

Incentives For Participation In Forest Management In The
High Forest Zone Of Ghana: Gender, Age and Social Origin

By
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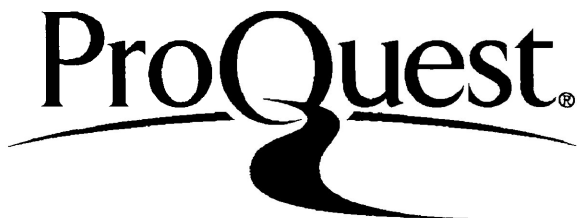
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ABSTRACT

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The social and economic incentives for community to participate in forest management activities to achieve sustainable management of forests have received very little attention in West Africa. In particular, differences in relation to gender, age and social origin have not been examined. Local communities use the forest for different purposes and have participated in different ways towards the sustainable management of the forest depending on their livelihood and social differences such as gender, age and social origin.

Ninety people from four communities comprising two migrant communities, an admitted settlement in the forest reserve and a forest land-owning community served as participants for this study. The study utilized participant observation, participant interviews and strategic planning workshops.

Local communities value and use forests and forest resources for household subsistence and as a supplementary source of cash income depending on gender, age, social origin and household responsibilities of each individual. Local communities have participated in the management of the forest through forest boundary cleaning, forest rehabilitation, monitoring for illegal activities, prevention of fire outbreaks and forest management planning. Participation in each activity depends on the gender, age and social origin and to some extent the access to collect and gather forest resources. Many people in the local communities were interested in participating effectively and efficiently in the management of the forest if sustainable and secured social and economic incentives are in place. Local communities are interested in participating in forest boundary cleaning, monitoring and reporting illegal activities, controlling and protecting of forest fires, rehabilitating degraded areas of the forest, including thinning and harvesting operations, and in forest management planning.

Appropriate incentives for participating effectively and efficiently are dependent on the gender, age and social origin of each individual. These include social and economic incentives such as payment of wages for each activity, access to the forest for gathering and collecting forest resources for both household subsistence and income generation, community development projects, increase in revenue rates, regular payment of revenues, employment for the Juniors and a share in the final crop planted in the forest through rehabilitation work.

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DEDICATION

To God be the glory

Frank, Ruthie and my family with love.

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The reader is reminded that opinions expressed in this thesis are the opinions and conclusions of the author and do not necessarily reflect the opinion of the supervisor, the Faculty of Forestry and The Forest Environment or the University.

1.0. INTRODUCTION

The 1992 United Nations Conference on Environment and Development (UNCED) reiterated claims for an integrated approach to conservation and development. Statements issued from the UNCED stressed a combination of government decentralization, devolution to local communities of responsibility for natural resources held as commons, and community participation in environment interventions (IDS 1995).

Specifically in forestry, a parallel shift in thinking has occurred. Connecting people's livelihood needs with forest resources arose during the fuel wood crisis in West Africa in the late 1970's and the introduction of social forestry designed to counter this shortage (Leach and Mearns 1988). Shepherd (1992), noted that forest management can no longer be discussed in technical isolation but within a social context taking into account a range of claims, interests and impacts on forest resources. International agencies have stressed the importance of addressing the needs of rural people in conjunction with promoting sustainable forest management. To this end, the Tropical Forestry Action Plan is founded on the principle that the active organized and self-governed involvement of local groups and communities with a particular focus on the most vulnerable, on women, and on commonly shared resources should be encouraged (Colchester 1992).

The Forest and Wildlife Policy of Ghana aims at conservation and sustainable development of the Nation's forest and wildlife resources for the

maintenance of environmental quality and perpetual flow of optimum benefits to all segments of society. Furthermore, the policy emphasizes the management and enhancement of Ghana's permanent forest estate for preservation of vital soil and water resources, conservation of biological diversity and the environment and sustainable production of domestic and commercial produce (Forest Policy 1994).

The last decade has seen the emergence of The Women Environment and Development (WED) discourse, which has further influenced sustainable development theory and practice. It projects women as the main victims of environmental degradation, and as the most appropriate participants in environmental conservation programs (Dankelman and Davidson 1988, 1989).

The WED approach has been criticized on various grounds: for focusing solely on women's roles, for assuming a special relationship between women and nature, and for falling into essentials and universalizing the experiences of women. The more recent emerging Gender and Economic Development (GED) approach attempts to overcome the shortcomings of WED by highlighting the need to understand gender relations as they operate within a larger social framework when addressing issues related to sustainable development (Leach 1992, Rocheleau 1991).

The United Nations World Commission on Environment and Development defines sustainable development as that which ensures that the needs of the present are met, without compromising the ability of future generations to meet

their own needs. Sustainable development therefore aims at a broader, deeper and more dynamic process of learning and change to create appropriate equitable systems. It relates to all aspects of human activity; hence includes participatory forest management According to Norton 1988, participatory Forest management means involving the local population in the conservation and management of forest resources by creating a situation where forest dwellers derive sufficient benefit from the forest to give an incentive to guard and protect the resource.

1.1 STATEMENT OF PROBLEM

Critics contend that participatory forest management (PFM) interventions have largely ignored the significance of the social variables of resource use such as social classes or gender relations, which shape access to, interest in and benefits from forest resources. Thus, in the course of implementing PFM, it has been found that the supposedly poorer groups (e.g. women, the youth and migrants) are more restricted in influencing the way forests are managed by communities and are disproportionately affected by new rules governing access (Hobley 1990, Loughhead *et al.* 1993, Locke 1995).

An alternative starting point begins with the recognition that communities are not bounded, homogenous entities but socially differentiated and diverse. Gender, caste, wealth, age, origin, status and other aspects of social identity divide the social community boundaries. Rather than shared beliefs and interests, diverse and often conflicting values, and resource priorities pervade

resulting in intense over utilization of the resource. (Carney and Watts 1991, Leach 1994, Moore 1993). Men and women are both affected, in different ways, when they have traditionally depended on natural resource base livelihoods. Therefore, men may also show concern for environmental protection when their interests are at stake. A focus on the analysis of specific gender roles in isolation from the overall context of social differentiation can project an artificial equilibrium difficult to sustain in the long run.

Section 4.2.3 of the Forest and Wildlife Policy (1994) states the objective of the promotion of public awareness among rural people and the involvement of local people in forestry and wildlife conservation so as to maintain life-sustaining systems, preserve scenic areas and enhance the potential of recreation, tourism and income generation opportunities.

To this end, Anonymous (1996) conducted a study to investigate how the flow of benefits to local communities can be negotiated and improved. An important issue, which came out of the study, was the fact that the local community is not just one unit with people having the same interest and viewpoint but rather represents diverse and conflicting community interests and viewpoints that are shaped by gender, age and social origin.

1.2 BACKGROUND AND STUDY OBJECTIVES

Forest management in Ghana started in the 1920's on a collaborative note between traditional leaders (representing the local people)¹ and the government (represented by the Forest Service). However, the 1948 Forest Policy shifted from a previous emphasis on protective functions of forests to promoting timber industry and values. Although the intent for collaboration is found in the policy, the events in the larger political arena conspired to make a continuation of the focus on the development of 'indigenous forestry administration extremely difficult. Forest Reserves were managed mainly for timber production with local interest relegated to the background.

As forest management shifted from collaboration to exploitation of timber, forest managers became less familiar and aware of the needs of local people. Furthermore, they began to see their job primarily in terms of protecting the forests from the encroaching demands of local people and of promoting and sustaining the timber industry. In effect, they ensured that the concessionaire's interests were protected against that of the local people. Local people felt increasingly alienated and therefore exploited the forest resource as much as they had the opportunity to do so; thus worsening the relationship.

The local people's customary rights were recognized and elaborated in the original working plans by which Forest Reserves have been managed since

¹ In Ghana all lands are privately owned by groups or individuals. Forest reserve lands and some national parks are owned by communities. Similarly farmlands are owned by individuals or families. The government does not own any land.

1948. However, in the actual management of the reserves little attention was paid to how they could exercise these rights. The most significant way that local people have participated in forestry is the *taungya* system of plantation development and rehabilitation. Under the *taungya* system, farmers rehabilitated degraded portions of the forest where they planted their food crops and subsequently vacated the area when trees were well established. Unfortunately, the *taungya* system did not remain people focused, but rather was a means of obtaining cheap labor for establishing plantations. Local people were tools, rather than partners for achieving forest management objectives. Consequently, this system failed to sustain the forests.

Non-timber forest products (NTFPs), which represented the direct benefit of the forest reserve to surrounding communities, have never been consciously managed. The Forest Service did not have the resources to maintain this form of non-timber forest resource management. This issue is further exacerbated by the fact that the Forest Service needed the assistance of the local people in order to effectively manage non-timber forest products. Unfortunately, the Forest Service did not trust the people enough to call on them. Conversely, the local people would have refused if the Forest Service had called upon them since they see no connection between cooperating with the Forest Service and access to non-timber uses of the forest. In essence, even though collaboration with local people in forest management was not new to the Ghana Forest Administration, the form it should take to overcome the barriers to its reintroduction was not apparent.

The former Chief Conservator of Forests stated in 1992 that

It was quite clear to me that we were having a difficult time coping on the ground that we needed more support on the ground floor. We did not have enough staff to have eyes all over the place. We needed the support of the local people and yet these are the very people who are disillusioned with us. It is only when the forests have a real value to the local people will we be able to gain their cooperation and energy for forest protection and management. Without that cooperation the future of the forests cannot be guaranteed, except at the prohibitive cost of a vast army of forest guards (Boateng 1995).

Without a shift in focus of forest management and benefits from the timber contractors back to the forest owners, nothing will change at the community level. Who the reserves are managed for is a critical issue in forest management and protection. Prior to 1993, forest reserves were managed mainly for timber. The local communities that owned the forests were ignored. The new approach or strategy in the current Forest and Wildlife Policy for involving people in forestry envisages that local communities can help improve the efficiency of forest management. However, if forest management is to be attractive and encourage local community participation, then clearly any decision made must be based on a sound knowledge of what the communities want and need. In no case should it ignore the actual needs of the people it hopes to involve, the socioeconomic pattern of the community, and the prevailing production system and mechanisms of the affected locality.

Globally, the most common problem with any form of public participation is the reluctance of decision makers to accept public input where it threatens an established power base as to what they perceive to be best for the community.

Thus, it is important to study how community structure, demographic and values can affect forest resources management strategies.

It is in the light of this that this study seeks to find out from the communities what they think are appropriate social and economic incentives, and hence which incentives may motivate communities to participate in forest resource management. This will enable the necessary recommendations to be made to the Forest Service to guide them in the design and implementation of programs that involve communities in forest management. The objectives of the study are as follows:

- to identify the extent to which local communities have access to the forest and how they benefit from forest management by age, gender and social origin.
- to investigate the extent to which local communities have participated in the management of the forest reserve by age, gender and social origin.
- to identify the incentives local communities need to participate in forest management by gender, age and social origin.
- to explore the potential to involve local communities in forest management and to identify in which forest management activities communities are interested in participating by gender, age and social origin.

1.3 JUSTIFICATION OF STUDY

The Forestry Department of Ghana is moving out of the national civil service to become a semi-autonomous organization. One of the activities earmarked by the institutional reform is the potential to involve local communities in forest management practices. However, before the communities can be involved it is important to understand and identify in which forest management activities community people are interested to participate and the incentives that will encourage them to participate effectively and efficiently with regards to social differences such as age, gender and social origin. This will ensure that the best practices can be implemented to effectively improve the involvement of the local people in sustainable forest development. The sustainability of forest ecosystems must include the sustainability of the communities.

2.0 LITERATURE REVIEW

2.1 BACKGROUND AND SETTING IN GHANA.

Ghana is located on the western coast of the African continent, the southern edge of the country is situated along the Gulf of Guinea (Fig. 1).

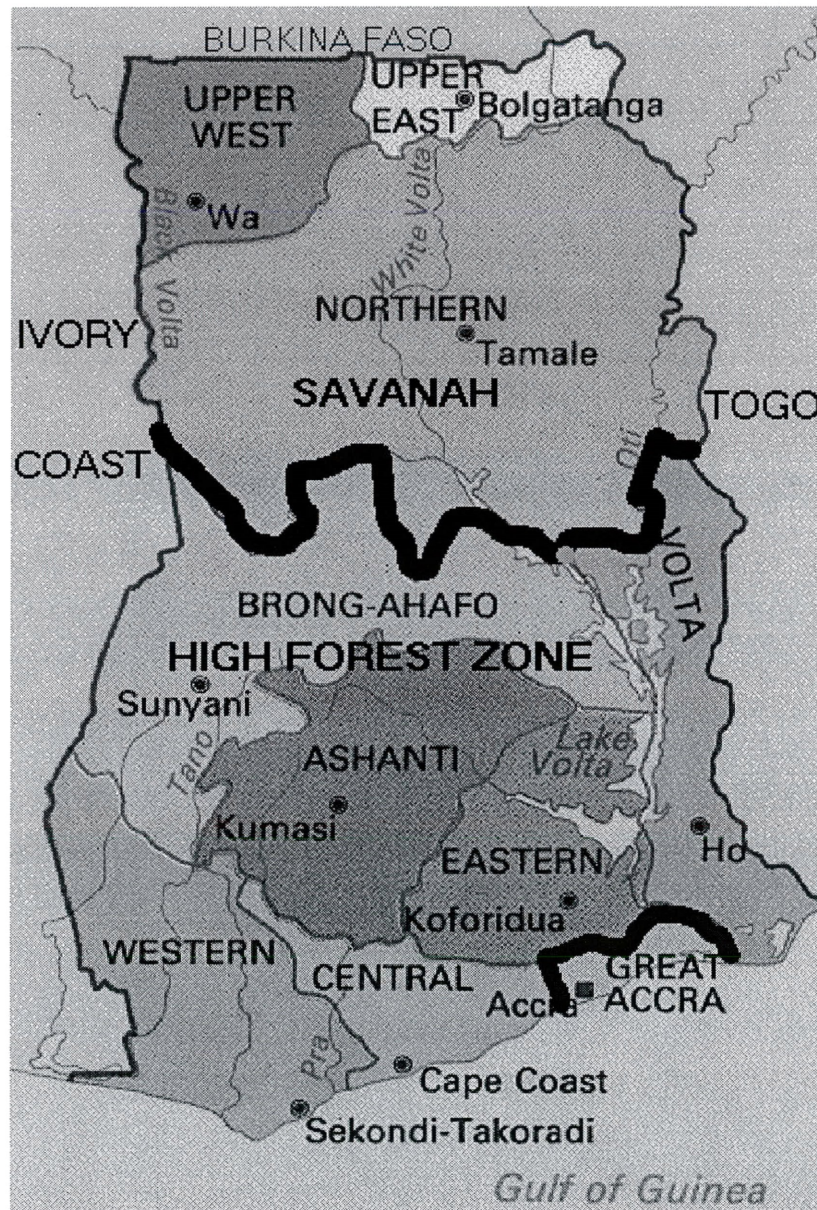


Figure 1. Physical Features and Administrative Regions of Ghana

To the north is Burkina Faso, while the Togo and Ivory coast borders the east and west respectively. Administratively, the country is divided into ten regions; Greater Accra Region (the capital), the Eastern, Western, Central, Ashanti, Brong-Ahafo, Volta, Upper East, Upper West and the Northern Regions (Fig. 1).

The population of Ghana is approximately 19 million and the majority of people live in rural areas. Population density is higher in the High Forest Zone (HFZ) than the Savanna with less than 100 people per km². The highest population densities are in the Central, Eastern and Ashanti Regions. The lowest densities are in the Western and Brong-Ahafo Regions. While population densities in the HFZ are not very high as compared to South Eastern Asia or Nigeria in the West Africa region, the intersect of rising population and marked social differentiation in the ownership of land holdings results in problems of land shortage in many regions. The population in the High Forest Zone is highly diverse reflecting a complex process of pioneer frontier settlement. Many people have migrated from the old frontier districts in the Eastern, Central and Ashanti Regions into the last frontiers in Ahafo and Western Regions (Fig 1). Many people have also migrated into the High Forest Zone from the Northern Savannah area. (Amanor 1996).

2.2 ECONOMIC PERSPECTIVE

In Ghana, agriculture is the main economic activity accounting for approximately two-thirds of the labor force (World Bank 1989). The timber industry accounting for 4.5 percent of the GDP (IUCN) (1988), is the third largest export industry following cocoa and gold. Ghana's forests are therefore valued primarily as a source of commercial timber (Ardayfio-Schandorf 1992). The forest also plays a vital role in the stability and fertility of soils and the quality of water (François 1987). Forests also contribute to all aspects of rural life providing food, fuel, medicines, building materials and household items, as well as other tangible and intangible benefits such as cultural symbols and ritual artifacts. Throughout the regions, forests serve critical functions, especially, during seasonal food shortages and other periods of hardship (Falconer 1990).

2.3 DESCRIPTION OF THE HIGH FOREST ZONE OF GHANA

Ghana covers an area of 23.9 million hectares spanning two major ecological zones. The High Forest Zone (HFZ) is confined to the southwestern third of the country (Fig. 1 & 2) with savanna dominating the north and east. Within the HFZ approximately 21 percent of the area (1.63 million hectares) is permanently protected as Forest Reserves (Fig. 2). Many of the Reserves were initially established as shelter belts against the savanna winds and to protect headwaters, rather than to supply industry. Thus, while there are more than 200 reserves, many of them are small. Forest resources are also found outside the reserves either in small forest patches or as individual trees on farms.

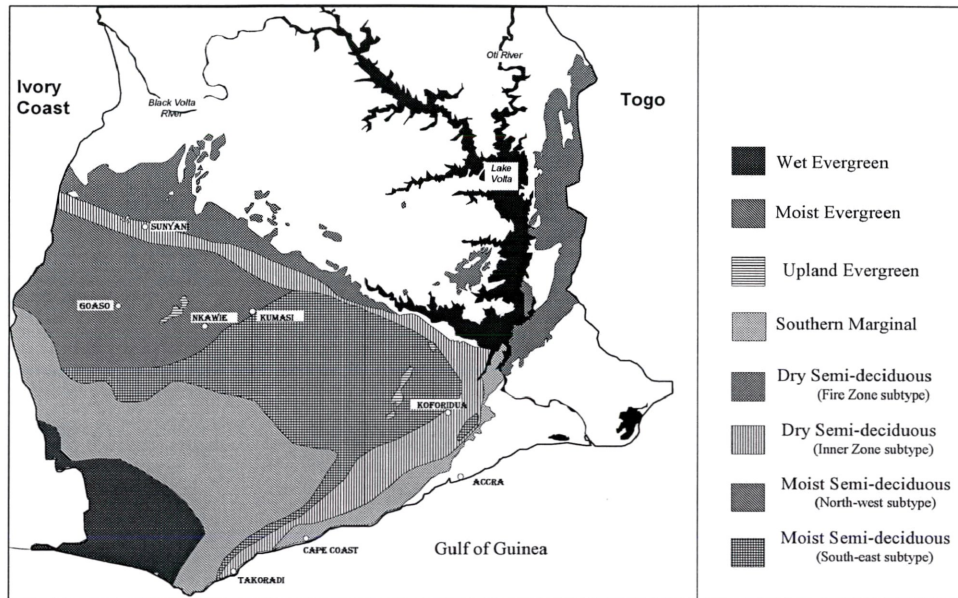


Figure 2. Ecological zones of The High Forest Zone of Ghana (HFZ)

Over the past three decades, some forest reserves have experienced intensive logging from a proliferation of chainsaw operators both legal and illegal, bushfires in formerly fire-free zones, failed plantations, and farm encroachment in a few reserves. Most of the land in the High Forest Zone is dedicated to agriculture, especially to cocoa and oil palm production. Much of the remaining timber resources outside the reserves are found on cocoa farms. Logging operations cause considerable damage to food crops and timber contractors refuse to pay any compensation for those damages hence there is considerable conflict between farmers and concessionaires over these trees. Consequently, instead of planting trees on their farms, farmers destroy those that regenerate

naturally in order to prevent potential future logging by a concessionaire.

The Akan people, who are predominantly matrilineal tribes, dominate the High Forest Zone. Traditional institutions retain considerable authority at the local level as they influence most land use decisions. Communities are governed by a Chief and Elders who represents the community. This collectivity of Chief and Elders constitutes a Stool. A community is defined by the land, which past, present and future generations own - this is known as Stool Land. The Stool also owns all natural resources of the land, including timber trees. In southern Ghana, the chieftaincy system is hierarchical represented by the paramount or Stool Chief. Caretakers known as *ODIKRO* who serve the Stool Chief govern individual villages. While individuals do not own land, families have the right to use land, which is passed from one generation to another. There are various mechanisms within the Stool system for leasing and using land, but outright purchase is generally not possible.

Forest resources are managed by the Forest Service (FS). However, the Forest Service does not own the reserve land, or the trees, but is responsible for the protection, maintenance and development of these forests. Timber harvesting is regulated by a contract system, working plans and logging rules prepared by the Forest Service without input from the local communities who own the forest. Revenue generated from reserve management is divided between the government (for management costs), local government institutions

(the district assemblies and the traditional councils) and the Stool land owners².

The High Forest Zone embraces five administrative regions, (Central, Eastern, Western Brong-Ahafo and Ashanti regions), which are further subdivided into administrative districts (which are not necessarily the same as the FS's districts). A centrally appointed executive by the government and an elected District Assembly govern administrative Districts. The present national government has been pursuing a decentralization policy for the past few years and hence the District Assemblies are assuming a more important role at the local level.

In the High Forest Zone, there are critical differences between the situation in forest reserves and the situation outside reserves. Forest resources, both timber and non-timber, are monitored by the Forest Service in the forest reserves. However, only the exploitation of timber trees is monitored by the Forest Service outside reserves.

2.4 PARTICIPATORY FOREST MANAGEMENT

A history of forest degradation and the emergence of people's action groups have shown that the scientific management of forests cannot always be

² The Forest Service classifies all revenues and rent from forest product both on and off forest reserves as "Stool" revenue including the share which is taken by the government to meet improvement costs. While the original intent of forest reservation was that all these revenue would go to the people of the land owning communities it is now divided between the Stool Chief, the Traditional Council and the District Assemblies and little actually gets down to individual community members. The Forest Service deducts 70% before passing the remainder to the Administrator of Stool lands who disburses the revenue as follows: 10% is deducted by the administrator to cover costs and the remainder is divided between the District Assembly (55%), The Traditional Council (20%) and the Stool only (25%).

carried out in isolation from the aspirations and cooperation of people who depend on the forest for their livelihood without severe negative consequence for the indigenous population (Bahuguna *et al.* 1994). The desire to protect and enhance the use of forest resources and to ensure improvements in the socioeconomic conditions of rural inhabitants is of much concern in most developing countries. The determination of best practices in forest management is being debated in many developing countries (Bahuguna *et al.* 1994).

Following Bird (1996) and Milton (1998), participatory forest management (PFM) is adopted here as a generic term encompassing a diversity of forest management approaches labeled as Social Forestry, Joint Forest Management in Asia, Community Forestry, Collaborative Forestry in Ghana, and Shared Forest Management.

A key element in participatory forest management (PFM) is that decisions are based on local input and can be modified in response to site-specific experiences. From a PFM approach, the conservation of natural resources, such as forests, is not possible without the active involvement of local people (Bahuguna *et al.* 1994). For example, PFM is “the sharing of products, responsibilities, control, and decision making authority over forest lands, between managers and local users based on a formal agreement”. The underlying assumption is that there is a convergence between the private incentives of forest users and the national objective of maintaining forest resources, and that people will protect the forest because they have a stake in

the outputs. PFM focuses primarily on the transfer of rights and responsibilities and only secondarily on transfer of resources. (Hill and Shields 1997).

In Ghana, forest management started in the 1920's on a collaborative note. The colonial government encouraged local people and their chiefs to set aside some of their lands for forestry for environmental protection needed to safeguard agriculture as well as to secure benefits into the future. At this time, local people were viewed by the Government as the client. The Forest Service's role was to provide professional advice to forest owners and to ensure that they benefit from setting aside their land under forests.

However, as timber production became a matter of increasing national interest, the relationship between the Forest Service and local people deteriorated. Forest managers focused primarily on protecting the forest from the encroaching demands of local people and on promoting and sustaining the timber industry. In effect, ensuring that the concessionaires' interests were protected against the interests of the local people. As a result, local people became alienated and exploited the forest resources (timber and non-timber by helping and encouraging illegal exploitation), worsening this relationship.

In order to reverse the situation, a type of participatory forest management called Collaborative Forest Management was introduced to increase the flow of benefits to local people and to enhance forest management by integrating local communities in forest management planning. The most obvious ways to increase the benefits to the local people are to increase the revenue and rent rates so that

overall forest income increases; and/or to develop new sources of revenue. An additional method for ensuring greater benefits to local people is by involving them in participatory forest management, where they contribute directly to the Forest Service management efforts and benefit directly from this partnership (Anonymous. 1996).

From an anthropological point of view, Croll and Parkin (1992) have argued that the local communities should share in the management and be permitted uncontrolled access to their own natural resources. The current interest in combining community participation with forest conservation has increasingly highlighted the relevance of indigenous peoples' experiences. An important body of work has drawn attention to the importance of forest management by those immediately dependent on forest resources rather than devaluing or ignoring local experience and knowledge. During the last two decades or so, the context of forest conservation has been broadened.

In 1980, IUCN described conservation as being the management of human uses of the biosphere so that it may yield the greatest benefit to the present generation while maintaining its potential to meet the needs and aspiration of future generations. This type of conservation is positive, embracing preservation, maintenance, sustainable utilization, rehabilitation and the enhancement of the natural environment. It is evident that utilization and management are interconnected, and that both must comprise a major element in any forest conservation strategy to provide timber and non-timber forest

resources.

Traditional resource management systems have received the attention of national and international agencies particularly since the mid 1970's. Studies have focused on many types of resources. For instance, in 1983, UNESCO supported a series of studies on traditional knowledge and management of coastal systems (Ruddle and Johannes 1985), the FAO has paid attention to forestry for local community development and IUCN produced a publication including culture and conservation (McNeely and Pitt 1985).

The concept of shared rights and responsibilities, in which management targets and approaches are mutually defined and agreed through a participatory process is likely to provide a more sustainable solution. Where people hold rights, there is a strong willingness to assume responsibility.

2.5 BENEFICIARY RIGHTS TO LOCAL COMMUNITIES IN GHANA'S FOREST RESERVES.

In the 1920's, the Forest Ordinance was introduced giving the government the power to establish permanent forest reserves, which in turn prohibit farming. However, these laws did not nationalize those forests or the forest resources outside reserves. The ultimate ownership, of the permanent forests and the forest resources outside reserves has remained with the traditional groups: the Stools in Southern Ghana; Skins clans and alienation holders in Northern Ghana. However, the Forest Ordinance gives the government of Ghana the mandate to manage the forest reserves stating in section (18(2)) that

Every forest reserve shall be managed (protected and preserve as shelterbelts) in one of the following ways

- a) by the owner under the direction of the Forest Service or
- b) by the government for the benefit of the owner or owners.

Subsequent legislation strengthened this management authority. In legal terms, all lands in forest reserves are vested in the President in trust for the Stools, Skins or alienation holders [Act 124(16)]. All timber resources outside reserves are similarly vested in the President. However, according to the law any revenue (after deducting management costs) derived from these vested rights both on and off reserves must be disbursed by the Chief Conservator of Forests into the Stool or Skin land accounts for the benefit of the people in the area in which the particular lands are situated (Act 123,17,20). Thus, the beneficiary rights remain with the land-owning people.

The 1992 Ghana Constitution names the Stool and Skins, who represent the Traditional Authority and District Assemblies as recipients of Stool revenues (Article 267(6)). The national Forest and Wildlife Policy aims to provide benefit to all segments of society and emphasizes the right of local communities' involvement and access to the forest to maintain a basic standard of living (principle 3.2.1). However, neither the 1992 Constitution nor the Forest and Wildlife Policy distinguishes between the beneficiaries identified in the Reserve Settlement Agreement and By-laws of (those who are legally entitled to the benefit of forest management) and the national interest, which represents the interest of many stakeholders.

In establishing the forest reserves, the Commissioners (Government and

Traditional Councils³) identified existing rights of use which people traditionally had to forest products to meet their basic household needs (including personal, family, community, cultural and spiritual needs) referred to as *communal or customary rights*. The Reserve Settlement Agreements and by-laws safeguarded these rights

- the right of access or customary rights to the reserve to meet specific basic needs
- the right to be consulted in forest management planning ;
- the right to a share of revenue from the management of forest resources

Oniang'o (1995) noted that restriction of access reduces people's livelihood options at times of prolonged drought as well as reducing supplies of daily necessities. If women were assured *customary rights* to forest produce, they would have a major stake in protecting local forests. Similarly, if men held these rights they would also be interested in protecting local forests. Villagers do not need to be told the importance of common forest land. They know it well and are willing to manage it but they must first be assured that the benefits will go to them and not to the government or the contractor. They will gladly manage the forests jointly if they know that they will get a fair share. (Agarwal and Narain 1989).

³ The District Administration, District Assemblies, and all Stool land Chiefs and Elders in a particular region forms the Traditional Council.

2.6 GENDER AND FOREST RESOURCE MANAGEMENT

Growing evidence points to the fact that members of rural communities do not have singular sets of shared concerns. (Rocheleau, 1991, Leach 1992, Leach and Fairhead 1992, Fortmann and Bruce 1991). These studies have shown that men, women and other social groups may have conflicting and complimentary interest in relation to natural resources. In many developing countries, the subordinate position of women is exacerbated not only by patriarchal attitudes but also by economic crises and the legacy of colonialism. The traditional model for women has been housework and child care. However, new socio-economic demands and individual motivation have created new opportunities. (Kinnaird and Momsen 1993).

Current research initiatives have a strong leaning toward environmental issues. Women, Environment and Development Network (WEDNET) for example seeks to draw African women into a network to develop conceptual frameworks and methodologies for studying women and the environment in Africa. In many developing countries, rural women are primarily responsible for household and farming activities as well as the management of local resources (Abruquah 1996). Therefore women's traditional experience, knowledge and concerns about local problems are essential in solving emerging environmental problems such as deforestation, soil erosion and scarcity of food, fodder, fuel wood and water.

Forestry and forest products are primarily used for fuel, fodder, food,

medicine, and purposes such as conservation and income generation. Evidence has shown that women have traditionally combined all the above uses, thus accumulating knowledge and values, as well as behavior patterns that form an integral approach in their relationship to the environment. Women are among the most experienced rural activist and resource managers (Hyma and Nyamwange 1993). Molnor (1991), reported that there has been progress with the involvement of women in management decisions for the rehabilitation of forests in a number of countries such as Zimbabwe, Rwanda and north India where women are traditionally more outspoken. Chen (1990), also reported that women in West Bengal have encouraged their men to form Forest Protection Committees for forests consisting of non-timber forest products.

In many African societies, household relationships are characterized by inequality in the distribution of work, land, income, consumption and contribution to productivity, based on gender and age. Household inequalities are reinforced in the judicial, political and traditional cultural realms where family members are considered dependent on the head of the household who is taken as a spokesman and legal representative of that household. Currently the male dominated nature of land, particularly farmlands give men more decision making power. Both in forest resource utilization and production work, a clear gender disparity exists (Wickramasinghe 1993, 1995).

A study undertaken in India by Meera and Shah, (1995) noted that, men and women came out with comparable lists of useful tree species which, contrary

to popular belief, that men's knowledge of forest and trees is equal to that of women. Generalizing that women rather than men will take the initiative to protect natural resources, prevents a more useful analysis. The context within which woman and men operate as defined by their livelihoods and the prevailing tenure systems are all critical in determining the nature, extent and sustainability of action by common interest groups.

2.6.1 The Ghanaian Situation

Colonialism (1470-1956) introduced an institutional system, which transformed the economic behavior of Ghanaian men and women. Men were encouraged to cultivate export crops for the metropolitan market using their own lands. Those with less opportunity to engage in such agricultural production migrated to the cocoa growing areas to sell their services as laborers on cash crop farms. As more men went into cash crop production, women who were discouraged from participating in agricultural export economy were narrowly restricted to the production of subsistence crops for feeding their family. Through this system, inequality between men and women (under colonialism) emerged as an aspect of social differentiation characteristic of a capitalistic society, where sharp differences exist between persons on the basis of unequal access to the means of production.

Abruquah 1996 noted that in Ghana women contribute in various ways towards household sustenance and this involve substantial reliance on the forest as they have limited access to agricultural lands. She noted that the fact that

rural women in Ghana receive little or no financial support from their husbands force them to rely more on forest produce to meet basic needs than men.

As Ghanaian men were required to enter into cash-based productive work, they were favored in their access to productive resources. In the process, the attention of men shifted from domestic production (which became the responsibility of women) to cash and export crop production (Ardayfio-Schandorf 1986). Women assisted their husbands to maintain cash crop farms by weeding and harvesting. Thus, the pattern of economic development that emerged during the colonial period in Ghana reduced the relative value of the economic contribution of women as measured by GNP.

Since women lack formal education and many of the skills required in modern society, they are unable to take advantage of technical developments. Furthermore, women normally own smaller acreage than men, thus limiting the use of modern equipment and their access to credit. As women are deprived of access to large-scale cash-based production, they organize and adopt strategies that will reap certain survival benefits from the land that is based on their intimate knowledge of the environment. Ardayfio-Schandorf (1992), noted that environmental degradation is putting increased pressure on Ghanaian rural women. The extent of their dependence on natural resources is clearly demonstrated through the essential household income they derive from agricultural produce and other small scale economic enterprises. In this respect, changes in environmental conditions are a threat to the economic survival of

women and their dependents particularly for those in the savanna where natural resources are limited.

2.7 LAND OWNERSHIP AND PARTICIPATORY FOREST MANAGEMENT

Over the past thirty years there have been significant shifts in thinking concerning how tenure, or property rights in land and natural resources of the land affect farmer incentives for adoption of agro-forestry practices (Bruce and Fortmann 1989).

Traditionally throughout Ghana, absolute right to land is vested in communities. In the forest areas, dominated by the Akans, the communities are represented by chiefs and the sovereign rights are generally vested in them. The traditional councils are the customary administrative units of land.. The councils settle boundary disputes between communities. The Traditional Councils in communities protect the land against encroachment or claims by other states. In the past, such protection was through warfare and since colonial rule, by litigation. (Amanor 1996). Under the system of collective ownership, land cannot be allocated by the custodian without the consent of the group. An individual can obtain the right to use the land as a member of the land owning group, and as long as he or she continues to farm, it cannot be taken away. (Amanor 1996).

While these traditional arrangements for managing communal land still persist though variations may be found in different areas. Currently, the Chiefs and Elders of communities (in particular those who read and write) are tending to ignore the old processes of decision making in matters of land as in other areas

of communal life. Also, the modern courts have to a certain extent superseded the traditional councils as land courts in the resolution of boundaries and other claims. (Arhin 1994).

Furthermore, land tenure has become complicated by the intervention of government and the emergence of a cash economy. While traditional ownership still remains, a complex system of multiple land rights dominate land tenure systems. In these areas, land is no longer managed as part of a communal pool, rather, individual ownership and individual usage and share cropping have become the norm.

Surveys on land ownership show a highly skewed distribution with considerable inequality. A 1987 survey of 151 cocoa farmers in four villages in the Ashanti revealed that 40 percent had holdings of less than 10 acres and occupied 14 percent of land, while 11 percent of farmers had holdings of about 30 acres and occupied 44 percent of land (Commander *et al.* 1989).

2.7.1 Security Of Rights In land

Bruce and Fortmann (1989), noted that tenure reforms may partly be the answer to the question of how to create adequate incentive packages for farmers to plant more trees.

Migrant tenants are often concerned about the security of their rights to the land, rather than the actual terms on which they obtained the land. Many tenant cocoa farmers are worried that landlords will take the land away from them when plantations have matured. In some areas such as Ashanti, the chiefs

refuse to sell land to migrants and often gave it on *abusa*⁴. With the decline of unsettled land, avenues for land purchase are becoming scarce and farmers have to resort to sharecrop arrangements or renting on existing family lands.

Tenant agreements, rather than ownership, discourages farmers from making productive investment in the land for profit. The main problem is in establishing long term security and independence of tenure which will enable tenants to acquire tracts of land over a long duration that they can manage as they choose (Amanor 1996).

In Kenya, as in many African countries Oniang'o (1995) noted that ownership of land bestows on the owner a right to grow permanent cash and tree crops and to control income from it. Conversely, lack of ownership is a deterrent to such activities.

Land owners are concerned with gaining reliable and quick sources of income rather than in releasing lands to develop new farming methods. This has serious implications for developing strategies, which seek to promote tree planting activities and environmental conservation in farmlands (Amanor 1996). In a study undertaken by Flathery and Jengjalern (1995), they noted that insecure land tenure was an important factor contributing to forest loss. If people do not have ownership of the forest, there is little incentive to protect it.

⁴ *Abusa* is a system of land agreement where proceeds from farm are divided into three parts. The farmer takes two parts and the landowner takes the third part.

2.8 COMMUNITY

Recent approaches to community-based sustainable development appear as diverse as their varied implementing agencies and natural resource settings. Yet they rest on a set of common assumptions about community environment and the relationship between them. One fundamental assumption is that a distinct community exists. While definitions vary, approaches commonly focus on the people of a local administrative unit, of a cultural or ethnic group, or of a local urban or rural area such as the people of a neighborhood or valley. (IUCN/WWF/UNEP 1980). For Example Holdcroft (1984), noted that in the social science literature on community development approaches, serious attention to social structure differences and its implications has been remarkably absent from the recent wave of community concern in environmental policy debates. In particular, those with different modes of livelihood or who carry different responsibilities within divisions of labor may need to draw on very different environmental resources and services; and hold different views of what constitutes environmental degradation or improvement within that context.

We need to ask how different people gain access to and control over such resources so as to use them to sustain their livelihoods. And we need to ask how different people transform different components of environment through resource management. The problem of natural resources management based on common property is to deal with the dynamic requiring assimilation of a multitude of interests held by distinct social groups within communities.

Another fundamental assumption is that the social structure of local communities is complex, comprising a hierarchy from individuals, through households or families to the community cluster as a whole. Within this community based structure, gender as a socially structured and culturally embedded feature determines the activities of men and women in both forest activities and non-forest work. Furthermore, activities related to forest resource management are not undertaken on an individual basis but by groups, led by the most experienced members especially the elderly, who are respected for their knowledge and experience. However, these Elders typically perform rituals primarily as leaders of the community rather than as members of individual households where they are not currently engaged in the management task.

2.9 INCENTIVES

Incentives can be thought of as catalysts or guideposts to make people aware of what is being rewarded. They may be negative providing a deterrent; or they may be positive motivation indicating a preferred action (Mayers, *et al.* 1996). Whereas encouragement is generally accepted as preferable to constraint for the achievement of a set of objectives, there is considerable debate on the manner of what constitutes an economic incentive (FAO 1990).

Economic incentives are usually accompanied by widely disparate and poorly defined legal notions. Though these incentives are financial or fiscal in nature, they often employ techniques, which are not directly related to financial or fiscal encouragement.

In a broad context the word incentive can apply to both the financial factors and other factors (social advantages, training, education, research, etc.). In a narrower context, however, economic incentive indicates purely financial or fiscal incentive, as in the case of subsidies, grants contributions, loans, cost refunds, tax concessions. Incentives may be basically a temporary substitution of income for a permanent increase in productivity as in the case of assistance given by the state to farmers in the form of soil conservation incentives. (FAO 1990).

Incentives for forestry include all the public financial allocations (direct or indirect) to persons exercising an immediate economic activity, whether these be private bodies or public entities managing enterprises along private sector lines. Financial allocations include a wide range of public intervention such as, contributions to infrastructure work, donations in kind or capital, free technical assistance, credit supply, tax concessions etc. (FAO 1990).

The relevance, effectiveness, success, failure and final selection of a particular economic incentive depends on a range of political, economic, social, cultural and juridical factors that are context specific. If the same economic incentives are applied in the differing contexts, the results will vary as will the degree of usefulness, depending on the interplay of these factors.

An incentive is meant to encourage a process, but this objective is not always achieved in practice. What is perceived to work at the macro level may not be viewed as such at the community level. Often an incentive not only

misses its target but also may accomplish the opposite of what it sets out to achieve; instead of stimulating growth, it may slow it down. Encouragement, therefore becomes discouragement. (Nhira and Matose 1996). Incentives are often measures designed to encourage the resource manager to take greater responsibility for the sustainability of the resource. (Mayers *et al.* 1996).

A direct incentive to the farmer, without an intermediary, is of immediate use for a specific work, (cash or kind) such as low interest credit with a grace period, payment of daily wages for work on neighboring farms or government work, payment of work carried out as agreed (cost sharing). Incentives in kind include food for work, farm implements, hand tools, home improvements, etc. (FAO 1990). An indirect incentive that benefits a farmer occurs over a longer time period. Fiscal indirect incentives include tax exemptions on income and property, differential rates, price supports, bonuses and deductions etc.

Social incentives include infrastructure such as access electricity, schools, religious centers, health facilities and sport centers etc. Services include technical assistance, marketing, storage, road works, fellowships, etc. (FAO 1990).

Participatory forest management (PFM) requires some modification of a number of traditional practices related to use of the forest resources, which may have short term impact on villagers. The primary motivating factor appears to be employment generation through activities taken up in the area as a result of PFM. Plantation work is therefore, often the starting point for successful PFM.

Support activities are also perceived as a major incentive, partly as a source of employment, but also because of the benefits of agriculture to the village.

Incentives will operate effectively only where the policy and regulatory framework is coherent and where the land user is integrally involved with the concept, planning, design and implementation of the management strategies. Mayers *et al.* (1996). Flathery and Jengjalern (1995), found that, unless efforts are made to ensure a greater sharing of the benefit of development, there is little incentive for the rural poor to cooperate with the government in implementing forest rehabilitation and conservation programs that beneficially might affect their immediate welfare.

2.9.1 The Ghanaian Situation.

A few studies have been conducted on the role of incentives for sustainable management of the forests in Ghana, among them are Mayers *et al.*; (1996). They studied the role of incentives for all stakeholders in the sustainable management of the forest. Social differences such as gender, age and social origin were not considered. The purpose of this study was to identify appropriate incentives in relations to social structure differences such as gender, age and social origin in terms of the preference and needs of the communities.

2.10. QUALITATIVE RESEARCH

Qualitative research is often referred to as an interpretive study, hermeneutics, or ideographic description. It includes a set of research methods

intended to cover a group's social, cultural or normative patterns of behavior and interaction. A qualitative study provides in-depth descriptions and analysis of social settings, organizations, culture, individuals, daily activities, motives and meanings, actions and reactions, and the negotiation of roles within the context of daily life.

Rothe (1993) noted that qualitative analysis is more systematic and interpretive because it is done with other people or with the help of others. It is understanding the way things are within people's free movement in situations. It is designed to uncover questions and answers, which create verifiable descriptions of social phenomenon.

Corbin and Anselm (1990), defined qualitative research as that which produces findings not arrived at by means of statistical procedures or other means of quantification. It is further said by Mustafa and Kasam (1982) that qualitative data techniques tends not to be structured even with interviews of large numbers of people.

2.11 SOCIAL DIFFERENCES

As mentioned in Chapter 1, at the methodological level, policy oriented studies of forest use and management with community involvement have not adequately addressed the issue of social differences within communities. Moore (1993) noted that accounts of resource use and environmental relations pay little attention to the issue of differentiation and state that " with their focus on the land

users and social relations in which they are intertwined, the studies often miss local differentiation among resource users, particularly those involving critical productive inequalities mediated by class, gender, ethnicity and age”.

In Ghana, several writers have explored social differentiation and patterns of resource access and use (Koning 1986; Berry 1993, Milton 1998). These and other case studies in West Africa demonstrate the importance of social identity in determining resource access and use in specific forest environments. The approach used in this thesis for understanding the impact of social differences on degrees of benefits from forest management, level of past and present involvement in forest management, types of incentives preferred to enhance participation in forest management and of interest in forest management activities were taken from Berry, (1989, 1993) and Milton (1998). Briefly, both studies identified social identity on the basis of differences in gender, age and social origin (**Migrants** or **Indigenous**) as central criteria in understanding differential access to and control over productive resources.

3.0 RESEARCH METHODOLOGY.

This section describes the study areas, the social groups including the desegregation of the groups into three categories Gender, **Men and Women**, Social Origin, (**Indigenous and Migrants**), Age (**Seniors and Juniors**). The method used for the field work is described (participant observation, key informant interviews, group and individual interviews and strategic planning workshops). In addition, the data analysis procedure is described.

To achieve the objectives of the study specific information was gathered: the access uses and benefits from the forest and its resources, history of settlement, access to land, use of forest reserves, past involvement in forest management, interest in forest management and incentives that can encourage local communities to participate in forest management. Specific forestry related activities performed by individual and groups were also identified. Each of these was determined with regards to the three categories of social groups (gender, age and social origin). Information was gathered from different types of communities defined in Table 1. However, the purpose of the study was not to identify differences in communities but rather differences from the standpoint of the three categories of social groups (gender, age and social origin) within each community.

3.1 STUDY AREA

Four communities, were chosen for the study that are situated in the High Forest Zone of Ghana (Figs. 2 & 3). All four communities are located in areas that have two rainy seasons, between May to August and in September to October.

Two of the communities are located in the Nkawie Forest District under the jurisdiction of the Atwima Administrative District in the Ashanti Region of Ghana.

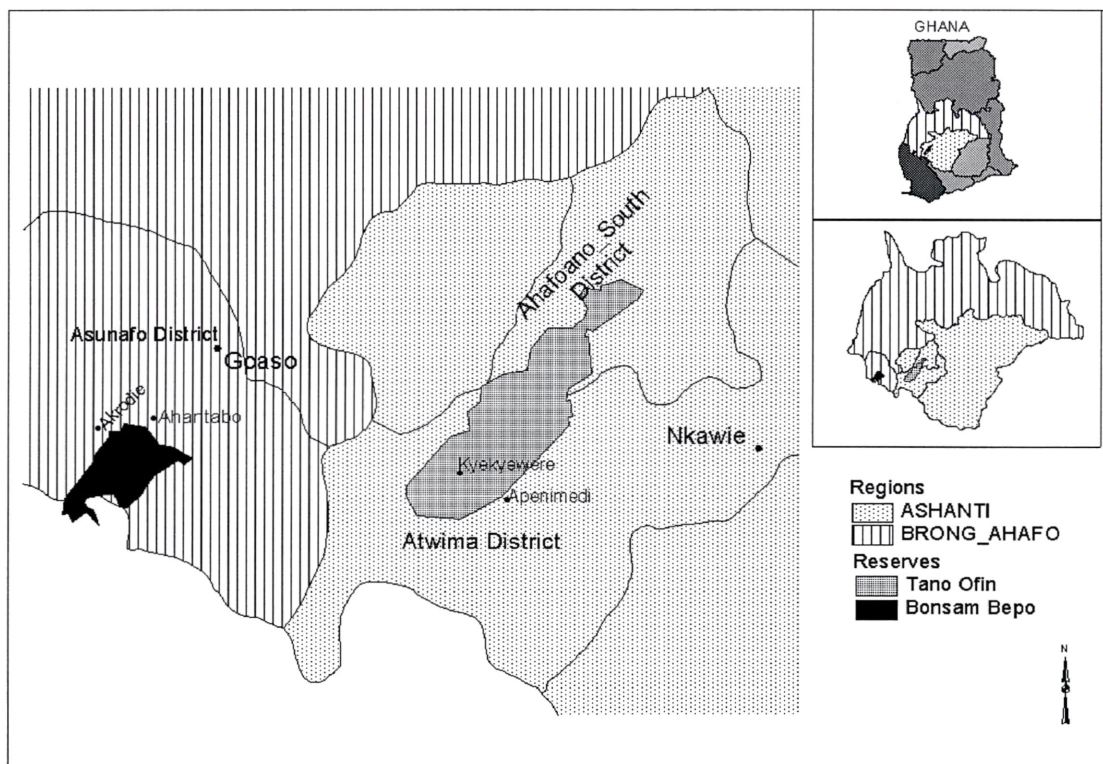


Figure 3. Study Area

Upon consultation with the District Forest Manager, Kyekyewere, an admitted random selection of the second settlement Apenimedi located about 1 km outside the forest reserve boundary (Fig. 3). The size of Tano Ofin is 402 km² and was designated as a reserve in 1929. The forest land is owned by the Nkawie and Nyinahene Stool.

The second two communities are located in Goaso Forest District in the Brong-Ahafo Region of Ghana (Fig. 3). It falls within the jurisdiction of Asunafo Administrative District. The District Forest Manager was consulted in the selection of one forest land owning community, Akrodie, located about 3 km outside the reserve and a migrant community Ahantanbo, located about one-half kilometer outside the reserve. The study was conducted around the Bosom Beep forest reserve that is owned by Akrodie Stool. The size of this reserve is 124.3 km² and was designated as a forest reserve in 1934.

3.1.1 DESCRIPTION OF COMMUNITIES.

Kyekyewere. (Admitted Settlement)

Kyekyewere, the first community, is located within the Tano Ofin forest reserve. It has a population of one thousand including children (Table 1). The number of households is approximately eighty with five to twenty people per household. Although there are more **Women** than **Men** in the community, only a few women participated in the study. Kyekyewere is an admitted settlement, which means that the community forms part of the forest reserve.

Table 1. Summary of Community Differences

Community	Type of Community	Type of People	Participants	Population	Road/School	Farm sizes	Cash crop
Kyekyewere	Admitted settlement	Migrants	40	1000	one road, one school	0.5-5 acres	Cocoyam plantain, Corn, Cassava
Apenimedi (1 km outside forest)	Migrant and Indigenous	Migrant and Indigenous	21	1200	one road, one school	5-20 acres	Corn, Plantain Cassava, Pineapple
Akrodie	Stool land	Migrant and Indigenous	20	3000	Three roads, Three schools	5-40 acres	Cocoa, Corn Plantain, Cassava, oil palm
Ahantanbo (One half km outside Forest	Migrant	Migrants	13	100	2 roads, No school	5-.30 acres	Cocoa, Corn Plantain, oil palm Cassava,

People in the community have small farm lands because they were demarcated during the creation of the forest reserve. As a result, there is no further land for farm expansions. The community is bound on every side by the forest reserve. There is one access (Table 1) road linking the village to the nearest town Nyinahene, about 15.2 km away. Traveling is usually on foot as there is only one vehicle, which leaves the village at dawn to the nearest town and then to Kumasi the capital city of the Ashanti Region. The village has one public school; primary and junior secondary school.

The main occupation is farming. Farmland is acquired through family inheritance. For most of the **Migrants**, however, land is acquired through marriages with **Indigenous** community members. However, a few individuals, have moved from the community and have given their lands on a sharecrop basis to some **Migrants**. The common share cropping system is *abusa*, a farming system where proceeds from the farm are divided into three parts; the farmer takes two parts and the land owner takes the third part. People farm on leased land for a specified period agreed between the landowner and the farmer in the presence of two or three witnesses. Agreement on leased lands can be renewed as long as the farmer or any member of his household does not need the land for farming. Farms range in size from one-half to five acres depending on the individual's social origin, age and gender. **Indigenous Senior Men** have larger farms than **Migrants, Women** or **Juniors**.

Food crops cultivated are cocoyam, plantain, corn and cassava (Table 1).

However, cocoyam is the main cash crop because it grows well in the poor soils. Almost every person in the community grow cocoyam. People may earn as much as 2.5 million Cedis (approximately \$1000 USD) annually from selling cocoyam while, most **Migrants**, earn about 100,000 Cedis (approximately \$40 USD) annually. The second source of income is from cultivation of plantain, which yields between \$500 and \$20 USD, depending on gender, age and social origin respectively. Plantain is cultivated on the farms and any space behind their houses. Cassava and corn are produced for household subsistence. Only a few people cultivate cassava and corn usually on the small spaces behind the households.

The **Migrant** population in this community is approximately 3%, probably because of land scarcity. Most of the youth have migrated to the urban areas and come to the village during the farming season to cultivate cocoyam on family lands. They go back to work or school until the harvesting season.

Apenimedi (Stool Land/Migrant)

Apenimedi is located about one km from the forest reserve. The population is approximately 1200 (Table 1). There are about ninety households in the community with three to twenty-five people per household. The community has a primary (Table 1) school but shares a junior secondary school with the next village. One road links the village to the nearest town of Nkawie. Farm lands are readily available to the people with the farms ranging between five to twenty acres (Table 1), depending on gender, age and social origin. Land is acquired as

in Kyekyewere except that many people do sharecropping. As a result, there are more **Migrants** than in Kyekyewere.

The main occupation is farming and the major food crops produced are corn, plantain, cocoyam, and cassava (Table 1). Some **Indigenous** people have tree crops like cocoa, and fruits like oranges and pineapples mixed with vegetables. The major sources of income vary according to the type of crop cultivated by the individual or household. Cocoa generates the highest annual income of approximately \$1800 USD followed by the plantain, approximately \$400 USD, and corn \$400 USD and then the fruit crops \$600 USD. Cocoyam is produced for subsistence and cassava is produced on a commercial basis.

Akrodie (Stool Land).

The third community Akrodie owns the Bosom Beep forest reserve around which the study was conducted. The population is approximately 3000, with about 200 households and five to twenty persons per household. There is a primary, a junior secondary school, and a senior secondary school (Table 1).

Two access roads serve the community. Other than farming residents in this community are involved in many activities such as trading, bush managers (because of exploitation of timber) seamstresses, hairdressing, driving, carpentry etc. Regardless, most people are farmers, even those involved in other activities. Many of the **Women** gather non-timber forest products NTFPs⁵. The town has a

⁵ Non-timber forest products are all forest resources other than timber. In terms of their uses they can be grouped into one of four categories: forest foods, construction materials, forest medicines and household items.

big market center and on Tuesdays, people from the surrounding villages bring their food crops and NTFPs for sale. Many people from surrounding towns and cities buy items from this market since they are comparatively cheaper.

Access to land is easy because of land availability. As a result, the population of **Migrants** is higher in this community than the first study area. Sizes of farms range from five acres to forty acres (Table 1) depending on the gender, age and social origin. Many **Indigenous** people own two or more farms and employ some **Migrants** as caretakers on their cocoa farms. Both **Migrants** and **Indigenous** people are involved in sharecropping, leasing or outright purchase of land for farming. The major cash crop is cocoa. Other cash crops include oil palm and tree fruits. The main food crops are plantain and corn produced on a commercial basis, cassava, yam and vegetables for subsistence uses but in times of crisis for commercial purposes.

Income from cocoa and oil palm are high compared to the first study area (Table 1). Cocoa generates incomes as high as \$1800 USD annually depending on the social status (**Migrants** and **Women** have smaller cocoa farms). Oil palm earns about half as much. Plantain and corn yield approximately \$500 USD each. Other sources of income include gathering, processing and trading of NTFP by both **Migrants** and **Indigenous** people.

AHANTANBO (Migrant Community)

The fourth community is Ahantanbo in the Brong-Ahafo Region. It is about one-quarter of a kilometer from the Bosom Bepo Forest Reserve (Table 1). The

farm lands share a common boundary with the forest reserve. Many farmers complained bitterly about the destruction caused by elephants from the forest to their farm produce. The population is about 100, with twenty households having three to seven people per household.

Two access roads serve the village. They share schools with the next village about two km away. The village was originally settled by cocoa farmers from the Ashanti Region. The only occupation is farming and the main cash crop is cocoa. Corn, plantain, yam, cassava and vegetables (Table 1) are cultivated for both subsistence and commercial purpose. Many ancestors of the first settlers own large cocoa farms, averaging 30 acres each. Almost every person in this village visits the forest for gathering and collection of NTFPs for commercial purposes. The types of NTFPs varied in relation to gender and age.

3.2. SOCIAL GROUPS

This study identified three main categories: gender (**Men** and **Women**), age (**Seniors** and **Juniors**) and social origin (**Indigenous** and **Migrants**). These categories are defined below.

3.2.1 Age

The age category encompass two age classes: **Seniors** comprised of persons age 36 and over and **Juniors**, persons ranging in age from 18 to 35. **Seniors** include both **Men** and **Women** who belong to the **Indigenous** and **Migrant** groups both defined in 3.2.2. Juniors are typically related by kingship to

Seniors Men and Women and include unmarried persons who are included in the parental household, married young people who are heads of newly established households, and persons who are approaching the upper limits of the chosen age group and who are heads of well established households

3.2.2. Social Origin.

The social origin category encompasses two classes of people. The first class, **Migrants** refers to Ghanaian **Men** and **Women** immigrants from the regions of Ghana than the study regions specifically, from the Central, Western, Volta, Upper West, Upper East, Northern, Eastern, and Greater Accra regions (Fig 1). The second class, **Indigenous** includes to **Men** and **Women** who originate from within the study regions.

3.2.3. Gender

The gender category encompasses **Men** and **Women** and is the most inclusive of all the categories. It refers to both married and unmarried **Men** and **Women**, **Indigenous** and **Migrants**, **Juniors** and **Seniors**. In desegregating **Men** and **Women** as discrete groups, the intention was to draw out broad gender differences.

3.4. FIELD WORK

The research problem required a complete interpretation of the social differentiation that exists within the communities with regards to incentives and interest in forest management. A case study method was chosen as a basis for the qualitative approach. This choice was justified because it facilitates an in-

depth contextual analysis of social relations and interactions and generates a detailed picture of different interests in forest resources within local communities

Though different types of communities were selected, it was not the intention of this research to identify variation among the communities in terms of type (Table 1). Instead the purpose of the study was to identify variation within the communities in terms of the social groups defined above (age, gender and social origin). Social groups were purposely selected on the basis that the interests, benefits and incentives would vary with respect to gender, age and social origin of the individual. It was assumed that these differences were reflected in the forest management activities in which each person was interested. The people in the communities were informed about the study and their consent to participate was sought.

The field work was conducted over a period of three months from May to July 1998. It entailed residence for a period of six weeks in each of the study areas with intermittent stays in the Forest Service Support Center, Kumasi. These periods at the Forest Service Support Center facilitated review of the data and field work progress. In each study area, the researcher lived in one of the communities. The research was enhanced by the fact that both the research assistants and the researcher spoke the local dialect (Twi) of the Akan people. They were therefore accepted easily by the people as one of them and all of the participants felt comfortable talking to them.

On arrival in the village, the Chief (*ODIKRO*) gathered all the people upon

the request of the researcher. During these gatherings the purpose and methods for conducting the research was explained so people could participate freely.

3.5 RESEARCH METHODS

As part of the study, a combination of qualitative research methods were used. This included direct observation involving participation, extensive interviews including conversational interviews with groups, semi-structured interviews with individuals and detailed work with key informants, followed by three workshops.

3.5.1 Participant Observation

In order to facilitate participant observation, the research assistants and the researcher became residents in the study areas. While the researcher intended to focus on interviewing as the key method of data collection, she considered that a resident presence in the area over some weeks enabled her to establish a better rapport with people, observe how people related to each other and to their environment; and refine and enhance data collection through interviews.

As the basis for anthropological fieldwork, participant observation in its ideal form, entails a total immersion in the social life of the people studied over an extended period of time. As noted by Wright and Nelson (1995), the meaning of the method has changed over time and that “initially participation was a means of gaining close enough access for accurate observation. Now, anthropologists

consider physical and emotional involvement through full participation in everyday life as an essential means of learning about the society studied". In practice, participant observation in this study was more related to what Casley and Lury (1995) call "personal observation" which for some periods and events may develop into participation. It is therefore a more direct and intimate method of social research. According to McCall (1969) participant observation emphasizes direct observation, informants interviewing, document analysis, respondent interviewing and direct participation which is made possible by repeated social interactions with the members of the organization under study.

Participant observation was an appropriate method for the study because it encouraged a strong and friendly relationship between the participants and the researcher. This made it possible to gather information, which would not otherwise be available. The "known observer" approach of participant observation was adapted which ensured that the people being observed knew that the researcher was observing them. During farm and forest visits written notes were not taken until after the visit because most participants felt uncomfortable with note-taking. Pictures were taken during such visits by seeking the consent of participants. The researcher and her assistants participated in different village events; such as farming or forest product gathering activities. By living in the village, they visited people in the evening to engage in informal conversation. All of these interactions enhanced the data collection process and provided valuable insights. The Chiefs and their Elders

encouraged the people to participate as much as they could.

3.5.2 Key Informants

In each of the study areas, the researcher developed a relationship with a number of the community members who became key informants. These included teachers, traders, individuals of relatively high social status, (such as Chiefs and or one of his Elders **Migrants, Men and Women**). Children participated in the study, as key informants in each village. It was very easy to get information and input from children as long as written notes were not taken. These individuals, (key informants) played a very important role in support of the study. Key informants provided background information on a number of topics, including social and resource histories of the area; the composition of the local population and perspectives on social relations (e.g.; relations between **Migrants** and **Indigenous** groups); ecological characteristics and changes in land and forest use.

In Akan households, it is customary for the **Men** to receive visitors. Also, it is customary for the village Chief (*ODIKRO*) to take responsibility for the welfare of the strangers or visitors to the area. In general, every stranger or visitor to a village must first identify himself or herself to the linguist who inquires of his/her mission and then takes him or her to the village Chief. Sometimes, it is required of a visitor to offer a drink to the Chief and his Elders, but most often, the Chief makes the offer. The drink is shared among all present during the meeting with the visitor. It is not compulsory for the visitor to drink for religious or health

reasons. The researcher went through these procedures so she would be accepted as a member of the community. The researcher and her assistants tried as much as possible not to show favoritism to a particular household, group or individual. In general, the research was presented to participants in each community as a study of how different people in the area

- have benefited from the forest in terms of access and uses
- have participated in forest management in the past
- have interest to participate in particular forest management activities and
- a discussion of the incentives they need to participate effectively and efficiently in forest management activities.

While the researcher worked with several **Senior Men** as key informants, she also selected individuals from other social groups. A series of key-informant interviews were used to build up a profile of participation in the forest resource activities. Individuals were identified on the basis of their involvement in particular activities (hunting, NTFP gathering or processing) and interviewed about aspects of activities prevalent in the area. The research also took the form of participating with individuals or groups in particular activities (e.g. selling NTFPs in the local market). The use of key informants was central in the field work as a method of quickly generating data on a number of topics for refining interviews and facilitating cross checking of data collected in group or individual interviews.

3.5.3. Group and Individual Interviews

In each study area, group interviews were conducted in order to build up a picture of the social relations and to probe broad differences between social groups with access to and control of resources, and benefits and uses of the forest. The interviews were guided by a checklist of topics. Within a given interview, great weight was given to extended discussion of particular topics especially those that are directly related with the objectives of the study rather than coverage of the whole list. These interviews were undertaken with groups of **Men, Women, Migrants, Indigenous** people, **Seniors** and **Juniors**. The group interviews varied in size from three to five persons depending on availability.

In conjunction with the group interviews, (Figs 4 & 5) individual semi-structured interviews were conducted by selecting a number of interviewees belonging to each of the three social categories (**Men/Women, Juniors/Seniors Migrants/Indigenous**). These were undertaken in order to gather individual cases of access to resources, livelihood strategies, past involvement in forest management, benefits from the forest, incentives needed for participating, and forest management activities in which individuals are interested in participation. They were guided by a questionnaire (Appendix 1). administered by or interviewed with the help of research assistants as most of the participants were unable to read and write.



Figure 4. Research assistant conducting group interviews

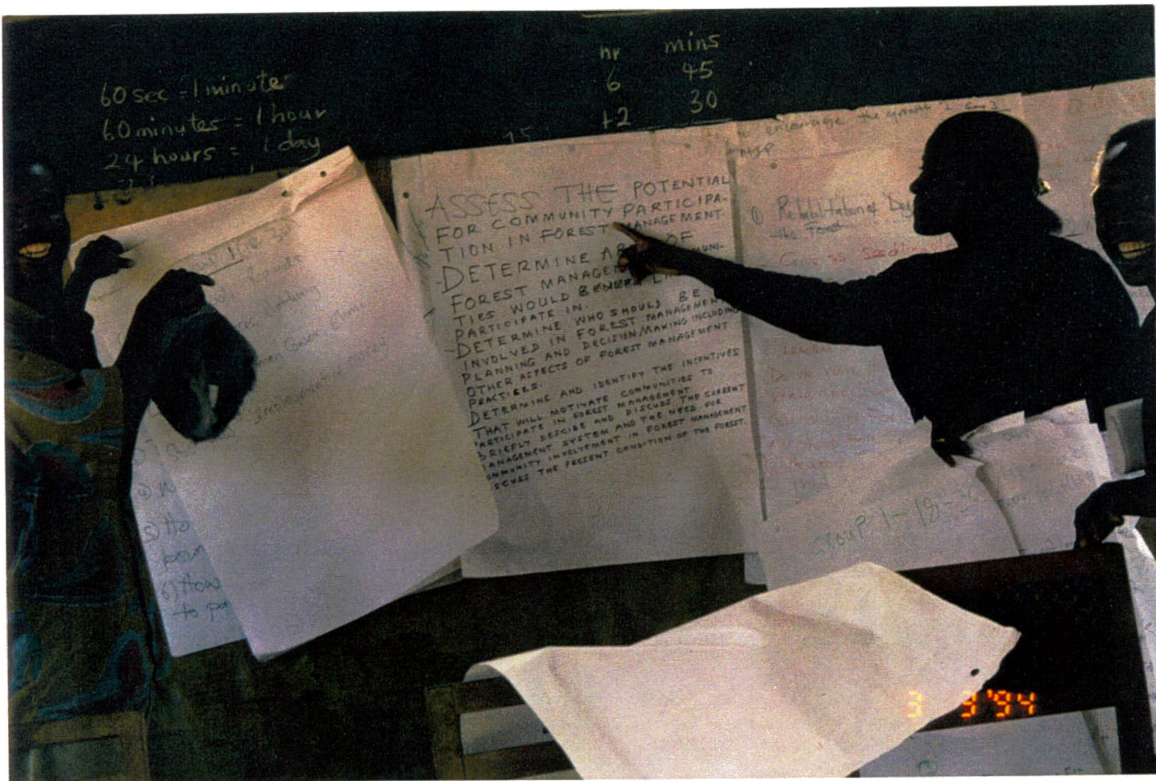


Figure 5. Participant presenting group discussions

The number of interviews conducted and the method of selection varied between the study areas. The interviewees were selected from among the participants in group interviews and also on their availability and willingness on specific issues where the researcher felt the need for clarification.

3.5.4. Strategic Planning Workshops

The planning workshops brought representatives from all the categories under study in the communities. Participants were selected based upon their interest during the group and individual interviews. Most of the key informants participated in the workshops. The Forest Service also participated in each of the workshops.

To encourage participation, each participant identified him or herself with one of the categories being studied. This made it easy for group discussion as each member felt comfortable with the group with which he/she identified herself/himself-as **Migrants** or **Indigenous, Seniors** or **Juniors**. Each grouping has been defined above.

Each workshop took the form of discussions (Figs. 6 & 7) within a group and presentation of results under the following topics

- Benefits and use of the forest reserve under the heading: *What do we get from the forest reserve and from the management of the forest?*
- Past and present involvement in forest management under the heading: *What have we done to help in the management of the forest ?*

- Interest in forest management activities under the heading: *What we can do to help in the management of the forest ?*
- Incentives for participation under the heading *What do we need in order to participate in these activities ?*

Though it was not part of the study to understand how people want to be organized in performing forest activities, the group discussed this during the workshop. Each group ranked benefits, uses, incentives and activities in order of importance by using different colors of cards and also explained why they preferred a particular activity.

In order to get participants focused on issues being discussed, each group had a leader and a recorder who took notes and reported to the larger group. Group discussions and presentations were recorded on a tape to capture as much information as possible. Recording group discussions was useful, as reporters did not present all discussions from groups or sometimes they left out some issues, thinking it was not important or relevant.

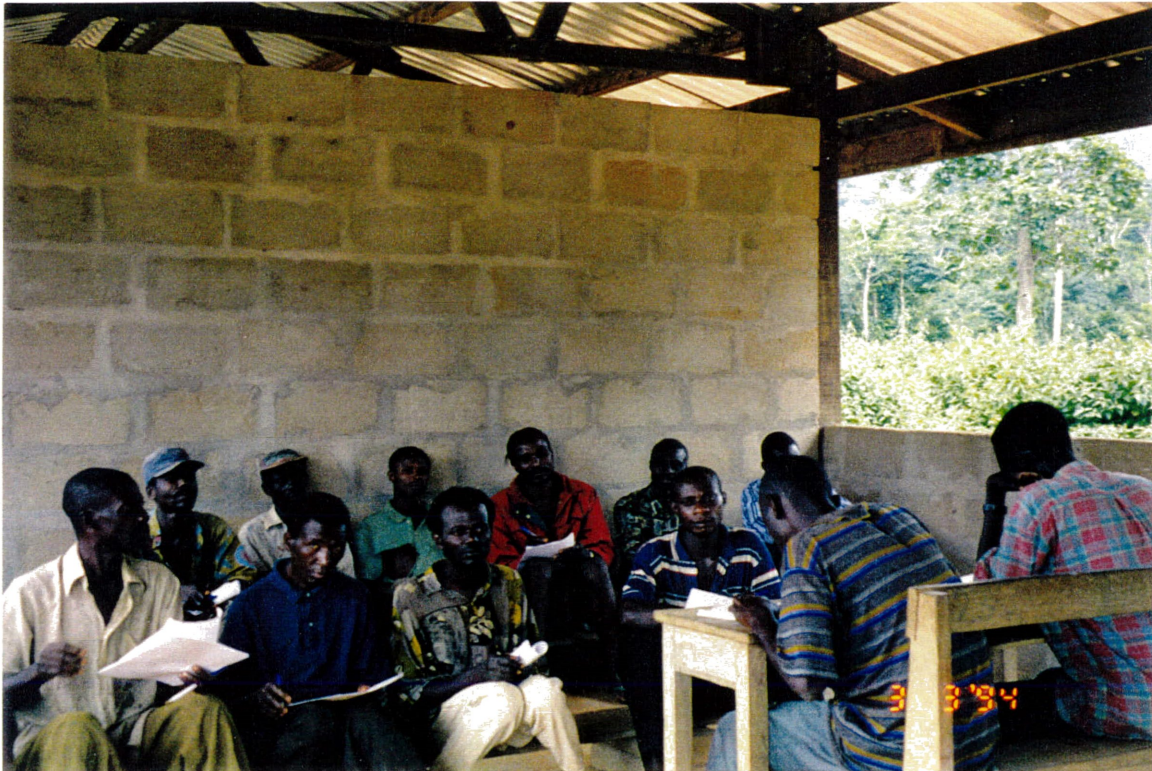


Figure 6. Men Group discussion during workshop



Figure 7. Women presenting group discussion in turns

3.6 DATA ANALYSIS PROCEDURE

Data obtained from observations, interviews and workshops were classified into four categories containing the basic elements necessary to understanding the situation as well as to meet the objectives of the study as follows:

- Access benefits and uses from forest by age, gender and social origin
- Past Involvement in forest management activities by age, gender and social origin
- Interest in forest management activities by age, gender and social origin
- Incentives for participation in forest management by age, gender and social origin.

Inductive analysis was used to find patterns and develop categories for the data from participant observation, workshops and interviews. This method isolates essential characteristics that determine a phenomenon. In addition, the categorization aimed to have each characteristic be mutually exclusive and stand out clearly from others. Graphs and tables were used to explain the variations and trends under each classified category. Chi-squared analysis was performed to identify significance differences between the data sets. The first three categories were analyzed from data obtained from the participant observations and interviews while the incentives were analyzed from the results of the strategic planning workshops. To ensure confidentiality, names of participants

are not mentioned. However, a few quotations from participants are presented to emphasize and clarify some findings.

3.6.1 Chi-squared Analysis

Many types of research experiments and business surveys seek knowledge that require the use of qualitative rather than quantitative response variables. Qualitative responses can be classified into nominal categories that indicate patterns of response. These nominal data can be presented as descriptive statistics and in chi-squared relationships. Further statistical analysis is not possible given the nominal response categories. Generally the data consisted of $n = 90$ trials and the outcome of each trial falls into one of k classes or cells. For example, the variable age consists of $n = 90$ participants and each of the participants falls under one of two age classes **Junior** (18-35 years) or **Seniors** (36 and over).

A chi-squared will test whether there is a statistically significant difference between age (junior/seniors), gender (men/women) and social origin (migrants and indigenous) for access and interest in forest management. Chi-squared analysis of this kind require the use of contingency tables where one method of classification e.g. age is contingent upon another e.g. access. In such a case the data are displayed using a cross classification in an array called contingency tables. This method is used to test whether there are significance differences between the various classification and to find out whether these classifications such as access to the forest or interest in forest management activities

depended on the categories of gender, age or social origin (Appendix 2).

Using access and age for example, participants were classified as: **Seniors** or **Juniors**. At the same time within each age class I identified whether participants have access to the forest or not by considering their response as 1 = yes (which means the person had access or benefits from forest management), 2 = no (which means the person did not have access to/benefit from forest management and 3 = no response (which means the person did not respond to the question. These counts are presented as a contingency table below. (Note numbers in parenthesis are the expected cell frequencies).

Table 2 . Contingency Table For Access to Forest by Age

	Age			Totals
	Seniors	juniors	No response	Row totals
1 (Yes)	9 (20.4)	26 (15.6)	19 (18.0)	54
2 (No)	8 (4.9)	0 (3.8)	5 (4.3)	13
3 (No response)	17 (8.7)	0 (6.6)	6 (7.7)	23
Column Totals	34	26	30	90

Let P_s be the unconditional probability that a respondent is a **Senior**. Similarly let P_j and P_n be the probability that a respondent is a **Junior** or did not indicate his age respectively. The column probability will satisfy the requirement that

$$P_s + P_j + P_n = 1$$

Also, let P_i ($i=1,2,3$) be the row probability (signifying a yes, no or no response to access by a particular age group (i) where

$$P_1 + P_2 + P_3 = 1$$

Then if the two probabilities are independent of each other, a cell probability will equal the product of its respective row and column probability in accordance with the multiplication law of probability. For example, the probability that a **Senior** had access to the forest is $(P_s)(P_1)$ and a **Senior** who did not have access is $(P_s)(P_2)$. The null hypothesis specifies that each cell probability will equal, the product of its respective row and column probabilities, a condition that implies independence of the two classification. The column probability equals the total divided by $n = 90$. Let the total of the column $j = C_j$ then for this particular case of age and access,

$$P_s = \frac{C_1}{(n)} = \frac{34}{90}, \quad P_j = \frac{C_2}{(n)} = \frac{26}{90}$$

The row probabilities may be estimated using the row totals R_1, R_2, R_3

$$P_1 = \frac{R_1}{(n)} = \frac{54}{90}, \quad P_2 = \frac{R_2}{(n)} = \frac{13}{90}, \quad P_3 = \frac{R_3}{(n)} = \frac{23}{90}$$

Denoting the observed frequency of the cell in row i and column j of the contingency table by n_{ij} the expected value of n_{11} is

$$E(n_{11}) = n(P_j P_1) = n \left(\frac{R_1}{(n)} \right) \left(\frac{C_1}{(n)} \right) = \frac{R_1 C_1}{n} = \frac{54 \times 26}{90}$$

where $P_j P_1$ is the estimated cell probability. Similarly, we may find the estimated expected value for any other cell e.g. $E(n_{23})$ is

$$E(n_{23}) = n(P_2 P_3) = \frac{(R_2)(C_3)}{(n)} = \frac{R_2 C_3}{(n)} = \frac{(13)(23)}{90}$$

Hence the estimated expected value of the observed cell frequency n_{ij} for a

contingency table is equal to the product of it's row and column totals divided by the total frequency

$$E(n_{ij}) = \frac{R_i C_j}{n}$$

The expected and observed cell frequencies can then be used to calculate the value of the statistic test as

$$X^2 = \sum_i \sum_j \frac{[n_{ij} - E(n_{ij})]^2}{E(n_{ij})}$$

The degrees of freedom associated with the contingency table possessing r rows and c columns always equals (R-1)(C-1). Thus for this example (3-1)(3-1) = 4 degrees of freedom.

Therefore using $\alpha = 0.5$ I rejected the null hypothesis that the two classification are independent if X^2 is greater than 9.488. Since the value of the test statistic $X^2 = 34.11690$ exceeded the critical value of X^2 , I will reject the null hypothesis. The data provided sufficient evidence that access varied and depended on the age of the individual.

These same procedure was used to calculate the test statistic value for Access by gender, and Access by social origin, and for participation in forest management activities by gender, age and social origin. Furthermore, it was used to calculate the test statistic value for interest In forest management with age, gender and social origin (Appendix 2).

4.0 RESULTS

Ninety participants from four communities in the Ashanti and Brong-Ahafo

Regions participated in the study to determine:

- The type of access, benefit and uses derived from the forest by local communities;
- The past and present involvement of communities in the management of the forest;
- Communities' interest to participate in forest management activities, and
- Incentives or motivating factors that will encourage efficient and effective participation in the forest management.

Each of these aspects of the study was determined in relation to gender, age and social origin of the participants.

4.1. ACCESS, BENEFITS AND USES OF FORESTS

Both **Men** and **Women** collect, gather and process forest products for household and commercial uses (Table 3). Whereas **Men** concentrate on the commercial potential of forest products such as timber, bushmeat, canes for baskets and raffia matting for roofing, (Table. 3) **Women** viewed the forest as multi-functional providing both household needs and economic benefits. The forest provides useful products, which can be grouped as forest food; forest medicines and spices; construction materials and household goods (Table 3).

Table 3. Uses of Forest and NTFPs by Men and Women

NTFP TYPE	MEN	WOMEN
Forest Food	bushmeat, snails, wild yam, mushrooms	snails, mushroom, fruits, wild yam, bushmeat
Medicines/ Spices	Tree barks, roots, leaves,	Leaves, roots, spices (wedeaba, black and white pepper),
House Construction	trees saplings for building, Raffia palm branches for roofing, lumber for roofing, leaves for roofing	
Household Equipment	pestles, cane for basket, chewstick, lumber for furniture	Pestles, Sponges,
Environmental	protection of watershed and rivers, influence rainfall, protection against strong winds	Protection of rivers
Income generation activities	bushmeat, wild yam, Raffia palm branches, cane for basket, honey.	snails, mushroom, spices (wedeaba, black and white pepper), wrapping leaves

4.1.1 Forest Foods

For **Women**, forests and forestry activities affect household security and maintain environmental stability. Forest food, which includes seeds, leaves, roots, tubers, snails and mushrooms etc. (Table 3), contributes to the diet of many households. They are very important especially during January to April when stored food supplies are reduced and new crops are being planted. **Women**, whose role in the household is to provide food for the family, value forest foods. Therefore, during the drought periods therefore, they use the forest more often than **Men** as sources of food and fuel for household consumption. During this season, **Women** gather, process and trade in forest products (Table 3) especially when they collect more than they need for the household. The common forest products sold by **Women** are snails, wrapping leaves, sponges and spices (Table 3).

For **Men**, the most important forest food is bushmeat (Table 3). Bushmeat is obtained in the forest by setting traps or hunting. The purpose of hunting, which is usually done during the night with a gun, is to kill big game animals for sale rather than for household consumption. When small animals are killed, they are either cooked separately from the household meals, cooked and shared with other **Men** or sold to them during group drinking when they return from their farms to their homes. Sometimes, during the season of snails and mushrooms, from March to May, hunters compete with **Women** in gathering snails especially when they are not successful in hunting. Depending on the quantity gathered, snails are sold or added to household meals. Some **Women** commented:

During the snail and mushroom season some **Men** and especially children compete with us in the gathering process though they usually call it **Women's** work. Some of the men even collect more than us and make more money than we do. This is not usually the case though.

Wild yam locally known as *ahabayere*, a seasonal food is the next most important forest product for **Men**. It regenerates naturally in the forest. Because of the difficulty in the harvesting process **Men** are more accustomed to harvesting *ahabayere* than **Women**. Some **Men** actually devote time to harvesting and selling them. Generally for **Men**, wild animals (bushmeat) is the most valued products from the forest. The Men stated:

We have guns and we know how to set traps. Although it is not a main activity, once in a while we go to the forest for hunting or trapping animals. If we are lucky and we get some game we kill it, but if not we try another time. However, there are some people who go to the forest for hunting everyday and some of them spend many nights until they get something.

4.1.2 Forest Medicines And Spices

Forests medicines and spices are highly valued by local communities. The most common and important forest medicines is for self administered first aid. The study revealed that **Women** play an important role in first aid treatment as they are usually the first to diagnose and treat problems of their children.

Forest medicine plays a vital role in the livelihood of most rural **Women** not only for treatment of their illness but also as sources of income. However, forest medicines are not traded among people in the same community. They are administered freely to each other when the need arises, and sold to *outsiders*. Usually, forest medicines are administered together with spices collected from the forest by **Women**.

For curative treatment of serious illness using forest medicines, men are consulted since they know more about which leaves, barks, roots, or seeds of a tree, plant or shrub to use (Table 3). It is commonly known in Southern Ghana that, some forest medicines cannot be collected, prepared or administered by women because of the superstitious beliefs attached to these species. Forest medicines include both plant and animal products. In the local communities, the majority of the people believe that some illnesses are best treated using plants or animals cures.

4.1.3. Construction Materials

Forests are sources of construction materials for most rural households especially in admitted settlements and **Migrant** communities. Although

alternative building materials may be available, many rural households cannot afford them and rely on products from the forests. **Men** ranked construction materials as very important because they are responsible for building and maintaining structures.

Construction materials consist of saplings of different tree species, branches of oil palm and raffia palm, bamboo, and sometimes wrapping leaves (Tables 3 & 4). Some tree species whose saplings are used for construction are timber species. This often results in a conflict of interest between timber contractors who want these species to grow into timber and local communities who want to use them for construction and maintenance of their houses.

Men weave raffia branches into mats for roofing. During the dry season, when there is less work on the farms, most of the **Junior Men** weave raffia and palm branches for sale. The demand for construction materials is very high during the dry season and shortly after the rainy seasons as they are usually accompanied by strong winds destroying the whole building or part of it, especially the roofs. At times, roofing mats are changed not because they are destroyed, but because they need to be replaced because of natural deterioration. During an emergency, one may place an order for roofing material at anytime with the weavers. Construction materials are also used for community buildings such as schools, churches, community centers, meeting places, public toilets etc.

4.1.4. Household Goods

Almost all the households use items made from forest products in their day-to-day activities. The most valued item mentioned is the pestle (Tables 3 & 4). It can be made from different tree species but the most preferred is the sapling of *Celtis*, which is a timber species. Pestle is used by both rural and urban households in Southern Ghana for pounding *Fufu* the most common meal in many Ghanaian households. It is therefore not surprising that the most important household item for both **Men** and **Women** was pestle. This is also true for the **Juniors/Seniors Migrants** and **Indigenous** people. Pestles are sold by **Women** although they are harvested and re-manufactured into appropriate shapes by **Men** (Tables 3 & 4).

Table 4. Uses of forest and NTFPs by Juniors and Seniors

Access, benefit, NTFP type	Juniors (Age 18-35)	Seniors (Age 35 - over)
Forest Food	Snails, pestle, mushrooms, bushmeat, wild yam, honey	pestles, bushmeat
Forest Medicines and spices	honey	medicines, spices
Construction materials	saplings for building raffia for roofing,	saplings for building, Timber for construction,
Household Needs	Pestles, chewstick, canes for baskets,	Pestles, chewstick, canes
Income generation activities.	revenue from harvesting of timber, wrapping leaves, raffia for roofing	revenue from harvesting of timber, wrapping leaves, revenue collection and marketing of NTFPs
Environmental benefits	protection of river	Rainfall, protection of river, protection against strong winds,

Other important household items listed included baskets for carrying food from the farm and also for food storage. Baskets are made from different species of canes. Canes are also used for making furniture, ropes and for tying poles

together in building construction and in joining raffia branches for roofing to the main beams. In recent years with the development of an urban cane market, supplies have become scarce as they have been heavily exploited. Forest products are also used to make furniture, sleeping mats and drying mats for cocoa and other food crops, stools, ladders. Sponges from climbers are processed and traded by **Women**, and brooms from palm branches by peeling off the leaves and binding the veins together. Uses of the forest are summarized in Tables 3 & 4.

4.2.5. Access, Benefits and Gender

Of the **Men** who participated in the study, 56% said they have access to the forest for the collecting and gathering of NTFPs (Fig. 8).

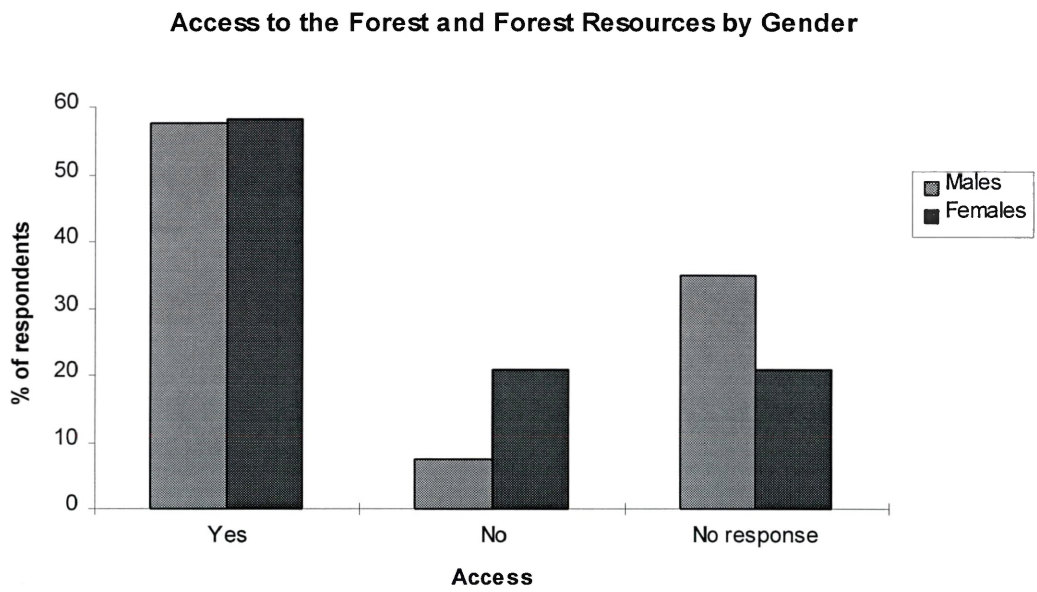


Figure 8. Access to Forest by Men and Women

Usually, they enter⁶ the forest when they help the forest guard (staff in the FS responsible for boundary cleaning and patrol) to clean the reserve boundary. Otherwise they need a permit from the Forest Service or get arrested when found entering without a permit.

Of the **Women**, 58.3% said they use the forest for collecting and gathering NTFPs for household uses and for income generation purpose (Fig. 8)

4.1.6. Access, Benefits and Age

All participants in the '**Junior**' age group (18-35) said they have access to the forest (Fig. 9). Eighty-four percent said they benefit from the collecting and gathering of NTFPs for subsistence and commercial purposes.

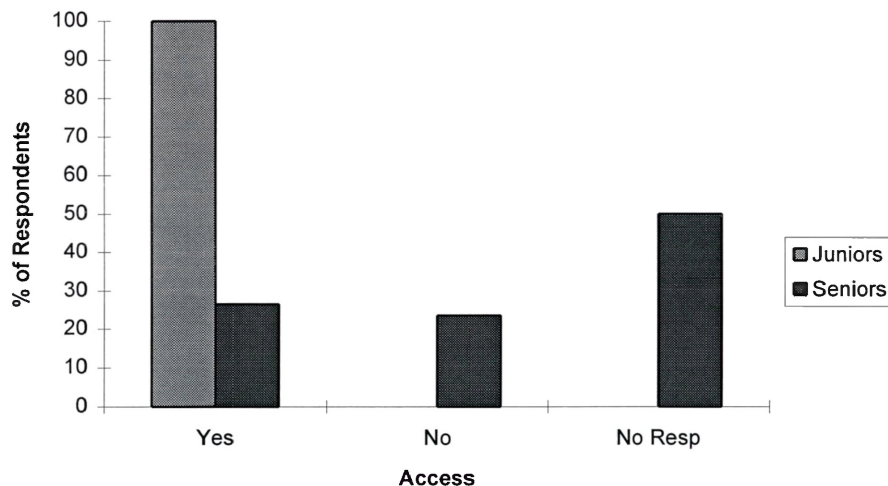


Figure 9. Access to Forest by Juniors and Seniors

⁶ In Ghana the exploitation of timber and non-timber forest products in the forest are managed by a system of permit. Although local **Indigenous** people in communities have a vested right to the forest for collecting and gathering NTFPs, this does not happen in practice. Both **Indigenous** and **Migrants** have to obtain permits to collect NTFPs for both subsistence and commercial purpose. The other alternatives are to sneak into the forest or help the forest guard in boundary cleaning in order to collect NTFPs. However, most **Indigenous** people have NTFPs on their farmlands.

Of the **Seniors**, one-quarter said they have access and benefit from forest management (Fig. 9). When **Seniors** need forest resources, it is very common for them to ask the hunters, most of who are **Juniors**, to collect forest products (Table. 4) for them during their hunting activities. Some of the very old ones said,

I used to go the forest, but now the forestry people don't want us to enter, besides there are so many young men who will get everything I need for me so I don't have to go to the forest anymore.

4.1.7 Social origin, Access Benefits and Uses

More than half of the **Indigenous** people said they have access to the forest and benefit from the management of the forest (Fig. 10). The Chief and the elders in the land owning communities said the most important benefit was the revenue from the exploitation of timber from the forest reserve. Revenue is used in school building, maintaining roads and other major community development projects. Part of the revenue is divided among the various sub-chiefs and caretakers (*ODIKRO*) for maintaining the Stools and for other purposes that may seem best to them. The Chief and Elders are not accountable to the community for how revenue is used. As a result, most indigenous people who were neither a Chief nor Elder did not realize the benefits through revenues when there were no development activities.⁷ How much revenue is obtained for a period and how much is used for development projects is not available for the public.

⁷ Local communities argue that all revenue from the exploitation of forest resources should be used for development activities especially in the communities where there is more exploitation.

For **Migrants**, revenue is not an issue with which to be concerned. They know they did not have a share. For them, the most important benefits are those derived from the collecting and gathering of NTFPs.

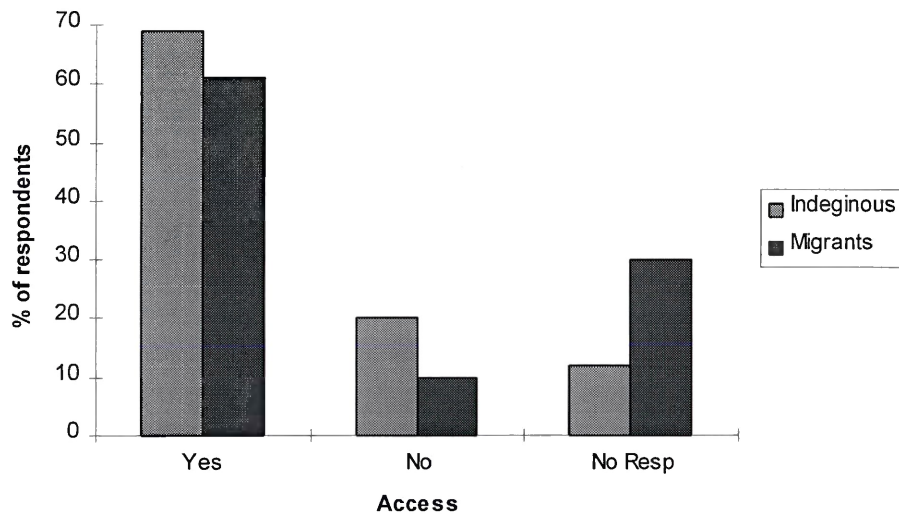


Figure 10. Access to Forest by Migrants and Indigenous

Most **Migrant Women** collect and gather NTFPs (Table. 3). The most important were wrapping leaves and spices. There is a variation in the type of NTFPs used among the different communities.

Chi-squared analysis indicate that there were significant differences between access and age, gender and social origin. Therefore access to the forest is very much dependent on gender, age and social origin of the individual. The result of the test statistics are presented in Appendix Two.

4.2. PAST INVOLVEMENT IN FOREST MANAGEMENT

Local communities have participated in the management of the forest. Though their participation is not officially noted by the Forest Service, many people in these communities have contributed in many ways towards the sustainable management of the forest.

4.2.1 Forest Boundary Cleaning and Maintenance

The most significant way communities have participated in forest management is through maintenance and cleaning forest reserve boundaries (weeding, cleaning dead branches and fallen trees) and prevention of fire outbreaks (Figs. 11, 12, 13).

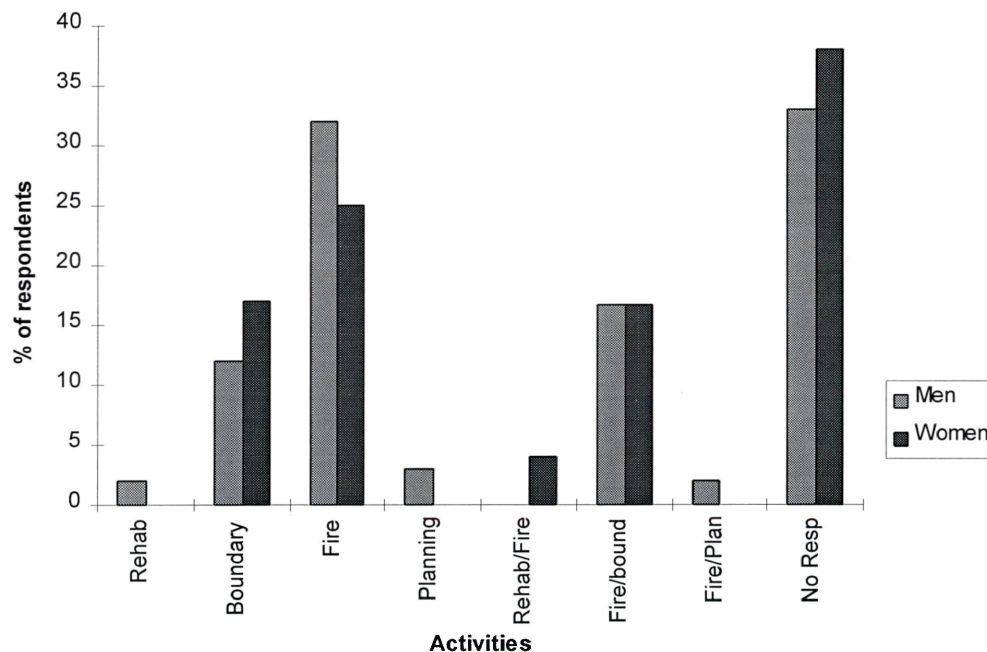


Figure 11. Past Involvement in Forest Management by Men and Women

Traditionally, whenever it is time to clean the forest boundary, the Chiefs and

Elders organize the people, especially the men to do the cleaning. Usually this was done as part of the communal labor activities of the community and those who do not participate are fined by the Chiefs and Elders.

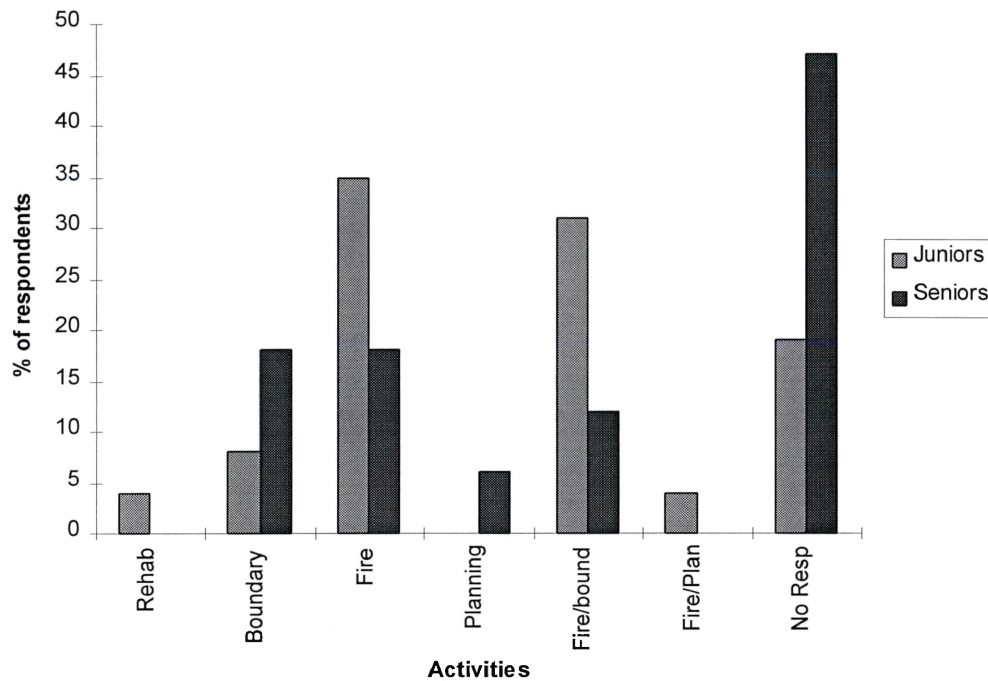


Figure 12. Past Involvement in Forest Management by **Juniors** and **Seniors**

In the local community, forest boundary cleaning is considered a man’s job. Among the **Men**, the **Juniors** participate more often than the **Seniors**. However, **Men** do not clean the reserve boundary in isolation. **Women** also play a role, especially when boundary cleaning is part of the communal labor activities (Fig. 11). Sometimes, the **Women** are organized by a leader to cook for the men or to perform other communal labor activities.

In some instances, the forest guards who are responsible for cleaning forest boundaries invite the people in the community through the Chief to help

him. The Chief in turn, informs the community by beating the *gong-gong*⁸ and having some of his elders organize the people to help on the day that has been agreed upon. On that day, the chief or his representative remind the people early in the morning of the work. Sometimes, forest guards return this favor by giving participants access to collect some NTFPs for household use. Many seize this opportunity to help him, otherwise they could be arrested when they are found collecting NTFPs without a permit from the Forest Service. For most people especially **Migrants**, this was the only opportunity to gather as many NTFPs as they can until the next invitation to help. The forest guard have friends in the community who always help him. For such people, helping the forest guard clean the forest boundary was a usual routine to obtain access to the forest.

4.2.2 Monitoring and Reporting of Illegal Operations in the Forest

Local communities help in forest protection by monitoring and reporting illegal activities in the forest to the Forest Service. Some of the **Men** in the communities, know the contractors whose concessions are in their locality, so whenever they see any *stranger* undertaking any harvesting operations, they ask about his permit from the Forest Service. While many people are not concerned about whatever happens to the forest reserve, a few people are committed to the sustainable management of the forest by monitoring and reporting illegal activities. Many of the participants said they monitor and report illegal activities

⁸ Drums used by local communities to announce an event or a gathering. Whenever these drums are beaten people come out of their houses to listen to the announcer

(Figs. 11, 12, 13) because

The forests lands are for our ancestors so we have to ensure that they are happy about the way it is being managed. Besides, we don't want anyone in this village to be held responsible or blamed by the Forest Service people for helping in undertaking illegal operations. You know, we can choose not to report these operations, after all, managing the forest is the responsibility of the government but if we refuse to report these activities one day we will just wake up and find a bare land so we help whenever we can.

Men usually monitor and reported illegal activities (Fig. 11). However, when **Women** go on their usual errands in gathering and collecting NTFPs, they report any operations they suspect to be illegal to their husbands, the Chiefs or any **Man** in their household. Running to report such activities rather than monitoring is common among the **Women** because they think they are not strong enough to confront the people involved if any misunderstanding arose between them and the operators. In communities where individuals or the community have been alienated to a great extent by the Forest Service, they often help in performing illegal activities instead of reporting them.

4.2.3 Forest Rehabilitation.

Another area where the local communities have participated significantly in forest management is in forest rehabilitation (Figs. 11, 12, 13), a system called *taungya*. In this system, degraded portions of the forest are given to local communities by the Forest Service to plant specified trees species. Local communities are not paid for this work instead they planted their food crops in the sites and sold them to pay themselves. Communities worked in groups or as individuals, but both were organized into *taungya* groups responsible for nursing

their own seedlings, lining, pegging and planting the seedlings in degraded areas. Allocation of degraded areas to the communities was for a period of three years after which the Forest Service assumes trees will be well established and would not need tending by farmers. Subsequent allocations depend upon the performance of the group or individuals and their ability to conserve the seedlings. In some communities, trees are planted out by the Forest Service and farmers are responsible for tending them for three years.

The initial client of *taungya* were the land hungry or **Migrants** without any right to land in the local communities and admitted settlements but it shifted to the **Indigenous** who had bigger farm lands (Fig. 13). Thus most of the **Migrants** lost access to *taungya* land as the years went by.

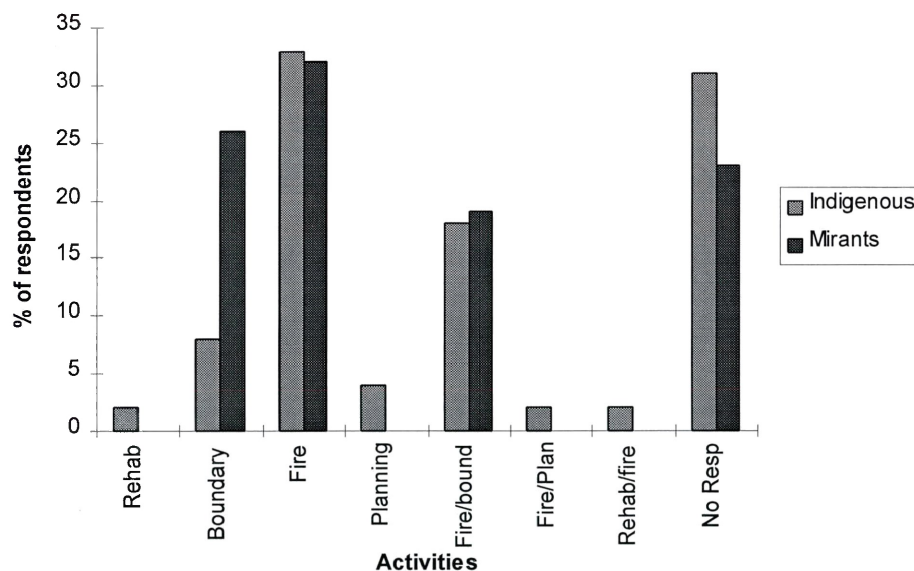


Figure 13. Past Involvement in Forest Management by Indigenous and Migrants

4.2.4. Planning and Decision Making Process

Chiefs and Elders from the forest land-owning communities are occasionally⁹ invited by the Forest Service to participate in the planning and decision making process of forest management. Participants of the study indicated that the only time they have been invited by the Forest Service was when they were called as witnesses to situations such as illegal activities, fire outbreak, identification of tree species, collection of seedlings, or when they need their share of the revenue. It is only recently that the Forest Service started inviting them to participate in the planning process. However, only the Chiefs and their Elders in the communities go to the Forest Service when they need lumber and tree saplings for community development projects. In such instances, it is the responsibility of the men to ensure that such needs are met. Many of the participants say that they have participated in forest planning only since collaborative forest management programs were initiated. Their participation is however restricted to discussions on the sustainable management of NTFPs, including gathering, collecting and processing for the **Women** and on timber management for the **Men**. The potential of getting communities involved in the management other than NTFP exploitation activities was not expanded. As a result, most people commented:

The forestry people come here and ask us so many questions all the time and they go back without telling us what they want us to do.

⁹ Both the Forest and Wildlife Policy and reserve settlement agreements state that communities have the right to be integrally involved and consulted on forest management issues since they own the forest. However, this is not usually the case in practice.

4.2.5. Controlling And Prevention Of Fire Outbreak.

The most significant way that many communities have participated in the management of the forest is in the protection and prevention of wildfire outbreaks. After the severe dry season, which affected the country in 1983, most of the forest reserves in Ghana experienced annual fire outbreaks during the November to March period, the dry season.

Participants said that forest fires are both intentional and unintentional. These activities include the farming practices of many people that require them to burn the weeds as part of the method of land preparation. It is a common belief among many farmers that burning before planting encourages natural regeneration of some food crops, notably cocoyam; and also adds soil nutrients.

Through careless burning, fire enters the forest and may result in the loss of vast areas of the forest reserve and its resources. Other activities that cause annual fires are the method of hunting during the dry season. Most game animals are difficult to find by hunting or trapping during the dry season. This period also coincides with the season when hunting and trapping of game animals is forbidden in Ghana by law. As a result, some hunters intentionally set fires as traps for these animals and in the process portions of the forest are burned. In most cases, it is very difficult to know the cause of the fire and the person responsible.

In the communities where the study was conducted, **Men** have participated actively in fighting and preventing forest fires. (Fig. 11) They are

usually helped by the **Women** who claimed “we fetched water from the nearby streams for the men to put out the fire”. In certain instances, some **Men** spent more than a week in the forest trying to put out a fire. In most of these instances they did not inform the Forest Service unless the fire was beyond what they could control.

In both the land owning communities and admitted settlements where the study was undertaken, they have volunteer fire squads who are responsible for helping people burn their farms land and also organize the communities in case of any fire outbreak in the forest and on the farms. Whenever a member of the community needs to burn his or her farm, they inform the leader of the volunteer fire-squad who also asks any member of the group to assist the person and make sure that the weeds are completely burned and the fire put out before they leave the farm. During this time they also educate the community to prevent any fire outbreak. Sometimes, fines are imposed on those who start a fire.

Even with all these preventative methods some parts of the forest burn through uncontrolled fire. When this happens it is the duty of the volunteer fire-squad to organize the men in the community to put out the fire or inform the Forest Service. If the community has a volunteer fire-squad, the chief and/or his elders organize the community to fight a fire outbreak. In such communities, it is the responsibility of the farmers to ensure that fire from their farms does not get out of control and enter the forest.

Usually, as revealed in the study, many of these activities were done

without the local community informing the Forest Service, who are responsible for protecting the forest. People in the local communities think it is not their responsibility to prevent and put out fire from the forest, but by doing so they are also protecting their ancestral lands and the nation's interest as stated by one participant.

The Forest Service people have not made us responsible for fire prevention, they will even arrest us if they see us there and may think we started the fire, but when it happens we cannot sit down and see our forest burning. At least because of the forest our stream does not dry up no matter how severe the dry season is. Even in 1983, we had water so we helped. Besides, the forest is for the whole nation and, if we don't put out the fire it may get into our farms and even the community.

4.2.6 Involvement In Forest Management Activities By Gender

The most significant way by which **Men** have participated in forest management is in their involvement in the protection and prevention of fire outbreak (Fig. 10). In communities where there is a volunteer fire-squad most of the members are males. Occasionally, one or two **Women** volunteered as members. Fighting fire is considered by both **Men** and **Women** to be a very difficult activity. There is an Akan proverb that the **Man** is the one to face the shot from the gun. Within the local community this means every difficult task has to be performed by the **Men**. This may explain why more **Men** than **Women** participated in the prevention and protection of fire. One **Women** said:

As for fire fighting it is a man's job. We can't do much so we leave everything for them but the **Junior Women** sometimes fetch water for them so we also help in a way.

However, some **Women** said that they have participated in fire protection. They attributed fetching water from the nearby rivers for the **Men** as participation.

For some **Women**, the fact that their husbands or any male in their family participated meant they have also participated.

About 4% of the **Men** said they participated in the *taungya* system. Surprisingly, none of the **Women** said they have participated in the *taungya* system. Only the **Men** participated in the planning and decision making process (Fig. 11). The **Women** said:

Most of the time only the **Men** are invited by the Forest Service people to participate in the planning process. They do not call us. When they come to the village they talk to only the men except when they need some information from us that the **Men** do not know or where they think we can help. But some of us know the forest better than the **Men** and we see a lot of the things happening there most of the time. But when it is about NTFPs they call some of the **Women**. However, with timber and money they call the men. But you know, we also have a lot of knowledge about the forest. You see that I have been able to tell you a lot of things about the forest to tell the Forest Service people.

Most of the **Men** have participated in forest boundary cleaning and maintenance. Although weeding in the farm is considered a **Woman's** job, **Men** participate more in cleaning forest boundaries. This is because the **Women** complained:

The weeds in the forest are too thick and difficult to cut. Sometimes the boundaries are too weedy because the forestry people leave it for a long time before weeding. That is why we can't help.

However, the results showed that more **Women** participated in this activity than **Men**. As explained above, **Women** usually attributed participation to preparation of food for the men who actually did the work or to their husband's participation. Many of the **Women** accommodated the forest guards and considered it as participating in forest management.

4.3.7. Involvement In Forest Management Activities By Age

About 4% of the **Juniors** (Fig. 12) said they have participated in forest rehabilitation. Another 8 percent said they helped the forest guard in cleaning and maintaining the forest boundary. However, the most significant way **Juniors** participated in forest management was through fire prevention (Fig. 12). Many of the **Juniors** are members of the volunteer fire-squad. Beside, being the youth in the community, they think they are more responsible to help in the management of the forest than the **Seniors**. Many of them said they have participated in more than one activity; especially, boundary cleaning and fire protection for the same reasons.

Surprisingly, the data from interviews show that **Seniors** did not participate in the rehabilitation of the forest reserve (Fig. 12). This may be because many of them have big farmlands. Even in the admitted settlements, where land was very scarce, many **Seniors** said they have bigger farm lands than the **Juniors**. It was also evident that **Seniors** have other farms outside the study areas.

Of the **Seniors**, 18% said they have participated in boundary cleaning and fire protection (Fig. 12). The **Seniors** include the Chiefs and Elders who are responsible for organizing the community for any activity. As a result, they were expected to participate fully even if they were not performing the activity. Their presence was an encouragement to the **Juniors**. **Seniors** participated in forest management planning (Fig. 12). This was not surprising as they were

responsible for monitoring the Forest Service for their revenues. Chi-squared result did not indicate significant differences between age and past involvement in forest management (Appendix 2).

4.2 8 Social Origin and Past Involvement In Forest Management Activities

Most **Indigenous** people have participated in fire protection (Fig. 13).

This is not surprising as noted by one of them:

I have my big cocoa farm just at the edge of the forest. You don't expect me to sit down and watch it burning because of the behavior of your people. I have to help.

The fear that fire will get into their farm and burn their farm products forced them to ensure that fire did not start in their farms or when it does they helped in fighting it. Besides, many of them are members of the volunteer fire-squad. Many have participated in these two activities as well as in forest planning.

Migrants on the other hand have been very much involved in forest boundary cleaning and maintenance (Fig. 13). While the **Indigenous**, specifically Chiefs and Elders, organize the community for this activity, results showed that **Migrants** participated more than the **Indigenous** (Fig. 13). More than one-quarter of the **Migrants** said they help in boundary cleaning. Most of them were friends to the forest guards and stated this as the reason for their active participation. They have created this friendship because they understand that unlike the **Indigenous** they have no vested rights to the forest for the collection of forest products as stated in the Reserve Settlement Agreement. As a result, the only way they can have access to collect NTFPs is to help in cleaning the

forest reserve boundary. The participation of **Migrants** in boundary cleaning ensures that when they sneak into the forest, as is usually the case in the absence of the forest guard, they will not be arrested by him should he be around or be informed by someone. Another reason for **Migrants** participation is the fear of being accused by **Indigenous** for refusing to help.

Many of the **Migrants** said they have controlled and protected forest from fires (Fig. 13). They made sure they did not start any fires on their farms or through any of their daily activities. A few of them, are members of the volunteer fire-squad. Surprisingly, none of them said they have participated in the rehabilitation program-Taungya. None of the **Migrants** have participated in forest management planning (Fig. 13). They state however, that they also have something to share if the Forest Service invited them.

We have always been neglected when it comes to issues about the forest and its management. The Forestry people think that we are strangers so they always come and talk to the Chief and his elders but let me tell you we help the forest guard a lot. You can ask him. The other time if my brother and I were not around somewhere, the forest would have been burnt by now. Somebody left a piece of a cigarette or something there. It was almost going to burn but because we like the forest guard we put it out. Please, I don't always go to the forest, but I know a lot of corners in the forest so it is good that you are now talking to us

The chi-squared test indicates a significant difference between past involvement in forest management and social origin. This implies that past participation in forest management activities is very much dependent on the social origin of the individual as revealed by the data (Appendix 2).

4.3. INTEREST IN FOREST MANAGEMENT ACTIVITIES

We are very interested in the forest. It is for us. But the Forest Service people think that we are only interested in getting things from the forest and doing nothing to help. If they want us to help we are prepared to help because the forest is for all of us. If they don't tell us to do anything we can't help them and within a short time you will see whether we will still have a forest. Even now that they have not asked some of us are helping in various ways as we told you. So we can do most of the work. Some of the work we do in our farms is more difficult than what the forest guard and the forestry people do. We know how to make nurseries, plant and take care of trees, we have the fire people in the village and we can do many things for the forestry people. But you see if somebody has not given you authority to do something you can't do it from your heart. Besides, the contractors will ask us who gave us the power to do anything so we just need the power from the forestry people and they will see that we can do a good job

The above statement, by a participant, is an indication of the interest to participate in forest management. The statement also indicates how local communities need to be empowered and considered as partners in forest management. Considering their past involvement in the sustainable management of the forest, there is no doubt they can help in forest management.

It is interesting to note that in many places local communities organized themselves and cleaned the reserve boundaries. Besides, many people in the local communities have performed activities that have never been acknowledged by the Forest Service such as identifying tree species and collection of seedlings for raising and establishing nurseries.

4.3.1 Forest Rehabilitation

During the strategic planning workshops, forest rehabilitation ranked first among the activities local communities are interested in performing. Participants

explained that their forests have been over-exploited, while the Forest Service is still busy giving concessions and not replacing the trees. They also said natural regeneration is not always a good method to replace the trees.

While most participants want to participate as individuals, **Women** especially prefer group participation. The communities suggested that they can participate in forest management activities on a contract basis. They explained that this will enable the Forest Service to know who is involved in a particular activity and at the same time encourage the communities to be effective and efficient in their participation. In the local communities, many have planted trees or tended naturally regenerated trees on their farms. Nurseries for raising their cocoa seedlings is a common practice and many have gained experience from this activity. The people were very confident that they can help in replanting the forest if it was contracted to them. Local communities want to participate in the various stages of the rehabilitation which include seed collection, establishment of nurseries and raising seedling, transplanting of seedlings to forest, tending of seedlings and saplings, including thinning pruning and weeding where necessary until the trees are well established and matured for harvesting.

At each stage of the process, a contract can be arranged between the Forest Service and groups or individuals in the communities to perform specific activity. The **Women** explained that it is not compulsory to contract the same people, though it would be very good.

4.3.2. Fire Protection

Many people are interested in preventing and protecting forests from the outbreak of fire. Most of them have performed this activity in the past being members of the volunteer fire-squad (Figs 11, 12, 13). Participants suggested that like other activities, fire prevention can be by contract. Contracts can be given during the dry seasons when fire outbreak is more probable as many farmers will be burning weeds on their farms in preparation for cultivation. At the same time, they will ensure that no one sets fire intentionally for trapping game animals and will assist the farmers when they have to burn the weeds on their farms to ensure fires are controlled. In performing these activities, participants suggested that during the dry season portions of the forest should be allocated to groups and/or individuals who will be responsible to ensure that there is no fire outbreak and where there is that it is quickly extinguished.

Another fire prevention method suggested was the planting of green fire belts. These are fire resistance tree species along the boundaries of the forest to serve as fire breaks. Similar to the rehabilitation program, the people would take care of the trees until they are established. This seemed to be a good option except they fear that once trees are established there will not be any contracts for fire prevention except educating people to prevent fire.

4.3.3 .Forest Boundary cleaning and Maintenance

Many participants were interested in forest boundary cleaning. During the strategic planning workshop, it ranked as the third most important activity. In this

activity, individuals and groups in the local communities may be allocated specified areas along the forest boundary to clean. Once the boundary is cleaned, the contract may be terminated until it needs weeding again. However, if boundary cleaning is used as a fire control tool, which is possible, they will have to be cleaned regularly and at shorter time intervals. An interesting issue was the fear that if green belts were used for fire protection then once they are well established there will not be any more contracts for forest boundary cleaning.

4.3.4. Monitoring and Reporting Illegal Operations

Local communities are also interested in checking and reporting illegal activities. They argued that since they stay closer to the forest than the Forest Service, it will be easy and appropriate if they are made responsible to ensure that only those with the right permit from the Forest Service enter and operate in the forests.

In this activity, they suggested that the Forest Service should inform them in advance of the name of permit holders for particular forest resources. The permit holder should also be advised by the Forest Service to report to the Chief in the local community or to any of his Elders before proceeding into the forest to perform his/her operations. On this issue, one of the chiefs commented that

We are staying near the forest. We see a lot of things happening in the forest, which we suspect to be illegal but your people have not made us responsible so most of the time we just have to keep quiet. But sometimes we tell the forest guard or when we happen to be around the Forest Service we inform them.

Local communities also think that the Forest Service only need to contract

specific activities one at a time. They said this will help the Forest Service since they will not be employed as full time workers but as casual laborers for a specified period.

4.3.5. Interest In Forest Management Activities by Gender

Of the **Men** interviewed, 22% said they are interested in cleaning the forest reserve boundary (Fig. 14). Another 19% said they are interested in forest rehabilitation. However, during the strategic planning workshops, forest rehabilitation ranked as the most important activity that **Men** are interested in performing followed by boundary cleaning. In addition, 19% said they are interested in fire prevention (Fig. 14).

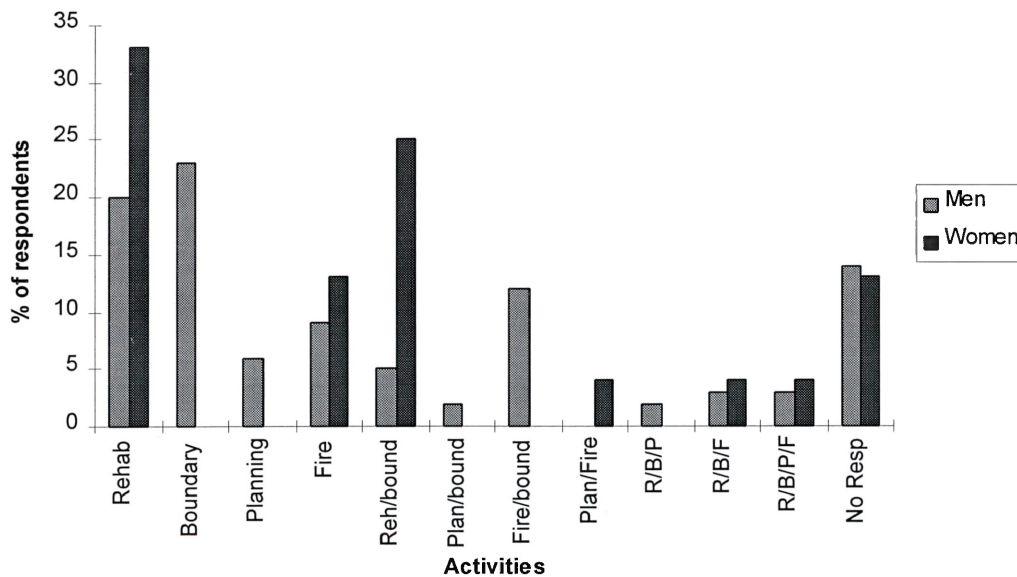


Figure 14. Interest in Forest Management by Men and Women

Forest planning followed fire protection for 6 percent of the **Men**. Of the participants who were interested in more than one activity, 15.2 % said they are

interested in boundary cleaning and fire protection, followed by forest rehabilitation and boundary cleaning, and then forest boundary cleaning and the planning. Few people were interested in more than two activities specifically, boundary cleaning, forest rehabilitation and fire protection as well as forest management planning (Fig. 14).

At both the interviews and workshops, the **Women** ranked forest rehabilitation as the most important activity in which they are interested in participating (Fig. 14). Many of them were interested in establishment of nurseries for seedlings to be used in forest rehabilitation and also in planting them. In this activity, the **Women** said they would nurse the seedlings of any timber species and take care of them until they are ready for transplanting. On this issue, the **Women** argued that they have nursed and tended naturally regenerated trees on their farms and in the forest. In addition they have nursed some tree crops on their farms. Thus, **Women** are confident that they can easily do the same if responsibilities for such activity is given to them. As a result more than 33% of **Women** said they would like the Forest Service to involve them in forest rehabilitation (Fig. 14).

None of the **Women** are interested in boundary cleaning and maintenance or in the planning process as shown from the results of the interviews (Fig. 14). However, during the strategic planning process many of them said they were interested in the planning process and that they can contribute because of their experience in forest management.

Surprisingly 12% of the **Women** said they are interested in fire protection activities and would join the volunteer fire-squad. They stated:

We don't necessarily have to go to the forest to put out fire, there are so many things we can do to help, such as educating people on the causes of fire outbreak and the need to prevent fire. If somebody is burning weeds on the farm, we can also help like the man. You see we can do something.

Surprisingly, about 25 % of the **Women** said they are interested in forest rehabilitation and forest boundary cleaning although none were interested in boundary cleaning as an activity in isolation (Fig. 14). About 4% were interested in forest management planning, fire protection and forest rehabilitation, boundary cleaning and fire protection while none of the **Women** were interested in boundary cleaning and planning, or in boundary cleaning and fire protection. Chi-squared results indicate that there was no significant difference by gender in past involvement in forest management.

4.4 6. Interest In Forest Management Activities by Age

Figure 15 indicates that 23% of the **Juniors** were interested in participating in forest boundary cleaning and maintenance. Forest rehabilitation and fire protection were ranked next in importance for the **Juniors** with 19 % for each activity (Fig. 15). In the forest rehabilitation activity, most of the **Juniors** were interested in participating at each stage of the process, such as seed collection, nursery stock raising, transplanting seedlings to planting sites, tending, thinning, pruning and harvesting of the final crop. Each stage of the process may be assigned a different contract arrangement between the groups or individuals and the Forest Service. Surprisingly, **Juniors** were not interested

in forest planning. Interest in forest boundary cleaning and fire protection was 19%. Only 3% were interested in the combined activities of forest rehabilitation and boundary cleaning, boundary cleaning and planning or planning and fire protection (Fig. 15).

Seniors on the other hand ranked forest rehabilitation as the most important activity they would like to perform (Fig. 15). More than 32% showed interest in forest rehabilitation.

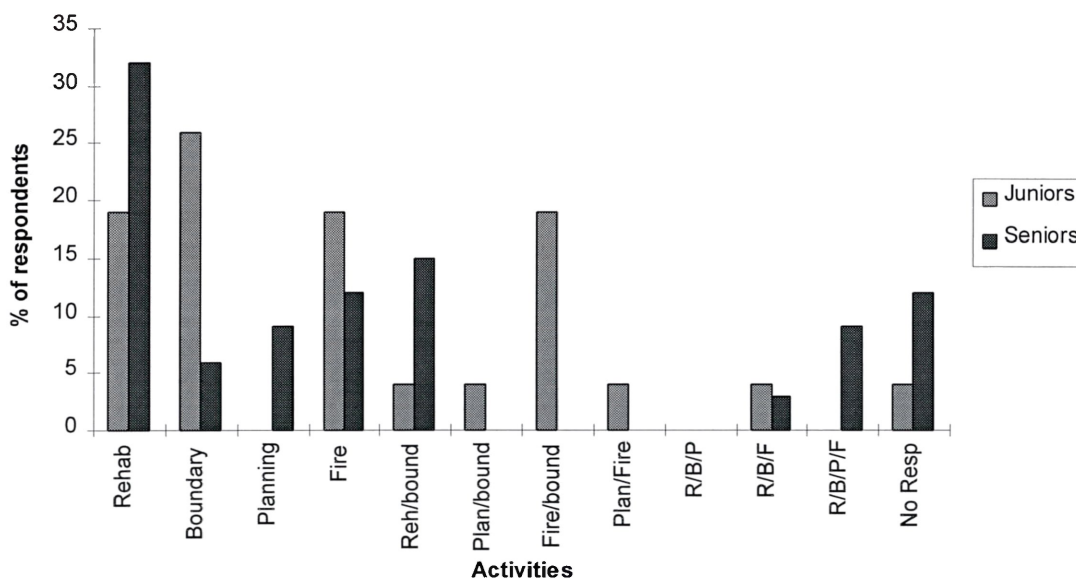


Figure 15. Interest in Forest Management by Juniors and Seniors

About 11% opted for participation in fire protection; while 8% were interested in forest management planning. More than 5% said they would participate in boundary cleaning (Fig. 15). About 14% of the seniors said they would participate in forest rehabilitation and boundary cleaning. Another 8% said they were interested in forest rehabilitation, boundary cleaning, fire protection and

forest planning combined (RBFP). Surprisingly, only 3% said they were interested in the combined activities of forest rehabilitation, boundary cleaning and planning (RBP) (Fig. 15).

4.3.7. Interest in Forest Management Activities by Social Origin

The interest of **Indigenous** people in forest rehabilitation was 23% (Fig. 16). More than 15% of the **Indigenous** people said they would participate in boundary cleaning. Interest in fire protection / forest planning was 7%. Another 13% were interested in forest rehabilitation and forest boundary cleaning. About 11% were interested in forest boundary cleaning and fire protection (Fig. 16). Five percent said they were interested in forest rehabilitation, boundary cleaning and fire protection. Only 2% were interested in either boundary cleaning and planning; planning and fire protection; rehabilitation, boundary cleaning and planning; or in planning, boundary cleaning, rehabilitation and fire protection (Fig. 16).

Similarly, many of the **Migrants** showed interest in forest rehabilitation and boundary cleaning. Like the **Indigenous** people forest rehabilitation ranked first at about 25% and boundary cleaning at about 22% (Fig. 16). Another 16% were interested in fire protection. None were interested in the planning and decision making aspects. About 3% showed interest in boundary cleaning and fire protection. Interest in forest rehabilitation, boundary cleaning, planning and fire protection was about 6%.

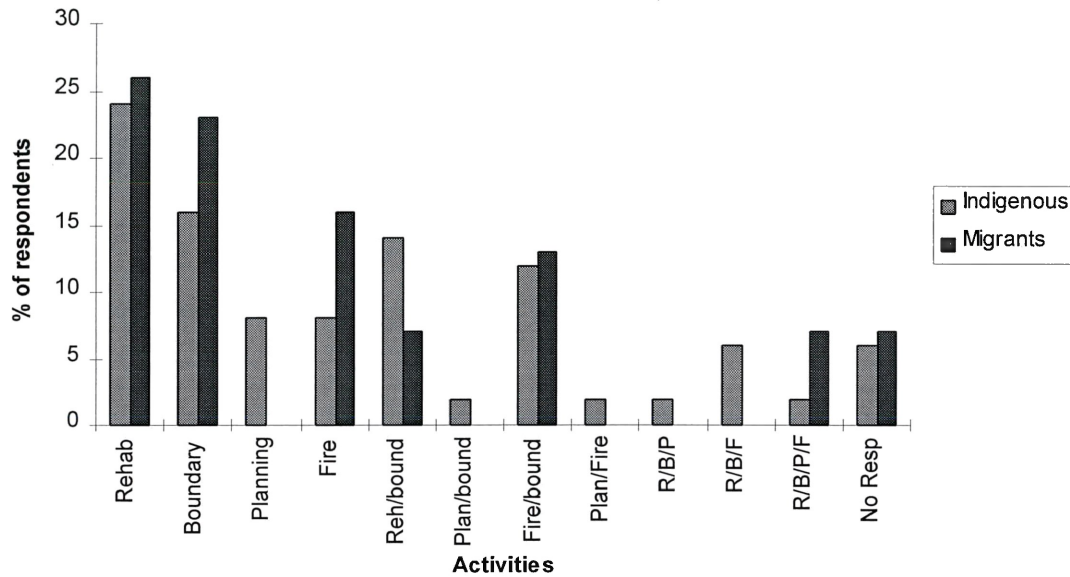


Figure 16. Interest in Forest Management by Indigenous and Migrants

Table 5 indicates that generally **Women** were the most interested in forest rehabilitation. This is an indication that **Women** were most conscious of the sustainability of the resource and its impact on the sustainability of their community. **Men, Migrants** and **Juniors** were most interested in forest boundary cleaning. In addition, **Indigenous** people and **Migrants** also showed considerable interest in forest rehabilitation. **Seniors** were generally most interested in forest planning because this affects the development of the communities in terms of revenues. The table does not contain the percentage of individuals who are interested in participating in a combination of two or more activities. These types of combinations are shown on the Figures.

Table 5. Interest in Forest management by Gender, Age and Social Origin

Activity	Men	Women	Indigenous	Migrants	Seniors	Juniors
Rehabilitation	19.7%	33.3%	23.5%	25.8%	32.4%	19.2%
Fire Protection	9.1%	0%	7.8%	16.1%	11.8%	19.2%
Boundary cleaning	22.7%	0%	15.7%	22.6%	5.9%	23.1%
Planning	6.1%	0%	7.8%	0%	8.8%	0%

Results presented in the form of graphs indicate that while some participants were not interested in particular activities they were interested in a combination of such activities. This is because the interviews, allowed participants to choose as many activities as they were interested to perform. Some listed further activities that were not provided in the questionnaires (e.g. **Women** specifically indicated interest in forest nurseries as forest rehabilitation work).

The Chi-squared results indicate that there were significant difference in the interest in forest participation by gender, age and social origin. Interest in participation in a particular forest management activity therefore varied and depended on the gender, age and social origin of the individual (Appendix 2).

4.4. INCENTIVES FOR COMMUNITY PARTICIPATION IN FOREST MANAGEMENT

Incentives are motivating factors that encourage people to have stewardship in a resource and thus enhance wise and sustainable use of that resource and hence wholistic management of it. These motivating factors can be

economic or social, and can help influence the transition to sustainability by encouraging local communities to participate actively, efficiently and effectively in the management of the forest. Meaningful participation in forest management, is the most important of all incentives. Results from this study showed that long term secure tenure rights, and benefits can motivate local communities to invest their time and labor in managing the forest sustainably. Local communities are not only interested in gaining access to the forest reserve to meet their livelihood needs, but also to participate in forest management should the appropriate and sustainable motivation factors be provided.

Local communities recognize the need to participate and take more responsible roles in forest management. Their problems however are that they are not certain about the rewards, benefits or incentives that will result from their participation. As noted by one of the participants:

You cannot expect someone to help in cooking when he is always sure to sleep on an empty stomach; those who live near the sea feed from the sea so those of us living near the forest must feed from the forest. We can't work for the Forestry people without getting anything in return. We cannot always work for someone else to enjoy the benefits.

These types of comments from the communities show that they are interested in helping the Forest Service to manage the forest sustainably. However, they expect to benefit from the investment of their time, knowledge and labor.

To the local community, forests are part of their lives and environment. Forests affect how they live and have developmental impact on their lives. The forests, it's resources and management must help supply their needs and

aspirations both socially and economically. Participants said both social and economic incentives will play important roles in their lives and change their attitudes towards forest management. They suggested that incentives should be provided by stakeholders of the forest - government/Forest Service, timber industries and chainsaw operators, non-resident NTFP gatherers, and forest land-owning communities.

4.4.1. Social and Economic Incentives

A list of the social and economic incentives that will motivate effective and efficient local participation to achieve sustainable forest management is presented in Table 6. Local communities also suggested that incentives should be provided by all absentee stakeholders of the forest, (namely the Forest Service/government, the timber industries) and the Stool lands depending on the type of incentive and also of the gender, age and social origin of the individual.

During the strategic planning workshops, participants matched the incentives with the forest management activities in which they are interested in participating. (Table 7). The Table indicates that local communities prefer that specific incentives are provided for specific tasks. Local communities understand that incentives can be negotiated between them and the Forest Service to ensure that both partners are satisfied before a contract is granted and started..

Table 6. List of Social and Economic Incentives by Gender, Age and Social Origin

Incentives	Source				
	Social variables of community	Gov't	FS	Timber Contractors	Stool lands
Social Incentives					
Help Construct and maintain schools	All	✓		✓	
Help in community development activities (Clinics, public washrooms etc.)	All except seniors	✓			
Construction and maintenance of access roads	All except juniors	✓		✓	
Authority and empowered to check illegal activities	All except women		✓		
Help provide good drinking water--Pipes or boreholes	Women	✓			
Provide timber trees for community development	Men, seniors			✓	
Access to gather NTFPs	Women, Seniors, Migrants		✓		
Not disclosing people who report illegal operations in the forest	All except women		✓	✓	
To be involved in planning and decision making process	Men, Seniors, Indigenous		✓	✓	
Involve chiefs and elders when giving out concessions	Indigenous, Men, Seniors		✓		
Direct contractors to ODIKRO (community chiefs)	Indigenous, Seniors		✓		✓
Identity cards for those who participates in forest management activities to avoid harassment from contractors and other FS staff	All		✓	✓	
Provide seeds and seedlings for forest rehabilitation with technical assistance	Women		✓		
A share in final proceeds from planted trees	Men, Juniors, Migrants		✓		
Use percentage of royalties for community development projects	All	✓			✓
Invite community to help in forest management	Migrants, Juniors, Women		✓		✓
Economic Incentives					
Employ people from the community to help in harvesting operations	All			✓	
Employ people from the community to undertake forest management activities	All	✓	✓	✓	
Give out concession to eligible timber contractors from the local community	Men	✓	✓		
Regular and effective payment of royalties	Seniors	✓	✓		
Use royalties for community development projects	all except seniors				
Share of proceeds from planted trees	Men, Indigenous Juniors	✓	✓		✓
Help establish other employment opportunities (e.g. Palmwine and akpeteshi distilling)	All	✓		✓	

For example, since employment in forest rehabilitation and other activities will serve as potential sources of income, local communities prefer that the Forest Service pay them when they perform such activities

For many people in the local communities, social incentives are a very important motivating factors as they will encourage them to participate in a variety of forest management activities (Tables 6 & 7) thus changing their attitude toward and relationship with the Forest Service (Table 6).

Similarly, economic incentives (Table 6) specifically in the form of employment (Table 7) will also change their livelihoods as many people would have other sources of income apart from farming. Besides, economic incentives in the form of employment (Table 7) will encourage the youth to stay in the communities rather than migrating to find jobs in the urban areas.

Other incentives include potential sources of income for the communities where the Forest Service decides to pay wages, for employment in planting of new seedling stock, cleaning operations, fire protection and control, monitoring illegal activities etc. (Tables 6 & 7). Local communities also want to receive a defined share of revenues from the final harvest, from rehabilitation work, and expect to generate income from shares. Protection of forest stands, receiving a share of produce from cleaning activities and having the right to gather NTFPs are potential sources of incentives.

4.4.2. Incentives for Participation by Gender

Generally, **Women** were more interested in the social incentives than the economic incentives (Table 6). In many instance, they mentioned that the economic incentive in the form of employment should focus on the **Junior Men** to encourage them stay in the communities. The **Men**, however, are interested in the economic incentives in the form of employment by both the Forest Service and the timber contractors (Table 6).

Table 7. List of Activities and Incentives by Gender, Age and Social Origin

Activity	Incentives	Comments
<ul style="list-style-type: none"> • Employment in forest rehabilitation • plantation • nurseries • forest boundary cleaning • Forest patrol 	<ul style="list-style-type: none"> -Potential source of income for rural communities -Receive a share of final proceeds of planted trees -Gain technical knowledge and experience in tree planting and nursery techniques -Save Forest Service, government from employing permanent staff since employment will be given on a contract basis. 	<p>Many people in the community have already participated in taungya. Communities always prepared to participate in these activities</p>
<ul style="list-style-type: none"> • Employment in Fire protection 	<ul style="list-style-type: none"> -Potential sources of income -More training and experience obtained by participants in fire control 	<p>Many communities already have volunteer fire-squad</p>
<p>Monitoring and reporting illegal activities in the forest</p>	<ul style="list-style-type: none"> -The confidentiality of reporters should be respected and maintains authority to question people who are suspects of performing illegal operations in the forest 	<p>Many illegal operations occur in the forest and rural communities are closer to the forest reserves than the FS</p>
<p>Participation in thinning or any silvicultural activity and harvesting activities</p>	<ul style="list-style-type: none"> -Receive defined share from harvesting and thinning -Potential sources of income -Use thinning for firewood -Expect to be able to sell own share of harvested trees -Obtain trees and lumber for community development projects 	<p>This activities increases growth rates and improves quality of stems for higher value products - develops value added secondary industry for this labor</p>
<p>Protection of Forest standing trees from fire.</p>	<ul style="list-style-type: none"> -Sources of income -access to forest for gathering and collection of NTFPs 	<p>Essential for community protection. Protection of sources of raw materials</p>
<p>Planning and decision making process</p>	<ul style="list-style-type: none"> -Rural communities represented in forest management decisions -Impact of indigenous knowledge towards sustainable management of the forest -Ability to negotiate rights of access to forest for forest products 	

4.5.3. Incentives for Participation by Age

While **Seniors** emphasized the need to be involved in planning and decision making as an incentive to empower them to help in the management of the forests (Table 6), **Juniors** are interested in being employed by the timber contractor and Forest Service to perform specific forest management activities. Both **Juniors** and **Seniors** were interested to be identified as partners in forest management (Table 6).

4.5.4. Incentives For Participation by Social Origin

Indigenous people show an interest in social incentives that will benefit the community as a whole whereas **Migrants** stressed the need for economic incentives that will motivate only those who participated in forest management activities (Table 6).

Though local communities recognize that the Forest Service and the government are the same they also think that some incentives cannot be provided by the Forest Service. For such incentives e.g. health centers and road construction, they suggest that the government, with the help of the Timber contractors, should be responsible (Table 6).

5.0. DISCUSSION

The study confirmed a number of findings documented in the literature by earlier researchers, and indicated some new findings and concerns in the role of incentives for local communities to effectively participate in forest management. The study investigated the present and past access, benefits and uses of forest resources by local communities in relations to gender, age and social origin. In addition, the study sought to identify from communities the incentives that will encourage effective and efficient participation.

5.1. ACCESS, USES AND BENEFITS FROM FORESTS AND FOREST RESOURCES BY GENDER, AGE AND SOCIAL ORIGIN

Women play a very important role when it comes to uses of forests and forest resources for both household subsistence and as sources of economic benefits to support household expenditure (Falconer 1990). These findings are also confirmed in this study. Gender and other social differences affect the uses and management of the Forest resources (Meera and Shah 1995, Rocheleau 1990, Leach 1994, Leach and Fairhead 1992 and Fortmann and Bruce 1991). Leach (1994) also noted that in many African societies, household relationships are characterized by inequality in the distribution of the work, consumption and contribution to productivity based on gender and age. This was confirmed in the present study as the types of forest resources for household subsistence were linked with the responsibility of the individual who collects them in terms of gender, age and social origin.

The study also showed that **Men** as well as **Women** use the forest for similar purposes; e.g. subsistence and income generation, but to different degrees in terms of how often they visited the forest and what they collect. While they sometimes collect the same forest products such as seasonal snails and mushrooms, in more instances different forest products were collected by **Men** and **Women** showing the variation of uses and benefits in terms of gender.

Migrants, Indigenous, Juniors and **Seniors** also collect different forest products. For example, **Men** valued large game animals as very good sources of cash income; while **Women** valued forest products such as wrapping leaves, spices and any NTFPs they may lay hands on as good sources of cash income. Usually, the variety of forest products collected and gathered by **Women** outnumbered that of **Men**. Also, while **Migrant Women** were interested in forest foods for household subsistence; **Junior Men** were interested in construction materials for building and repairing the household.

This study revealed that local communities used the forests for both tangible and intangible benefits as noted by Falconer (1990). Local communities emphasized that the forest provides environmental benefits such as rainfall conservation, serving as windbreaks and protecting the community from the effects of major storm winds. In addition, the forest protects their water sources. One participant stated that because of the forest their rivers do not dry up during the dry seasons. Forests, according to local communities, are habitats for animals and plants which are not found on non-forest lands. Some said that they

believe their farm lands are fertile because they live close to the forest.

An interesting issue that emerged from this study was the fact that local communities now relate access to forest as an incentive rather than a right as documented in the forest reserve settlement agreements. This is because local communities are not allowed to exercise this right as the exploitation of NTFPs is managed by a permit system. Many participants stated that once they have participated in forest management activities, usually boundary cleaning, the forest guards give them access to the forest to meet their household needs for forest resources. Otherwise, community members have to sneak into the forest or go through the bureaucratic process of gaining permission from the Forest Service. However, contrary to this practice, forest reserves settlement agreements state that the Commissioners identified settlement agreement existing rights of use which people already had to forests resources to meet their basic household needs as well as the right to be consulted in forest management planning. However, because these settlement agreement rights are not recognized by the Forest Service, local communities view access to the forest and consultation in forest management planning as incentives to motivate them to participate effectively and efficiently towards sustainable forest management. Thus, this study found that these rights identified in the reserve settlement agreements are not exercised rights.

5.2. PAST INVOLVEMENT IN FOREST MANAGEMENT ACTIVITIES

Local communities have participated in many ways through their own initiative towards the sustainable management of forest reserves. Usually, these activities were not reported to the Forest Service, or were just an informal arrangement between the Forest guards and the local communities.

This study gave credence to the fact that many people have participated in various ways in the management of the Forest and thus have a working knowledge of the forest. Some of these activities, although seemingly very small in nature, have made a large contribution in the protection of the forest reserves. For example, forest protection occurs when **Women**, during their usual errands into the forest, reported illegal activities to the **Men**, who in turn confront those involved or reported them to the Forest Service, through the Forest Guard. Another example occurs when **Women** weeded around seedlings that are naturally regenerating and thus ensuring that climbers and other weeds were removed so the naturally regenerating seedlings get enough sunlight and grow free of competition. In addition, there are instances where some of the **Migrants** and **Men** have put out fires that would have resulted in uncontrolled wildfire in the forest reserve. These activities, while small in nature, increase the growing stock of the forest reserves and thus contribute to the sustainable management of the Forest. The extent and the nature of the activities depends on the interest of the particular group or individual concerned and varies by gender, age and social origin.

Molnor (1991) for example reported that there has been progress with the involvement of **Women** in management decision making in the rehabilitation of forests in a number of countries (such as Zimbabwe, Rwanda and north India) where **Women** are traditionally more outspoken. Chen (1990) reported that **Women** in West Bengal encouraged their **Men** to form forest protection committees to ensure sustainability of NTFPs. Contrary to the findings of these studies, this research project centered in southern Ghana indicates that rural **women** were left out of the planning process at the highest level, especially on issues relating to forest management decisions. It is only recently that some **Women** have been invited to participate in the planning process, however, these opportunities were limited to issues relating to NTFP management.

While this present research demonstrates that Women have been left out of the formal decision making process, at the individual, family or group level, decisions were sometimes taken informally by **Women**. For example, suggestions were made by the **Women** as to how they could be involved in management decision making. The **Women** extensively commented that they have knowledge that is important for the management of the forest and it would be appropriate for the Forest Service to make use of this knowledge in wholistic forest management decision making. These suggestions include the incorporation and realization of the needs of **Women** in forest management planning and decision making. During the Strategic Planning Workshops, it was very evident that both **Women** and **Men** have knowledge on forestry issues.

However, the **Women** did not comment during the Strategic Planning Workshops but did participate through the **Women's** group. One interesting thing that happened during this planning process was that instead of writing down their views and points on the issues discussed in their group so one person would present, each member of the group presented one point. This process ensured that all participants were actively involved in the reporting process.

According to the literature, the primary role played by **Women** in forestry activities is in collecting and gathering non-timber forest products. However, the results of this study indicated that although this may be true for most **Women** in the local communities of Ghana, **Women** were actively participating in such tasks as prevention of fire, boundary cleaning, forest rehabilitation and reporting illegal activities, although to a lesser extent than the men.

Men, Juniors, Seniors, Indigenous and **Migrants** have contributed at different levels in forest management. This study demonstrated that only a few **Migrants** have been involved in the rehabilitation of the forest during the *taungya* period. This study contradicts with other studies that state that the initial target of *taungya* were the migrants, in the communities. The results also indicate that **Men, Women, Migrants, Indigenous, Seniors** and **Juniors** participated in forest activities for different reasons. For example **Migrants**, participated in forest management to gain access to the forest to collect NTFPs for their household subsistence. **Senior Men** participated in fire prevention because their farms share common boundaries with the forest.

Participation in a particular activity was usually tied to the interest of the participant(s). For example, in local communities, the **Indigenous** people especially participated and encouraged other people to participate in fire protection and prevention because they feared that if fire from the forest is not controlled it can severely damage their farm and the produce, thus affecting their livelihood, perhaps permanently. Many of them participated and organized local communities to participate because of the revenues obtained from exploitation of timber. Although revenues were not paid regularly, they played a very vital role in the livelihood of the local community members through community development activities. Others simply participated because they do not want the community, groups or individuals to be blamed for encouraging and being involved in undertaking illegal activities or as being the cause of fire outbreak. As a result, some of the people checked and reported these activities. Many participated because of their personal relationship with the forest guard, the technical officers or the District Forest Officer. Still others participated because they think that although it is not their responsibility, the nation benefits from the export of forest products, especially timber. Other reasons included the fact that the forest provides environmental benefits to the local communities as discussed above.

5.3. LOCAL COMMUNITY INTEREST IN FOREST MANAGEMENT

Local communities recognize the need to participate actively in the management of the forest and to take responsibility for forest management

activities. According to Anon. 1996, the most obvious way to increase benefits to rural communities is to increase the revenue and rent rates and to develop new sources of revenue. Also, by involving local communities in collaborative programs, they will contribute to Forest Service management efforts and consequently benefit directly from this partnership. This study supported the above finding for local communities in Southern Ghana.

The current study also confirmed that local communities can be involved in performing forest management activities as another means of increasing personal benefits and providing social and economic incentives. For example, performance of forest management activities can serve as sources of employment and hence as potential sources of economic benefits for rural dwellers, especially those residing close to forest reserves. In addition, the introduction of forestry related enterprises in the local communities, such as the *akpeteshi* distilling industries for **Men**, and basket weaving for both **Men** and **Women**, will encourage the youth to stay in the local communities and hence reduce the out-migration to urban areas.

Hill and Shields (1997), documented that one type of PFM, Joint Forest Management, is the sharing of products, responsibilities, control and decision making authority over forest lands between a Forest Service and the local users based on formal agreements. Local communities in Ghana recognize this fact and are therefore prepared to take responsibility for forest management activities, based on agreements between themselves and the Forest Service.

This type of collaborative arrangement would be in contrast to the present situation where the Forest Service determines the forest management activities in which the communities might participate; and in addition, the types and forms of incentives that will be available to the community. However, the findings of the present study showed that the local communities strongly wanted the Forest Service to involve them in planning and in identifying the forest management activities in which they want to participate. They also indicated that communities are capable of organizing and deciding whether they will perform these activities as groups or as individuals. Local communities also confirmed that they view themselves as capable of identifying which areas and aspects of forest management they want to be involved in according to their age, gender and social origin and also according to the strength and available times for each individual.

By their own initiatives, many communities have formed volunteer fire-squads whose responsibilities are to prevent the outbreak of wildfire in the forests and on their farms. Many people would like to volunteer as members if the Forest Service is prepared to support them in local forest fire protection. Such a collaborative environment would provide opportunities to local communities to educate people in preventative methods. The volunteer fire-squad could assist more frequently in the burning of farms during land preparation for farming. An important incentive for local community participation is to have the authority to act as genuine and integral partners in forest

management.

Interest in protecting natural resources is closely related to expectations of access to and the benefits from forest management and forest resources. The security and sustainability of forest user rights as well as other incentives are therefore of essential importance if people, whether **Men, Women Indigenous Migrants, Seniors** or **Juniors**, are to support the management of the forest.

5.4. INCENTIVES FOR PARTICIPATION IN FOREST MANAGEMENT ACTIVITIES

According to Anonymous. (1996), the most obvious way to increase benefits to rural communities is to increase the revenues and rent rates and to develop new sources of revenue. the current study confirms this perspective of incentives for local communities in the High Forest Zone of Ghana.

Among the **Indigenous** people in the forest land-owning communities, the most important incentives were those related to the revenues and forest rents. However, there were concerns about the extensive delays in receiving revenue. Local communities wanted revenues to be paid regularly. Furthermore, they wanted to use revenues for the development of the communities rather than for the use by a few people more closely aligned to the Stool.

Incentives are motivating factors that can encourage people to exercise stewardship toward the forest and forest resources and thus enhance sustainability of the forest. These motivation factors can be economic or social which can help effect the transition to sustainable management by actively

involving local communities in participating efficiently and effectively in wholistic (sustainable) management of the forest. In sharing forest management responsibilities, the most important incentive is not necessarily about transferring ownership, but about security rights and by considering forest owners as partners in the management of their forests. Results from this study indicate that long term security rights to forest resources, benefits and incentives regardless of ownership will encourage communities to invest their time and labor in sustainable forest management.

Local communities are not only interested in enjoying and gaining unrestricted access to the forest for NTFPs and a return of revenues on these; but they are also prepared and interested in being involved in forest management should the appropriate incentives be provided.

Potential incentives include such income sources as the Forest Service paying wages for employment in planting of new stock, cleaning operations, fire protection and control and monitoring for illegal activities. Local communities also wanted to receive a defined share of harvest from rehabilitation programs, and expect that they will own future shares of planted trees to generate cash. Protecting standing forests, receiving a share of produce from cleaning activities such as firewood and having access to the forest for NTFPs are all potential sources of incentives for the rural communities to commit to long term sustainable forest management.

Other incentives included the issuance of timber harvesting concessions

to potential and capable people from the local communities, rather than outsiders. Commercial exploitation of NTFPs by interested members of the local communities before considering outsiders would encourage local communities to participate in sustainable forest management.

6.0. CONCLUSIONS

This study was conducted in the High Forest Zone of Ghana. The objectives of this study were to examine the access, uses and benefits from the forests and its resources and how local communities have participated towards sustainable forest management. It also examined whether local communities are interested in performing forest management activities and if they are, which activities. Motivating factors or incentives that will encourage people to participate effectively and efficiently were also identified. Finally, the study sought to make recommendations to the Forest Service as to how local communities may be involved in sustainable forest management by giving them responsibilities and stewardship as partners. All these factors were examined in relationships to the variables of gender, age and social origin.

This study showed that rural communities depend on the forest and its resources to meet most basic household and subsistence needs such as food, medicines and spices, construction materials, and other household items for their survival. They also depend on the forest for supplementary sources of income especially during the drought periods to support household expenditures. Communities also realize numerous environmental benefits such as wind breaks for high wind and maintenance of ground water levels.

Dependence on the forest in the form of access, uses and benefits were varied closely to gender, age and social origin of the individuals and groups

within the local community. This study established that **Men, Women, Juniors, Seniors, Migrants** and **Indigenous** value and thus use the forest to different degrees and for different purposes. The types of forest products used by each of these categories vary for both household subsistence and income generation. For example, while **Women** value the forest highly for food for household subsistence; **Men** place greater value on the forest for construction materials. For income generation, **Men** valued game and *akpeteshi* distillation; while **Women** valued all forest resources especially forest foods.

This study also established that local communities contribute to the protection and sustainable management of the forest. By their own initiatives, local communities have performed various activities to ensure that the forest continues to supply their environmental, subsistence and economic needs, and that of the nation. Local communities have performed activities such as forest boundary cleaning, preventing and controlling forest fires, encouraging and enhancing the growth of forest resources (e.g. **Women** ensuring that naturally regenerated seedlings get enough sunlight). Many people also participated in forest rehabilitation, and monitored and reported illegal activities. In many instances, participation in forest management activities was not reported to the Forest Service by the local communities so that the Forest Service was not aware of the extent of involvement of the local communities.

Other activities that rural communities participated in included forest management planning. People in the rural communities possess ecological

knowledge of the forest because of their daily activities in the forest. This knowledge should be incorporated with the scientific base for wholistic management of the forest. These activities were performed by different persons in the local communities. Participation was statistically linked to the gender, age and social origin, and also depended on the interests of each individual. For example, while the **Indigenous** participated in forest rehabilitation and the planning process, **Migrants** usually participated in forest boundary cleaning and all activities except forest planning and decision making.

Participation in forest management activities often related to various reasons other than access. Many participated because of the fear of being accused or blamed for causing or helping to destroy the forest. Some participated because of the effects such activities may have on their own farmlands such as the fear that fire from the forest may burn their farms if they refused to control a fire. Others participated because they are protecting the nation's interest in export earnings from forest resources especially timber.

Under suitable arrangements and agreements between the people and the Forest Service, local communities would be interested in participating and performing various forest management activities. They were interested in contributing to forest management by performing a variety of activities which included, forest boundary cleaning, rehabilitation of degraded portions of the forest, various plantation activities, monitoring and reporting illegal activities, planning and decision making processes, and fire protection. Among these

activities, local communities were most interested in forest rehabilitation and plantation development. This is because they think and argue that both timber and non-timber resources have been depleted to a very large extent, and that the Forest Service needs to embark upon re-establishment as soon as possible. The people contend that the depletion is a direct result of over exploitation of a single resource from within the ecosystem by timber contractors and annual fires. Furthermore, they contend that the Forest Service relied only on natural regeneration and keeps themselves primarily occupied by giving out concessions to timber contractors. Many people in the rural communities argued that if they were given a meaningful role to play and if the Forest Service gave them the responsibility for forest management, they are confident that they could do a good job.

Other activities in which rural communities wanted to participate included harvesting operations by the timber contractors or allowing the community people to do it. The study also established that interest in these activities varied according to the gender, age and social origin of the individual. For example, **Indigenous Men** and **Seniors**, showed more interest in the planning process than **Women**, **Juniors** or **Migrants**. **Migrants** showed interest in forest boundary cleaning while **Juniors** and **Women** were most interested in forest rehabilitation. The study also found differences in the forms and methods of organization. **Men** preferred participation in forest activities on an individual basis, while **Women** preferred participation in groups.

The study also emphasized the need and role of incentives in the livelihood of rural communities as stakeholders in the forest estate and as integral participants in the sustainable management of the forest. Participation in the various activities were expected to serve as potential sources of cash income and employment for many people in the rural communities. Among the social and economic motivating factors, the most important was the potential for employment as casual laborers, by the Forest Service and timber industries. **Women** however, stressed the need for the Forest Service to employ and involve the **Juniors** in these activities. The most important incentives for the **Women** were social incentives in the form of health care services, schools, water etc. They also stressed the need for unrestricted access to the forest to meet their basic household subsistence needs and for supplementary cash incomes.

Men, especially **Migrants** are interested in economic incentives for the individual who directly participates rather than to the community as a whole. **Indigenous Senior Men** stressed the need to be recognized as stakeholders and therefore the right to be consulted and involved in the planning and decision making process in forest management. All wanted the revenue rates to be increased, paid regularly and used by land-owning communities for community development projects to benefit all.

Both social and economic incentives are important for all people in the local communities and many emphasized how sustainable and suitable incentives will enhance effective and efficient participation as well as improving

their livelihoods especially during the drought season and non-farming seasons.

6.1 COMPARATIVE SUMMARY.

The results of the current study support other studies that have been conducted in Ghana to achieve sustainable forest management (Table 8). The Forest Service Document (1998) and the Anonymous report of 1996 identify the need to involve local communities in the management of the forest but both documents fail to identify in which management activities the communities are interested in being involved in and who in the community wants to be involved. The current study not only identifies the potential for involving local communities, but further identifies the management activities breaking the interest of the community down by the variables of gender, age and social origin. Variations in the findings and recommendations of these two documents and the current study are explained in Table 8.

Comments On Comparative Summary (Table 8)

1. While the Forest Service document mentions the need for a close working relationship, this study identifies the types of activities in which the local communities are interested in participating rather than asking them what the Forest Service thinks they should do. Furthermore, collaboration, according to this study, can take place at all levels of forest management. It should therefore not be restricted to operational planning or any activity as suggested in Anon.

Table 8. Comparative Summary of Current Study with Forest Service Document and Anon. 1996

Forest Service Document	Anon. 1996 Report	Current study
<p>1. The Forest Service system requires a close working relationship with the forest fringe communities, as well as the resource users.(local communities)</p>	<p>Collaboration can take place in many different contexts. On reserve collaboration can take place during operational planning and in the management of protected areas, production areas, degraded areas and with regards to timber and NTFPs.</p>	<p>This study reveals that local communities are interested in working closely with the Forest Service and other resource users as partners to manage the forest effectively and efficiently..</p>
<p>2. It will also maintain community support programs in the southern Savannah regions in order to assist local governments to develop capacities to absorb these roles.</p>		<p>Local communities in the High Forest Zone of Ghana also need community support programs in the form of Forestry based enterprises that will encourage them to have a closer working relationship with the Forest Service.</p>
<p>3. The Forest Service will prepare management plans for forest reserves in collaboration with the resource owning communities. Communities may be involved in boundary maintenance and other operations.</p>	<p>Collaboration can take any form depending on the objectives of forest management. Contracts can be developed for local management of NTFPs, rehabilitation, fire control, boundary maintenance, management of patches of natural forest, protection.</p>	<p>Local communities emphasized the need to be consulted in the planning and decision making process for forest management, especially on issues that will affect their livelihood and dependence on the forest. Communities are interested in participating in boundary maintenance, fire protection, planning process, forest rehabilitation, plantation establishment, monitoring and reporting illegal activities and NTFP management.</p>
<p>4. The Forest Service will re-establish domestic use rights for resource owning communities and ensure they receive a fair share of forest revenues and benefits in a timely sustainable manner, as well as consulting in adoption of reserve management plans</p>	<p>Benefits due by rights are a share of revenue, customary right to forest products, and the right to be consulted. These rights have existed since the creation of the reserves but have eroded over the years.</p>	<p>Local communities propose that there should be incentives to encourage them to perform activities, (e.g. wages for work done, access to collect NTFPs, other social and economic incentives mentioned in the study by each social group that participated.</p>

1996. For example, (a). **Women** in the communities are interested in the management of NTFPs while the **Men** are most interested in the management of timber at all levels and (b) Communities are interested in participating at every stage in plantation establishment or the rehabilitation process, even to harvesting the final crops.

2. Local communities emphasized the role forest based enterprises and community support programs can play as income generation sources to improve their livelihood. The **Men** mentioned that the government should establish an *akpeteshi* distilling facility in the community to provide alternative sources of income especially during the dry season when there is less work on their farms. The women also mentioned that a similar enterprise for processing NTFPs can benefit them greatly.

3. Collaboration and consultation should not be limited to the Chief and Elders but to every person in the community who will be affected by the decision or issues at stake so that their views are respected. Individuals demonstrated their diversity of interests. **Migrants** and the **Women** were interested in participating in the forest management planning process on specific issues, and they feel they can contribute significantly if invited to participate. a). Interest in participation depends on the social status of the individual such as gender, age and social origin. **Migrants** were interested in boundary cleaning more than **Indigenous** people while the **Juniors** were interested in forest rehabilitation more than the **Seniors**. Chief and Elders, in the **Seniors** group, were interested in the planning

process, while **Migrants** were not so concerned whether they participate or not.

(b). Participation in forest management activities should be given as a contract to a group and individuals in the communities and this contract can be terminated as soon as the specified activity is done. For example, a contract for boundary cleaning can be terminated until the boundaries need to be cleaned again.

4. Besides identifying the activities in which local communities wanted to participate, this study further identified the way local communities want to be organized in performing specific activities (e.g. as groups or individuals)..

Women preferred to participate in groups, while **Men** and specifically the **Migrants**, preferred to participate as individuals. While **Indigenous** people and especially the **Women** were interested in social incentives such as schools, access roads, good drinking water, etc., most of the **Men** were interested in economic incentives such as payment for work done, a share in the final product of trees planted in the forest, etc. Furthermore, the study identified the incentives desired to encourage local participation Contrary to the Anonymous (1996) that stated that the most important incentive is to increase the revenues; the current study reveals that there are other incentives especially to individual persons, which are more important than revenue such as paying individual wages for participation in forest management activities.

6.2. RECOMMENDATIONS

Based on the results of the study and the comparative conclusions above, the following recommendations are made:

- Local communities are interested in participating in the management of the forest reserves and the resources contained therein by performing different tasks and activities depending on social differences such as age, gender and social origin. It is therefore possible to involve the people in the management of the forest to achieve sustainable results by creating a healthy working partnership as suggested in the Forest Service document. To achieve the best results however, the current study reveals that the social differences in the communities must be taken into consideration as interest in participation is quite varied. If this is done, the local communities will feel comfortable and not compelled to do what they don't want to do. The Forest Service will also benefit as they will know who in the community wants to perform a particular task.
- The Forest Service has a duty to ensure that the forests are managed well for the benefit of all, especially the local communities. Some communities were prepared to contribute to the management of the reserves and the Forest Service can therefore collaborate with these communities to undertake such activities as are needed.
- As suggested by the local communities, the Forest Service can grant them a contract to perform these activities instead of having permanent staff who are

paid every month to perform the same activities when they can be done within a few days by the local communities. It is therefore recommended that the Forest Service contract with the local communities for performing forest management activities within specific time periods.

- With the appropriate incentives, the Forest Service can negotiate for forest management labor. Examples of some activities as revealed from this current study are fire protection, boundary cleaning and forest rehabilitation by the **Men**, and NTFP management by the **Women**. Local communities have local knowledge and experience through their day-to-day activities with and in the forest and from years of “Elder knowledge” passed on from generation to generation. They are prepared to share this knowledge with the Forest Service in order to achieve sustainable forests. By identifying specific areas of interest in the community, the most appropriate persons can be involved during the forest management planning and decision making process and the Forest Service can integrate this local knowledge with the published scientific information to enhance the understanding of best practices for managing the forests.
- Before involving local communities in the management of the forest, the Forest Service and other stakeholders must identify the motivation factors that will enhance effective and efficient management of the forest. Local communities should be encouraged to choose which management activities they would like to perform and whether the activities will be by group or as

individuals. By identifying which incentives are of interest to the local communities with regards to social differences the Forest Service will not continue to assume what the communities need. The Forest Service can also negotiate the incentives needed with the local communities.

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APPENDIX 1 : QUESTIONNAIRES FOR INTERVIEWS

Demographic Distribution

1. Name of respondent
2. Name of community.....
3. Location of community.....
4. Year of settlement
5. History of settlement
6. Number of household
7. Population , Men.....Women..... Children.....
8. Number of people in the household.....
9. Distance from the forest.....
10. Age 1. 18-35 2. 36 and over.....
11. Sex 1. Male2. Female.....

Livelihoods

12. Forestry related activities that bring economic benefit to individuals and groups or institutions within the community

activities	seasonal	year round

13. Does the income from this activity serve as a main or supplementary source of income?
14. Main occupation and main source of income.
15. If a farmer what types of cash crops do you produce?
16. Occupations other than main occupation for men and women 1. Hunter 2. Sponge processor 3. Basket weaving.....4. Palmwine tapping..... 5. NTFP gatherer.....6. Other
18. Compare income generated from main occupation to other source and state which one is more important to you?

Occupation type	Income generated

19. Education level.....

20. Main activities during off farm season for men and women

Men	Income	Women	Income

Land tenure

21. Land acquisition

1. Family right2. Share cropping3. Hiring
 4. Renting5. Outright purchase 6. Other, specify

22. If family right how did you acquire it from the family ? 1. through husband 2. As a gift from a family member 3. Other please specify

23. Number of farms.....

24. Size of farm land

25. Resident status 1. Indigents.....2. Migrant

26. Are there people with admitted farms? Yes.....No.....

Involvement And Incentives from forest management activities in the past

27. Describe briefly your relationship with the Forestry Department

28. Have you noticed any changes in the state of the forest reserve

29. Do you have access to the forest 1. Yes.....2. No

Type of access	men	women

30. What kind of benefit or incentive have you received from forest management as

	Men	Women
Indigents		
Migrant		

31. Do you still enjoy these benefits? 1. Yes.....2. No

32. Have you or any member of your family been invited by the Forest Service to undertake any forest management activities in the past? 1. Yes.....2. No

33. If yes , which forest management activities were you involved in?

1. Forest rehabilitation. 2. Forest Boundary cleaning.....3. fire Protection.....
 4. Planning and decision making..... 5. Other, please specify

34. Did the Forest Service invite you to undertake this activities or it was by you own initiative

1. Invited by the F D2. Own initiative.....3. Other, please specify.....

35. If it was by your own initiative, why did you do it?

36. How often have you done this?

37. Did you inform the Forest Service about it? YesNo

38. Did you do it alone or with other members of the community?.....

39. How did you benefit by undertaking this activity?

40. How did the FS contact you to perform these activities?

41. What kind of incentive or benefit did you receive through your involvement

1. Economic Specify2. Social Specify 3. Other Specify

42. Do you think this incentives are sustainable? Explain

43. Did you agree on the incentive package or it was decided by the FS without your consent

Future Involvement and incentives

44. What would you have proposed if you were to decide on an incentive package for specific activities?

45. Would you be interested if the FS invites you to undertake these activities? 1. Yes
2. No.....

46. What role will social and economic incentives play in community participation in forest management?

Type of incentive	Role of incentive(s) in community

47. What role will social and economic incentives play with women and men participation in forest management ? Please specify and rank in order of importance

Types of incentives in order of importance	Men	Women

48. Which aspect of forest management activities do you want to undertake or be involved in?

1. Forest rehabilitation 2. Forest boundary maintenance..... 3. Forest planning and decision making4. Protection against fire.....5. Others

specify.....

49. Considering your daily activities, do you think you will have enough time if the Forestry Department engages you to undertake some of its management activities?

1. Yes2 No..... 50. If No, Why?

51. If Yes how?

52. When do you think will be the most favorable season for you to undertake these management activities? 1. Farming season.....2. off farming season 5. Other Specify

53. When is the most feasible days for the FD to consult you on forest management activities? 1. Taboo days ...2. Market day...Communal labor days.... 4. other days please specify.....

Workshop Discussions

Purpose of the study and the need for the workshop.

1. Assess the potential for community participation in forest management.
2. Determine areas of forest management communities would like to participate
3. Determine who should be involved in forest management planning and decision making including other aspects of forest management practices.
4. Determine and identify the incentives that will motivate communities to participate in forest management.
5. Briefly describe and discuss the current management system and the need for community involvement in forest management .
6. Discuss the present condition of the forest

Group discussion

Group 1 Women:

Group 2: Migrants

Group 3 :Men

Group 4: Indigenous people (chief elders Unit committee members)

Issues to be discussed in groups

1. Identify what we obtain from the forest now and in the past (benefits)
2. What we have done to help the Forest Service protect the forest
3. What we can do to help the Forest Service manage the forest.

4. How can we participate in forest management

5. What incentives do we need participate in forest management.

Discuss methods by which local communities can be consulted in relation to forest management issues.

APPENDIX 2 Chi-Squared Analysis

1. CHI-SQUARE ANALYSIS FOR ACCESS BY AGE AND SOCIAL ORIGIN.

Contingency Table For Access to Forest by Age

	Age			Totals
	Seniors	juniors	No response	Row totals
1 (Yes)	9 (20.4)	26 (15.6)	19 (18.0)	54
2 (No)	8 (4.9)	0 (3.8)	5 (4.3)	13
3 (No Resp.)	17 (8.7)	0 (6.6)	6 (7.7)	23
Column Totals	34	26	30	90

Test statistic value = 34.11690

Chi-square value = 9.488

Degrees of freedom = 4

Therefore using $\alpha = 0.5$ there is a statistically significant difference in access with age.

	Gender		Row Totals
	Men	Women	
Yes	37 (37.4)	14 (13.6)	51
No	7 (8.8)	5 (3.2)	12
No Response	22 (19.8)	5 (7.2)	27
Column Totals	66	24	90

Test Statistic Value = 2.3134

Chi-squared value = 7.81473

Degrees of freedom = 2

Since test statistic value is less than chi-squared value there is no statistically significant difference in access by gender.

Contingency Table for Access to Forest by Social origin

	Social Origin		No response	Row totals
	Indigenous	Migrants		
yes 1	35 (30.6)	19 (18.6)	0 (4.8)	54
No 2	10 (7.4)	3 (4.5)	0 9(1.2)	13
No response 3	6 (13.0)	9 (7.9)	8 (2.0)	23
Column Totals	51	31	8	90

Test statistic value = 29.31677

degrees of freedom = 4

Critical value of the chi-square = 9.48773.

Since the test statistic value is greater than the chi-squared value there is a statistically significant difference in access according to the social origin of the individual.

2. CHI-SQUARED ANALYSIS FOR PARTICIPATION BY AGE, GENDER AND SOCIAL

ORIGIN

Contingency Table for Participation In Forest Management by Age

Activity	Juniors	Seniors	No response	row total
Forest Rehabilitation	1 (0.3)	0 (0.4)	0 (0.3)	1
Boundary Cleaning	2 (2.5)	6 (4.5)	4 (4.0)	12
Fire Protection	9 (7.8)	6 (10.2)	12 (9.0)	27
Planning	0 (0.6)	2 (0.8)	0 (0.7)	2
rehabilitation / boundary	0 (0.3)	0 (0.4)	1 (0.3)	1
no Response	5 (9)	16 (11.7)	10 (10.3)	31
boundary/ fire protection	8 (4.3)	4 (5.7)	3 (5.0)	15
fire / planning	1 (0.3)	0 (0.4)	0 (0.3)	1
Column totals	26	34	30	90

Test Statistics = 21.94757

Chi-squared Value = 23.6848

Degrees of freedom = 14

The number of responses in each cell produces the ability to get statistically significant result

Contingency Table for Participation in forest Management by Gender

Forest Management activity	Men	Women	Row Totals
Forest Rehabilitation	1 (0.7)	0 (0.3)	1
Boundary Cleaning	8 (8.8)	4 (3.2)	12
Fire Protection	21 (19.8)	6 (7.2)	27
Planning	2 (1.5)	0 (0.5)	2
Rehabilitation / boundary	0 (0.7)	1 (0.3)	1
No Response	22 (22.7)	9 (8.3)	31
Boundary/ fire protection	11 (11)	4 (4)	15
Fire / planning	1 (0.7)	0 (0.3)	1
Column totals	66	24	90

Test Statistic Value = 4.8887

Chi-squared Value = 14.0671

Degrees of Freedom = 7

Since the chi-squared value is greater than the test statistics value at 7 degrees of freedom there is no statistical significant difference for participation by gender.

Contingency Table for Participation in Forest Management by Social origin

Forest Management activity	Indigenous	Migrants	No Response	Row Totals
Forest Rehabilitation	1 (0.6)	0 (0.3)	0 (0.1)	1
Boundary Cleaning	4 (6.8)	8 (4.1)	0 (1.1)	12
Fire Protection	17 (15.3)	10 (9.3)	0 (2.4)	27
Planning	2 (1.1)	0 (0.7)	0 (0.2)	2
rehabilitation / boundary	1 (0.6)	0 (0.3)	0 (0.1)	1
no Response	16 (17.6)	7 (10.7)	8 (2.8)	31
boundary/ fire protection	9 (8.5)	6 (5.2)	0 (1.3)	15
fire / planning	1 (0.6)	0 (0.3)	0 (0.1)	1
Column totals	51	31	8	90

Test Statistic Value = 25.1869

Critical Value of Chi-squared = 23.6848

Degrees of Freedom = 14

Since the test statistic value is greater than the chi-squared value there is a significant difference between participation in forest management and the social origin of each individual

3. CHI-SQUARE ANALYSIS FOR INTEREST IN FOREST MANAGEMENT ACTIVITIES BY AGE, GENDER AND SOCIAL ORIGIN

Contingency Table for Interest In forest management Activities by Age

Forest Management Activities	Juniors	Seniors	No Response	Row Totals
Forest Rehabilitation	5 (6.1)	11 (7.9)	5 (7)	21
Boundary Cleaning	6 (4.3)	2 (5.7)	7 (5.0)	15
Planning	0 (1.2)	3 (1.5)	1 (1.3)	4
Fire Protection	5(2.6)	4 (3.4)	0 (3.0)	9
Other	0 (0.3)	1 (0.4)	0 (0.3)	1
Rehabilitation / boundary 1&2	1 (2.6)	5 (3.4)	3 (3.3)	9
No Response	1 (3.5)	4 (4.5)	7 (4.0)	13
Boundary and fire protection 2&3	1 (0.3)	0 (0.4)	0 (0.3)	1
Boundary and fire 2&4	5 (2.9)	0 (3.8)	5 (3.3)	10
Planning and fire 3&4	1 (0.3)	0 (0.4)	0 (0.3)	1
Rehab/ boundary/ planning	0 (0.3)	0 90.4)	0 (0.3)	1
Rehab/ boundary/fire	1 (0.9)	1 (1.1)	1 (1.0)	3
Rehab/boundary/planning/fire	0 (0.9)	3 (1.1)	0 (1.0)	3
Column Totals	26	34	30	90

Test Statistics Value = 39.2919

Critical Value of Chi-squared = 36.4151

Degrees of freedom = 24

Since the test statistic value is greater than the chi-square value, there is a statistically significant difference in interest in forest management activities by age.

Contingency table for interest in forest management activities by gender

Forest Management Activities	Men	Women	Row Totals
Forest Rehabilitation	13 (15.4)	8 (5.6)	21
Boundary Cleaning	15 (11)	0 (4.0)	15
Planning	4 (2.9)	0 (1.1)	4
Fire Protection	6 (6.6)	3 (2.4)	9
Other	0 (0.7)	1 (0.3)	1
Rehabilitation / boundary 1&2	3 (6.6)	6 (2.4)	9
No Response	9 (8.8)	3 (3.2)	12
Boundary and fire protection 2&3	1 (0.7)	0 (0.3)	1
Boundary and fire 2&4	10 (7.3)	0 (2.7)	10
Planning and fire 3&4	0 (0.7)	1 (0.3)	1
Rehab/ boundary/ planning	1 (0.7)	0 (0.3)	1
Rehab/ boundary/fire	2 (2.2)	1 (0.8)	3
Rehab/boundary/planning/fire	2 (2.2)	1 (0.8)	3
Column Totals	66	24	90

Test Statistic Value = 25.8969

Chi-squared Value = 21.0261

Degrees of freedom = 12

Since the test statistic value is greater than the chi-squared value, there is a statistically significant difference in interest in forest management activities by gender.

Contingency Table for Interest In Forest Management by Social Origin.

Forest Management Activities	Indigenous	Migrants	No Response	Row Totals
Forest Rehabilitation	12 (11.9)	8 (7.2)	1 (1.9)	21
Boundary Cleaning	8 (8.5)	7 (5.2)	0 (1.3)	15
Planning	4 (2.3)	0 (1.4)	0 (0.4)	4
Fire Protection	4 (5.1)	5 (3.1)	0 (0.8)	9
Other	0 (0.6)	1 (0.3)	0 (0.1)	1
Rehabilitation / boundary 1&2	7 (5.1)	2 (3.1)	0 (0.8)	9
No Response	3 (6.8)	2 (4.1)	7 (1.1)	12
Boundary / fire protection 2&3	1 (0.6)	0 (0.3)	0 (0.1)	1
Boundary and fire 2&4	6 (5.7)	4 (3.4)	0 (0.9)	10
Planning and fire 3&4	1 (0.6)	0 (0.3)	0 (0.1)	1
Rehab/ boundary/ planning	1 (0.6)	0 (0.3)	0 (0.1)	1
Rehab/ boundary/fire	3 (1.7)	0 (1.0)	0 (0.3)	3
Rehab/boundary/planning/fire	1 (1.7)	2 (1.0)	0 (0.3)	3
Column Totals	51	31	8	90

Test Statistic Value = 54.8341

Critical Value of chi-squared = 36.4151

Degrees of freedom = 24

This means that interest in Forest management statistically varies by the type of forest management activities and depends on the social origin of the individual.