Chapter

Rights and Responsibilities: The Reality of Forest Fringe Communities in the Northern Region of Ghana

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Abstract

The goal for collaborative forest management (CFM) is to attain sustainable management of forest resources for sustainable development. Securing rights and responsibilities of forest fringe communities is central to achieving effective and sustainable management of forest reserves. This article discusses the rights and responsibilities of the forest fringe communities under Ghana's collaborative Forest Management (CFM) in the Northern region and explores the levels of awareness of communities of these rights and responsibilities. The survey employed a mixed method research design with community members and forestry staff as key respondents. We found that although Forest fringe communities are entitled to some admitted rights including access to the reserves and the right to harvest nontimber forest products such as thatch, medicinal plants, dry wood for firewood and edible fruits mainly for domestic use; in reality, access to such rights is somehow restricted by the forestry staff. Fringe communities have limited knowledge about their rights and responsibilities to the forest reserve. For sustainability, educating fringe communities on their rights and responsibilities to forest reserves and involving them in management decisions is recommended as the surest ways of securing their interests in CFM.

Keywords: collaborative forest management, rights, responsibilities, sustainability, northern region

1. Introduction

An important guiding principle of the revised forest and wildlife policy is that it recognizes and confirms the importance of local people in pursuing all other guiding principles of the policy, and therefore proposes to place particular emphasis on the concept of participatory management and protection of forest and wildlife resources and to develop appropriate strategies, modalities and programs in consultation with relevant agencies, rural communities and individuals [1]. The principles and strategies of the policy of participatory management recognizes the rights of local people to have access to natural resources for maintaining a basic standard of living and their concomitant responsibility to ensure the sustainable use of such

resources. To this effect, since the adoption of the 1994 Forest and wildlife policy, several operations of the Forestry Commission (FC) have been revised to help meet its aim of achieving equitable sharing of benefits and improved efficiency in management, particularly, in Southern Ghana [1].

For instance, under the Forestry Sector Development Programme (FSDP II) and the High Forest Biodiversity Programme (HFBP), the FC has been providing support toward forest–based livelihood schemes such as grass-cutter rearing, seedling production and snail farming [2]. Although access to NTFP's for domestic use had been enshrined in reserve settlement judgments, foresters had over the years not been fulfilling these rights to land owners. As such all current management plans reassert the rights of communities to harvest NTFP's for domestic use, to have access to fetish sites and other rights as enshrined in original agreements.

In addition to the above, the FC is promoting initiatives to assist forest fringe communities to add value to harvested products through processing and market promotion. This initiative known as Marketing Analysis and Development (MA and D) according to the report is being piloted in three districts of Cape Coast. These are Pra (Suhien forest reserve), Goaso (Bia Tano forest reserve) and Mpreaso (Esukawkaw forest reserve). The ultimate goal is to organize forest fringe communities to form co-operatives to produce items for the export market ([2], p. 7). In terms of integrated use of forest resources, Oduro [3] reports that the collaborative forest management unit (CFMU) of FC has initiated programs that involve helping communities to develop their capacity to manage forest resources in southern Ghana. For instance in Assin Fosu, the author reports that, CFMU has supported communities to manage ancestral forest groves. In the Esen forest reserve at Akyem Oda, the CFMU has involved local communities in devising improved management of NTFPs. The program involved experiments in developing nurseries for the propagation of various NTFPs, using different methods including seed planting, root and stem cuttings. This report has been affirmed by the Forestry Commission of Ghana [2]. Report by Oduro [3] also indicates that the CFMU has carried out a survey of people's attitude in communities near forest reserves which have been proposed for different types of protection: special biological protection areas, hill sanctuaries, and convalescence and fire block areas. The report from the survey showed considerable local support for the continued protection of the forest reserves, particularly for the protection of drinking water supplies, rehabilitation of degraded forests and fire protection belts.

One factor that is worth noting from the literature is that, all the initiatives and successes were recorded in southern Ghana where timber abounds. There are no records of such initiatives or operations by the FC for fringe communities in the timber-poor Northern Region. Being a timber—poor zone, presupposes that communities do not enjoy social responsibility agreement (SRA) as enjoyed by those in Southern Ghana. Ironically, among the challenges that the revised Ghana's forest and wildlife policy sought to address are; the inadequate response to the domestic demand of timber and timber products which has led to increased illegal chainsaw operations in the supply of timber to the market, and the challenges to CFM strategy on how to achieve sustainability in forest management, to integrate local communities into planning and management whilst maintaining a profitable sector. Yet work by [4] found out that participation of fringe communities in the management of forest reserves is passive and tokenistic with local people having no control over access to resources and management. The critical question is, do the fringe communities in the Northern region and for that matter Northern Ghana have any user-rights or obligations to forest reserves at all? Answering this question is the main objective that this article sought to achieve.

2. Theoretical framework interest

Decisions of forest fringe communities may have positive or negative environmental, economic, and social impacts on sustainable development depending on whether it is managed sustainably or not. However, managing forest ecosystems sustainably requires knowledge of their main functions, and the effects of human practices, especially human practices or activities of the communities and/or settlements fringing the forest ecosystems including forest reserves. These practices are often perpetuated with the intension of meeting their needs or wants. Therefore it is important to consider the rights and responsibilities of people living around the forest ecosystems in forest management decisions so as to take onboard those practices that inure to the benefits of the society and the forest environment. This can only be done successfully if the frontiers of forest ecosystems and resource management understand the fringing communities and how they interact with the forest ecosystems. This is because, according to Metz et al. [5] even though over the years scientific literature shows there has been an increasing attempt to understand and integrate long-term effects of current practices of forest management on sustainable development, often, there is no sufficient understanding of the potential long-term impacts of current practices on sustainable development. According to the authors this may stem from the fact that often governing agencies fail to recognize the rights and responsibilities of key stakeholders whose actions and inactions define the forest practices, thereby defeating the purposes of collaborative forest management.

Collaborative forest management (CFM) denotes collective action by multi-stakeholders including local communities for sustainable forest management (SFM) for all. It is premised on the fact that community participation will increase resource flows to local people and help reduce rural poverty by providing them with their livelihoods [6]. According to the principles of CFM, sustainable forest management is the long term aim of CFM. Therefore, aside meeting other aims such as fair benefits to partners and equity in benefit sharing within community, the key objective is sustainability. The Forest Principles adopted at the United Nations Conference on Environment and Development (UNCED) in 1992 specifically states that: "Forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural and spiritual needs of present and future generations. In doing so the interests of Forest-Dependent Communities, security of tenure of forest resources and access to forest land to private and public land holdings, including the rights and obligations of forest owners and local communities must be regarded [7]".

Sustainable development (SD) on the other hand has been defined by FAO Forest Resources Assessment [8] as: "the management and conservation of the natural resources base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations" [9, 10].

The essence of this form of development is a stable relationship between human activities and the natural world, which does not diminish the prospects for future generations to enjoy a quality of life as good as the present generation. This implies that, SD can only be achieved through SFM which hinges upon collaborative management of forest resources.

However, because local communities living in or around forests and forest reserves have a traditional dependency upon same, their actions and inaction affects collaborative management decisions and the sustainability of the forest resources. Therefore, respecting the rights and obligations of forest owners and local

communities, and enhancement of their well-being are critical to sustainable forest management and development. As emphasized by Metz et al. [5], significant economic, social, and environmental contributions to sustainable development can be gained by involving local people and stakeholders and developing adequate policy frameworks.

Riding on the back of rational choice theory by Buchanan and Tullock [11], this article equates the rights and responsibilities of fringe communities to their expected benefits and costs from forest reserves and discusses these under the current practice of the concept of collaborative forest management in the study area.

2.1 The study area

The region has a total land area of about 70,384 sq. km (7 million ha) which is 29% of the land area of Ghana. Of the total land area of 70,384sq km of the region, 3556.92 sq. km (5.05%) is under reservation [12]. Northern Region is located between latitude 8 30″ and 10 30″ N and lies completely in the savannah belt. It has Togo and La Cote D'Ivoire to the East and West, respectively, as its international neighbors. To the south, the region shares boundaries with Brong Ahafo and the Volta Regions, and to the north, it shares borders with Upper-East and Upper-West Regions. Results of the 2010 population and housing census gave the regional population as 2479, with an intercensal growth rate of 2.9% between 2000 and 2010 [13].

The main vegetation is classified as vast areas of grassland, mainly Guinea savannah interspersed drought-resistant trees such as the acacia, baobab, shea dawadawa, mango, neem Ghana [14]. The region is drained by the Black and white Volta and their tributaries, such as Rivers Nasia and Daka www.ghana.gov.gh/.

3. Research methodology

This study employed a mixed method which combined survey and in-depth interviews. The article is part of a larger study conducted on the fringe communities surrounding forest reserves in four forest districts in the Northern region of Ghana. Two reserves were randomly selected from each of the four forest districts, giving a total of eight sampled forest reserves. Proportionate sampling was then used to select communities whilst simple random sampling was employed in sampling household heads. With a target population of 14,343, a total of 370 households were sampled at 95% confidence level with a 5% margin of error. For detail methodology of the study, see Husseini et al. [4]. **Table 1** shows a summary of the sampled reserve and communities.

Key informants comprised 13 forestry staff, 21 assembly members, 23 women's group leaders (magazias), 23 chiefs, 1 representative from stool lands and the head of the CFM Unit (CFMU) of the Resource Management Support Centre (RMSC) of FC, summing up to 82 key informants.

Quantitative data was collected using structured interview schedule while qualitative data was obtained by in-depth interviews. The quantitative data was analyzed with Statistical Product for Service Solution (SPSS) version 16 software, using descriptive statistics such as frequency tables and percentages. The results from the in-depth interviews were categorized into appropriate themes and analyzed through discourse analysis.

Forest districts	Forest reserves selected	Sampled communities
Tamale	Water works F/R	Yohini, Zogbele, Choggu
	Sinsablegbini	Zakariyili, Zibogu,Tugu
Walewale	Nasia Tributaries	Pigu, Pishigu, Sakpule
	Gambaga scarp West BLK I	Samini, Gbani, Langbinsi
Yendi	Daka head water	Nakoa, Kpatili, Nawuni and Gushiegu
	Kumbo	Kpatugri, Juanayili, Pusuga
Damongo	Yakumbo	Old Buipe and Lito
	Damongo scarp	Damongo and Soalepe
Total	8	23

Table 1.
Forest districts, sampled reserves and communities for the study.

4. Results and discussion

4.1 Awareness of tenure rights and management of forest reserves

Kowero et al. [15] assert that enabling policies, legislation and institutional instruments like clear tenure rights, are important in promoting sustainable management of natural resources. The study revealed that 310 household heads (representing 83.8%) interviewed (**Table 2**) are of the opinion that forest reserves are owned by the state or the government whilst only 38 (10.3%) respondents think that forest reserves are owned by the community.

It was also found that, of the 370 household heads interviewed, 306 of them (representing 82.7%) believe that forest reserves are managed by the Forest Services Division (FSD) staff while 64 of them (representing 17.3%) are of the opinion that forest reserves are either managed by community and FSD, district assembly or traditional rulers (**Table 3**).

The key informants' interview with chiefs revealed that with the exception of three chiefs (Gulkpe-Naa, the Pusuga naa and Kpatugri naa) who knew that forest reserves are owned by the traditional authorities, 17 of the sampled chiefs believe that forest reserves within their communities are owned by the state and managed by the FSD. The other three chiefs are of the opinion that reserves belong to District Assembly and managed by the government. Similarly, with the exception of the

District	Category of ownership				
	Community owned	**State owned**	**NGO owned**	**The chief**	**Total**
	Frequency/percentage				
Damango	7 (18.4%)	60 (19.4%)	1 (16.7%)	3 (18.8%)	71 (19.2%)
Tamale	22 (57.9%)	175 (56.5%)	3 (50.0%)	9 (56.2%)	209 (56.5%)
Walewale	4 (10.5%)	35 (11.3%)	1 (16.7%)	2 (12.5%)	42 (11.4%)
Yendi	5 (13.2%)	40 (12.9%)	1 (16.7%)	2 (12.5%)	48 (13.0%)
Total	**38 (100.0%)**	**310 (100.0%)**	**6 (100.0%)**	**16 (100.0%)**	**370 (100.0%)**

Table 2.
Households' awareness about ownership of forest reserves.

District	Category of stakeholders managing forest reserve				
	Forest service division	Community and FSD	District assembly	Traditional rulers	Total
	Frequencies/percentages				
Damango	60 (19.6%)	7 (25.9%)	4 (17.4%)	0 (0.0%)	71 (19.2%)
Tamale	175 (57.2%)	12 (44.4%)	13 (56.5%)	9 (64.3%)	209 (56.5%)
Walewale	36 (11.8%)	2 (7.4%)	3 (13.0%)	1 (7.1%)	42 (11.4%)
Yendi	35 (11.4%)	6 (22.2%)	3 (13.0%)	4 (28.6%)	48 (13.0%)
Total	**306 (100.0%)**	**27 (100.0%)**	**23 (100.0%)**	**14 (100.0%)**	**370 (100.0%)**

Table 3.
Household awareness about who manages the forest reserves.

women leader (magazia) for Pusuga and the assembly person for Damongo, who knew that forest reserves are owned by traditional authorities, the rest (22 magazias and 22 assembly person) are of the opinion that forest reserves are owned by the state and managed by the FSD.

These responses are a manifestation of the processes of development planning in Ghana which have generally been top-down and highly centralized. According to Tandoh-Offin [16], while there has been four development plans under the so-called decentralized development planning in Ghana, majority of the decisions and activities that inform all of these plans since 1992 have followed similar approaches as those before, where central government agencies continued to have dominance in the processes and activities. This results affirms Adjei et al. [17] assertion that although Ghana's decentralized forest management intervention recognizes local authorities and creates the requisite democratic space for community representation in forest governance, failure of Forestry Commission (FC) to transfer adequate decision-making power and resources among other factors have collectively undermine local authorities' capacity to be responsive and accountable to the collaborative process in forest management. To the extent that chiefs and assembly members are unaware of the ownership of forest reserves in their localities, tells the unparticipatory nature of our so-called decentralized system of development planning.

The above responses on ownership also show that fringe communities of forest reserves in Northern region are unaware of their tenure rights. Forest reserves in Ghana according to Boakye and Baffoe [18], are communally owned, but are held in trust by Government on behalf of the stool or skin landowners through the Forest Ordinance of 1927. According to Asare [19] ownership of forest is closely linked to the indigenous system of landownership. Land is communally owned and held in trust on behalf of the people through the stools and skins. Landowners therefore exert substantial control in deciding whether an area should be set aside for reservation. Though the national law grants the government the authority to constitute a reserve on any land it deems appropriate, landowners must be consulted through an arbitration process to take their concerns into consideration. What this means is that landowners whether stools or skins have immense power on setting aside an area as permanent forest estate and always have rights to revenue from the exploitation of the resource.

This was confirmed by the key informants interview with the head of operations of stool lands in the region, who revealed that, all the forest reserves in the region are situated on skin lands with the overlords being the Yaa Naa (Dagbon land), the Nayiri (Mamprugu land), the Yagbun-wura (Gonja land) and the Bimbila Naa

(Nanumba land). Unfortunately, the reality is that almost all chiefs and community members believe otherwise as there is no legal framework to that effect. The perception of the fringe communities about tenure rights of forest reserves upholds Brown's [20] report that Ghana's forest policies have not any legislative or tenurial change to stimulate the process of community involvement in forest management. It also agrees with the findings of Ahenkan and Boon [21] that consultation processes that led to the 1994 forest and wildlife policy had limited involvement of local communities. Further, it confirms the assertion by Boakye and Baffoe [18] that, even though Ghana's forest reserves are supposed to be managed by both public and communal property regimes, management is leaned more to the former. State control often deprives fringe communities of access to forest resources due to their bureaucratic and centralized processes which distance them from management decisions and access to benefits.

The lack of knowledge of communities about the ownership or tenure rights is indirectly contributing to their exclusion from forest management activities [4]. This may affect their commitment and cooperation toward any collaborative efforts.

4.2 Socioeconomic importance of forest reserves to fringe communities

Collective action in solving natural resource problems is more likely when users are dependent on the resource system for a major portion of their livelihood and when users have a common understanding of the problem [6, 22]. Gibson et al. [23] also assert that the value people place on their benefits and losses from development projects is critical in motivating and increasing their commitments to project sustainability. In this study therefore, we sought the opinions of respondents on the benefits derived by their communities from the forest reserves as well as their use-rights and responsibilities.

The survey revealed major benefit derived from the forest reserve which include; wood for charcoal and firewood, bush meat, herbal medicine, protection from rainstorm and poles for roofing. The least mentioned benefits include ropes, provision of shade, esthetics, and chew stick. **Table 4** shows a summary of the common benefits that are derived from the forest reserves by the fringe communities.

Given the statement by Odera's [24] that, sustained forest benefits to community members guarantees a successful collaborative forest management implementation, the enjoyment of aforementioned benefits by fringe communities in the study area is likely to boost their interest and commitment to any collaborative effort for sustainable management of the forest reserves. Notwithstanding that, the survey also revealed that not all the above benefits are enjoyed legally. Some community members harvest quantities beyond what is enjoyed on them. The study therefore sought views of both household respondents and key informants on communities' rights to use the forest reserves.

4.3 Admitted rights of communities to the forest reserves

Admitted rights are customary rights enjoyed by communities and individuals living close to forest reserve at the time of reservation when they are not seen as harmful to the forest. These rights include cultural and religious rights such as entry into the reserve to perform some cultural rites ([25], p. 29). The household survey revealed that majority 262 of the respondents (70.8%) admitted to having the right to freely enter the forest reserves whilst the remaining 108 (29.2%) said they do not have free access to forest reserves. The most common reasons given by the 29.2%

Major benefits	Least mentioned benefits
Wood for charcoal and firewood	Ropes
Bush meat	Provision of shade
Herbal medicine	Esthetics
Protection from rainstorm	Income
Poles for roofing	Chew stick
Thatch grass	Stimulation of rain or good weather
Grazing grounds for animals	Sand winning for building purposes
Fodder	Forest serving as a hideout for wee smokers
Food (fruits)	
Water	
Farmland	
Honey	
Using the reserve as a place of worship	
Using the forest as a place of convenience	
Using the reserve as recreational grounds	

Table 4.
Summary of benefits derived from the forest reserves.

(108) of household heads who said they are not allowed entry into the forest reserves are that, they are denied because:

Some members destroy the forest by cutting down trees for fire wood; the forest reserve is not for the community; if people are allowed to enter the forest freely, they can destroy the reserve; forest staff feel unsafe to let local people enter freely due to past experience with encroachers; and finally that some members go into the forest reserves to sell illegal drugs like marijuana.

These reasons by those who said they are denied entry into the reserves may suggest that some members are sometimes not allowed to enter the reserve not because they do not have the right, but due to the possible illegal activities they may carry out in the reserve. This is evident in the list of benefits (**Table 4**) enjoyed by communities which included harvesting of wood for charcoal and firewood for sale. As indicated by Marfo [26] the statutory law only recognizes "customary" access and use rights for domestic purposes. Therefore it is illegal for fringe communities to access non-timer forest products for commercial purposes. However, when respondents were asked about their admitted rights (**Table 5**) 78.4% of them admitted to their communities having rights to harvest medicinal plants, 70% admitted to collecting edible fruits like shea and dawadawa, 60.3% admitted to harvesting thatch grass for roofing and 54.6% admitted to harvesting firewood for domestic purposes. **Table 5** shows the admitted rights enjoyed by the fringe communities.

5. Response from Forestry Staff on Admitted Rights of Communities

Like the household heads, the interviews with the district forest managers revealed that fringe communities in the study area have the right of access into the reserve (using the right paths) and the right to harvest non-timber forest products for domestic use such as thatch grass, medicinal plants, dry wood for firewood,

	Harvest firewoodfor domestic use?		Collect shea and dawadawa fruits?		Harvest medicinal plants?		Harvest thatch for roofing?	
	Yes (Freq/%)	**No (Freq/%)**	**Yes (Freq/%)**	**No (Freq/%)**	**Yes (Freq/%)**	**No (Freq/%)**	**Yes (Freq/%)**	**No (Freq/%)**
Damongo	71 (35.1%)	0 (0.0%)	71 (27.4%)	0 (0.0%)	70 (24.1%)	1 (1.2%)	64 (28.7%)	7 (4.8%)
Tamale	77 (38.1%)	132 (78.6%)	106 (40.9%)	103 (92.8%)	131 (45.2%)	78 (97.5%)	77 (34.5%)	132 (89.8%)
Walewale	26 (12.9%)	16 (9.5%)	41 (15.8%)	1 (0.9%)	41 (14.1%)	1 (1.2%)	41 (18.4%)	1 (0.7%)
Yendi	28 (13.9%)	20 (11.9%)	41 (15.8%)	7 (6.3%)	48 (16.6%)	0 (0.0%)	41 (18.4%)	7 (4.8%)
Total	**(54.6%) 202 (100%)**	**168 (100%)**	**(70%) 259 (100%)**	**111 (100%)**	**(78.4%) 290 (100%)**	**80 (100%)**	**(60.3%) 223 (100%)**	**147 (100%)**

Table 5.
Responses on admitted rights enjoined by the fringe communities.

controlled grazing, shea nuts, dawadawa fruits and canes. However, due to abuse of rights for controlled grazing, it is no more allowed in the reserves. Some forest guards believe that communities are entitled to harvest non-timber forest products, but these rights are sometimes abused. One of the forest guards replied as follows:

> *"Community members are entitled to harvest dead wood, thatch grass, fodder, chew stick, and collect shea and dawadawa fruits without any conditions. These rights to some extent boost the interest of some good Samaritans to help in protecting the forest reserve but some community members sometimes abuse the rights" (Forest guard—Yendi district).*

In contrast to the views of the district managers and some forest guards, four of the eight forest guards interviewed are of the opinion that farmers do not have any right to collect any product from the reserves because those rights are confined to only off-reserve woodlands (woodlands outside reserves).

In reality, the responses from these four forest guards only imply that they do not understand what user-rights are, or are unaware of the user-rights of communities over forest reserves. The lack of awareness of forest guards may serve as the basis for abuse of use-rights of communities (by way of access restriction to forest reserves) and that can be a source of conflict between them and community members.

A chi- square test of independence on household responses on admitted rights gave p-value of 0.000. Being smaller than the alpha value of 0.05, a p-value of 0.000 indicate that there is significance differences between the forest districts with regards to respondents' views on their rights over the forest reserves. For instance, **Table 5** shows that for harvesting of fruits and medicinal plants, almost all the respondents in Damongo, walewale and Yendi answered in the affirmative whilst for Tamale 37.3% think otherwise. The trend is different with regards to harvesting of firewood for domestic use, where all the respondents from Damongo district answered in the affirmative with only 36.8% (77) of the respondents in Tamale district answering in the affirmative. This differences are probably because some community members do not know their rights. It may also be due to the over

protective attitude of forest guards in the Tamale district as compared to those in other districts. Tamale Metropolis is the most concentrated in terms of population density and also the most urbanized district in the region, it has the highest proportion (14.3%) of the economically active population in the Northern region [13]. As such there is a likely need for more land for development, hence the need for tight precautions against encroachment. This could be a good reason to make forest guards in the Metropolis over protective of the forest reserves.

6. Views of chiefs, magazias and assembly persons on admitted rights

The key informant interview with chiefs partly confirms the responses from the household survey. Sixteen out of the 23 chiefs admitted to their communities having user-rights though sometimes with difficulties. The remaining seven chiefs (six from the Walewale district and one from Tamale district) indicated that their communities do not have any use- rights to the reserves. Similarly, 16 out of the 23 "magazias" (women leaders) interviewed admitted to their community members having rights to collect some firewood and some non-wood forest products for domestic purposes. It was revealed by the "magazias" that the rights of women differ from that of men. Whereas women usually fetch water from the streams in the reserves, gather vegetables and fruits and harvest firewood for domestic use, men are allowed to hunt, harvest termites (for fowls), poles, thatch, as well as harvest firewood for sale.

The responses from some household heads, chiefs and magazias who indicated their communities do not have user-rights to the reserves show they are ignorant of their rights. Their responses could be attributed to their exclusion from management decisions or due to lack of awareness of communities' rights by the forest guards who blatantly restrict communities' access to the reserves. This is manifested in the responses of some forest guards about their knowledge on communities' right to the reserves in the following paragraph.

When asked about the knowledge on user-rights of communities the following were some of the responses from the forest guards:

> *"Community members do not have any rights to the reserves. Farmers only have right to apply for land to farm through the plantation programme" (Forest guard—Walewale district)*

> *"There is no user-rights for communities apart from farming under the national plantation programme. They should go outside the reserve for whatever they want until such a time that it may be possible for us to allow them into the reserve for some resources" (Forest guard-Tamale district).*

The above responses from some forest guards point to the fact that administration of forest reserves in the study area is not participatory. To the extent that frontline staffs of FSD believe that fringe communities do not have any user-rights to forest reserves, shows FSD is still holding onto the "command and control" system of management as was reported by Husseini et al. [4]. Moreover, because some community members are unaware of their rights over the forest reserves, they have come to accept the denial of their rights as the norm and so they do not challenge the status quo. The likely result of this denial is illegal access of the forest resources by community members since there is no motivation for them to protect the forest reserves. A situation which downfalls one of the purposes of the revised

Forest and Wildlife policy (2012) as stated in its policy strategic direction Section 4.1 Subsection 4.1.2, clause f, which seeks to define forest and tree rights in all kinds of forests and ownership systems (2012, p. 28).

6.1 Social responsibility agreement (SRA)

A social responsibility agreement (SRA) may be defined as an agreement capable of being enforced in a court of law which imposes a duty on a timber contractor to provide certain acceptable social amenities to the communities whose forest the contractor operates to the tune of 5% of the annual royalties payable by the contractor. These agreements are ways of ensuring that all Timber Utilization Contract activities are done in a more socially responsible way that respect the rights of the land owners. It is usually attached as a schedule to the contract, which is legally binding. SRAs are negotiated by the FSD with the affected communities in advance of the contract being advertised ([25], p. 33).

When respondents were asked whether they enjoy social responsibility benefits from the reserves, 342 of them (representing 92.4%) admitted they do not benefit whilst 28 (7.6%) indicated they benefit. The reasons given by the 28 (7.6%) respondents, who answered in the affirmative, are that it is their social responsibility to protect the forest from intruders and fire outbreaks. Others think that their SRA is the benefits they get from the reserve like firewood, grazing fields, hunting and football pitches. Certainly, it is clear from the reasons given by the few (7.6%) who claim their communities enjoy SRA that, they do not understand the concept of SRA or the facility does not exist at all as indicated by the majority.

For the 342 (92.4%) who answered in the negative, some of them indicated that it was the first time they were hearing about SRA. Others said that the tree species in the Northern region are not attractive enough for exploitation due to the unfavorable climate, to warrant such social responsibility benefits. Obviously, the latter reason affirms the climate and vegetation of the region, ie. relatively dry with a single rainy season and Guinea savannah [14], which does not support the growth of tall timber tree species. Further, the interview with the forestry staff revealed that, forest reserves in the region were gazetted mainly for protective purposes and so little or negligible exploitation goes on in them. This result also agrees with Mashall [27] that the functions of forest reserves in the Northern territories were for the conservation of water supplies, shelterbelts, and prevention of erosion, shelterbelts and domestic supply of fuel wood, poles and possibly the production of a limited amount of sawn timber. This implies that production of commercial timber was from the unset not the main objective for forest reservation in the study area.

Similar to the views of household heads and the forestry staff, response chiefs, assembly persons and Magazias revealed that fringe communities do not enjoy any social responsibility benefits from the forest reserves. These responses were further confirmed by the head of operations of stool lands in the region, who revealed that due to the non-productive nature of forest reserves in the region, land owners do not receive any royalties or SRA from the reserves. According to him, most revenue from the skin lands in the region come from ground rents, compensation and annual rents. These are fees taken for use of land for farming, residential, commercial and other uses related to physical development. The head of operations of stool lands in the region believes that this situation derails the interest of the chiefs in the reserves.

His response confirms Oduro's [3] observation that the current forest and wildlife policy is silent on how to reward owners of forests, zoned for permanent protection. The author argues that although owners of production forests receive

royalties, those whose forests have been designated for permanent protection and for environmental benefits do not receive any. The lack of social responsibility benefits for fringe communities is a hindrance to their allegiance to any effort toward CFM. Among the reasons for community participation in CFM is to secure access to a given forest and use rights as well as create new sources of income for communities [6]. Therefore, the rights of fringe communities in Northern region have to be secured if their commitment in the collaborative management of forest reserves is to be guaranteed.

7. Responsibilities of communities to the management of forest reserves

Fringe communities do not only have rights but also have the duties and roles in protecting forests within their areas, under the law and Constitution of Ghana. Section 19 of the LI 1649 places upon the land owner a responsibility not to allow the use of unregistered chainsaw for cutting trees or sawing timber on his or her land. As such, communities have the obligation to control the extent of forest exploitation so that the very important roles played by the forest resources can continue [25]. Households views were therefore sought on what they think are the responsibilities of community members to the management of forest reserves. **Table 6** shows the responses on what households perceive as responsibilities of their communities toward management of forest reserves.

The study showed that only three management activities namely boundary clearing, fire control and planting of trees in the reserves were admitted by the majority of households' respondents as the responsibilities of their communities toward the management of forest reserves (**Table 6**).

Similarly, responses from the key informants' interviews with the district forest managers, Forest guards, chiefs, assembly members and magazias revealed fringe communities' roles in the management of forest reserves to be provision of labour for plantation establishment and contract boundary clearing. These results are not surprising since these are the activities that FSD usually involves community members as reported by Husseini et al. [4].

Communities seeing these activities as their responsibilities are a positive condition that can be used as a means to awaken their interest and commitment to the collaborative management of forest reserves. That notwithstanding, it can be realized from **Table 6** that majority of the households do not regard the remaining four activities (Weeding, nursing of seedlings, boundary patrol and boundary planting) as their community responsibilities. This mind set defeats the very purpose of the revised forest and wildlife policy (2012, p. 27) which has in its policy strategic direction 4.1 Subsection 4.1.1 clause d; to "support local communities, non-governmental Organizations including women and youth to receive training that allow them meet their objective and assume optimal management responsibilities."

The implication is that in the absence of contract boundary cleaning or fire outbreak, and in the absence of plantation programs like the Modified taungya system in the reserves, communities do not bear any responsibility toward the management of forest reserves. Lack of shared responsibilities among the communities and forestry department coupled with communities' perception that forest reserves belong to the state, is likely to hinder any effort toward collaborative management. Collaborative forest management is most beneficial if both parties take on responsibilities that maximize their capacity ([28, 29], pp. 55–77).

District	Weeding as a responsibility of community members		Boundary clearing as a responsibility of community members		Nursing seedlings as a responsibility of community members		Boundary patrolling as a responsibility of community members		Fire control as a responsibility of community members		Boundary planting as a responsibility of community members		Planting trees as a responsibility of community members	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Damango	32 (19.5%)	39 (19.0%)	54 (24.2%)	17 (11.6%)	12 (11.8)	59 (22.0%)	22 (15.4%)	49 (21.6%)	71 (24.1%)	0 (0.0%)	26 (17.0%)	45 (20.7%)	67 (24.5%)	4 (4.2%)
Tamale	78 (47.6%)	131 (63.6%)	103 (46.2%)	106 (72.1%)	49 (48.0%)	160 (59.7%)	68 (47.5%)	141 (62.1%) 1	136 46.3%)	73 (96.1%)	72 (47.1%)	137 (63.1%)	123 (44.9%)	86 (89.6%)
Walewale	24 (14.6%)	18 (8.7%)	29 (13.0%)	13 (8.8%)	16 (15.7%)	26 (9.7%)	22 (15.4%)	20 (8.8%)	40 (13.6%)	2 (2.6%)	24 (15.7%)	18 (8.3%)	39 (14.2%)	3 (3.1%)
Yendi	30 (18.3%)	18 (8.7%)	37 (16.6%)	11 (7.5%)	25 (24.5%)	23 (8.6%)	31 (21.7%)	17 (7.5%)	47 (16.0%)	1 (1.3%)	31 (20.3%)	17 (7.8%)	45 (16.4%)	3 (3.1%)

Table 6.
Household perception about communities' responsibilities to forest reserves.

8. Conclusion and Recommendations

We conclude that fringe communities enjoy some benefits and limited access to the forest reserves, but they do not know their tenure rights, user-rights and responsibilities to the reserves. Most front-line staff of FSD are unaware of the user-rights of fringe communities which is the reason for denying access of the reserves to community members. Improving collaborative management means changing the perceptions and attitudes of communities and frontline staff of FSD, respectively, and securing communities rights to the reserves.

8.1 Recommendations

To serve the interest of fringe communities and secure their commitment to responsible collaborative management of forest reserves, we recommend the following: The forestry department should educate community members on their tenure, rights and responsibilities to the reserves and involve them in the processes of decision-making. FSD in collaboration with collaborative forest management Unit (CFMU) of the Ghana forestry commission, should improve the capacity of their frontline staff on the rights and responsibilities of communities in CFM so as to avoid the unlawful denial of fringe communities of what rightfully belong to them.

Forest Fringe communities in the Northern region are not enjoying social responsibility benefits and royalties because the forest reserves were gazetted mainly to protect major rivers within the region. Meanwhile the beneficiaries of these rivers are the Ghana Water Company and the Volta River Authority who are making huge financial gains against the restrictions of right to communities. It is thus recommended that Government ensures that the two beneficiary companies give at least 0.5% of their revenue to FC, fringe communities and land owners as their social responsibility contributions. The part given to the FC could be used to develop the forest reserves through plantation development and to facilitate their activities with communities. That of the communities could be used to provide social amenities for them while the part for the land owners will boost their interest and motivate them to support their communities in sustainable management of forest reserves. This will, in the long term, benefit the two companies since the continuous protection of the rivers depends on the sustainable management of these forest reserves; the success of which in turn depends on the continuous support and cooperation of the fringe communities.

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