Journal of Resources Development and Management
ISSN 2422-8397 An International Peer-reviewed Journal
Vol.19, 2016

Community Participation and Sustainable Forest Resource Management in Ghana: A Case of the Kakum National Park in the Central Region of Ghana.

Ayaakor Dela Enuameh-Agbolosoo

Integrated Development Studies Department, School of Business, Evangelical Presbyterian University College, P.O. Box HP678, Ho – Ghana.

Abstract

The paper examined the extent of the community participation concept in the management of the forest resources of the Kakum National Park (KNP). Opinion leaders made up of chiefs, assembly men, queen mothers, and district chief executives from five forest communities (Abrafo Odumase, Mfuom, Kruwa, Mesomagor and Antwikwaa) were consulted for the study. Interviews were conducted among the management and the staff of the park. Majority (70%) of the management staff indicated that the opinion leaders of the communities did not participate in the management of the forest resources of the park, whereas the remaining 30% of the management staff indicated opinion leaders participated in the management of the park. An explanation to these responses show that the members of the community participated in the park management as community tour guides (5.5%) and anti-poaching team members (3.0%), with about 6.5% as restaurant managers /waiters. The remaining (15%) could not give any explanation in relation to their participation in the management of the park. The study results indicate that two factors were significant in determining local community participation in management of the park. A person should be educated and must believe in the conservation of forest resources. The variables, education and believe in the conservation of forest resources were significant at 10% and 1% level of significance respectively. Other factors such as age, marital status and the migrant status had no significant relationship with community participation. On the whole a little over 80% of the respondents confirmed that the forest resources of the KNP were of economic and social importance whereas 18% of them thought otherwise. In general, most communities considered employment and income generation as the main socio-economic benefits provided by the park, followed by socialization, and infrastructural development. This shows the value of forest resources to communities that surround such 'nature given' resources, and the more reason why these communities must be involved in the management of these forest resources such as timber, wildlife, medicinal plants, bamboo and snails.

Keywords: Community participation, park management, forest resources, forest communities.

1. Introduction

In the past, forest resources were mainly managed by the state with minimal or no local involvement. In recent times however, local communities are being included in the management of protected forests. According to Schreckenberg *et al*. (2006), the inclusion of communities in the management of state-owned or formerly state owned forest resources has become increasingly common in the last 25 years. Almost all countries in Africa, and many in Asia, are promoting the participation of rural communities in the management and utilization of natural forests and woodlands through some form of Participatory Forest Management (PFM). A global example of local communities' involvement in management is the Forest Stewardship Council's small and low intensity managed forests, through which over 100 countries worldwide as at 2013 had received forest management certifications (Teye, 2011; FSC, 2013).

The United Nations Conference on Environment and Development (UNCED) dubbed Agenda 21, in one of its statements, put forward a system of government decentralization which ensured devolution of power to local communities. It states that "indigenous people and their communities, and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development"(UNCED, 1992).

In Ghana, Section 4.2.3 of the Forest and Wildlife Policy of the Forestry Commission (FC), highlights as its objectives, the promotion of public awareness among rural people residing near protected forested areas and the involvement of these rural communities in forestry and wildlife conservation so as to maintain life sustaining systems, conserve scenic areas and also to enhance the potential of tourism, recreation and income

generation (FC, 2011). This highlights the importance of community participation in the sustainable maintenance of our forest resources.

The forest resources of the Kakum National Park includes wood, bush meat, palm wine, snails, bees, timber, wildlife, medicinal plants, and bamboo. The involvement of communities basically in line with this paper is set out to answer the following questions:

- How can the communities be involved?
- What contribution can they make?
-What tools do they have to sustain them for generations to come?
- What traditional knowledge systems do they have?

A personal communication with a senior tour guide, Sarfo (Personal communication, 2003) noted that, asides unfulfilled promises made by the park management to the indigenes, they also did not take any active part in the management of the conservation area.

Sarfo continued that, the park management however realizing the problems that could arise from the non-involvement of the local communities in the management of the park came up with the idea of forming Protected Area Management Units (PAMAUs) as a first step to solving the problem. Such units were to serve as platforms for local communities to discuss issues and express their opinion on matters related to the management of the park. A Community Wildlife Volunteer Group was also formed by management comprising members of the communities, charged with the apprehension of suspicious characters that would try to destroy the forest and its wildlife properties. A move in the direction of community forestry at the Kakum National Park was therefore started in 2006, when the PAMAUs were formed in the fringe communities of the Park. It is therefore necessary to find out the extent to which the communities participated in the management of the park and how their involvement is of benefit to the management of the Park. This paper explores views of residents of the fringe communities on forest management and community participation in the Kakum National Park.

It was therefore the objective of this study to:

a) ascertain the perceived benefits of the forest resources of the Kakum Conservation Area,
b) determine the level of community participation (in relation to Pimbert and Pretty's typology) in the management of the forest resources,
c) estimate the effect of some factors (socioeconomics and distance) that influence community participation.
d) evaluate the performance of the current management of the park in respect to community participation.

2. Literature Review

2.1 Importance of Forests

According to Smith (1965), forests are our greatest renewable natural resource. Unlike oil and minerals, forests if properly managed are self-perpetuating. In addition to their importance as a raw material, forests also have far reaching public benefits wholly divorced from their use as wood substances. For example, forests cover the earth's surface, conserve irrigation water, protect the soil, regulates stream flow, provides places of public recreation and offers a suitable environment for wildlife. Under proper management, forests provide not only these multiple uses but also serve as a means of employment and security for millions of people.

Forests provide a renewable source of raw materials for the forest industry which in turn supplies essential goods to modern society such as building materials and paper products. The value of global forest products produced in 1996 was estimated to be $415 billion. Out of this figure, the pulp and paper industry contributed $265 billion. Despite the economic value of processed forest products, fuel wood accounts for over 50% of the volume of wood removed from forests. Fuel wood usage is highest in developing economies where access to other energy sources for heating and cooking is limited. Demand for fuel wood will continue to increase in line with global population placing increased pressure on forests as a source of fuel (Jouko *et al*, 1994).

All over the world, natural resources continue to contribute significantly to the economies of most countries. In Ghana as well, the harvesting of forest resources contributes immensely towards the economic and social development of the country and ranks as the third highest foreign exchange earner (FAO, 2003).

2.2 Participatory Forest Management

According to Norton (1998), Participatory Forest Management or Community Participation means involving the local population in the conservation and management of forest resources through the creation of situations where forest dwellers derive different forms of benefits from the forests to help serve as an incentive for them to protect and guard forest resources.

Fisher (1989) maintains that community participation in forest resource management is nothing new since local communities all over the world have been managing forested areas for centuries. However, Fisher postulated that communities managing forests in some sort of partnership with government and other stakeholders is a relatively new approach. This new management approach in Fisher's view ensures that local people are involved in Forest Resource Management and also benefit from the proceeds of such forms of management. This is to further ensure that the rural populations living in protected areas and elsewhere are not disadvantaged in the process of managing forest resources. In this vein, locals living around protected areas would realize the importance of participation if they derive benefits such as cheaper ways of getting products like fuel wood and other forms of direct economic benefits from the forest.

Sen and Das (1987) are also of the view that, in community and farm forestry, people's direct involvement should start right from the project formulation stage where decisions are taken regarding selection of site and species, mechanisms of protection and maintenance, distribution of benefits and the marketing of produce. This goes to indicate the fact that community participation is a full process which should be worked out very well before it materializes. However, Marsh (1999) points out that there is an increasing evidence of local community based entities in forest resource management and stressed that they are equally good and have even proved to be better managers of forests than governmental organizations. In the Gambia for example, a leader of a Community Forest Management Committee pointed out that Community Participation in Forest Resource Management, which they termed the 'Concept of Community Forest', was the allocation of land to the community as an entity, to clan members. Marsh further stated that it has been documented by the Department of Forestry Services of the Gambia that the land allocated to the community is known as a Community Forest. The leader said this approach to community involvement had encouraged the members to be fully involved in the management process as they are assured of ownership of the land and all its forest resources.

Community participation therefore tends to increase if such programmes include early measures to increase employment of local people or factor into its programmes other locally valued benefits (ODI, 1999).

To buttress the fact that participation by nature should not just be mere partaking, but should go with tangible benefits, Pimbert and Pretty (1995) have argued citing the Participation Typology as a basis of their argument which points out clearly the multifaceted nature of participation, stating that a blend of the various modes of participation was more preferable. They also observed that it would rather be simplistic for one to assume that it is better when participation is greater as it is mainly dependent on institutional arrangements and the different stages of tourism development present in a community, rather than involvement.

A number of studies have been carried out in Community Forest Resource Management. For instance, according to Asia's Forest Network (1998), the Asian Sustainable Forest Network supports the role of communities in the protection and sustainable use of the regions forest resources. The network is made up of a small select coalition of Asian planners, Foresters and Scientists from government agencies, Universities and Non-Governmental Organizations, many of whom have worked together for years. The solidarity of members of the network is based on a common commitment to exploring alternative management strategies for Asia's disturbed natural forest lands. The emphasis of the network however includes the ecology of natural regeneration, the ecology of NTFP's and community organizations and institutional arrangements to support effective participatory management.

Abane *et al* (1999) found that, for a total of five communities covered by their study, none of the respondents from any of the five communities indicated any involvement in the management or administration of the park. The chiefs, members of the Village Development Committees (VDCs) and opinion leaders who normally take part in such projects all denied having any idea about how the forest resources of the park were managed.

From the scenarios presented above, even though community participation in forest resource management is a new and emerging concept, a lot is being done by countries worldwide to incorporate the practice into the mainstream of forest management practices. These are being done through various management techniques and approaches such as the Biosphere Reserve Approach which centers on community participation.

2.2.1 Pimbert and Pretty's Typology of Participation

According to Pimbert and Pretty, (1995) there are two schools of thought concerning community participation in Forest Resource Management. These are:

- *A means of increasing efficiency, the central notion that if people are involved, then they are more likely to agree and support the new development initiative*
- *To initiate mobilization for collective action, an act of empowering institutional building should be a right.*

Participation in most cases is therefore seen as a means of achieving externally desirable goals. It may even at times mean attending consultative meetings and giving views or just being present. The term participation has therefore been used with different interpretations. In relation to this, Pimbert and Pretty (1995) expound their views describing various typologies of participation. They emphasize that the term Participation must be defined correctly by making reference to a particular typology so that this does not lead to conflicting interpretations. In view of this they emphasize one clear definition and a shift from the passive type of participation to a more interactive type. In so doing, they are actually encouraging the second school of thought of participation (stated earlier) which is aimed at empowering individual or local communities. The suggested typology of Pimbert and Pretty (1995) is as shown in Table 1 below.

Table 1: Pimbert and Pretty (1995)'s typology of participation

Typology	Characteristics of Each Type
1.Passive Participation	People participate by being told what has been decided or has already happened. Information being shared belongs to external professionals only.
2.Participation by Consultation	People participate by being consulted or by answering questions. Process does not concede any share in decision making, and professionals are under no obligation to take on board participant's views.
3. Bought Participation	People participate in return for food, cash or other material incentives. Local people have no stake in prolonging technologies or practices when the incentives end.
4. Functional Participation	Participation is seen by external agencies as a means to achieving their aims especially reduced costs. People participate by forming groups to meet predetermined objectives.
5. Interactive Participation	People participate in joint analysis, development of action plans and formation or strengthening of local groups or institutions. Learning Methodology used to seek multiple perspectives from groups determines how available resources are used.
6. Self-mobilization and Connectedness	People participate by taking initiatives independent of external institutions to change systems. They develop contacts with external institutions for resources and technical advice they need but retain control over resources.

2.3 Community participation in forest management in Ghana

According to Boafo (2000), community forestry or participatory forest management in Ghana, started in the 1920s as a joint activity between traditional leaders who served as representatives of the local people, and the government. He noted that, land in Ghana since time immemorial, has been owned by individuals and families and not government. The focus at the time was mainly to conserve forest resources.

Boafo (2000) continues that, locals felt much cheated by the behavior of the timber contractors and thus resorted to the misuse of the forest resources any time they had a chance, resulting in a failure of the policy for joint ownership of the forest resources. The locals however continued to benefit from the use of NTFPs even though these products were not consciously managed. More so, the forestry services could not complain about

the attitude of the locals, basically because they knew it was because the locals were being marginalized. This meant that even though the rights of locals for the joint management of forest resources had been recognized since 1948, the state of affairs on the ground was an entirely different one. Boafo (2000) also noted that the current forest and wildlife policy of Ghana has as its focus, the involvement of local communities to help improve the efficiency of forest management.

In view of these findings above, it is envisaged that, to enhance the efficiency of forest management, locals in actual fact should be engaged in decision making processes, which reflects their actual needs in relation to the forest resources around them. This would surely be the way of getting a livelihood for the local communities as well as tapping into their knowledge of the terrain to the benefit of the forests.

3. Methodology

3.1 The Study Area

Figure 1 below shows a map of the study area.

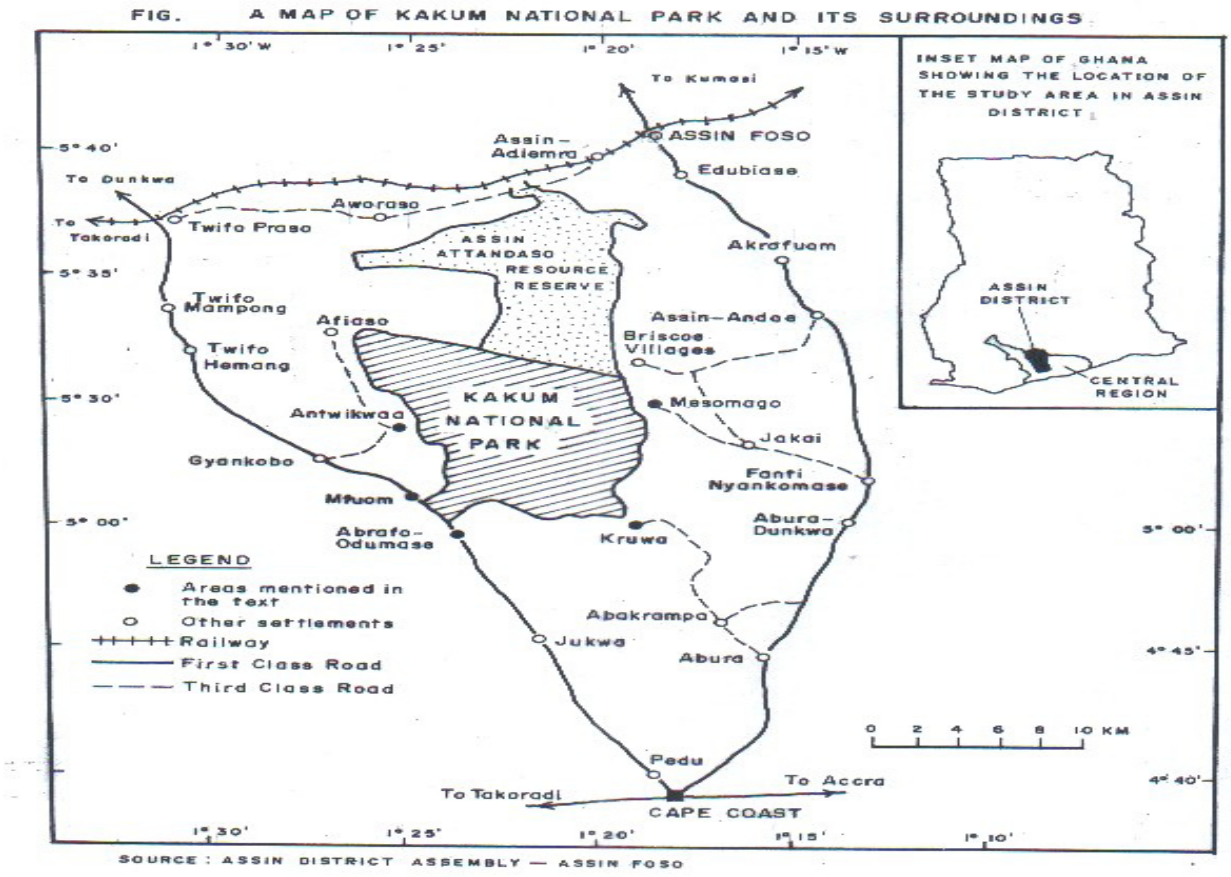


Figure 1: Map of Kakum National Park and its surroundings.

The Kakum National Park in the Central Region of Ghana between longitudes 1°15' and 1°36' West and latitudes 5° 20' and 5° 40' North in the. It is located 30 km North of Cape Coast between Abrafo Odumasi and Dwokwa Mfuom on the Twifo Heman/TwifoPraso main road. The park occupies both Fante and Assin lands (Sefran, 2003) with fifty-two communities accounting for an average population of about 400 people in each community and a number of hamlets dotted all around the park (Agyare, 1996, in Enuameh-Agbolosoo *et al*., 2015). Most of the inhabitants, both migrants and indigenes live in and out of the park and engage in farming as well as hunting.

Sefran (2003) has described the park as an island of tropical rainforest in a sea of agricultural lands that has been degraded by mining, farming and human settlement, hunting and timber extractors. Still, Sefran indicates that the park provides one of the last remaining habitats for six globally endangered species, including Dianna monkeys, bongos, and yellow– backed duikers and forest elephants.

Sefran indicates further that the park is Ghana's premier wildlife protected area in the forest zone. It is both incredibly biologically diverse, and sacred to the local people. Forest elephant, bongo, antelope, and duiker live in the forest, as do seven species of primates and many other animals. Kakum is most famous for its unforgettable 333m-long tree-top canopy walkway, which is suspended 27m off the ground .There are wooden platforms built around trees for rainforest canopy observation. Early morning canopy walks offer the best chances for wildlife observation, but the forest view in itself is astounding. It is the only such walkway in Africa (Sefran, 2003, in Enuameh *et al*., 2015).

The 357 sq. km rainforest park is noted to be home to about 269 species of birds, butterflies, and other insects (Sefran, 2003 in Enuameh *et al*., 2015). Large mixed bird flocks are most often seen (and heard) yearly from January through March nearthe adjoining settlement of Abrafo. Along the Antwikwaa road (the road leading to the Antwikwaa community), hawks, kingfishers, bee-eaters and starlings, among others, can be found. Kruwa has fruit trees that in season draw many green bulls, barbets, tinker birds, hornbills, and other birds. Aboabo, a two-hour drive to the park's northwest corner, offers some opportunity to witness flycatchers and eagles (Sefran, 2003, Enuameh *et al*., 2015)).

Annual rainfall figures in and around the park range from 1000 mm along the coast to about 2000 mm in the interior. The wettest months are May-June and September-October while dry periods occur in December-February and briefly in August. Mean monthly temperature ranges from 24 degrees Celsius in the coolest month to about 30 degrees Celsius in the hottest months of March and April (GHCT bulletin, 2015).

Kakum and its environs are drained by rivers such as Nemini, Sukuma, Obuo, and Kakum. The area is a watershed, which helps to supply good drinking water to the nearby city of Cape Coast Municipality.

3.2 Methods

A mixed methods approach was employed in data collection for this study using both quantitative and qualitative methods. Primary and secondary data were gathered for the study. Secondary data from unpublished sources and books, articles, reports by the Forestry Commission and the internet were used. Primary data was obtained from a field survey using a qualitative approach involving the administration of questionnaires and interview schedules to bring out the understanding of the community participation and forest resource management. The quantitative research technique also aided as a support to the qualitative helping to now discuss more detailed information in the major findings. The tools for data collection and their modes of application for data gathering are stated below:

Questionnaires which were pre-coded comprising open-ended and closed-ended questions were used. Two groups of questionnaire surveys were administered, one to the opinion leaders of the study communities and the other to the management staff of the park.

The validity and reliability of the questionnaire surveys were pre-tested using a sample of 20 respondents at Aboabo, a village in the catchment area of the park.

Interview sessions were held with the senior members of the management of the park. This was to serve as a means of confirming as well as supplementing information already given by opinion leaders in relation to community participation in the management of the forest resources of the park.

4. Analysis and Discussions

4.1 Demographic Characteristics of Respondents

Among the 100 respondents interviewed, 51% were male. The age distribution of these respondents ranged between 18 to 89 years and was categorized into four groups of 17 years interval each. This was to ensure a good distribution among all the age groups so that there will be no element of bias in terms of a particular age group. Majority (77%) of the respondents are in the age groups of 18-53 (40%) and 36-53 (37%) years.

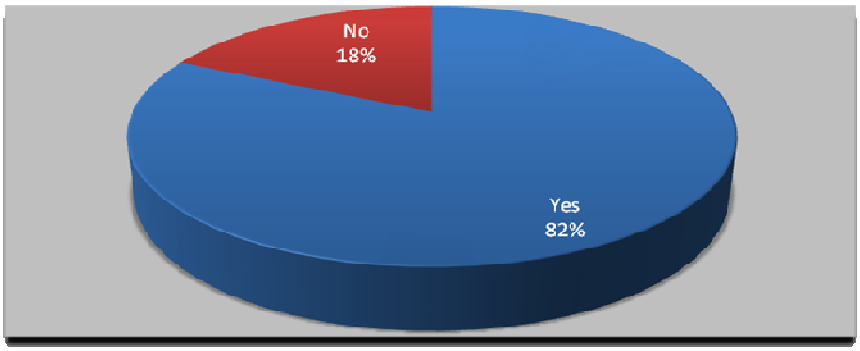
A further probing of the socioeconomic background of the respondents indicated that, most (66%) people had either attained a basic education level (36%) or had no formal education (30%). See Figure 4.2 below. About eighteen percent (18%) had attained secondary school education while 10 percent (10%) had attained either post-secondary (4%) or tertiary (6%) education levels. A few (6%) had received some non-formal education through an adult literacy scheme.

The study showed farming (62%) to be the primary source of income/occupation of the people. Other

income generating activities of the people such as trading, chop bar operation and driving among others rely on the farm products and forest resources obtained from the area. Farming constitutes the main source of income of the people because of the high fertility and suitability of the land for agriculture. This is showing a pattern that is mostly associated with high forest resource areas.

4.2 Perceived Benefits of Kakum National Park by Opinion Leaders by Surrounding Communities

The investigation on benefits from the KNP is presented in Figure 2 below.



Source: Field Data 2007. N=100

Figure 2: Views of the opinion leaders on the benefits of forest resources of Kakum National Park.

About eighty-two percent (82%) of the respondents confirmed that the forest resources of the KNP were of economic and social importance whereas eighteen percent (18%) of them thought otherwise. Those who thought otherwise gave no specific reasons for their perception. In view of this, it was apparent that, those respondents do not appreciate the relevance of protecting forest resources when there is poverty among the people. Furthermore, it could be that they do not benefit from the park. The majority (82%) of respondents however, had various reasons to give to support their view. The results are shown in Figure 3.

It was observed that, fifty-eight (58) out of the two hundred (200) responses representing twenty-nine percent (29%) of the total frequency expressed that the park generates employment for the people. About twenty percent (20%) affirmed that it served as a means of income generation while approximately five percent (5%) believed it is a source of foreign exchange earnings to the country. The people were employed and earned incomes through working as forest and tour guides, anti-poachers and receptionist of the park management. Others engaged in hospitality services such as workers of guest houses and traders in artifacts which are observable in the communities, especially at Abrafo.

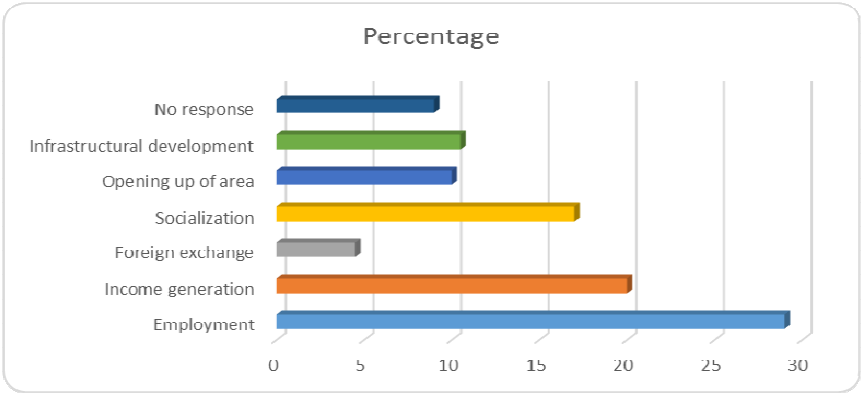


Figure 3: Perceived socioeconomic benefits of Kakum National Park

Source: Field Data 2007.

Seventeen percent (17%) indicated that the park was important for socialization, while ten percent (10%)

thought the park helped to open up the area to development while ten point five (10.5%) confirmed that it contributes to infrastructural development of the area. However, nine percent (9%) gave no reasons (no response) why the park was of economic and social importance. In general, employment, income and foreign exchange generation were the economic importance's stated whereas the social importance includes socialization, opening up of the area and infrastructural development. These findings substantiate the view that involving local people in forest resource management generates social and economic benefits and the protection of forest reserves should not necessarily be a disadvantage to local people. (Sen and Das 1987; Pimbert and Pretty, 1995; Fisher 1995; ODI, 1999 and Abane *et al.,* 1999)

4.3 The Level of Community Participation in Relation to Pimbert and Pretty's Typology

Norton (1988), UNCED, (1992), Singh (1986) and FAO (2003) highlights that the participation of rural communities in forest resource management to ensure the sustainable maintenance of the resources is necessary. A question was posed to the respondents on whether the community participated in the management of the forest resource of the KNP. The results in Figure 4 show that a few (30%) of the people replied in the affirmative. However, a majority (70%) of the people indicated that communities were not involved.

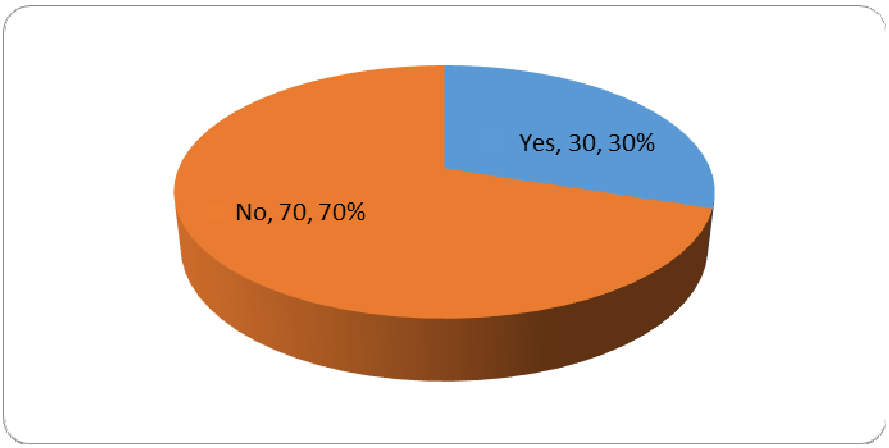


Figure 4: Community Participation in Park Management

Source: Field Data 2007

Majority of respondents who gave responses earlier on in the study indicating that they participated in the management of the forest resources of the park gave some of the activities they engaged in as tour guiding, restaurant managing, and anti-poaching. Most respondents again stated that they were not allowed in their capacity to influence any decision making process of the administration of the park. Additionally, from the interviews granted by the top hierarchy of management, it was noted that meetings granted to members of the communities by management were not of the interactive type but were rather more of the "I tell you what to do and you do it" type. Relating this to the typologies therefore presented by Pretty and Pimbert (1995) one could say that, the management of the Kakum National Park is using "Passive participation", as locals are most of the time just being told what has already been decided by management.

Again, the "Functional type of participation" cited by Pimbert and Pretty is also evinced during the operations of external bodies such as the Wildlife Division of the Forestry Commission, Ghana Heritage Conservation Trust (GHCT) and the Ghana Tourist Board which also have roles to play in managing the park. In these cases, as is in line with their pre-determined constitutional objectives, meetings between community members and management of these institutions usually are of a deliberative nature. In an attempt to move from the "Passive Participation" to the "Functional type of Participation", management of the park has formed a group made up of representatives of the various traditional areas (PAMAUS) whose duty it is to meet time after time to deliberate on how best the forest resources of the area could be managed. The idea is still in its fledgling stages and will need to be nurtured to achieve the desired results.

It is however important to note that none of the other typologies of Pretty and Pimbert (1995) relates to the management of the forest resources of the Kakum National Park apart from the ones discussed.

Majority (70%) who had the opinion that they did not participate in the management of the forest resources of the park, stated categorically that they did not participate in the planning and decision making processes of the park management. Others stated that their localities were not being developed and that management was not responding to their calls for support. A cross tabulation of the Perception of Participation in Park Management against the views of members of the various communities is presented in Table 2.

Table 2: Perception of Participation in Park Management

	Community participation		
Community	**Yes (%)**	**No (%)**	**Total (%)**
Abrafo	35	65	100
Mfuom	15	85	100
Antwikwaa	50	50	100
Mesomagor	39	61	100
Kruwa	14	86	100
Average	30	70	100
N=100, chi-square = 9.478, Contingency coefficient =0.294, significance=0.050			

Source: Field work 2007. (N=100)

Most of the respondents from Abrafo (65%), Mfuom (85%) Mesomagor (61%) and Kruwa (86%) responded negatively while those from opinions from Antwikwaa were evenly split (50%). The level of the perception of non-participation in the park management was very high at Mfuom (85%) Kruwa (86%) than Abrafo (65%), and Mesomagor (61%). The chi-square (9.478) and contingency (0.294) values indicate that the relationship between the communities and participation in park management was significant but not very strong enough (29.4%). The study probed further to find an explanation of the above perceptions based on the socioeconomic characteristics of the people.

4.4 Estimates of the Influences of Socioeconomics and Distance on Community Participation

4.4.1 Effect of socioeconomic influence

The binary logit regression results Table 2 helps determine the effects of socio-economic factors influencing community participation in the management of the forest resources of the park.

Two factors were significant in determining local community participation in the park management. These factors are that, the person should be educated (EDUC) and must believe in the conservation of forest resources (IMPT). The variables, EDUC and IMPT were significant at 10% and 1% level of significance respectively. The effects of EDUC and IMPT follow the expectation of the researcher.

Educated persons are knowledgeable and could contribute effectively in the making of decisions about forest resource management. Their participation is more significant than that of the non-educated. Persons who believe in the value of forest resource conservation are more likely to make positive contributions and impact on the protection of natural resources than 'nonbelievers'. The rest of the socioeconomic variables such as active AGE (18-53), INDIGENES, families who were originally owners of the park (OWNERS) were not significant determinants of participation in park management.

Table 3: Estimate of the Effect of Socioeconomic Characteristic on Community Participation

Dependent Variable: PARTICIPATION IN PARK MANAGEMENT				
Method: ML - Binary Logit				
Sample: 1 100				
Included observations: 100				
Convergence achieved after 3 iterations				
Covariance matrix computed using second derivatives				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
AGE(18-53)	0.45536	0.634026	0.718205	0.4726
MARRIED	0.347689	0.595495	0.583865	0.5593
GENDER (male)	-0.540022	0.556289	-0.970758	0.3317
EDUC	1.071147	0.608902	1.759146	0.0786
IMPT	1.71604	0.608007	2.8224	0.0048
INDIGENES	0.461874	0.519765	0.88862	0.3742
OWNERS	-0.300623	0.572094	-0.525479	0.5993
FARMING	0.276402	0.543257	0.508787	0.6109
Constant	1.386799	1.302807	1.06447	0.2871
Mean dependent var	0.66	S.D. dependent var		0.476095
S.E. of regression	0.445751	Akaike info criterion		1.266543
Sum squared resid	18.08111	Schwarz criterion		1.501009
Log likelihood	-54.32716	Hannan-Quinn criter.		1.361436
Restr. log likelihood	-64.10355	Avg. log likelihood		-0.54327
LR statistic (8 df)	19.55277	McFadden R-squared		0.152509
Probability(LR stat)	0.012167			
Obs with Dep=0	34	Total obs		100
Obs with Dep=1	66			

Source: Computed from Field Data 2007.

4.4.2 Effect of distance on community participation

Chi-square, phi-coefficient and an odd ratio (OR) tests were conducted to show the relationship between the physical distance and community participation in the KNP management. The tests were necessary in order come to a conclusion on the hypothesis that "an inverse relationship exist between physical distance and the participation of locals in the forest resource management." More so the test was done to justify the geographical concept of distance decay applied to resource use and management, based on which the communities were selected taking into consideration their circular distances from the park. The test results are presented in Table **4.**

Table 4: Relationship between distance and community participation

Distance	**Community participation**		**Total**
	Yes	No	
Yes (1 km or less)	27	53	80
No (above 1km)	3	17	20
Total	30	70	100
N=100, chi-square = 2.679, Phi coefficient =0.164, OR=2.89, significance=0.082			

Source: Field Data 2007

The test statistics clarified that eighty percent of the communities were about 1km or less closer to the park. The remaining (20%) were about 2km or more away from the park. Those who were about 1km or less away from the park and participated in the management of the park constituted twenty-seven percent (27%) whiles fifty-three percent, although were about 1km or less away from the park surprisingly did not participate in park management. The chi-square value (2.679) computed was significant at ten percent (10%) indicating that a relationship exists between distance and community participation. Phi-coefficient value (0.164) shows that the relation is positive but weak (16%). However, the odd ratio value (OR) of 2.89 implies that the communities which were about 1km or less closer to the park are 2.89 times more likely to participate in the park management than those who were above 1km away. Therefore, the study fails to reject the hypothesis that an inverse (negative) relationship exists between the physical distance and the involvement of locals in the forest resource management of the KNP. Although there was some level of participation, communities were not actively involved in the resource management especially in relation to decision making processes of KNP and its forest resources.

In general, community participation showed an improvement upon community participation compared to similar responses in a study conducted by Abane *et al*. (1999). According to Abane *et al*. (1999), five communities covered in a study of community perception of the Kakum National Park, came out with none of the respondents indicating their participation in the management of the forest resources. Abane *et al*. (1999) observed that, the chiefs, members of the village development committee and opinion leaders who normally take part in such projects all denied having any idea about how the forest resources of the park were managed.

Similarly in a study conducted by Swanzy–Essien (2000) on the Perceptions of the Kakum National Park as an Eco–tourism Resource, it came to light that none of the local people interviewed indicated that they did participate in the management of the KNP. In a nut shell, it has become clear that the opinion leaders of the study communities have indicated some level of participation in the park management in line with Pimbert and Pretty's Typology.

4.5 Perception of Opinion Leaders on the Performance of the Current Management of the Park

In order to validate the responses on the good management of the Kakum National Park management, the perception of the opinion leaders of the park on the same issue was sought. The result showed (See Table 3) that, about 57 out of hundred opinion leaders who affirmed that the intervention of the park management was "good" and 25 indicated that it was "excellent". In effect about 82 percent of the opinion leaders graded the interventions of the KNP management as good or excellent. This data was analyzed across communities. See Table 4.16.

Table 5: Views on Efforts Made by KNP Management

Rating	**Management Staff Make Good Effort in Conservation of The Forest Resources**		**Total (%)**
	Yes (%)	No (%)	
Excellent	25	0	25
Good	57	0	57
Fair	7	1	8
Poor	5	0	5
Don't know	0	5	5
Total	94	6	100

Source: Field Data 2007 (N=100)

Table 5 shows that, all the respondents from Abrafo (22%), Antwikwaa (18%) and Mesomagor (18%) communities stated the park management is making a good effort at forest resource conservation. The significance (0.002) of the chi-square statistic (16.586) indicates that there is a significant relationship in the assertion made by the opinion leaders within the communities that the park management is making a good effort. The contingency coefficient (0.407) means that the link of this assertion within the communities is about 40.7%

strong.

Table 6: Relation between Perception on Efforts of Management and Communities

Community	Management Staff Make Good Effort in Conservation of The Forest Resources		Total (%)
	Yes (%)	No (%)	
Abrafo	22	0	22
Mfuom	15	5	20
Antwikwaa	18	0	18
Mesomagor	18	0	18
Kruwa	21	1	22
Total	94	6	100
N=100, chi-square = 16.586, contingency coefficient =0.407 significance=0.002			

Source: Field Data 2007

The statistics presented in Table 6 further helps to determine the performance of the aforementioned assertion in each community. Most (57%) of the opinion leaders indicated that the performance of the park management was good. The statistics showed that, all the communities believe that the effort made in forest resource conservation by the park management is good. Nonetheless some (25%) perceived that the effort of the management is excellent especially in Antwikwaa (8%), Abrafo (7%) and Mesomagor (6%). Therefore, it is obvious that, in general opinion leaders in all the communities believe the park management is making a good effort in the conservation of forest resources of the park.

Table 7: Views of opinion leaders on Efforts of Park Management in Resource Conservation.

Community	Views (%)					Total (%)
	Excellent	Good	Fair	Poor	Don't Know	
Abrafo	7	13	1	1	0	22
Mfuom	2	11	2	0	5	20
Antwikwaa	8	10	0	0	0	18
Mesomagor	6	11	1	0	0	18
Kruwa	2	12	4	4	0	22
Total	25	57	8	5	5	100

Source: Field Data 2007 (N=100)

4.6 The view of Management on the need for community participation

The study sought the view of management on the need for the community to participate in the management of the park. Table 6 below shows the results.

Table 8: The Need for Community Participation

Responses	Frequency	Percent
Yes	17	89.5
No	2	10.5
Total	19	100

Source: Field Data 2007

From Table 8 it can be realized that management is keen on getting opinion leaders involved in management, as 17 of them – a majority (89.5%) saw the need of getting locals involved in forest resource management of the KNP.

In an interview granted to management it was realized that management has formed Protected Area Management Units (PAMAUs) which comprises representatives from all the communities around the park. These units are to serve as platforms on which local communities could discuss issues and express their opinion on matters related to the management of the park. Additionally, a Community Wildlife Volunteer group has also been formed comprising members of the communities, charged with the apprehension of suspicious characters that would try to destroy the forest and its wildlife properties. The formation of the PAMAUs however is a tool being used to help rope in locals in to the management of the forest resources of the park. Even though the formation of the Protected Area Management Units is in its initial stages, it is worthy to note that the management of the Kakum National Park has made a great attempt of involving locals in its affairs, something which was entirely overlooked in the past.

A study by Swanzy-Essien (2001) on the perception of the Kakum National Park as an Eco-tourism Resource, pointed out how disappointing it was that management did not show any commitment at incorporating local communities in the parks programmes on a sustainable basis. It was as at that time pointed out that this was a worrying situation as the patience of the communities was gradually being stretched thin, due to the fact that they had to buy the very essentials they used to initially get free from the forest. It was therefore encouraging when this study came out with the finding of an attempt by management this time round to involve locals in the management of the forest resources of the Kakum National Park.

4.8 Possible consequences of Non-involvement of the Community in Management

The local respondents were asked to state their views on what would happen in the future if there is a continuous non-involvement of communities in park management. Majority (55%) of them indicated that there would be no problem. However about forty-five percent of them stated various consequences.

Table 9: Consequences of Non- Involvement of Community

Responses	**Percent**
No problem	55
Confrontations with management by local	11.5
New generations fighting for compensation	9
Demonstration by the youth	8.5
Worsening already bad relationship between staff and locals	8.5
Raiding of farms by elephants	6
Local unemployment	1.5
Total	100

Source: Field Data 2007 (N=20)

5. Conclusions and Recommendations

5.1 Conclusions

First of all the study found a range of benefits of the forest resource to the people in its environs. Some of these benefits included employment, income generation, foreign exchange, tourism, amongst others. The people were employed and earned incomes through working as forest and tour guides, anti-poachers and receptionist of the park management. Others engaged in hospitality services such as workers of guest houses and traders in artifacts which are observable in the communities, especially at Abrafo.

Secondly, the study revealed a low (30%) level of community participation in the managed of the park. Relating this to the typologies therefore presented by Pretty and Pimbert (1995), one could say that, the management of the Kakum National Park is using “Passive participation”, as locals are most of the time just being told what has already been decided by management.

Thirdly, the study reveals that two very important factors (education and belief in conservation) are significant and therefore determine local participation in forest resource management. The Park Management in this respect should find ways in which private funds could be generated so that educational institutions could be built in all the study communities to give locals a background as well as enhance the ability of locals to engage in the management of the forest resources of the park. This would help in getting more people participating in management thus helping to manage the resources sustainably as well as enhancing the very lives of people. It would also help in getting a number of opinion leaders from the communities in to management positions.

Finally, the formation of the PAMAUs by the Management of the Park is in the right direction as it serves as a stage in aiding the smooth take off the process of roping community people in to the management of the forest resources. Even though the PAMAUs are at their teething stage, working at it would in the nearer future help develop it into a bigger consultative unit between the local communities and the park management.

5.2 Recommendations

Based on the summary of the findings and conclusions, the following recommendations are made:

The management of the Kakum National Park should organize more programmes that would help integrate opinion leaders of the various communities around the park in to the park's management system and not merely engaging people in the main activities of the park they are already engaged in. This arrangement could be guided by studying typologies of people on community participation such as that of Pimbert and Pretty's typology of participation so as to pick out the typologies that would best suit the Kakum environment. This should help "convert" the 70% of opinion leaders who complained of not participating in the management of the park.

To help maintain a level of education especially in the field of forest resource management more so, sustainable forest resource management, a special school on forest resource management with a focus on community participation could be established at the park with the needed help from the forestry and education sectors as well as donor agencies who will be ready to donate towards that course.

The Management of the park should again work at the two main benefits of the park in the form of the provision of employment and the generation of revenue so that the people who are employed to the park's premises to work would be mainly locals of the surrounding communities. Over time, it may then become a norm for majority of staff (right from the lower ranks to upper management) of the park to hail from the surrounding communities, a situation which can only engender in the indigenes a deeper feeling of "part-ownership" of the resources available. This should hopefully spill over and result in more sustainable management of the parks resources by the locals.

The formation of the PAMAUs should be well constituted by the management of the park in all communities surrounding the park. The whole unit should be backed by a constitution with specific terms of references and office which enumerates what the group is to do specifically time after time. This in effect will make it a vibrant organization which can fight the cause of its members.

6. Suggestions for future research

Future research work should focus mainly on the level of involvement of the educated youth in the various communities in the management of the park and its attractions.

7. References

Abane, A., Awusabo-Asare, K. Kissi, A.K. (1999). In who's interest? Individual and societal needs in the creation of forest reserves: a case study of Kakum in Ghana. *Bulletin of the Geographical Association*, Ghana University Press, Accra.

Agyare, A. K. (1996). Socio-economic perspective of the Kakum Conservation Area in Facing the Storm, five years of research in and among Kakum National Park Conservation International, *Washington*, 131-138.

Arnold.J.E.M. (1988). Managing forests as common property. Forestry paper 136. Rome: FAO.

Boafo, M. (2000).Incentives for participation on forest management in the high forest zone of Ghana. Department of Social Work, University of Ghana ,Legon , Accra.

Centre for National Culture Reports (2007), Cape Coast.

Colchester, M. *et al*. (2006). *Justice in the forest: rural livelihoods and forest law enforcement*. Bogor, Indonesia: Center for International Forestry Research (CIFOR)

FAO (2015). For a world without hunger: forest products, trade and marketing, United Nations.

FAO (2003). Socio-Economic and gender sensitive indicators in the Management of natural resources, Gender and Population Division, Rome.

FSC (2011). Business value and growth: Global Market Survey.

Ghana Statistical Service (2005). 2000 Population and Housing Census: Central Region. Analysis of District Data and Implications for Planning.

Ghana Forest and Wildlife Policy (FINAL DRAFT). Ministry of Lands and Natural Resources Accra – Ghana November 2011.

Jouko, V; Carbonnier, L.,Poyry,J. (1994). Forestry towards the 21st century- challenges and opportunities, Jaako Poyry Consulting (UK) Ltd ,UK.

Ministry of Lands and Natural Resources (2012). Climate Investment Fund: Forest Investment Programme, Accra. Retrieved from:http://www.fcghana.org/

Norton, A. (1995). Participatory forest management in Ghana. Report on a participatory field visit, Unpublished Report. Ghana.

Pepetsi, J.O., & Apprey, J. (2015, May 13). Review of wildlife bill advocated, Ghanaian Times News Paper, Ghana (p. 1).

Sayer T.A. (1992). Tropical deforestation and species extinction. London: Chapman and Hall.

Schreckenberg, K., Luttrell, C.,Zorlu, P.,Moss, C. (2007). A way out of poverty? A review of the impacts of PFM on livelihoods. Keynote paper presented under Theme 4 'PFM and Livelihoods: Role of PFM in Poverty Reduction. 1st National Participatory Forest Management Conference, 6-8 June 2007, Kenya Forestry Research Institute (KEFRI) HQ, Muguga, Kenya.

Sefran, S.(2003) .Destinations: A walk in the Tree Tops, A bird's eye view of Kakum National Park. Conservation International Ghana, Accra.

Singh, (2002). *Common property and common poverty: India's forest dwellers and the law*. Oxford University Press, New Delhi.

Stone, B. (2012). Market line. Retrieved on the 7th of April, 2015 from:http://www.marketline.com/blog/the-global-forest- products-industry-grew-by-3-7-in-2011/

Swanzy-Essien (2000). Perception of Kakum National Park as an eco-tourism resource. A study in Geography of Tourism, Department of Geography and Resource management, University of Ghana, Ghana.

UNCED (1992). Earth Summit-Rio Declaration and forest principles. United Nations, Department of public Information, USA.

Wardle, P. (2003). World Forests, Society and Environment. United Nations University, Japan.