Ghana (Energy Commission, 2006).Taxes and levies on the trade constitute a major source of revenue for District Assemblies (DA) in the producing areas. For instance, a total amount of GH₵127,400.00 equivalent to $36,400.00[2] were collected as taxes and levies on 637,000 bags of charcoal in the year 2014 alone in the Atebubu Amantin District.

About 20 million m^3 of biomass are used annually in Ghana as wood fuel (FIP, 2012). However, according the FAO (2000), 90% of harvested forests are not replanted. The unregulated access to the raw material (wood) for charcoal production leads to deforestation and degradation and has led to the perception that the wood-fuel is "technically backward" notwithstanding its contribution to the energy needs of Ghanaians and livelihood to rural households. About 80% of the production occurs within the forest-savannah transition and savannah woodlands where the ecosystem is rather fragile (Nketiah *et al.* 2013).

[2] $1.00 is equivalent to GHC 3.500

Little attention is paid by policy makers on the way charcoal is produced and sold. A recent study of the "governance arrangements for charcoal production and trade" by Tropenbos International Ghana (TBI GH) revealed that the rights of stakeholders and their ability to benefit from the wood resource (i.e. access) are crucial to sustainable charcoal production and trade. However, charcoal producers' right to securing wood resource for charcoal production is very limited and not clearly defined.

A holistic analysis of the entire charcoal value chain has been recommended by Sepps (2008) and Ribot (1998) as a means of ensuring that charcoal production and its use contribute to sustainable development and poverty alleviation.

The value chain provides a useful and convenient tool for problem analysis, strategic planning, operational planning, implementation and monitoring (Kaplinsky and Morris, 2000). It is a tool for understanding who benefits from natural resources; how they benefit; and how those patterns of benefit distribution might be changed. It enables policy makers to create favourable framework conditions which promote competitive enterprises, sustainable jobs and income for local people (Ribot 1998; and Sepps undated). However, Obiri *et al.* (2014) identified the lack of comprehensive analysis of the value chain for the charcoal industry in Ghana as one of the pertinent gaps in information on the wood fuel subsector in Ghana.

It is therefore imperative to study the mechanisms applied by the upstream actors of the charcoal value chain (i.e. producers) in Ghana to gain, control and maintain access to wood, the primary raw material for charcoal production. It is equally important to assess the willingness and preparedness of charcoal producers to replenish the primary resource for their business.

1.2 Objectives

This paper assessed the following:

- the mechanisms applied by upstream actors to gain, maintain and control access to wood resources in the charcoal value chain;
- the willingness and preparedness of charcoal producers to replenish the resource base (i.e. wood) for sustainable charcoal production; and
- the role and contribution of statutory bodies in regulating the charcoal value chain.

1.3 Methodology

1.3.1 Study Areas

The study was carried out at Fakwasi, Kokofu and Kumfia in the Atebubu-Amantin District of the Brong-Ahafo Region of Ghana (Plate 1). Atebubu-Amantin District is one of the 27 districts in the Brong-Ahafo Region of Ghana and has **Atebubu** as its administrative capital. It is bordered to the north by East Gonja District in the Northern Region, Pru District and to the south by Ejura-Sekyeredumasi District in the Ashanti Region. To the east, it shares boundaries with the Sene District and to the west with Kintampo and Nkoranza Districts, all in the Brong-Ahafo Region. The people of the district are predominantly subsistence farmers, who mainly engage in the production of food crops such as yam, cassava, millet, rice and beans (www.ghanadistricts.com, 2015).

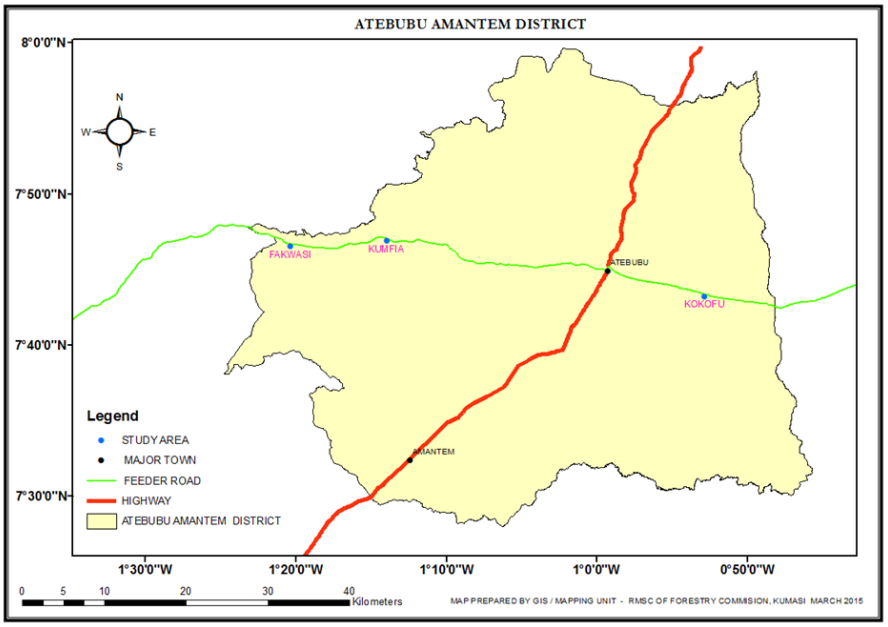

Plate 1: Map of the study areas

1.3.2 Research Design

Literature on the mechanisms of access, property rights, land tenure systems, and the policies governing the wood fuel sector in Ghana were reviewed to get a better understanding of the entire charcoal value chain in Ghana. Both qualitative and quantitative (mixed method) approaches were then employed to source information for the study.

Purposive sampling was used in selecting respondents for the survey, many of whom are members of charcoal producer associations in the project areas. Where applicable, field observation was also employed.

Semi-structured questionnaires (the principal survey instrument) used for empirical data gathering for this publication were designed and pretested through, expert review and cognitive interviews. They were administered by experts to minimise error attributable to the interviewer (Plate 2).

Plate 2: Interviewing the Chief and an Elder at Fakwasi

Overall, sixty-nine (69) respondents were interviewed for information on the mechanisms employed by the upstream actors of the charcoal value chain. They included three (3) traditional leaders, 61 charcoal producers, two (2) transporters, and one (1) and two (2) representatives from the District Assembly and Forest Services Division (FSD) respectively.

1.4 Structure of the Report

The report is in five chapters. The introductory chapter (chapter one) of which this section forms part presents the background, objectives of the study, information on the study areas, the approach for the study and the structure of the report. Chapter two reviews literature on the mechanisms of access to natural resource, concept of property rights, effect of land tenure systems in Ghana on access to wood, and policies relating to the wood fuel sector. The findings of the survey are presented and discussed in chapters three and four respectively. Conclusions and recommendations are presented in chapter five. The existing governance arrangements for charcoal enterprises in selected communities in the Atebubu-Amantin District are presented as an appendix.

CHAPTER TWO

2.0 Overview of the Mechanisms of Access to Natural Resources

2.1 Access to Natural Resources

Access is defined by Merriam-Webster (2014) as the 'freedom or ability to obtain or make use of something', or 'the permission or the right to enter, or get near'. Ribot and Peluso (2003) also defined access as 'the ability to benefit from things – including material objects, persons, institutions, and symbols'.

Ribot (1998) identified access to be closely related to the term 'property', which MacPherson (1978) characterises as 'a right in the sense of an enforceable claim to some use or benefit of something'. Access does not replace the term 'property', but rather it encompasses property, putting property (and other forms of) rights in their place among the whole array of mechanisms, structures, and relations at work. A key distinction between access and property lies in the difference between 'ability' and 'right'. The term 'right' implies an acknowledged claim that society supports (whether through law, custom or convention). The term 'ability', however, is broader than right, resting solely on the fact of demonstration without the need for any socially articulated approval. Right is therefore a prescriptive concept, while ability is a descriptive term (Ribot, 1998).

Ostrom and Schlager (1992) distinguished between the terms 'rights' and 'rules' in relation to the uses of natural resources. 'Rights' refer to particular actions that are authorised. 'Rules' refer to the prescriptions that create authorisations. For every right an individual holds, rules exist that authorise or require particular actions in exercising that property right (Ibid).

Bromley (2003) defined 'rights' as 'the capacity to call upon the collective to stand behind one's claim to a benefit stream'. He characterises rights not as a relationship between a person and an object, but as relationships between persons with respect to an object. Those rights are always protected by the state. *Property,* on the other hand, is the benefit stream. A property right is therefore 'a triadic social relation' involving the relationship between the individual who possesses the right, others that have to refrain from interfering with the right holder's exercise of those rights, and an institution to back-up the claim (Ibid).

Randall (1981) also recognised this triadic relation proposed by Bromley (2003) and argued that property rights specify the relationships among people with respect to the use of things, and the penalties for violation of those relationships. So, there must be an institution to enforce the claims and decide which claim is valid. According to Bromley (2003), the claims to a benefit stream derived from the property rights, are enforced by 'some higher body (usually the state), which will agree to protect through the assignment of duty to others who may covet, or somehow interfere with, the benefit stream'.

Neves and Lee (2009) reported that access entails rights, and is also fundamentally affected by social and political processes reflecting the distribution of power in communities and societies (including dimensions such as gender and conflict); by market forces reflecting the distribution of wealth; and by environmental forces which are often influenced by human activity).

Ribot and Peluso (2003) defined access to include all possible means by which a person is able to benefit from things and it includes the *de jure* and the *de facto* or extra-legal mechanisms (Berry, 2003). The extra-legal

mechanisms, structures and relations governing resource use according to Berry (2003) include:

- social identity or status, based on gender, age or nobility;
- social relations as in friendship, family, lineage, historical ties among individuals and groups, often based on social identity (Coleman, 1988 In Berry, 1993). Ribot (1998) also reported that certain individuals who have capital or a particular status can enter and use a given resource, even against the rules produced by society;
- coercion and trickery – i.e. misinformation, threats of violence or even theft;
- material wealth – i.e. financial and material capital or;

physical circumstance – i.e. location or stature.

By focusing on *ability* rather than *rights* as in property theory, Ribot and Peluso (2003) brings attention to a wider range of social relationships that can constraint or enable people to benefit from resources without focusing on property relations alone. They identified *rights-based access*, and *structural and relational factors* as mechanisms that shape access to natural resources in their theory of access. The rights-based access includes the legal (sanctioned by law, conventions and customs) and illegal means of access (i.e. enjoyment of benefits from things that are not socially sanctioned by state and society). The structural and relational access mechanisms mediate or operate parallel to rights-based mechanisms, thus shaping how benefits are gained, controlled, and maintained. They include technology, capital, markets, labour, knowledge, authority, identities, and social relations (Ibid).

O'Driscoll and Hoskins (2003) reported that while *access* is ultimately validated through property rights, ownership of those rights can be gained through many mechanisms. Legal mechanisms include voluntary sales, transfers, gifts and bequests. But *de facto* rights to natural resources can also be gained through bribes, graft, corruption and other illegal means. In countries with weak institutions and capacity to enforce property rights and the rule of law, extra-legal means of assigning property rights – or taking them away – are common. This is particularly a risk where the value of natural resources is rising more rapidly than the legal system's ability to adapt. The negative effects of corruption on the security of property rights, on a household's ability to mobilise its assets especially through access to formal credit, and on economic growth more generally are widely recognised (Ibid).

Neves and Lee (2009) reported that most of the world's poor live in rural areas and are highly dependent on primary natural resources and ecosystem services for their livelihoods (World Resources Institute, 2005). Thus the linkage between rural poverty and natural resources is necessarily a close one. But the full potentials resulting from this linkage cannot be realised unless the poor have improved and more equitable *access* to those resources and the poor are better able to sustainably manage their resource base (Neves and Lee, 2009).

Neves and Lee (2009) further identified that the livelihoods and well-being of the rural poor depend fundamentally on the opportunities available to them; these opportunities are shaped, in substantial part, by their access to natural resources. Access is therefore a central criterion to assuring sustainable rural livelihoods. Natural resources become natural 'assets' when access is assured, either through asset ownership or other forms of secure ac-

cess and control.

Amanor, Osei and Gyampoh (2005) reported three distinct types of access to wood resources for charcoal production in the Kintampo North District of Ghana. The first type consists of small-scale production by local farmers, who are citizens rather than migrants, and have secure access to farmland and rights to exploit natural resources freely.

The second type is characterised by settlements in which migrant farmers are dominant. These migrants may have settled in the Kintampo district for generations. While many of these settlers have been born within these settlements in Kintampo, they are still regarded as migrants and hold their rights to land as migrants rather than locals. They pay annual tithes to the chiefs. They do not hold secure rights to their land and the chiefs and their caretakers can sell the rights to exploit charcoal to a third party. Within these settlements, those wishing to exploit charcoal cannot do it freely and they have to pay sums of money to the chiefs for charcoal (Ibid).
The third type is characterised by large expanses of unsettled wilderness areas in which there is little farming. The chiefs give out large concessions to professional burners who exploit large areas with various types of labour. Frequently the permit holders contracts parts of the concession to other burners on share contract arrangements. Advance fees are paid to the chiefs and when the charcoal is sold the rest of the payment is made. The fees are closely guarded and those involved are reluctant to reveal the cost of the arrangements (Ibid).

Brefo *et al*., (2012) reported that the long distances charcoal producers travel to acquire permits and the lack of cooperatives required to aid coordination of resource acquisition hinders access to wood fuel in Ghana.

Obiri and Nutakor (2011) also reported that charcoal traders have inadequate financial capital for business operations, and often encounter delays in supply from production areas. Roop (2013) identified the concentration of power within the hands of a few people in the charcoal sector; and the rampant evasion of licensing fees and taxes on charcoal as some problems related to access in the charcoal value chain.

2.2 The Concept of Property Rights

Neves and Lee (2009) reported that *access* to natural resources is differentiated by many factors – the characteristics of the physical resource base, accessibility as permitted by local infrastructure, national policy and legal frameworks, local customary rules and traditions, and other factors. Key to assuring security of access is an understanding of the *property rights* of people.

A property right is "the authority to undertake particular actions related to a specific domain" (Commons, 1968); "a set of actions and behaviours that the possessor *may not* be prevented from undertaking" in relation to a benefit (or income) stream" (Bromley, 1991); or the "set of claims, entitlements and obligations regarding the use of a resource" (Furubotn and Pejovich, 1972). The resource here is considered to be a natural resource – land, water, forests, fisheries and crop genetic resources. Thus, the issue of property rights raises fundamental questions of who claims rights to what resources, who has access to the land and associated natural resources, and who has the responsibility for managing these lands (Neves and Lee, 2009).

The concept of property right goes beyond the simple relationship between a person and a resource. It also emphasises the social relationships between people, institutions and resources. Property rights are effective only when there are institutions acknowledging, legitimizing and enforcing them (Meinzen-Dick and Nkonya, 2007).

Social scientists normally refer to property rights as a bundle of rights rather than a single absolute right (Epstein, 2011).The different rights in the bundle may be distributed among individuals and society — some are public and some private, some definite, and others indefinite. These rights are characterised by Schlager and Ostrom (1992) as a "bundle of rights" to resources where the bundle may be thought of as consisting of a bundle of "sticks", each of the sticks representing separate and distinct rights of:

i. *Access (e.g. entry)*: the right to enter a physically defined property.

ii. *Withdrawal*: the right to obtain products from a resource.

iii. *Management*: the right to regulate use, improve and transform a resource

iv. *Exclusion*: the right to determine who will have access rights and how that right may be transferred.

Alienation: the right to sell or lease either or both the rights to management and exclusion.

It is possible for a single individual to own all the sticks in the bundle of rights to a particular resource, or some of the rights, or none of the rights. Similarly, separate rights in any given resource can be held independently of each other by different individuals or groups. Individuals and communities can hold well-defined property rights without retaining the entire set of rights identified above. Neves and Lee (2009) identified three primary types of property institutions that affect natural resource access depending

on the number and identity of the holders of the strands of a property rights bundle. They are:

i. *private or individualised systems*, often (but not always) involving individual title to land;

ii. *customary systems*, in which group membership rules and other internal rules and mechanisms assign rights and procedures for resource use; and

iii. *state systems*, in which access to state lands is determined, nominally at least, by central legal and administrative authorities.

In each system, specific rights are distributed across individuals, the community and the state. And any of these systems may, if not functioning properly, deteriorate into a situation of *open access* (Table 1). A sixth and ultimate rights of resource "regulation", denoting the fact that, regardless of the type of property right system that may exist in a given setting, the state typically retains a set of miscellaneous rights to control resources through such mechanisms as taxation, policing, and imposing eminent domain authority (Ibid).

Table 1: An example of distribution of specific rights under different property systems

Right	Private property system	Customary property system	State property system	Open access
Access (e.g. entry)	I	I	s	Everyone
Withdrawal	I	I	s	Everyone
Management	I	C	s	Everyone
Exclusion	I	C	s	no one
Alienation	I	C	s	no one
Regulation*	S	S	s	no one

i = individual holds this particular right c = community holds this particular right
s = state holds this particular right
* = this includes miscellaneous resource control rights – the right to tax, police, restrict certain uses, impose rights of eminent domain, etc. – that are typically held by the state

Private property rights are often thought of as the closest to owning the entire "bundle" of property rights "sticks." As each stick represents a distinct and separate right - the right to use resource, to enter it, sell it, lease it, transfer it, and to choose whether or not to exercise any of these rights - private property rights are the most inclusive and usually the most valuable.

Private property rights are typically characterised by the greatest security of tenure. Security of tenure has many implications, perhaps the most of which is that future payoffs from productivity-enhancing investments in the land are most likely to be assured (compared to other forms of property rights). This, in turn, is important because it is these investments in land productivity through use of credit, technology, labour-intensive farming practices, and other mechanisms that are commonly required on the part of smallholders to make their landholdings economically sustainable (Aggarwal and Elbow, 2006).

Customary Property: Compared to private property rights systems in which the individual "sticks" in the "bundle" of rights are typically concentrated in the hands of one individual unit, in the case of customary systems – particularly with respect to the common property resources they govern – it is more often the case that, the individual "sticks" are owned or used by

different rights holders (Neves and Lee, 2009). Cotula (2006) explained that the general basis for customary property is customary "law", typically unwritten traditional rules and arrangements on the part of collective ownership units – the village, tribe, lineage or extended family – which regulate the territory of, and resource use by, the unit's members. Platteau (1995) also added that customary authorities may have wide-ranging abilities to manage access and the use of natural resources by: allocating land and other resources; distributing use rights to land, water, forest and fisheries; determining acceptable resource uses; supervising the exchange and transfer of land and resources; and adjudicating conflicts over resources.

State Property: In contrast to both private and communal property, strands of the property rights bundle may be held and managed by the government, in which case the term state property is applied. Here, the central government has authority to the ownership and management of land, water, forests and other resources, or to the delegation of these rights to others (Neves and Lee, 2009).

The role and importance of the rights of the state vary widely by country and by type of natural resource, and this role has changed significantly over time in many instances. In intensively farmed agricultural lands in many countries, the role of the state is typically limited to setting statutory law regarding the overall framework of resource use within which rural households operate: land registration and titling; land transfers; product standards for purchased inputs; rules, guidelines and standards for marketed products; means of adjudicating disputes, for example over land ownership and use; and, through national policies and international agreements, establishing the overall framework for market access and price

determination. With regard to resources characterised by common property and open access – many water, forest and fishery resources, for example – the state often owns the resource and retains the ultimate authority to delegate use rights to others, including private individuals, community and indigenous groups (Aggarwal and Elbow, 2006).

Open access refers to land or natural resources that have no specific right holders associate with them. While this situation is extremely rare, in reality, land and natural resources often experience open access situations where claimed rights are unenforceable in the face of an absence of legitimacy or the means to exclude anyone from use. Open access lands and natural resources, sometimes referred to as "non-property," exemplify lack of specific rights, or unenforceable rights (Ibid).

In contrast to communal property regimes, open access resources have no named and known group that claims them, and no specific institutional arrangements designed to ensure proper governance of the resource. Also unlike communal property, in open access areas by definition no particular individual or group has authority to exclude anyone from using the resource (Ibid).

2.3 Role of Land Tenure System on Property Rights in Ghana

Land tenure is the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land. Land tenure is an institution, and the rules governing land tenure were invented by societies to regulate behaviour (FAO, 2002).

There are two broad systems for administering land tenure and resource access in Ghana – customary and statutory land management. Djokoto and Opoku (2010) explained that whiles the former is characterised by its largely unwritten nature, based on local practices and norms that are said to be flexible, negotiable and location specific, the statutory land tenure system, on the other hand, is usually codified, written statutes and regulations, based on laws having their roots in the colonial power, which outlines what is acceptable and provides consequences for non-compliance.

The 1992 Constitution of Ghana upholds the authority of local chiefs to manage and allocate land and divides land into both public and customary tenures. Public lands are vested in the President on behalf of and in trust for the people of Ghana, and are managed by the Lands Commission (Clause 1 of Article 257). Customary land is held by local customary governments (stool/skin lands), with title held in trust by local chiefs (Clause 1 of Article 267).

Customary land tenure in Ghana is usually managed by a traditional ruler, earth priest, council of elders, family or lineage heads who have the authority to enforce rights and obligations related to the land that has been granted (Arko- Adjei, 2011). Customary tenure system in Ghana falls into two (2) categories. There is the case where land ownership is vested in communities that exist as chiefdom. This category is common in the southern part of Ghana, specifically, among the Akans. These communities are represented by their chiefs and council of Elders who govern and manage land on their behalf.

In Akan customary law, (particularly among the Asantes and Akyems) the paramount or allodial title is vested in the head stool (Arko-Adjei, 2011). Ollennu (1962) explains that as the stool is the embodiment of the collective authority of all the members of the community, the stool holds the allodial title to all the lands of the village, town or tribe. It is generally an accepted view among the Akans, notably the Asantes and Akyems, that the allodial title to all lands is vested in the head chief, of which the lesser chiefs in turn hold lesser titles in a manner corresponding to their positions in the hierarchy of the political order. In other words, land holding is the product of political allegiance to a higher authority in the hierarchy in the Akan state.

Arko-Adjei (2011) further indicated that, the second category, which is common among non-Akan communities, land ownership is vested in clans, not stools, as is the case for tribes such as the Ga Adangme and the Anlo. In such groups, land is collectively owned by clans, which may in turn have inherited the land from a common ancestor.

ClientEarth (2013) reported that the 1992 Constitution of Ghana does not mention who owns and manages natural resources other than minerals in their natural state, nor does it mention who owns family lands and how these relate to stool and skin lands. The Constitutional Review Commission has therefore recommended that lands and all natural resources should be owned by the people and vested in the President in trust for and on behalf of the people of Ghana.

Migrants have no inherent rights to use land but can acquire land with the permission of the landowner. The tenure systems allow migrants to farm on terms agreed on with the owners, (Djokoto and Opoku, 2010). In most communities, it is not permissible for migrants to plant trees since it is considered that this may result in their claiming ownership of the land eventually. They can only plant trees with the consent of the person who gave them the land on such terms as may be agreed upon.

Kotey (1995) reported that opportunities exist for leasing land for tree planting by migrants. Land owners are willing to grant leases of land for woodlots and plantations on the payment of a mutually acceptable consideration. Otherwise, where a stranger plants trees without the requisite consent or permission the trees are said to belong to the landowner (Ibid).Trees growing naturally in the bush are owned by the custodian of the land, chief, *tindaana*[3] or families as the case may be (Pogucki, 1952). Planted trees are owned by the planter. Such a person can sell, give away and use such trees. It is striking to note that each tree can be inherited in the same way as land (Kotey, 1995).

Kotey (1995) reported that apart from the '*Dawadawa*' tree (*Parkia clappertoniana*) which may be governed by different rules, all other trees and their fruits such as sheanut trees growing in the bush may be collected, used and enjoyed by all members of the land owning group. Trees growing naturally on farms, with the exception of the *dawadawa*, are in most instances owned by the farmer. The farmer may use, cut down, harvest the produce, pick the fruits of, collect as firewood and in other ways use such trees on his farm.

[3]*Tindaana* is the traditional earth priest

People (including migrants) may also use a wide range of strategies to gain access to land. These may include:

I. Purchase, often using capital accumulated while working as migrants in urban areas. The sale of customary land transfers all the interests that the transferor has in the property to the transferee, unless expressed to the contrary. (Da Rocha and Lodoh, 1995).

II. Adverse possession or prescription (the acquisition of rights through possession for a prescribed period of time). In some countries, this may be the only method for small farmers to gain formal access to vacant or abandoned land and to bring it into productive use (FAO, 2002).

III. Leasing, or gaining access to land by paying rent to the owner. This is the grant of the use of land for a period of time. The lease terms involve an agreement on a period for the use of the land. The lessor can take the land back if the contract is breached (Arko- Adjei, 2011).

IV. Inheritance or gaining access to land as an heir. Land can be inherited through matrilineal and patrilineal systems (Ibid).

The Ghana Poverty Reduction Programme noted that accessing land in Ghana is difficult for agricultural, industrial, commercial, and residential development purposes due to conflicting claims of ownership, and varied outmoded land disposal procedures. The very poor have little access to land, a fact that the Poverty Reduction Strategy notes as an impediment to rural development. Women have limited access to land, land tenure, and credit, and generally only men inherit land (GPRS, 2003).

2.4 Policies and Programmes in the Wood fuel Sector

The Government of Ghana recognises the usefulness and contribution of wood fuel to the economic and energy needs of Ghanaians and its implication on forest management. Provisions have therefore been made in the 2012 Ghana Forest and Wildfire Policy to 'sustainably manage and develop commercial wood fuel supplies and other non-timber forest products (NTFPs) both on-and-off-reserve forest areas'. The action to achieve this strategy is to 'promote the establishment of commercial and small holder woodlots or plantations on both on-and off-forest reserves'.

The Forest Investment Programme (FIP) 2012, makes provision for vigorous promotion of more sustainable production systems that would not only contribute to the biomass energy requirements, but also reduce pressure on indigenous woodlots in the savannah and forest-savannah transition zone.

The FIP recognises the driving forces of deforestation arising from charcoal production as:
High rural and urban demand for wood fuel;

I. Open access nature of the resource (i.e. wood);
II. Inefficient production system; and
III. Inefficient production of alternatives

FIP aims at addressing the underlying drivers of deforestation and catalyse transformational change by providing upfront investment to support the implementation of the REDD+ strategy, and generate information and experience for policy and regulatory changes.

FIP aims at investing in four major intervention areas within a coherent programmatic framework with a focus on the high forest zones (HFZ):

1. Coordinating activities: Landscape planning, inter-agency dialogue and enforcement

2. Enabling activities: Policy and legal reform on tree tenure and on private investment in the forestry sector, capacity building;

3. Piloting activities: Testing alternative models of forest reserves management, benefit-sharing schemes, and incentives to retain trees on farm; and

4. Direct investments: Investments in the private sector in sustainable forest and agriculture, through a REDD+ investment program and technical assistance program to scale up impact.

The 'Strategic National Energy Plan (SNEP, 2006-2020) of Ghana', recognises the disregard for wood-based fuels and recommendations are made to institutionalise the wood-energy sector as a subsector in its own right. It has therefore proposed to establish a National Wood-fuel Office as a coordinating body, to improve management efficiency, promote charcoal-industries, and ensure sustainable wood supply.

The goal of the SNEP (2006 – 2020) is to contribute to the development of sound energy market to provide sufficient, viable and efficient energy services for Ghana's economic development by formulating a comprehensive plan that will identify the optimal path for the development, use and efficient management of energy resources in the country SNEP (2006).

The SNEP and Bio-energy Policy documents accept that the government should support and promote the development of sustainable supply of feedstock. The strategies to achieve the objectives as outlined in the Bio-energy document focus more on the development of woodlots.

2.5 **Production and harvesting of fuel wood**

Vos and Vis (2010) reported that, the past two decades have witnessed a growing movement to empower rural communities with the rights and responsibilities to manage local forest resources across Sub Saharan Africa. Participatory or community forestry has taken root, using a range of different models. One of the key lessons learnt is that security of tenure (property rights) is a key factor that determines whether participatory forest management succeeds or fails - both from a forest management perspective, and from the perspective of securing and maintaining participation over the long term.

The following examples (i.e. case studies) illustrate the success stories some Africa countries have used to address dwindling resource base (or deforestation) attributed to charcoal production.

- Community forest management in Senegal
- Individual reforestation schema Madagascar
- De-linking charcoal production and deforestation in Rwanda
- Plantation-based charcoal production in South Africa.

In Senegal, the forest law creates opportunities for rural communes to formally claim possession of hitherto state controlled forests adjacent to their community, and to manage them in accordance with a publicly approved forest management plan. Additionally, state forests may be allocated to communes for co-management. Communes, in turn, enter into contracts for the purpose of granting use rights on the village level (WB, 2009).

The case of Madagascar presents a promising example where tenure rights in respect of marginal public lands have been granted to individuals of local communities for the purpose of creating energy plantations. The village-based approach places local people at the centre of planning and implementation of plantation management for sustainable charcoal production. It is based on voluntary participation of communities eager to rehabilitate degraded lands by means of voluntary reforestation. More than 4500 ha have been planted, providing an annual increase in income of more than 20% for more than 1500 rural households. 34% of the poorest and landless people became involved, and 22% of women enrolled as woodlot holders. In addition, the uncontrolled exploitation of natural forests in the vicinity of the villages substantially decreased, as did the incidence of fires (Sepp, 2008).

Rwanda is one of the few examples of an African country with increasing forest cover, growing about 7% from 2000 to 2005 primarily due to large numbers of forest plantations. It is the only country in Africa where the relation between charcoal and deforestation no longer exists. This success comes at the expense of Rwanda having previously lost two-thirds of its natural forest cover and, along with it, much of its biodiversity. Today, practically all charcoal in Rwanda is derived from trees that have been planted on government, private or community land. There are indications

that private woodlots, using planted fast growing eucalyptus, are providing an increasing part of the firewood and charcoal market in Rwanda. Charcoal production from natural forests is almost non-existent (Vos and Vis, 2010).

Farmers have become aware that with secure land tenure and rising wood fuel prices, it is profitable to invest in tree planting, and to produce poles for construction, fuelwood and wood for charcoal making. Furthermore, due to rising income, the position and social standing of farmers in rural society has improved. Farmers are able to engage traders –who formerly held most of the power within the wood fuel value chain– on an equal footing, and to negotiate prices as is common in a free market economy (Rogério *et al.,* 2010).

In South Africa, charcoal is primarily made from tree plantations; established in the first place to provide pulp, wattle extract, and construction timber. Commercial plantations (mainly of pine trees, gum trees and black wattle) cover almost 1.2 million ha (Vos and Vis, 2010).

CHAPTER THREE

3.0 Findings

The findings from the survey are presented under the following subheadings: access to raw material (wood) for charcoal production; regulation and charges within the charcoal business; marketing of charcoal in the study area; contribution of charcoal to livelihoods in the study area; desire of respondents to replenish resource base (wood); and the role and responsibilities of statutory bodies in the charcoal business.

3.1 Access to raw material for charcoal production

Availability and regular supply of raw material (wood) is inevitable for the sustenance of the operation of charcoal production. To have a fair idea of how respondents acquire raw materials for their operations, questions were asked about the source of wood for their operations; the procedure for acquiring the wood; differences in the procedure in relation to indigenes and migrants; and gender (male and female).

3.1.1 Sources of raw material for charcoal production

A greater percentage (78.2%) of charcoal producers obtains wood from fallow lands for charcoal production in the Atebubu-Amantin District. Their second source of raw materials is farmlands (21.8%) which could be personal and/or belong to other people (Figure 1).

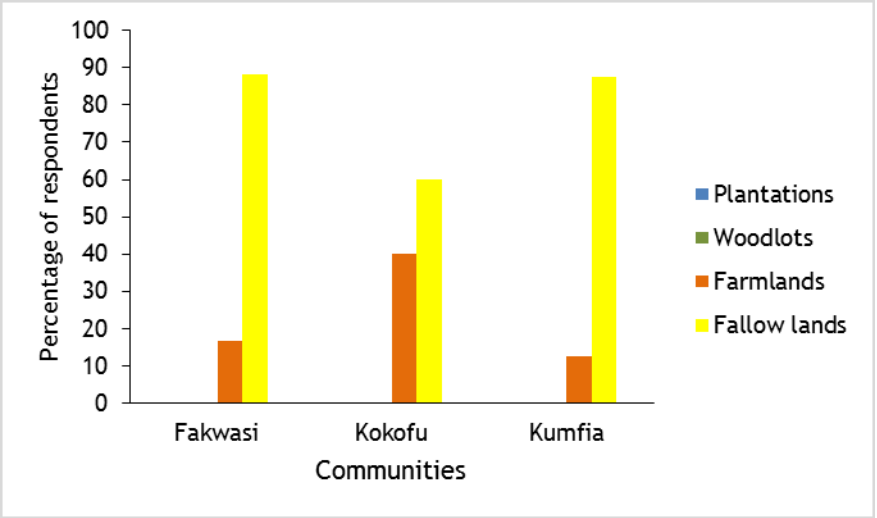

Figure 1: Sources of wood for charcoal production as indicated by respondents.

It is worth noting that, there is no forest reserve, plantation or woodlot in the study area from which respondents could source wood. Respondents indicated that trees felled are not replaced. They rely on natural regeneration and coppicing to ensure the sustenance of the resource base.

All respondents agreed to the diminishing resource base (i.e. wood) for charcoal production and expressed their willingness to replenish it through woodlot establishment.

3.1.2 Arrangements for securing wood for charcoal production

Respondents indicated three arrangements for securing wood for charcoal production in the Atebubu-Amantim District. These are: the payment of tokens to chiefs, landowners[4] or farmers; sharing of proceeds from charcoal

[4] Land owners refers to custodians of lands who are not chiefs.

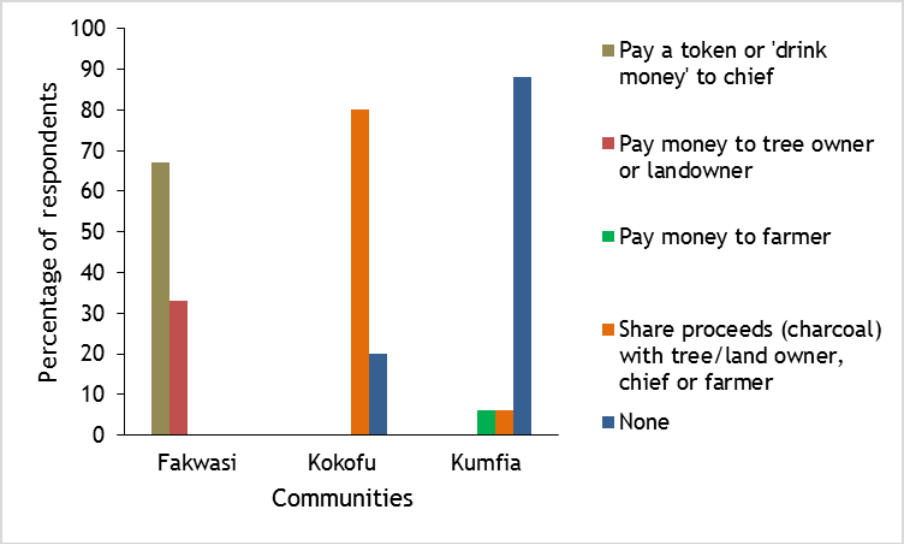

Figure 2: Arrangements for acquiring wood for charcoal production as indicated by respondents

Charcoal producers are mandated by existing arrangements to pay tokens to chiefs for accessing wood from their stool lands. The tokens are usually in the form of drinks or money. Also, where the arrangement warrants the sharing of proceeds, there are clear-cut definitions of who gets what. Some of the arrangements include a system where landowners get a third ('*Abusa*') or half ('*Abunu*') of the total charcoal produced.

The arrangements for acquiring wood for charcoal production vary among the three (3) communities, and also between migrants and indigenes. While indigenes at Fakwasi and Kumfia have free access (do not buy) to wood from fallow lands, migrants are required by the Traditional Council to agree on some terms for the payment of wood. The variation arises because indigenes unlike migrants are owners of the lands in those communities (i.e. Fakwasi and Kumfia) and retain their proceeds in the communities.

It is worth noting that, all respondents (indigenes and migrants) were of the view that, the arrangements for accessing wood for charcoal production were fair.

The situation is however different at Kokofu where the Traditional Authority requires both indigenous and migrants charcoal producers in the community to give 20% of their output (charcoal). The rate was imposed on the community without consultations. This has given rise to agitations, especially by some indigenes who feel they are being cheated by their traditional leaders. According to them, indigenes should have free access to wood for charcoal production.

Although differences exist in the processes or procedures for acquiring wood for charcoal production between indigenes and migrants in all three (3) communities, no such differences exist between males and females. The only difference was in relation to the charcoal production stage, where males dominate due to its drudgery nature – felling of trees, arranging the logs, covering them with fresh grass and sand and perforating holes to allow the entry of oxygen to improve carbonisation of the wood. It is however worth noting that, according to respondents, women dominate the downstream parts of the charcoal value chain (i.e. distribution, marketing and consumption).

The survey also revealed that, any deviations from the stipulation for acquiring wood, such as incidences of theft of wood or felling of prohibited species e.g. *Khaya senegalensis* are punished by the traditional authority. To this end, the traditional authorities and the Charcoal Producers Associa-

tions in Fakwasi and Kumfia have formed task forces that monitor the operations of charcoal producers. Also, rewards are given to individuals who report malpractices.

3.1.3 Mechanisms for the payment of wood for charcoal

Production

Factors that determine the cost of wood for charcoal production in the study include: size of land, tree species, size and quantity of trees, distance from the community to the land, accessibility (motorable nature of roads) and the bargaining power of parties involved. Payments are made before and/or after processing the wood into charcoal, and are usually in the form of cash payments using the producer's money or credit from buyers. Most charcoal producers use personal funds to finance the payment of wood for charcoal production (15.6%). A few (6.3%) borrow money from buyers to pre-finance the payment of wood (Figure 3). Most charcoal producers complained of their inability to access loans from the bank due to high interest charges and their inability to get collaterals.

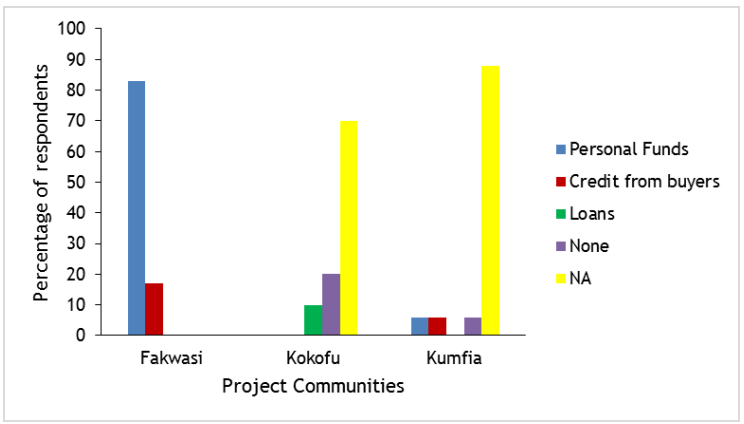

Figure 3: Sources of capital for payment of wood as indicated by respondents.

3.2 Marketing of charcoal in the study area

The survey revealed that, charcoal produced in the project sites is usually sold at the Atebubu market, except in rare situations where, producers team up to transport their product to Kumasi, in search of better prices. Respondents indicated that, the price of charcoal is determined by market forces, which in turn is influenced greatly by season (Figure 4), except in exceptional situations where, the type of wood used dictates the price of the charcoal. For instance, *Erythrophleum ivorense* ('*Potrodom*') produces excellent charcoal that burns slowly and has high calorific value and as such, receives premium prices.

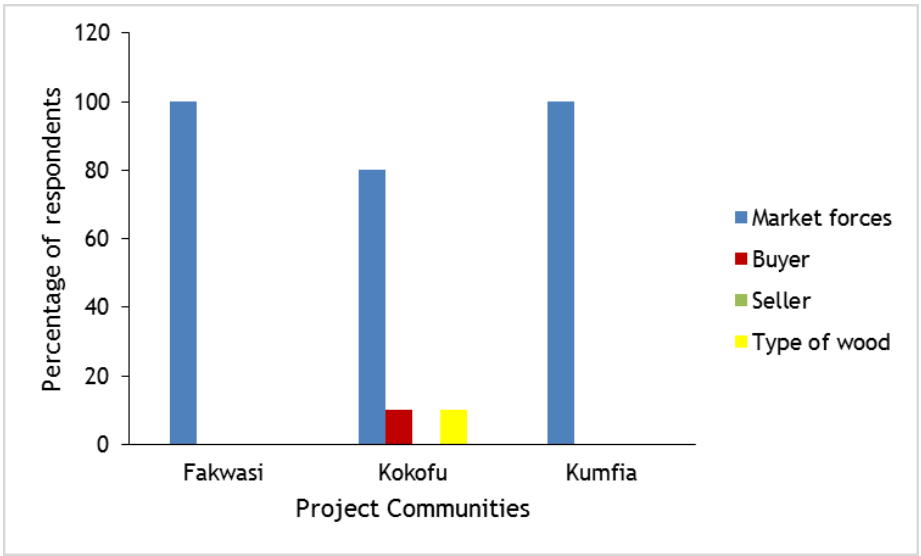

Figure 4: Determinants of the price of charcoal in the study area as indicated by respondents.

The season of the year (i.e. rainy or dry) was identified as a key determinant of the supply of charcoal to the market. According to respondents, most roads linking major towns to charcoal producing communities become unmotorable during the rainy season (i.e. June – September). This coupled with the declining resource base which has increased trekking distances to accessing wood from fallow lands for charcoal production. This therefore results in a reduction in the supply of charcoal which does not meet market demand, and automatically cause price to rise. The opposite is true during the dry season (i.e. November – February).

The above scenario makes it economically viable to hoard and sell charcoal in the rainy season. However, respondents mentioned lack of funds to sustain their families as the principal reason for selling their products at lower prices in the dry season. They therefore suggested the provision of additional livelihood support programmes to cushion them from financial hardship.

3.3 Contribution of charcoal production to livelihoods in the study area

To ascertain the contribution of charcoal production to livelihoods, respondents were asked about their livelihood options and, the contribution of charcoal to these livelihoods. It became clear that, charcoal production contributes more than 50% of the household income of 78% of the respondents (Figure 5).

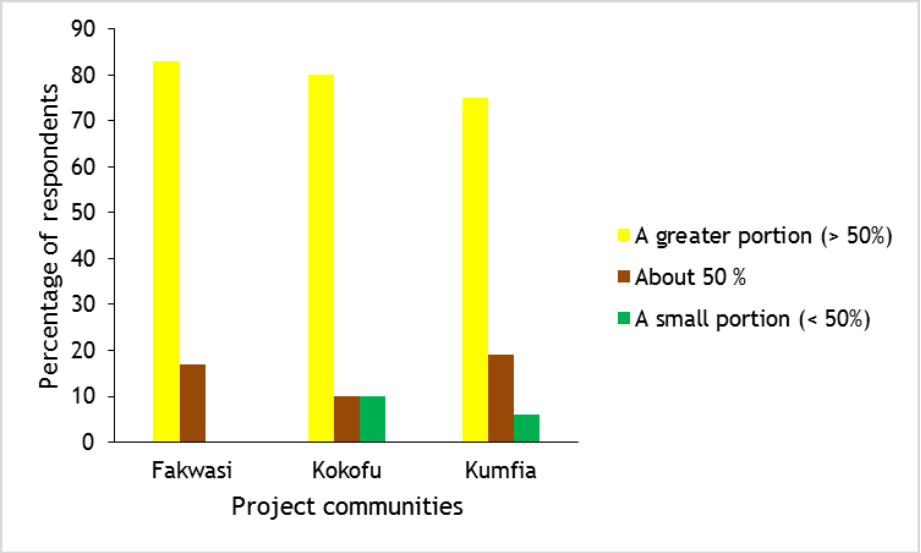

Figure 5: Contribution of charcoal production to the household income of people in the study (Fakwasi, Kokofu and Kumfia) at Atebubu.

Other livelihood options of the respondents include; farming and other menial jobs like, masonry and carpentry. The Chief of Fakwasi attested to the economic benefits of charcoal production in his traditional area by stating that, most of the buildings made of cement blockd belong to charcoal producers.

3.4 **Desire of respondents to replenish resource base of raw material**

All charcoal producers consulted purported that the availability of wood on fallow lands have declined. This was manifested in the difficulty the project staff encountered in acquiring pegs for nursery establishment activities in the

study area. The following were identified as the causes of the decline in wood supply from fallow lands: increased population and its associated pressure for wood for charcoal production; competition with timber contractors for the same wood; unsustainable farming practices; and poor coppicing ability of most species used in producing charcoal.

Respondents indicated that, they are willing to accept initiatives that develop their capacity to establish plantations from which they can access wood for their operations. However, they showed concern about the implementation of benefit sharing arrangements.

3.5 Role of statutory bodies in the charcoal business

The survey revealed that statutory bodies notably, the Forest Services Divisions (FSD) and District Assembly (DA) have interest in charcoal production in the study area. Their interest is primarily centred on revenue collection. According to the respondents, the District Assembly charges a levy of Fifty Pesewas (GH₵ 0.50) on each bag of charcoal produced in the Atebubu-Amantin District. This amounted to GH₵127,400.00 (equivalent to $ 36,400) in the year 2014. This levy is however paid by the transporters and not the producers.

The FSD on the other hand charges conveyance fees from charcoal transporters. The fee ranges from Fifteen to Forty Ghana Cedis (GH₵ 15.00 to GH₵ 40.00) depending on the type of vehicle used in transporting the charcoal. It is worth noting that the FSD, like the DA, does not collect any levy from the charcoal producers.

The FSD collaborates with the Ghana National Fire Service to carry out bush-fire education campaigns. The FSD also provides advice on species of trees that must not be harvested for charcoal production. Among these species are; *Khaya senegalensis* (Mahogany), Daniellia *oliveri* ('Senya') and *Butyrospermum parkii* (Shea butter), *Parkia clappertoniana* (Dawadawa). The charcoal producers attested to the fact that they are forbidden from harvesting the aforementioned trees species for charcoal production but stated some recalcitrant members illegally harvest these trees.

The DA revealed that it lacks a database on charcoal producers and the logistics to carry out its operations. Charcoal production is regarded as a menace and therefore due to replacement in the District Medium to Long Term Development.

The FSD has the authourity to issue salvage permits to charcoal producers to use logging residues from timber utilisation contract holders. However, no charcoal producer has ever applied for the salvage permits. They rather negotiate with the chiefs and landowners to access the logging residues. The FSD admits that the producers find the permit application procedure to be cumbersome.

3.6 Summary of Findings

The findings from the survey herein are summarised below:

1. Land tenure systems affect the rights of charcoal producers in accessing wood for charcoal production. Indigenes in the study area have free access to wood from fallow lands, except in Kokofu where, indigenes and migrants pay 20% of their proceeds to the traditional au-

thority for using wood from the Kokofu stool land for their operations. Indigenes at Kokofu are therefore aggrieved because they feel treated as migrants in their own land.

2. Wood from fallow lands and farm lands are the dominant sources of wood for charcoal production.

3. Access to wood for charcoal production is treated as an open access resource, but governed by customary laws.

4. Charcoal producers deal with Traditional Authorities to access logging residues instead of applying for salvage permits from the FSD.

5. Most people (migrants) who use wood for their operations pay for them with their own cash or are pre-financed by buyers

6. Access to wood for charcoal production is not regulated by any state institution.

7. Conflicts associated with access to wood (e.g. theft or felling of prohibited species) are resolved at the traditional council, where offenders are fined.

8. The cost of charcoal is high during the rainy season (June – September) where bad roads reduce access to charcoal producing community, thereby reducing the supply of charcoal to markets.

9. Charcoal producers are aware of the environmental menace resulting from their operations and are ready to address them with woodlot establishment.

10. Charcoal producers have requested for additional livelihoods to cushion them from financial hardship.

11. The District Assembly and the Forest Services Division charge levies on charcoal from transporters. However, there is no effective collaboration between these two statutory bodies and charcoal producers. The DA's Medium to Long Term Development Plan aims at discouraging charcoal production.

12. Charcoal production contributes to more than 50% of the household income of 78% of the respondents consulted during the survey.

CHAPTER FOUR

4.0 Discussions

4.1 Mechanisms applied by upstream actors to access wood for charcoal production

Ostrom and Schlager (1992) reported that for every right an individual holds, rules exist that authorise or require particular actions in exercising that property right. Bromley (2003) and Randall (1981) identified 'a triadic social relation' involving the relationship between the individual who possesses the right, others that have to refrain from interfering with the right holder's exercise of those rights, and an institution to back-up the claim in a property right relation. The findings corroborate Ostrom and Schlager (1992), Bromley (2003) and Randall (1981) and revealed that although access to wood for charcoal production is treated as an open access resource where members is the community are not prevented from accessing it on the basis of gender or social relations. Access is governed by customary laws which is recognised by all actors including the state. Both migrants and indigenes have rights to access wood for charcoal production and acknowledge the rights of land owners to collect token money for the harvesting of wood for charcoal and/or the collection of 20% of produced charcoal from their stool lands. These governance arrangements are documented and recognised by the Atebubu-Amantin District Assembly (see appendix).

Land owners/chiefs reserve the right to lease such individual family lands with recourse to traditional arrangements to others/migrants at a fee or payment as the landowner may deem appropriate. A resident farmer has

right to produce charcoal from his/ her cultivated land but leasing such lands to others shall be subject to the chief / landowners consent. This finding also corroborate Amanor (2005) who reported three distinct types of access to wood resources for charcoal production in the Kintampo North District.

The major source of wood for charcoal production is fallow lands (Figure 1) and producers pay token money to the land owners or chiefs. This corroborates Pogucki (1952) assertion that 'trees growing naturally in the bush are owned by the land owner – chief, *tindaana* or families as the case may be'. The study areas also exemplifies the Akan customary laws where land holding is the product of political allegiance to a higher authority in the hierarchy (Ollennu, 1962).

Although some respondents reported rare incidents of theft of wood from time to time, they indicated such cases are generally resolved as the Chief's palace and offenders fined. This corroborates Ostrom and Schlager (1992) and Arko-Adjei (2011) assertions that rules exist that authorise or require particular actions in exercising property rights, and in Ghana customary land tenure is usually managed by a traditional ruler, earth priest, council of elders, family or lineage heads who have the authority to enforce rights and obligations related to the land that has been granted. The findings also support Ribot and Peluso (2003) theory of access which states that rights-based access include the legal (sanctioned by law, conventions and customs) and illegal means of access (i.e. enjoyment of benefits from things that are not socially sanctioned by state and society). Although stealing is not condoned in customary law, offenders are made to pay for the wood based on existing governance arrangements. Additional fees in the form of penalty go to traditional authorities.

The difficulty in accessing wood at remote areas coupled with the additional cost of hiring tractor to cart produced charcoal to motorable roads hinder access to wood for charcoal production and supports the assertion by Neves and Lee (2009), that access to natural resources is differentiated by many factors – the characteristics of the physical resource base, accessibility as permitted by local infrastructure, national policy and legal frameworks, local customary rules and traditions, and other factors.

4.2 Desire of upstream actors to replenish their resource base to promote sustainable charcoal production

Respondents recognise the dwindling resource base of raw material for charcoal production (i.e. wood) and reported they sometimes travel long distances in search of wood. Some also reported that they are currently using some species which hitherto were not considered to be of good quality for charcoal production. It is encouraging that charcoal producers have indicated their desire to replenish the resource base through woodlot establishment. However, this should be juxtapose with the findings of Floor (1987) who reported that the results of tree planting projects for fuelwood production have generally not been encouraging in many Africa countries. He cited the preference of small holder farmers for trees that yield multiple outputs such as fodder, poles and shade to fuel wood, irrespective of the seriousness of the fuelwood shortage. Success has also been hampered by the fact that many woodlots were planted on communal land without a clear understanding of who exactly would maintain the seedlings, and who had rights to the eventual wood products.

To avert the above situation from happening, Foley and Barnard (1984)

recommended that care must be taken to ensure that species chosen for woodlots are locally desirable, saleable, and should also serve multipurpose functions. Vos and Vis (2010) recommended participatory or community forestry using different ranges of model to address the dwindling resource base for charcoal production in Africa, but reiterated the fact that security of tenure (or property rights) is a key factor that determines whether participatory forest management succeeds or fails - both from a forest management perspective, and from the perspective of securing and maintaining participation.

TBI GH has already established model tree nurseries with multi-purpose tree species with charcoal producer associations in the three study areas with the hope of establishing model integrated woodlots. The model integrated woodlots (when established) could in addition to supplying wood for charcoal production provide producers with alternative and/or additional livelihoods. The study area is known for bee keeping, therefore integrating woodlots with apiculture could provide additional livelihoods to the producers.

Incentives must however be provided to ensure the success of woodlots in Ghana. The Forest Investment Programme presents some form of hope. Efficient charcoal production technologies like the supply and training in the use of metal kilns could be incorporated to improve efficiency during carbonisation. A percentage of the levies charged by the DA and the FSD could be allocated to support the establishment of integrated woodlots.

4.3 Strengthening the role of statutory bodies in coordinating charcoal production

The fact that, the FSD and DA charge levies on charcoal in the study area implies that, they have a stake as well as a role in sustenance of the production of this critical commodity – 80% of Ghanaian households use charcoal as their primary or secondary source of energy (Anang *et al*. 2011). Their potential roles include: effective contribution to policy development, awareness creation, sensitisation, training, capacity building and monitoring. However, ineffective enforcement of existing laws and lack of commitment by some personnel in both agencies hinder their ability to effectively take on these potential roles. This is consistent with reports by several authors that low numbers of staff, lack of commitment of some personnel, inadequate supply of logistics and poor and ineffective supervision (Nketiah and Kumeh, Unpublished; NFPDP, 2013) prevents the FSD from effectively carrying out its operations. The District Assembly also regards charcoal production as a driver of deforestation without any scientific evidence and therefore aims at discouraging it production in the district. This perception is adversely affecting plans to develop the charcoal industry.

Anang *et al*. (2011) recommended that the enforcement of bye-laws on indiscriminate felling of trees for charcoal production, regulation of trade in charcoal and provision of alternative livelihoods could reduce pressure on wood resources for charcoal production, improve trade in charcoal and ultimately promote sustainable forest management.

This is where the DA and FSD in the study area need to position themselves, to take advantage of the on-going FIP and secure funds that could be used

in carrying out activities like awareness creation, sensitisation, and capacity building and training of their staff and communities on innovative mechanisms that guarantee sustainable charcoal production (e.g. agroforestry). The implementation of such initiatives is germane to driving a paradigm shift from dependence on wood from open access to, the use of wood from responsible sources e.g. personal plantations and/or off-cuts, for charcoal production.

The World Resources Institute (2005) reported that charcoal production, transportation and distribution have remained informal and unregulated owing to the lack of coherent policies. In the case of Ghana, two key statutory bodies have diverging roles so far as charcoal production is concerned. While the Energy Commission (EC) regulates the energy sector (including charcoal production), the FC regulates the harvesting of trees, the key raw material for charcoal production. Ricercaé Cooperazione (2011) reported that Ghana hardly has a formal wood fuel policy neither does the country have accurate and consistent data on wood fuels to guide policy formulation and planning. Also there are no explicit statutory mechanisms to guide the wood fuel business at the District levels. There is however a draft bioenergy policy with a section on wood fuels which the EC hopes to use to regulate the wood fuel subsector.

CHAPTER FIVE

5.0 Concluding thoughts and Recommendations

Access to wood for charcoal production is a triadic social relation that involves land owners, charcoal producers and the state. Rules governing access are well known among the various actors and have been documented. The major problems affecting access to wood for charcoal production in the Atebubu-Amantin District are the dwindling resource base, non-enforcement of the validated governance arrangements adopted for charcoal enterprises in the district, and the unclear or ineffective roles by statutory bodies like the EC, DA and FSD.

Based on the above, the following recommendations are aimed at improving access to wood for sustainable charcoal production in the study area.

- **Creation of a platform for dialogue**

It is recommended that, platforms be created for all stakeholders involved in the charcoal value chain to address the issue of deforestation and depletion of the resource base. The DA and FSD for instance could use the platform to explain their operations to build trust and improve payment of revenue to them. This platform would also enable communities to lobby for desired developmental issues to be integrated in the district's Medium to Long Term Development Plan. Furthermore, communities would have the avenue to suggest desired mechanisms for access to wood, especially for indigenes for improved participation of all concerned parties.

- **Enforcement of governance arrangements**

The strict enforcement of the existing governance arrangements for charcoal enterprises, especially on issues that relate to access to wood, will ensure a fair and equitable access to wood for charcoal production.

- **Introduction of carbon tax**

A carbon tax could be added to the current levies being charged the DA and FSD to establish woodlots or plantations to ensure sustainable supply of wood for the charcoal industry.

- **Piloting of an integrated woodlot establishment**

Community woodlots should be established with multi-purpose trees and integrated with alternative and additional livelihoods like beekeeping to cushion charcoal producers from financial hardship. In this regard, there is the need for the Forest Connect Project to use the seedlings raised under the current phase of the project to establish the woodlot and also arrange for the beneficiaries to cultivate crops during the initial stages and introduce beekeeping once the canopy closes. Beneficiaries could also cultivate shade tolerant species such as *Tylophora conspicua* ('surowisa'). This would serve a dual purpose of demonstration and income generation.

- **Training and provision of improved kilns to charcoal producers**

The earth kiln is the only type of kiln known and used by charcoal producers in the study areas. There is therefore the need for the training and provision of improved metal and/or bricks kilns to improve the conversion efficiency of charcoal produced in the area.

- **Comprehensive studies on the entire charcoal value chain**

A comprehensive study on the entire charcoal value chain will help move the industry from an informal sector to a formal sector. It is the prerequisite for informed policy interventions targeted at making the charcoal production a poverty alleviation and livelihood development tool.

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APPENDIX

Appendix 1: Proposed governance arrangements for charcoal enterprise in selected communities in Atebubu-Amantin District

1. INTRODUCTION

Charcoal production and trade provide key support to energy needs of many Ghanaians, support livelihood and district economies through significant contribution to the internally generated fund (IGF) for district assemblies. Yet, due to the unregulated nature of the charcoal industry and its environmental impacts, the full potential of the sector for rural sustainable livelihoods is not fully realized. Therefore, the IIED-TBI Ghana project has facilitated a bottom-up process of collecting data and ideas from various stakeholders for synthesizing a model governance arrangement for a sustainable charcoal industry.

The key output of this synthesis of ideas for governing the industry according to key governance issues are presented below. These ideas have been validated by three communities that are charcoal production centres in the District.

2. PRODUCTION AND TRADE ASSOCIATION

I. That charcoal producers and traders shall belong to an association registered at the District Assembly in order to be recognized by land owners and regulatory authorities such as the Forestry Commission (FC), Energy Commission (EC), landowners and the District Assemblies (DAs).

II. That the DA, FC and Traditional Councils (Landowners), must require proof of membership of a charcoal association from a prospective charcoal producers, be he/she an indigene or a migrant.

III. That district level cooperative society be formed and given legal backing in the DA's bye-laws with the power to issue and inspect way -bills for transporting charcoal.

IV. That the associations be given the recognition and support to embark on projects to ensure sustainable resource base (wood).

V. The Association shall be empowered to enforce provisions in these arrangements.

3. ACQUISITION OF ACCESS RIGHTS TO WOOD FOR CHARCOAL PRODUCTION

I. Land owners must document and publicize rules and procedures for acquiring access rights to woodland for charcoal production.

II. Rules and procedures for access to wood for charcoal production shall be made fair to all persons residing in a community.

III. However, specific provisions must be made as follows:

a. An indigene of a community whose family owns land pays nothing in acquiring access to wood on his/her family land for charcoal production where it is the tradition in that particular community.

b. Chiefs reserve the right to lease communal lands to others or migrants at a fee or any form of payment as they deem appropriate with regards to traditional arrangements

c. A resident farmer has a right to produce charcoal from his/ her cultivated land but leasing such lands to others shall be subject to the chief's / landowner's consent.

d. Migrants and non-migrants can buy wood stands from chiefs/ landowners for the production of charcoal.

e. The charcoal association shall be empowered to foster unity and effective collaboration among stakeholders (chiefs, indigenes, migrants) to ensure all parties go by the established norms.

4. SUSTAINABILITY OF RESOURCE BASE

The need to sustain the resource base for the charcoal enterprise is highly appreciated by all stakeholders. To safeguard livelihoods and to ensure energy provision to all levels of society the associations agreed to undertake the under listed measures.

I. Wood shall be felled selectively and appropriately to allow adequate natural regeneration.

II. The association shall monitor adherence to limitations on species and avoidance of clear-felling.

III. Where appropriate and seedlings available charcoal producers shall replant felled areas.

IV. Charcoal producers should adopt proper tree cutting methods that allow for coppicing/ regeneration.

V. The members of the associations shall undertake woodlot establishment where resources are available.

VI. There should be partnership between the Association and relevant stakeholders for technical support and training in areas where

knowledge is lacking.

VII. Government must provide funding support to enable recognized charcoal associations to expand the resources base through integrated woodlot establishment.

5. INTEGRATED WOODLOT/PLANTATION ESTABLISHMENT

Establishment of woodlot has been considered as a credible means of addressing unsustainable charcoal industry. To realize this, the associations have pledged their commitment to establish a demonstration woodlot integrated with efficient charcoal production technology.

I. Landowners / chiefs shall release available lands to associations and individuals who demonstrate commitment to establish woodlots under fair payment or benefit sharing arrangements.

II. Individuals could acquire land for their own plantation establishment.

III. The executive committee of the association shall facilitate the acquisition of land from the chiefs

IV. The members of the associations shall use their labour to establish the woodlots

V. Funding shall be sought from all possible sources with facilitation of non- and governmental organizations to help establish the woodlots

VI. Benefit sharing arrangement for the proposed woodlot model is hereby proposed below:

a. Where a leased land is paid for by the association at an agreed fee, the land owners shall not have any share of the wood product.

b. Where the land has been granted by the chief at no fee, there shall be an agreement with the chief specifying the percentage share of

the final produce to the stool. This share must not exceed either the equivalent cost of land lease and rent or ten per cent (10%).

c. The association shall deduct ten per cent (10%) of the value of the final produce as administration charge.

d. The remaining eighty per cent (80%) shall be shared according to proportion of contributions (labour or its surrogate[5]) of each registered member of the association

e. A register of attendance shall be kept by the association's executive committees for the purpose of recording contributions of members towards the woodlot establishment.

6. BENEFIT SHARING ARRANGEMENTS IN RESPECT OF CHARCOAL PRODUCTION FROM NATURAL WOODLANDS

I. In respect of production of charcoal from natural woodlands, different benefit sharing arrangements play out and must be recognized as such. Nonetheless, the following regulations are hereby made:

II. Indigenous charcoal producers at Fakwasi will continue to enjoy their local arrangement of no fee for using wood from their own family lands.

III. Producers at Kumfia, who get free access to wood, shall continue to pay the required fee to the traditional authority (chief) for each truck load of charcoal transported.

IV. In all communities, an indigene or migrant who is leased a wooded land at a specified fee for charcoal production shall not be required to pay any other fee to the landowner, apart from waybills required by the FC and DA.

V. Where individuals or associations acquire the land at no fee, an

[5] This could include payment of fines of equivalent value of man hours or provision of tools, and equipment in support of the woodlot establishment.

agreed percentage share of the number of bags of charcoal produced or its equivalent in monetary value shall be paid to the chief or land owner.

VI. The executive committee of the association must be tasked and empowered to be intermediaries between charcoal producers and land owners / chiefs to ensure compliance with agreed arrangements.

VII. Land owners should endeavor to inform charcoal association about nomadic/migrant charcoal producers who have been granted access to wood resources so that that can be monitored effectively regarding local rules and regulations.

VIII. Sub-contracting of leased woodlands shall be subject to approval by the land owner /chief and the association informed about same.

IX. Where sub-leasing occurs, the main lease holder shall have the liberty to determine the appropriate sharing arrangement with the sub-lessee

X. Nonetheless, the conditions under which the charcoal producer acquires a land determine the benefit sharing systems.

XI. If a producer acquires land for free from a land owner or chief, the landowner's share of the produce must not exceed twenty per cent (20 %) of the total charcoal produced or its equivalent in money value.

XII. Where land is paid for using funds of the association, benefits shall be shared equally among all members.

7. DEALING WITH UNAUTHORISED PRODUCERS

I. To facilitate compliance with rules and regulations there is the need for the executive committee of the associations to collaborate with the

chief/landowner in dealing with offenders. This should be accorded legal backing through gazetted bye-laws of the DA.

II. The association's members must be sensitized to avoid breaking these regulations and also to report all violations to the association at first instance for remedial actions to be taken at this level. However, persistent violations shall be reported to the appropriate authorities.

8. PRICING OF CHARCOAL

I. The existing pricing system where individuals price their charcoal depending on market forces of demand and supply shall be made efficient through formation of cooperative and regulations by the association.

II. The association shall regulate and set uniform minimum price for all its members to avoid inequity in pricing.

III. A charcoal depot at the district market centre must be established for keeping charcoal during bumper production season to stabilize prices.

9. OTHER ARRANGEMENTS

I. The association and relevant stakeholders may review the regulations at least every two years to accommodate current issues.

II. The association shall develop financing support system for it members by members contributions and also from agreed fines.

III. The associations could be used by revenue agencies to collect appropriate revenues on their behalf in the future.

IV. Support from relevant sources should be sought to link the charcoal producers to markets.


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