

Challenges of Forest Reserve Management in Ghana: Evidence from Tain Tributary Block I Forest Reserve

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Abstract

In spite of their immeasurable benefits to life sustenance, the sustainable management of forest and forest resources in Ghana is flooded with innumerable challenges such as the conflicting roles of the various stakeholders involved in forest management. This study sought to lay bare the peculiar challenges bedevilling the management of the Tain Tributary Block I forest reserve in the Brong Ahafo region of Ghana from an institutional and communities' perspective. Using the simple random sampling technique, Ninety-five (95) heads of households were selected from five (5) communities surrounding the Tain Tributary Block I forest reserve, whilst the purposive sampling was used in selecting the heads of institutions such as the Ministry of Food and Agriculture (MoFA), the Sunyani West District Assembly, the Fire Service Department and the Forest Service Division (FSD) which have been tasked with the management of forest resources in Ghana. The study revealed that, though the communities around the forest reserve play an indispensable role in forest management, only a minority of the populations of such communities are actively involved or have knowledge in relation to the sustainable management of forest resources. It was also observed that, intentionally sparked bushfires, illegal farming and conflict between the major institutions in forest resource management are major challenges confronting forest management in the Tain Tributary Block I forest reserve. It is recommended that clear cut modalities on the roles of forest management institutions be put in place to avoid conflict and also facilitate collaboration.

Keywords: forest management, stakeholders, challenges, sustainability.

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1.0 Introduction

Forests have since ancient times played an important role in the lives of people and the environment in general. That is, forests provided and continue to provide numerous benefits to humanity (Sackey, 2007). Forests present a tall list of important resources required for sustainable development. They are essential for human survival and well-being; harbouring about two-thirds of all terrestrial animal and plant species. They serve as a source of food, oxygen, shelter, recreation, and spiritual sustenance, and they are the source for over five thousand (5,000) commercially-traded products, ranging from pharmaceuticals to timber and clothing (CBD, 2010). Forest performs a wide range of critical environmental and climatic functions and it serves as homes to the majority of the world's plant and animal species. For humans, forests have historical, religious, philosophical and aesthetic significance, as well as providing valuable resources and living space. Some of the benefits of the forest also depend on it being left untouched or subject to minimal interference. The significance of forest can be classified under environmental, social and economic (Abass, 2007).

The complex and composite demand for forest and forest products makes the resource competitive among the many users and consequently renders most of its components endangered. In fact, the forest vulnerability is further compounded by the fact that it is very easy to exploit when compared to other natural resources like minerals, such as; copper, bauxite or petroleum, which require a high degree of technology and expertise. It is estimated that agricultural encroachment alone accounts for 3.66 million hectares of forest lost a year in Africa (World Bank, 1987: cited in Ngwa and Fonjong, 2002). Forest resources are under the threat of disappearing, attributable to a number of reasons; including high population growth rates and high rate of poverty that characterize most forest fringe communities (Ngwa and Fonjong, 2002). Due to the multiple functions they

perform, forests are normally rendered vulnerable by the people close to it; they satisfy high local demand for fuel wood, building materials, meat from wildlife, parkland, herbs and medicinal plants (Ngwa and Fonjong, 2002).

Although, forests play a vital role in the economy of Ghana and a great number of people continue to depend on forest resources for subsistence and the satisfaction of their socio-cultural needs, the need to reconcile the conflicting demands of the various stakeholders of these resources remains one of the biggest environmental challenges facing the country today (Boon and Ahenkan, 2007). Forests in Ghana have suffered a serious decline because of over-exploitation to meet the growing socio-economic needs of the population (EPA, 2004). For instance, various researches have revealed that most Ghanaian forest reserves are under pressure from illegal timber harvesting and bush meat hunting. Mining exploration activities is on the ascendancy in most forest regions in the country and may pose a future threat to the reserve; as it contains gold and bauxite deposits (Wildlife Extra, 2007). The continuous depletion of these resources is likely to lead to their eminent extinction in the long-term. This will have enormous consequences on the forests themselves and the livelihood of the population at large (Boon and Ahenkan, 2008).

According to Boon *et al* (2009), the past two decades have witnessed an increased attention by the world community to the issue of conservation and a wise use of forest resources. These resources are of great importance to millions of people, especially those whose livelihoods directly depend on them. Forest resources play a key role in protecting the environment and are of tremendous importance to the sustainable development of every society.

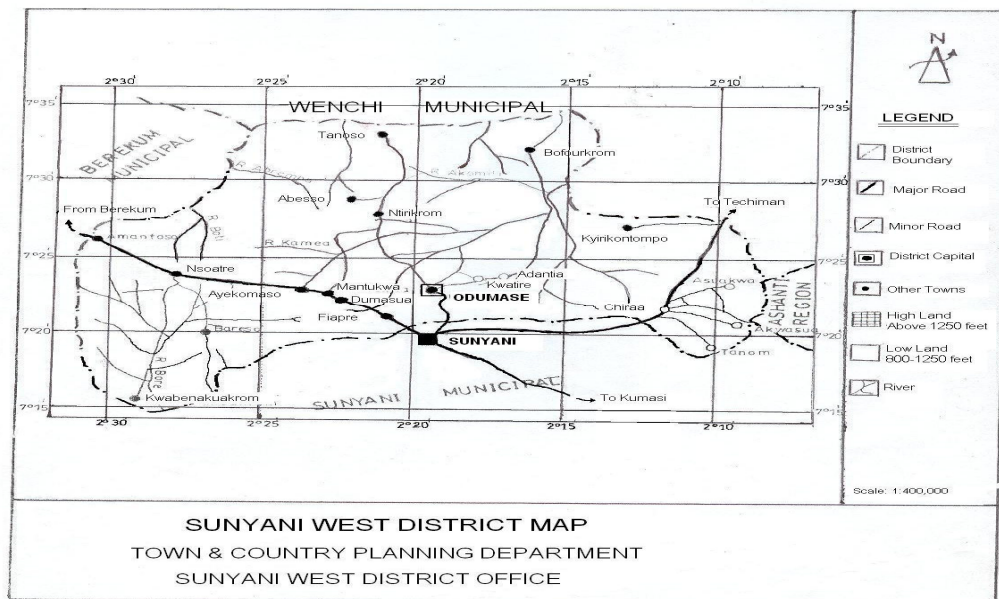
Sadly, the geometric rate at which the once evergreen forests of Ghana are fast diminishing at the expense of forest communities' livelihoods and development is very alarming, especially with regard to meeting the needs of future generations. The degradation of these resources in Ghana will render the attainment of the objectives of the Ghana Shared Growth and Development Agenda (GSGDA) and the Millennium Development Goals (MDGs) very difficult. The uncontrolled and unsustainable methods of natural resource harvesting being employed by forest resource exploiters, investors, government agencies and individual community members urgently need to be checked.

Although various researches have been undertaken in the area of forest reserve management and stakeholder participation, most of these researches have been conducted in the Tain Tributary Block II forest reserve other than the Tain Tributary block I Forest Reserve in the Brong Ahafo region of Ghana. This study sought to fill the gap by assessing the challenges in the management of the Tain Tributary Block I forest reserve. It also looked at the various stakeholders and their roles towards the sustainable management of the Tain Tributary Block I forest reserve.

2.0 Study Area and Methodology

Geographically, the Tain Tributary block I Forest Reserve is located in the Sunyani West District. The Sunyani West District is one of the newly created districts in Ghana. It lies between latitude 7° 35' N and longitude 2° 08' W. It shares boundaries with Wenchi District to the North, Berekum Municipality to the West, Techiman Municipality to the East and Sunyani Municipality to the South. The District has a total land area of 1658.7 km².

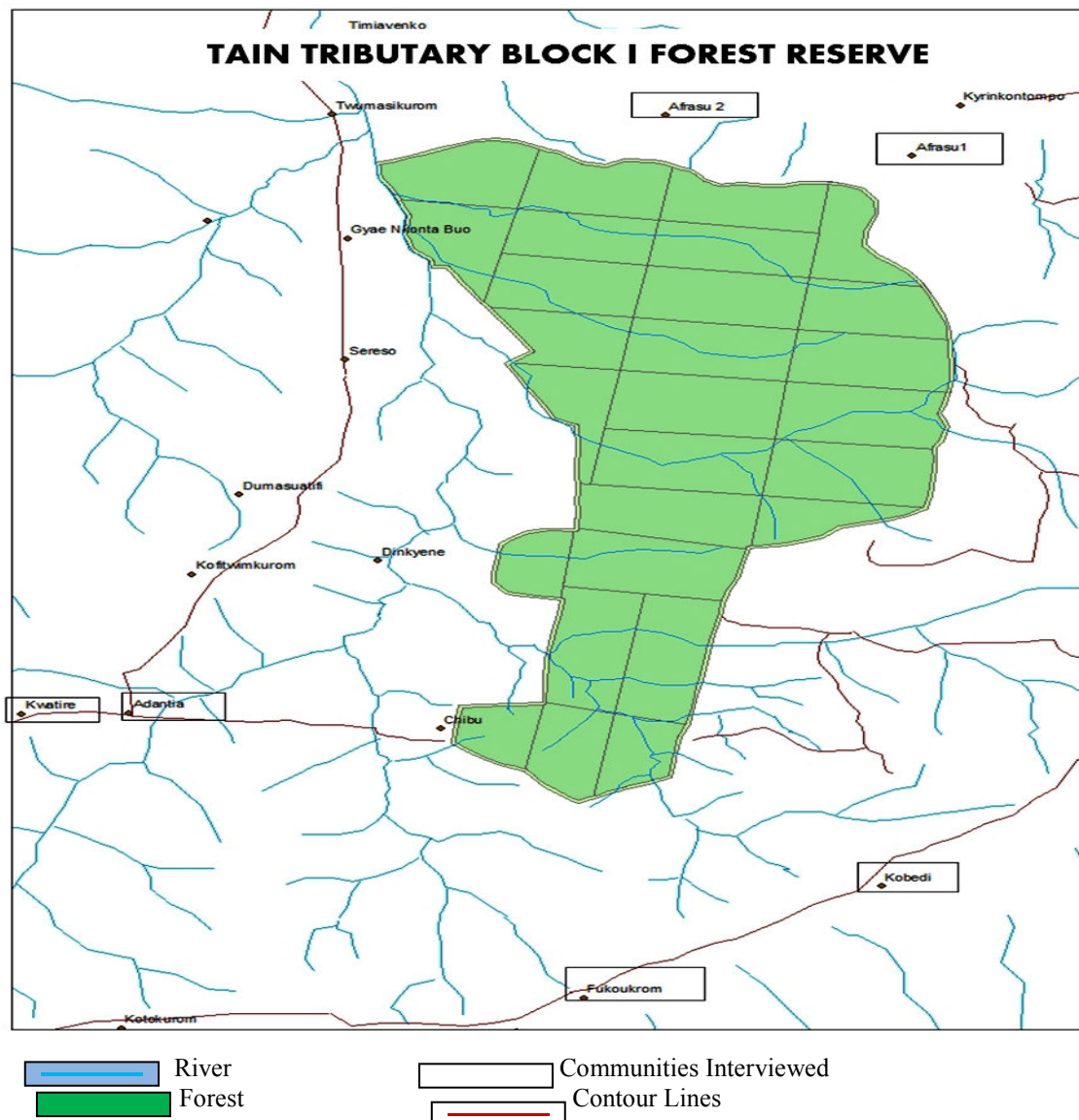
Figure 1: Sunyani West Municipality in Context



Source: Sunyani West DMTP 2010-13

The Tain Tributary block I Forest Reserve lies in the Sunyani Forest District in the Brong Ahafo Region of Ghana. The forest however, is located between latitudes 7°22' and 7°41'N and longitude 2°13' and 2°43'W. Tain Tributary Block I forest reserve is roughly rectangular in shape with an average width of 10km and length of 15km. It covers an area of 30.56km² with 31.56 km being its perimeter.

Fig. 2: Map of Tain Tributary Block I forest reserve with Fringe Communities



Source: Sunyani West District Forestry Commission, 2013

2.1 Methodology

The study made use of the case study research design in undertaking this systematic enquiry. This approach was adopted to help acquire in-depth knowledge on the current situation with regards to the phenomenon under consideration. Both primary and secondary data were collected and used for the study. The primary sources of data included questionnaires for the fringe communities, key informant interviews with heads of households, fire volunteers and the traditional authorities. Also interview guides were designed for the heads of the Ministry of Food and Agriculture (MoFA), the Sunyani West District Assembly, the Fire Service Department and the Forest Service Division (FSD). The secondary sources of data were obtained from a variety of sources including the internet, journals, technical reports on international researches on forest management, development plans of local authorities and government policy documents.

2.1.1 Sampling Procedure

Using the mathematical formula,

$$n = \frac{N}{1 + N(\alpha)^2}$$

Where: N = the Total Population

α = the level of confidence (The study took a level of confidence of about 95 percent).

$$\begin{aligned} \text{Sample size of five (5) communities} &= \frac{1824}{1 + 1824(0.01)^2} \\ &= 95 \end{aligned}$$

The total sample size for the three selected communities is ninety five (95). Table 1 shows the computation of sample populations that were selected from each of the settlements under review.

Table 1: Sample Size for Case Study Communities

Community	Population in Each Community	Percentage samples	Absolute samples
Kwatire	298	16.3	15
Adentia	532	29.2	28
Afraso I	341	18.7	18
Afraso II	352	19.3	18
Forkoukrom,	301	16.5	16
Total	1824	100	

Source: Field Survey, 2013

Institutions such as the Ministry of Food and Agriculture (MoFA), Fire Volunteers, the Sunyani West District Assembly and the Fire Service Department were purposively sampled. These institutions were selected due to the knowledge they are assumed to have about the phenomenon under consideration. The simple random sampling technique was used in selecting heads of households in each of the fringe communities to respond to the survey questions.

The unit of analysis was the heads of households in the five (5) fringe communities. Ninety five respondents were randomly interviewed from five (5) different communities. These communities were selected because of their proximity to the Tain Tributary Block I forest reserve. They are the communities that surround the forest and as a result undertake various economic activities in and around the forest. The communities were Kwatire, Adentia, Forkuokrom, Kobedi, Afraso I and Afraso II. Quantitative tools such as the Statistical Package for Social Scientist (SPSS) software for data analysis as well as tables and charts were used for data presentation alongside descriptive analysis.

3.0 Results and Discussion

3.1 Participation of Fringe Communities in the Management of the Forest

It was revealed that fringe communities play important roles in the management of the Tain Tributary Block I forest reserve. However, only 44.2 percent were identified as participants in the management of the reserve, whereas a whopping 55.8 percent of the population do not participate in any form towards the management of Tain Tributary Block I forest reserve. This implies that community participation in the management of the forest reserve is left in the hands of the few, reflecting the high level of apathy towards the protection of the forest reserve. In order to identify how committed those who are involved in the management of the forest are, respondents were asked of the frequency of participation. Responses given are shown in Table 2.

Table 2: Frequency of Participation

Period	Absolute	Percentage (%)
Frequently	49	92.4
Monthly	1	1.9
Quarterly	1	1.9
Annually	2	3.8
Total	53	100.0

Source: Field Survey, 2013

The study revealed that out of the 44.2 percent who participate in the management of the forest reserve, 92.4 percent participate frequently, that is anytime they are called upon to duty. Those on official duties also perform their duties as expected on their respective times. For instance the secretaries of Fire Volunteer (FV) report to the Fire Service Department monthly in the dry seasons. This group forms 7.6 percent of respondents that participate in the management of Tain Tributary Block I forest reserve. The involvement of the local people in the management of the forest is in different forms. These forms of participation by the 44.2 percent are presented in table 3 below.

Table 3: Community's Form of Participation

Form of Participation	Absolute	Percentage (%)
Labour	50	94.3
Finance and Labour	2	3.8
Others	1	1.9
Total	53	100

Source: Field Survey, 2013

Most of the community members who participate in the management of the forest reserve render services in the form of labour and finance. The study revealed that most of the people who render their services in the form of labour engage in activities such as fire volunteering, helping with the regeneration of degraded parts of the forest reserve and also contributing some money to be given to community members who help in protecting the forest. A small percentage of the community members perform other activities such as exposing unscrupulous people who conduct illegal activities within the forest reserve.

3.2 Challenges in the Management of Tain Tributary Block I Forest Reserve

This aspect of the paper looks at the challenges of forest management from community and institutional perspectives. Institutions such as the Forestry Service Department and the District Assembly were contacted. Also households in the targeted communities were contacted in order to get the data on the problems at hand.

3.2.1 Community's perspective

Annual bushfires is ranked as the highest challenge facing the management of Tain Tributary Block I forest reserve. The survey revealed that bushfire is an annual ritual in the study area. In all, 71.6 percent of respondents contacted for the purpose of this study were of the view that this annual ritual was the major cause of the depletion of most important tree species in the forest. This act is attributed to the activities of hunters who are not permitted to operate in the dry season but breach the laws instituted to guard against bushfires. Game hunters who are locally known as 'atweefoo' intentionally set fire in the forest as a method of game hunting. This act though prohibited is done annually causing bushfires. Some respondents (19.3 percent) attributed the annual bushfires to game hunting activities.

Illegal farming activities within the forest constitute another great challenge confronting efficient management of the forest reserve. The study brought to fore that 60.2 percent of the respondents attributed the loss of the forest to this activity. Additionally, Permission has to be granted to farmers by FSD before they farm in the forest reserve. Farmers permitted to farm are given seedlings of trees to plant while they farm. Some farmers however, do not seek permission from the FSD before they farm in the forest. Such farmers do not grow any seedling to aid in regenerating the degraded parts of the forest reserve. Furthermore, illegal lumbering is an activity that is carried out by both unlicensed chainsaw operators and individuals both in the fringe and from distant communities. This activity was ranked third, as 38.6 percent of the respondents blamed forest loss to illegal cutting of the trees for both commercial and domestic purposes.

3.2.2 Institutional Perspective

Some factors as well stand as inhibiting factors to the successful management of the forest by institutions and bodies responsible for the management of Tain Tributary Block I forest reserve. Some of the issues that were mentioned; illegal farming, bushfire, illegal lumbering among others raised by community members corroborate with the views expressed by the institutions as great hindrance to effectual management of the forest.

- Forest Service Division

For efficient management of the forest, there is the need for adequate resources both in logistics and manpower. The inadequacy or lack of these resources has direct effect on the output of management. The assessment of the human resource capacity of the FSD revealed that it is well equipped, except for the low number of range supervisors and forest guards (which constitute the lower rank of staff members). These offices had a backlog of 7 and 29 respectively. This implies that administratively, the FSD's performance in service delivery would be very high as almost every office had workers with the required qualification. Deficiency would however occur at the range supervisors and forest guards levels as the existing number does not meet the standard required. This backlog poses a great challenge as these are the people who work on the ground to prevent illegal activities in the forest. That is, monitoring and patrolling in and around the forest. The logistical capacity of the Division was also assessed. The Table 4 presents the strength of the institution in terms of logistics.

Table 4: Logistic Capacity

Major Logistics	Existing Number	Number Required	Backlog/surplus	Condition
Office Building	1	1	-	Good but lack a store room
Vehicles	1	2	(1)	Bad
Computers	8	10	(2)	Good
Motorbikes	7	13	(6)	Good
Uniforms	58	69	(11)	Good
Tables	9	12	(3)	Good
Chairs	14	20	(6)	Good
Cutlasses	30	69	(39)	Good

Source: Field Survey, 2013

These are basic equipment which is needed to help achieve efficient management. Motorbikes and vehicles are key equipment in patrolling and monitoring activities by forest guards and range supervisors. These are however inadequate making their work difficult and challenging. Forest guards are therefore not able to visit the forest on schedule. Forest offenders like chainsaw operators take advantage of these lapses and steal from the forest.

The survey revealed that, in addition to the challenges discussed above, political interference also stands as a major challenge to the management of the forest reserve. The political will of government to the implementation of measures instituted to protect the forest is very weak. Also, government's commitment to releasing funds to execute activities in this regard is not forthcoming. From the survey, it was unravelled that FSD usually receive two quarterly government subventions out of the four in a year. According to the FSD, the intentions of the institution are therefore usually left unimplemented. Also most offenders are left unprosecuted due to the weaknesses in judicial and governmental arrangements.

- **Fire Service**

From the survey conducted, the challenges facing the Fire Service in the delivery of their services to the protection of the forest include;

1. One fire tender is used in quenching fire in both the Sunyani Municipality and Sunyani West District. This facility is woefully inadequate as it caters for both, Sunyani West and the Sunyani Municipality's in times of crises.
2. Inadequate Pick-ups for monitoring and education. Vehicles to be used in creating awareness on fire prevention are woefully inadequate as a lot of movements have to be made to fringe communities to undertake these educational campaigns.
3. Less motivation for fire volunteers; Fire volunteers are not motivated in any form and this poses a challenge, as commitment to duties by fire volunteers are low. Basic fire-fighting equipment such as Wellington boot and other suitable wears which can even entice them to work are woefully inadequate.
4. Recommended preventive measures to FSD are not implemented. This has led to an increase in annual bushfires in the country. According to the Ghana National Fire Service (GNFS) 53 bushfire occurrences were recorded in 2010 increasing to 77 in 2011 (GNFS, 2012).

- **Municipal Assembly**

The study revealed conflicting roles among the forest management institutions. According to the Municipal Assembly, they are not recognized by FSD as a stakeholder in the management of the forest reserve. In view of this, FSD fails to submit reports to the Assembly and even unwilling to provide necessary information demanded for by the Assembly. A gap is then created as no activity on the management or protection of the forest is in the District's Medium Term Plan. The Assembly is only incorporated into forest management in only critical moment like when there is the need to enact a bye-law to arrest certain actions against the protection of the forest.

4.0 Conclusion Remarks

- Existing measures were confirmed by local people as being feasible in addressing the challenges facing forest management yet the ideal is not achieved. This is so because though measures are feasible, they are not well enforced creating room for activities that have negative impact on the forest to be carried on.
- Though community members are involved in the management of the forest, they do not see themselves responsible for that hence majority (80 percent) said it is the responsibility of the FSD to take up that duty.
- Majority of the local people (85 percent) undertake activity in or around the forest. This has both negative and positive effects on the forest as some operate in the forest illegally and others work in there to help regenerate the forest.
- There is weak collaboration between the leading agency (FSD) and other institutions responsible for the

management of the forest especially, the Fire Service as they are in charge of fire prevention and management in the forest. Most preventive measure recommended by this body is relegated to the background and hence the continual occurrence of fire incidence.

4.1 Conclusion

Ghana aims to achieve sustainability and efficient management of its natural resources and as a result, it is only appropriate that concerted efforts are made to address the challenges that confront forest management. This study identified problems with forest management in the study area such as weak collaboration and co-ordination of the forest management institutions. Thus, when programmes, projects and strategies of these institutions are harmonized and efficiently coordinated much of the challenges affecting forest management can be overcome. Other problems identified include inadequate funds and inadequate motivation for forest guards and volunteers. It is the observation of the researchers that a careful at the recommendations outlined will help improve forest reserve management in the study area and Ghana as a whole.

4.2 Recommendation

- Motivation for Fire volunteers

Providing the necessary incentives for fire volunteers in the form of periodic motivational packages and the availability of a conducive working environment will go a long way to boost their moral and commitment to duty.

- Coordination between institutions

There is an urgent need for all institutions charged with the management of fire and the environment in the district to have a cordial relationship. This will be very necessary for consensus building and the effective implementation of fire management and prevention policies.

- Provision of Adequate logistics

The availability of adequate logistics is very necessary for the sustainable management of the forest reserve. This will facilitate the work of the various bodies charged with the management of the forest reserve and help the staff to put their maximum best in the discharge of their duties.

- Education and Sensitisation

Enlightening the various stakeholders, especially, community members on their role is a sure way to addressing most of the common challenges encountered in the management of forest resources. The power of education in forest management is therefore a crucial step that can never be overlooked.

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