

THE ROLE OF WOMEN IN COMMUNITY BASED RESOURCE MANAGEMENT ON THE AFADJATO MOUNTAIN ECOSYSTEM, GHANA

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ABSTRACT

This paper provides an insight into the involvement of women in management and utilization of natural mountain resources. The study depended on semi-structured guided interviews to obtain the required information from 100 women at Mount Afadjato in the Volta region of Ghana. The study revealed that most of the women interviewed contributed to the development of the resources to ensure their sustainable utilization. They harvested a variety of resources from the mountain ecosystem that vary from food, materials to amenities. Though men generally did not resist women harvesting the resources from the mountain, some of the men competed with the women by harvesting resources that were meant traditionally for women or assisted other women. The women mentioned some constraints in course of utilizing the resources such as difficulty in climbing, lack of environmental management personnel and public education. Massive environmental resource management education is recommended for the communities living in the mountainous area.

Keywords: mountain, natural resources, Afadjato, women, ecosystem, and community based

1. INTRODUCTION

The concept of communities managing natural resources is not new but has been used to manage forest and wildlife resources for thousands of years on a sustainable basis. Almost half of the countries in the world have mountainous regions and their ecosystems provide more than half of the global population with water for drinking, agriculture, industry, power generation, and domestic uses. Mountains serve as home to half of the world's biodiversity hotspots as well as to many threatened and endangered species, and also provide tourism and recreation opportunities (Mountain Day Bulletin, 2012).

Mountains possess biophysical and cultural characteristics which merit special consideration and treatment in the matter of preservation and conservation. These include their three-dimensional nature involving steep slopes, altitudinal belts of varying ecosystems in a short distance, their different exposures or aspects and climates, and their frequent characteristics of spirituality, remoteness,

inaccessibility, and great cultural diversity-islands in a sea of tamed and transformed environment. Issues regarding both mountains and women have begun to receive more global attention in the last two decades, but they are not yet firmly on the conservation agenda. Tropical forests, wetlands, and marine environments are still the focus of most conservation action worldwide (Thorsell and Harrison, 1993).

The interest in mountain ecosystems began in the 1970s when the UNESCO's Man and Biosphere Program and the World Conservation Union (IUCN) initiated its programs (UNESCO, 1974; Dasman and Poore, 1979). Later, there was the development of the United Nations University-International Mountain Society program on mountain ecology and sustainable development. With the establishment of the IUCN commission on mountain Protected Areas and chapter 13 of Agenda 21(Fragile Mountain Environments) at the United Nations Conference on Environment and Development (UNCED, 1992; Mountain Agenda, 1992; Stone, 1992), the interest in mountain ecology and sustainable development has been heightened. During the International Women's year, that was declared in honour of the 25th Women's anniversary of the United Nations Commission on the status of women in 1975, the women's environmental concerns were emphasized (Tinker and Jaquette, 1987; Braidotti *et al.*, 1994). It is against this background that Ghana Strategic Country Gender Assessment (SCGA) echoes gender issues as part of the efforts to support systematic integration of gender concerns into the poverty reduction strategy (SCGA, 2002).

In Ghana, property rights structures over natural resources in general and local forest resources in particular, have been controlled by the central government (Kotey *et al.*, 1998). Instead of the income generated from these resources being channeled back to those localities from which they were obtained they are rather channeled into central treasury (Jachmann, 1998). However, there has been a change in this policy as enshrined in the 1994 Forest and Wildlife policy of Ghana which provides incentives for communities to manage and own the forest resources found within their localities. The change was necessary as the former policy was associated with exploitation and degradation of mountain forests and its biological diversity. The major policy change has occurred to devolve forest management authority from the central government to community- level organization under community resource management area concept. The underlying philosophy has been that when the government provides the right conditions and right incentives people will manage their natural resources sustainably. The right conditions are established through legislation while the right incentives may be financial or economic, cultural and tenure rights (Forestry Commission, 2004).

Women play a vital role in conservation and management of sustainable eco-system and have traditionally been involved in protecting and conserving natural resources including those in mountain areas. With their extraordinary skills and traditional knowledge, mountain resources which are the basis of survival for families and communities have been managed and sustained by women (Tyagi, u.d.). However, women's roles and concerns in mountainous natural resource conservation remain poorly understood and incompletely acknowledged (Adhikari, 2001).

It has been observed that though the last 20 years has witnessed rhetoric policies of natural resources, women have become poorer and have progressively lost control over even a bare subsistence base of resources. Furthermore, global ecosystems (including mountains), genetic material and the resources upon which human survival depends have deteriorated, lost and dwindled respectively (Byers and Sainju, 1994).

Some studies have been carried to iron out women participation and the role they play in natural resource sustenance and management in general such as (Guiriba, 2010; IFAD, 2001; Koda, 2004; Byers and Sainju, 1994; Shiva, 1998). However, data are deficient on the role that women play with reference to mountain forest resources management and sustenance, especially in sub Saharan Africa. As a contribution, the study explores the growing convergence of women in relation to the diverse and fragile environments of mountains. Specifically, the study aimed to: 1. examine the involvement of women in the governance of the mountain resources; 2. document the values derived from the mountain ecosystem; 3.

identify the women’s roles in managing the community based resources of the mountain ecosystem and 4. identify the current challenges, constraints, and opportunities of women in mountain ecosystem management.

2. MATERIALS AND METHODS

The Study Area

The study took place at Mountain Afadjato, Ghana. Mount Afadjato is part of Akwapim-Togo range which constitutes the highest hills in Ghana with the Afadjato itself being the highest mountain in Ghana at 890m above sea level. It runs in the northeast and southwest direction between the Volta river and the Ghana-Togo border (Ntiamoah-Baidu *et al.*, 2001). The hill lies within longitude 0°15'E and 0°45'E and latitude 6 ° 45'N and 7 ° 15'N and covers an area of 1172km² (Owusu, 2010). The mountain is endowed with two major waterfalls - Wli and Tagbo at the northern and southern borders, respectively Ntiamoah-Baidu *et al.*, (2001) and Fispool and Evans (2001) have declared the area an Important Bird Area (IBA).

Data Collection Procedure

Information was gathered through interviews that were guided by structured questions. The questions were prepared based on the set objectives and pre-tested by administering it to 20 people to improve on their clarity and accuracy. It was then translated into Ewe, the local language, in which the interviews were conducted. Enumerators were recruited from the study area and trained. The survey focused mainly on household and demographic characteristics, produce and its uses as well as associated problems to assessment of natural resources and some other constraints. The study took place in two villages, Liati Wote and Gbledi where fifty houses in each were selected at random and one woman was interviewed in each house.

3. RESULTS AND DISCUSSION

Socio demographic variables of the Interviewees

A total of 100 female participated in the study with 43% between 21-30 years, 22% between 31-40 years, 19 % between 41-50 with 8% below and above 20 and 50 years, respectively. More than 82% of the study participants were Christians, while 11% and 7% belonged to traditional and Islam religions, respectively. Divorced women (4%) and widows (2%) formed the minority of the interviewees while the married women were 55% with singles being 39%. Most of the women interviewed were farmers (35%), petty traders (25%), students (20%) while the minority were engaged in teaching (13%), nursing (3%) and 4% were involved in other unidentified occupations. More than half (65%) were the native Ewes, while Akans, Gas, and Dagombas were 10%, 14%, and 6% respectively with 5% belonging to other ethnic groups. Figure 1 shows the educational levels of the interviewees.

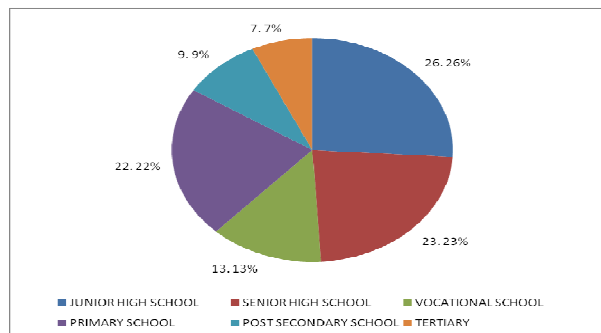


Figure 1: Percentage of interviewees and educational levels (n=100)

Management Committees and Criteria Used in Selecting Women Membership

To ensure maintenance, sustainable utilization and regular supply of the mountain ecosystem goods and services to the people living around it, the communities have formed committees. The study revealed that the majority (70%) of women interviewed knew that there was a committee responsible for the management of the resources while 30% did not know about the committee. With those who knew about the committee, whereas 57% knew they considered women in the selection of the management committee membership; 43% said they did not know that they considered women. The following reasons were given by the women who did not know that they considered women:

- a. *In this community, traditionally, decisions are taken by men and men are considered to be superior in decision-making.*
- b. *The men perceived women to be poor natural resource managers but good kitchen managers.*
- c. *The society thinks men are the family heads and all decisions should be taken by them.*
- d. *Generally the women in the community are not well educated.*

Most of the interviewees (82%) knew the criteria for selecting members to the management committee. As shown in Figure 2, the selection of members is based on educational level, expertise, tribe and other criterion; but 18% were not aware about the criteria used in the selection of the members.

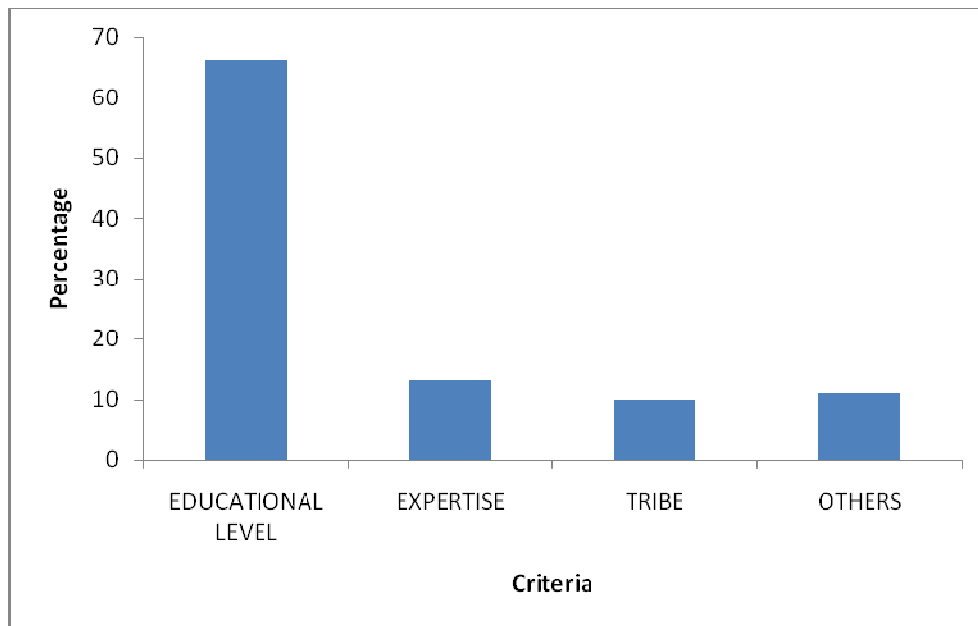


Figure 2: Criteria used in selecting members to natural resource management committee

The Contributions of Mountain Women to Natural Resource Development and Environmental Cleanliness

The study revealed that 81% of the women interviewed had planted trees but 19% had never planted trees in their life time. This indicates that a lot of women interviewed contribute to natural resource maintenance. Most of them (42.9%) planted the trees on their compound, 25.5% planted them on their farms, 9.2% planted them along roadside during communal tree planting exercise, 9.2% of the women interviewed had planted trees on both their compounds and farms while 10.2% had planted trees on both their compounds and roadside with 3.1% planted trees in other areas. The categories of trees planted by the interviewees were as follows: about 39% planted fruit trees, 29% as shade trees, 12% for both fruit and shade, 9% as fruit and hedges, 6% as shade and hedges with only 4% planted trees for hedges purposes only as graphically shown in Figure 3. The majority of the women interviewed planted the preferred trees on their compound or their farms and those who planted fruit trees also prefer them on their compound to their farms, road sides or other places ($X^2=45.752$, $p<0.001$) (Figure 4).

The study further gathered that more than half of the women interviewed (60%) cleaned their environment daily, 19%, 4%, 17% cleaned their environment weekly, monthly and occasionally, respectively. The major environmental activities that most of the women embarked include sweeping (56%), clearing of refuse dump (12%), cleaning of drainage (15%) and 17% also embarked on other activities such as promotion of ecotourism, management of eco-lodges and placing of refuse containers at vantage points. A comparison of these activities on weekly and daily basis shows that more women carried out sweeping activity daily than cleaning of drainage, clearing of refuse and other duties but the cleaning of drainage was done by more women weekly than sweeping and clearing of refuse ($X^2=43.250$, $p<0.001$) as shown in Figure 5. This compliments the common observation in typical Ghanaian homes, where it is a mandatory for the females in the house to sweep their compound of the residents every morning, but a taboo for the men to do so. However, the clearing of refuse dump and cleaning of drainage have been carried by men with some women supporting them, though not mandatory.

On the reward of the environmental cleanliness, 65% of the interviewees said they get good health, 21% have beautiful scenery and 14% did not expect any reward but thought it was part of their routine activities. A number of reasons were identified by respondents as constraints to women’s contribution to environmental management in the community. They included, lack of awareness among the public on good environmental practice (46%), lack of waste disposal equipment (38%) and, lack of poor drainage system (4.0%). The rest were lack of environmental officers (8%) and lack of public education and officers (4%). It could be deduced that most of the women interviewed knew about the health benefits of environmental cleanliness, others do it for beautification or as honorable daily chores.

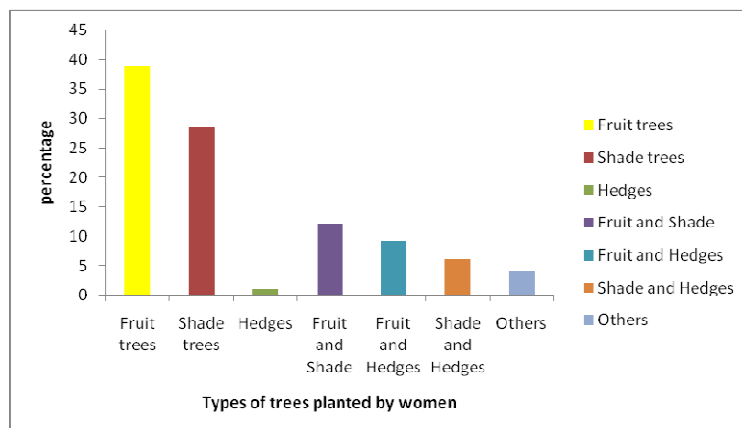


Figure 3: Type of trees and percentage of interviewees that planted them (n=100)

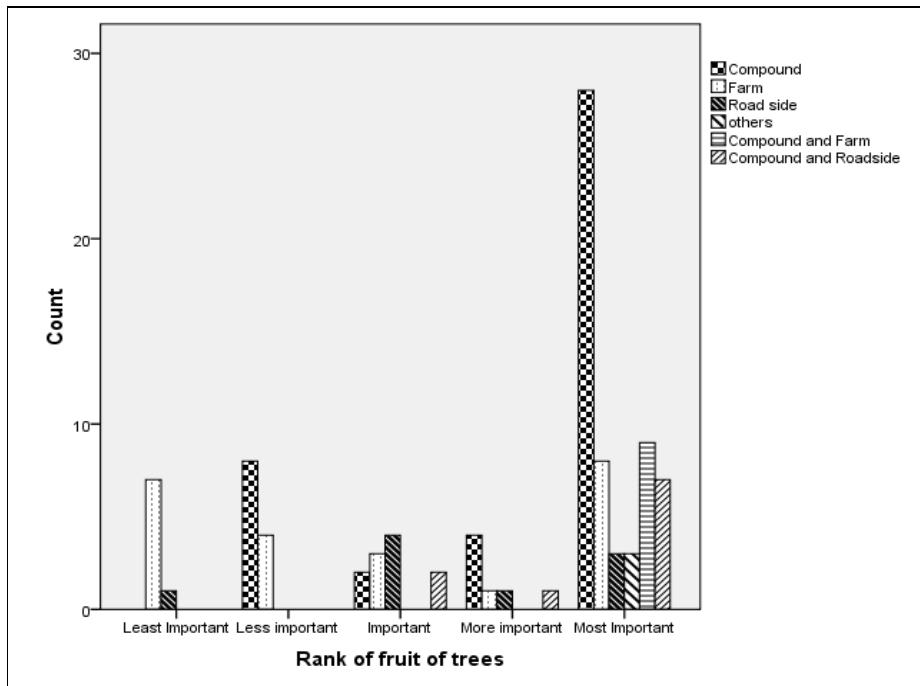


Figure 4: Fruit trees and places where women preferred to plant them.

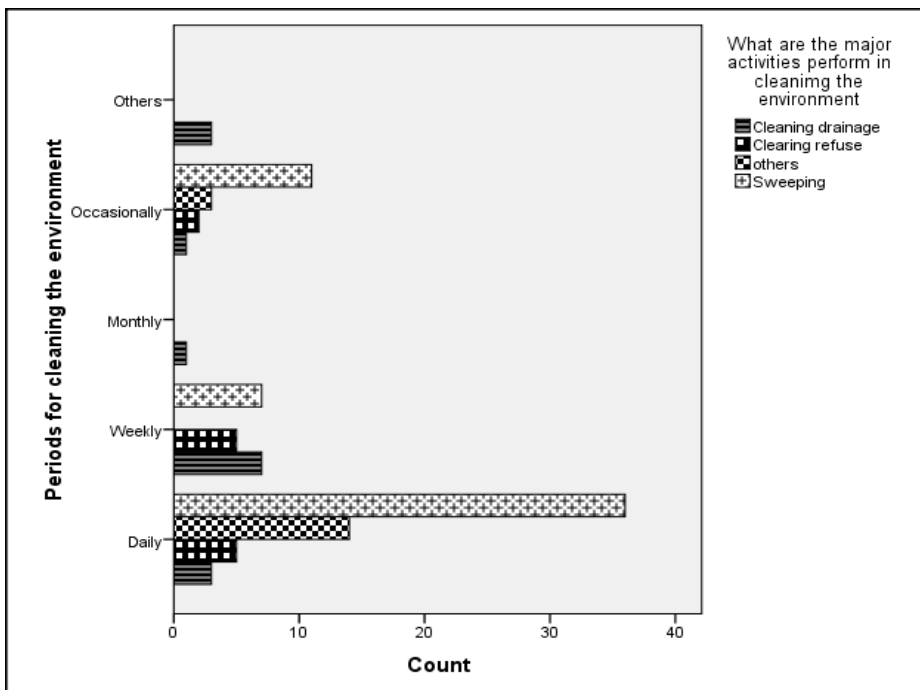


Figure 5: Some activities and the frequency at which they are carried out by women to clean the environment.

The Resources Derived From the Mountain Ecosystem

Highlands all over the world serve as important repositories for biological diversity which supply human beings with their require goods and services. Tables1 and 2 show the top five trees which the interviewees normally used and the various products they get from the forest respectively. Between 10 and 20 of the women mentioned *Khaya senegalensis*, *Milicia excelsa*, *Magnifera indica*, *Azadiracta indica* and *Triplochiton scleroxylon* as common trees they obtained their products from the mountain ecosystem. The study revealed that the number of products that the interviewees derived from trees on the mountain can be categorized into food such as fruits, oil, wine, honey and medicines; materials such as timber, wood for construction, wood for furniture, firewood, charcoal, poles for electricity and buildings; services such as shade and wind brakes.

Table 1: Top five trees species mentioned by the interviewees as being beneficial to them

Scientific name	Common name	Frequency
<i>Khaya senegalensis</i>	Mahogany	20
<i>Milicia excelsa</i>	Odum	17
<i>Magnifera indica</i>	Mango	16
<i>Azadiracta indica</i>	Neem	15
<i>Triplochiton scleroxylon</i>	Wawa	10
<i>Citrus spp</i>	Orange	9
<i>Senna siamia</i>	Cassia	8
<i>Persea americana</i>	Papaya	8
<i>Tectona grandis</i>	Teak	7
<i>Asimina triloba</i>	Pawpaw	7
<i>Theobroma cacao</i>	Cocoa	5
<i>Bambulsa sp</i>	Bamboo	5
<i>Eliaes guinensis</i>	Oil palm	4
<i>Alstonia boonei</i>	Nyamedua	4
<i>Anacardium occidentale</i>	Cashew	3
<i>Ceiba petandra</i>	Onyina	3
<i>Moringa oleifera</i>	Moringa	3
<i>Terminalia africana</i>	Ofram	3
<i>Psidium guajava</i>	Guava	3
<i>Cola nitida</i>	Cola	2
<i>Adansonia digitata</i>	Baobab	2
<i>Monodora myristica</i>	Wedeeaba	2
<i>Vitellaria paradoxa</i>	Shea butter tree	2

Importance of Natural Resources Derived from Mountain Ecosystem

The interviewees were asked to rank how the mountain has contributed to products derived from the highland as least important, less important, important, more important and most important. The detailed results are as shown in Table 2.

Table 2: Rank of importance of mountain ecosystem resources to the interviewees

Product	Least Important	Less Important	Important	More Important	Most Important	X² Value
Firewood	6.1	11.2	14.3	22.4	45.9	48.020***
Fruit trees	8.2	12.2	13.3	7.1	59.2	95.367***
Bushmeat	4.1	5.1	24.5	35.7	30.6	41.898***
Wrapping leaves	12.2	28.6	28.6	17.3	13.3	12.714**
Medicinal products	8.2	14.3	8.2	20.4	49.0	56.490***
Natural sweetener	18.4	26.5	24.5	18.4	12.2	6.286 ^{n.s.}
Poles	5.1	21.4	36.7	20.4	16.3	25.367***
Sawn wood	6.1	29.6	32.7	20.4	11.2	25.571***
Cultural heritage	12.2	23.5	36.7	16.3	11.2	21.694***
Job creation	3.1	6.1	25.5	15.3	50.0	70.163***
Promotion of sales	8.2	6.1	10.2	28.6	49.9	60.163***
Infrastructural development	12.2	9.2	14.3	24.5	39.8	30.469***
Enhancement of conservation of natural resources	5.1	17.3	20.4	22.4	34.7	22.103***
Promotion of tourism	6.1	14.3	9.2	14.3	56.1	82.306***
Limited access to natural resources	5.1	45.9	32.7	10.2	6.1	65.776***
Disruption of local culture	17.3	37.8	34.7	7.1	3.1	48.531***
Conflict with local agriculture	42.9	22.4	15.3	4.1	15.3	40.469***

***significance at 1%; **significance at 5%; ^{n.s.} not significant

Constraints Associated With Harvesting Resources from the Mountain

Sixty percent (60%) of the women interviewed answered in affirmative that the harvesting of the goods from the highland ecosystem was not without problems where as 40% said they did not encounter problems in harvesting the resources. The major problem mentioned by most of the participants was

climbing of the mountain (51.0%), 33.7% feared of being arrested by the management committees' law enforcement wing while 10.3% said they faced problems of competition with men and 5% had other related problems such as scarcity of some resources and fear of falling and rolling on steep slopes.

Only 30% of the women interviewed said that men in the community did not interfere them in collection of goods from the mountain. The remainder, 70% stated that men interfered with them harvesting the resources. The women who said they had men interference explained that the men did not necessary prevent them but 38% said men collected more of the same resources than them; 21% said the men rather collected products that were traditionally meant for women; 19% also mentioned that some men support other women during the harvesting of the same resources and 22% gave other related reasons. This manifest traditionally that there are some activities that have been socially assigned for women which differ from that of men.

4. CONCLUSIONS

The highland ecosystem contains a lot of resources that the mountain women depend on for maintenance of their homes and the community at large. On governance, the majority of the women interviewed were aware of the existence of management committees though, some thought women were not considered to be members of the committees because, traditionally women were regarded to play different roles, but not community resource manageress. Environmental management in the form of cleanliness was carried out daily, weekly and occasionally depending on the type of activity. Beautiful scenery and good health were the main rewards identified by the interviewees as remunerations for environmental cleanliness. Even those who knew women were involved in the committee membership said the criteria for selection depended on educational level, expertise in the field and the tribe. Despite the international acknowledgement of the need to involve women in environmental management, there has been little recognition of women knowledge and roles in practical environmental governance. At mountainous resource management level, women are sometimes involved in or are present at the policy formulation and decision making in resource management, conservation and rehabilitation.

The mountain ecosystems provide a vast variety of goods and services to humanity- to those who live within and outside the ecosystem. The women were found to derive a lot of resources from the mountain which included timber, food, drinks and recreational resources. The mountain was found to be important in enhancing the supply and utilization of many natural resources such as promotion of tourism, jobs and market of their produce. Women usually engage in the general environmental cleanliness and collection of resources from the mountainous ecosystem for subsistence. In general, students are involved and play active role in the maintenance and management of the natural resources of a particular ecosystem such as the mountainous one. The women were found to have faced some constraints in the course of harvesting the natural resources in the form of difficulties in climbing the mountain and interference with some men. The assess to and use of resources from the mountain was a bit different from resources on flat land and that of men mainly because of their position in the social structure and probably because of the differences in physiological features as well as cultural roles.

It is therefore recommended that massive public environmental education be carried out in the communities living in the area. The Community Based Natural Resource Management Area project of the Forestry Commission Ghana should extend its operations and activities to the people living close to the mountainous areas. The main sentiments that such projects should address must be active involvement of women in resource governance, utilization and conservation. Further studies should also be conducted to investigate into economic benefits of the resources derived from the mountain which hitherto would have been bought with money. Moreover, a comparative studies of assess and utilization of the natural resources from the mountain ecosystem is still required for policy formulation and implementation.

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