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**ANALYSIS OF PRIMARY STAKEHOLDERS PARTICIPATION IN FOREST
RESOURCES MANAGEMENT: THE CASE OF THE KROKOSUA HILLS
FOREST RESERVE, GHANA**

BY

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**B.Sc. (HONS) AGRICULTURE TECHNOLOGY (RENEWABLE NATURAL
RESOURCES)**

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of**

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DECLARATION

I, *Adams Marshall Alhassan* hereby declare that this submission is my own work towards the award of the MSc. Environmental Resource Management and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any degree of the University, except where due acknowledgement has been made in the text.

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DEDICATION

To my beloved family “Naa Attah Abarika I”

KNUST



ABSTRACT

Ghana's forest resources are vital for the country's sustainable development and various forestry reform initiatives have been implemented to improve governance in the forestry sector. Participatory approach such as collaborative forest management in Ghana aims at achieving representation of a broad segment of primary stakeholders, especially most vulnerable groups.

The study aimed at analyzing primary stakeholders participation in forest resources management at various levels of participation. The link between primary stakeholders participation in forest resources management of the Krokosua Hill Forest Reserve in Juaboso District of Ghana and a set of socio-demographic factors was analyzed. The communities studied include five forest-dependent communities around the Krokosua Hills Forest Reserve. A sample of 407 primary stakeholders was selected by the use of the proportional random sampling method. Participatory Rural Appraisal (PRA) tools which included key informant interviews and direct observation were employed in the study. Household questionnaire interview were also conducted. The data were analyzed by the use of participation index and descriptive statistics such as frequency and cross-tabulation using chi-square.

The study found the average participation index of primary stakeholders participation in forest resources of Krokosua Hills Forest Reserve to be 0.3. The index for their involvement in planning, implementation and monitoring stages was 0.3 and that for benefit sharing of benefit accrued from the reserve was 0.2. Significant associations were found between the following variables: primary stakeholders participation in planning and gender ($p = 0.055$), and education ($p = 0.001$); primary stakeholders participation in implementation and distance ($p = 0.001$); primary stakeholders participation in monitoring

and age ($p = 0.001$), and distance ($p = 0.001$); and primary stakeholders participation in benefit-sharing and age ($p = 0.018$), and education ($p = 0.001$). The study concludes that participation of primary stakeholders in forest resources management is still low and depends on the socio-demographic profile of an individual and proximity of forest-dependent communities from the forests. These findings have implications on the sustainability of forest resources in Ghana.

The main policy implication drawn from the findings are that resource managers should and policy makers need to be sensitive to create more practical right-based participatory strategies to secure meaningful representation and participation from forest-dependent communities. The success of the collaborative system approach relies heavily on a positive relationship between the forest-dependent community and the resource manager. In designing participatory management activities, differences in socio-demographic variables and empowerment interventions should be considered by resource managers and policy makers to ensure broad representation of primary stakeholders.

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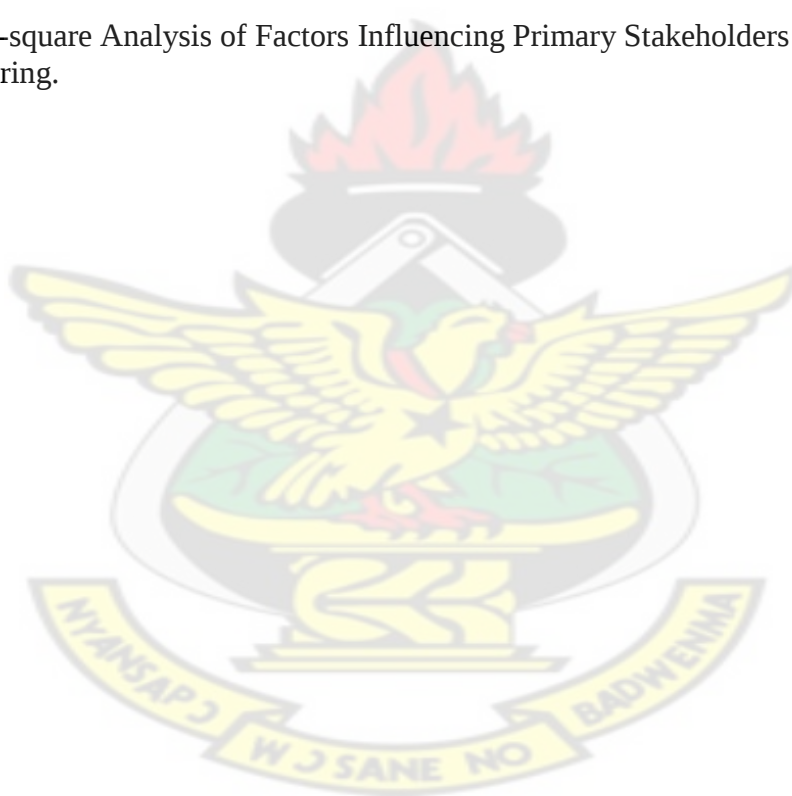
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LIST OF ABBREVIATIONS

ADB	-	African Development Bank
CBD	-	Convention for Biological Diversity
CBOs	-	Community-based Organizations
CBNRM	-	Community-based Natural Resource Management
CFCs	-	Community Forest Committees
CFMU	-	Community Forest Management Unit
DFID	-	Department for International Development
EC	-	European Commission
EPA	-	Environmental Protection Agency
EU-FLEGT	-	European Union's Forest Law Enforcement, Governance and Trade
FAO	-	Food and Agriculture Organisation of United Nations
FC	-	Forestry Commission
FMU	-	Forest Management Unit
FOSA	-	Forestry Outlook Study for Africa
FSD	-	Forest Services Division
GHI	-	Genetic Heat Index
GSBA	-	Globally Significant Biodiversity Area
HFZ	-	High Forest Zone
JFM	-	Joint Forest Management
ICDP	-	Integrated Conservation and Development Programme
IFAD	-	International Fund for Agricultural Development
IIED	-	International Institute for Environment and Development
IP	-	Participation Index
ITTO	-	International Tropical Timber Organization

IUFRO	-	International Union of Forest Research Organization
KHI FR	-	Krokosua Hills Forest Reserve
KNUST	-	Kwame Nkrumah University of Science and Technology
MLF	-	Ministry of Lands and Forestry
MES	-	Ministry of Environment and Science
MOWAC	-	Ministry of Women and Children Affairs
MSNW	-	Moist semi-deciduous (North-West type)
NLBI	-	Non Legally Binding Instrument on All Types of Forests
NFPF	-	National Forest Programme Facility
NTFPs	-	Non-Timber Forest Products
ODI	-	Overseas Development Institute
PAOP	-	Protected Area Outreach Programme
PFM	-	Participatory Forest Management
PRA	-	Participatory Rural Appraisal
REDD	-	Reduced Emissions from Deforestation and Degradation
SPSS	-	Statistical Package for Social Scientists
SRA	-	Social Responsibility Agreements
UNCCD	-	United Nations Convention to Combat Desertification
UNCED	-	United Nations Conference on Environment and Development
UNDP	-	United Nations Development Programme
UNFCC	-	United Nations Framework Convention on Climate Change
UNFF	-	United Nations Forum on Forests
UNO	-	United Nations Organisation
VPA	-	Voluntary Partnership Agreement
χ^2	-	Chi-square

CHAPTER 1

1.0. INTRODUCTION

Over the past decade, policymakers and governments have realized that it is impossible for the state alone to adequately manage and police vast public forest lands because of budgetary constraints, inadequate institutional capacity and lack of incentives to regulate the large and growing number of forest users (Poffenberger, 1990; Banarjee *et al.*, 1997). This has compelled governments of developing countries to shift forest policy trend towards adoption of participatory management and benefit sharing with communities living within proximity of forests (Behera and Engel, 2005; White and Martin, 2002). With this conceptual and ideological paradigm shift, local communities are recognized as the key focus for success of conservation efforts (Baldus *et al.*, 2003; Barrows and Fabricius, 2002; Behera and Engel, 2005; Hackel, 1999; Western, 2001).

However, the reality rarely reflects this rhetoric in most developing countries (Amanor, 2002). More often than not, the views of local communities on forest management are not systematically elicited, evaluated, and incorporated in the decision-making processes (Thrupp *et al.*, 1997; Chase *et al.*, 2004; Fisher *et al.*, 2000). Long-standing poor public relations is a salient feature shared by many developing countries in forest governance and, therefore, minimal support from local communities in forest management (Brown, 2002; Brown, 2003; FAO 2002; Kideghesho *et al.*, 2006). Forest policies in Africa have further kept the local population away from the forest resources (Ardayfio-Schandorf *et al.*, 2007). This alienation has made local communities lose self-image as trustees of the forest resources in Africa (Amanor, 1999; FOSA, 2003) and criminalization of their practices perpetrated on grounds of safeguarding the ecological integrity of forests (Bonner, 1993).

Ghana as a developing country is generally challenged with degradation in the use of its natural resources. According to IIED (2008) ‘marginalization of forest communities is the central issue of forest governance in Ghana and illegal logging is a symptom of this problem’. The decline in forests is alarming and may have potential devastating effects on biodiversity, humanity and the global environmental system as a whole. MES (2002) indicates that Ghana’s permanent forest estate is estimated to be 10.9 -11.8 % of the original forest cover. Currently, Ghana has an average annual deforestation rate of 22,000 ha/annum and less than 1 % of forest cover in off-forest reserves. This decline has been attributed mostly to failure of forest policies to explicitly deal with the low involvement of local stakeholders, lack of access and unequal benefit sharing of timber and non-timber resources in both on-reserve and off-reserve areas of Ghana (Kotey *et al.*, 1998; Amanor, 1999; Boni, 2003; Marfo, 2009).

1.1. Problem Statement

Stakeholder participation has increasingly shifted towards rhetoric in the past several years of forest governance in Ghana (Ryan, 2001; Amanor, 2002). According to Sheffy (2005) there is narrow initiation of stakeholders participation through limited definitions of ‘conservation’ and ‘participation’.

Recent forest reforms efforts in Ghana have provided opportunity to promote local people’s participation and optimum benefit sharing (MLF, 1994; Smith, 1999; MES, 2002; Marfo, 2009). These efforts include the 1994 Forest and Wildlife Policy, the Forestry Development Master Plan (1996-2000), and the National Environmental Action Plan (1990-2000). However, there is a disconnection between some of these policies and legislation. For instance, the collaborative forest management as an important component of the 1994 Forest and Wildlife policy has still not been captured in legislation

(Tropenbos-Ghana, 2005). It is still unclear to what extent the collaborative system programme has been successful in securing local forest users' participation in the management and protection of forests (FOSA, 2006; Amanor, 2003). In addition, these policies had been formulated without reference to power relations (differential powers of stakeholders over ownership, access and management of forests) and explicit role of local communities in forest resources management (Amanor, 1999; Inkoom, 1999; Marfo, 2007; Marfo 2006). Local communities are therefore threatening to take matters into their own hands (Arthur and Brogan, 2005).

In the absence of local stakeholders in forest management and development processes, forest reserves and off-reserve forests are continuously subjected to encroachment by fringe communities (Glover, 2005). Conjecture and anecdotal evidences indicate that passive involvement of local stakeholders in managing the forests has contributed to forest degradation in the Krokosua Hills Forest Reserve (Personal communication, May, 2010).

1.2. Justification of the Study

Globally, the forestry sector has been experiencing a paradigm shift from conventional-led forestry approach to Participatory Forest Management (PFM), in response to demands for greater equity in the allocation of forest resources and the failure of conventional-led forestry approaches to achieve objectives of sustainable development (Geoghegan, 2002)

Participatory forest management is based on the hypothesis that if local people whose daily lives are affected by forest management activities are involved in decision-making, efforts can be made to maintain the integrity of ecosystems and improve livelihood of the local people (Ferraro, 2000; Lise, 2000; Sekher, 2001; Sreedharan, 2002 cited by Glover, 2005). This approach enables marginal members of local community to voice preferences, make

decisions and engage in local politics by which resources are allocated and distributed (Agrawal *et al.*, 2006).

The PFM approach envisages improved forest resources management through people's participation, and this has advocated a major shift from the earlier timber-oriented, state-controlled management system (Westoby, 1987; Gilmour and Fisher, 1991; FAO, 2001; ADB/EC/FAO, 2003 cited by Glover 2005).

Despite recent forestry policy reforms in Ghana for optimizing local development and sustainable management of forests their successes are modest in practice (Amanor, 1999; Wily 2002; Sheffy, 2005). It is uncertain whether these policy reforms have yielded the desired results after more than a decade of their implementation in Ghana (Amanor, 2003; Tropenbos-Ghana, 2005). For example, the 1994 Forest and Wildlife Policy were implemented to reverse the deforestation situation in the country through local community participation (MLF, 1994; Marfo, 2009). Conversely, there is an upsurge in forest degradation in Ghana (Friends of the Earth-Ghana, 2010; MLF, 1994; MES, 2002). Also, local communities continue to experience and complain about low involvement in forest decision-making, inadequate compensation, limited access to forest resources, and little benefit from management (Kotey *et al.*, 1998; Amanor, 1999; Owubah, *et al.*, 2001). Central government policies and stakeholder participation in forest governance play an important role in forest resources management and requires assessments of the related policies that have been implemented for some period (Sackey, 2007). For instance, the collaborative forest management concept in Ghana perhaps an endogenous emergence and its outcomes need to be sufficiently assessed to strengthen the approach in order to yield the desired results. The fundamental question, therefore, arises as to whether local

communities participate in forest resources planning where important decisions are taken and, more importantly, what is the current level of primary stakeholders involvement.

Although a large number of studies exists which have documented stakeholders involvement in forest resources management, further investigation is still needed in order to better understand and provide detail information on stakeholders participation in forest management at the grass root level (Marfo, 2004; Odera, 2004). This study is focused on analyzing primary stakeholders involvement in forest resources management around the Krokosua Hills Forest Reserve.

1.3. The Hypotheses and Study Objectives

Following from the justification for the study, in particular the general argument that broad stakeholder participation, especially community participation is central to effective forest resources management, the hypotheses the study seeks to examine are that:

1. Primary stakeholders participation in forest resources management is affected by socio-demographic factors (age, gender, education and background of respondents (resident status)).
2. Participation of primary stakeholders depends on their level of awareness of forest policies on collaborative forest management.
3. Primary stakeholders participation in forest management is not affected by the proximity or distance of local communities to forest reserve.

Accordingly, the overall objective of the research is to test the hypotheses stated above by assessing primary stakeholders participation in the process of planning, implementation, monitoring, and benefit-sharing as they relate to forest governance. The focus was to

analyze and determine the extent of primary stakeholders participation in forest resources management.

The specific objectives were to:

1. Assess primary stakeholders participation in the process of planning, implementation, monitoring and benefit sharing of Krokosua Hills Forest Reserve
2. Identify factors influencing primary stakeholders participation in forest resources management.

1.4. Research Questions

This research attempted to answer the following:

1. To what extent are primary stakeholders involved in the process of planning, implementation, monitoring and benefit-sharing of Krokosua Hills Forest Reserve?
2. What variables significantly influence primary stakeholders participation in the forest resources management practices of the reserve?
3. What are the implications of the findings on the sustainability of the Krokosua Hills Forest Reserve and sustainable forest management in Ghana?

1.5. Scope of Study

This study was undertaken at Krokosua Hills Forest Reserve in the High Forest Zone (HFZ) of Ghana, where little studies have been conducted on stakeholders participation in the management of the reserve. The area provides suggestions for more studies on stakeholders participation, particularly primary stakeholders because there is little empirical data or experiences from which to learn best practices in collaborative forest management in Ghana and their consequences for participatory forest management.

Primary stakeholders participation facilitates positive relationships between local people and resource managers while establishing a process for integration of indigenous ecological knowledge as well as practices towards achieving sustainably managed forests. This has been studied by analyzing primary stakeholders participation and examining factors influencing various levels of their participation in forest resources management. The study targeted five forest-dependent communities (Sayereno, Boinzan, Bepoase, Sayereso and Sikanzeasem) along the fringes of the Krokosua Hills Forest Reserve. The research findings may contribute to government forest policy reforms and participatory management guidelines for sustainable management of forests in the country.

1.6. Organization of the Thesis

The thesis is structured into five chapters. Chapter One (1) presents relevant background to the study and includes the problem statement that leads to the research hypotheses, the study objectives, research questions and scope of study. Chapter Two (2) presents a review of relevant literature to analyze stakeholders participation and the possible factors that are likely to influence primary stakeholders participation in forest resources management, as applied to the Ghanaian Forestry Sector. Chapter Three (3) discusses the study area, site selection and offers an outline of the different methodologies employed in this research. Details of results and discussion on primary stakeholders participation and associated hypotheses are presented in Chapter Four (4). This includes the results and discussion on participation index of primary stakeholders and their roles and chi-square analysis on factors influencing primary stakeholders participation at various levels in forest resources management. Chapter Five (5) concludes and draws policy implications/recommendations for effective involvement of primary stakeholders in forest management.

CHAPTER 2

LITERATURE REVIEW

This chapter discusses the relevant literature in relation to this research revolves. Firstly, the key concepts that underpin the research are examined. The next section is subdivided into various sub-sections and presented along the research core objectives as they relate to forest policies and governance with particular reference to Ghana.

2.0. Conceptual Framework

Scientific communication is usually based on clearer-cut distinctions between the phenomena it analyses and on more precise definitions of the concepts it uses. Concepts are the most basic tool science has at its disposal which among other things helps to make judgments about the relevance and significance of information, to analyze specific situations, or to create new ideas (Dingwerth and Pattberg, 2006). It is important therefore, to establish a conceptual approach in studies such as this to enable the researcher to define the framework that the study may be conceptualized. The conceptual framework for this study is based on the following key concepts that underpin the research: *stakeholder, primary stakeholders and stakeholder participation.*

2.1. Stakeholder

The concept of stakeholder defined by Kotey *et al.* (1998) is adopted in this framework of study. Stakeholders in this study are thus defined as “*a group of persons and institutions who have a statutory, customary or moral right to use or benefit from the forest, and the power (legal, traditional or moral) to control or regulate conduct and behaviour which has an effect on the forest, and others whose acts or omissions impact on the forest or whose*

livelihood or well-being is affected by the forest. All such persons and institutions may be said to have a stake in the forest and hence may be considered to be stakeholders.

2.2. Primary stakeholders

In this framework of study primary stakeholders refer to the forest-dependent communities living close to forests, and are directly affected by forest management decisions and its activities.

2.3. Stakeholder Participation

According to Barnejee *et al.* (1997) participation in forest resources management refers to the active involvement of various stakeholders in defining forest sector and conservation objectives, determining beneficiaries, managing forest resources, resolving conflicts over forest uses, and monitoring and evaluating the performance of forestry and biodiversity conservation projects. This study however, defined participation as: *“a process through which stakeholders’ influence and share control over development initiatives, decisions and resources which affect them”* as proposed by the World Bank (World Bank, 1996). Stakeholder participation was thus described as a process of institutional arrangements in which stakeholders are actively involved in different levels of management (including: decision making, planning activities, projects and programs designs) of forest resources. This group of people encompasses the tripartite partnership: *the civil society, the private sector and the local community efforts to sustainably manage the forests.*

Sustainable management of forest reserve is linked to participation of forest-dependent communities in the management and the utilization of benefits to improve livelihoods (Ghana Forestry Commission, 2009). Sustainable forest reserve is an integral component of development and cannot be isolated from the surrounding areas and communities.

Therefore, forest reserve management has to be positioned in the context of development of the area, where the forest reserve is situated (Ghana Forestry Commission, 2009). Through participation, the development of the area as a whole will eventually enable the realization of the goal of sustainable forest reserve management.

Several studies including Uphoff *et al.*, (1979) and Baum (1999) have classified participation into different grouping levels for easy assessment of the level of participation of different stakeholders. Participation need to be considered in decision-making, implementation and maintenance and evaluating successes and failures for better assessment and understanding (Lane, 1995). This study therefore adopted the four level of participation identified by Uphoff *et al.* (1979) to reflect the primary stakeholders at various multiple stages in forest resources management. According to this classification, the levels of participation are described as follows:

1. Participation in decision-making: In this study, this level of participation refers to how stakeholders are involved in forest decision and planning processes such as management meetings.
2. Participation in implementation: This level of participation entails how stakeholders voluntarily or involuntarily are involved in administration, coordination, and contribution with their resources (labour, material goods and information) in forest resources management.
3. Participation in benefits sharing: This level of participation focus on how various stakeholders participate in distribution and sharing of economic or material benefits from the forests (royalties and proceeds from social responsibility agreement).
4. Participation in monitoring: This focuses on the extent of involvement of stakeholders in policing and reporting of illegal activities and with the legislation support to do so.

2.3.1. Primary Stakeholders Participation in Forest Resources Management

Literature clearly states that the indigenous population of Africa played an important role in managing and protecting of natural resources through local institutions before the arrival of European colonialists (Matose and Wily, 1996; Fabricius, 2004; Matose, 2006). However, the colonial governments in many developing countries, especially in Africa reserved vast forestlands from the indigenous population into the hands of central governments as protected areas (Matose and Wily; Amanor 1997; Amanor, 1999; Matose 2006). This shift in control and access to forest resources empowered the central government to design rules and procedures to regulate the use and management of forests.

While acknowledging the roles that central governments have played in the past as forest conservators (mainly through the creation of reserves), there is growing recognition that governments agencies have not ultimately proved the most effective agents for preserving forests. Even where forest entities have successfully managed the forests for conservation purposes, they have not always done so in a participatory manner (Kotey *et al.*, 1998; Ganz *et al.*, 2003). In Ghana, like in many developing countries, important decisions *vis-à-vis* forest use and management did not involve local communities. The main interests of colonial forest policies was not focused on indigenous communities involvement and benefit-sharing but on timber exploitation and export, as well as to reconcile the competing land and forest demands of farmers and loggers (Wiggins *et al.*, 2004; Asante, 2005). Forest-dependent communities were therefore excluded from management activities of the forests despite the significant role forest plays in the livelihood of these communities. These communities including other stakeholders at that time had no legal rights, access and economic incentives to manage and use forests (Wily, 2001).

The current phase of emphasis on local community's participation in planning, exploitation and conservation of forests began in Ghana several decades ago when the concept of

Participatory Forest Management (PFM) was initiated in Ghana (Kotey *et al.*, 1998; Asare, 2000a; Wily, 2001; Asare 2002). However, in 1909 the British colonial government during that period promoted co-management of the forests with landowners to protect forest areas (Asare, 2000a). This approach to forest management was in recognition of the fact that central government did not have the resources to adequately police the forest against illegal loggers or the alienated local communities. It was also to address the concerns about the erosion of rights of local communities (the owners of the forests) and a strong desire to defuse a prevalent anti-Forestry Department sentiment at local levels (Kotey *et al.* 1998). There was increasing international concerns about forest-dependent communities' involvement and donor support becoming linked to it, supportive strategic forest and wildlife policy contributed to the emergence of the approach. Of particular concern were the policing strategies that formed core of state forest resources management in the past. The principle of state protection embodied in the policies encouraged conflict and thus, paradoxically, protected forests became more expensive for central governments alone (Ganz *et al.*, 2003).

Smith (1999) cited by Carter and Gronow (2005) indicated that to overturn this pre-eminence of conventional timber-led approach and develop new policy framework for forest governance required pro-active changes, including: stakeholder involvement in strategic planning for reserves, clarification of roles and responsibilities, local collaboration in forest management operations among others. With this growing concerns, it was recognized that sustainable forest management could not be achieved without the active participation of all relevant stakeholders and that forests can contribute significantly to poverty alleviation among forest-dependent communities (Wily, 2001).

In recognition to this, the new Forest and Wildlife Policy (1994) was formulated in Ghana to promote forest-dependent community participation in forest resources management. The

1994 Forest and Wildlife policy (section 3.2.15): state “the need to develop a decentralized participatory democracy by involving local people in matters concerned with their welfare”. In Ghana, the paradigm shift to participatory approach was further strengthened as result of the vital role that forest resources play in supporting the livelihoods of the poor people within and around forests.

From this attempt at participatory forest management to today’s collaborative forest management, the government, more specifically, the Forestry Commission has always tried to involve landholding authorities, forest officers, timber companies and forest-dependent communities in forest management (Asare, 2000a). According to Asare (2000a) and Amanor (2003) the Forest Service’s Division (FSD) Collaborative Forest Management programme was created to involve local communities in the planning, implementation, and monitoring of forest reserves. Indeed, the Collaborative Forest Management Unit (CFMU) of the FSD has since 1993 pursued strategies aimed at expanding and developing the potential of involving local communities in forest management (Agyenim-Boateng *et al.*, 2002). This has taken the form of ensuring that land owning communities secure in a timely manner a fair share of the benefits that are derived from forests whether reserved or outside reserve (Asare, 2000a).

Another instrument for stimulating community participation is the promotion of Community Forest Committees (CFCs) in communities around the edge of forest reserves. It sought to mobilize landowning communities’ members into local forest groups. These groups serve primarily to assist in protection and management of the forest resources and not in the decision-making process (Asare, 2000b; Asare, 2002). The forest fringe communities also enter into contractual relations with the forestry service to perform management functions (Amanor, 2003). Forest management activities initiated by the CFMU include involving local people in the management, conservation and propagation of

non timber forest products (NTFPs) within reserves, improving their rights of access to NTFPs, building the capacity of communities to manage sacred groves and other remnant forest patches outside of forest reserves, involving communities in forest management such as boundary management and fire prevention measures (Asare, 2000a; Wily, 2002; Sheffy, 2005; Ghana Forestry Commission, 2002; Agyenim-Boateng *et al.*, 2002). Most recent empirical studies on forest-dependent communities and CFCs involvement in forest management have found that local people are much involved in curbing illegal activities such as illegal logging in forest reserve (Tropenbos-Ghana, 2005; Omane, 2010; Adu, 2010, Unpublished). Ganz *et al.* (2003) describe similar efforts in Gambia as limited forms of community participation but they at least acknowledge the importance of local communities in protecting and sustainably managing forest resources. More importantly, these efforts provide a stepping stone for transferring the authority of forest management from a solely government function towards a more collaborative, ecologically coherent and sustainable model.

Despite the growing participatory initiatives which involves forest-dependent communities, in Ghana only few of such initiatives can boast of being highly successful (Appiah, 2001; World Bank, 2002 Cited by Blay *et al.*, 2007), as a result of the lack of local communities' commitment which is a result of poor partnership approaches, or the absent or poorly utilized incentives (Brown, 2003; Brown, 2002). Moreover, it is important to note that the relationship between the FSD and local people has historically been one of mistrust and plagued with conflicts (Kotey *et al.*, 1998; Marfo, 2007; Marfo 2006). More importantly, very little has been mentioned about the change in behavior of the forest bureaucrats and has therefore affected the role of FSD in influencing forest-dependent communities' participation.

It is still uncertain whether the collaborative system approach has been successful in promoting primary stakeholders participation because several complains by primary stakeholders about limited involvement in decision-making, inadequate compensation, limited access to forest resources, and benefit-sharing (Kotey *et al.* 1998; Amanor 1999; Owubah *et al.*, 2001). These collaborative and sustainable management practices in Ghana are still not benefiting disadvantaged groups such as marginalized farmers, mostly because promulgated sound policies are not implemented or well enforced. Above all, there is little or almost non-existence of good governance and accountability in the Ghanaian forestry sector (Kombat, 2009).

As a result of these challenges, the management of forest resources in Ghana is still characterized with extensive control by the government although forest-dependent communities surrounding these resources are recognized stakeholders (Eshun, 2008). State forestry agencies take most important decisions without reference to communities, and discriminate against communities with respect to resource access (FERN, 2006). These forest-dependent communities therefore have few formal responsibilities and no significant official rights besides user rights and need permit (in theory) to obtain tangible benefits from the forest resources (Mayers and Bass, 2004). Moreover, the recent PFM in Ghana illustrates the rather limited role of recent participatory strategies in timber and forest resources management (Amanor, 2003). According to Sheffy (2005) there is narrow initiation of participation through limited definitions of ‘conservation’ and ‘participation’. This is further supported by reports of Eshun (2008) and Omane (2010) that there is low representation of forest-dependent communities in forest reserve management and community elites and powerful groups continue to dominate actual decision-making processes (Kotey *et al.*, 1998; Amanor, 1999; Marfo, 2007).

2.3.2. Factors Influencing Primary Stakeholders Participation in Forest Resources Management

The problems of differential participation of the individual stakeholders lies, to a large extent, in the long prevalence of socio-economic, cultural, political, and institutional rigidities in developing countries' societies (World Bank, 1994 cited by Behera and Engel, 2005). These varying factors pose a typical constraint for development agencies to reach out to marginalized groups in order to improve their livelihoods. Many cultural, economic and political barriers effectively prevent the poor from having any real stake in development activities. Therefore, one of the principal objectives of promoting people's participation in development projects is to empower those poor and marginalized groups, which will enable them to acquire opportunities to take decisions that favor them most (World Bank, 1994).

Findings of several empirical studies demonstrate the importance of socio-economic, cultural, political, and institutional policies in developing countries influencing local people participation in managing forests (Weinberger and Juetting, 2002; Engel *et al.*, 2005; Maskey *et al.*, 2003; Agrawal and Gupta, 2005). Social indicators turn out to be the main consideration in participation and economic indicators follow as the second most important consideration (Lise, 2000). Among social factors education has been reported to influence primary stakeholders participation in forest management (Lise, 2000; Glendinning *et al.*, 2001; Owubah *et al.*, 2001; Chowdhury, 2004) but Kugonza *et al.* (2009) reported that voluntary participation is not affected by education. Apart from education, Lise (2000) including Maskey *et al.* (2003) reported that the level of local community participation is determined by the benefits obtained from forests or high dependency on forest or good forest quality. It argues that when people's dependency on

forests is high their interest in forests is likely to be greater, inducing people to participate in forest management and protection activities.

In another study on factors influencing people's participation in forest management, the influence of age on participation in forestry activities was unclear. Some of the researchers found out that age had no influence on forest management (Thacher *et al.*, 1996; Zhang and Flick, 2001; Kugonza *et al.*, 2009). Contrary to this finding, Atmis *et al.* (2007) reported that age is an important variable in explaining participation. According to Knox and Meinzen-Dick (2001) cited by Maskey *et al.* (2003), equal representation of all community groups in forest resources management is important for effective collective decision-making and also ensures that economically disadvantaged groups receive benefits. Baral (1993) cited by Maskey *et al.* (2003) noted that ethnic composition, political ideology and culture within the community could create problems at the user group level. However, Kugonza *et al.* (2009) study on community involvement reported that forest-dependent communities' participation in forest resources management is not affected by ethnic background (indigenous or migrant) and gender. In another studies by Lise (2000) and Phiri (2009) gender was positively and significantly associated with the extent of participation. In a similar study, Maskey *et al.* (2003) reported that women participate more than men across the different level of participation because of advocacy on importance of women participation by many institutions.

Several studies done on people's participation including Holmes (2007) and Kugonza *et al.* (2009) also reported that proximity of forest-dependent communities to forests has positive association with the extent of voluntary participation. Holmes (2007) reported that the further communities are from the forest resource, the less they interact with the resources.

Much literature reviewed for this study has focused on socio-demographic and economic factors affecting participation. It is important to note that primary stakeholders participation under a collaborative system approach also depends on how government and related institutions implement and promote awareness on collaborative system policies behave. For instance, study done by Thanh *et al.* (2003) revealed a significant correlation between the extent of people participation in meeting of co-management activities and the awareness level of some forest policies. They further reported that people who attended several meetings understand the policy better than those who attended only one or two meetings. Hence, the more the understanding of the significance of collaborative policies, the more the primary stakeholders will be willing to participate and contribute in forest decisions and management.

2.4. The Concept of Participatory Management Approach

Globally, devolution of management of natural resources has widely been argued to be the most viable option for ecological and economic sustainability of the natural resources (Conroy *et al.*, 2002 cited by Faham *et al.*, 2008a). This has resulted in participatory management approach attracting a great deal of attention because of systematic failure of central governments to reverse the loss of forests (Odera, 2004). Participatory forest management was further enforced through global environmentalism launched, with the Rio Declaration of 1992, where participatory approach was accepted as an integral part of the sustainable development process (Kelly, 2001; Wily, 2002). The Principle 10 of the 1992 Rio Declaration states that: *environmental issues are best handled with the participation of all the concerned citizens at the relevant level*. Post-Rio international developments that have further supported the local people's role in forest management include the 1993 UN Convention on Biological Diversity (CBD) which, apart from encouraging conservation,

also supports equitable benefit sharing and sustainable forest use (Kelly, 2001; Odera, 2004).

Participatory conservation is a way of approaching conservation issues through building relationships between local peoples and conservation initiatives, which has emerged along with participatory approaches to development since the 1970's (Wells *et al.* 1992 cited by Sheffy 2005). The participatory approach to forest resources management allowed forest-dependent communities to be involved in planning, protection and management of forest resources and benefit-sharing derived.

Stoll-Kleemann & O'Riordan (2002) summarized the aims that support participatory approaches in natural resources management as follows:

1. Democratic necessity: Bringing people into the management process recognizes their intrinsic worth, appreciates their vital role, and respects their citizenship credentials. This approach also incorporates the role of local property rights (McNeely, 1995; Pretty and Pimbert, 1995; Barton *et al.*, 1997)
2. Management legitimacy: Effective and efficient management requires the understanding and the support of local people. Rigid management structures do not easily adjust to social, economic or ecological changes. They may also destroy any chance of long-term co-operation on economic activities (as advocated in Article 8 of the CBD) (e.g. McNeely, 1995; Borrini-Feyerabend, 1996).
3. Sharing knowledge and understanding are vital to the management success: All actors have uniquely different perspectives as to what a problem is and what constitutes improvement. Since knowledge and understanding are socially constructed, what each actor knows and believes is a function of unique contexts and experiences. There is thus no single 'correct' understanding. What is taken to be 'true' depends on the framework of knowledge and assumptions brought in by individuals and their social and occupational

settings. It is essential to seek multiple perspectives on any ‘problem assessment’ by ensuring the wide involvement of different actors and groups (Pretty & Pimbert, 1995).

In this framework of study, participatory forest management means “attempts to secure and improve the livelihoods of local people dependent on forest resources by involving all the stakeholders in the process of forest management, understanding their needs and situations, allowing them to influence decisions and receive benefits, and increasing transparency” (DFID 1996; ITTO 2002). This approach is concerned with ensuring local people’s access to, and management of forest resources. Community participation in resource management essentially means sustainable use and management of natural resources by people, living in and around a region integrated ecologically, socially and culturally (Marhajan, 2000 cited by Faham *et al.*, 2008a).

2.5. Recent Forest Policies in Ghana Relating to Stakeholder Participation

Following the foregoing argument that there are changing global trends in natural resource governance and growing recognition of the role of stakeholders in sustainable forest resources management, many developing countries including Ghana reviewed the forestry sector (Wily, 2001). The forest policy review in Ghana was in recognition of high rate of deforestation and the inadequacies of the past forest policy to sustainably manage forest resources.

The review of the forestry sector in Ghana resulted in institutional transformation and the adoption of a new forest policy, which incorporated aspects of participatory forest management. The 1992 Constitution provided for the establishment, composition and functions of the present Forestry Commission. The Forestry Commission Act, (Act 571, 1999) established the Forestry Commission to deal with institutional reform within the government sector, regulate and manage forest utilization (MLF, 1994). Following the

establishment of the Forestry Commission in Ghana, several policies were promulgated and central to them is a stronger emphasis on the important role of local stakeholders in forest management. These major forest policy efforts to promote stakeholders participation include the 1994 Forest and Wildlife Policy, the Forestry Development Master Plan (1996-2000), the Timber Resource Management Act (1998), the National Environmental Action Plan (1990-2000), Governance and Trade with European Union (the Voluntary Partnership Agreement (FLEGT VPA)) or Forest Carbon Partnership Facility (REDD+) and the “Forest Instrument” or Non Legally Binding Instrument on All Types of Forests (NLBI). Other recent forest initiatives include Forest Investment Programme and the Growing Forest Partnership Initiative.

The most pragmatic policy that marked a major turning point to involve stakeholder in forest resources management in Ghana is the 1994 Forest and Wildlife Policy (Smith, 1999). This policy was formulated to guarantee forest-dependent communities basic access rights and benefits from forest resources management. The central premise of the 1994 forest and wildlife policy is “the conservation and sustainable development of the nation’s forest and wildlife resources for maintenance of environmental quality and perpetual flow of optimum benefits to all segments of society (MLF, 1994)”.

The policy attempts to strike a balance between preservation and utilization of forest resources, and emphasizes the need for increased private sector and local community involvement in the management of forest resources in the country (MLF 1994; Smith 1999; MES, 2002). In addition, the 1994 Forest and Wildlife Policy states an enshrined provision to involve local communities in the adoption of decisions through a decentralized democratic system. In relation to this, Amanor and Brown (2003) argued that, resources will be more efficiently, equitably and sustainably managed if decision-making is brought

closer to the primary users through policy reforms. Forest-dependent community participation gained additional momentum when the Government of Ghana shifted the forest policy trend towards the concept of participatory management and protection of forest resources with all relevant stakeholders (MLF, 1994, Agyenim-Boateng *et al.*, 2002). The policy recognized the importance of involving civil society in lands and forest management, because of the uniqueness of the land and forest tenurial systems in the country; the strong interest; and rights of civil society and other stakeholders in forest resource management (MLF, 1994; Amanor, 2003). This forestry policy demonstrates the shift from centralized and state-driven forest resources management towards decentralized and collaborative management in Ghana (Agyenim-Boateng *et al.*, 2002). Also, the Timber Resource Management Act (1998) attempts to regulate relations between forest-dependent communities and timber companies and thus ensure that some benefits accrue to rural communities, with the view that the outcome will foster local interests in preserving forests (FC, 2002, Agyenim-Boateng *et al.*, 2002). Ghana is also engaged in another major international on-going forest policy reform discussion, partly facilitated by the EU-FLEGT program, where Ghana as the first producer country has signed a Voluntary Partnership Agreement (VPA) with the EU to enhance forest governance and also to reduce illegal logging (Hansen and Lund, 2009). In addition, the government of Ghana in partnership with the National Forest Programme Facility (NFPF) of the United Nations Food and Agriculture Organization (FAO) has further established national and regional fora, to promote stakeholder consultation and participation for enhancement of sustainable forest management. The latest forest reform initiative called the “Forest Instrument” or Non Legally Binding Instrument on All Types of Forests (NLBI) is an international voluntary agreement by member states of United Nations Organization (UNO) under the purview of the National Forest Programme Facility to undertake policies and measures to enhance

sustainable management through cross-sectorial coordination among others. Cross-sectorial coordination and gender mainstreaming among others have been identified as measures of the Forest Instrument towards achieving sustainable forest management in Ghana.

However, a number of challenges impeded the achievement of some of the policies aims. Fair access to forests, fair benefit sharing, corporate exploitation, and greater participation in forest policy-making and management were cited as major forest governance challenges (www.globalforestcoalition.org/img/userpics/File/REDD-in-Ghana.pdf). Stakeholders in the forestry sector also pointed out a disconnection between 1994 Forest and Wildlife policy and legislation, citing collaborative forest management as an important component of the 1994 Policy, which has still not been captured in legislation (Tropenbos-Ghana, 2005). The collaborative forest management philosophy failed to catch up with the local forest user's because it lacked the legislative backing to make it operative. Ledger (2009) notes that the 1994 forest and wildlife policy may be advocating collaborative approaches to forest resources management but this is hindered by confusion of the various systems of customary and statutory law. "Even if the customary law may advocate involvement of traditional leaders, statutory law can override access and ownership rights". The 1994 Forest and Wildlife Policy failed to identify explicit solutions or an actual framework for sharing benefits (Agyeman *et al.* 2003: MLE, 1994 cited by Ledger, 2009)

Following this discussion, in particular that forestry stakeholders in Ghana possess several important decision-making powers which empower them to contribute towards sustainable management and protection of forests, the fundamental question, therefore, arises as to what extent do stakeholders participate in forest resources management, particularly, forest-dependent communities?

2.6. Gender Policy Considerations in the Forestry Sector of Ghana

Colonial policies were formulated without recourse to gender in Africa. In the 1990s, forestry policies were revised in recognition of the shortcomings in forestry policies (Ardayfio-Schandorf *et al.*, 2007). Forestry policies in Africa now focus on collaborative forest management whose goal is to involve all stakeholders in the management including women. Thus underscores the need to make forestry planning and policies integrative.

In Ghana, section 3.2.16 of the 1994 Forest and Wildlife policy indicates ‘the urgent need for addressing unemployment and supporting the role of women in development’ as a guiding principle. It is therefore stated in the policy that the role of women and the unemployed be explored and incorporated appropriately in forest management initiatives (Ardayfio-Schandorf, 2007). In addition, an affirmative action policy was developed and the Ministry of Women and Children’s Affairs (MOWAC) was established in 1998, 2008 respectively to initiate policy and promote gender mainstreaming in order to achieve gender equality and empowerment of women.

However, these changes have not been consistent in policies implementation, and so women still lag behind in national development since forestry policies are not engendered. Significant gender inequalities continue to limit women's capabilities and constrain their ability to participate in and contribute to Ghana's economy (World Bank, 1999).

2.7. Women Involvement in Forest Resources Management

The participation of women in natural resource management is justified on the following grounds. Primarily, the importance of enabling marginal members of a community to voice preferences, make decisions and engage in local politics by which resources are allocated and distributed. Secondly, forests are a significant source of livelihood and

women are the linchpin that connects the livelihood strategies of rural households with forest wealth (Agrawal *et al.*, 2006). However, the forestry sector has been slow in providing equal opportunities for women who are critical actors in forestry and natural resources utilization and management (Ardayfio-Schandorf *et al.*, 2007). This is further driven by patriarchy, cutting across ethnicity, livelihoods, rural and urban communities, the educated and the non-educated (Ardayfio-Schandorf *et al.*, 2007).

The IFAD Poverty Report of 2001 notes that women are often excluded from community organizations or committees that manage natural resources, even when the projects are intended to benefit women. Women representation has been low at all levels and most of the time; they are largely ignored in the process of planning and decision making process of formulating forests management plan and policies (Adhikari, 2001; Martin, 2004). According to Ardayfio-Schandorf (2007) this gender imbalance is prominent in most forest management process in Ghana. In some forest management areas like resources protection which involves wildfires prevention, its activities are basically men roles. Men rather than women are also much involved in the planning and implementation of supported forestry interventions. In local forestry initiatives targeted at women, the women hold key decision-making roles and when men are introduced they appropriate the key roles.

Several studies have attributed the low participation of women in forest resources management to systematic factors and failure of officials to implement policies on gender mainstreaming. According to Locke (1999) cited by Bingeman (2004) one explanation for such failure of this structural provisions to promote women's meaningful participation is: "implicitly the preoccupation with formal representation assumes that such women may unproblematically seek to advance their interests, vis-à-vis the forests once installed in general bodies and management committees". Low involvement of women in forest

resources management as a result of structural provisions is further constrained by many challenges that range from socio-cultural to economic empowerment and political such as low self-esteem and power (Svarstad *et al.*, 2006). Badola and Hussain (2003) also contend that women's low self-esteem due to their entrenched socio-cultural marginalization necessitates additional incentives for their participation.

It is imperative to note that, failure to take into account women's and men's activities in forestry issues and to include both in the related decision-making process may lead to the establishment of policies that criminalize activities (such as collection of fuelwood and other non-timber products), without changing behavior patterns that have a negative environmental impact (Martin, 2004). Successful resource management is difficult without the active involvement of women in influencing and enforcing institutional arrangements governing forest resources (Agrawal *et al.*, 2006).



CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

This chapter describes the research methods and materials used to collect relevant data. It covers the location and description of the Krokosua Hills Forest Reserve in the Juaboso District, criteria for the selection of communities as well as research design the procedure for data collection, analysis and presentation of the data.

3.0. Study Area

3.1. Location and Size

The area studied covered the stretch along Krokosua Hills Forest Reserve (KHFR) in Juaboso District of the Western Region, Ghana. The geographical location of the reserve is between latitudes $6^{\circ} 15'$ and $6^{\circ} 40'$ North and longitude $2^{\circ} 40'$ and $3^{\circ} 00'$ West. The Krokosua Hills Forest Reserve was demarcated as a Forest Reserve in 1935. The total area of the reserve is 481.61 Km² (48,160ha). An area of 143.34 Km² of the reserve constitutes a Globally Significant Biodiversity Area (GSBA). This lies between latitude $6^{\circ} 15'$ and $6^{\circ} 40'$ North and longitude $2^{\circ} 55'$. The Genetic Heat Index (GHI) of the entire reserve is 46 and hosts a large number of rare fauna and some endemic flora species. The GSBA is placed under a forest condition class 3 and has a Genetic Heat Index (GHI) of 69.4 (Krokosua's Hills Forest Reserve Management Plan, 2010, Unpublished). The reserve was chosen as a study area because there is little research and information about the state and management of the Forest Reserve through local community involvement after the implementation of the collaborative forest management in the area and these make the area more suitable for the study. This study argues that collaborative forest management approach in Ghana establishes a basis for broader stakeholder; Forest-dependent communities around the reserve have experienced different forest management strategies

such as Community Forest Management Committees (CFCs), Community-based Wildlife management groups and Community Biodiversity Advisory Groups (CBAGS) hence ideal for the study.

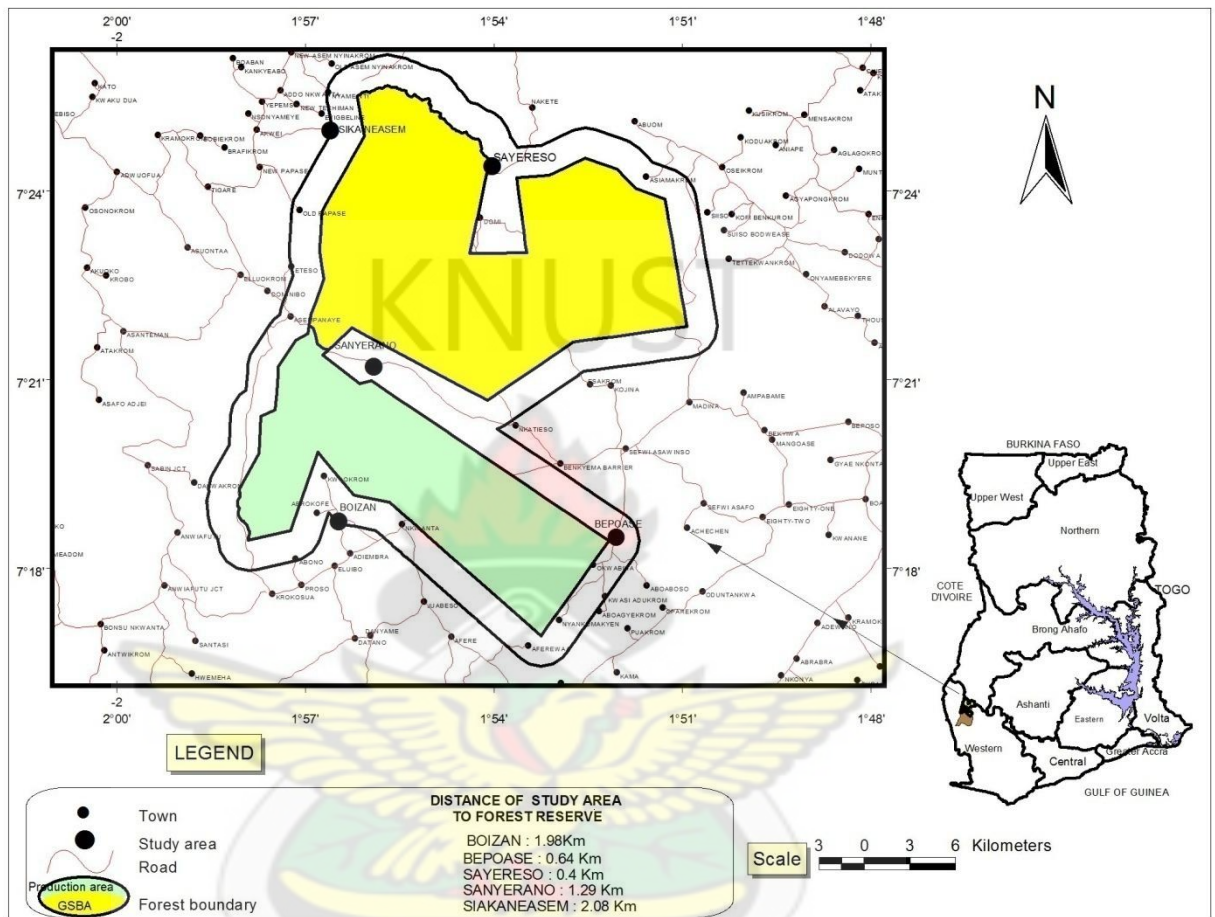


Fig.3.1. Krosusua Hills Forest Reserve showing its buffer zone and communities selected for the study.

3.2. Population and Occupation

The population of people in the district is about 235,000 (KHI FR Management plan, 2010) and predominantly made of farming communities, with cocoa as the most important cash crop. There are thirty-seven forest fringe communities in and around the reserve, found within 5km of the reserve boundary (KHI FR Management plan, 2010).

3.3. Climate and Vegetation

The KHI FR falls under the Moist Semi-deciduous North-West forest type (Hall and Swaine, 1981). The area has an annual average rainfall of 1,450mm. The annual average temperature of the area is 26°C. It has high relative humidity and varies between 80-90% (KHI FR Management plan, 2010).

3.4. Data Collection

3.4.1. Secondary Data

A thorough and extensive literature review of relevant documents on the study area and related research was done using secondary data from journals, workshop documents, Krokosua's Hills Forest Reserve Management Plan and Ghana's forest policy documents. The researcher consulted the forestry staff at Juaboso Forest District to seek clarification and to harmonize his understanding on documents sought from their office. The secondary data was also used to increase reliability and validity of the data collected (Babbie, 2002; Kumar, 2002 cited by Phiri, 2009). The review provided valuable insight into the study area and issues surrounding the research core objectives, relevant literature, the methodological approach for the general survey, and discussion of the research findings.

3.4.2. Primary Data

Participatory Rural Appraisal (PRA) and structured questionnaire interview were used as data collection procedures for the survey. The PRA techniques principally included community entry, key informants interview using semi-structured questionnaires, direct observation via transect walk.

Data collection for this study was carried out in March to May 2010. Data collection activities targeted primary stakeholders in the forest fringe communities and key informants in forest resources management. In total, approximately five forest-dependent

communities were included in the study. A sampling frame of about 1,366 households was generated after conducting a census in all selected communities. Household in this study was defined as “comprising individuals who live in the same dwelling and share basic domestic and/or reproductive activities such as cooking and eating” (UNDP, 1996). The census was done in consultation with the community heads and other local leaders. The selection of the five communities was based on proximity (average distance of 1.3 km) to the reserve, measured from the nearest perpendicular distance between the community and the reserve by a GPS reading transferred onto Google Earth (Google-Inc. 2010) (see Fig. 3.1). Respondents were selected by a simple random sampling procedure. In total, a representative sample of 407 forest-dependent households (Boinzan-123, Sayereso-63, Sayereno-121, Sikanzeasen-47 and Bepoase-56) was selected for structured questionnaire administration.

Community Entry/Reconnaissance Visit

Prior to the survey census, community entry processes was carried out by consulting the local community chiefs and staff of the FSD. It was important to build trust with the stakeholders and to explain the purpose of the study. The standardized questionnaires were pre-tested during the entry process in one forest-dependent community and at the forestry office, as recommended by Panneerselvam (2008). This was done to ensure accurate findings from respondents and to obtain information to improve its content, format and sequence (Panneerselvam, 2008).



Plate 3.1: Community entry process at Boinzan community (Source: Field Survey, 2010).

Key Informant Interview Using Semi-structured Questionnaires

Key informants are “expert” and elderly people considered to have rich knowledge whether indigenous or modern on a particular topic or issue. The key informant interviews were conducted at two levels, one with forest-dependent community members and local District Forestry officials who are the direct implementers of the collaboration programme. The researcher used semi-structured interviews for the key informants which included both men and women. Key informant interviews (Appendix 2) were carried out to help in designing structured questionnaire, to harmonize understandings and to ensure that the survey focused on relevant issues.

Direct observations via transect walk

This was undertaken during the field survey as a data-gathering technique to complement the information collected for qualitative analysis. Transect walks were undertaken to critically observe forest management activities in the forest-dependent communities and meetings held with staff of the Forest Services Division (FSD) in and around the reserve.

This tool significantly helped to broaden understanding of issues relating to primary stakeholders participation in forest resources management, particularly, various aspects of forest resources management that respondents were not be willing to discuss.

Household Questionnaire Administration

Structured questionnaire (Appendix 1) was administered to household heads in local communities using five trained enumerators. The questionnaires elicited information on household socio-demographic characteristics, stakeholders participation in forest management stages and awareness of collaborative forest management policies of the reserve.

Administration of questionnaire was done through face-to-face interviewing of respondents. The face-to-face method involved the interviewer meeting the respondents to seek responses to the questions in the questionnaire at workplaces, homes of respondents or anywhere the target populace is found during the time of visit. Respondents who were literate were given the questionnaires to fill themselves. Those who were not literate were assisted by a facilitator in translating the questions into the local dialect (Sefwi or Twi). Random checks made by the researcher on completed interviews to identify errors in order to ratify incongruence in subsequent interviews.

According to Panneerselvam (2008) face-to-face interview is a detailed in-depth survey method which seeks responses with better precision and flexibility since follow ups can be made to seek more clarification when it is necessary. However, the method is time-consuming and costly.

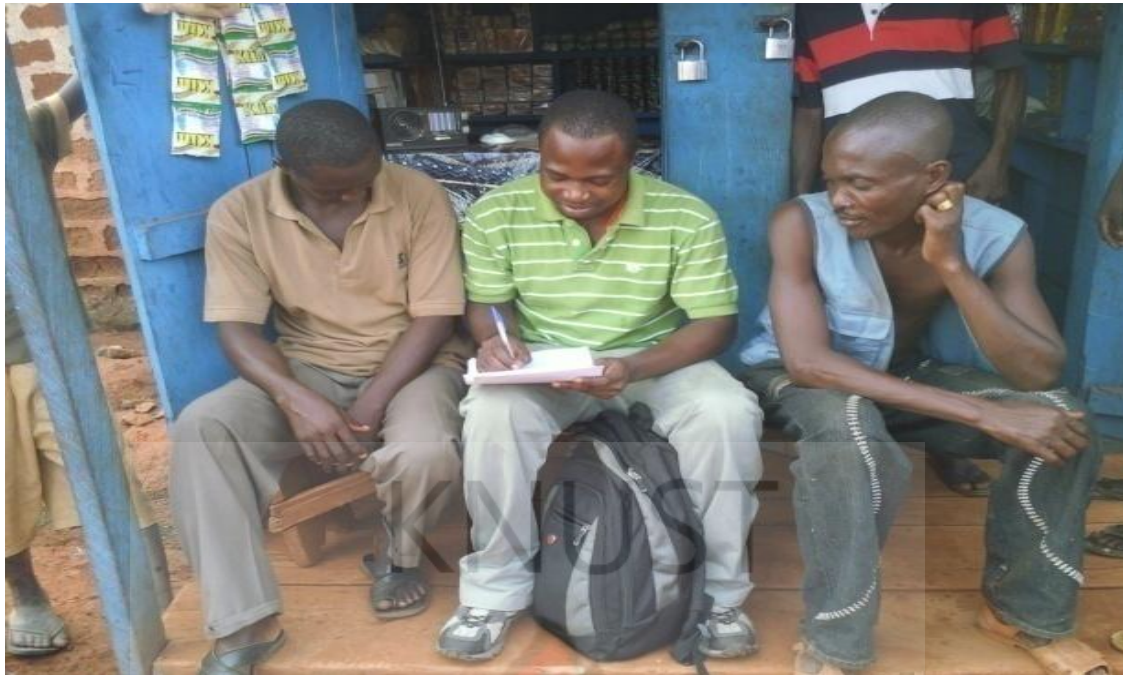


Plate 3.2: The researcher interviewing a household head in one of the forest-dependent communities (Source: Field Survey 2010).

3.5. Data Analysis

The statistical package for social scientists (SPSS 16.0 for Windows) was used to analyze the structured questionnaire data. Descriptive statistics were used to describe socio-demographic characteristics of respondents and their involvements in forest management stages. Frequencies of selected variables for all respondents were computed with percentages. Cross tabulations of selected variables were produced as a precursor to observe association between different variables (age, gender, education level, resident status, awareness on collaborative programme policy and people participation in collaborative forest programme of the reserve) using chi-square test.

3.6. Participation Index

The research also used the participation index (PI) to measure primary stakeholders involvement in forest resources management stages based on a five-point scale (always=

1.0, often= 0.8, occasionally= 0.6, rarely= 0.4 and never= 0.2). The values of index were kept within 0 and 1 for convenience and easy interpretation. The participation index for the various stages in forest management was obtained by using the formulae below (modified from Kamnap, 2003):

$$PI = [(f_a * 1) + (f_o * 0.8) + (f_c * 0.6) + (f_r * 0.4) + (f_n * 0.2)] / N$$

Where, PI = Participatory index for forest management stage f_a = frequency of respondent always participating in a particular management stage, f_o = frequency of respondent often participating in a particular management stage, f_c = frequency of respondent occasionally participating in a particular management stage, f_r = frequency of respondent rarely participating in a particular management stage, f_n = frequency of respondent never participating in a particular management stage and N = Total number of respondents for each stakeholder category.

The value of PI can be interpreted on a scale of 0 - 1, where zero means primary stakeholder has no chance of participating and 1 means always participating. Increase in values from 0-1 implies increase in participation level of the stakeholder group with respect to the specific forest resources management stage.

CHAPTER 4

RESULTS AND DISCUSSION

4.0. Presentation of Results and Discussion

In this chapter, the results and discussion are presented in four major categories as follows: socio-economic features of respondents in the forest-dependent communities, extent of primary stakeholders participation in forest resources management and factors influencing primary stakeholders participation in forest resources management of the Krokosua Hills Forest Reserve.

4.1. Socio-demographic Characteristics of Households

A total of 407 respondents were surveyed and of this 293 (72.0%) were men and 114 (28.0%) were women (Table 4.1). This finding is consistent with Ardayfio-Schandorf (2007) who reported that, the Ghanaian society is traditionally male-dominated, and the forest-dependent communities in Juaboso district is no exception. This result also confirms the Juaboso District Assembly reports that the area is male-dominated (www.ghanadistricts.com). The age of respondents ranged from 20 to 65 years with majority 54.3 % being in the middle age category (35-54). The Juaboso District Assembly reported that, generally, the population structure of the district shows a broad based pyramid that tapers to the top indicating a concentration of the youth at the base and this corroborates the current findings (www.ghanadistricts.com). Most (72.0%) of the respondents did not have formal education whilst 28.0% had formal education. Statistics from the Juaboso District Assembly reports indicate that approximately 32.6% of population aged 24 years and above have no formal education (www.ghanadistricts.com). This high rate of illiteracy around the forest-dependent people around the Krokosua Hills Forest Reserve is probably due to the fact that majority of parents cannot their wards in

schools because of poverty. It could also be due to the absence of constant awareness and sensitization of the rural communities on the importance of education.

Table 4.1 further shows that farming is the predominant occupation of most local people around the reserve with 86.5% of respondents interviewed engaged in this occupation. This has many implications on the use and sustainability of the reserve because cocoa is the major cash crops in the area and cocoa farmers require vast forest vegetation for cultivation which threatens the resources of the reserve. This situation may be due to increasing demand for fresh land by migrant farmers and often result in steady encroachment on the reserve. This result is consistent with the findings of the KHI FR Management Plan (2010) and Juaboso District Assembly Reports. The reports indicated that farming (especially cocoa farming) is the main economic activity of the forest-dependent communities around the reserve.

Table 4.1: Socio-demographic Characteristics of Households

Features	Percentage (%)	Frequency
<i>Gender</i>		
Men	72.0	293
Women	28.0	114
<i>Age category</i>		
20-34	7.1	29
35-54	54.3	221
> 55	38.6	157
<i>Education</i>		
Formal education	28.0	293
No formal education	72.0	114
<i>Occupation</i>		
Farming only	86.5	352
Farming with small trade	7.1	29
Formal employment	3.9	16
Others	2.5	10

(Source: Field Survey, 2010).

4.2. Primary Stakeholders Involvement in Forest Resources Management

Table 4.2 indicates the participation index for the key areas in which primary stakeholders participate in forest resources management. The results show that participation is generally low across all four key areas of participation studied. However, participation in benefit-sharing had the least (PI= 0.2). This implies that the attendance of majority of respondents' in forest resources management activities remain low, particularly in sharing of benefit accrued from forests. These results contradicts study done by Patwary (Undated, cited by Quazi *et al.* (2008)) in Bangladesh who reported that local people were mostly involved in sharing of benefits in co-management of wildlife sanctuary, and considerably less involved in planning and evaluation. The participation index is high in planning, implementation and monitoring compared to benefit-sharing because the collaborative system approach is gradually engendering forest-dependent communities participation in those areas as compared to benefit-sharing. Also, the current results are probably due to the fact that forest resources management in the area are being characterized by powerful actors and has pre-determined ways of involving primary stakeholders. This trend of primary stakeholders' participation in forest resources management revealed in this study reflects the general view and reality in the country. According to studies done by Amanor (2004), Marfo (2001) and Wily (2001), participation in forest resources management and decisions (especially in benefit-sharing) revolves around the chiefs and elites who still remain most powerful actors in the forest sector, and are not fully accountable to their community members. These findings also corroborate recent literature on natural resources decentralization and devolution, which argues that local elites at the community level are likely to capture benefits intended for poorer groups (Platteau and Gaspart 2003; Shackleton *et al.*, 2002; Kumar 2002 cited by Behera and Engel, 2005). Another possible explanation for the low involvement of primary stakeholders in forest management may be

due to the poor partnership that exists between the forestry agencies and local communities under the collaborative system approach. Kotey *et al.* (1998) and Marfo (2007) have reported that the relationship between the Forest Services Division (FSD) and local people has historically been one of mistrust and plagued with conflicts, and this has affected local peoples involvement in forest resources management.

The key informant interviews also confirmed that forest decision-making process in Ghana for participatory forestry is still the top-down approach where upper level and central decision makers of the FSD still initiate managerial and technical decisions for implementation by a local forestry officer with little involvement of local people. This result is consistent with many studies including Kotey *et al.* (1998); Amanor (1999); Ganz *et al.* (2003); Borrini-Feyerabend *et al.* (2004) and Eshun (2008) who all reported that forest resources management is hitherto characterized by extensive state forest agencies involvement with little recognition of the potential of forest-dependent communities for achieving positive long-term sustainable forest management. The implications are that resource managers continue to view forest-dependent communities as a threat to the reserve and inimical to its sustainability. This has reflected in the pre-determined ways and roles designated for primary stakeholders management of the reserve. The results therefore re-enforced the need to re-examine policies relating to primary stakeholders participation in forest resources management.

Table 4.2: Participation index of primary stakeholders in forest resources management stages.

Management Stage	Participation Index
Planning	0.3
Implementation	0.3
Monitoring	0.3
Benefit-sharing	0.2

(Source: Field Survey, 2010).

4.3. Primary Stakeholders Roles in Forest Resources Management

Planning

Planning is an important stage to understand how local people understand their role in the participatory system approach. Of the 86 respondents representing 21.1% of the total sample who were involved in forest resources planning, majority (69.8%) generally expressed their ideas by providing suggestions while (24.4%) passively participated (Figure 4.1.). IUCN (1996) reports revealed that the roles of communities under the collaborative system approach in forest resources management have been strengthened after the implementation of the 1994 Forest and Wildlife Policy, this corroborates these current findings. This may also be due to the fact that Forest Forum now provides a platform for forest-dependent communities to provide views for policy making or because resource managers and policy makers are realizing the importance of involving forest-dependent communities in forest resources management. These results suggest that since the adoption of community participation in forest resources management in Ghana, the forestry agencies have at least started involving forest-dependent communities in planning

of forest resources management although the results shows that the level of community participation was low.

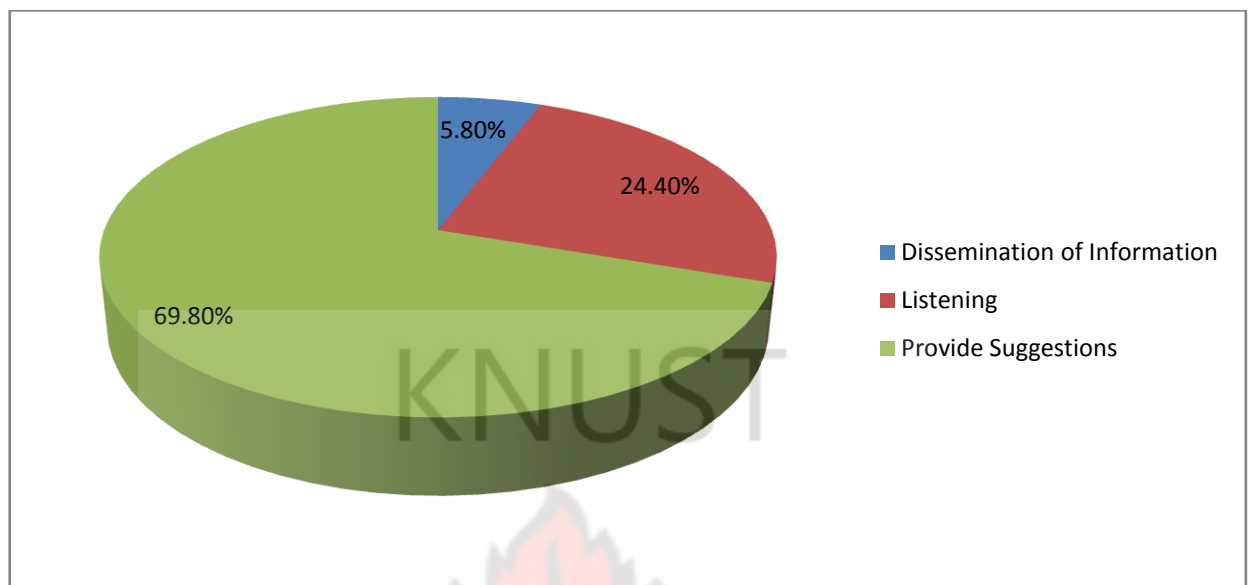


Figure 4.1: Primary Stakeholders Roles in Planning Stage (Source: Field Survey, 2010).

Implementation

The expectation of the local authority and the requirement of the collaborative system approach is that the local people should fully participate in the implementation of forest activities. This would help local people to understand their responsibilities, benefit and obligations under co-management approach in natural resources management (Wily, 2002; Borrini-Feyerabend *et al.*, 2004). Table 4.2 shows various roles of primary stakeholders in the implementation of forest resources decisions and activities. The major roles mentioned by the forest-dependent people were tree planting and management in admitted farms in the reserve 58 (51.3%), boundary cleaning (18.6%), reporting of illegal activities and responding to emergency wildfire outbreak (17.7%). The minor roles mentioned were facilitation of Social Responsibility Agreement (SRA) (11.5%) and refraining from illegal activities (0.9%). Findings from similar studies confirm these findings whereby stakeholders have been involved in similar forest resources implementation activities. For

instance, studies done on collaborative management in Ghana by Asare (2000a), Wily (2002) and Amanor (2003) reported that under the collaborative system approach, state forestry agencies have involved local people in management functions such as boundary cleaning, tree planting and establishment of firebreaks among others. The result also confirms findings from some recent study (Adu, 2010, Unpublished). They all reported that forest-dependent communities are also involved in curbing illegal activities such as illegal logging in forest reserve. The mechanism for promotion of forest-dependent communities involvement has been the establishment of Community Forest Committees (CFCs) in communities around the edge of forest reserves (Amanor, 2003). However, the key informant interviews revealed that this instrument was not replicated in most of the forest-dependent communities. *“The absence of CFCs is attributed to inadequate financial resources by Forest Services Division to replicate the CFCs and pay members in the forest-dependent communities”* (Personal Communication with the District Forest Manager, May, 2010).

Table 4.2: Roles of Primary Stakeholders in Implementation Stage

Role	Percentage (N=113)
Tree planting and management	58 (51.3)
Boundary Cleaning	21 (18.6)
Reporting illegal activities and responding to emergency i.e wildfire	20 (17.7)
Facilitation of SRA	13 (11.5)
Refraining from illegal activities	1 (0.9)

Figure in parentheses indicate the percentage of each category. (Source: Field Survey, 2010).

Monitoring

The results in Table 4.3 show the roles of primary stakeholders in forest monitoring activities. Reinforcement surveillance was the most mentioned role (59.8%), followed by enforcement of taboo days (29.9%). Decision-making during monitoring (5.1%) and participatory monitoring of implemented projects 6 (5.1%) were the least mentioned. This result confirms previous study by Amanor (2003), that primary stakeholders performed monitoring roles of forest reserves and served primarily to assist in protection and management of the forest resources and not in the decision-making process (Asare, 2002). Additionally, the findings support study done by Sarfo-Mensah and Oduro (2007), where traditional spiritual values (e.g. taboos) in Ghana were recognized to play important roles in preventing forest loss by protecting trees around sacred places. The results suggest that the use of social sanctions is still an effective means of monitoring system in forest-dependent communities in Ghana. At least, the importance of primary stakeholders in protecting and sustainably managing forest resources have been acknowledged under the participatory approach in Ghana despite limited involvement of local people.

Table 4.3: Roles of Primary Stakeholders in Monitoring Stage

Role	Percentage (N=117)
Reinforcement surveillance	70 (59.8)
Enforcement of taboo days	35 (29.9)
Decision-making during monitoring	6 (5.1)
Participatory monitoring of implemented projects	6 (5.1)

Figure in parentheses indicate the percentage of each category. (Source: Field Survey, 2010).

Benefit-sharing

A major reason for the failure of most rural development forestry projects is the weak economic incentives for local forest users to participate in sustainable forest management (Richards *et al.*, 2003). The key informant interview confirmed that community chiefs are the lead persons responsible for royalties. Households rarely participate or play any role in forest decisions regarding benefits. The result from the structured questionnaire shows that all the respondents (100%) have no role in benefit-sharing process. Behera and Engel (2005) reported that community elites continue to dominate actual decision-making processes in co-management, putting in question how participatory the programs really are? While the results suggest lack of households involvement in benefit sharing from collaborative initiative, the key informant interview revealed that recent initiative such as the Modified Taungya System in the area that engages households in forest-dependent communities in forest regeneration efforts as well as the sharing of benefits from such efforts. The findings also support Marfo (2007) assertion that policy makers and government need to be sensitive to opening social and political spaces for citizen participation, flexibility to allow dynamic interplay between the influencing factors and the representation process, and some empowerment interventions to create civil consciousness to ensure demand for downward accountability.

4.4. Factors Influencing Primary Stakeholders Participation in Forest Resources Management

Planning

An important issue in forest resources management is safeguarding the interests of specific groups, taking into account intra-community differences such as gender (Agrawal, 2001). The chi-square analysis shows that there was a slightly significant association between

gender and participation in planning [$\chi^2(1)=3.678$, $p = 0.055$]. Details of the results are presented in Table 4.4. In other words, both men and women had unequal level of participation in forest resources planning. Majority of the men (23.5%) were more involved in forest resources planning compared to women (14.9%) at the planning stage. This result contradicts the findings of Lise (2000). Lise (2000) reported that a higher number of women participated in planning compared to their male counterparts. This current result could be due to the existing gender imbalance over the right over access and control of forest resources. Women in rural communities usually have multiple roles and little or no ownership and influence over forest resources, this may cause their absence in planning such as forest decision-making. However, these results are consistent with Phiri (2009) who observed that participation of women in community-based programme activities is low. This is because men often dominate the decision-making processes. This result suggests that forest decisions could be skewed towards their male counterpart and may lead to taking decisions that do not favour local women.

The chi-square test also indicated no significant association between the age groups of forest-dependent communities and the extent of participation in forest resources planning [$\chi^2(2)=1.458$, $p = 0.482$]. About 41.4% of forest-dependent people in the age category of 20-34 had participated in the planning of forest resources compared to 22.3% and 17.6% in the age categories of > 55 and 35-54 respectively (Table 4.4.). One possible explanation is that older people are likely to be involved in a higher level of decision-making and are less likely to be involved in basic levels of attendance and discussion. It could be that the younger people are being encouraged by FSD to participate with older people in planning to help the entire community understand and appreciate the real value of the forests. This result is consistent with several studies by Maskey *et al.* (2003), Thacher *et al.* (1996); Zhang and Flick, (2001) and Kugonza *et al.* (2009). They all reported that age had no

influence on the extent of local peoples' involvement in forest resources management. These findings suggest that age does not influence primary stakeholders participation in forest resources planning (decision-making).

The findings further revealed that 35.1% of people with formal education participated compared to only 15.7% of the people with no formal education. Education was observed to be significantly associated with forest-dependent communities participation in forest resources with a chi-square value of [$\chi^2(1)=18.51$, $p < 0.001$] (Table 4.4). This is consistent with the findings by Lise, 2000; Glendinning *et al.* (2001), Owubah *et al.* (2001) and Chowdhury, (2004). They all reported that education is significantly associated with local people participation. Education generally influences level of participation of stakeholders in planning because it creates awareness on the importance of participation in forest resources, particularly at the planning stage where important decisions are taken. Household heads with formal education could have better information regarding forest resources management and may be better equipped to speak up in public compared to members in the local communities with no formal education. Behera and Engel (2005) explained that education is likely to be a factor influencing participation because educated household heads can acquire information easily compared to uneducated household heads. These households are able to present themselves and their views effectively in meetings. This finding could also be that the literates are generally preferred and are thus selected by the FSD officers during committee formation or decision making. The level of education is thus likely to play a very important role in promoting people's participation in development programme in general.

Respondents were categorized into two groups as indigenes and non-indigenes to the communities where they were interviewed. No significant difference in participation was observed between non-indigenes (21.4%) compared to indigenes 21% [$\chi^2(1)=0.007$, $p =$

0.934)] (Table 4.4). This result is inconsistent with the reports of Kugonza *et al.*, (2009); they reported a significant difference in participation among the indigenous people and non-indigenes. Possible explanations are that the non-indigenes are becoming powerful actors in forest decision-making and the fact that indigenous community feel they have lost ownership of the forest resources. Another possible reason is that most communities in forest zone where key agricultural commodities are cultivated such as Krokosua Hills areas are dominated by non-indigenes (settlers and migrants) from around the country. They often come in search of better lands for farming or other jobs. Also, it could be that other factors significantly influence primary stakeholders participation in planning rather than ethnic background.

The results indicate that there was no significant relationship between the extent of local participation in forest planning and primary stakeholders awareness on forestry policies backing stakeholders in forest resources management [$\chi^2(1) = 1.715$, $p = 0.190$] (Table 4.4.). Primary stakeholders who were aware of the forest policies had high percentage of involvement (25.7%) compared to 19.6% who were not aware of the policies. This results is inconsistent with studies by Thanh *et al.* (2003). They indicated that there is a significant correlation between the number of participation in meetings and the understanding of Forest Land Allocation policy. They further reported that people who attended several meetings understand the policy better than those who attended only one or two meetings. In this study, the findings may be due to the fact that other factors than awareness on forest collaboration policies, rather influences primary stakeholders participation. The implications are that primary stakeholders awareness on policies supporting local participation in forest resources management is likely not to play an important role promoting primary stakeholders participation under the collaborative system approach.

Eventhough respondents living a distance less than 1km from the forest reserve showed a higher degree of participation (23.7%) compared to those (20.1%) living a distance more than 1 km, no significant relation was observed between the extent of participation in forest resources planning and proximity of respondent communities from the reserve [$\chi^2(1)=0.0673$, $p = 0.412$] (Table 4.4.). Kuzonga *et al.* (2009) found similar results in Uganda, where local community willingness to participate did not significantly vary with the distance of forest-dependent communities from the forest sites. A similar study conducted by Ansong and Røskaft (2010) also observed no effect of community distance on attitudes of primary stakeholders towards forest management in Ghana. In this study, the non significant relationship may be due to the fact that all the primay stakeholders in categorised communities have similar attachment and dependency on forest resources in the area. This supports the reports in Krokosua Hills Forest Reserve management plan (2010) that forest-dependent communities believe that the reserve is a sacred place for community gods and therefore serve as a symbol of their cultural heritage and a source of NTFPs for their livelihoods. It is also possible that, the distance is not so apart to introduce differences in their level of participation in planning, or FSD gives equal opportunity to all the local communities in terms of managing the reserve.

Table 4.4: Chi-square Analysis of Factors Influencing Primary Stakeholders Participation in Planning.

Factors	Participation in planning		χ^2	p-value
	Yes	No		
<i>Gender</i>				
Men	23.5	76.5	3.678	0.055*
Women	14.9	85.1		
<i>Age</i>				
20-34	41.1	58.6	1.458	0.482
35-54	17.6	82.4		
> 55	22.3	77.7		
<i>Educational level</i>				
Formal education	35.1	84.3	18.511	0.001*
No formal education	15.7	64.9		
<i>Background</i>				
Indigene	24.1	78.6	0.007	0.934
Non-indigene	24.0	79.0		
<i>Awareness on policies</i>				
	25.7	74.3	1.715	0.190
	19.6	80.4		
<i>Distance from forest</i>				
<1km	23.7	76.3	0.673	0.412
> 1km	20.1	79.9		

*: mean significant at $p < 0.05$. (Source: Field Survey, 2010).

Implementation

Table 4.5 shows that 56.3% of men participated in implementation compared to 51.8% of women. However, a chi-square test revealed no significant association between gender and the degree of participation in implementation stage [$\chi^2(1)=0.689$, $p = 0.406$]. This result is inconsistent with findings of Phiri (2009), which showed that gender was positively and significantly associated with level of participation in JFM implementation activities. Observations made in this study indicate that gender equality is being recognized in certain stages of participatory forest management. This also indicates that gender issues are gradually being recognized under the collaborative system approach as integral part

especially for women participation. However, the finding disagrees with Ardayfio-Schandorf (2007) assertion that there have not been any measurable improvements made in terms of gender equity in forest resources management in Ghana.

No significant association between the age groups of primary stakeholders and the level of involvement in implementation was observed [$\chi^2(2)=2.354$, $p = 0.308$] (Table 4.5). This is inconsistent with Faham *et al.* (2008a) findings, where they reported a significant relationship between age and the level of people's participation in implementation activities (restoration and development of forest area). The possible explanation for the non significant relationship observed in this is that all the various age categories have realized the importance of participating in the implementation of forest projects in sustaining their livelihood strategies. Implementation of forest projects such as restoration of degraded areas through the taungya system improves the forest cover at the same time provide local people access to forest resources, wages for providing labour and share of benefits accrued from the harvesting of planted trees, hence attract all age group.

No significant relationship was also observed between education and the extent of involvement in implementation [$\chi^2(1)=0.003$, $p = 0.954$], even though people with formal education in forest-dependent communities showed a high degree of involvement (55.3%) compared to people with no formal education (54.9%) (Table 4.5). This result is not in accordance to the results of Lise (2000), Faham *et al.* (2008a) and Chesoh (2010), where education has a significant relationship with the extent of participation. Regardless of formal education, a higher proportion of primary stakeholders were involved in the implementation of forest activities because most primary stakeholders in forest-dependent communities have indigenous knowledge on forest resources management. According to Kugonza *et al.* (2009) forest-dependent communities demonstrate high desire to protect

and utilize indigenous knowledge in the management of forests. It could also be that other community factors than education, rather influence participation in forest implementation activities.

The *a priori expectation* was that there would be a significant relationship between respondents' resident status and the extent of primary stakeholders participation in implementation of forest resources management activities. The result presented in Table 4.4 indicated no significant relationship between the extent of involvement in implementation and ethnic background [$\chi^2(1)=0.231$, $p = 0.631$] (Table 4.5). This corroborates Faham *et al.* (2008a) conclusion that undoubtedly, implementation of forest activities leads to increase social solidarity among forest dwellers. The findings made in this study may be due to the role of institutions in preventing social discrimination in forest resources management or the migrants are becoming powerful actors, resulting in non significant difference among indigenous group and immigrants' participation in forest implementation activities. It is also likely that the indigenous people are willing to be involved in forest decisions where they can negotiate on benefits and facilitates SRAs. Although the population of the area is heterogonous (Krokosua Hills Forest Management Plan, 2010), it is likely that there is strong social cohesion in the community and communities often undertake forest management activities together.

From Table 4.4, no significant association exist between primary stakeholders awareness on policies backing stakeholders participation and the extent of participation in implementation of forest projects [$\chi^2(1) = 0.018$, $p = 0.892$] (Table 4.5). This finding is incongruent with reports of Phiri (2009) which indicate that increased understanding and awareness on participatory forest management influenced participation of the local people in JFM activities. Forest-dependent people tend to share a lot in common in terms of

source of livelihood hence, is most likely for them to have similar concern for forest implementation activities like tree planting and management. The results suggest that the success of implementing collaborative activities do not rely to a great extent on the degree of public knowledge and awareness regarding forest policies supporting stakeholders participation. It is also likely that unwillingness of governing actors and institutions to involve primary stakeholders in implementation activities discourages participation by primary stakeholders despite their level of awareness. According to Quazi *et al.* (2008) participation depends not only on the initiative of local citizens to become part of forests management, but also the willingness of the governing actors and institutions to let them participate, and to integrate local citizen and their views into policy and management decisions. This finding is in accordance to the assertion by Quazi *et al.*, 2008.

A significant association was observed between the extent of participation in implementation of forest projects and distance of community from the reserve [$\chi^2(1)=40.78, p = 0.001$] (Table 4.5.). 79.7% of forest-dependent communities adjacent to the forest reserve were involved in implementation projects compared to 45.0% living in forest-dependent communities far (>1km) from the forest reserve. This finding is consistent with the study of Phiri (2009) that communities closed to forest areas participated more in forest decisions and management than distant communities. This result is probably due to the fact that distance forest-dependent communities feel that adjacent forest-dependent communities have more ownership and access rights of the reserve compared to them. Also, it might be that distant forest-dependent communities have more land for cash crop farming that provides much income and livelihood security compared to the wages and benefits from forest implementation activities in state reserves. Therefore, they may prefer engaging in farming than wage labour employment in performing forest implementation activities. This is intuitive since primary stakeholders

located close to the forests tend to be more dependent on the forest resources and have lower opportunity costs of time.

Table 4.5: Chi-square Analysis of Factors Influencing Primary Stakeholders Participation in Implementation Activities.

Factors	Participation in implementation		χ^2	p-value
	Yes	No		
<i>Gender</i>				
Men	56.3	43.7	0.689	0.406
Women	51.8	48.2		
<i>Age</i>				
20-34	41.4	58.6	2.354	0.308
35-54	56.1	43.9		
> 55	56.1	43.9		
<i>Educational level</i>				
Formal education	55.3	44.7	0.003	0.954
No Formal education	54.9	45.1		
<i>Background</i>				
Indigene	54.4	45.6	0.231	0.693
Non-indigene	57.1	42.9		
<i>Awareness on policies</i>				
Conscious	54.5	45.5	0.018	0.892
Unconscious	55.2	44.8		
<i>Distance from forest</i>				
<1km	79.7	20.3	40.718	0.001*
> 1km	45.0	55.0		

*: means significant at (p<0.05). (Source: Field Survey, 2010)

Monitoring

The chi-square analysis in Table 4.6 indicated no significant association between gender and the degree of primary stakeholders participation in monitoring activities [$\chi^2(1)=0.55$, $p = 0.458$]. Table 4.5 further shows that about 30% of men were more involved in monitoring compared to 26.3% of women. This result is not consistent with the report of

Ur-Rehman and Chisholm (2007) on similar studies which reported a significant relationship between participation and gender. Ur-Rehman and Chisholm (2007) observed that more male were involved in natural resources management activities. As explained in the previous sections, the importance of institutions have been recognised once again in promoting women involvement through improved planning and better focussed on the role of women in forest resources management. It is also likely that other intra and inter-community factors are responsible for influencing primary stakeholders participation in monitoring rather than gender.

Table 4.6 also indicates that age category of primary stakeholders was associated with the level of involvement in monitoring forest resources [$\chi^2(2)=21.48$, $p < 0.001$]. Majority of the age category below 20-35(41.4%) were more involved in monitoring compare to 34-54 (36.7%) and > 55 (15.9%). This study has revealed that level of primary stakeholders participation in monitoring activities of forest areas reduced with increasing age of forest-dependent people. This result is consistent with Maskey *et al.* (2003) findings, who reported similar findings when they investigated factors influencing community participation in Nepal. This possibly indicates that throughout the rural communities in Ghana, young to middle-aged people participate more in monitoring activities because they form the largest proportion of the labour force and are able to carry out work that require much energy. It is rational to think that many forest management activities, especially those that require energy and outdoor activity such as monitoring, engage youths because of the laborious nature of forestry activities. Also, older people may have more interest in forest decisions such as benefit-sharing and therefore may participate more in administrative activities than do young to middle-aged people in forest-dependent communities. The present result also coincide with the findings of Wall *et al.*, (2006) who conducted a similar study. They reported that younger people participated more in

monitoring of forestry activities compared to the older people because older people may have more time and therefore may participate more in technical, educational, or administrative projects than do middle-aged people.

Theoretically, education should be positively related to participation (Verba *et al.*, 1995 cited by Wall *et al.*, 2006; Glendinning *et al.*, 2001, Chesoh, 2010). However, education had no significant impact on extent of participation in the monitoring stage [$\chi^2(1)=2.09$, $p = 0.148$] (Table 4.6). These observations may be attributed to the fact that both people with formal education and no formal education are aware of the importance of trees and forests and are willing to be involved in projects that enhance sustainable management and protection of forests. Those with no formal education may also have integrated indigenous knowledge in forest resources monitoring that accounted for the insignificant differences in the level of participation.

The chi-square test indicates no significant relationship between the extent of primary stakeholders involvement in monitoring and resident status of the forest-dependent people [$\chi^2(1)=0.130$, $p = 0.718$] (Table 4.6.). These results corroborate with Phiri (2009) who reported that difference in resident status had no effect on community participation in forest resources management activities despite the heterogeneous nature of such communities. These results could be attributed to the fact that both indigenous populace and non-indigenes have similar concern for the environment and attitude toward the collaborative system approach.

From Table 4.6, it is observed that there was no significant association between primary stakeholders awareness of policies supporting stakeholders participation and the extent of participation in forests monitoring activities [$\chi^2(1)=0.884$, $p = 0.347$]. About 32.7% of local people who were aware about the policies participated in forests monitoring

compared to 27.8% who were not aware. The result suggests that primary stakeholders level of awareness of policies supporting stakeholder participation is not an effective factor in determining participation of primary stakeholders. This result is inconsistent with the reports of Faham *et al.* (2008b) that level of awareness of plan goals was positively and significantly correlated with level of rural people's participation. They however did not explain what accounted for this significant correlation. The observations made in this study is probably due to the fact that there may be lack of constant interaction between state forestry officials and forest-dependent communities both at the local and national levels on the need to participate in forest management activities. This result confirms the reports of Oviedo (2000) which argue that inadequacy of national laws and policies to face the challenge of building partnerships is major challenge to participatory approach.

A high level of participation in monitoring of forests (33.6%) was observed among local people living in communities distant from the forest reserve compared to 17.8% of local people in communities living adjacent to the forest reserve. The chi-square test showed a significant relation between distance and the extent of participation in forest resources monitoring [$\chi^2(1) = 10.118, p = 0.001$] (Table 4.6.). Studies done by Holmes (2007) and Phiri (2009) contradicts these current findings. Holmes reported that the farther the communities are from the forest resource, the less they interact with the resources. Also, Phiri (2009) observed that the proximity of the local community to the Dambwa Forest Reserve in Zambia made them better placed to protect and manage the forest reserve than those who are not residents in the area. The observations made in this study may be attributed to willingness of primary stakeholders living far from the forest site to participate in monitoring activities.

Table 4.6: Chi-square Analysis of Factors Influencing Primary Stakeholders Participation in Monitoring Activities.

Factors	Participation in monitoring		χ^2	p-value
<i>Gender</i>	Yes	No		
Men	30.0	70.0	0.551	0.458
Women	26.3	73.7		
<i>Age</i>				
20-34	41.4	58.6	21.484	0.001*
35-54	36.7	63.3		
> 55	15.9	84.1		
<i>Educational level</i>				
Formal education	34.2	65.8	2.094	0.148
No formal education	27.0	73.0		
<i>Background</i>				
Indigene	29.4	70.6	0.130	0.718
Non-indigene	27.6	72.4		
<i>Awareness on policies</i>				
Conscious	32.7	67.3	0.884	0.347
Unconscious	27.8	72.8		
<i>Distance from forest</i>				
<1km	17.8	82.2	10.118	0.001*
> 1km	33.6	66.4		

*: means significant at (p<0.05). (Source: Field Survey, 2010).

Benefit-sharing

Gender was observed to have no significant effect [$\chi^2(1)=0.075$, $p = 0.784$] on primary stakeholders participation in benefit-sharing (Table 4.7.). This finding is incongruent with the reports of Ur-Rehman and Chisholm (2007) that indicated a positive and significant correlation between demographic factors like gender of households' on participation in

natural resource management activities. At Krokosua Hills, both participated equally sexes in sharing of benefits accrued from forests. This is probably due to the roles of various institutions like NGOs and the wider civil society. There has been growing effort by policy makers to promote women participation in the forest decision process by acknowledging the important role of women in the 1994 Forest and Wildlife policy (Section 3.2.16). It is therefore a provision in the policy to explore and incorporate appropriately the role of women and the unemployed in forest management initiatives (Ardayfio-Schandorf, 2007). This corroborates with the present results. These findings indicate that gender was not a major factor affecting primary stakeholders participation in sharing of benefit accruing from the forests, and prove to be a good signal of some achievements of the collaborative system approach in forest resources management in Ghana.

Table 4.7 indicate that the majority of forest-dependent communities in the age category > 65 (13.8%) participated in benefit-sharing accrued from the forests compared to the age categories of 34-54 (3.2%) and >20-35 (3.2%). Age was observed to have a significant association with the participation level when a chi-square test for independence was fitted [$\chi^2(2) = 8.041, p = 0.018$]. The Ghanain rural society is typically characterized by cultural values according to elders. Therefore, the authority of handling forest issues are given to the elders in the society. In that sense the older people in the village enjoy a great deal of authority and are expected to influence more decisions in higher level at the benefit-sharing stage compared to younger people. Older people in rural communities are recognised as opinion leaders and therefore powerful actors in forest decision-making. The benefit of royalties from stumpage fees, social responsibilities from timber concessionaires and access to non-timber forest products (NTFPs) tend to benefit the powerful actors and this is a major source of resource use conflicts in Ghana (Marfo, 2001). This major division of power in forest resources management in Ghana, particularly benefit-sharing is

yet to be addressed to ensure equitable participation and benefits. These results also suggest that younger people had low participation because of better off-forestry activities and the likelihood that older people may take unilateral decisions without incorporating their views. Hence, younger people would not be willing to participate in important forest decisions like benefit-sharing because they have little or no influence in benefit-sharing process.

Table 4.7 further shows that educational level has significant association with primary stakeholders participation in benefit-sharing [$\chi^2(1)=18.24$, $p < 0.001$]. Primary stakeholders with formal education had higher degree of participation (10.5%) compared to only 1.4% of primary stakeholders with no formal education. As explained earlier, this is probably due to the fact that educated primary stakeholder can obtain information on forests benefits easily compared to primary stakeholders with no formal education and are able to have more influence or are capable of negotiating on benefit-sharing in the local decision-making process. It is logical that educated primary stakeholders may participate more in sharing of benefits because of the technical nature of benefits-sharing process and its associated challenges at the local level. This supports Behera and Engel (2005) conclusion that the higher the level of education of the household head, the higher the likelihood that he or she will influence the decisions. Also, Jumbe and Angelsen (2007) cited by Phiri (2009) made similar observations in the community around Chimaliro Forest Reserve in Malawi where people with formal education held key positions in local forest committees compared to people with low or no education. People with higher literacy levels are less interested in forestry activities (Jumbe and Angelsen, 2007 cited by Phiri, 2009) where returns are low or non-existence.

Also, about 4.2% of the native populace in the forest-dependent communities were involved in benefit-sharing accrued from forest resources compared to 3.1% of non-natives living in

the communities. However, the chi-square analysis shows no significant association between respondents resident status and the extent of participation in benefit-sharing [$\chi^2(1)=0.259$, $p = 0.611$] (Table 4.7.). These findings are, however, not in line with other studies (McDougall *et al.*, 2007). In this study, this might be due to the fact that power relations at the community level have been strengthened to benefit the migrants because of the collaborative system approach. It is also because the role of some institutions have promoted the involvement of all forest users to ensure equitable distribution of benefits . It is also likely that migrants are becoming powerful actors in forest resources management at the local level and therefore able to participate in higher forest decisions at the local level. This result suggests social solidarity influences primary stakeholders involvement in important management processes such as sharing of benefits accruing from forests.

There was no significant relationship between forest-dependent people's involvement in benefit-sharing and their awareness level of policies backing stakeholder participation [$\chi^2(1)=3.200$, $p = 0.074$] (Table 4.7.). This result is incongruent with the reports of Pour (1993) and Pour (2001). Both reports by Pour indicated a significant correlation between level of awareness and participation. This is probably due to the pre-determined structure and strategies put in place for the involvement of primary stakeholders in benefit-sharing. The observations made may also be attributed to the long-standing poor partnership between the forest officials and the forest-dependent communities. This result confirms the findings of several other studies which argue that long-standing poor public relations is a salient feature shared by many developing countries in forest governance and, therefore, minimal support from local communities (Brown, 2002; Brown, 2003; FAO 2002; Kideghesho *et al.*, 2006).

Results presented in Table 4.7 indicate that distance has no effect on primary stakeholders participation in benefit-sharing when the chi-square analysis was conducted [$\chi^2(1)=0.649$, $p = 0.357$] (Table 4.7.). This finding is probably due to the pre-determined structures and roles in benefit distribution of forest resources, hence the insignificant association between primary stakeholders participation in benefit sharing and proximity of community to the reserve. Possible explanations are that most of the forest-dependent communities are strongly dependent on the benefits accruing from the reserve or communities farther away may be direct controllers of such benefits (stool lands) and have equal rights with communities close to the reserve. This underlines the fact that more powerful actors tend to be given priority in benefits distribution (Tan *et al.*, 2009) by considering powerful stakeholders like traditional rulers and stool lands owners instead of proximity to resource. It also shows that attention is being given to establishing effective systems for participation and benefit sharing in the forest-dependent communities.



Table 4.7: Chi-square Analysis of Factors Influencing Primary Stakeholders Participation in Benefit-sharing.

Factors	Participation in benefit-sharing		χ^2	p-value
	Yes	No		
<i>Gender</i>				
Men	4.1	95.9	0.075	0.784
Women	3.5	96.5		
<i>Age</i>				
20-34	3.2	96.8	8.041	0.018*
35-54	3.2	96.8		
> 55	13.8	86.2		
<i>Educational level</i>				
Formal education	10.5	89.5	18.328	0.001*
No formal education	1.40	98.6		
<i>Background</i>				
indigene	4.2	95.8	0.259	0.611
Non-indigene	3.1	96.9		
<i>Awareness on policies</i>				
Conscious	6.9	93.1	3.200	0.074
Unconscious	2.9	97.1		
<i>Distance from forest</i>				
<1km	2.5	97.5	0.849	0.357
> 1km	4.5	96.1		

*: means significant at (p<0.05). (Source: Field Survey, 2010).

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter draws conclusions on the research findings and discusses some policy implications for effective collaborative forest management. It also highlights on some important issues on primary stakeholders participation in forest resources management and its relationship with forest governance in Ghana. Finally, this section provides some incisive recommendations that would assist policy makers and resource managers to promulgate forest laws and policies that benefit primary stakeholders in forest resources management.

Primary stakeholders participation in forest resources management

The findings indicate that primary stakeholders participation in forest resources management remains significantly low at various levels. For instance, the results indicate that average participation index (PI) of primary stakeholders in planning, implementation, monitoring and benefit-sharing process was 0.3, this represent insignificant participation by the stakeholders. More importantly, it turns out that primary stakeholders participation in benefit-sharing was found to be lowest (PI= 0.2). Loss of rights, poor incentives and weak policies initiatives were discovered through key informant interview as the challenges that account for the low level of primary stakeholders involvement across all management levels. The implications of these findings are that primary stakeholders in forest-dependent communities, although have been recognized as key focus of conservation efforts under the collaborative system approach in Ghana, are still *de facto* largely excluded from important management processes, especially benefit-sharing. It also implies that forest resources management in Ghana is still extensively characterized by powerful actors such as forestry officials, timber concessionaires and chiefs at the local level. Concerted efforts are required by all relevant stakeholders in promoting effective and

meaningful participation of forest-dependent communities in forest protection and management.

Primary stakeholders roles in forest resources management

The findings revealed that the role of primary stakeholders in protected area management occurs at various levels under the collaborative system approach in forest resources management. Provision of suggestions in planning, tree planting and management in implementation and reinforcement surveillance in monitoring were the most mentioned roles of primary stakeholders. This suggests that although roles of primary stakeholders are limited and pre-determined in forest resources management, the collaborative system approach at least acknowledges the importance of primary stakeholders in protecting and sustainably managing forests. The policy implications are that limited and pre-determined roles of primary stakeholders in forest resources management affect forestry officials and local authorities put in place as government machinery for collaborative forest management. This may also threatens the sustainability of the forests and the rightful benefits meant for forest-dependent communities. International and national donor programmes supporting the forestry sector should emphasize the significance of integrating forest-dependent communities into forest management activities which are central issues of sustainable forest management.

Factors influencing primary stakeholders participation in forest resources management

An important subject that helps resource managers and policy makers to understand some of the above mentioned issues is the recognition of factors influencing their participation. This is essential for continuing the process of participatory approaches such as collaborative forest management. In this study, the factors that influence primary

stakeholders participation in forest resources management at different management levels in the management of Krohosua Hills Forest Reserve were investigated. From the study, several conclusions are drawn about the factors affecting primary stakeholders participation in the management of forests as presented below:

Planning

Despite concerted effort by the policy makers to empower women in protected area management under the collaborative forest management, the results indicated that the men and more educated people in the forest-dependent communities still are significantly more likely to participate in forest resources planning, where important forest decisions are taken. Differences in socio-demographic characteristics such as gender and education influence primary stakeholders participation in planning (meetings to take forest decisions). The implications of these findings are that disadvantaged groups in the forest-dependent communities are excluded in important forest resources management process despite the fact that forest policies turn to include poorer, more marginalized groups at all levels of forest resources management. Disadvantage groups such as women and the less educated women need to be empowered through education to have more power in decision making processes in order to meet their real needs. Also, it is recommended that indigenous communication channels are used to communicate to them in planning activities.

Implementation

The findings indicated a significant direct effect of proximity of forest-dependent communities on primary stakeholders participation, indicating that *ceteris paribus* forest-dependent communities adjacent to the reserve are more likely to participate in

implementation activities in the reserve. The government measures put in place for collaborative forest management may focus on promoting primary stakeholders participation in forest-dependent communities far away from the reserve because these communities tend to participate less in forest implementation activities.

Monitoring

The chi-square analysis established that age as socio-demographic factor and proximity of forest-dependent communities directly affected primary stakeholders participation in the forest resources monitoring process. Forestry officials as major drivers of the collaboration programmes may want to concentrate efforts on the younger population, as the proportion of younger people in the forest-dependent communities increased, participation declined. Contrary, special attention may be paid to the “middle-aged” people and 55+ who appear to participate in the implementation of forest activities. Also, forestry officials and policy makers may increase their interaction with forest-dependent communities to enhance their participation in implementation of forest activities. Special attention should be given to forest-dependent communities far from the reserve to sustain their participation.

Benefit-sharing

Age and education are the major factors that influence primary stakeholders participation in forest resources management. The finding indicates that older people and people with formal education are more likely to participate in benefit-sharing, which is consistent with the hypothesis that participation is affected by age and education. This suggests that sharing of benefit accruing from the forests among primary stakeholders are extensively characterized by the older people and people with formal education despite the promotion of good forest governance by policy makers. It also implies that household heads with

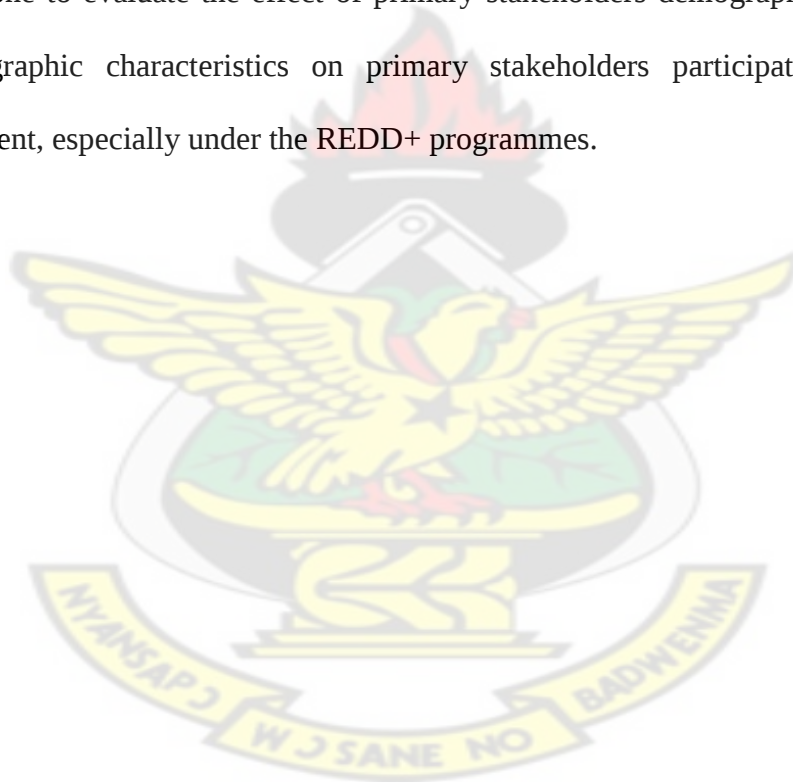
formal education may have better understanding of the developmental issues. This may lead to differential distribution of benefits and policies must ensure balanced power between the low influential but highly significant stakeholders and powerful stakeholders at the local level.

The most important policy implications drawn from the study are that the sustainability of participatory management approaches depends on participation of primary stakeholders. Therefore, it is recommended for forestry officials to demonstrate positive attitude towards primary stakeholders' to secure meaningful involvement from forest-dependent communities. There is the need for training and sensitization of government institutions such as Forest Services Division and district assemblies to put in place measures to facilitate collaboration in forest management.

Education was revealed as a major effective factor that influences primary stakeholders participation in important forest decisions and management such as planning and benefit-sharing. Attention to education by central governments and policy makers in forest-dependent communities is most important to ensure meaningful participation and therefore, the success of collaborative forest management.

The collaborative forest management in outlook, however, is occurring with a great deal of reluctance in Ghana. The study underscored poor incentives and weak policies initiatives as the challenges accounting for the low level of primary stakeholders' involvement across all management levels. This has failed to produce the desired results of collaborative efforts on a sustainable basis. The study recommend that international and national program supporting the forestry sector should emphasize that collaborative forest management provide clear benchmarks that would be used to measure the progression of integrating forest-dependent communities into forest management activities.

Major limitations in this study were language barrier as researcher could not speak the indigenous language of the people and had to depend on an interpreter most of the time. Also, measurement of participation using the participation index (PI) was a serious challenge and several statistical issues may be raised regarding the reliability and validity of some of the result. In addition, the results and interpretation were subjective. However, the findings presented in this study can assist resource managers and policy makers to better understand primary stakeholders participation and what factors to consider in designing participatory management activities. There should be other, more detailed studies done to evaluate the effect of primary stakeholders demographic, social, cultural, and geographic characteristics on primary stakeholders participation in off-reserve management, especially under the REDD+ programmes.



BIBLIOGRAPHY

- ADB (African Development Bank)/ EC (European Commission)/ FAO. (2003). Forestry outlook study for Africa (FOSA): Sub-regional report for North Africa. FAO, Rome, p. 50.
- Adhikari, J. R. (2001). "Community Based Natural Resource Management in Nepal with Reference to Community Forestry: A Gender Perspective". A Journal of the Environment, Vol. 6, No. 7.
- Adu, H. (2010). Involvement of Community Forest Committees in Forest Management: A Case Study of Cape Coast Forest District, Central Region of Ghana. BSc. Thesis.
- Agarwal, B. (2001). "Participatory Exclusions, Community Forestry, and Gender: An Analysis for South Asia and a Conceptual Framework". World Development, 29(10) 1623-1648.
- Agrawal, A and Gupta, K. (2005). Decentralization and participation: The governance of common pool resources in Nepal's Terai, World Development, 33(7).
- Agrawal, A., Yadama, G., and Bhattacharya, A. (2006). "Decentralization and Environmental Conservation: Gender Effects from Participation in Joint Forest Management". International Research Workshop on 'Gender and Collective Action'. CAPRI Working Paper No. 53. October 17-21, 2005. Chiang Mai, Thailand.
- Agyeman, V. K., Marfo, K. A., Kasanga, K. R., Danso, E., Asare, A. B., Yeboan, O. M., and Agyeman, F. (2003). *Revising the taungya plantation system: new revenue-sharing proposals from Ghana*, Unasylva 212, Vol. 54, 2003.
- Agyenim-Boateng, J., Koomson, F., Tenkorang, E. Y., Ntiri-Oppong, R. (2002). Effective Stakeholder Collaboration in Forest Policy and Management in Southern Ghana.
- Amanor, K. S and Brown, D. (2003). "Making environmental management more responsive to local needs: Decentralisation and evidence-based policy in Ghana". ODI Forestry Briefing Number 3, April 2003. Overseas Development Institute, London, p. 4.
- Amanor, K. S. (2003). Natural and Cultural Assets and Participatory Forest Management in West Africa. International Conference on Natural Assets, Tagaytay, the Philippines. Conference paper series No. 8. 8-11 January 2003, pp 12-26.
- Amanor, K. S. (2004). Equity in forest, benefit sharing and poverty alleviation. Paper presented at workshop on Equity in Forest Benefit Sharing: stakeholders views.
- Amanor, K. S. (1997). Collaborative Forest Management, Forest Resource Tenure and The Domestic Economy in Ghana. IRDC Currents No 15:10-16. Uppsala.
- Amanor, K. S. (1999) "Restructuring Land Relations in Ghana: *Forest food chains, timber and rural livelihoods*. Uppsala: Research Report 108, Nordiska Afrikainstitutet.
- Ansong, M and Røskaft, E. (2010). Determinants of Primary Stakeholders' Attitudes towards Forest Management: The Case of Subri Forest Reserve, Ghana. International

Journal of Biodiversity Science, Ecosystem Services & Management (In Review), pp. 1-28.

Appiah, M. (2001). "Co-partnership in forest management: The Gwira-Banso Joint Forest Management Project in Ghana". Environment Development and Sustainability, 3(4), 343–360.

Ardayfio- Schandorf, E., Ngono, D. L., Colfer, C., and Cyrie, S. (2007). "Gender and the Forestry Situation in Africa: The Way Forward." Presented at the IUFRO Division VI Symposium: Integrative Science for Integrative Management 14 14-20 August 2007, Saariselkä, Finland.

Ardayfio-Schandorf, E (2007). "Gender Mainstreaming In Forestry in Africa": Ghana. Food and Agriculture Organization of the United Nations ,Rome, 2007, pp. 1-33.

Arthur, E. and Brogan, C. (2005). Assessment of the Impacts of Local Forest Institutions on Livelihoods and Forests in Ghana. Forest Sector Development Project, Accra and International Institute for Environment and Development, London. p. 44.

Asante, S.M. (2005). Deforestation in Ghana: Explaining the Chronic Failures of Forest Preservation Policies in Developing Country. University Press of America: New York.

Asare, A. (2002). "Overview of Collaborative Resource Management in Ghana: Perspective of the Forestry Commission: Workshop on Collaborative Resource Management in Ghana: Which Way Forward", p. 7.

Asare, A. (2000a). Community Involvement in Natural Resources Management. The Experience of Ghana Forestry Department.

Asare, A. (2000b). Operational Guidelines on Community Forest Committee. Resource Management Support Centre, Ghana, pp. 3-23.

Atmis, E., I. Dasdemir, Lise, W and Yidiran, O. (2007). Analysis Factors Affecting Women's Participation in Forestry in Turkey. *J. Ecol. Eco.*, (60): 787-796.

Babbie, E. R. (2002). The Basics of Social Research. Second Edition. Wadsworth. Thomson learning.

Badola, R and Hussain S. A. (2003). Conflicts in paradise-women and the protected areas in the Indian Himalayas.Mountain Research and Development23(3): 324-237.

Baldus, R., Kibonde, B., Siege L. (2003). Seeking Conservation Partnership in the Selous Game Reserve, Tanzania. *Parks* 13(1):50–61.

Banarjee, A., Campbell, G., Cruze, C., Davis, Sh. H., Augusta, M. (1997). Participation in Forest Management and Conservation. World Bank: Social Development Department Papers Participation Series, p 38.

Baral, N. R. (1993). Where is Our Community Forestry? Banko Janaakari, *A Journal of Forestry Information for Nepal*, Vol. 4, No. 1, March, 1993.

Barrows, E. M. and Fabricius, C. (2002). Do Local People Really Benefit from Areas: Rhetoric or Reality? *Parks* 12:67–79.

Barton, T., Borrini-Feyerabend, G., de Sherbinin, A., & Warren, P. (1997). Our People, Our Resources. IUCN (The World Conservation Union), Gland, Switzerland and Cambridge, UK.

Baum, H. S. (1999). Community Organisations recruiting Community Participation: Predicaments in Planning. *Journal of Planning Education and Research* 18:187-199.

Behera, B., and Engel, S. (2005). Who Forms Local Institutions? Levels of Household Participation in India's Joint Forest Management Program, *ZEF – Discussion Papers On Development Policy* No. 103, Center for Development Research, Bonn, pp. 1-37.

Bingeman, K., (2004). Women's Participation in Forest Management Decisions in Upper Kullu Valley, Himachal Pradesh, India, p 6.

Blay D., Appiah M., Damnyag L., Dwomoh K. F., Ari PLO (2007). Involving local farmers in rehabilitation of degraded tropical forests: some lessons from Ghana.

Boni, S. (2003). Forest Resources Creation Project 2001-2004. European Union and RE: Unpublished.

Bonner, R. (1993). At the Hand of Man: Peril and Hope for Africa's Wildlife, Alfred A. Knopf, New York, pp 322.

Borrini-Feyerabend, G. (1996). Collaborative on Management of Protected Areas: Tailoring the approach to the Context. IUCN, Gland, Switzerland and Cambridge, UK.

Borrini-Feyerabend, G., Pimbert, M., Farvar, M. T., Kothari, A. & Yves, R. (2004). Sharing Power-learning by Doing in Co-management of Natural Resources throughout the World. IIED and IUCN/CEESP.

Brown, K. (2002). Innovations for Conservation and Development. *The Geographical Journal*; 168: 6–17.

Brown, K. (2003). Three Challenges for Real People-Centered Conservation. *Global Ecology and Biogeography*, 12(2): 89–96.

Carter, J. and Gronow, J. (2005). Recent Experience in Collaborative Forest Management. CIFOR Occasional Paper No. 43. A Review Paper. Center for International Forestry Research. Jakarta 10065, Indonesia.

Chase, L. C., Decker, D. J., Lauber, T. B. (2004). Public Participation in Wildlife Management: What Do Stakeholders Want? *Society and Natural Resources* 17:629–639.

Chesoh, S. (2010). Community Perception, Satisfaction and Participation toward Power Plant Development in Southernmost of Thailand. Pattani Fisheries Research and Development Center, Pattani, Thailand, 94160. *Journal of Sustainable Development Vol. 3, No. 2; June 2010*.

Chowdhury, S.A. (2004). Participation in Forestry: A Study of People's Participation on the Social Forestry Policy in Bangladesh: Myth or Reality?, Department of Administration and Organization Theory, University of Bergen, p. 112.

Conroy, C., A. Misha and A. Rai, 2002. Learning from Self-Initiated Community Forest Management in Orissa, India. *J. Forest Policy Econ.*, (4): 227-237.

DFID (1996). Sharing Forest Management: Key Factors, Best Practice, and Ways Forward. Department for International Development, London, UK.

Dingwerth, K. & Pattberg, P. (2006). Global Governance as a Perspective on World Politics. *Global Governance* 12:186.

Engel, S., Iskandarani, M., Useche, M.d.P. (2005). Improved Water Supply in the Ghanaian Volta Basin: Who uses it and who participates in Community Decision Making. EPT Discussion Paper No. 129. Washington, DC. Available at: <http://www.ifpri.org/divs/eptd/dp/papers/eptdp129.pdf> (20/010/2009)

Eshun, F. (2008). Community Participation in the Management of Forest Resource: *A Means to Reduce Poverty for Sustainable Development The case of Kakum National Park*, pp. 1-122.

Fabricius, C. (2004). The Fundamentals of Community-Based Natural Resource Management. In Fabricius, C., Koch, E., Magome, H. and Turner, S. (ed.). *Rights, Resources and Rural Development: Community-Based Natural Resources Management in Southern Africa*. Earthscan, London, pp. 3-43.

Faham, E., Rezvanfar A., Shamekhi, T. (2008a). Analysis of Socio-Economic Factors Influencing Forest Dwellers' Participation in Reforestation and Development of Forest Areas American Journal of Agricultural and Biological Sciences 3 (1): 438-443, 2008 ISSN 1557-4989.

Faham, E., Rezvanfar A., Shamekhi, T. (2008b). Analysis of Factors Influencing Motivation of Villagers' Participation in Activities of Social Forestry (The Case Study of West Mazandaran). *American Journal of Agricultural and Biological Sciences* 3 (2): 451-456, 2008 ISSN 1557-4989.

FERN (2006). Forest Governance in Ghana: An NGO Perspective. A Report Produced for FERN by Forest Watch Ghana, March 2006, pp 1-32.

Ferraro, P. (2000). Global habitat protection: Limitations of development interventions and a role for conservation performance payments. *Conservation biology* 5 (4) 9990-10000.

Fisher, R., Patrick, J., Durst, B., Enters, T., Victor, M. (2000). Overview of Themes and Issues in Devolution and Decentralization of Forest Management in Asia and The Pacific: In Decentralization And Devolution Of Forest Management In Asia And The Pacific, RECOFT, Bangkok.

Food and Agriculture Organisation, (FAO) (2001). State of the world's forests 2001.

Food and Agriculture Organisation (FAO) (2003). State of the World's Forests Review. Food and Agriculture Organisation of the United.

Food and Agriculture Organisation (FAO) (2002). Gender and Development Plan of Action (2002-2007). Available at: www.fao.org/sd/2002/PE0103.htm (2/01/09 12: 53 GMT).

Friend of the Earth-Ghana (2010). Forest Degradation in Ghana. Unpublished.

Ghana Forestry Commission (FC) (2002). Draft Report on Socio-Economics Survey of Forest Fringe Communities for Participatory Forest Management. Chase Hills Forest Reserve in the Navrongo Forest District, Upper East region, Ghana.

Ghana Forestry Commission (FC) (2009). PAFORM APPROACH: Sharing the Gains of the Participatory Forest Resource Management Project in The Transitional Zone, p. 2.

Forestry Outlook Study for Africa (FOSA) (2003). Corporate Document Repository: Forestry Outlook Study for Africa (FOSA), Country Report-Ghana.

Ganz, D., Moore, P., Reeb, D. (2003). Community-Based Fire Management Case Studies from China, The Gambia, Honduras, India, Lao People's Democratic Republic and Turkey. FAO Forestry Report.

Geoghegan, T. (2002) Participatory Forest Management in the Insular Caribbean: Current Status and Progress to Date. Prepared through the European Commission-funded project "Building Capacity for Participatory Forest Management in the Caribbean". CANARI Technical Report No. 310.

GHANA – Country Gender Assessment (2002). Briefing Note for the Ghana Poverty Reduction Strategy.

Ghana Districts Profile (www.ghanadistricts.com 14/10/2010, 15:35 GMT).

Gilmour, D. A. & Fisher, R. J. (1991). Villagers, Forests and Foresters: The Philosophy, Process and Practice of Community Forestry in Nepal. Sahayogi Press, Katmandu, Nepal, p. 212.

Glendinning, A., Mahapatra, J., Mitchell, C. P. (2001). Modes of Communication and Effectives of Agroforestry Extension in Eastern India. J. Hum. Ecol., 29 (3):283-305.

Glover E. K. (2005). Tropical dryland rehabilitation: Case study on participatory forest management in Gedaref, Sudan. (PhD academic dissertation), pp. 16-180.

Google-Inc (2010). Google Earth (Version 5.1.3534) [Software].

Hackel, J. D. (1999). Community Conservation and the Future of Africa's Wildlife. Conserv Biol 13(4):726–734.

Hall, J. B. and Swaine, M. D. (1981). Distribution and Ecology of Vascular Plants in a Tropical Rain Forest. Forest Vegetation in Ghana. The Hague, UK. p 383.

Hansen, C. P, Treue T and Lund J. F. (2009). "Challenges and Opportunities in Implementing REDD at the National Level: The Case of Ghana". IOP Conf. Series: Earth and Environmental Science6(2009) 252006 doi:10.1088/1755-1307/6/5/252006.

Holmes, T. N. (2007). Contribution of Participatory Forest Management (PFM) Intervention to the Socio-economic Development in the Southern Cape 136 Forests: A

Retrospective Approach. Masters of Philosophy Thesis (Social Science Methods). University of Stellenbosch, South Africa.

IFAD (2001). "Gender and desertification": Expanding Roles for Women to restore Dryland, pp. 1-32.

Inkoom, D. K. B. 1999. Management of non-reserve forests in Ghana: A case Study of MpohorWassa East District. Spring Research Series 24.

International Institute for Environment and Development (IIED). UPDATE – JUNE 2008 from Forest Governance Learning Group (FGLG), p. 3.

International Tropical Timber Organization (ITTO) (2002). Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests. ITTO Policy Development Series No 13, p. 56.

IUCN (World Conservation International Union) (1996). Community Involvement in Forest Management. A Report of the IUCN Working Group.

Juaboso District Development Plan 2006-2009: In KHI FR draft management plan 2010.

Jumbe, C. B. L and Angelsen, A. (2007). Forest Dependence and Participation in CPR Management: Empirical Evidence from Forest Co-management in Malawi. *Ecological Economics* (62): 661-667.

Kamnap P. (2003). The Impact of Local People's Participation in Forest Concession Management in Cambodia: A case of Study of The COLEXIM Forest Concession in Kampong Thom Province. Master's Thesis, p. 4.

Kelly, D. (2001). Community Participation in Rangeland Management. A Report for the Rural Industries Research and Development Corporation (RIRDC). RIRDC Publication No. 01/118; RIRDC Project No. QDL-2A. Australia, p. 164.

Kideghesho, J. R., Røskft, E., Kaltenborn, Bjørn P. (2006). Factors Influencing Conservation Attitudes of Local People in Western Serengeti, Tanzania. *Biodivers Conserv* (2007) 16:2213–2230 DOI 10.1007/s10531-006-9132-8.

Knox, A. and Meinzen-Dick, R, (2001). Collective Action, Property Rights, and Devolution of Natural Resource Management: Exchange of knowledge and implications for Policy, A workshop Summary Paper, CAPRI Working Paper No. 11. CGIAR Systemwide Program on Property Rights and Collective Action, IFPRI.

Kombat, L. C. (2009). Forest Conflicts' Influence on Local People's Livelihoods: A Case of Conflicts between Timber Companies and Farmers in the Mankranso District of Ghana.

Kotey E. N. A., Francois J., Owusu J. G. K., Yeboah R., Amanor K. S., and Antwi, L. (1998) Falling into place. Ghana policy that works for forests and people series no 4, IIED, London, UK.

Krokosua Hills Forest Reseved Management Plan, 2010 (Unpublished).

Kugonza, A., Buyinza, M., Byakagaba, P. (2009). Linking Local Communities Livelihoods and Forest Conservation in Masindi District, North Western Uganda. Research Journal of Applied Sciences, 2009 Volume: 4, Issue: 10-16, DOI: 10.3923/rjasci.2009.10.16.

Kumar, S. (2002). Does Participation in Common Pool Resource Management Help the Poor? A Social Cost-Benefit Analysis of Joint Forest Management in Jharkhand, India, World Development 30(5), pp. 763-782.

Kumar, S., and Kant, S. (2005). Bureaucracy and new management paradigms: modeling foresters' perceptions regarding community-based forest management in India, Forest Policy and Economics, 7(4): 651-669.

Lane, J. (1995). Non-Governmental Organizations and Participatory Development: The Concept in Theory Versus the Concept in Practice: In N. Nelson, & S. Wright (Eds.), *Power and participatory development: Theory and practice* (pp. 181–191). London: Intermediate Technology Publications.

Ledger, J. (2009). Consequences of the Introduction of the Modified Taungya System in Ghana's High Forest Zone for the Livelihoods of Forest-fringe Communities. International Development Studies between the University of Amsterdam, Netherlands; The Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana and Tropenbos International Ghana (TBI-Ghana), MSc Thesis. pp 10-45.

Lise, W. (2000). Factors Influencing People's Participation in Forest Management in India. J. Ecol. Econ., (34): 379-392.

Locke, C. (1999). Constructing a Gender Policy for Joint Forest Management in India. Development and Changes 30: 256-285. In: Bingeman, K., (2004). Women's Participation in Forest Management Decisions in Upper Kullu Valley, Himachal Pradesh, India, p. 6.

Maharjan, K.L. (2000). Community Participation in Forest Resource Management in Nepal.

Marfo, E. (2004). Unpacking and Repacking Community Representation In Forest Policy and Management Negotiations: Lessons from The Social Responsibility Agreement in Ghana. *Ghana Journal of Forestry Vol. 15&16 2004: 20-29.*

Marfo, E. (2006) Powerful Relations: The Role of Actor-Empowerment in the Management of Natural Resource Conflict: A Case of Forest Conflicts in Ghana. PhD Thesis Wageningen University, Wageningen, the Netherlands ISBN 90-8504-526-6.

Marfo, E. (2007). Institutionalizing Citizen Participation and Community Representation in Natural Resource Management: Lessons from The Social Responsibility Agreement Negotiation in Ghana.

Marfo, E. (2009). Security of Tenure and Community Benefits under collaborative forest management arrangements in Ghana: A Country Report. CSIR-INSTI: Accra.

Marfo, E. (2001). Community Interest Representation in Negotiation: A Case of the Social Responsibility Agreement in Ghana. (MSc. Thesis).

Marfo, E. (2009). Security of Tenure and Community Benefits under collaborative forest management arrangements in Ghana: A Country Report. CSIR-INSTI: Accra.

Maharjan, K.L. (2000). Community Participation in Forest Resource Management in Nepal. <<http://www.unu.edu/env/plec/marginal/proceedings/MaharjanCH18.pdf>>

Martin, A. (2004). FORESTRY: Gender Makes the Difference.

Maskey, V., Gebremedhin, T. G., Dalton, J. (2003). A survey of analysis of participation in a community forest management in Nepal, paper presented at the Northeastern Agricultural Resource Economics Association, Portsmouth, New Hampshire, and June 8-10.

Matose, F. and Wily, L. (1996). Institutional Arrangements Governing the Use and the Management of Miombo Woodlands. In Campbell, B. 1996 (ed.). *The Miombo in Transition: Woodlands and Welfare in Africa*. Center for International Forestry Research. Bogor, Indonesia, pp. 195-219.

Matose, F. (2006). Co-management Options for Reserved Forests in Zimbabwe and Beyond: Policy Implications of Forest Management Strategies. *Forest Policy and Economics* 8 (2006): 363– 374.

Mayers, J. and Bass, S. (2004). Policy that works for forests and people: real prospects for governance and livelihoods. Earthscan, London.

McNeely, J. A. (1995). Expanding Partnerships in Conservation. Island Press, Washington, DC: In Stoll-Kleemann, S. & O'Riordan, T. (2002). From participation to partnership in biodiversity protection: experience from Germany and South Africa. *Society and Natural Resources*, 15 (2), 157-173.

Ministry of Environment and Science (MES). 2002. National Biodiversity Strategy for the Republic Ghana, Government of Ghana, Accra.

Ministry of Lands and Forestry (1994). *Ghana Forest and Wildlife Policy of the Republic of Ghana*. Accra, Ghana.

Natural Resources Consultancy Report (2002): In KHI FR GSBA Management Plan 2007.

Odera, J. (2004). A report prepared for the project Lessons Learnt on Sustainable Forest Management in Africa. pp 10-63.

Omane, A. (2010). Stakeholders Participation in Forest Management of GSBAS-Enchi District, Western Region of Ghana. Bsc. Thesis.

Oviedo, T. Gonzalo (2000). Approaches to Building Bridges between Indigenous Peoples and Protected Areas, through Innovative Application of the IUCN International System of Protected Area Categories.

Owubah, C.E., Le Master, D.C., Bowker, J.M., Lee J. G. (2001). Forest Tenure Systems and Sustainable Forest Management: the case of Ghana. *Forest Ecology and Management* 149(2001), pp. 253-264.

Pannerselvam R., (2008). Research Methodology. School of Management, Pondicherry University, Pondicherry, pp. 6-576.

Patwary, K. Hossain (Undated). Participation by Local People in the Co-management of Chunati Wildlife Sanctuary.

Phiri, M. (2009). Evaluation of the Performance of Joint Forest Management (JFM) Programme: Case of Dambwa Forest Reserve in Livingstone District, Zambia. MSc. Thesis, pp. 1-164.

Platteau, J-P., Gaspart, F. (2003). The Risk of Resource Misappropriation in Community-Driven Development, *World Development*, 31(10): 1687-1703.

Poffenberger, M. (1990). Keepers of the Forest, Land Management Alternatives in Southeast Asia. Kumaria Press, West Hartford, U.S.A, p. 289.

Pour, A. Hosseini (1993). Analysis of Participation Necessity and Identification of Educational Needs of Forest Dwellers for Soil Conservation and Watershed Management in Haraz Basin Amol Country Mazandaran Province. Tehran University, Iran.

Pour, M. Hosseini (2001). The Role of Extension in Attraction of Executors' Participation of Range Management plans. M.Sc. Thesis, Science and Research Unit, Islamic Azad University, Tehran, Iran, p. 245.

Pretty, J. N. & Pimbert, M. P. (1995). Beyond conservation ideology and the wilderness myth. *Natural Resources Forum* 19, pp 5–14.

Quazi S. A., Bushley, R. B., and Miles W. B. (2008). Participation and the Collaborative Management of Protected Area in Bangladesh, pp. 1-24.

REDD in Ghana (www.globalforestcoalition.org/img/userpics/File/REDD-in-Ghana.pdf 7/7/2010, 5: 47 GMT).

Richards M., Davies, J., and Yaron, G. (2003). Economic Stakeholder Analysis' for Participatory Forest Management. ODI Forestry Briefing, No. 4, May 2003, pp.1-4.

Ryan, P.A. (2001). Notes on high Forest Management. Mid-term review report of the Ghana Natural Resources Management Programme (NRMP), pp. 11.

Sackey, A. N. A. (2007). Assessment of Forest Management Practices in Ghana: A Case Study of Some Forest Districts in Ghana (Abstract). *The IMRE Journal* Volume 1(2), 2007.

Sarfo-Mensah P. and Oduro W. (2007). "Traditional natural resources management and practices and Biodiversity conservation in Ghana: A review of local concepts and issues on change and sustainability", in *Fondazione Eni Enrico Mattei Working Papers*, paper 149, pp. 21.

Sekher, M. (2001). Organized Participatory Resource Management: Insights from Community Practices in India. *Forest Policy and Economics* 3:137-154.

Shackleton, S., Campbell, B., Wollenberg, E., Edmunds, D. (2002). Devolution and Community-Based Natural Resource Management: Creating Space for Local People to Participate and Benefit. *Natural Resource Perspectives* 76. Oversea Development Institute, London.

Sheffy, John J. M. S. (2005). Attempts at Participatory Forest Management in the Ghana-Togo Highlands. Master Thesis, p. 7.

Smith E. K. (1999). Developments and Setbacks in Forest Conservation: The New political economic of forest resource use in southern Ghana. Ministry of Land and Forestry Technical paper. p. 57.

Sreedharan, C. K. (2002). Joint Forest Management for a Human-Habitat Harmony-Successful Trend in Tamilnadu. Proceedings of the Workshop on Joint Forest Management and Watershed Development, January 21-22. Chennai, pp. 1-25.

SPSS Inc. 2008. SPSS for Windows. Chicago (IL): SPSS Inc

Stoll-Kleemann, S. and O'Riordan T. (2002). From participation to partnership in biodiversity protection: experience from Germany and South Africa. *Society and Natural Resources* 15: 157-173.

Svarstad, H., Daugstad K., Vistad O. I., and Gulvik. (2006). New Protected Areas in Norway: Local participation without Gender Equity. *Mountain Research and Development* 26(1): 48-54.

Thacher, T., Lee D.R., Schelhas, J.W. (1996). Farmer Participation in Reforestation Incentive Programs in Costa Rica. *J. Agroforestry Syst.*, 35(3): 269-289.

Thanh, N. T., Tan, N. Q., and Sikor, T. (2003). Research Project on Assessment Methods for Forest Land Allocation, the Local Outcomes of Forest Land Allocation: Evidence from Dak Lak, p. 24.

The International Union of Forest Research Organizations (IUFRO) (2006). International Conference on Cultural Heritage and Sustainable Forest Management: the role of traditional knowledge held on 8-11 June, 2006 in Florence, Italy. Ministerial Conference on the Protection of Forests in Europe, 2006. Vol. 1.

Thrupp, L.A., Hecht, S.B., Brower, J.O. (1997). The Diversity and Dynamics of Shifting Cultivation: Myths, Realities, and Policy Implications. Washington, DC, World Resources Institute.

Tropenbos-Ghana (2005). Reconciling Policy Reforms with Forest Legislation; Tropenbos International-Ghana, 2005.

United Nations Development Programme (UNDP) (1996). In: Human Development Report Georgia 1996, UNDP, Tbilisi, Georgia.

Uphoff, Norman T., Cohen, John M., and Goldsmith, Arthur A. (1979). *Feasibility and Application of Rural Development Participation: A state-of-the-Art-Paper*, Cornell University.

Ur-Rehman, M., Chisholm, M. (2007). Analysis Management Activities in District Abbottabad, NWFP, Pakistan: A Multivariate Factors Affecting Households' Participation in the Natural Resource. *Journal of Asian and African Studies* 42(6): 495-516.

Verba, S., Schlozman, K. L., and Brady, H. (1995). Voice and Equality: Civic Voluntarism in American Politics. Harvard University Press, Cambridge, MA.

Wall, B. W., Straka, T. J., and Miller, S. E. (2006). An Econometric Study of the Factors Influencing Participation in Urban and Community Forestry Programs in the United States *Arboriculture & Urban Forestry* 2006. 32(5):221–228.

Weinberger, K., Jutting, J. (2001). Women's Participation in Local Organizations: Conditions and Constraints, 29(8), pp. 1391-1404.

Wells, Brandon, and Hannah. (1992). *People and Parks: Linking Protected Areas with Local Communities*, World Bank: Washington DC.

Western, D. (2001). Taking a Broad View: A Response to Adams and Hulme. *Oryx* 35:201–203. *Biodivers Conserv* (2007) 16:2213–2230.

Westoby, J. (1987). Introduction to world forestry: People and their trees. Basil Blackwell Ltd, Oxford, UK, p. 228.

White A. M., Martin, A. (2002) Who Owns World's Forests? Forest Tenure and Public Forests in Transition, 2002. Forests Trends and Center For International Environmental Law, Washington D.C., p. 30.

Wiggins, S., Marfo, K., Anchirinah, V., (2004). Protecting the Forest of the People? Environmental Policies and Livelihoods in the Forest margins of Southern Ghana. World Development Vol. 32, No. 11, pp. 1939-1955, ODI, UK.

Wily, L. A. (2001). Forest Management and Democracy in East and Southern Africa: Lessons from Tanzania. Gatekeeper Series no. 95. Sustainable Agriculture and Rural Livelihoods Programme. International Institute for Environment and Development (IIED), London.

Wily, L. A. (2002). Participatory Forest Management in Africa: An Overview of Progress and Issues, pp. 2-24.

World Bank (1994). The World Bank and Participation, Operations Policy Development, Washington D. C. The World Bank.

World Bank (1996). The World Bank participation sourcebook. Washington, DC. (www.worldbank.org/wbi/sourcebook/sba204.htm) (Accessed 05/12/2008, 5: 06 GMT).

World Bank (1999). Ghana: Gender Analysis and Policymaking for Development.

World Bank (2002). A revised Forest Strategy for the World Bank Group. Washington DC: World Bank.

Zhang, D., Flick, W. (2001). Sticks, Carrots and Reforestation Investment. J. Land Econ., 77 (3): 443-456.

APPENDIX I

Household Questionnaire

KWAME NKURMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF ENGINEERING

FACULTY OF CHEMICAL AND MATERIAL ENGINEERING

DEPARTMENT OF MATERIAL ENGINEERING

MSc. ENVIRONMENTAL RESOURCES MANAGEMENT

MSc. RESEARCH ON ANALYSIS OF PRIMARY STAKEHOLDERS

PARTICIPATION IN FOREST RESOURCES MANAGEMENT: THE CASE OF THE
KROKOSUA HILLS FOREST RESERVE IN GHANA.

Questionnaire for primary stakeholders

General information

Questionnaire No. _____ Date: _____ Name of enumerator: _____

Name of community : _____

Instructions: Please select a response or responses to each of the questions below.

I. Respondent characteristics:

1.0 DEMOGRAPHIC INFORMATION OF RESPONDENTS

1.1 Gender a) Male b) Female

1.2. Age: a) 20-24 b) 25-29 c) 30-34 d) 35-44 e) 45-54 f) 55- 64 g) > 65

1.3 Level of education

a) None b) Primary/JHS c) Secondary/Vocational/technical d) Post-secondary
/Tertiary

1.4. Occupation a) Farming only b) Trading/farming c) Formal employment d) Others, specify.....

1.5. Status of respondent a) Indigene b) Migrant farmer c) Transferee d) Settler e) Others, specify.....

II. STAKEHOLDER INFORMATION

2.0. PRIMARY STAKEHOLDERS PARTICIPATION IN FOREST MANAGEMENT

A. Participation in planning process

2.1. Do you participate in forest planning process concerning the Krokosua Hills Forest Reserve? ☐Yes ☐No,

2.1a. If “No” why?.....

2.2. How regular do you participate in planning process in forest management?

☐Always ☐Often ☐Occasionally ☐Rarely ☐Never

If your answer is “Never” to question 2.1 skip to question 2.6

2.3. What are your roles in planning/decision making process?

1.
3.
3.

2.4. What challenges do you encounter during planning/decision-making?

1.
2.

2.5. What strategies do you suggest to be put in place in addressing the challenges mentioned?

1.

2.

B. Participation in implementation process

2.6. How regular do you participate in the implementation of forest management projects?

☐Always ☐Often ☐Occasionally ☐Rarely ☐Never

If your answer is “Never” to question 2.6 skip to question 3.0.

2.7. What are your duties in the implementation process?

1.

2.

3.

2.8. What are the constraints regarding participative strategies in the implementation process?

1.....

2.....

3.....

2.9. What strategies do you suggest should be put in place to address the challenges mentioned?

1.

2.

3.

3.0. Are you aware of any forestry laws and policies backing the participation of stakeholders in forest resources management? ☐ Yes ☐ No

3a. If yes, mention those that you know.....

D. Participation in monitoring process

3.1. How regular do you participate in forest monitoring activities of the Krokosua Hills Forest Reserve? ☐Always ☐Often ☐Occasionally ☐Rarely ☐Never,

If your answer is “Never” to question 3.1 skip to question 3.5

3.2. How did you take part in monitoring and evaluation?

- ☐ Take part in decision regarding monitoring activities
- ☐ Enforcement of local laws (taboo days)
- ☐ Monitoring and evaluation of implemented of forest projects
- ☐ Part of reinforcement surveillance team

3.3. What challenges do you encounter during monitoring activities?

1.
2.

3.4. What strategies do you suggest for putting in place in addressing the challenges mentioned?

1.
2.

A. Participation in benefit sharing process

3.5. How regular do you participate in the benefit-sharing process?

- ☐ Always ☐ Often ☐ Occasionally ☐ Rarely ☐ Never

3.6. Do you derive some benefits from forest resources management of the Krokosua Hills Forest Reserve? ☐ Yes ☐ No

III. MANAGEMENT RESPONSIBILITY OF FORESTS

3.7. Who should control and management of the reserve?

- ☐ All stakeholders
- ☐ Government alone
- ☐ Government and forest-dependent communities alone
- ☐ Forest-dependent communities alone
- ☐ Others (please specify).....

3.8. Are you willing to contribute to the conservation and management of forest reserves?

☐ Yes ☐ No, if no, why?.....

4.6. If the answer to question 5.4 is “Yes”, mention the form of contribution.

☐ Organisation

☐ Labour for restoration and management of degraded areas

☐ Technical support

☐ Cash/logistical support

☐ Others, please specify.....

3.9. What are the ways you can actively participate in forest management?

☐ Forest resources development

☐ Forest resources maintenance

☐ Forest resources management and utilization

☐ Law enforcement and policy implementation

☐ Forest resources protection

☐ Others, please specify.....

4.0. What strategies do you suggest should be put in place to increase women involvement in forest management?

☐ Capacity building

☐ Increase access to forests

☐ Strengthening of policies to enhance women involvement

☐ Sensitization and awareness creation

☐ Others, please specify.....

4.1. Do you have any observations concerning the task carried out by enumerator/researcher? Your suggestions are warmly welcome!

Thank you for participating and cooperating.

APPENDIX II

Checklist for key informants (Regional and District Forestry Officials)

Objective: To solicit stakeholders (key informants) views on primary stakeholders participation in forest resources management of the Krokosua's Hills Forest Reserve.

- i) What are the interests of women in forest resources conservation and management of the reserve?
- ii) How is the representation of women and men in forest decision-making and management?
- iii) How can we design processes that provide incentives that attract all relevant parties to the process of forest management, particularly women?
- iv) How were community forest management committees' initiatives e.g. CBAGS implemented, by which actors and with what socio-political effects?
- v) How can the design and implementation of the community forest management committees be improved to achieve core objectives of the Krokosua Hills FR while mitigating unintended adverse effects?
- vi) What are the major challenges confronting the influence of the concept of community participation in natural resources management in Juaboso Forest District?
- vii) What strategy do you suggest to enhance community involvement in the forest management in the area?

Thank you for participating and cooperating.