



## ASSESSMENT OF FOREST FRINGE COMMUNITIES' PARTICIPATION IN SUSTAINABLE FOREST MANAGEMENT IN THE YAYA FOREST RESERVE OF THE BRONG AHAFO REGION OF GHANA

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### ABSTRACT

The study, a descriptive survey was conducted to evaluate the roles of forest fringe communities; namely, Mallamkrom, Buoko, Tawiakrom, Amoakrom and Chiraa in sustainable forest management of the Yaya Forest Reserve in the Brong Ahafo Region, Ghana. The sample population was made up of five hundred (500) respondents; one hundred (100) selected from each of the five (5) communities. For the primary data collection, household interviews, key informants interviews, direct observation, and group discussion were used. Questionnaires were administered to five (5) selected forest fringe communities. The data collected from the questionnaire survey were analysed using Statistical Package for Social Sciences and presented by tables and figures. Secondary data were collected mainly from the Forest Services Division's records, Resource Management Services Centre (RMSC) records and other various sources. The study revealed that forest fringe communities undertake numerous activities such as establishment of greenbelt, nursing of seedlings, protection of forest against illegal chainsaw and bad farming practices which lead to wildfires. These activities are to ensure the sustainable management of forest resources. Of the communities, 24% were actively involved in protecting the forest against illegalities while 40% participates in community forest management by undertaking two or more of the activities mentioned above. From the study, 61% of the community members indicated that, inadequate equipment and funds are the major constraints to the performance of their roles in sustainable forest management. The overall conclusion shows that the involvement of the fringe communities in management has immensely contributed to the control, prevention and reduction of illegal activities and bushfires in the forest reserve.

**KEYWORDS:** Ghana, Yaya Forest Reserve, Forest Fringe Communities, Sustainable Forest Management

### INTRODUCTION

Forests and trees have since time past provided essential products and services, at the local national and global levels. However, countries in the tropical regions with a considerable forest cover at the beginning of the twentieth century have had their forests destroyed through deforestation and land degradation. Deforestation has become the order of the day due to increase food production from the slash and burn method of shifting cultivation, indiscriminate tree felling and exploitation of timber to provide the needed revenue and foreign exchange. Ghana incurs an estimated economic loss of about US\$54bn annually through deforestation and land degradation. This amount is equivalent to 4% of the national Gross Domestic Product which is comparable to the country's annual economic growth (MSE, 2002; GPRS, 2002). Many stakeholders are concerned with the management and protection of forest resources which are dwindling over the years. Others are raising concerns as to how to incorporate ideas and views of various stakeholders in the management of the forest and other resources. It has been widely accepted that participation of local people is a prerequisite for sustainable forest management. Over the last decades, the notion of "participation" has become a dominant motive in international thinking on forest management and

development, as one of its conceptual pillars. Management must ensure that the forest is at least, maintained if not improved and that the permissible yield is correctly ascertained so that over cutting or undercutting does not take place. This implies that forest management should be geared towards conserving the forest for the sake of posterity. Carter (1996) goes further by describing sustainable forest management as the management of an area of forest to ensure no significant change in its composition over a substantial period of time.

According to Kotey, Francois, Owusu, Yeboah, Amanor, and Antwi (1998), collaboration in the forest resource management is the working partnership between the local people, especially the fringe communities and the Forest Services Division to ensure that the management of all forest resources is more efficient and equitable. It also implies any form of working interaction between the local people and the Forest Services Division to enhance the management of the resources and improve flow of benefits to the local people (FD, 1993). Participatory forestry is therefore increasingly seen as both a desirable and a feasible option of forest management in many parts of the world, but particularly in the tropics (Carter, 1996). Ghana which is a tropical country, and also a poor developing nation cannot afford to lose sight of the current phenomenon of unprecedented speed with which forest

and savannah vegetation is being depleted. Carter (1996) observed that collaboration is a two-way affair, which involves exchange of experience and knowledge in a partnership between the local people and forestry. The partnership of that nature actually involves mutual recognition, acceptance and strengthening of forestry activities needed to be implemented by the Forest Services Division and also recognition and acceptance of the local communities' right over certain needs of the forest resources by the Forest Service Division. The participatory forestry also necessitates considerable emphasis on the establishing of cordiality and transparent lines of communication between local communities and forestry personnel (FD, 1993). According to the International Tropical Timber Organization (ITTO), the failure of forest planners and managers to meaningfully involve local communities has resulted in the lack of transparency that has contributed to both deforestation and the development of corrupt practices in the forestry sectors as there could not be any checks and balances in the system. However, this problem has been constrained by the conflicting perspectives of the wide range of forest sector stakeholders. They therefore highlighted the importance of conflict management procedures as part of a comprehensive approach to collaboration (FD, 1993). Forest fringe communities greatly influence forests since they depend on the forests and their resources for most of their livelihoods. Community forestry focuses on improving the livelihood and welfare of the rural people in conserving natural forest systems through local participation and cooperation (Bhattarai, 1985). The principle of participation therefore demands that forest fringe communities are involved in all decisions concerning the management and development of their forest resources, since that will give them a better understanding and commitment to the natural resources development and protection by them (Kotey, *et.al*, 1998). Some local communities fringing forest reserves have their livelihoods intricately linked with the forest, depending on it for various socio-cultural and economic needs and have over the years been criticized to be one of the main causes of rapid degradation of forest resources. This notwithstanding, much research and knowledge has not been gathered on the actual roles fringe communities play in forest management especially in Ghana; hence, this is an opportunity to establish scientific facts about these roles. The Forest and Wildlife Policy statement emphasized community participation in the sustainable forest management. This policy was implemented through the setting up of the Collaborative Community Forestry Unit to support these initiatives. However, generally, this government effort seem not be achieving the expected impacts at the forest reserve management levels. The involvement of forest fringe communities in sustainable forest management has succeeded to the expected levels. In all community forestry programme, the goals specify the extent to which communities are to be involved in the management of the forest resources. At one extreme no conscious effort is to be made to involve communities whereas at the other extreme, communities may have full control of management over the forest resources. Community involvement in forest management includes

any activity in which the local people are actively considered as part of the woodland management process. The ladder of participation defines the spectrum of community involvement from creating and managing woodlands for local people, through creating and managing woodlands with local people, to helping local people create and manage woodlands for themselves. The rural communities form a significant percentage of Ghana's populations and this percentage has access to relatively limited resources apart from the forest. The forest, therefore, serves as a major source of resources especially timber and NTFPs on which they depend for their livelihood. The rural communities especially the forest fringe communities are also directly in contact with the forest and the resources and in most cases they are the landowners who were managing the resources (FD, 1993). However, in the establishment of the forest reserves, the management of the local people or forest fringe communities to both timber and NTFPs was limited (FD/IIED, 1994). Instead of involving the local communities and stakeholders in the management of the resources, they were completely marginalized. Their resource needs were also not given attentions to as the management was also geared towards timber production, which did not directly benefit the local or rural communities (FD/IIED 1994).

It was realized both nationally and internationally that the government did not have the resources to police the resources adequately against illegal loggers or alienated local communities nor the resource to support effective management. The results from numerous projects in Ghana and elsewhere also showed that local communities have worthwhile interest and concern in Forest Management (Falconer, 1991 and 1992a).

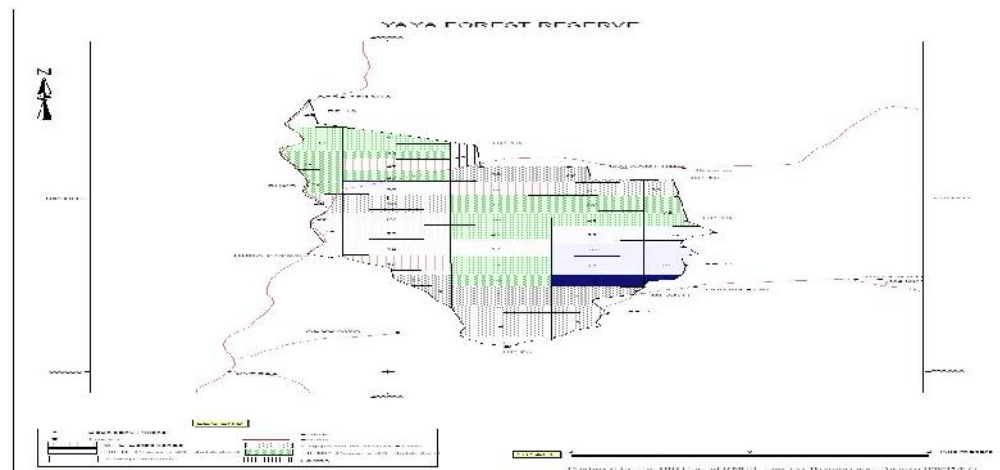
Globally, there has been an increasing pressure on the forest resources due to increasing population and human search for better life. All activities by the society to satisfy their daily requirements of livelihood depend to a large extent on the forest resources. These have made the rural communities who mostly depend on the forest resources to have no other alternative than to fall on the forest resources for their livelihood. This has made it difficult for governments to single-handedly manage the forest resources even if massive resources were available (Thomson, 1994). Thomson, (1994), realized these problems were recognized by world bodies who are concerned with environment as well as many governments. They therefore initiated a need for a policy that would call for local people's participation in all aspects of the forest resource management and planning. Ghana's 1994 Forest and Wildlife Policy provides for the collaboration with local communities in the resource management were therefore adopted. The aim of this research is to identify the roles of Forest Fringe Communities bordering the Yaya Forest Reserves in the Brong Ahafo Region in promoting sustainable forest management.

#### **METHODOLOGY**

The study was carried out in five (5) Forest Fringe Communities: namely, Mallamkrom, Buoko, Tawiakrom, Amoakrom and Chiraa bordering Yaya Forest Reserve. The reserve is administered by the Sunyani Forest District

of the Brong Ahafo Region and lies between latitude 7°25'N and longitude 2°12' and 2°07'W. It is irregular in

shape and has an area of 51.36 km<sup>2</sup>, i.e. 5,136 ha and perimeter of 27.48 km (Fig. 1).



**FIGURE 1:** Map of Yaya Forest Reserve

### Vegetation and Climate

It is considered as a degraded forest due to the low stocking levels of economic and non-economic trees. The common and frequently occurring species within the reserve are *Triplochiton*, *Azelaia*, and *Khaya senegalensis*, *Militia*, *Albizia* and *Mansonia*. Climatically, the reserve falls within the fire subtype of the deciduous forest zone in Ghana with an average annual rainfall of 1,224 mm. It has two rainfall seasons which peak in April and September and two dry seasons. Temperatures are generally high in most parts of the year and ranges between 23.9°C and 26.4°C. The dry season often begins from November to March and July to August with an undulating and gentle sloping topography (Dickson and Benneh, 1988). It is characterized with two soil types. The middle slopes have well-drained and moderately fertile soil that supports tree growth and a variety of food crops. It also has sandy soil with quartzite out-crops along river beds which also support cash crops. The vegetation of the area also has the moist semi-deciduous forest type and specifically the guinea savannah woodland. The moist semi-deciduous forest occurs in an area that is conducive for the production of cash crops, such as cocoa, coffee, rubber, tobacco and cashew. The main food crops are maize, cassava, plantain, yam, cocoyam, rice and tomatoes. Yam production is very high in the guinea savannah woodland zone (Dickson and Benneh, 1988).

### Economic Activities

Farming is the major economic activity of the people in the towns and villages in and around the study area. Some notable villages in and around the study area are Mallamkrom, Tewiakrom, Chiraa, Asuakwaa, Buoko and Amoakrom. Two (2) main crops cultivated are food and tree crops. The major food crops are plantain, cassava, cocoyam and maize. Okro, pepper and pineapples are also planted alongside the major food crops. The tree crops are mainly *Tectona grandis* (Teak), *Cedrella Ordorata* and Ofram.

### Data Collection Procedure

A structured questionnaire was developed to collect data from the fringe communities. The questionnaires included closed and opened types whereby the respondents were made to choose answers from options provided. They were given the opportunity to express their views on the various questions for the detailed evaluation and achievement of the project objectives. The stratified random sampling method was used in the selection of the respondents.

Questionnaires were administered to five (5) selected communities in the forest fringe communities. Each community was given hundred (100) questionnaires to respondents selected from different households. All respondents were interviewed individually on one to one basis. There were equal number of males and females to ensure gender balance.

### Data analysis

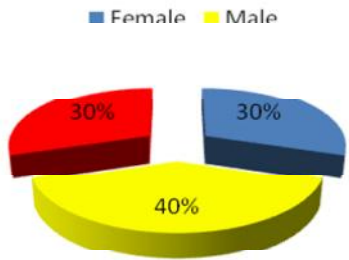
The data collected were analysed using Statistical Package for Social Sciences (SPSS Version 16.0) and Microsoft Excel. The outcomes were presented using tables, and charts.

### RESULTS

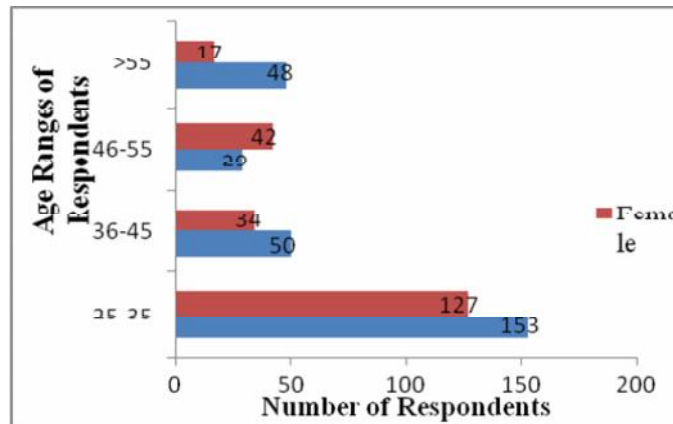
The results have been presented based on the data collected from the investigated Forest Fringe Communities.

### Recorded Gender Population in Sustainable Forest Management

Gender plays a major role in the effective management of forest resources. A total of 500 respondents were sampled from the various communities bordering the reserve. It was observed that 70% of the total respondents were actively involved in various activities under organized grouping in the sustainable management of the forest. This was made up of 40% males and 30% females, while the remaining 30% of both males and females did not participate in any organized sustainable forest management group activities (Fig. 2).



**Fig. 2: Gender distribution of respondents**



**FIGURE 3: Age distribution of respondents in group**

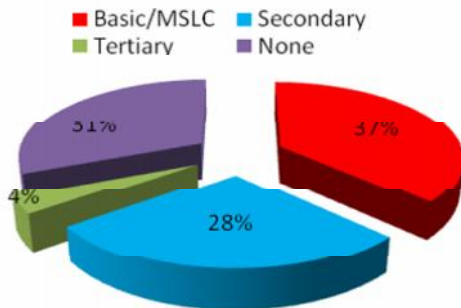
**Age of Respondents in Sustainable Forest Management**

Age group plays a vital role in the management of the forest at various management levels. From the survey, it was found that 60% of the respondents between 25-35 years made up 120 females and 180 males were actively engaged in various groupings and activities towards the sustainable management of the forest (Fig. 3).

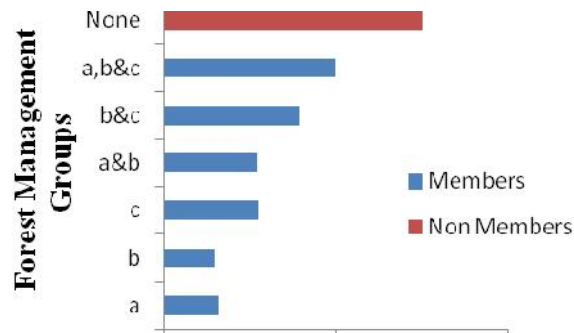
**Educational Background of Respondents**

People with various educational backgrounds were involved in farming activities in the forest fringe

communities. According to Fig. 4, 4% of the respondents had tertiary education, 37% of them had primary education, 28% had secondary education while 31% did not have any educational background. This has resulted in the farmer’s ability to prevent the incidence of fire outbreak on their farms and the forest reserve for the past 5 years. Improved farming methods such as mulching and regular weeding have been undertaken because of the educational background of the majority of the respondents.



**Fig. 4: Educational background of respondents**



**FIGURE 5: Respondents level of participation in forest management programme/groupings**

**Level of participation in Forest Management Programme/Groupings**

The study revealed that 70% of the respondents were active members of the existing groups for the sustainable management of forest resources in the various communities while (30%) did not belong to any management group. The various management groups include: **a**-Community Forest Committees (CFC) - (6.4%), **b**- Fire Volunteer Service (FVS) - (6%), **c**- Modified Taungya Group (MTG) - (11%). Out of the 70% involved in the various management groups, 20% are in all the three (a, b & c), 15% are associated with FVS and MTG while 10.8% are also associated with CFC and FVS (Fig. 5).

(a, b, c, d, e, f, g) to ensure the sustainable management of forest resources. The survey revealed that from all the five selected forest fringe communities, majority of the people (120) were involved in protecting the forest against illegal activities, 110 respondents were into Greenbelt establishment, 35 people were planting food crops, and 35 were also nursing seedlings for plantation establishment. The rest of the respondents were also involved in two or more of the various activities as indicated in Table 2. As observed in Table 2 and Fig. 6, the communities have different preferences with regard to the various activities undertaken by the forest management groups. Group members from Tawiakrom are actively involved in planting food crops/trees and raising tree seedlings as compared to other activities. Similarly, members from Chiraa are actively involved in combating illegal chainsaw

**Roles of Forest Fringe Communities in Forest Management**

Forest fringe communities undertake numerous activities

activities in the forest reserve. This scenario also applies to the other communities.

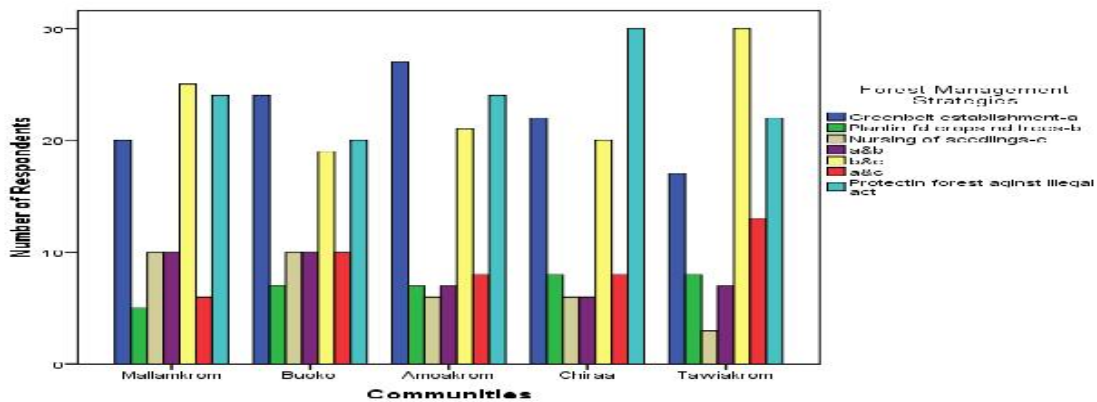
**TABLE 2:** Forest Management Activities Communities Undertook in Groups

CODE	ACTIVITIES	SELECTED COMMUNITIES					TOTAL RESPONDENTS
		Mallamkrom	Buoko	Amoakrom	Chiraa	Tawiakrom	
a	Greenbelt establishment	20	24	27	22	17	110
b	Planting food crops and trees	5	7	7	8	8	35
c	Nursing of seedlings	10	10	6	6	3	35
d	Greenbelt establishment & Planting food crops trees	10	10	7	6	7	40
e	Planting food crops & Nursing of seedlings	25	19	21	20	30	115
f	Greenbelt establishment & Nursing of seedlings	6	10	8	8	13	45
g	Protecting forest against illegal act	24	20	24	30	22	120

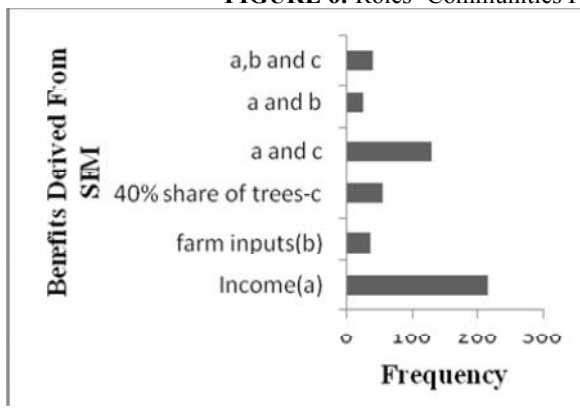
**The main focus of Community Participation in Sustainable Forest Management**

Most communities indicated that their reason for joining the various groups in sustainable management is to generate income that is gain 40% share of trees planted, and also have access to farm inputs. From the survey, a -

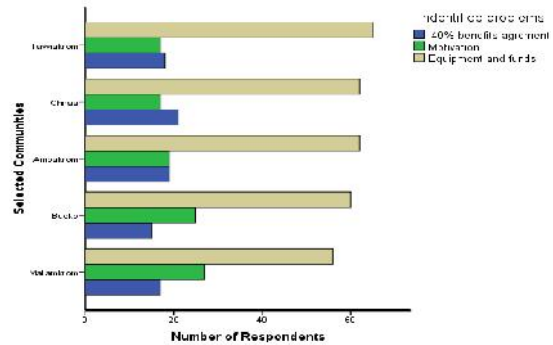
43% indicated that they had join to earn income, b - 11% out of the 40% also indicated having a share of the trees planted, and c - 7% for farm inputs to enable them work on their private farms. The rest of the respondents indicated that they had joined for multiple reasons stated above (Fig. 7).



**FIGURE 6:** Roles' Communities Play in Forest Management Strategies



**FIGURE 7:** Benefits Community Members Derive from Sustainable Forest Management



**FIGURE 8:** Problems Facing Group Members of Forest Management Communities

From the survey, most of the respondents (61%) indicated that, inadequate equipment and funds are the major

management whilst 21% emphasized on lack of motivation. Again, 18% of respondents from the selected

communities emphasized that the failure of forestry commission to sign the 40% benefits agreements made members of community forest management groups reluctant to participate fully in group activities that leads to sustainable forest management as indicated in Fig. 8. It was revealed that absolutely nothing was being done by the various groups of the forest fringe communities to curb illegal activities. This is because all the fringe communities on sustainable management were faced with the problem of logistics and funds and worst of all the inability of the Forestry Commission to sign the 40% benefit sharing agreement with them.

## DISCUSSION

The study focused on the Yaya forest fringe communities; namely, Mallamkrom, Buoko, Tawiakrom, Amoakrom and Chiraa, and their involvement to sustainable forest management.

### Educational level of the Respondents

Out of a sample of 500 respondents from communities selected in and around Yaya forest reserve for the study, majority (37%) had some basic education, 28% secondary education and 4% with tertiary education, whilst the remaining 31% had received no formal education. With 69% having some form of education, this impacted positively in the protection of the forest reserve, and on their farming activities which is their main occupation. This reduced the occurrence of bushfires and improved farming practices adopted within the area.

The study found a slight gender dichotomy in all the selected forest fringe communities, where 40% males and 30% females actively participated in forest management programme groupings. However, according to Fisseha (1987) though women are involved in forest management programmes, they are not the majority. They tend to be more engaged in subsistent farming (Agriculture) as compared to forest group activities. Men on the other hand, dominate in community forest management activities (Arnold, *et al.*, 1994 cited in Kozak, 2007).

### Age of the Respondents

On age of respondents in group activities, it was observed that 60% were between 25-35 years (180 males and 120 females) mainly the youth were actively engaged in various groupings and activities towards the sustainable management of the forest.

### The Level of Participation by Forest Fringe Communities in Forest Management

Forest fringe communities were observed in numerous activities such as greenbelt establishment, nursing of seedlings, protection of the forest against illegal chainsaw and bad farming practices, control and prevention of wildfires as a collaborative effort to ensure the sustainable management of forest resources. Carter (1996) observed that collaboration is a two-way affair, which involves exchange of experience and knowledge in partnership between the local people and forestry. This observation was confirmed by Kotey, *et al* (1998) who revealed that collaboration in the forest resource management is the working partnership between the local people, especially the fringe communities and the Forest Services Division to ensure that the management of all forest resources is more efficient and equitable.

## Benefits of the Communities in Sustainable Forest Management

In the study, it was observed that there were various motivating reasons that encourage all the communities to participate in forest management activities. These included income generation, 40% share of trees, and various farm inputs, such as cutlasses, farming boots and rain coats. This observation was also made by Paul (1987), who indicated that poverty reduction projects, community participation may be viewed as a process that serves one or more objectives of project effectiveness and capacity building as well as an investment of empowerment.

### The Effects of their Roles on Sustainable Forest Management

Thomson (1994) observed that, community participation in combating bushfire is an intrinsic tool that cannot be neglected in the management processes of sustainable natural resources since human-induced burning is the major cause of wildfire. This confirms' findings that over 70% of the fringe communities studied indicated that poaching, and the slush and burn method of farming activities, which usually resulted in bushfires decreased because of the level of education of the farmers who adopted improved system of farming activities.

However, it was found out that numerous key factors which included benefit sharing, inadequate equipment and funds are major constraints to the performance of their roles in the sustainable forest management. The fringe communities emphasized that the failure of Forestry Commission to sign the 40% benefits sharing agreement has given them mixed response to anticipated benefits as a major motivation package to them.

## CONCLUSION

The issues discussed in the study are broadly related to sustainable forest management. The study tried to analyze the key issues of community participation in government managed forest reserves with reference to the communities in and around Yaya forest reserve. Again, the study sought to understand the communities' collaborative efforts and the benefits derived. The following conclusions are hereby made:

- The communities are yet to be convinced of the long term benefits with reference to the anticipated 40% benefit sharing arrangement.
- Members of the community gained access to farm land in the forest reserves, and adopted improved farming practices.
- The involvement of fringe communities in management immensely contributed to the control, prevention and reduction of illegal activities and bushfires in the forest reserve.
- The standards of living of participants improved through income generation from the sale of farm produce, seedlings and establishing greenbelt.

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