ENVIRONMENTAL DISCOURSES, CHARCOAL PRODUCTION AND PLANTATIONS IN THE KINTAMPO AREA

BY

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DECLARATION

I declare that this dissertation is my original work except for reference materials that have been duly acknowledged and it has neither in part nor whole been submitted to any University for the award of a degree.

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DEDICATION

This work is dedicated to the Almighty God, who was, who is and is to come, the Lord Jesus Christ.

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ABSTRACT

The study involves farmers, charcoal producers, and plantation developers in Weila, a community in Kintampo, a district in the Brong Ahafo region of Ghana. Plantation suggested as a sustainable alternative for charcoal production does not support other rural livelihoods and rural inhabitants are excluded from its development due to the high capital required. The nature of integration between farming and charcoal production and tree plantation is investigated. Also the study examines the access available to rural inhabitants in engaging in charcoal production and plantation development; as well as the contribution of the three livelihoods to the rural inhabitants. The study comprised 180 farmers, charcoal producers and plantation developers from Weila, who were interviewed concerning their livelihood and its impact on the environment. The study revealed that charcoal production successfully integrates with farming while plantation after 3-4 years displaces farming and other livelihood in the same environment. Also, farming is the most important livelihood to the rural inhabitants. While access to capital is the main challenge for developing plantations since plantations demands a lot of capital hence limiting rural inhabitants' access to large-scale plantations. Access to sacks and transportation are the major limitation to rural inhabitants in having maximum profits from charcoal production. All the same charcoal production is a low entry activity which is easily accessible to most rural inhabitants, particularly, the youth. It is noted that woodlot plantations can cause food shortage, and affect the sustainability of the environment. Woodlot plantation may not support the state's goal of sustainable charcoal production and sustainable environment. Importantly, the rural inhabitants are likely to be denied or segregated in benefiting from charcoal production should regulations be introduced by the state. Therefore, rural inhabitants should not be compelled to use woodlot plantation for charcoal production. Advanced regeneration methods should be encouraged. Regulation of charcoal

production should be reconsidered. Finally, there is the need for area specific study of the impact of plantation development.

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ACRONYMS

AFFA	Agriculture, Fisheries and Forestry Australia
CIDA	Canadian International Development Agency
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EPA	Environmental Protection Agency
ESD	Energy for Sustainable Development
GFPS	Ghana Forest Plantation Strategy
GFWP	Ghana Forest and Wildlife Policy
GSGDA	Ghana Shared Growth and Development Agenda
JHS	Junior High School
JVAP	Joint Venture Agroforestry Programme
MoFA	Ministry of Food and Agriculture
NAMA	Nationally Appropriate Mitigation Action
NCRC	Nature Conservation Research Centre
NFPDP	National Forest Plantation Development Programme
NGOs	Non-Governmental Organisations
NTFP	Non Timber Forest Products
RIRDCs	Rural Industrial Research and Development Corporations

SHS	Senior High School
UNDP	United Nations Development Programme
USAID	United States Agency for International Development

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

This study is concerned with recent policies on charcoal production in Ghana, which advocate a transformation of charcoal production from production in fallow lands to production in plantations. The study develops a critical policy framework to examine the relationship between woodfuel plantations, charcoal production from fallow land and food crop farming and the sustainability of existing forms of production. It investigates these relationships in an empirical case study based on a village economy in the Brong Ahafo region, the main charcoal producing area in Ghana. The work also develops a framework that draws upon two social science research traditions: the first based on environmental discourses and crisis narratives, and the second based on the commodification of nature and access to and control over resources.

1.2 Statement of the Problem

Rural inhabitants are excluded from plantation development and plantations do not sustain other rural livelihoods inhabitants depend on. Ghanaian peasant farmers have been accused of depleting the environment such as depletion of trees and disruption of ecosystem functioning with their charcoal making activities. For this reason, government proposes plantation development as the solution to the anticipated woodfuel crises. However, the proposed solution appears to rid farmers of their land and their source of livelihood because the said interventions are capital and labour intensive. Management of plantations is an expensive activity that is why the state for instance, introduced the Taungya System in order to cut down on its cost on labour and management of tree plantations (Mwatika, 2013). The rural farmer cannot afford all these expenses. That is their reason

for keeping small-scale plantations. Even with small scale plantation, it is the wealthy rural farmers that are involved in the development. The small-scale plantation which hardly attract loans faces the challenge of being expanded. It is the expansion that also increase the returns thereof. While, the large-scale plantation investor who has access to capital can attract loans for investing into the plantation or self-finance the plantation development. Also, the state recognizes transaction of land between the chief and an investor, the investor in his bid to expand his plantation can buy off more communal land from the chief who trading land seems to favour. This process takes land away from the indigenes. Charcoal production has been based on the bush fallowing system for ages past. It is largely unregulated and now the government of Ghana intends to regulate it. Discourses present charcoal based on the bush fallow as unsustainable and causing permanent deforestation (UNDP, 1989; Prasad, 2008); a threat to a sustainable woodfuel supply and sustainable environment. In Ghana, charcoal production is a matter of interest to the Ministry of Lands and Natural Resources, Ministry of Energy, Forestry Commission, Energy Commission and the Environmental Protection Agency. The subsequent policy documents and initiatives of these interest groups reflect their ideas of charcoal production being unsustainable and the need for plantations to ensure the sustainable production of charcoal and the sustainability of the environment. These documents include *The Ghana Shared Growth and Development Agenda* (GSGDA) Vol.11; *National Forest Plantation Development Programme* (NFPDP) 2015; *Ghana Forest and Wildlife Policy* (GFWP) 2012; *Ghana Forest Plantation Strategy* (GFPS) 2016-2040; *National Energy Policy* (2010); and *Nationally Appropriate Mitigation Action* (NAMA) 2016.

These policymakers ignore the important literature on regeneration studies that contribute to knowledge about the sustainability of charcoal based on the bush fallowing system (Ribot, 1999). Cline-Cole (1996) acknowledges that fallows are sustainable in the production of woodfuel since

it has been a major source of woodfuel in Northern Nigeria. If those fallows are producing the bulk of the inhabitants woodfuel then this reveals that those trees keep re-growing after they are harvested.

Regeneration of tree resources has been possible as a result of deliberate and careful management practices the farmers and charcoal producers indulged in. Farmers and charcoal producers' practice of bush fallowing and the manner of cutting trees for woodfuel have allowed for quick coppicing of trees. This practice is not acknowledged or considered for further investigation in order to find ways to improve the practice since it has sustained the charcoal production activity for so long (Amanor, 2007). There is usually a disconnection between the reality on the ground and what policy makers present (Ferguson, 1994; Ribot, 1999). Experts present a universal problem of which there is a one-fit-all solution. Conditions of some places are matched to other places without empirically investigating the situation of the new regions. Like the Dust Bowl Scenarios of America which is compared to other dry lands in Sub Saharan Africa because it reflects a similar image. Foresters, environmental experts and the state present a solution to the perceived problem in an environment without any consultation or forms of engagement with the inhabitants of that area. This is because the people in question are usually rural inhabitants (Leach & Mearns, 1996) who are perceived to be ignorant and also the destroyers of their own environment (Cline-Cole, 1996). Meanwhile, it is their environmental practices that have sustained the area which is misread by experts as a degradation of the environment (Ribot, 1999). For example, Fairhead and Leach (1996) argue that there had been no forest in the Kissidougou area rather the management practices of the inhabitants created the current vegetation. This explains that areas that were said to be deforested by the inhabitant's practices are false. Pare et. al (2009) also conducted a study of 62 species of seedlings in the dry lands in Burkina Faso. They examined the composition, density and

distribution of the seedling. The findings revealed that the seedlings frequency and density were lower in the reserved forest. Pare et al submission indicates that unprotected forests, managed by its inhabitants experience better regeneration of trees as such those areas continually have abundant tree. The inhabitants' practices are compatible with their environment and produce better results.

As it happens, initiatives and projects are introduced to resolve the non-existent crises. Therefore, what was intended to bring about a resolution of the perceived crises exacerbates problems in the region. This is evident of the consecutive times developmental projects have failed in the regions where they were introduced (Ferguson, 1994). In *The Anti-Politics Machine*, Ferguson argues that development programmes are "anti-politics machines", that denies its political resemblance but in disguise operate and expand its "bureaucratic state power" (1994, p. xv). Development institutions generate their discourses that simultaneously create knowledge around an object (a country) and interventions organized around this knowledge. For instance, the creation of the idea of Lesotho being underdeveloped makes it necessary to introduce structural changes that will bring about development. Despite failure, these developmental projects continue to persist and implemented in the same region and other regions. Thus, it is likely that charcoal production can be falsely identified as unsustainable in order to implement changes in its production by resorting to plantations and regulations. With regulation entrenching and expanding the state's power over tree resource.

Policies are based on assumptions which seek the interest of the policymakers (Leach & Mearns, 1996; Keeley & Scoones, 2003). Likewise, these assumptions lead to the introduction of regulations intended to bring about changes in practice. Mwampamba, Ghilardi, Sander, Kim and Chaixm (2013) confirm that for the past 50 years, environmental discourses on deforestation have driven policies and interventions in developing countries which are dependent on charcoal as a

source of fuel. These regulations promote the political and economic interest of the policymakers through the implementation of policies that create economic opportunities for them. For instance, existing studies have revealed that regulations of charcoal production by the state tend to favour the state, merchants or investors more than rural inhabitants (Cline-Cole, 1996; Ribot 1998, 1999). This has contributed to the maximization of profits for investors and in worst cases the exclusion of rural inhabitants from the charcoal production activity.

In the case of Ghana, there exist two main assumptions related to unsustainable charcoal production. They are;

- Charcoal is destroying the forests and it is not a by-product of farming
- Small-scale farmers can be encouraged to do plantations to curb deforestation

According to the EPA (2016) and Pirad, et al. (2016) plantation development is an activity that sustains the environment (EPA, 2016; Pirad, et al. 2016); plantations will provide enough trees for the increasing population (UNDP/World Bank 1989: 11); and it can be developed by small holder farmers (EPA, 2016; GFWP, 2012). Planting of trees is believed to be in the right direction in replacing the trees that have been lost through destructive practices of the rural inhabitants. Also, the urban population is an ever increasing one, therefore in order to meet their huge demands of woodfuel, there is the need to introduce large-scale plantations of trees which can provide for the bulk of trees needed to produce charcoal for the population. Furthermore, the rural inhabitants have access to land and are already engaged in food crop farming integrated with trees. This makes it unlikely for these farmers to also develop plantation for woodfuel purposes.

Plantations are monocultures (MOFA, 2011; Amanor, 2009) since they displace food crops that are integrated with it after a period of 3-4year and all trees are cleared to avoid competition of nutrients and sunlight. This has resulted in food shortage and resorting to off-farm livelihoods

(Schirmer, Parsons, Charalambou, and Gavran, 2005). They are also unsustainable (Cline-Cole, 1996), in establishing plantations there is no regeneration of the cover vegetation and plantation taking land permanently disrupts fallowing a management practice that restores soil fertility. Available fallow lands are reduced and all these affect the environment.

In producing charcoal, specific species that produce hard charcoal is preferred and it is often not the exotic species usually advocated for plantations (Cline-Cole, 1987; Amanor, 2007). Through plantation development wealth is amassed for the wealthy and powerful groups (Sandewall, 2015; Cline-Cole, 1996). All these reveal that there are certain challenges in expanding plantation which need to be addressed before such policies are implemented.

1.3 Conceptual Framework

Leach and Mearns (1996), and Keeley and Scoones (2003) discuss discourse analysis and make important contribution to this study. Discourse analysis reveals that environmental discourses are introduced to bring about change in practice. Through crises narratives fear is created, therefore, influencing the calls for urgent intervention to the expected crises. The ideas propelling the change are assumptions and interestingly, these assumptions are introduced in order to seek the interests of the stakeholders involved. The peasant farmers are perceived as destroyers of the environment. Environmental discourses create assumptions about woodfuel crises. Ribot (1999) reveals that the idea of collection of woodfuels from woodlots causing permanent deforestation is proven false due to available regeneration studies mentioned earlier. In recent times in Ghana, charcoal producers are being blamed for causing deforestation and this claim is made by the (EPA, Energy Commission, the Ministry of Lands and Natural resources) by the dominant interest groups of the environment and energy. These policymakers are also presenting plantations as the solution to a sustainable charcoal production. Based on the above contribution from discourse analysis it makes

it necessary for the investigation of these assumptions held about the unsustainability of charcoal production in Ghana.

Ribot (1999) indicates that the aim of policies, informed by environmental discourses is to seek the economic interest of the stakeholders but it is disguised as solving an environmental problem. Roe (1995), Leach and Mearns (1996), and Keeley and Scoones (2003) agree that discourses seek the interest of the policymakers. Ribot (1998) reveals the manner in which the policy makers are able to secure their interest through the concept of access. Ribot and Peluso (2003) explains that access is simply the ability to benefit from things. There are accesses that gives one an advantage in benefiting from resource even though one may not be the owner. They include access to mechanisms and structures such as capital, labour, market; social relations involving social ties with the state officials and chiefs; and extra-legals with respect to quotas, permits and licenses. Specific examples of access are given in regards to benefiting from regulated charcoal production, which is of relevance to this study. Merchants having access to capital, labour, markets, transport, social ties, license, permits and quotas are able to control and maintain direct access to charcoal resources and maximize their profits (Ribot, 1998).

The regulation of charcoal production by the state is made possible through discourses. This gives the state a role in managing the charcoal resource through the Forestry services. Hence the forestry services introduce permits, quotas and license which are needed for charcoal production operations. This takes away the direct access of rural inhabitants to charcoal production since they will need these extra-legals before accessing the charcoal resources. On the other hand, a way is created for external investors who can afford the extra-legals and have social ties with the state officials in charge and the chiefs in charge of areas with the charcoal resources. Also, transportation and markets are needed for the distribution and consumption of charcoal. Rural

inhabitants have limited access to these but investors have full access. Therefore, the investor gains the upper hand in accessing and profiting from the charcoal resources.

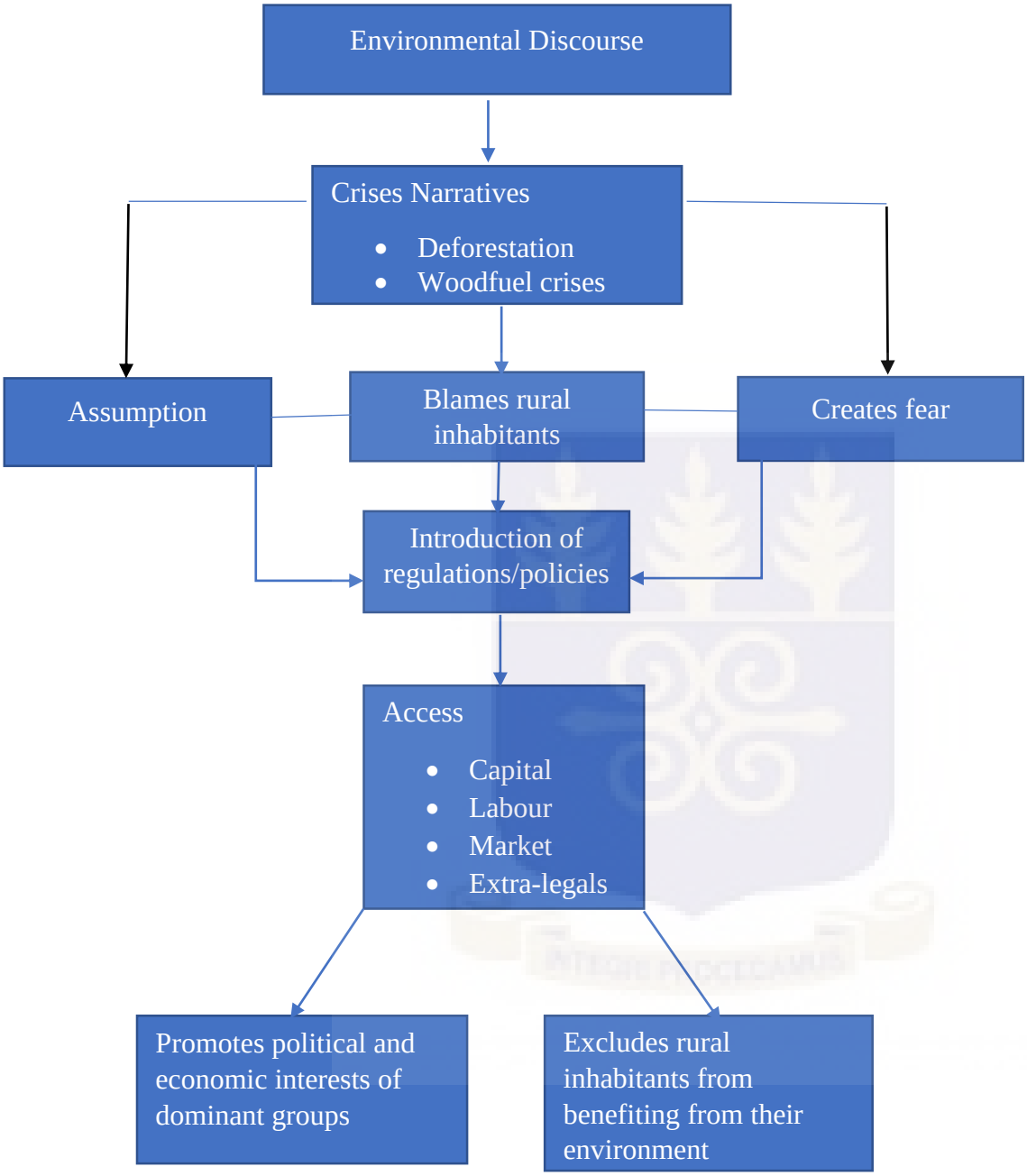
Furthermore, plantations are suggested as the way forward for sustainable charcoal production. Plantations are expensive to establish and keep, making it an exclusive to most rural inhabitants and an inclusive for the wealthy. The external investors' access to capital gives them the advantage to own plantations. Their access to capital also, enables the investors' to acquire large tracts of land for plantations. Commodification of land is an acceptable practice in Ghana, therefore, land can be transacted between the chiefs and investors. The legalization of land holdings gives the investor new rights in land after its acquisition. The access to capital by the investors makes it possible for them to develop plantations.

The introduction of regulations to charcoal production threatens the rural folk who are peasant farmers. While plantation as an intervention to the woodfuel crises also poses serious risks to the rural inhabitants. They can lose their land to plantation investors and also excluded from charcoal production which may require access to plantations and extra-legals. These two outcomes may become possible as a result of regulating charcoal production which is justified through the discourses presented on the unsustainability of charcoal production in Ghana. Regulations of charcoal production by the state seems to promote the interest of the policymakers and their allies. Though the rural inhabitants' livelihood from charcoal production may become threatened, rural inhabitants such as women and youth will become more impoverished. This is because they have limited access to land therefore, they cannot fall on food crop farming which requires access to land. The men may have their food crop farms to rely on in such circumstances.

Weila, a rural community in the Kintampo district engages in charcoal production, plantation and food crop farming. Discourses analysis reveals that assumption on the unsustainability of charcoal

production which is influencing policies needs to be critically analysed in order to avoid policies that promote the interest of capitalists and powerful actors against that of the general public, the poor and marginalized in society. The said policies tend to increase the inequality gap and depravity of the masses in the name of environmental protection. Also, there is the need for the perspectives of smallholder farmers and charcoal burners to be incorporated in the policy making process. Indigenous practices should not be out rightly discarded but they can be engaged to improve the sustainable management practices specific to Ghana. Access reveals the mechanisms deployed by external investors, the state and its agencies, international donors and chiefs in exploiting or taking control of resources belonging to the rural inhabitants. Also, access reveals what is lacking among the rural inhabitants and what the state can assist them with in order to maximize their benefits from resources in their environment. Finally, the concept of access contributes to understanding the extent to which rural inhabitants and investors and the state benefit from plantations and charcoal production; and the impact of the rise in plantation on food crop farming, income and livelihood in the rural area.

Figure 1.1 A diagram of the conceptual framework



1.4 Study Objectives

The aim of the study is to trace the relationship between plantation crops, fallow agriculture and charcoal production in a rural economy and to trace the ways in which these shape agricultural change, and affect the environment, incomes, livelihoods, and affects access to resources.

The specific objectives are:

- To examine the nature of integration of charcoal production and plantations with food crop farming, and the impact they have on the agro-ecological system.
- To examine the perceptions of charcoal producers, food crop farmers and plantation developers about the contributions of plantation and charcoal production to their livelihoods.
- To investigate the social composition and assets of plantation, charcoal production and food crop farming livelihood activities.

1.5 Research Questions

- To examine the integration of charcoal production and plantation in a dominant food cultivation system largely based on bush fallowing system and their impact on agricultural change
- To examine the contribution of plantation and charcoal production to household income.
- To compare and contrast the social inclusivity of both sectors and their impacts on livelihoods.
- To examine the extent to which the characteristics of the local farming and charcoal production systems are reflected in policy debate.

1.6 Significance of the Study

This research provides an empirical case study of how plantation is integrated into the farming system. The study also brings together frameworks which examine environmental discourses together with literature on access to resources and livelihoods. The study contributes to the

literature on critical policy studies, research on charcoal production and to policy debates on charcoal production, and the role of plantation production and livelihood diversity in promoting sustainable development; plantation production, and what constitutes sustainable land practices for rural dwellers. It highlights the emphasis on plantation, the environmental and economic implication of charcoal productions on land diversification.

1.7 Study Methodology

In every research, there is need for the explanation of how the study was conducted. Thus, the study methodology discusses how the study was conducted. The following: the research design, population and sampling techniques, research methodology, data collection methods, and data collection techniques enabled the researcher to achieve her objectives.

1.7.1 Research Design

The study is by design explanatory as it searches in detail if there is a woodfuel crises being caused by charcoal production in the area, how charcoal production and plantation integrates with farming and the impact charcoal production and plantations are having on the environment and livelihoods.

1.7.2 Research Methodology

The study employed the mixed method approach. This enabled the researcher to gather data with respect to the views of the rural inhabitants whose livelihood include farming, charcoal production and plantation development. The qualitative approach enabled the investigation of the perceptions and perspectives of how different people engaged in the three activities; their assets and what their involvement in other fields were; and the contributions of the three activities to their livelihood. Investigating their perceptions and perspectives allowed for an in-depth information gathering as a result of its open ended nature. Visits paid to farms and charcoal producing sites verified the farming practices, plantation activities, charcoal production activities and bush fallowing. Also,

quantitative data gathered provided statistics that enhanced the analysis of the data for better comprehension of the impact of farming, plantation and fallowing.

1.7.3 Population and Sampling

The target population was farmers, charcoal producers and plantation developers in the community. The respondents included not only household heads but women and youth since they also engage in either charcoal burning, farming and plantation. A sample of 180 respondents was used because the population of Weila is unknown and 200 participants was agreed upon but certain challenges reduced the number to 180. The sampling technique employed was the purposive and stratified sampling. Purposive sampling allowed for the contribution of the practitioners of the three livelihoods to be gathered. Since it is their experience and knowledge which is the focus of the study. Stratified sampling was used in order to have all groups (gender and age) views represented.

1.7.4 Data Collection Methods

Both secondary and primary data was collected. Secondary data based on literature from various disciplines including agriculture, anthropology, linguistics and development are reviewed. Other sources include reports, newsletters, online news, and working papers from state agencies and Organizations with interest in the environment and woodfuel. These provided knowledge concerning the integration of charcoal production and farming as well as the integration of farming and plantation; the access relevant for maximizing benefit from charcoal and plantation; and the benefits from these three livelihoods. It again provided an understanding to the practices of these livelihoods and the impact on the environment. Primary data formed the main source of information for the study, it comprises the in-depth interviews, focus group discussions and participant observation. The semi-structured questionnaire was used in gathering in-depth data; its structure enabled the gathering of standardized responses and it saved time. The in-depth

interviews provided the views of the rural inhabitants in answering the research questions. They were juxtaposed with the earlier reviews gathered from the secondary data. The in-depth interview like the focus group discussions provided the perspective of the rural inhabitants which at some point varied from the reviewed data. The focus group discussion ironed out certain issues which were a bit complex in comprehending from the in-depth interviews. The participant observation method complemented the first two qualitative methods in assessing the experience shared by the respondents.

1.7.4.1 Pre-testing

Five respondents were pretested with the survey to assess the workability of the survey. After, this exercise the questionnaire was modified as a result of the feedback gained. For example, certain questions were eliminated because they elicited the same response and how certain questions were posed had to be reframed. Some of the questions were "What benefits do you get from food farm?" "What benefits do you get from plantation?" "What benefits do you get from charcoal production?" elicited the same response as "What is the importance of food crop to you?" "What is the importance of plantation to you?" and "What is the importance of charcoal production to you?" These question also provoked some of the respondents who taught the researcher should know better than ask them the same question twice but in another way. This propelled a better way of gathering the data.

1.7.4.2 Focus Group Discussions

Focus group discussions were organized among two groups. The first was the youth and the second, the elders. The youth's were held first, numbering 10 while the elders' were held second, numbering 5. The youth's was held first on a Tuesday because they were in their numbers attending a late friend's funeral at Banda on Thursday and were going to be back on Sunday evening. The elders were organized on a Friday because they didn't attend the funeral and most did not go to

the farm on that day. The discussion held with the youth before that of the elders was significant. This is because the youth's views were representative of them and they were free to express their opinion and experiences. They raised different views concerning issues that directly concerned they and the elders. The later discussions with the elders also clarified certain contrasting opinions from the youth. For instance, the focus group discussions improved the comprehension of how issues of negotiations for trees for charcoal were done, and the restrictions and access involved in plantation making.

1.7.4.3 In-depth Interviews

These interviews were organized to gather data in answering the research questions and to cross examine the views presented from the secondary data. First, permission was sought from the chief and an announcement was made in the town concerning the data gathering. After seeking consent from participants, the researcher interviewed the participants using a survey. Note taking was the major form of recording data aside the recording made for the focus group discussion. They were 161 farmers, 75 charcoal producers and 153 plantation developers this is as a result of some diversifying their livelihoods and not solely depending on farming. Some key characteristics of respondents captured include the gender, age and occupation of respondents in tables 1, 2, 3 and 4 below. The tables revealed that particular gender and age were involved in particular livelihoods due to their sexes, status and its associated privileges in their society.

Table 1.1: Sex of Respondents

Sex	Frequency	Percent
Male	118	65.6
Female	62	34.4
Total	180	100.0

Source: Field data, 2018

Table 1.2: Sex and Occupation

Sex/Occupation	Farming	Plantation Development	Charcoal production
Male	100	106	64
Female	61	47	11
Total	161	153	75

Source: Field data, 2018

More men are involved in farming, plantation and charcoal production, while majority of the women are into farming, followed by plantation and charcoal production. This explains that due to the availability of land in Weila, and women being able to access land from their husbands, fathers or grandfathers, they at least are able to farm but charcoal production being a strenuous activity is not a livelihood that most women indulge in. Plantation is a livelihood that women engage in but its rate cannot be compared to that of men.

Table 1.3: Age of Respondents

Age	Frequency	Percent
15-35	66	36.7
36-50	70	38.9
51-60	29	16.1
61 and above	15	8.3
Total	180	100.0

Source: Field data, 2018

Form the above table the ages are put into the four ranges which are ages 15-35 represents the youth (Ghana|Factsheets|Youthpolicy.org, 2014); ages 36-50, this group fall between the youthful group and the elderly group. This group is distinguished because they to some extent possess the strength that the youth have at the same time they also qualify as elders and enjoy the privilege of having unlimited access to land. This group are the majority among the age groups. Ages 51-60, this group still fall within the working class in Ghana even though they are at the same time elderly. Hence, they are still economically active and quite different from those who fall within ages 61

and above. They are more alike to the 61 and above" group than the 36-50 age group. The final age group is those who fall within 61 and above. They have passed the retiring age and perceived as elderly in the society.

Table 1.4: Age and Occupation

Age	Farming	Plantation development	Charcoal Production
15-35	52	52	33
36-50	67	63	28
51-60	27	26	12
61 and above	15	12	2

Source: Field data, 2018

When it comes to charcoal production, the youth are the majority involved in this livelihood as a result of its strenuous nature. Those within ages 36-50 are the majority when it comes to plantation development and farming. Also, they are able to engage in strenuous livelihood activities like charcoal production which is the livelihood most youth engage in. At the same time, they have unlimited access to land so they are able to farm as well as develop plantations. This age group can be termed an "all round" group which is able to engage in all the three livelihood activities. The major livelihood for those within the ages of 51-60 and 61 and above is farming. In all, farming is the major livelihood for all the age groups.

1.7.4.4 Participant Observation

Some yam farms and cashew plantations were visited. This method provided empirical evidence of the trees integrated with farming, trees cut from cashew plantations and the location of farms and plantations and the nature of soil in the land. These observations confirmed the point made by the respondents.

1.7.5 Techniques of Data Analysis

The SPSS version 20 was used to generate the descriptive statistics and frequencies of the data and was used to support the qualitative analysis. The common ideas and patterns from the data

collected from Weila were put into themes. The themes were organized such that they responded to the research questions. They were examined together with the reviewed literature to either confirm or contradict the information given with their evidence or justification. Finally, the conclusion was based on the implication of the data analysis.

1.8 Organisation of the Study

The study is organized in five chapters. The following chapter, chapter two reviews literature pertaining to the study. It discusses the origins of environmental discourses, its stakeholders, processes and its impact on the formulation and implementation of policies by the state. Also, studies done on the integration of farming and plantation as well as farming and charcoal production and the impact each activity has on the other livelihoods and the environment is reviewed. The contribution of charcoal production and plantations to the livelihoods of rural inhabitants is discussed. Again, the accesses required in order to engage in charcoal production and plantations and its availability to the rural inhabitants is discussed.

In chapter three, the study area is discussed and it includes the demographic data, the map of the district, the three livelihoods (farming, plantation development and charcoal production), the ecological system, the political organization, the social organization and the religion of the people of Weila.

Chapter four constitutes the findings and analysis of the data gathered from Weila during the field work. The analysis is mainly based on the qualitative interpretation from the in-depth interviews, focus group discussions and observation from the field.

Finally, chapter five presents the conclusion and recommendation of the study in the view of supporting the regeneration of woodlots rather than establishing woodlot plantations and the reconsideration of regulating charcoal production in Ghana.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Environmental discourses on woodfuel crises are questioned by Leach and Mearns (1996), Keeley and Scoones (2003), and Ribot (1999). They question environmental discourses on woodfuel crises since it is recognized as an attempt to ensure political and economic interest by dominant groups such as the state, politicians, Non-Governmental Organizations, experts, scientists and international donors. These dominant groups advocate plantations as a sustainable means to charcoal production and perceive rural inhabitants as capable of developing plantation for charcoal production. The regulation of charcoal production is expected to manage the anticipated woodfuel crises resulting from the claimed destructive practices of rural inhabitants. Though the management practices of these inhabitants have restored lost vegetation (Fairhead & Leach, 1996). Plantation is a high investment activity which excludes the rural inhabitants (Ribot, 1998; Amanor, 2009). Different perspectives from disciplines including anthropology and environmental science are engaged in this chapter. Charcoal production is also a byproduct of food crop farming (Cline-Cole, 1996; Amanor, 2007). The literature and submissions by interested state agencies of the unsustainable nature of charcoal production based on regenerated trees is questioned. Also, the indigenous strategy of bush fallowing system as supportive of diverse rural livelihoods and a successful environmental management practice is addressed. Rural people have learnt to diversify their livelihood by integrating food crop farming with off farm activities.

Discourse analysis pertains to how language is used. Discourse analysis contributes to the understanding of the policy process in environmental issues, the actors involved, the interest and perspectives that are sustained and those that are excluded. Foucalt (1970), and Ferguson (1994)

are among the contributors to discourse analysis. Some of the significant texts in the environmental field of discourse analysis include; *The Lie of the Land: Challenging Received Wisdom* edited by Leach and Mearns (1996); *Understanding Environmental Policy Processes: Cases from Africa* by Keeley and Scoones (2003); *Tree Plantations, Agricultural Commodification, and Land Tenure Security in Ghana* by Amanor (2009); and *A history of Fear: Imagining Deforestation in the West African Dryland Forests* by Ribot (1999). Broadly these studies contribute significantly to this study in knowing the origins of environmental discourses; the motivation behind the framing of the discourses; the networks or actors involved in the discourse and policy processes; the key role scientists and experts play in legitimizing the prescribed interventions in policies; how certain interest and perspectives are excluded, and above all understanding the environmental policy processes.

Ribot's work in Senegal provide knowledge of how dominant interest groups gain maximum benefits from natural resources belonging to the rural people. Having rights in resources does not ensure the access and benefit of the resource (Ribot, 1998). Ribot gives an example in his study, *Theorising Access: Forest Profits Along Senegal's Charcoal Commodity Chain* that merchants are able to manipulate chiefs in order to have access to the forest even against the chief's will. Through legalities, technicalities, commodification, connection to political authorities and good financial standing the way is paved for dominant interest groups to have access to resources. As stated earlier, dominant interest groups are able to acquire resources through the justifications of environmental discourses. On another note, plantations allow for amassing of wealth by investors, however, plantations involve huge investments, which the wealthy can afford but excludes the rural poor. Therefore, plantation, the favoured intervention for sustainable charcoal production

may be a mechanism of dominant groups. This is to enable them have control of and use resources belonging to the rural poor.

Understanding Environmental Policy Process: Cases from Africa and *The Lie of the Land: Challenging Received Wisdom on the African Environment* are literatures on anthropology which help in understanding the nature of discourses introduced and propagated by dominant groups for their political and economic interest. Discourses create crises that need urgent interventions to curtail the predicted crises (Brown &Amanor, 2004). These interventions are again suggested by the creators of the crises stories. The blaming of the rural poor by these dominant interest groups justifies their access and use of natural resources belonging to the rural poor (Cline-Cole, 1996; Brown & Amanor, 2004). It again contributes to how customary land tenure system does not secure the interest of the rural people but it gives room for other people and institutions to have access to natural resources.

2.2 Environmental Discourse and Economic Interest

In Ghana, charcoal production is a matter of interest to the Ministry of Lands and Natural resources, Forestry Commission, Energy Commission and the Environmental Protection Agency. In recent years, attempts have been made by these state agencies to develop policies to regulate charcoal production. The subsequent objectives and strategy from policy documents by these groups are evident: "the Ghana Shared Growth and Development Agenda (GSGDA) Vol.11, recognizes the need to reverse forest degradation and restore degraded landscapes through sustainable land management and intensification of National Forest Plantation Development programme (NDPC, 2015: 5)". Also, the Ghana Forest and Wildlife Policy 2012 has the aim of promoting "plantation establishment, maintenance and rehabilitation together with strategies, actions and resources required to promote productive and sustainable forest plantations by private

sectors and Government (Ghana Forest Plantation Strategy 2016-2040, 2016: v).” One policy strategy of the Ghana Forestry and Wildlife Policy, 2012: 17 is to “promote the establishment of commercial and small holder woodfuel plantations on both on and off forest reserves.” Third, the Policy Objective 2 of the Ghana Forest and Wildlife Policy (2012) is consistent with the Ghana Forest Plantation Strategy (GFPS) which “advocates the development and implementation of a National Forest Plantation Strategy, with realistic annual targets based on best practices and updated forest plantation information for both the savannah and forest areas (Ghana Forest Plantation Strategy 2016-2040, 2016: 7).” Fourth, with regard to biomass, one of the policy directions of the National Energy Policy which aims to increase renewable energy in the nation is: “Promote the establishment of dedicated woodlots for wood fuel production” (EPA, 2016: 32). Fifth, the Forest Plantation Development Fund Act, 2000 supports the establishment of a Forest Plantation Development Fund to provide financial assistance for the development of private commercial forest plantations, to provide for the management of the fund and related matters” (EPA, 2016: 33).

Leach and Mearns (1996) mention that a set of powerful, widely perceived images of environmental change is the driving force behind much environmental policy in Africa. These phenomena seem so self-evident that it even appears as common knowledge among development professional in African governments, international donor agencies and Non-Governmental Organizations (NGOs). They continue that these phenomena have even acquired the status of conventional wisdom.

There are a lot of views in professional circle about the environmental changes in Africa (Leach & Mearns, 1996). These views of crises are popularized among the public through the media which leads the public on in supporting the field operations by charitable organizations that have been

set to deal with the said environmental problem. Crises narratives is employed in appealing to the emotions of the public by creating fears of the expected crises in the minds of the people. Consciously or unconsciously the public are engaged by the media in affirming the assumptions of crises as they interact with one another and show concern about the issues. This process gets the public accepting the discourse without any doubt or a second thought of the issues raised in the discourse. At a point, the assumptions appear as received wisdom making it seem like the reality. Received wisdom "is an idea or a set of ideas sustained through labelling, commonly represented in the form of a narrative, grounded in a specific cultural policy paradigm" (Leach & Mearns, 1996: 8). Access to media by the dominant groups helps exclude the perspective of opposing groups. Contrary opinions are kept from the public domain in order not to raise doubts about the received wisdom.

In policy circles, according to Keeley and Scoones (2003: 21), "discourses frame the way in which problems are thought about, linking up different issues, often in highly programmatic, narrative, cause-and-effect form." Environmental discourses make use of crises narratives to create fears of upcoming crises in the environment and indirectly presents solutions to the problem. The marginalized in society are also blamed as destroyers of the environment. According to Leach and Mearns (1996), discourse is explained as received wisdom and ideas that are sustained through narratives. Crises narratives are simplified stories used to create fear of crises to be expected if gone unregulated (Brown & Amanor, 2004). The aim of crises narrative is to bring about changes in practice in the environment. Keeley and Scoones and Leach and Mearns agree that discourses reveals problems and they are usually in a narrative. While Leach and Mearns again explains that discourses appear as received wisdom. For instance, Keeley and Scoones discuss the claimed problem of soil in Mali, Ethiopia and Zimbabwe where narratives are made in relation to soil

erosion and the decline of soil fertility resulting in desertification. Issues of famine, poverty, and decline in cash crop production are all attributed to the soil in these countries. Despite the ineffectiveness of their assigned intervention, these states do not question the received wisdom and its interventions but continue to implement them. Therefore, discourses are not only problems communicated in a narration, but appear as common sense which is accepted to be the reality.

The over generalization of environmental change in some continents affects how the African environment is perceived, though that may not be the reality. An example is the American Dust bowl scenario which resulted in devastating effects in the environment and on agriculture. It is known to have been caused by poor agricultural practices and drought. This cause and effect of the American Dust bowl scenario influences the perception of the drylands in West Africa to be as a result of poor agricultural practices and drought, which are far from the reality. Those areas mentioned as previously forested regions are false claims (Ribot, 1999). Ribot (1999) affirms that in similar ways images of woodfuel crises were spread in the West African region. West Africa is a region known to be very much dependent on woodfuel (Ribot, 1999) and has a lot of dry woodland areas. It is not surprising there are a lot of woodfuel crises scenarios circulating in West Africa. Ribot (1999) in his study reveals that woodfuel crises is not the reality in those areas, even though presently the West African dry lands may have such an appearance.

Ribot (1999) argues that short-run observations of the vegetation used for analysis of the condition of the environment can be misleading because in the case of woodlots, it takes a long-run observation as the trees take time to regenerate. Certain areas shortly after they have been harvested for woodfuel are observed by researchers as a deforested area meanwhile after a period the trees regenerate and the area becomes a thick forest again. Since, such researchers do not observe the area for a longer period, they miss such observations leading to the misinformation of a deforested

area. Ribot in his study of Eastern Senegal confirmed this that trees cut in Eastern Senegal during the war period were recut after 20years. Hence, a short observation of this area would have predicted that the area was permanently deforested. Leach and Mearns (1996: 1) confirm that these environmental crises perceived in Africa may be deeply misleading. The conditions and state of European and Western environmental problems are used to analyze the state of the African environment. However, this has proven problematic because the conditions in their environment is different from the conditions in the African environment. This makes their analysis a false or misguiding one. Mwampamba et al. (2013) also state that contradictions, stereotyping, and misconceptions are attached to the production, use and trade of charcoal, part of woodfuels. The actual impact of charcoal on the forest is misguided by partial information and over-generalizations of charcoal to other biomass fuels. In addition, several recent studies in botany have found little evidence for widespread vegetation deterioration in West Africa (e.g. Geerling, 1985; Helldén, 1988; Mortimore, 1989; Hanan et al., 1991; Tucker et al., 1991; Lawesson ,1995) cited in Duvall, 2003: 296). Issues such as desertification, land degradation, soil erosion, deforestation, and woodfuel crises have been wrongly analysed in the African environment (Leach & Mearns, 1996). The effort made by the European colonialist and even present day international bodies to compare the African environment to that of European and Western regions may be a deliberate attempt to introduce their crises discourses to the region. In this case, environmental discourses which appear as a universal phenomenon, influences the universal acceptance and understanding of its ideas of problems and solutions in the environment. The actors of the discourses produce some kind of ideas that bring about certain effects in order to achieve certain results.

Discourses justify policies which may actually begin the estimated crises in the environment instead of resolving them. The misrepresentations of the African environment may actually be

behind the deterioration of certain regions after the implementation of such policies in those regions. Ferguson (1994) presents a development problematic and its development apparatus in the case of Lesotho in 1975-84. Like the purpose of introducing environmental discourses, he explains that the development discourse was introduced to Lesotho. The misrepresentation of the region to that of other European or Western regions idea of development made the region fit into their description of underdevelopment. Therefore, justifying the introduction of the global apparatus of development, the Thaba-Tseka Project to be precise, in Lesotho. This project mainly funded by the World Bank and the Canadian International Development Agency (CIDA) was introduced as an intervention to resolve the problem of underdevelopment in Lesotho. However, Lesotho which has been the recipient of a lot of aid and their intervention projects still failed in becoming that expected developed nation.

African farmers, hunters and herders are portrayed as the agents or victims of environmental change (Leach & Mearns, 1996: 2). These marginalized groups are blamed for the destruction of the environment. Due to the poor or weak nature of such groups they do not have the power to come up against environmental policymakers. They do not have access to power, the media nor prominent social networks. They are preyed upon by the strong like Mary Douglas (1996) describes in her book *Purity and Danger* that it is the poor who are accused of witchcraft.

Discourses relay the problems and indirectly suggest the solutions. Leach and Mearns (1996: 2) affirm that "the logical solution is implicit from the starting assumption". This manner of approach is to secure the particular intervention that will promote the interest of the introducers of the discourse. With the formulation of policy interventions, the policy makers are 'boxed in'. The discourses are skillfully formulated such that the policy maker is left focusing on a particular solution without the other possible solutions coming up to them (Clay & Schaffer, 1984 cited in

Leach & Mearns, 1996). For instance, one woodfuel crisis narrative is that the increasing demand of woodfuel is causing permanent deforestation (World Bank, 1996). Hence a logical solution is to plant more trees. This is evident of the structure of the narrative usually bringing up the kind of solution fit for addressing the crises. This discourse again indicates that the population is an ever increasing one therefore there is the need to plant large numbers of trees that can supply the woodfuel demands of the increasing population. The number of trees estimated goes beyond that which the local farmers can handle. Therefore, as a solution, large-scale plantations and the need to control the activities of those causing the deforestation is required. It now becomes incumbent for the Forestry Services to manage and control the forest resources and plant more trees with financial assistance and technical support from aid agencies. In this stance, is revealed the way by which the state intelligently carves out a role for themselves through institutions like the Forestry Services while the donor agencies and NGOs come in to support the Forestry Services. The large-scale afforestation programme through plantations is obviously a huge project the Forestry Services seem not to have the means to handle and it is of such a magnitude of the state's capacity. Herein the solution of plantations, is the intents of the dominant groups made clear because the need for more trees to the extent that the farmers cannot handle makes way for plantation investors and environmental management institutions which will benefit the dominant groups. This facilitates the access to tree resources by capitalists who may appear as liberators of the ecological crises at hand.

Ferguson (1994: 11) makes a significant contribution of the capitalist motives behind intervention projects that arise through development discourses which can be related to environmental discourses. He explains that:

> "if (and this is the first postulate of neo-Marxism) capitalism is not a progressive force but a reactionary one in the Third World-not the cause of development but the obstacle to it, not the cure of poverty but the cause of it-then capitalists-run development project is a fundamental contradictory endeavor."

Which is meant to encourage imperial capitalism. Ferguson (1994: 11) stipulates that World Bank and USAID are capitalist institutions and "the purpose of development projects is to aid capitalist exploitation in a given country" and his claim is based on the well-documented arguments of Lappe and Collin, whose third argument in that document is that "aid projects cannot be expected to help to eradicate poverty since they only reinforce the system which in the first place causes the poverty." It can be inferred from these arguments that these capitalist institutions promotion of plantation as a solution to woodfuel crises and the funding of such projects may be to aid capitalist exploitation in a country where such interventions will be implemented.

Even in cases where discourses have been proven false, the discourses continue to persist. Ribot (1999), Leach and Mearns (1996), Roe (1995), and Keeley and Scoones (2003) stipulate that these dominant groups have political, social and economic interest in propagating discourses. Leach and Mearns (1996) reveal that some post independent African states inherited the colonial legacy of environmental institutions so they continue to propagate and ensure the persistence of such received wisdom. They add that certain development actors and institutions like officials of donor agencies, government agencies, staff of Northern and Southern Non-Governmental agencies and experts, promote those assumptions though it had been to the detriment of the local land users.

During periods the environment is perceived to be in crises as a result of the activities of the owners of the land, environmental institutions and their agents' jobs are secured as resolvers of the crises and managers of the environment. They in the process take over as stewards of those resources

from its owners (Ribot, 1999). For example, the Forestry services gain control and access to the forest. They derive revenues from fines and permits from users of the forest resource. Also, right from colonial period the services of scientist were deployed to provide evidence supporting the environmental orthodoxies of the colonialists to secure their political and economic interest. Leach and Mearns (1996) provide evidence of the various scientists and experts who doubled as public servants as well as played decisive role in colonial policy and administration. Examples are Pole Evans, a botanist who helped shape the draconian Natural Resource Act (1942) in Rhodesia and Swynnerton Plan (1954) for agriculture intensification (Scoones, 1996); and Moloney, the forest conservation enthusiast who became the Governor of Lagos Colony (Grove, 1996). Despite these scientists lacking evidence to support their assertions, their views were still factored into colonial agriculture. The fact that some scientists and experts contributed to or supported the colonial orthodoxies of the environment awarded some roles as Governors and others the prominence of being involved in the colonial administration. Therefore, establishing the case that those who align themselves with dominant actors and support their discourses also benefit.

Certain methods used in scientific research are accepted and others unaccepted and this approach ensures that the results needed to support the discourses of the actors are produced (Leach & Mearns, 1996: 14). So the accepted scientific methods prevent the raising of certain questions. That is a deliberate attempt to exclude certain data that will bring certain received wisdoms and their suggested solutions into disarray. For example, historical data including early travelers account and oral history is excluded from most ecological studies (Leach & Mearns, 1996). This approach is able to reproduce certain ideas as evidence and disqualifies certain evidences as invalid. For instance, the exclusion of historical data about the African environment in ecological science can be an attempt of eliminating certain evidences as being valid. Another example is

where short-run observations are used rather than long-run observations. This method misrepresents the clearing face of a fallow cycle to be regarded as a long term removal of vegetation.

The involvement of scientist in the policy process by the policymakers reveals that it is not a matter of ignorance which the policy makers could have stated as an excuse for their continuous approval of those false assumptions and the kind of policies they encourage. It is rather a deliberate attempt by the policy makers to ignore the other evidence and counter narratives for the reason that it legitimizes the various projects and policies that will be introduced to solve the claimed problems in the environment. This reiterates that it is an attempt by the dominant groups to secure their political and economic interest. The legitimization of policies justifies their role in controlling, managing and having access to land and natural resources. The interdisciplinary approach of using knowledge from historians, anthropologist, ecologists, economists, and geographers by Leach and Mearns (1996) increases the credibility of the study because it brings about the comparison of the work from various fields and they revealing complementary findings affirm the various findings of the diverse fields.

Keeley and Scoones (2003) emphasize that there are different styles in the policy making process. There is an intersection between international and national policy processes but the national and regional settings should not be underestimated. This reflects in the top down approach, and bottom up approach used in the policy process. Specific to their study the poor and marginalized farmers' participation in the policy process is explored. Unlike the locals in Leach and Mearns (1996) who are not mentioned as active participants in the policy process. The involvement of the locals is seen as another ploy by the dominant groups to validate their discourses.

Keeley and Scoones (2003: 28) reveals that global knowledge linked to global institutions appear all powerful. This is not by accident but a deliberate machination of the concrete actors. In this instance, the knowledge about the environment in local settings is informed by borrowing from global discourses. The local based scientist or expert's connection with the international scientific institution also gives way for their borrowing of ideas from them which later influence the results of the local settings. Hence, the local findings may support the accepted global discourses making those claims appear more valid and universal. This is due to the empirical evidence provided from the local sites supporting the claims of the actors. Therefore, if a universal woodfuel crises is established then a universal off-the-shelf solution of plantation is justified in all regions.

Since Roe (1995) stipulates that there are conflicting views of what the development experts tend in and that of the Africans perspective, it is likely for the views of the rural inhabitants to be different from that of the experts about their environment. Ribot (1999) rightly asserts the need for the rural inhabitants' opinion about the change in environment to be factored in the policy making process. Leach and Mearns (1996), and Ribot (1999) recommend the critical analysis of the assumptions on which crisis narratives are constructed and how these assumptions are reified in the literature. Also, the ability of the state and experts to have more control over resources undermines the security of food and income for rural people (Leach & Mearns, 1996). Therefore, there is the need to take precaution.

In reference to the above cautions and the urgency being created by various stakeholders in regulating charcoal production in Ghana and the suggestion of plantations as a solution to a sustainable charcoal production, this study becomes relevant in gathering empirical data from the rural people in the Kintampo area who are known as major producers of charcoal in Ghana.

2.3 Access and Livelihood of Smallholders

Ribot (1998) in his study about the Senegalese charcoal market chain reveals that having direct access to the forest does not guarantee that one would benefit from the resource rather the access to mechanisms, structures and relations and extra-legals gives one the advantage in benefiting from the charcoal resources. For instance, merchants in Senegal with their access to permits, license, quotas, capital, labour, markets and social ties with the state and chiefs are able to benefit from the charcoal resources in the rural areas than the indigenes. He further reveals that through regulation of charcoal production by the state among Forestry agents, the rural inhabitants are in the end excluded from engaging in the charcoal production activity though they have direct access to the forest. The external investors that is the merchants are rather given the access to the forest through permits, quotas and license. These instances confirm the need for these other forms of access besides the direct access to resources to be available in order to benefit or maximize one's profit from natural resources and land. Bebbington (1999: 2021) also agrees that there is need for the consideration of other access such as labour, markets, income and capital which are relevant in benefiting from the resources in the environment from his study of the implementers of policies assuming that most rural inhabitants get by from having direct access to agriculture and natural resources. It is evident from both Ribot and Bebbington's findings that it takes the above stated access to benefit from natural resources. Having direct access only is not guarantee to secure one's benefit which happens to be the situation of most rural inhabitants. Clearly, this explains the investor's wealth accumulation against the rural inhabitant's deprivation.

In reference to Ribot's study of the Senegalese market chain, the Senegalese state had introduced charcoal regulations in order to promote its sustainable production. Nonetheless, this action also paved the way for investors to have access to natural resources. Authority is given to the state and

chiefs to grant direct access to tree resources. Chiefs are given the right to approve or decline an investors interest in clearing trees from their areas of jurisdiction, while permits, quotas and license are to be sought from the state in order to operate in charcoal production. From Ribot's submission, the introduction of regulation has done more harm to rural inhabitants as the rights of the community in having direct access to the natural resources in their environment is transferred to the state and the chiefs.

Similarly, in Ghana, the state intends to regulate charcoal production for the purpose of ensuring its sustainable production. Unlike Senegal, Ghana seeks to achieve this through policies that promote charcoal plantation. While government advocates plantation as a solution to sustainable charcoal production, some researchers argue otherwise (Cline-Cole, 1996; Amanor, 2009). Bremer and Farley (2010) cited in Andersson, Lawrence, Zavaleta, and Guariguata, 2015: 123) affirm that plantation is unsustainable.

Plantation has been proven to be difficult to define. Tiffen and Mortimore (1990: 7) state that "the term has always been restricted to the cultivation of a limited number of crops. They define plantation in general to be a specialized type of large-scale farm." The International Labour Organisation defined plantations as any activity which depends on hired labour to cultivate listed crops. These crops include cocoa, coffee, oil palm, coconut, banana, citrus, tea, and rubber. Others define plantation based on how it is organized like it based on mechanization, the type of crops or trees cultivated, and the layout of the plantations (Tiffen & Mortimore, 1990). Amanor (2009) adds that there exist crop and tree plantations. From Tiffen and Mortimore's submission, the definition of plantation is a difficult one to address and from their findings numerous scholars identify plantation by considering the type of crops which has to be cash crops and the farm being specialized. Such scholars and the International Labour Organisation (ILO) agree on the type of

crops and size which has to be largescale as these scholars state emphatically while the ILO put it across indirectly as the farm needing to hire labour. Tiffen and Mortimore (1990: 11) state that the average estimation of a small-scale plantation is 10-500ha and for large-scale it is from 100ha to several thousands of ha. This indicates that small holders in Ghana with average of 4 acres as their largescale plantation do not qualify as plantations at all. Amanor's contribution is quite different from these researchers'. He simply identifies plantation as either crops or trees. Therefore, nullifying the issue about the size and its mechanization. This categorization qualifies a lot of smallholder plantations as such, which the other definitions disqualify. In relation to this study, plantation is defined as any activity that employs hired labour to cultivate cash or export crops and timber trees. It can be a large-scale or small-scale plantation.

Cline-Cole (1996) reveals in his study of Northern Nigeria, that policies that encourage plantations existed from colonial times. Then, plantation was introduced to supply the export needs of the British as well as provide woodfuel of which charcoal is inclusive. As has been the challenge of plantation which is an outside forestry, it undermines indigenous forestry practices and it is believed to secure the interest of the colonialist (Cline-Cole, 1996). In present times, it secures the interest of the policymakers and the state. For instance, it enabled the British to introduce exotic trees for export, restricted woodfuel activities to them and positioned the Forestry services in charge of the forest. This granted the colonial administration unlimited control and access to the resources. Likewise, Ribot (1999), and Amanor (1994) explain that the advocacy of plantation does not reflect the interest of the locals involved. Cline-Cole (1996) presents a case of Northern Nigeria where there were conflicting values of the dryland forestry potential, the appearance of the landscape, its function and its appropriate use. Obviously, this reflects the biases of the colonialist against the indigenes. The inhabitant's knowledge and management of their environment are not

regarded neither are their needs considered. Such policies that excludes the opinion of those it concerns creates conflicts and problems because it does not reflect the reality. Like Ferguson (1994) argued that policies are usually distorted from the reality. Likewise, the encouragement of plantations for charcoal production creates conditions where investors are able to benefit than the peasant farmers who are usually smallholders. From the studies, the powerful and dominant interest groups introduce policies to secure their interest to natural resources.

Inferring from the above case studies, should Ghana regulate charcoal production, and encourage plantation as its primary source of trees rather than trees from farms and fallows, the peasant farmers and charcoal producers will be excluded from operations and in the process denied livelihood. This is because plantations require huge investment (Amanor, 2009) which is inaccessible to the rural inhabitants. Sikor and Nguyen (2007) cited in Sandewall (2015) confirm that plantation establishment is a livelihood for the wealthy investor. What's more, largescale plantation is required to supply the increasing populations need (Keeley & Scoones, 2003). The investors have access to capital and quotas, license and permits which gives them the advantage in producing charcoal. They end up with the profits and can reinvest into the charcoal plantations giving them monopoly in charcoal production and wealth accumulation.

Also, the rural inhabitants who established teak plantation, a tree resource have abandoned it for its poor price. Engaging these rural inhabitants in another tree resource may prove futile from their unpleasant experience. Moreover, most farmers are currently into cashew plantation but on a small-scale. They may not afford to do another plantation for charcoal. Consequently, rural inhabitants are likely to be excluded from charcoal production.

Plantation displaces other livelihood in its environment. This affects other livelihoods rural inhabitants depend on. Non timber Forest products including "food, fodder, medicine, housing

materials and fuel" serves the livelihood needs of the rural people by helping them generate income and provide basic materials for their use (Ambrose-Oji, 2004; Shackleton & Shackleton, 2004; Sunderlin et al., 2005; Schreckenberg et al., 2006; Heubach et al., 2011; Shackleton et al., 2011 cited in Smith, Hudson, & Schreckenberg, 2017: 22). Amanor (2004) adds that trees including Dawadawa, Mango, Cashew, Teak, and Shea nut which serve purposes of food, construction, and medicine are integrated with food crops. Off farm activities like charcoal production too contributes significantly to rural livelihood (Cline-Cole, 1996). This reveals the indispensable nature of the forest and land to the livelihood of rural inhabitants. The natural resources in rural communities are harnessed by its inhabitants for their sustenance. Even though, the rural inhabitants gain these resources from the forest, it is dismissed and not considered relevant to their livelihood with policy makers neglect in addressing it but encouraging plantations which displace such livelihoods.

Furthermore, farms and fallows are better sources of woodfuel and other products. Cline-Cole (1996) revealed that even in cases of drought and diminishing rainfall, livestock products, root and vegetable crops, tree products with woodfuel being the most valuable and significant are gained from fallows, farmlands and pasture land (Adams & Kimmage, 1992; Mortimore, 1972; Pullan, 1974). This indicate that the diminishing products are as a result of natural occurrences and not directly from human activities. Again, despite the stress and shocks of the weather as mentioned by Cline-Cole, the indigenes are able to access such products for their livelihood. Since these products come from their farms, fallows and pastures, it is an indication of the success of their indigenous management practice. Also, the ability for these sources to continually produce is evident that they are sustainable and capable of meeting the needs of its inhabitants. Hence, there may be no need to quit these management practices and sources for another like plantation.

Contrarily, as opined by Lord Lugard, the then British administrator over Northern Nigeria, fallows and farms are not the right source of woodfuel. Ironically, Cline-Cole's (1996) study revealed that in Northern Nigeria, most woodfuels are sourced from fallows and farms. Therefore, plantations may not be needed for sustainable charcoal production. Cline-Cole adds that most farm trees are ever increasing in heavily populated areas. These findings from Northern Nigeria is interesting since it contradicts studies and received wisdom that justify the introduction of policies that promote plantations for charcoal production.

In addition, despite arguments that exclude the kind of small-scale plantations that is done by rural farmers as not qualifying as plantations. Wickizer (1960) argue that small holders have been the backbone to supplying not only local needs but external needs as their produce are exported. He gives the example of cocoa and coconut being major export products largely produced by smallholders. Also in the case of Ghana, timbers from farms which have been integrated on small-scale with food crop is mentioned to have supplied more timber for exports than the state established forest plantation which were even largescale (Amanor, 2004). This reveals the significant contributions of smallholders in supplying local and international needs. The indigenes have their own type of plantation usually small-scale and very different from the Europeans kind of plantation and it seems to achieve more for them and sustainable.

2.4 Conclusion

Discourse analysis reveals that policies are based on assumptions which are intended to bring about change in practice. This alteration promotes the political, economic and social interest of certain groups including some international donor agencies, the state and its agencies, NGOs, scientists, experts, bureaucrats and external agencies. These are the policy makers that spearhead discourses. Environmental discourse through crises narrative creates fear in the public and accuse the

weak/poor of the destruction of the environment. Therefore, the owners of the natural resources who are usually poor rural folk are denied access to their property. The dominant group now become the stewards of the natural resources.

Based on the above discussion, charcoal regulations introduced in a state makes way for investors to monopolise charcoal production. The state in the name of seeking the sustainable charcoal production redirects the access of natural resources to itself and to chiefs. Investors requiring permits, quotas, license, and approval from chiefs are able to access the natural resources. Investors inclusion of charcoal productions leads to the exclusion of rural inhabitants as they are denied their source of livelihoods. Policies often times do not reflect the actual situation. Hence policies suggesting charcoal plantation ought to be reconsidered. Plantation displaces forest which are the sources of Non timber products. In effect plantations destroy Non Timber products. Plantation making is erroneously justified by the false impression that fallows and farms are unsustainable sources of charcoal production. This is similar to how in the field of discourses, policies advocating for plantation intends to secure the interest of the policymakers. In a bid to effectively uphold the interest of natural resources owners, usually the rural poor, it is necessary to reassess such discourses and policies to make them worth the while of the needy property owners.

CHAPTER THREE

ECONOMY, ECOLOGY AND ORGANISATIONAL SYSTEMS IN WEILA

3.1 History of Weila

The people of Weila are Banda people who settled in the midst of Mo people. They originate from Banda people on the Cote D'Ivoire side of the present national border. They came all the way from "French" that is present day Cote D'ivoire to *Amanfo*. According to their oral traditions the ancestors of the people of Weila partook in a war that broke between the Ashantis and Fantes. They fought all the way to the Fante land and soon after their arrival there, the war ended. They only had seven of them surviving and decided to return. The warriors came to live at *Banda Ahenkro* for some time. During their stay, other leaders from Banda got jealous of the leader of Weila, who for the purpose of this narration I will call Baba Kofi. Baba Kofi had a greater spiritual presence which was a source of intimidation to the other leaders from Banda. As a result of this occurrence, a plan was hatched to assassinate him. The leaders of Banda dug a pit, covered it up and balanced Baba Kofi's stool on a covered hole. The unsuspecting Baba Kofi arrived while the others were already seated and as he attempted sitting down, he fell into the pit and was buried alive by the other leaders. The people of Weila were now left with six members. They were helpless and could not retaliate. Despite their grief, they still stayed. Plans were again hatched to assassinate, the next heir to assume leadership and it was disclosed to him by his lover, an indigene of Banda Ahenkro. Following this revelation, the remaining six decided to flee after the *Fajr* prayer which is the first Islamic prayer in the day. On their journey, they passed through *New Longoro, Mansra* and then to *Chaara*. Upon their arrival in *Chaara*, they asked the leaders to direct them back to their former settlement but their request was denied. Fortunately, they had one of their own in *Chaara* who agreed to take them to their settlement. They got to *Amanfo,* which was their

previous settlement but it was no longer habitable because it had been turned into a burial ground. They then agreed to resettle at their present place. Upon their settlement, they asked the eldest member to come up with a name for their new location. He then referred that they were many but are now only six, hence, the place should be called *Biala* which implies we are finished, in their local dialect. However, during documentation of communities by the state, their name went into record as *Weila* and since that time they had no choice than to leave it as Weila. *Nafara* is their local dialect but they also speak *Mo, Twi* and few speak *Gonja* as well. This is a narration by Opanin Kofi Gbanda which was confirmed by other elders in the community. Weila is one of the communities in the Kintampo South district located in the Brong Ahafo region of Ghana. The capital of the district is Jema. The district lies within longitudes 1°20' West and 2°10' East and latitude 8° 15' North and 7° 45' South (Ghana Statistical Service (GSS), 2014). The district shares borders with Nkoranza and Techiman to the South, Kintampo North to the North, Pru and Atebubu to the East and Wenchi to the West. It measures about 1,774.85 km2 (Ghana Districts, 2006) which is part of the less dense populated areas in Ghana. The population is about 81,000 of which 52% are males and 48% females (GSS, 2014), a reflection of the population in Weila. In Weila, it was reported by the youth that there were fewer females than males which was again confirmed by my observation.

Figure 3.1: Relief map of Kintampo South district

Source: Feed the Future Ghana District Profile Series (Kintampo South), 2017)

3.2 Ecological systems

For people whose major livelihood activities depend on land and forest implies that the ecology plays an important role and is significant to their lives. Weila, falling within the transition zone has many woodlots and robust trees, providing the charcoal producers with enough trees. Charcoal production is also noted to be dependent on the fallowing system of which farming is also dependent on. Therefore, trees can be harnessed from farms particularly yam farms as well as fallows for charcoal production. The vast land available makes it possible for fallowing which allows for the restoration of the soils fertility to be practiced. Also, there is enough land available for farming and plantations. The community experiences a Wet Semi-equatorial climate due to it lying within the transition zone. Its annual rainfall is between 1400mm-1800mm and the

vegetation is a woodland savannah and at the same time an extensive forest area (GSS, 2014). The type of soil is mainly sandy loam with portion being clay loam. These qualities at large supports the farming and plantation activities in the region. The environment supports the three major livelihood activities in the area.

3.3 Livelihoods in Weila

The people are predominantly farmers. Farming is the principal economic activity in the area. The crops cultivated include yam, cassava, maize, groundnut, okro and beans. According to MoFA (2011) agriculture contributes 60% of household income in the district. The farmers usually indulge in mixed cropping and mono cropping and they also practice shifting cultivation and fallowing. In 1990s according to Amanor (2009) the state took interest in plantation in the area due to the availability of large tracts of land in the region. Some of the plantations located in the area include cashew, teak, and mango. Interestingly, the Kintampo South district is also noted as the major charcoal producing area in Ghana (Amanor, 2007). Some of the inhabitants also are traders, teachers, drivers, chainsaw operators, and bee-keepers. Hence in Weila, farming, plantation development and charcoal production are the main livelihood activities indulged by its population.

Earlier on farms were integrated with trees but these trees were scattered across the farm. These trees could be said to be preserved rather than cultivated on the farms. These were indigenous species. Some of the indigenous species include Mahogany, Odum, Senya, Apupuyo, Shea, Wawa and Dawadawa (MoFA, 2013). They apply indigenous methods and not mechanized practices for the development of cashew plantation. Ghana did not have the culture of doing large tracts of monocrops. Plantations were blended in bits or sections. Therefore, plantations were usually small scale and integrated with food crops at the beginning. Plantations at a point begin to cast a shade

over the land so the food crops are transferred to another land. It is cultivated in fertile soil due to the availability of large tracts of fertile land in the area. As mentioned earlier, plantation is also an activity noted to be engaged in by mostly the wealthy rural farmers who happen to be few in these communities (Amanor, 2009). This has resulted in shortage of land for indigenes in such communities where plantations have been largely developed by investors and migrants. Also, this has produced strife and rivalry and violence among the indigenes and the investors and migrants. However, this is not the case in Weila, since no investor or migrant has been allowed to develop plantations there. Hence the plantations in the community are mostly small scale of about 2 acres. Plantations are developed to supply export products which is lucrative therefore encouraged by the state. The state invested in areas in the transition zone because of the availability of land and other areas like the Western and Ashanti regions but the state plantations collapsed (Amanor, 2009). Plantations requiring huge investment has also placed the burden of using the land as collateral therefore the legalization of land has become necessary not to only secure the rights in land by the owner but to be able access credits or loans from banks or financial institutions (Amanor, 2009). In the case of Weila, plantations are not legalized and the people do not have access to external source of capital since they do not meet the requirements to access loans from banks.

Fortunately, the tree resources do not have any form of restrictions or privileges for one group against the other. All have unlimited access to the tree resources as long as one is an indigene and an inhabitant of the area. Therefore, charcoal production which is largely dependent on tree resources is an economic activity accessible by all. As explained in chapter two of this work, charcoal production is a lucrative economic activity engaged by most rural inhabitants. This is because about 80% of Ghanaians depend on charcoal as fuel for mostly cooking and heating (Anang et al., 2011). Charcoal production in Weila, is based on the bush fallowing system as

previously mentioned. Source of charcoal comes from farms, fallows and common land. Several tree species are available in the community which are used for charcoal production. They include *Naara, Papaa, Tuara, Lolo, Anogeissus leiocarpus(Kande)* and *Pterocarpus erinaceous(Tweema).* In Weila, charcoal production which is a major livelihood activity for the youth is done commercially and not for domestic use. It is an activity engaged in to support other livelihoods, although to few it is the sole livelihood activity. The political, social, religious, ecological, geographical issues of the area is discussed which will contribute to understanding how and why these three economic activities are engaged by the rural inhabitants in this area and their economic contributions to their livelihood.

3.4 Political Organisation

Politically, the people living in this area practice the customary system of administration which was introduced/modified during colonial periods together with that of the state's administration. In the customary system, the chief and at times elders act as the rulers of the communities. On a general note, this makes the members in this community subject to the authority, rules and decrees of mainly the chief. This position also makes the chief and at times elders, the custodians of the land as the allodial rights was vested in them during the colonial periods (Amanor, 2009). The members in the community on the other hand have user rights in the land and are entitled to accessing the land for their livelihood without having to make any negotiations or payments to the chief. However, they are not allowed to sell the land to another since they only have user rights and do not have ownership to the land. The chiefs as a result of their collaboration with the state and the state entrenching in the chiefs the right to make byelaws and the need for their consent and signatories for the purchase or rent of stool lands, accords the chiefs the rights in transacting lands with migrants and external investors (Amanor, 2009). The commodification of land in Ghana

allows for such transactions of land between the chief, who is taken to be the owner of the land and outsiders. In the case of Weila, everything applies except for the role of the chief as the custodian of the land and the powers entrenched in him to sell lands. This because lands in Weila belongs to the family hence it is the family heads that are the custodians of the land. Access to land is requested from the family heads who distribute portions to the members in the family who are in need of land for farming or for plantation. As established earlier, the men still have an advantage of having unlimited access to land as compared to women and youth since they are the same people who are the family heads.

Trees, which is also of economic value to the inhabitants is also accessible by the rural inhabitants but timbers are a restricted bunch to them. Laws by the state and the chiefs have managed to make these two the owners of timbers and those allowed to exploit them (Amanor, 2009). This position of the chief and state gives the state and investors access to timber resource in the community. Though trees are only available to indigenes because they are on family lands of which the state and the chief have no hold over. Land and tree resources which are significant assets needed to engage in farming, plantations and charcoal are available to the rural inhabitants for their economic benefit.

3.5 Social Organisation

Socially, the people of Weila practice the land tenure system whereby the land is accessible by the family heads. Though land is believed to be accessible by all, Amanor (2009) explains that during the colonial period women access to land was restricted as they had to rely on their husbands for lands for farming. This limits women's access to land, therefore their livelihood activities dependent on land is restricted. It is noted that the farming and plantation activities of women are affected by their limited access to land with evidence provided (Quansah, 2012: 141; Kuusaana,

Kikido, and Halidu-Adam, 2013: 71). Moreover, women are also restricted in the kind of crops they can cultivate since they do not have direct access to land but have to rely on the men. This is given as reason for few women engaging in plantations (Amanor, 2009). Therefore, most women engage in farming and even for farming, they usually cultivate groundnut. This crop takes a short period in its cultivation and they are crops that can be cultivated after yams have been cultivated on that same piece of land. Women acquire these plots of land after their husbands have harvested the yams cultivated. Yam is a major crop cultivated by men in this area.

The youth likewise have limited access, though it is not difficult for them to acquire land. The people of Weila practice the matrilineal system of inheritance (Amanor, 2009) whereby the youth inherit plantations from their uncles, that is their mothers' brothers. This is the medium by which the youth can have access to plantations for their economic benefit. There have been reports by frustrated youth in such areas who have been ousted of their inheritance of plantations from their uncles (Amanor, 2009). The uncles ended up giving the plantations to their children. The legalization of land holdings and the registration of land can enable such acts because the state recognizes the one in whose name the land is registered as the owner of the property. This had rendered most youth landless and their refusal to contribute their service as labour on family plantations. Though inheriting from the uncle used to be the norm, there happens to be changes over time. In Weila, despite still being a matrilineal society, children inherit property such as farms, plantations and animals from their fathers directly. The nephews are still said to inherit from their uncles but this is more of a duty as acting as the father to the children and wife of the deceased. Prof Thomas, an indigene, further explains that:

> We are a matrilineal society like the Akans. The nephews inherit from the uncle when he passes away. If the uncle had farms, plantations and animals and his children are young, the nephew who

> inherits the uncle takes over the property together with the clothing and other useful things. The nephew is entitled to own the clothing and other things but not the properties. He is responsible for caring for the children and the widow. This is the reason for him inheriting the property. If the children are matured, they take over their fathers' properties and the nephews inherit clothing and other useful items. The nephew is still the one who takes after the uncle and takes responsibility for their wellbeing but not in financial terms since the children are in possession of the properties. There are other properties that the wife if not remarried takes over to cater for her children and herself. For instance, if the deceased owned a taxi, the taxi driver will go and make sales to the widow and not the uncle. Inheritance is called *kur* in my language.[1]

Hence in this community property is not taken over by male relatives but it is held in trust for the deceased family. It is more of a role as a husband and father to the deceased family as a provider that is the only reason the property is handed to the nephew. This practice is commendable if the one who inherits performs his role. There are other exceptions when the property is a lot, the children can decide to give ownership of some of the property to the uncle. The nephew is not compelled to marry the widow and the widow after three years is allowed to marry if she wants. But in her case, she no longer becomes the responsibility of the nephew and she has to leave the house of her former husband. This seems right because if the woman remarries it is the responsibility of the husband to cater for her. The nephew taking charge of the uncle's property and not the wife appears as a means to ensure that the property stays in the family and the children are provided for in case the new husband does not seek the interest of the children. This makes this system of inheritance friendly to the child or children of the deceased, securing their sustenance and care. However, there have been instances where nephews who inherited their uncles' properties do not care for the family at all.

[1] Interview with Prof Thomas – July 25, 2018

3.6 Religion in Weila

The predominant religions in Weila are Christianity and Islam. The majority are Christians hence in this small community is situated five different churches, that is the Catholic Church, Seventh Day Adventist, the Church of Pentecost, the Presbyterian Church and the Christ Apostolic Church. There were two mosques, one, which was used every day and the other for the Jumm'ah, the congregational Friday prayers. But there was no shrine that could be pointed to as a place of worship for the traditionalist, hence it was difficult to identify people who were traditionalist, all the same the practice could also not be clearly ruled out. Their religion influences their livelihood because they usually did not go to their farms or plantations on such days of worship which are Fridays, Saturdays and Sundays. Therefore, these days could be said to be their days of rest.

3.7 Conclusion

Food crops are integrated with plantation crop trees for a limited period. This makes plantations capable of taking up food crop space. Charcoal production is dependent on trees from the farm, fallows and common land. Fallowing is done by the farmers after the land has been farmed to restore fertility to the soil. Charcoal producers also leave areas in which trees have been cleared to fallow. This makes these two activities coexist successfully in the same area. It is common place to find most rural inhabitants dependent on the forest for their livelihood and Weila is no exception. Farming, plantation development and charcoal production are livelihood activities supported by the environment. All the members in the community have at least one of these livelihoods to depend on for their sustenance. As a result of the low input required for farming and charcoal production, most rural inhabitants partake in these activities. There are variations in the kind of crops cultivated by both genders. Despite the variations in the kind of crops men cultivate and that of which women cultivate. The youth are less motivated in engaging in farming. They prefer to

engage in charcoal production because it is convenient and income assured. Plantation is a livelihood for the wealthy so those who have the means, mostly the men, engage in its establishment. The family heads serving as trustees of the land have access to the land but declined the authority to sell lands. Weila is a matrilineal society but they no longer inherit from their maternal uncle instead they inherit from their fathers and mothers. Based on the days of congregational worship by members belonging to Christianity or Islam, they do not go to their farms or plantations on Fridays, Saturdays and Sundays.

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1 Introduction

As has been established, the majority of rural inhabitants depend on their environment for livelihood and obviously farming is a major livelihood activity they engage in. Charcoal production is also a livelihood activity that a number of rural inhabitants depend on as the main livelihood or as a diversified livelihood. Charcoal comes up as among the cheapest fuel for urban inhabitants. The increasing demand for charcoal is causing fears of its scarcity since it is perceived that the trees do not regenerate. Moreover, charcoal production is believed to be a major cause of permanent deforestation though other regeneration studies argue otherwise. In Ghana, charcoal production is unregulated and government seeks to regulate charcoal in order to control the expected woodfuel crises presented by dominant interest groups. Plantations for charcoal is one of the suggestions to deal with woodfuel crises. It is noted to be a monoculture, takes land permanently, discourages fallowing and this does not allow its successful integration with farming and other livelihoods. Moreover, plantation is a livelihood cut out for well to do individuals or groups and not a poor farmer. Therefore, the submission of plantation for charcoal implies the exclusion of rural inhabitants from its production since they cannot compete with investors. Again, the regulation of charcoal creates access for investors to dominate and maximize their benefit from other access they would be liable to such as permits, capital, market, transportation and sacks. This evidence is gathered from Ribot's work on the market chain of woodfuel in Senegal. In the verge of providing solution to the expected woodfuel crises another challenge may arise and like Ferguson (1994) explains that most developmental projects aimed at eradicating poverty end up making the case worse. This often is as a result of experts implementing solutions which is of their view, neglecting the views of those involved. Consequently, this study constitutes the submissions

and experience of the rural inhabitants who engage in food crop farming, plantation development and charcoal production. The findings will focus on the nature of integration of farming, charcoal production and plantation development and the impact each activity has on the other and the environment at large. The findings will also examine the access available to rural inhabitants in engaging in plantation development, farming and charcoal production in order to assess the extent to which they can benefit from these livelihoods. Furthermore, the contribution of plantation, farming and charcoal production to the rural inhabitants will be discussed.

4.2 Integration of Rural Livelihoods

The following discussions elaborate the types of crops cultivated and land size accessible to the various sexes and age groups; the location of food crop farms and plantations; how charcoal production and plantation incorporated with food crop farming affects fallowing an important traditional practice which is done to restore the fertility of the soil; how these two livelihoods again affects the land available to food crop farming since farming is their major livelihood and the most significant to them. Also, the findings reveal that farmers usually incorporate trees on their farms as is needed and it does not take the establishment of plantations to supply the tree resources that the rural inhabitants need.

4.2.1 Food Crops and Plantations Cultivated by Elders, Women and Youth

Farming is a major livelihood activity in Weila. Food crops, including yam, cassava, maize, groundnut, okro, sorghum, millet and rice are crops cultivated in the community. Although men, women and youth cultivate the above crops, both have their specializations. Such that most men cultivate yam, cassava, and maize; most women cultivate cassava, groundnut and okro; while most youth also cultivate yam, and cassava. Usually on a piece of land, yam is the first crop cultivated, followed by cassava then maybe maize before groundnut. Women and youth gain access to plant

groundnut after men have planted yams and cassava. Depending on their availability of fallow land women and youth upon request are able to access plot for the cultivation of their yams and cassava.

Cashew is a tree crop plantation which has attracted a cross section of the people of Weila. Formerly, teak was the major tree plantation cultivated but after its maturing, it did not attract good pricing hence the owners incurred losses. In relation to this experience, most have been discouraged from its cultivation. This is sadly recounted by both men and youth, the youth learning from their fathers have also focused on cultivating cashew which they mentioned was recently introduced to them. It was their chief who happen to be the first owner of cashew plantation in the community. From the study, cashew, cocoa, teak, mango, rice and sorghum are the plantations that exist in the community, of which cashew is the main plantation being developed currently by members of the community. It can be said that it has taken the position that teak used to hold. From the survey only three men have teak plantation but they also have cashew alongside; two have cocoa; one has mango; and one has rice and sorghum. This indicates the community's interest in cashew.

Cashew is cultivated on the farmlands together with yam and cassava and after the cashew begins to shade after 3years, integration is no longer possible. The respondents explain that this is necessary because the cashew tree's shading will affect the crops growth so it is best for the crop to be moved to another plot. This is what Mwatika (2013) means when he mentions that food crops can be integrated with plantations for a period of 3 to 4 years. However, Michael, a cashew owner gives a contradicting view:

> Food crops can be integrated with cashew for a longer time, say at least 10 years. It all depends on how the cashew is spaced out

> because if it is widely spaced out then it cannot quickly shade the food crops and the crops can be there as long as they want.[2]

These submissions agree with O'Loughlin and Nambia (2001) argument that crops can be integrated with plantations for a long time depending on the alignment and arrangement of the trees.

4.2.2 Size of Farmland and Plantation

In Weila, the plantation exists on the farm land as explained above that in the beginning cashew is cultivated together with yam and cassava on the same plot. This method is seen as an efficient way of cultivating cashew and this also influences the size of land for food crops and that for cashew. The respondents recounted that it is difficult, risky and expensive to develop cashew plantation and this is mainly because of the weeds that are a major threat to the cashew. This confirms the argument of Amanor (2009), and Tiffen and Mortimore (1990) that cashew is a high investment livelihood activity. Hence, cultivating food crops among the cashew is a means to control weeds and also benefit from the crops that is cultivated on the same plot. While attending to the crops, it doubles as a means of weed control for the cashew. Since cashew is cultivated among the crops, most cashew plots belonging to new cashew owners are the same size as that of their farms of which 2 acres is the average size recorded from the study.

The majority of females have an acre of land for food crops while both men and youth have 2 acres. The highest food crops acreage is 16 which belongs to an elderly man, the highest for women was 14 acres, and that of the youth was 10 acres. This record confirms that men usually have larger acres than women (Cline-Cole, 1996: 137; Quansah, 2012). This can be attributed to the availability of land, first to men, then women followed by the youth and also the availability of

[2] Interview with Michael- May 14, 2018

labour from their household to support the men on their farms. Also, for plantation plots, most men, women and youth have 2 acres; while the highest acreage for men is 23, that of women is 18 and that of the youth is 13. The highest total land size for men is 100 acres, for women is 50 acres then for youth is 39 acres. For food crop, plantation and total land size, there appears to be an established hierarchy in the order of which men, women and youth own farmland. Men have the highest, followed by women then the youth and this can also be a reflection of the hierarchy of gender and age in the community.

The kind of labour and capital required for plantation limits most inhabitants from developing large-scale plantations. Weeds and bush fires are serious threats to plantations so most are able to develop at large 4 to 5 acres and this to the people is a large-scale plantation. Like Kuzuugu, a cashew owner narrates:

> How can I do more acres if I am doing the cashew by myself. I don't have money to hire labour and there is the threat of bush fires. Bush fires are very common in this community especially in the Harmattan season. Since people set fire to their bush, and fire does not know that this is not part of the land I am supposed to burn; it spreads wide consuming every farm in its path. And weeds control too is very important since it can kill most of the cashew seedlings if not weeded and this will be a great loss. So if I cultivate more acres I will not be able to take care of it well.[3]

These affect the size of farmland particularly for plantation because it costs a lot to establish them.

4.2.3 Land and Location of Plantations and Farms

The nature of land used for cultivation is significant because it can affect the yield which is the reason for the cultivation in the first place. Also, the environment is another important aspect to consider since the continuity of farming and developing plantations is dependent on its sustainability. Not only that but other livelihood activities which is dependent on the same

[3] Interview with Kuzuugu – May 4, 2018

environment requires that sustainable environment. This agrees with Richardson (2010) that a number of rural people are dependent on the forest which happens to be part of their environment for livelihood. For this reason, the practice and management of food crops and plantation affects the land and environment in which they are engaged in. The nature of the land used together with the location of the food crops and plantation can reveal the impact these two activities are having or likely to have on its environment. The fertility of the soil, nature of the land, type of soil and the location of the food crops and plantation are factors that can be measured to reveal the impact of food crops and plantations in an area. According to the inhabitant the fertility of soil is determined by its dark colour and its yield. The tables below reveal the responses from the respondents concerning some of the above mentioned factors.

Table 4.1: Perception of Soil Fertility of Farms

Soil Fertility (F)	Frequency	Percent
Fertile	150	83.3
Infertile	8	4.4
Partial	4	2.2
Don't Know	18	10.0
Total	180	100.0

Source: Field data, 2018

Table 4.2: Perception of Soil Fertility of Plantations

Soil Fertility (P)	Frequency	Percent
Fertile	138	76.7
Infertile	8	4.4
Partial	1	.6
Don't Know	33	18.3
Total	180	100.0

Source: Field data, 2018

Table 4.3: Location of Plantation

Location	Frequency	Percent
Far	115	63.9
Close	22	12.2
Don't Know	43	23.9
Total	180	100.0

Source: Field data, 2018

The tables show that majority of food crops are on fertile lands so are plantations. The earlier responses explain why this is the situation, that the same land used for the crops is the same used for the plantation. It is not the over used land which has lost its fertility that is used to develop plantation, rather after a period of 3-4 years of using a fallowed land which's fertility has been restored, the crops are rather moved to another plot of land. This method of incorporating food crops and cashew at the beginning leads to a contradiction of Amanor (2009) findings that plantations are usually cultivated on infertile land. According to some of the respondents there are motivations for using fertile lands for plantation. Ansomah Paul, a cashew owner, states;

> I use fertile land for my cashew because I want good yields.[4]

Alhaji Salia also states;

> I am using fertile land for my cashew because cashew requires a fertile land to grow.[5]

Ama Kyekye, cashew developer, says;

> I prefer to use fertile land for cashew because we have large land ahead.[6]

Similarly, Moses Donkor, cashew developer, mentions;

[4] Interview with Ansomah Paul – May 4, 2018
[5] Interview with Alhaji Salia – May 10, 2018
[6] Interview with Ama Kyekye – May 14, 2018

> I am cultivating cashew on fertile land because I have large tracts of land.[7]

These responses reveal that Weila has large tracts of land available for cultivation and this affords them the privilege to use fertile land for plantation. Again, their quest for good yield is another factor. Members in this community are aware of the wealth creation associated with the cultivation of cashew, and in their quest for wealth, they are all making effort to establish cashew plantations even on fertile soils for good yield.

Mostly, all respondents recount that the nature of land in their community is grassland. Since, the land available to them is grassland, they are left with no choice than to use it for their food crop and plantation. Also, majority recall that the soil is mainly loamy, only a handfull of the respondents mentioned that the soil is a mixture of loam and sand which is still fertile. Only one person mentioned that her area is clayey that is why she is cultivating rice. Most cashew plantations are far away from the settlement, another contradiction from Amanor's (2009) studies which explains that plantations are usually close to the settlement because they happen to be the overused land. Common responses from the respondent for having their plantation far away from their settlement is that: that is the land which is available to them; that is the location of their family land; and that the Fulani folks are disturbing their crops that are close by so they are compelled to go far away from their dwelling to establish their food crops and plantations.

Their contributions explain that plantations known to take away land permanently is being established on fertile soil, loamy soil and far from the settlement and this can have a deteriorating impact on their environment, given the fact that plantation established on farmland also affects farming and its environment. Like Schirmer et. al., (2005) puts it, that plantation on farmland

[7] Interview with Moses Donkor – May 9, 2018

displaces the food crops and other off-farm activities in its environment. Similarly, this may have a far reaching consequences on the community in the near future considering the rate at which most are indulging in the development of cashew and the fact that they are cultivating it on their fertile farmlands.

Considering that 89.4% are farmers, 85% are plantation developers and 75% are charcoal burners, the percentage of plantation developers being very close to that of farmers indicates that they are farmers who allocate land to different types of crops This can attest to what the respondents explained that their farmland is the same plots which are transformed into the plantation. So it is not surprising that the number of plantation developers is close to that of farmers. The lowest percentage, which is 5% representing non-plantation developers is representative of the very old who do not have the strength and capital to establish plantations and the handful of migrants who are not given land to establish plantations.

4.2.4 Fallowing Under Farming and Plantations

Fallowing is an indigenous farm management practice by most rural farmers (CIRAD, pers.comm., 2006 cited in McDonald, 2003). As is known, fallowing is practiced to restore the fertility of the soil and this practice has survived the test of time. From the study, all farmers engage in fallowing except after the land has been converted to a plantation. They all admit that they are unable to engage in fallowing after they cultivate their cashew on their plots. This is because the cashew will remain there permanently or till the tree dies. Their submission reveals that fallowing is necessary for the restoration of fertility to the soil and that plantation does not support fallowing. Evidence from the following reveals the impact of fallowing on the land, crop yield, the soil and the environment at large. They include yield, fertilizer use, herbicides use, and the number of trees on the farms. The tables below reveal the responses from the respondents:

Table 4.4: Perceptions of Crop Yield

Crop Yield	Frequency	Percent
Good	154	85.6
Bad	3	1.7
Somewhat	5	2.8
Don't Know	18	10.0
Total	180	100.0

Source: Field data, 2018

Table 4.5: Farmers' Fertilizer Usage

Fertilizer Use	Frequency	Percent
Yes	6	3.3
No	156	86.7
Don't Know	18	10.0
Total	180	100.0

Source: Field data, 2018

Table 4.6: Farmers' Herbicides Usage

Herbicides Use	Frequency	Percent
Yes	85	47.2
No	78	43.4
Don't Know	17	9.4
Total	180	100.0

Source: Field data, 2018

Table 4.7: Availability of Trees on Farmland

Trees Available	Frequency	Percent
Enough	61	33.9
Too Many	14	7.8
Few	86	47.8
Don't Know Total	19	10.6
Total	180	100.0

Source: Field data, 2018

Results from the study reveals that the yield of the crops and even the plantations are good; the fertility of the soil is also commendable therefore it reflects in they having virtually no need of fertilizer for their crops because the responses shows that 86% do not use fertilizer while only

3.3% use fertilizers and the most used is two sachets as stated by the highest user. For herbicides, there is a high percentage of users as well as relatively high non-users; they are 47.2% users and 42.8% non-users. Respondents explain that the high rate of herbicides usage is mainly for the plantations because weeds are a serious threat to plantations. The application of herbicides to the plots is able to control weeds for a period of 6 months and that is more efficient for them than the manual way of weeding. Before they cultivate the land for cashew, together with yam and cassava, they apply the herbicides on the land and this is able to protect their cashew from weeds. However, they usually are not able to continue applying the herbicides after the cultivation of the cashew because of its cost implications. They then resort to cultivating crops like yam, cassava and groundnut till the cashew begins to shade.

4.2.5 Shortage of Farmland

Land is a requisite to engage in farming, plantation and charcoal production. Land is a valuable asset in the community such that the availability of land to a group or class is able to accord power to its owners (Chauveau & Richards, 2008). The expansion of plantation is admitted to cause the reduction of land available for farming and it also affect trees for charcoal production. The respondents again mentioned that there can be shortage of land if plantation is encouraged. Some of the views that run through include; plantation takes away land permanently so if a land is developed into a plantation that land is lost forever; another is that, majority are moving into cashew plantation now so it is possible for there to be land shortage; and finally, should the people decide to expand their cashew plantations of which they will with time then they can lose their farmland. Kumah, a cashew owner, emphatically stated that:

> With the way I am seeing how things are going, with almost everybody establishing cashew plantation, in the space of 5 years

> we will no longer have land to cultivate food crops. We will lose all our lands to cashew.[8]

They admit that the expansion of cashew plantation can cause shortage of farmland. Despite their admission they are still interested in expanding their cashew plantations. Some add that they don't mind if there is no land for food, they are ready to buy food because then the cashew will give them the money to afford it even if it is expensive. Some also mention that they will not use all their land for cashew but they will reserve an acre or two to cultivate food for their consumption. They indeed would want to save some land for food but this is only for their subsistence which means the majority of consumers who are dependent on these farmers for food would not be provided for. This can account for shortage of food (Schirmer et. al, 2005) as well as charcoal since charcoal is a by-product of farming (Amanor et. al., cited in Amanor, 2004). Even woodfuel will be affected because the respondents mentioned that on their farmland, they leave some trees and the results reveal that 33.9 % are enough trees left on farms, 7.8% are too many trees left on farms and 47. 8% are few trees left on farms. Thus, there are quite enough trees left on the farm and these trees fertilize the soil as the leaves drop, some of these trees are also used for woodfuels. But when cashew is cultivated, at the beginning some trees are left like the food crops that are integrated but when the cashew begins to shade all the trees are cleared to avoid competition. This evidence reiterates that plantation does not only affect farms but charcoal production too.

4.2.6 Integration of Useful Trees on Farms

The integration of trees with food crops is not a new phenomenon to the people of Weila. In the community, farming is already integrated with trees but on a small scale. There is evidence of trees on their farms. Trees such as Shea tree, Dawadawa, Mahogany, Nim tree, Senya, *Daniellia oliveri (Cham), Naara, Papaa, Anogeissus leiocarpus (Kane), Nglawa, Haloo, Parkia biglobosa (Sol),*

[8] Interview with Kumah – May 2, 2018

Terminalia macroptera (Sasu), Pterocarpus erinaceous (Twima) and Tuara are but few of the trees that can be found on their farms. These trees are left on the farms for their usefulness. For instance, shea butter is gotten from the Shea trees and it appears as the most useful tree to them, most explain that it is very important to them because that is what their mothers and sisters use to massage their babies and it can be sold for income too. The second most useful tree to them is Senya. Senya is relevant for their construction purposes and like the Shea tree it adds fertilizer to the soil, these two trees are very good for the soil and they can co-exist with yam, cassava and groundnut on a farm, they say. It is no surprise these trees are left on the farms and not cut down. Though Emmanuel, a charcoal burner explained:

> For trees like Shea, Senya, Mahogany, and Dawadawa, they don't like to cut it down but if it is too many in an area they will like to farm then they will cut some down. But if for plantation, they are left with no choice than to cut all down for charcoal. Dawadawa is also useful for soup and Cham is also useful for construction purposes. These trees are preserved by the inhabitants.[9]

Considering their usefulness, they appear in the same order of the people's interest in cultivating them because they admit that they are becoming scarce. They also mentioned that they will like to cultivate trees like Moringa and cashew. Moringa was mentioned, for its medicinal qualities. Few mentioned cashew, because they can get more money from it. Most admitted that despite their practice in preserving them, they are still becoming scare and reasons attributed to that were; the timber loggers are harvesting these trees and that charcoal burners are also cutting them for charcoal.

[9] Interview with Emmanuel – May 14, 2018

4.2.7 Factors of Woodfuel and its Environment

The point of charcoal being a by-product of farming (Amanor et. al., cited in Amanor, 2004) has already been made. Charcoal is significant to many livelihoods (Obiri, et al, 2004)). Charcoal production is an activity that is engaged by 41.7% of my respondents. In Weila, Shea tree, Senya, Nim tree, *Naara, Glena, Nglawa, Tao, Daniellia oliveri (Cham), Anogeissus leiocarpus (Kane), Krahyire, Tuara, Terminalia macroptera (Sasu), Pterocarpus erinaceous (Twima), Haloo,* and *Mogyadua* are all species used to produce charcoal. According to the charcoal burners, the best include *Naara, Papaa, Anogeissus leiocarpus (Kane), Terminalia macroptera (Sasu), Krahyire*, Shea tree, and Senya and this is because after they are burnt they produce hard charcoal and that is the quality of good charcoal. The charcoal burners explained that Shea tree and Senya are useful trees to the community and they do not burn them indiscriminately but when the tree dies or the timber loggers fell the tree and remove the trunks, those trunks are then used to burn the charcoal. They are very careful of not cutting such trees because when caught there is an imposed fine on the culprit. From the expression of dread on their faces and the tone of their voices in responding, the researcher could tell that the punitive measures are harsh on culprits. These trees are found on the farm, fallows and common land. Majority of the charcoal comes from farms (46%), followed by fallows (40%), and common land (30.6%). This affirms the remarks made by the youth, who are the major producers of charcoal, during a focus group discussion that most of the trees for charcoal are obtained from the farm and fallows. On that account, majority of the woodfuel in Weila, comes from the farms and fallows which Amanor (2009) established.

From the study 50.6% representing a high proportion attest that they experience difficulty accessing woodfuels, while 33.3% state that they do not experience any difficulty. According to Justice, a charcoal burner:

> They experience difficulty in accessing woodfuel because the Sissala have cut most of the big trees so they have to go far.[10]

Kofi Koomson, a charcoal burner narrates:

> We are increasing in numbers as charcoal burners and producing in largescale so the trees are finishing[11]

Joe, a charcoal burner, disagrees and says:

> There are plenty of trees on my farm for charcoal. It doesn't take long for me to find trees to burn the charcoal.[12]

Also, 72% admit that trees for charcoal are becoming scarce and 58% reveal that it is the large trees that are becoming scarce, 8.3% reveal that it is both large and small that is becoming scarce, and 11.1 % reveal that neither the big or small trees are becoming scarce. These figures are significant because charcoal production is stated to be a cause of permanent deforestation (EPA, 2016). Thus, the majority that admit that there is scarcity of woodfuel trees confirm the arguments that charcoal production is causing deforestation. But on the other hand, Ribot (1999) and Leach and Mearns (1996) also argue that the methods of accounting for deforestation caused by charcoal production is in appropriate and misguiding. Amanor (2007) and Ribot (1999) elaborates that these trees that are cut regenerate after a period hence it is wrong to conclude that the cutting of those trees for charcoal is causing permanent deforestation. Likewise, the 58% that mention that it is the large trees that are finishing further explained that, they cut the large trees and leave the small tree. The reason being that it is the large trees that produce large quantities of charcoal. As a result, they deliberately leave the small trees so that they can also grow to become big trees for another harvest. Accordingly, despite the majority, 72% who admit that the trees are becoming scarce, their further explanation reveals that it is only a temporary thing, so was the explanation of the 12.8% that

[10] Interview with Justice - May 10, 2018
[11] Interview with Kofi Koomson – May 4, 2018
[12] Interview with Joe – May 12, 2018

mentioned that the trees were not becoming scarce. These farmers reason was that they have been cutting trees for charcoal for a long time and they do not lack trees since the period the bigger trees are nearly exhausted in one area, they move to another place which has in abundance. After several years of rotating from one area to the other, they come back to the very old fallows which have grown into thicker forest. Also, Moses, charcoal burner, said:

> How can trees finish, there are a lot of trees here, and it is God who plants the trees for us so we do not cultivate trees for charcoal.[13]

Unanimously, all said that they do not cultivate trees for charcoal. Consequently, the majority (51%) again reveal that they do not deliberately preserve trees for charcoal while 31.7% revealed that they do otherwise. Majority mentioned that they do not intentionally plan to keep certain trees for charcoal, since the trees are in abundance. They use their discretion to cut trees for charcoal and leave some trees. The 31.7% that said they preserved the trees explained that they would cut the big trees and preserve the small trees having in mind that they need to be left to regenerate into larger trees to ensure they always have large trees to harvest.

4.3 Resource Access Available to Rural Inhabitants for Livelihood

The various resource access required for farming, charcoal production and plantation and the access available to the various sexes and age groups is discussed. The status of members in the community and their natural characteristics which enables them to benefit from a particular livelihood among the above mentioned is also explained.

4.3.1 Elders, Women, Youth and their Occupation

The main livelihood activities in the community are three, that is farming, cashew development and charcoal production. Though a handful are teachers, traders, drivers, drinking bar operator,

[13] Interview with Moses – May 18, 2018

chainsaw operator, a steel bender, and a bee keeper. Those involved in the latter livelihood activities diversify their livelihood with either farming, cashew development or charcoal production. Majority are farmers. With regards to access to land in particular is controlled by the elders (Quansah, 2012) and so its access is somehow limited to women and youth, and this disparity influences the choice of occupation or livelihood activity they engage in. The results reveal that when it comes to farming there are more elderly men involved than the youth and women. The women and youth are again limited in the crops and acres they can cultivate. From the focus group discussion among the youth and the elders, it came to notice that most of the youth do not farm because they believe it is not financially rewarding. They have to help on their fathers' farms, so do women help their husbands in farming since they are both dependent on men. Women are able to cultivate after their husbands have harvested yam or cassava on a plot of land. At that period, cultivating groundnut is among the best crops to plant that is why most women end up cultivating groundnut and also because it does not take a long period in order to allow the land to fallow before the man cultivate yams again. Some women cultivate yam. For the men farming is a backbone for them considering their responsibility as the head of the family. They have to provide food and income for the families' sustenance. The family cannot do without food, so the men cannot avoid cultivating food crops.

With regards to plantation, all members in the community seem excited about the wealth that comes from cashew plantations. Thus, they are all involved right from the men, women to the youth. Men have an upper hand in cultivating more acres in accordance to their strength and from the capital they get from food production. The average acres of cashew own by men is 2 acres, that of women is 2 acres and that of the youth is also 2 acres. This reflects the enthusiasm from all ages or gender. The highest which is 23 acres belongs to a man; the highest of women is 18 acres and

that of the youth is 13acres. Most men are engaged in plantation, followed by the youth then the women. For the youth, it is quite interesting that they who are not interested in farming are very much involved in cashew development. It appears the youth are also given land to do plantation and this is because the land is in abundance according to the respondents. There is more land in fallow than that which is cultivated. The tables below present the highest and average land distribution among the rural inhabitants.

Table 4.8: Farmland in Use

Sex/Age	Highest Acres	Average Acres
Men	16	2
Women	14	1
Youth	10	2

Source: Field data, 2018

Table 4.9: Total Farmland Size

Sex/Age	Highest Acres	Average Acres
Men	100	20
Women	50	4
Youth	39	5

Source: Field data, 2018

The tables above indicate that men had the highest acres for crops farming and total farmland, followed by women and then the youth. These distributions of land for food crop farming and the total farmland is a reflection of men having more access to land than women and women having more access to land then the youth. Hence, those with more access to land are able to utilize more.

In relation to charcoal production, it is an activity participated by those who do not own farms and those who do not gain enough income from their farms. It appears most of the people do farming for their subsistence as well as for sale because they go to the market on Wednesday which is their market day to sell their produce. And when they were asked concerning how they will manage when there is expansion of plantation and there is shortage of farmland, they responded that, they

will do an acre or two to feed themselves. This evidence adds that they currently are producing for the market too. It is no surprise, Brong Ahafo is noted as the food basket of the urban areas (Amanor, 2009).

As already addressed, charcoal production is a strenuous activity so it is limited to those with physical strength or those with capital. In the case of Weila, it is limited to those with strength since capital is scarce. Therefore, charcoal production is a livelihood dominated by the youth. From the survey, only a few women engage in charcoal production. In Weila, charcoal production seems not to be a significant livelihood for both women and men. Even, the youth complain that charcoal production is difficult and if they are given a better option they will opt out. That is why it is difficult to say that charcoal production is going to replace food crop production like (Cavanagh et al., 2015 cited in Jones et al., 2016) argues. Rather to this community it appears that cashew plantation is the activity which can displace farming.

4.3.2 Rural Inhabitants Access to Land for Plantation

In Weila, family heads with the mandate as caretakers of the land, distribute it at their will. In this community, a portion of land can come under one's custody by being the first to have cleared that land for farming. So those who managed to clear more lands have large tracts of land belonging to their families. Almost all the respondents, mentioned that their farms are old farms and this explains that they are descendants who are probably benefiting from lands their forefathers cleared. Available land, implying a fallowed land, can be requested to farm on from any family in the community. Tensions and conflicts can arise when a person is refused land, after the farming season begins and that land is not cultivated. When it comes to accessing land for plantation, it is not as simply as acquiring land for food crop farming. The inhabitants' knowledge of plantation taking land permanently exercise certain restrictions in apportioning lands for plantation to family

members or even migrants and this is discussed in detail in the next discussion. Lands given to migrants in the community to farm but not to cultivate cashew or any plantation is to ensures that the land remains in the family. Land is a viable component for wealth creation (Kuusaana, Kikido & Halidu-Adam, 2013). It is noted that most rural inhabitants are dependent on the land for food and plantation, which leads to the accumulation of wealth.

4.3.3 Levels of Restrictions in Plantation Development

Considering the fact that land is in the care of family heads, usually men, it awards them its unlimited access to plantations. In Weila, land can be accessed through family heads, it can be a grandfather, an uncle or father. A relation only needs to ask the family head but for a migrant, a bottle of Schnappe has to be presented to the family head and then the chief has to be made aware of the transaction. Annually, the migrant pays a small amount to the family head. As established earlier that the development of plantation in an area means permanent ownership of the land, one can easily acquire land for farming but not plantation. It involves certain restrictions on the part of women, youth, investors and migrants. From the study, 82.2% representing the majority stated that there were no restrictions involved in developing plantation while 11.7% mentioned that there are restrictions. Those who mentioned that there were no restrictions explained that upon request, one will not be refused as long as land is available. The youth, women and migrants mentioned that there were restrictions in having land for developing plantations. However, in the case of women and youth, they are more likely to access land for plantation due to their status as indigenes. And in most cases the availability of land for women and among the youth, the cordial relationship that exist between their fathers and themselves. These are the conditions often attached. Mensah mentioned that:

> For me, if I don't help my father on the farm he would not give me a plot when I ask him.[14]

Eric similarly recounts:

> Because our father was not pleased with me refusing to take care of his farm, he didn't give me land for cashew but gave my sister since she helps both on the farm and with chores in the house.[15]

Amah explains that:

> I have to help my husband on his yam farm and after harvesting I grow groundnut on the plot. I will need to leave the land to fallow afterwards. If I should ask for the land to grow cashew, he will refuse because it will take a long time and he will have to clear another land to replace that one and he is not ready for that.[16]

The men had different views to the restriction of land for plantation, for example, John Antwi mentions that:

> There are restrictions because some of the land must be left for farming and all cannot be used for cashew.[17]

Alhaji Salia adds:

> Because if your land is finished and you want another man's land, you will be given restrictions like what is applied to migrants.[18]

But for the migrants they would not be given land at all. There is the fear of indigenes lands being taken over by migrants. Hence, as a strategy of safeguarding their land, the people of Weila will not give lands out to migrants to establish plantations even with payments. The migrants can have land for food crop since it does not take a long time and food is a necessity. They will not deny the migrants that basic need. For instance, those who said there were restrictions explained like Aribether, a 70-year-old migrant:

[14] Interview with Mensah – May 11, 2018
[15] Interview with Eric – May 17, 2018
[16] Interview with Amah – May 11, 2018
[17] Interview with John Antwi – May 24, 2018
[18] Interview with Alhaji Salia – May 10, 2018

> Since I am a migrant I would not be given land to do plantations because plantations take the land permanently and the indigenes would not allow me to have ownership of their land. That is why I cannot also cultivate cashew like they are doing, despite my many years of stay in this community. As migrants, we are able to acquire land for farming and for that we make presentation of schnapps to the elders together with our landlords. Every year we pay small amount to land lords.[19]

Similarly, Afia Kumah, another migrant recounts:

> When it comes to migrants, there are restrictions in plantation making so because of that I don't have a plantation.[20]

4.3.4 Permission from Elders and Chiefs to Access Land

In this community, the land is in the hands of the family head so no one seeks the permission of the chief and elders to have access to land except when one is a migrant or investor. But from the focus group discussions, it came up that the people are not willing to give their land to any migrant or investor for plantation because they believe when one establishes a plantation on a land, it permanently ends up with the plantation developer. They vouched they will never give their land to a migrant or sell to an investor for plantation. The people of Weila are aware of the establishment of joint partnership with investors for plantation in communities close by and they believe soon it will catch up with them. For partnership with an investor it will be allowed because of the capital the investor will be coming with. Their inaccessibility of capital is that which will make them welcome a partnership with an investor but will refuse that with a migrant. They explain that they will give their lands out while the investor plants and manages the plantation. They will not allow for a sole ownership to an investor. An interview with the chief, Opanin Kofi Gbanda also confirmed the same thing. He said:

[19] Interview with Aribether – May 18, 2018
[20] Interview with Afia Kumah – May 12, 2018

> We will not sell our land to any foreigner and we will also not lease it for any plantation to an investor. We are aware that the other towns close by have investors developing plantations in their area. If we give the land out to investors to develop the plantation then we will lose ownership of it.[21]

As is largely established that chief or elders of the land are usually the custodian of the land, it was expected that other users needed permission from them to access land for plantations. But in the case of Weila, 85% of the respondent which is a significantly high number stated that, they do not need any permission from the chief or elders because their lands are in the hands of the family heads and they are the ones they go to. Only 8.9% said yes you go to the chief and most were migrants. Hence, women particularly those married acquired land from their husbands, others from their uncles, fathers or grandfathers. The youth acquire from their fathers. During the focus group discussion among the youth, an interesting submission came up. It was that the male youth usually acquire land from their fathers and not mothers but the female youth acquire from both parents because they are eligible to acquire land from their fathers and because they help their mothers with chores in the house they end up being favoured and so they acquire lands from their mothers too. Weila, according to Amanor (2009) is a matrilineal society and such is the norm in youth inheriting plantations from their maternal uncle. However, during the focus group discussion among the elders, they stated emphatically that, that system no longer exist because how can a son labour with his father on a plantation and after he dies the nephew comes to take over. The nephew is only entitled to clothing and some items. Despite the people breaking away from the usual way of inheritance in the matrilineal system, they said they are still a matrilineal society. Currently, the nephew cannot inherit their uncle's plantations or farms. This shift allows children to inherit property from parents. The chief's wife, Maame Ama Pena, illustrated that;

[21] Interview with Opanin Kofi Gbanda – May 7, 2018

> If I should die my children will inherit my plantation and if my husband should die, my children will still inherit their father's plantation though our inheritance is matrilineal. The world is changing and things have changed. Even in this community we frown upon such practice and we will ensure the children inherit their father's plantation. The only thing my family may even inherit are pieces of cloth from my trunk. As custom demands it will be brought out after my burial and my children will present only that as my possessions and offer it to them.[22]

This practice may not motivate the youth to support their fathers and uncles with their plantations and farms. Since like in other matrilineal societies, the young men support their uncles on their plantations with the aim that their labour will be reciprocated as they inherit the plantation after their uncles are no more. But in this case, the nephew inherits the clothing and not the plantation of the uncle. Hence, they may not be obliged to support their uncle. Again, with respect to their fathers, after they pass the youth are entitled to their plantations whether they help or not.

4.3.5 Women and Youth Access to Plantation

According to the study, the majority (75.6%) mentioned that it is easy for women and youth to get access to land despite they having limited access to it. 20.6 % disagreed that it is easy for women and youth to get easy access to land. Though elders, women and youth fell in both categories of response, majority of those who agreed that it was easy for women and youth to have access to land were the elders and majority of the youth said it was not easy. This was clarified during the two focus group discussions, the first which was among the youth, agreed that it was not easy to get land for a plantation because one will have to ask his father and if the land is available he will be given but he or she can be turned down. On the other hand, the discussion among the elders, revealed that it was easy like most in the survey answered, their reason was that if the land is available why would I not give my child a portion to farm.

[22] Interview with Maame Ama Pena – May 7, 2018

Mr. Ebenezer Donkor, farmer and cashew owner explained:

> The youth will say it not easy because they will have to ask and permission must be granted and this is necessary because we have been farming the land for years and we know which land is good for cashew, for yam or for cassava. Also, we the elders know the boundaries of our land. So if they don't ask they can go cultivating their cashew at a wrong place or even go farming another family's land which they will end up losing their plantation. Again, the youth will need to be guided and taught how to cultivate the cashew because we have the experience. The youth may be afraid they will be refused because they do not help us, they go away to other towns to work. And when they have heard that there is money in cashew they have all rushed back to cultivate some. Why would I willingly give such a son a plot of land to farm? Non the less the youth have forgotten that when the father should die, the plantation ends up his but they would not help to establish it.[23]

This reveals the kind of tension that may exist between the youth and the elders and it is an issue of reciprocity. That is why in the focus group discussion among the youth, most mentioned that they do not get anything from farming and so they are interested in cultivating cashew. This is because they may not be compelled to assist their father in his plantation and they can also establish theirs from which they reap the full returns.

The elders established that there is no point they will refuse a son who wants to cultivate more acres than their father, only if he can handle it, they will not refuse him. Considering the above situation where a number of youth do not help their father's in developing their plantations and the fathers' are not excited about this. Could it not get to a point where the fathers will like to punish the youth by restricting the number of acres they can cultivate?

[23] Interview with Mr. Ebenezer Donkor – May 7, 2018

4.3.6 Rural Inhabitants Access to Capital for Livelihood

Plantations are capital intensive (Tiffen & Mortimore, 1990). Since capital is scarce in rural area many farmers are limited in establishing plantation. Despite their interest and desire to have more acres, most have 2 acres of plantation because of the difficulty for them in establishing it. Therefore, to them 4-6 acres is a large-scale plantation. They do not have external source of capital for their plantation because obviously banks are unwilling to offer loans for smallholders. Amanor (2009) confirms that banks like to avoid high risk activities and plantation is a high risk activity therefore, they prefer large tracts of plantation which are legally owned. But in this case, the plantations are even not registered in the first place and the norms in the community does not support an individual's registration of farmland. Amanor (2009) again revealed that NGOs support the wealthy rural farmers who own plantation and considering the 2 acres that majority of the cashew developers have, most will not qualify for the funds from such NGOs. This makes accessing capital a big problem for the small holder cashew developers and may inhibit their progress in establishing huge plantations as most desire.

The elders mentioned that they get capital from the income that comes from the sale of extra food crops. The youth get capital from the burning of charcoal for establishing their plantations. While women get it from the farms they establish but most are not able to establish farms that give them such huge returns for plantation. As a result, it is reflected in the survey that the women that owned plantations were not married or the woman has inherited. For instance, the woman with the highest acres (18) of plantation inherited it from her late husband; the next highest, 10 acres also inherited from grandfather; and the other highest being 5 acres also obtained the land from her father but developed the plantation herself. Out of 62 women respondents, 22 women had an acre of farmland

representing the mode. Most women farming an acre cannot provide them with enough capital to invest into expanding their plantations.

From the study, 96.1% agree that it is difficult to get capital for cashew while 3.3% disagree. On the whole, majority agree that accessing capital for plantation is difficult considering the amount which is also needed. This reiterates that plantation is expensive to establish. Capital is needed especially for labour, seedlings, and herbicides. Labour is needed for application of herbicides which is like a must because nearly all respondents indicated they applied herbicides to their plantation plots before cultivating it. Labour is again needed to plant the seeds, and to weed as well as protect the plantation from bush fires. Bush fires and weeds are great threats to the cashew plantations. One cannot do without capital. For the specific amount for an acre of plantation was difficult to determine but most mentioned 1000 Ghana cedis for an acre of plantation. For the seedlings, they mentioned that it is easy to come by because a friend can even fetch a cup of seeds for you for free. Also, from my observation on one cashew farm, many of the seeds were on the ground having fallen from the tree and the owner picked them up to store it. Capital, labour, herbicides and seedlings are needed and these are the same items that capital is also used to purchase. Cashew harvesting is usually from December to June, so in between this period cashew can be harvested. And the fruits mature from 3 years onwards and the older the tree the more cashew is derived. A bag costs 500 Ghana cedis.

4.3.7 Rural Inhabitants Access to Charcoal Trees

Trees for woodfuel is another commodity which serves the needs of the rural inhabitants. There is unlimited access to trees to the indigene but the migrant will have to ask for permission and make negotiations. Though elders do not burn charcoal, they give the trees on their farms to their children to harvest for charcoal. From the focus group discussion among the youth, the youth mentioned

that if it is their fathers' farm or fallows they make no payments but if it belongs to another family, then they make negotiations and it is divided into three parts, the owner of the land takes one part and the charcoal burner takes two parts. But from the focus group discussion of the elders, they said that they give the trees out for free and even if it is not a son they give it out for free. This is because all of them are related, they marry among themselves so you can hardly say this person is not family, they are all indirectly family. Also, they are old and what use do they have for those trees, they have no need of them. The only thing they request is that the charcoal burner only need to ask. Prof Thomas, a teacher, farmer and plantation owner narrated:

> One day I went to my farm and someone had cut a lot of trees and was ready to burn for charcoal. The person didn't ask for permission but I didn't bother the person. My only concern is you don't get my farm burnt. I will only have a problem if I approach you and you try to prove stubborn as if you know your rights, then for that matter I will stop you.[24]

The elders continued that they only give preference to their sons over others when their sons also have need of the trees. The submissions by the youth and the elders were different at the point where the elders say they give it for free even to others but the youth said you will make payments. Somehow, this may be the case among some people.

There are vast species available for charcoal production and useful trees such as Shea tree, Dawadawa and Senya are not used for charcoal; except they are dead or timber loggers have left their trunks after logging the timber as already stated. The charcoal burners admit they are good source of charcoal but they restrain themselves in cutting those trees knowing the usefulness to the community. In trying to find out if there is an age for a tree to be pronounce dead, for it to become accessible to charcoal burners, Mr. Moses Donkor said:

[24] Interview with Prof Thomas – May 7, 2018

> There is no particular age, like in life both the young die and the old also die. So a particular age cannot be given. However, when there are bush fires and a tree is burnt on two occasions that tree dies and so it can be used as woodfuel.[25]

From the study, 50.6% representing a high proportion revealed that they experience difficulty in accessing trees, 33.3% disagreed. Members in the community said there are a lot of trees and trees cannot finish. What they mean by they experience difficulty is that, they have to go deeper into the bush to get big trees because most of the big trees are finished. For instance, Mr. Dennyi said:

> Yes, it is difficult because all the trees have finished. I have to go far before getting trees to burn my charcoal.[26]

John Mensah, a charcoal burner explained:

> For good source of charcoal, it has to be big trees so if the big trees are finishing, I can say it is difficult to get trees for charcoal. [27]

Some explained that accessing trees for charcoal was not difficult. Joseph, a charcoal burner stated:

> There are a lot of trees on farm that I can use to burn charcoal. I don't go far away to look trees.[28]

Albert, a farmer and charcoal burner mentioned:

> I have enough trees on my farms and fallows to burn, at times colleagues seek permission to cut trees in my fallows for charcoal.[29]

Evans, charcoal burner:

> It is not hard to get trees for charcoal. Even if I don't get from my father's farm, I don't have to go far to get trees. I only have to be sure the area I cut is not part of someone's farmland.[30]

[25] Interview with Mr. Moses Donkor – May 9, 2018
[26] Interview with Mr. Dennyi-May 11, 2018
[27] Interview with John Mensah – May 7, 2018
[28] Interview with Joseph – May 9, 2018
[29] Interview with Albert – May 23, 2018
[30] Interview with Evans – May 17, 2018

4.3.8 Rural Inhabitants Access to Capital for Charcoal Production

Unlike cashew plantation which the farmers do not get external source of capital despite the huge capital needed, charcoal burners get capital from their buyers who are the merchants. The charcoal burners can also do without capital. They mentioned that with the aid of hoe, axe, and cutlass, they are able to cut the trees and burn. In the study, 52% stated that it is difficult to get capital and 37.8% disagreed. They explained that for producing charcoal in large quantity, one will definitely need capital for the chainsaw operator to buy fuel to cut enough trees. Also, food will have to be bought for labourers as well as their workmanship paid. However, the kind of amount needed cannot be compared to that of cashew. Specific amounts could not be agreed on by all but most mentioned that 200 Ghana cedis will be enough to start the charcoal production.

Charcoal can be produced any time but the best time is during the rainy season and this is the time majority of charcoal burners produce the charcoal. Others mentioned September, October and November as the period to produce charcoal. The rainy season is good because that is when they get abundance of grass to burn their charcoal but during the Harmattan season it is difficult to get grass. Charcoal produced is sold immediately after it is ready because they already have buyers who have given capital for the charcoal to be produced.

4.3.9 Rural Inhabitants Access to Charcoal Sacks and Transportation

Access to sacks and transportation is a means of maximizing profits. The charcoal producers use the woven polypropylene to package the charcoal. The bagged charcoal also comes in two sizes, that in the small and bigger size. Majority (34.4%) do not have sacks while 11.1% have sacks. The sacks are provided by the buyers and the buyers at the same time double as the transporters of the charcoal. The provision of the sacks gives them the monopoly over the charcoal that is being produced by the charcoal burner they are in contract with. Those who have their own sacks except

for two of them also transport their own charcoal. They said, when you buy your own sack and transport it, you get more money. That is their motivation for getting their own sacks and transport. Some have about 50 to 500 sacks. All the charcoal burners with their own sacks said they bought it from the market, only one woman said she got it from her children. Some charcoal producers recounted their transactions with merchants, for instance,

Peter Mensah, a charcoal producer stated:

> Even though, I don't have sacks I have one woman who provides me with the sacks. After the charcoal is produced, I sell the charcoal to her and she comes with her drivers to carry the charcoal to the city. I don't make much money like her though I do all the difficult work because I don't have sacks and importantly, I can't afford the transportation.[31]

Kwabena Philip explains that:

> When I need money for urgent needs I burn charcoal. I am already in contact with a buyer so she hires a chainsaw operator to cut the trees for me. She also provides sacks hence I cannot sell to anyone else even when I don't like her price. Some of my colleagues have their own sacks and they are able to bargain for better prices. If God wills, I will make enough money one day and own my own transport and sacks.[32]

Kwasi, a charcoal producer and driver narrates:

> I transport charcoal from the community and other nearby communities to Kumasi for customers. I realised those who sell the charcoal in Kumasi make a lot of money and after consultation with some drivers who also transport their own charcoal and sell, I decided to also produce charcoal. I joined a gang of charcoal burners and bought sacks for the production. Since I provide the sacks and transport as well as sell the charcoal, I make a lot of profits.[33]

Ama Mensah mentions:

[31] Interview with Peter Mensah – May 11, 2018
[32] Interview with Kwabena Philip – May 11, 2018
[33] Interview with Kwasi – May 9, 2018

> I cannot burn the charcoal myself so my sons do. I have my own sacks and transport and this enables me to make a lot of money.[34]

Bright Nkrumah recounts that:

> I used not to have sacks and depended on merchants for sacks and transportation. I suffer a lot to cut trees and burn but the merchants keep cheating us and claim that the prices are not good meanwhile they go and sell the charcoal at high prices in the urban areas. So I got provoked and discussed with some friends that we must organize our own transport and go to the urban markets to sell for ourselves. We did and now we also make a lot of profit.[35]

Their inaccessibility to sacks and transport gives the merchants who provide sacks and transport the upper hand in dictating prices that do not favour them. Their accounts of access to bags and transportation reveals the aspects in the charcoal market chain where more money is made. Those who have these access benefit more despite the charcoal burners strenuous laboring. Usually, it is the merchants who make the maximum profit due to their privilege to such access. Though the charcoal burners admit that they make money, it is their ambition to acquire their own sacks and transports in order to maximize their profit. Those who took the initiative to collaborate among themselves and hired their transport to go and trade the charcoal themselves in the city shows that there is strength in numbers. This strategy some have adopted is commendable and should be encouraged among other charcoal burners till they acquire their individual transport.

4.4 The Contribution of Rural Livelihoods for its Inhabitants

The benefits gained from indulging in food crop farming, charcoal production and plantation development by the rural inhabitants is elaborated below. Again, the significance of these three livelihoods to them is addressed.

[34] Interview with Ama Mensah – May 17, 2018
[35] Interview with Bright Nkrumah – May 8, 2018

4.4.1 Contribution of Farming, Plantation and Charcoal Production to Livelihood

Among the people of Weila, the most important livelihood is farming, followed by plantation and then charcoal. This was a unanimous agreement for both the elders, the women and the youth. Farming is very important because food is life, they need food to survive and they cannot do away with food were the submissions that run through among the respondents. Although plantation provides the bulk of income, at a particular season and charcoal also provides quick money for their livelihood; they still agree that farming is more important to them among these three. They explained that though money is important, one can have money and not get food to buy then it means you are going to starve and die. Hence, as for farming, they are not going to give it up, they will diversify it with these two other livelihoods. Another reason was that fire can burn your cashew and you would lose everything you have invested in for years but for food it would not take so much to start over and it will not take such a long time to harvest.

4.4.2 Benefits from Charcoal Production, Plantation and Farming

The benefits from these livelihoods are obvious. For farming it is food and income; for plantation, it is income; and for charcoal it is also income. These were the significance of the named activities to the community. In all three livelihoods, income could be sought though at different rates, however, it was only farming that provided another thing, which was food. This reveals the reason for the unanimous response of farming as the most important livelihood. The income from charcoal production and farming was said to be used to support plantation and also for other needs like payment of school fees. Both youth and elders said they were paying fees. It was observed that majority of the youth of school going age, particularly in the SHS level fund themselves through school. It is likely the fees being paid by the fathers could be for the basic and JHS levels. The table below provides the percentage of educational levels for the respondents:

Table 4.10: Educational levels of respondents

Educational level	Frequency	Percent
No Education	82	45.6
Primary	15	8.3
JHS	62	34.4
SHS	16	8.2
Tertiary	5	2.8
Total	180	100.0

Source: Field data, 2018

From the table it can be observed that majority have had some level of formal education and 45.6% have no formal education which is also relatively large. Most of the elders and women fell in the category of the unschooled while most of the youth had formal education. It can be said that the labour of the youth in charcoal production has been profitable since majority were into charcoal production. Cashew is a recent livelihood introduced, so a number of the youth are yet to start reaping from it. It also comes to note that formal education is of great value to the community such that the youth fund their education through burning charcoal and developing cashew plantation. Despite the risk involved in cashew plantation and its difficult nature, the youth still partake in it. From their focus group discussion, they explained that when school vacates they come to take care of their cashew and that is after a period of three months. The youth explained that three months is okay for them to return and attend to their cashew amidst the threat of weeds and bush fires.

4.5 Conclusion

The farmers, charcoal producers, and plantation developers from Weila have contributed their experience and knowledge about the practice of their livelihoods and its impact on the environment and their livelihoods. Their submissions revealed that the integration of crops with cashew is possible but it has a limited period which is a period of 3-4years. Unlike cashew, the farmers have stopped the cultivation of teak for three main reason: first, it does not allow for integration of crops,

it is not rewarding, and it degrades the land. On the other hand, cashew which is becoming a predominant crop can be integrated with yam, cassava and groundnut and is more financially rewarding. These benefits of cashew plantation notwithstanding, the cashew tree does not allow for fallowing. Cashew trees do not give way for competition at all because from an observation of a cashew plantation, other cashew trees were cut off as a result of poor spacing between them. Likewise, all other useful trees and woodfuels species are cleared from the plots where cashew is cultivated. Cashew plantation can be described as an activity that does not support farming or charcoal production. This implies that plantation trees cannot be integrated with crops for a long time, hence, it does not support integration to a large extent. Also, charcoal is gained from by-products of farms, fallows and common land, where majority comes from farms and fallows. These two livelihood activity go hand in hand also because trees for woodfuel are cut in a way to allow for regeneration like the researcher observed in some of the farms. Charcoal production does not discriminate against fallowing. These contribute to maintaining fallows and a sustainable environment. Then, charcoal production and farming noted to be activities that are successfully integrated is no surprise. Moreover, when there are not enough trees on the farms or fallows for charcoal, the common lands can be resorted while the trees on fallows and farms regenerate to be fell.

On a second note, cashew development is the activity that contributes the bulk of income to the rural inhabitants. This has encouraged most to develop cashew plantations, though they are mostly an acre or two. The people of Weila, however, hope with time they will expand it with the acquisition of more capital. Mostly, it is the elders followed by the youth who benefit more from cashew because they form the majority of owners of cashew plantations. According to Tiffen and Mortimore, (1990) this size is not recognized as a plantation by some scholars, others argue that

as long as it is a cash crop it qualifies as a plantation and the size does not matter. The determination of the youth especially, to expand their plantation in their quest for wealth, is likely to soon manifest.

Charcoal is an activity most of the youth are involved in and they attest that they benefit from charcoal production often because it is a quick way of making money. Majority explained that they fund their schooling through the production of cashew. The elders and women also mentioned that charcoal is a quick way of making money because if you want to wait for food crop or plantation, it will take a longer time and at times the needs cannot wait. Among members in the community, the youth are the major beneficiaries from this activity as a result of their strength and there being no restrictions involved in getting access to trees for charcoal. This has made it easier for the youth to engage in the activity. More so, it has already been established as a low entry livelihood of which capital is solicited from the "buyers" like they are popularly called. The youth, again, are not charged any permits or fees or levies for production, therefore, they have the full benefit from it with no restrictions. Despite, the quick money and many times income can be gained from charcoal, majority still believe plantation is more important to them because they get more income from it; it is not as strenuous as charcoal production; it can be benefitted from for many years; and it is an investment. They do not disprove the relevance of charcoal to them because for quick money for emergencies it is the first point of call but when they have the opportunity of owning a plantation as well, then plantation comes first.

Thirdly, the elders have unlimited access to land while the youth and women are dependent on them for land. Accordingly, the youth and women may not benefit largely from plantations. Again, the women and youth also need to seek permission from the elders who are the family heads, husbands, fathers and grandfathers of which they could be refused. Trees are available to all when

in the common land but those on the farms and fallows are somehow limited to the owners of the farm or fallow land and his family. They and their family can access it for free. There may be restrictions to the migrants especially since they do not have access to land neither do they have user rights in the community. However, with the availability of common land, trees can be said to be easily accessible to all members in the community. The only challenge will be when the trees are on another's farm or fallows and with that negotiations will have to be made when requested by the owner of the farm or fallows. The inability to access trees on farms or fallows means getting to the common land which is in the bush, very far from the settlement. This requires strength which may not be available to women especially and then the elderly. Though they can all fall on labour from others, that will require capital to hire the people which may be an extra cost or limitation for them. All the same the cost of entry for charcoal is low making easier to attempt than plantation. The species of trees for charcoal is also in abundance so the people are not restricted in getting woodfuel but they may have to go farther to get them in the common land. Also, the tree regenerate making it easy for them to always have trees.

As have clearly been revealed, access to capital is not easy for both plantation and charcoal but plantation requires more capital which is difficult for them to come by. Those who farm and do charcoal are able to gather money from these sources and invest into the cashew plantation. This limits the acres that one is able to do. Elders and youth are able to mobilise money from farming and charcoal production respectively for their cashew than women. For cashew, external source of capital is not available but for charcoal they get capital from the merchants and use it to produce the charcoal. So it is easier to get external access to capital for charcoal and charcoal does not require so much money before operation. This makes it possible for majority of the youth to be able to partake in it and in fact are the major producers of charcoal in Weila. Elders also have an

advantage in gaining capital than the youth since the men have an option in gaining income from farming which is not as strenuous as charcoal production of which the youth rely on. Since most do not have access to sacks neither to transport, it paves way for merchants. Merchants are the ones who have the capital so they gain the advantage in maximizing profits than the producers who do the hard work.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The dominant interest group of the environment and energy in Ghana (EPA, Energy Commission, Forestry Commission and Ministry of Land and Natural Resources) are concerned with the sustainability of the environment and sustainable charcoal production. According to United Nations Development Programme (UNDP) (2014), the state acknowledges that banning charcoal will be disastrous for the state as well as the government. This reveals the significance of charcoal to the people and its political influence. Since it can cause the instability of a government or affect its consecutive tenure of office. The better way suggested is to regulate it than ban it. Hence, this has called for the formulation of strategic policies to combat the issue of charcoal production which is labeled as an activity which will result in permanent deforestation and woodfuel crises, if not checked.

The need for these policies stem from discourses arising from other dominant groups besides the charcoal producers and farmers themselves, therefore a one-way view is being addressed, neglecting the views of the practitioner. Policies by these dominant interest groups suggest that the charcoal burners indiscriminately cut trees and so are causing deforestation. But from the study it is revealed that the charcoal burners are not ignorant of their practice; they are careful about the trees they cut and they stay away from useful trees in the community. They deliberately leave small trees to grow to become big trees to harvest. A number of the respondents who are farmers and/or farmers diversify their livelihoods with charcoal production and they are very much aware of the consequences of deforestation to their livelihood. Particularly food farming is the most important livelihood to them and those who don't burn charcoal give out the trees on their farms

to charcoal burners. These two livelihoods coexist peacefully in the community, else those who farm would not have had a cordial relationship with the charcoal burners. The charcoal burners have made efforts to preserve trees in order to ensure the continuity of their livelihood and the protection of their environment. Ribot (1999) questions the ability of woodfuel cutting in Sub Saharan Africa to cause permanent deforestation. He argues that there are available regeneration studies that prove that the so called woodfuel crises does not exist. There has been misreading of the vegetation and forest in the region due to an overgeneralized experience of the American glass bowl which is not a reflection of the African region. Simple generalization of problems with their standardized solution which has ended up creating worse issues should be avoided as (Ferguson, 1994) ascribes to.

For instance, INBAR –International Network for Bamboo and Rattan is an "intergovernmental organization dedicated to improving livelihood of poor producers and users of bamboo and rattan" in the goal of sustaining the natural environment. This EU- and Chinese funded project is collaborating with Ethiopia and Ghana to reduce deforestation and use bamboo for charcoal production. This organization's target to reduce deforestation in Ethiopia and Ghana is through bamboo cultivation to provide charcoal. Interestingly, the agenda is good but its reality and workability is another matter. Like NGOs and experts who usually decide the best projects and initiatives to resolve problems in certain areas without the contributions of those it involves. Likewise, charcoal burners and farmers have a different opinion which is not indulged in formulation of policies. The charcoal burners in Weila explained that merchants and consumers of charcoal have their preference. The merchants and consumers prefer hard charcoal and that is why it is not all trees they use for producing charcoal. It is trees like *Papaa*, *Naara*, and *Anogeissus leiocarpus* (*kane*), that are preferred most and bamboo is not mentioned at all. The charcoal

producers narrate that bamboo is too soft to be used for charcoal and it will not produce quality charcoal. Therefore, this will create a loss for them and dissatisfaction from their consumers like they have experienced before. This experience teaches them the need to get quality woodfuel for the charcoal and in their own interest the need to preserve such trees for sustainable charcoal production.

The National Energy Policy overview, the Forest Plantation Development Fund Act 2000 (UNDP, 2014), Ghana's National Climate Change Policy 2000 (EPA, 2016) reveals these two policies concerned with achieving a sustainable environment and sustainable charcoal production:

- Supporting the regeneration of biomass resources
- Promoting woodlot plantations

The EPA, Energy Commission and Forestry Commission consider these two as priority. The first consideration may be a better option as Amanor (2007) argued that that is what the government should consider. Since charcoal burners and farmers are already into regeneration and preserving trees in the Brong Ahafo region which is the largest charcoal producing region in Ghana, advanced regeneration methods should be encouraged in the region. Trees in these areas are known to be robust and regenerate quickly. Therefore, for example, the Energy Commission is in the right to support and sustain regeneration through legislation, fiscal incentives and attractive pricing. The concern is that this initiative does not become skewed/ politicized such that allies of the state will benefit while the others are segregated and marginalized. The second initiative of woodlot plantation is noted to be problematic considering responses from Weila. The expectation that rural inhabitants can cultivate the size of plantations for the increasing population needs may also be another activity which is unrealistic. Most of them are able to do 2 acres and 4 acres is a largescale to these folks. Access to capital is a big challenge to them, therefore, they are unable to do

largescale cashew plantations. Cashew plantations are also not the focus of these state agencies but these farmers are interested in developing cashew plantation and not woodlots.

Their management practice of leaving useful trees and woodfuel species in farms and fallowing suggest their ability to integrate woodfuels and farming successfully. They are also aware of the shortage of farmland that expansion of plantation can cause, therefore, there is need to reconsider charcoal plantation. They are already so much into the idea of cashew plantation because of the income gained in its establishment. It may be almost impossible to ask them to replace woodlots plantations with cashew plantation; considering the amount they are likely to make from charcoal which may be far lesser than the returns of cashew. The government's aim to regulate charcoal production should be critically investigated. This is because from Senegal's experience, the tendency for the investor and the state to benefit as against the rural inhabitants who will become impoverished is matter to carefully consider. Since one of the goals for the regulations is to improve the livelihood of the rural poor and not otherwise. Ribot, (1998) elaborates his findings from Senegal's charcoal market chain that having access to the natural resources is not enough to guarantee one's benefit rather others having access to capital, market, transportation, social ties with the state and chiefs are able to maximize their profit. These accesses afford them the upper hand in monopolizing the charcoal production and market whereby even the source of labour is from migrants. Hence, the people in the community with the tree resources are completely ousted from benefiting from their tree resource. Majority of the charcoal burners in Weila revealed their lack of capital, inaccessibility to transport and sacks which are vital for charcoal production, particularly for mass production. The charcoal burners who had sacks and provided their own transportation explained that this enables them to maximize profits.

Licensing for charcoal export is an Energy Commission regulation which makes it mandatory for the source of all exportable charcoal to be woodlot plantations (EPA, 2016). This implies that other sources like the farm, fallows and common land will not qualify to be exported. This is likely to restrict rural folk's ability to partake in exportation of charcoal. Also, this can be a reflection of what is yet to come should woodlot plantations be passed as the only source of woodfuel for charcoal production in Ghana. This is likely because the dominant interest groups policies have woodlot plantation as an initiative to support in attaining their goal.

The Sustainable Development Goals (SDGs) first two targets are: No poverty and Zero Hunger. These goals are important to the state in ensuring its realization. But considering the access that the rural inhabitants have and experience from Ribot's work in Senegal, there is the tendency for poverty to rather increases and increase hunger. Since plantation is noted to cause shortage in land and to this effect food production. It appears these two goals could be jeopardized with the encouragement of woodlot plantation.

5.2 Recommendations

Based on the findings, the following recommendations are made:

- Researchers and studies should focus on conducting area specific studies in order to bring up the appropriate solutions.
- The policymakers should consider what species they are considering for this woodlot plantation if they are to go ahead with it.
- The rural inhabitants should be involved in formulating policies that are made on their behalf.

- The policymakers need to reconsider regulating charcoal production in order to ensure that charcoal burners are assisted with those access needed to maximize their profit. This can serve as a way to sustain and improve the existing way of producing charcoal.
- Regulations that restricts rural inhabitants' participation in charcoal production should be reconsidered or not introduced at all.

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APPENDIX 'A'

Semi-Structured Questionnaire

INSTITUTE OF AFRICAN STUDIES

UNIVERSITY OF GHANA

Topic: Environmental Discourses, Charcoal Production and Plantation in the Kintampo Area

Name: …… Age: …… Gender: Male/Female

Status: Married/Single No. of children……. Level of education: ……..

Occupation (s): ……

To examine the nature of integration of charcoal production and plantations, and the impact they have on the agro-ecological system

0. How many farms do you have?

	Farm 1	Farm 2	Farm 3	Farm 4
a.Type of farm (New farm, old)				
b. Crops planted and how many acres?				
c. How many years have you cultivated there? What did you cultivate before?				
d. How many years did you leave the land to fallow before you farmed there?				
e. What were the main trees on the plot before you cleared the land?				
f. Do you think there are enough, too many or few trees on the plot?				
g. How is the soil? (type and fertility)				
h..How is the yield?				
i.Do you use fertilizer? (how much)				

j. Do you clear/weed with herbicides?				

1. How many acres of the land is under fallow?.....….
2. How many acres of farm land do you have in total?.....
3. How many acres of your land is under plantation and what type of trees are you growing?
   a. Cashew…….. b. mango…… c. teak…… d. others……
4. How many years has the plantation **existed there** and how long is the plantation expected **to remain there**? ....., ...
5. What types of land do you use for plantation? (**fertile, non-fertile, grassland, forest, sandy, clay, loam, close to settlement, far from settlement**). Why do you use this type land?
   ……..……
   …….....
   .....
   .....
6. Are there any restrictions in this settlement on making plantations or the land you can use for plantations or the area of land you can plant under tree crops (PROBE)?.....
   .....
   .....
   .....
   .....
7. Do you have to seek permission from the chief or elders before making a plantation (PROBE)?.....
   .....
   .....
   .....
   .....
8. IF YES to 7 How do you get permission (do you have to make a "presentation" (PROBE)?.....
   .....
   .....
   .....
   .....
9. Is it easy for women and youth to get land for plantations (PROBE)?.....
   .....
   .....
   .....
   .....
10. Who do women and youth get lands from for plantations?.....
11. Do you think land will short for food farming because of people making plantations? Why?.....
    .....

.....
.....
.....

12. Are there some people with very large plantations here? Up to how many acres (PROBE)?.....
.....
.....
.....

13. Do you own, plant or preserve other trees which bring useful products that you use for food, sell, medicine, construction, furniture or for other purposes?

Species	Uses

14. Which types of trees do you use for wood fuel? Where do you get them from?

Species	Sources (farm, fallows and common land)

15. Do you experience difficulty and spend a long time getting fuelwood PROBE?.....
.....
.....
.....
16. Who are the main people who burn charcoal in this town PROBE?
.....
.....
17. Do you burn charcoal?.....
18. Do any other people prepare charcoal on your land? (whom) PROBE
.....
.....
.....
19. Do you give your farms to any family member or any other person to prepare charcoal? PROBE?.....
.....
.....
20. What are the terms on which you give them the trees on your land to prepare for charcoal PROBE?.....
.....
.....
.....

21. Does most charcoal come from your farms (**which type of farm**) or fallow land or from the bush?.....
22. The last time you burnt charcoal which species did you cut?.....
    .....
23. Which are the best types of trees for charcoal?

    Species Sources (farm, fallows, common land)

24. Are trees used for charcoal becoming scarce? Is it the large trees or all types of trees scarce?.....
    .....
25. Do you deliberately preserve or cultivate any trees for charcoal?.....
    .....
26. Which trees are good for farming and the soil and help crops to do well?
    Species Types of crops

27. Which trees are good to preserve on yam farms? Why are they good to preserve?.....
    .....
    .....
28. Out of all these trees we have discussed, which ones are you most concerned that they are becoming scare? Why are they becoming scarce? Why are you concerned?.....
    .....
    .....
    .....
29. Out of all the trees we have discussed which ones are you interested in cultivating or preserving on your farm?
    .....
    .....
    .....

To examine the perception on the contribution of plantation and charcoal production on their livelihood.

30. What do you get most income from? **food crops/ plantation/ charcoal production**
31. What do you think is more important for you? Charcoal burning, crop farming, or cashew or other plantation or are they all equally important? Why

PROBE?.....
.....

32. What benefit do you get from plantations?.....
.....
33. What benefit do you get from food farms?.....
.....
34. What benefit do you get from charcoal?.....
.....
35. When in the year do you get money from plantations?.....
36. When in the year **do you burn charcoal** and **get income from it** [these two are not the same i.e charcoal may be stored for sale when price increases]……
……
37. Is it difficult to have enough capital to make a plantation?.....
38. How much capital do you need to make a plantation and for what? PROBE……
……
……
39. Do you need other things apart from capital to make a plantation? PROBE.....
.....
40. Is it difficult to get capital to enter charcoal production?.....
41. How much capital do you need to burn charcoal and for what? PROBE……
……
42. Do you need other things apart from capital to burn charcoal?.....
.....
.....
43. Do you have your own charcoal sacks (how many)?.....
44. Where do you get charcoal sacks from?.....
45. Do you transport your charcoal to market? (PROBE)……
……
……