

STAKEHOLDERS' PERCEPTION OF FOREST AND ITS IMPLICATIONS FOR SUSTAINABLE FOREST MANAGEMENT IN GHANA

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ABSTRACT: The objective of the study is to examine stakeholders' perception of forest and its implication for sustainable forest management in Ghana. This has become necessary in the light of the fact that operational application of forest management remains troublesome leading to the development of inconsistent forest management practices in the country. The study was approached using a cross-sectional design imploring semi-structured interviews and questionnaires as data collection method and instrument respectively in Juaso Forest District in the Asante Akim Central Municipality of Ghana. The research findings indicate that stakeholders' participation in sustainable forest management in the Juaso Forest District has been met with a myriad of challenges. These challenges are deeply rooted in the stakeholders' perceptions of what constitute forest in the communities. These perceptions have defined the conditions required for sustainable forest management at the local level. It is noted that sustainable forest management is a collaborative efforts, hence at the local level efforts should be made to ensure participation of all stakeholders in the decision making, policy design and implementation.

KEYWORDS: Stakeholders; Forest; Access; Nature; Right; Management; Collaborative; Ghana

1 INTRODUCTION

Stakeholders as those who are likely to be affected by a policy or project and who have the power to help or obstruct its acceptance at the decision making level [1]. These can range generally from entities of national and local government, civil society organizations, private organizations, citizens and international donors. Stakeholders are found in every sector of the economy.

The situation is similar in the forestry sector where there are many stakeholders involved in various forestry activities. The stakeholders in the forestry sector come from different background including foresters, rangers, policy makers, farmers, and local communities (traditional leaders, assembly members, community-based organizations among others). The roles and position of these stakeholders are defined based on their distinct expertise. In this connection, the diverse activities in the forestry sector, for instance management, are carried out by individuals who have expertise in management. The local communities however involved in any forest active also have expertise in forest management based on local knowledge and adaptation since their livelihoods are predicated on forest resources.

Forests in general are complex and contested spaces, not fixed entities whose nature can be stated in an absolute way This is because the way forests are understood and valued is inextricably linked with the ideas of these diverse stakeholders who view or lay claim on them [2].

According to [3], a forest is defined as an ecosystem characterized by more or less dense and extensive tree cover, often consisting of stands that vary in species composition, structure, age, class, and associated processes. The United Nations Environmental Programme (UNEP) explains that to understand what constitute forests, two criteria can be used and these

include the crown cover threshold and land use criteria. The UNEP highlights a 10% minimum threshold of crown cover for defining both opened and closed forests. In using the land use criterion forests are defined in line with the "main purpose or use" of the forest resources. And this perspective is similarly shared by [4] who claim forests as tree covered areas not predominantly used for purposes other than forestry. Based on this opinion, they have distinguished forests into two types; natural forests and planted secondary or plantation forests.

It is also important to emphasize that the various perceptions of the stakeholders within the forestry sector influence their contribution towards sustainable forest management. In Ghana, forest ownership and management is fraught with the imbalances of trust. Governmental institutions such as the Forest Services Division (FDS), in collaboration with the local communities, present options for collaborative forest management. However, lack of absolute trust and positive expectations, particularly from the local people have invariably derailed the motive of such drives and efforts. Again, the fact of the ad hoc programmes by forestry institutions in curbing rapid deforestation from over-exploitation have usually marginalized the local people in the planning processes. Since the lack of trust in forest ownership and management is a major drive of deforestation, the next section of the paper reviews the trajectory of forest tenureship and management in Ghana.

2 THE TRAJECTORY OF FOREST TENURESHIP AND MANAGEMENT IN GHANA

Forest power including tenureship in Ghana has a long history dating back to the pre-colonial era, where forests were owned in common by families, clans, and stools (communities) [5], [6]. However, subsequent forest reforms such as the Forest Ordinance of 1927 authorized the colonial government to put part of Ghana's forest into reserves [6]. After the reservation was completed in 1939, a forest policy was adopted in 1948 (Forestry Commission [7]). This policy was criticized by the World Bank preparatory missions for the Forest Resource Management Project (FRMP) as being inadequate in dealing with the problem of deforestation in Ghana [8].

The ownership and management of forest reserves were solely the preserve of the Government of Ghana in trust for the local people. These functions were entrusted into the hands of Forest Services Division at the local level. The 1927 Forest Ordinance also provided an alternative mode of forest management by the owner(s) under the direction of the then Forestry Department (now known as Forest Services Division). Thus, the local communities saw the creation of the reserves as a complete removal of their rights and benefits, and an expropriation of their land and forests [8]. Subsequently, the Concessions Act of 1962 vested the right to grant timber concessions and the management of all timber resources, both on and off reserves, in the central government. In addition, through the Forest Protection Decree of 1974, the management of trees within forest reserves and the rights to own, plant, use, and dispose of trees are controlled by the State [9].

The subsequent forest reforms and policies in Ghana aimed at protecting the forest resources, particularly timber both on and off reserves with no or limited involvement of the local communities. In view of the over-centralization of forest management without any decentralized role for communities and industries, the non-integration of rural production systems into forest management, and the demise of off-reserve forests, the government in the 1980s and early 1990s, called for "social forestry" or "rural forestry" (was promoted by the then Forestry Department) as a way of encouraging communities to establish village, communal, individual or family woodlots [10].

Successive postcolonial governments in Ghana continued the colonial legacy of forest management, which excluded the local people and focused on commercial interests [11]. Currently in Ghana, the chieftaincy institutions exercise resource ownership functions on behalf of the local people whereas the government exercises administrative and management functions of forested lands by holding the lands and trees on them in trust [12]. In this case, people do not have any control over forest resources, particularly the economic species, on their own parcels of lands, which may form part of a concession leased out by the government to timber companies. Victims of such a situation may feel excluded from sharing the benefits of forest resources and may cause damage to these resources.

However, forest communities in Ghana have their livelihoods predicated on the availability, access, and utilization of products of the forest [13], [14]. The exclusion of the local communities in forest management in Ghana denies them the right and ability to access forest resources, including NTFPs, upon which their livelihoods subsist [15]. Consequently, concerns raised by major stakeholders along with increasing international attention on deforestation stirred the revision of the 1948 Forest Policy, which culminated in the adoption of the new Forest and Wildlife Policy (FWP) in 1994 (1994-FWP) [16].

The overall aim of the 1994-FWP was conservation and sustainable development of the nation's forest and wildlife for maintenance of environmental quality and perpetual flow of benefits to all parts of society. It provided a framework for some important legislative reforms including the Forestry Commission Act (Act 5), which consolidates sector agencies [17]. The 1994-FWP also emphasized collaborative forest management (CFM) by enhancing the role of communities in forestry at

policy, managerial and implementation levels [18], where the government, led by the Forest Services Division, partnered with forest communities to manage the forest [19]. Thus, the policy emphasized the decentralization of forest management responsibilities to communities. The FC therefore created a Collaborative Natural Resources Management Unit (CNRMU) and, at the community level, the Community Forest Committees (CFCs) and Community Biodiversity Advisory Groups (CBAGs) [17]. Despite the fact that the 1994-FWP recognized the importance of Collaborative Natural Resource Management (CNRM) and Community-based Natural Resource Management (CBNRM), these had no legal backing [18], [17]. Thus, communities do not participate in forest management as of right but as licensees, and also CFCs do not participate in planning or policy formulation about important issues like access rights or benefits sharing [17].

More recently it has been noted that one key factor perpetuating deforestation is the changing perception of stakeholders on forest delineation or reserve. Thus, the perception of forest delineation particularly by the local people varies based on the nominal attention given to trees on off-reserves as compared trees in on-reserves by the FSD. This has become a disincentive towards sustainable forest management. Consequently, the various stakeholders namely, the local government entities in charge of forests and the local communities perceived forest from a different angle, which has influenced their roles in sustainable forest management. It is therefore necessary to identify the position(s) and role(s) of every stakeholder(s) but more importantly how effectively they participate in the pursuit of the objectives of forest management. The understanding of participation per this study is a process through which stakeholders have influenced and share control over the development initiative, decisions and resources, which affect them [20]. Theoretically the research opines that, stakeholders' perceptions of forest influence the position and/or value they place on the resources. This in turn also influences their role in forest management and usage.

Figure 1 is a flow chart showing the interrelationship between stakeholders' perception and the implication for sustainable forest management in Ghana.

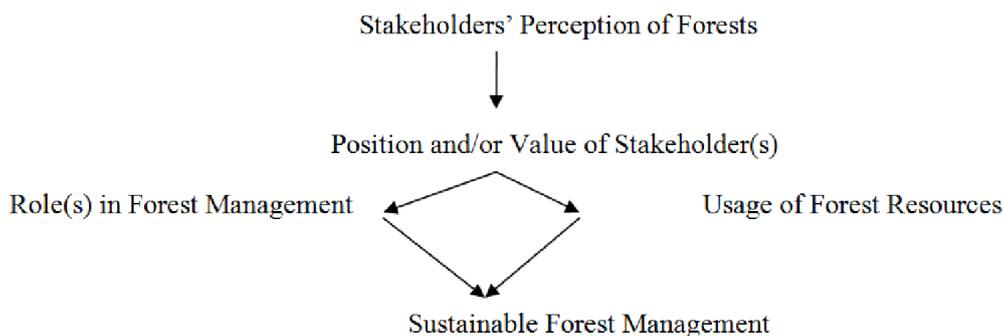


Figure 1: Stakeholder Perception and Sustainable Forest Management

3 STUDY AREA

The study was conducted in two communities: Dwease and Praaso in the Juaso forest district in the Asante Akim Central Municipal Assembly (AACMA) of Ghana. The Municipality lies between latitudes $6^{\circ} 30'$ North and $7^{\circ} 30'$ North and longitudes $0^{\circ} 15'$ West and $1^{\circ} 20'$ West. It shares boundaries to the north with Asante Akim North district, to the east and to south with Asante Akim South and to the west with Ejisu-Juaben municipality. The populations of the two communities are estimated at 5160 and 5148 for Dwease and Praaso respectively [21].

The vegetation type of the Municipality can be categorized under the moist semi-deciduous forest belt. The vegetation pattern is distributed in three dimensions; Open Forest which covers 576 km^2 and spreads over the highlands of the municipality. The other two include the Closed Forest covering 230 km^2 on the range and the Wooded Savannah covering 246 km^2 . The different tree species produce tropical woods such as Wawa, Ofram, Sapele, Sanfina, Okyere (Kofo), Onyina, Kyenkyen, Otie and Yaya, which have high economic value. Apart from wood products, foodstuffs (delicacies such as snails and mushroom) and other raw materials are obtained from the forest for industrial and domestic use [21].

About 82% of the population in the municipality is engaged in private informal occupations like agriculture, trading, vocational services (hair dressing, sewing and driving), carpentry and masonry. Agriculture stands out as the major occupation employing 53.9% of the people especially those aged 15 years and above. The major staple food crops produced include maize, cassava, plantain, cocoyam and yam while cocoa is the major cash crop. Agricultural production is however largely on subsistence basis (72% of the farmers cultivating less than 3 acres of land) while about 6% engaged in large-scale farming [21]. Figure 2 is a map of the Asante Akim Central Municipality with the studied highlighted in the shades.

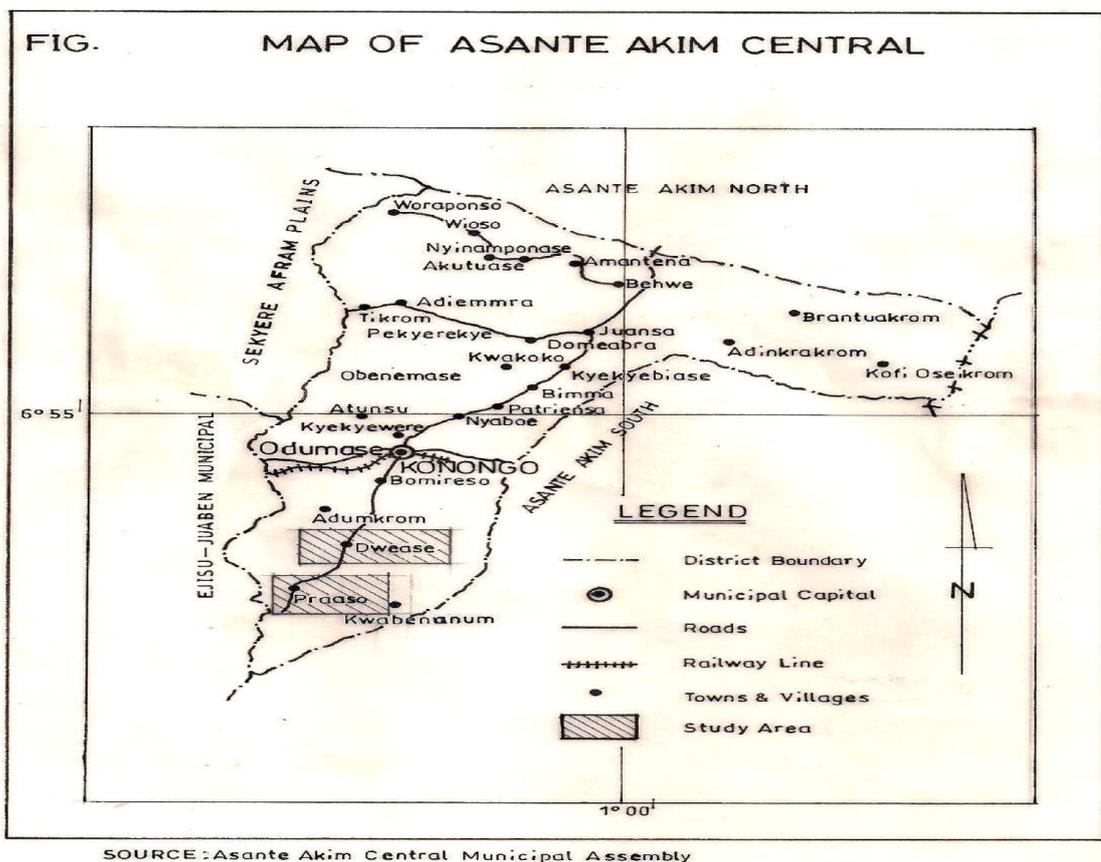


Figure 2: Map of Asante Akim Central Municipal Assembly indicating sampled communities in shades

4 RESEARCH METHODS

The cross-sectional design was used for this study because of its suitability. The focus was to indicate the pattern of association between and among the key variables, which were sought, and the cross-sectional design is a good choice in that regard. A cross-sectional design entails the collection of data on more than one case and at a single point in time in order to collect a body of data in connection to two or more variables, which are examined to detect a pattern of association [22].

With regard to the sampling technique, both stratified random and purposive sampling techniques were used because of the mixed research strategy adopted. The stratified random sampling was used to select household heads for the questionnaire administration. The stratification was based on gender (male and female strata), and respondents were then randomly sampled from these strata depending on who expressed interest of being involved in the research. The purposive sampling was used to select subjects based on their relationship with the research questions [22] and this included key informants like Forest Services Division, traditional rulers and assemblymen to conduct the interviews. The total sampling frame consisted of two staff from the Forest Services Division (Assistant manager and a forest guard based in Dwease), Chief of Dwease and the Assemblyman of Praaso. In addition, a total of One Hundred and Ten (110) household respondents were sampled and this consisted of Sixty (60) from Dwease and Fifty (50) from Praaso.

Both primary data and secondary information were collected for this study, with the primary data resulting from a two month field survey in the two communities while the secondary information resulted mainly from peer-reviewed articles, books, magazines and other sources with relevance to the study. Semi-structured interviewing was used for the key informants (traditional rulers, assembly and the Forest Services Division). Though different interview guides were used for the various informants, the content of each basically covered the demands of the key research question. Self-administered questionnaire was also used to solicit the individual views of heads of households regarding the key research question and this was augmented by personal observations, in which the researchers adopted the overt role of being “observers-as-participants”.

The pre-coded questions from the questionnaire administration were analyzed using the Statistical Package for Social Sciences (SPSS) and the result presented in frequency tables. The qualitative data was analyzed thematically, by identifying

key themes in the interviews and these were outlined through indexing or coding the data and reflecting and interpreting the data. The major ethical consideration observed was with regards to informed consent; however, the essence of the research was explained to each participant before engaging him or her either in an interview or questionnaire administration. But this does not eliminate the fact that, they did not have detailed knowledge about the outline of questions (the way the questions were to be asked and how). The need to preserve such information became necessary in order not influence the perception of respondents and to reduce biases, which could jeopardize the reliability of the research findings.

5 RESULTS AND DISCUSSIONS

5.1 STAKEHOLDERS' PERCEPTION OF FOREST AND FOREST TYPES IN GHANA

In due recognition of the fact that forest ownership in Ghana is considered to be dual (legal estate in the government and the beneficial estate in the local communities), the key stakeholders identified were broadly delineated into state and local partners. In terms of the state partners, forest governance and management is officially vested in the Forestry Commission of Ghana (FC) who carries out this responsibility through its decentralized body; the Forest Services Division (FSD) in addition to other public bodies and agencies like the Wildlife Division, Timber Industry Development Division, Wood Industries Training Centre; and the Resource Management Support Centre. It was however discovered that the FSD is the only a functional body within the state apparatus with recognized role(s) towards forest management.

From Table 1, it is identified that 77 of the total household respondents (70.6%) stated that the Forest Services Division (FSD) is the major institution of forest governance and management while the remaining 33 respondents (26.6%) indicated that local partners including the Chiefs, Assemblymen and local residents are responsible for forest governance and management.

Table 1: Respondents' views on the stakeholders of forest governance and management

Stakeholders	Frequency	Percent (%)
Forest Services Division	77	70.6
Local partners	33	29.4
Total	110	100

Source: Authors (Fieldwork, 2013).

The understanding of forest as perceived by the various stakeholders involved in this study unanimously connotes tree-dominated environment. The study identified the individual responses on the perception of forest to be directly in line with the two most critical factors; *crown cover threshold* and *land use criteria* used in distinguishing forest types as highlighted by the UNEP. Based on these factors four categories of viewpoints were identified in relation to the understanding of forests in the studied communities. These include "*Crown cover threshold only*"; "*Land use criterion only*"; "*Both Crown cover threshold and Land use criteria*"; and "*Other, please specify*" as shown in Table 2.

Table 2: Household Respondents' Criteria for defining Forest

Criteria	Frequency	Percent
Crown cover threshold only	39	35.5
Land use criterion only	24	21.8
Crown cover threshold and Land use criteria	37	33.6
Other, please specify	10	9.1
Total	110	100.0

Source: Authors (Fieldwork, 2013).

It is identified from Table 2 that, 39 respondents (35.5%) defined forest using the crown cover threshold criterion only. Based on this, their perception of forest is expressed as "*a land with large and closed association of tree covering and interaction of other biodiversity*" (Personal interviews, 2013). Though the local people do not necessarily understand the

technicalities of what constitute the crown cover threshold to distinguish between opened and closed forest types as indicated by the UNEP, their descriptions is congruent with the perception of forest by [23] as the associations of large, woody, perennial tree species, generally several times the height of a human, and with a more or less closed canopy of leaves overhead.

A total of 24 respondents (21.8%) also explained their understanding of forest following the land use criterion only. By this criterion, forest is *"a land that has never or is partially being cultivated"*. The focus of this perspective is informed by the role of human intervention in the regeneration or degradation of the forest environment and this clearly relates with the definition of forests by [24] as tree covered areas not predominantly used for purposes other than forestry. Majority of the household respondents identified that a greater proportion of the forests can be classified as plantation or secondary forests because they have their farmlands located within the forested area. Even respondents argued that the Dome River Forest reserve located in Dwease can be classified as secondary forest because parts of it had been used for agro-forestry under the Modified Taungya System (MTS).

For the 37 respondents (33.6%) who defined forest using both the crown cover threshold and land use criteria, a forest *"is any land with closed covering of trees and other biodiversity that has never or is partially being cultivated"*. It is observed and also indicated by respondents that because much of the forests have been cultivated or are still being cultivated and this has essentially affected the crown cover development of trees and caused the loss of indigenous trees and other vegetative species.

While the crown cover and land use criteria seem to dominated in the expressions on what constitute forests among the local residents, as pointed out in Table 2, it was also observed that, 10 respondents (9.1%) defined forests based on different factors. One of such factors highlighted was the *"maturity of the trees"*. By this the respondents meant the *"size"* of the trees measured in terms of the thickness of the trunk, which they use to determine whether a tree is ready to be harvested. Based on this view, it was common to hear some respondents argue that there is no forest in the area. This is because logging especially the operation of chainsaw has destroyed if not all, majority of the trees needed to classify the tree-dominated ecosystem as forest(s).

Again, some indicated the institutional policy framework that defines the tree ownership and management. Under this, forests can be a land owned and managed solely by *"the government"* (herein defined as the Forest Services Division) or jointly owned and managed *"the FSD and traditional rulers"* for a given community. This is confirmed in the definition of forest by the FSD. According to the FSD;

"A forest is a piece of land earmarked and set aside by prescribed policy with the minimum height of the trees being 5meters that involves a complex interaction of biodiversity, water bodies, and other physical land characteristics" (Personal interview 2013).

The *"5meters"* height of trees within a forest can be used to define the crown cover threshold as indicated by the household respondents. The definition of height measured in *"meters"* partially relates with the understanding of forest as advanced by [25]. According to FAO, forest refers to as a land spanning more than 0.5 hectares with trees higher than five (5) meters and a canopy cover of more than ten (10) percent, or trees able to reach these thresholds in situ; it does not include land that is predominantly under agricultural or urban land use. The use of height is a suitable denominator to delineate forests from other terrestrial biome and more specifically, other plant communities. Forests for that matter are easily recognized by the height and tree crown cover.

Even though the FSD perceives the height of trees as a necessary factor in defining forest, the emphasis is placed on whether the land has been demarcated by policy to be protected. In addition, the responsibility of governance and management must be vested with the Forest Service Division and this could be in trust for one or more communities. Based on this explanation a forest is connoted same as a forest reserve. In relation to the two communities, Dwease has a forest because it shares in the ownership and management of the Dome River Forest Reserve while Praaso does not because there is no forest reserve located in this community. In addition, it also has no share in the ownership and management of the reserve at Dwease. The import is that, even though Praaso has extensive trees dominated vegetative species above the minimum threshold of 5 meters, such areas are not regarded as forests according to the understanding of forests as inquired at the local FSD office.

It is realized generally that the perception of forest as an ecosystem characterized by more or less dense and extensive tree cover, often consisting of stands that vary in species composition, structure, age, class, and associated processes clearly captured the fragmented ideas expressed by the research respondents. The distinction of forest types into primary and secondary forest types seeks to examine whether the forest has undergone succession and to what extent the indigenous forest resources have been maintained in terms of species composition, structure, age, and class. It is observed and also

indicated by respondents that much of the forests have been cultivated or are still being cultivated and it has essentially affected the crown cover development of trees and has caused loss of indigenous trees and other vegetative species.

Based on this analysis, a permutation of the varied perceptions of forest by the household respondents revealed that the forest types in the study area can be categorized into primary-opened forest; primary-closed forest; secondary-opened forest; and secondary-closed forest as indicated in table 3.

Table 3: Forest types (delineated using both crown cover and land use criteria)

Forest type	Frequency	Percent
Primary-closed forest	15	13.6
Primary-opened forest	18	16.4
Secondary-closed forest	4	3.6
Secondary-opened forest	73	66.4
Total	110	100.0

Source: Author (Fieldwork, 2013).

From Table 3, majority of the respondents perceived the predominant forest type in both communities to be secondary-opened and this implies that the forest is being cultivated and has opened canopy. Majority of the respondents noted that, most of the forested areas in the communities is being used to cultivate both tree and food crops however, the local people did not necessarily understand the technicalities of what constitute the crown cover threshold to distinguish between opened and closed forest types.

This was explained by staff of the FSD to be determined using the conditional score, which refers to the degree of visibility under the trees canopies for a distance of 800 meters long. The scores are ranged from 1 to 5 with a score of 1 being the highest; this is equivalent to 100% and 5 being the lowest score. Forests with highest condition score often lack undergrowth which aids clear visibility under the canopies and such category are classified as closed forests. Those with low scores have more undergrowth, which produces visibility under the canopies, and these are defined as opened forests. Based on this, the Dome River forest reserve located in Dwease is argued to have a conditional score between 3 and 4, which is low and thus is classified as an opened forest. Also, since it has been used for agro-forestry, it is obviously classified as secondary-opened forest type.

5.2 IMPLICATIONS FOR SUSTAINABLE FOREST MANAGEMENT IN GHANA

It is necessary to highlight that the various understandings of the forest as expressed by respondents reveal some critical issues which are pertinent for inquiring into the conditions for local level sustainable forest management. It is realized that the interpretation of the concept of sustainable forest management by different actors and institutions vary. Notwithstanding, a common consensus is the need to recognize the participation of all stakeholders in forest management activities. The views expressed particularly by the local people in both communities are congruent with [26] who stressed that for forest management to be participatory there is the need to involve local people in decision-making and in the control and management of the forests.

It is pertinent to state that the local stakeholders duly recognize their positions and roles towards sustainable forest management nonetheless they argued that in practice, forest governance and management in their communities has been solely handed by the state apparatus. For instance the chief of Dwease remarked that;

“Though the Forest Services Division is supposed to foster collaboration with us for forest management (FM), I have realized our efforts are not appreciated. We suggested a voluntary forestry team from the community to help monitor the chainsaw operations but it has been refuted by the FSD. Yet most of the forest guards used by the FSD cannot read and write and this has promoted ineffective data collection, which is a great challenge towards sustainable forest management in this community” (Personal Interview 2013).

This observation confirms [27] who notes that, the Forest Ordinance No. 13 of 1927 (Cape 157) along with subsequent enactments in the Forestry sector have operated to expropriate all forest lands from the communities (both the legal estate and management powers) to the government. This has often created conflicts regarding the sharing of forests benefits as well as issues relating to ownership and management.

From the above analysis, it is realized that, management of forests in Ghana is characterized by disputes and disoriented ideas. This orientation has critically affected the conditions and practices required for sustainable forest management especially at the local level. As a result, if Ghana is to achieve the objectives of sustainability in the forestry sector, then fundamental issues relating to the positions and roles of the various stakeholders on forest management and governance ought to be addressed. In the case of the studied communities, the critical issues, which should be looked, include "access to", "nature of" and "right to".

On the issue of *access to*, those who explained their understanding of forest based on the ownership criterion indicated that the Dome River Forest Reserve is *less accessible*. This is because by definition, such a land has been earmarked by the Forest Services Division (FSD) as a reserve and access to such forest type is highly regulated. This contrasts greatly with access to the off-reserves forest types. It is explained that, because these are generally being cultivated, they are more of de facto open-access resources widely open to any entrepreneur and individuals in the communities who are able to negotiate unofficial access to the forests independently of an official legal regime in place.

In order to ascertain this claim, the heads of households were questioned on the kind of forest resources they mostly extract. The respondents opined that, they either extract Non-Timber Forest Products (NTFPs) only or Timber Forest Products (TFPs) only or a combination of both NTFPs and TFPs as shown in Table 4.

Table 4: Household Responses on the Type of Forest Products extracted

Type of forest products extracted	Frequency	Percent
NTFPs only	85	77
TFPs only	3	3
Both NTFPs and TFPs	22	20
Total	110	100

Source: Authors (Fieldwork, 2013).

The findings in Table 4 indicate that about 77 % of household respondents stated that they extract NTFPs only, 3% extract TFPs only while the remaining 20% extract both TFPs and NTFPs. It was noted that the extraction of NTFPs is more likely to contribute more importantly to household livelihoods than TFPs. Most respondent explained that they engage more in the extraction of NTFPs because it is difficult to obtain a logging permit in order to have a concession for TFPs. It is confirmed at the Forest Services Division, that there are stringent measures to regulate the extraction of timber products. The management explained that, before giving concession to any individual or company or groups of companies, some criteria are sought. These include that prospective person or company should be formally registered; possess a letter of tax clearance from the Ghana Revenue Authority; letter from the Ghana Timber Association (GTA) indicating registration as a member; and should also possess a track record of good conducts and not owing the Forestry Commission in anyway.

Moreover, because most of the local people cannot meet the terms of these criteria, they tend to extract more of the NTFPs because these are easily accessible within the fringes of the forests as compared to TFPs. Access of TFPs by the local people is done mainly through chainsaw operation which is considered illegal. Even though some of the local people indicated that they have taken measures to manage the off-reserve forests against fire and illegal logging, these measures are however dependent on the economic value they place on the particular tree species located on their lands. It is argued that Mahogany (*Khaya senegalensis*) and Odum (*Milicia excels*) are more likely to be preserved because these are considered to be economic species.

Therefore individuals with these trees on their farmlands assumed that they could receive some share of the monetary benefit when the tree is being logged for sale and for that matter they take good care of the trees. The challenge however is that, such individuals could lose the supposed benefits because they may not know when these trees may be harvested especially with the increased illegal logging. As a result, it is highlighted by some farmers that in some cases they would rather prefer to cut down all timber species, (even when these trees are not matured) because apart from the fact that they do not get the monetary benefits from logging, the process also sometimes destroys their crops and there is also often less or no compensation for the losses.

Another issue to guarantee effective conditions for local level sustainable forest management in Ghana is the definition of the *nature of* forest types. This is quite necessary because it has implications for the kind of strategies adopted for sustainable management of the forest within an area. The study discovered that there are a number of strategies which have been adopted to ensure sustainable management of forests in the two communities: Dwease and Praaso. These strategies,

which are being adopted, varied in the context of the *nature of* the forest types. For instance, it is identified that the strategies adopted by the FSD are mainly used in the management of forests within reserves. The outcome of these strategies directly connects with the institution's perception of what constitute forest(s).

It is discovered at the FSD that there are three working cycles; protection, production and research and regulation which defines the strategies adopted to promote sustainable forest management. However in practice, it is identified the real and workable strategies currently being employed by the FSD within the two communities which include the "Enrichment planting; and the conventional administrative function of regulating illegal logging".

The Enrichment planting involves the process of introducing some trees species (both indigenous and exotic) into a degraded forest and these are inter-planted amidst the already existing trees. The activity was being carried out in the Reserve located in Dwease and this involved the planting of eight indigenous tree species namely, Wawa (*Triplochiton scleroxylon*), Mahogany (*Khaya senegalensis*), Mazonia, Kokrodua (*Pericopsis elata*), Kusia (*Nauclea diderrichii*), Edinam (*Entandrophragma angolense*), Amire (*Terminalia ivoresnsis*) and Framo (*Terminalia superb*). The choice is influenced by the belief that these species are being threatened to extinct.

A key concern is that this strategy is practiced only within the forest reserves and not the off-reserve zones. Also, since this activity is solely championed by the FSD through its Plantation department, there is therefore no cooperation with the local communities and no benefits through income generation or losses for smallholders in the either of the communities. Based on this, it is evident that currently there is no real strategy in terms of tree planting which is being adopted by the FSD to ensure the sustainability of off-reserve forests which are even more extensive in the two communities.

In terms of its regulatory responsibility, it was ascertained the FSD has established research plots to monitor tree growth and development. In addition, there is also regulation of timber extraction, and the Division carries out this responsibility by providing the legal framework or guidelines to determine which trees are harvested, where they can be obtained and by whom. These regulatory policies particularly with regard to timber forest products are also now keenly being emphasized because Ghana is a signatory to the Voluntary Partnership Agreement (VPA). Moreover, the FSD in collaboration with Trophenbos International Ghana (TBI) is helping to register chainsaw operators within the Jauso forest district, which is currently operational in Juaso and yet to be extended to other communities including Dwease and Praaso. The specific aims include helping them to understand the consequences of their activities on the sustainability of forests, enhance their knowledge on branding and marketing their wood products and capacity building in business and financial management.

It is also conclusive that the *nature of* forest types as understood by the FSD is linked with its management strategies that are directly geared towards the management of Timber Forest Products (TFPs) rather than Non-timber Forest Products (NTFPs). Such approach compromises local participation in sustainable management efforts because the local people often have less access to the TFPs and/or the resulting benefits accruing from their development. This makes them feel cheated and excluded from benefit sharing of forest resource and influences their attitude and perception on policies towards sustainable forest management.

Whiles the issue is far beyond the mere refusal on the part of the FSD to implement policies of forest management in off-reserves, the challenge is rather linked with the "*right to*" management. This defines the benefits and responsibilities of the appropriate stakeholders, especially on tree tenure. Though sustainable forest management should be collaborative according to the 1994 Forest and Wildlife Policy (FWP), the research findings reveal that policies on forests' governance have expropriated the *right to* management solely to the state apparatus (FSD) and this has narrowed the effective role that could be played by the leaders and individuals at the community level. According to the Convention on Biological Diversity (CBD), local empowerment of resource users is a potential key strategy to achieve long-term sustainability [28]. This transfer of right however, must also include transfer of responsibilities for the protection of the resources.

According to [29], they view the security of tenure of natural resources as an important issue if local communities are to use the natural resources in their localities sustainably. In their study in three forest fringe communities; Nkawie, Juaso and Goaso, they identified that tenure determines in large part, whether the local people are willing to participate in the management and protection of forest and tree resources. It must not be forgotten however that throughout the world communities use and manage their forest in diverse ways, and forest use rights and management responsibilities vary widely, depending on historical factors, social and political contexts and national policies [30].

Therefore the failure of the state apparatus to effectively manage national forests is evidenced in Dwease and Praaso because chainsaw operators and agriculturalists continue to negotiate illegal access to the secondary opened forest types and causing tremendous loss of tree cover and other biodiversity. Thus, to foster sustainable management of forests at the local level, it is recommended that the tree tenure in off-reserves should be reviewed in order to critically consider the stakes

of the local leaders and individual especially land owners. This could redefine how local perception on the “*nature of*” and “*right to*” have influenced the condition towards sustainable management of forests.

6 CONCLUSION AND RECOMMENDATIONS

The study has discovered that the call to sustainable management of natural resources particularly in the forestry sector is highly needed in Ghana especially in the Juaso forest district. However, the research findings have also confirmed that stakeholders' participation in sustainable forest management in both communities has been met with a myriad of challenges. These challenges are deeply rooted in the stakeholders' perceptions of what constitute forest and the classification of forest, which are present in the communities. These perceptions have defined the conditions required for local level sustainable forest management. The conditions for the ineffective sustainable forest management in these communities have been determined by three factors; “*access to*”; “*nature of*” and “*right to*”.

The discussion has pointed out that, the FSD, which is the major stakeholder, has a limited number of workable management strategies or policies which are currently been used to promote the sustainability of forests in the Juaso forest district. In addition, the adopted strategies have not really promoted collaboration with local partners that have **challenged effective stakeholder analysis** for policies on forest management. Also, because these strategies and regulatory policies of FSD are directly geared towards the sustainable management of TFPs to the neglect of NTFPs, it has therefore hindered sustainable management of forests in off-reserves regions in the district. On the part of individuals in the communities, it is recognized that, they practice the sustained-yield ecological principle as their way of promoting sustainable forest management. Even though this strategy has not led to the regeneration of forests; especially in off-reserves, it has bridged the gap in the form of compensation for environmental benefits or advance payments for future sales of products.

It is therefore recommended that, with the re-launch of the National Forest Plantation Development Programme (NFPDP) and its redirected focus to cover private lands located outside forest reserves [31], the FSD should adopt formidable yet realistic strategies to sustainably managed forests in both on-and-off-reserves. In this regard, the concept of community forestry, which seeks to give greater control and management of forest to communities, is a formidable strategy to ensure sustainable forest management in the Juaso forest district. In this connection, revitalizing the Collaborative Forest Management strategy at the community level will be a step in the right direction since it promotes effective participation of all the stakeholders especially the traditional leaders and local people in decision-making processes. Even though in some areas, the institutional framework and regulations may be weak, the key concern of the Forestry Commission and its diverse bodies should be to strengthen these because in many cases they have still proven to be effective in managing forests sustainably at local level.

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