

# **Conservation and Natural Resource Management in the Ankasa Resource Reserve, Ghana**

by

Grace Akosua A. Bandoh

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## **Author's Declaration**

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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## **Abstract**

Community-based natural resource management has been introduced in Ghana as an instrument to assist nature conservation and natural resource management, as opposed to the fences and fines approach of the protectionist model. The purpose of this study was to examine the extent of natural resource exploitation by the local communities in and around the Ankasa Resource Reserve after the introduction of the Amokwawsuazo Community Resource Management (ACREMA) programme. Particularly, the study sought to understand whether the implementation of ACREMA has helped to achieve nature conservation and natural resource management inside and outside the Reserve. The specific study objectives were as follows. First, the study seeks to assess the socio-demographic characteristics and economic activities of ACREMA community members. Second, the impact of ACREMA community members' activities on natural resources of the Reserve was assessed. Third, the extent of natural resource exploitation after ACREMA was evaluated. Fourth, examine the measures undertaken to minimise natural resource exploitation in the Ankasa Resource Reserve after ACREMA was introduced. Fifth, the research assessed the ACREMA community members' willingness to support nature conservation and other alternative livelihood programmes such as tourism. Finally, the research sought to provide guidelines and recommendations for policy makers, park management and other parties interested in the implementation of any development project in the Ankasa region.

The study was justified because very little has been documented about the effectiveness of this approach in promoting nature conservation in Africa. Therefore, this study could contribute to understanding of the effectiveness of community-based resource management programmes in achieving nature conservation in Ghana.

In order to achieve the objectives set, the study developed a conceptual framework based on social exchange theory. Social exchange theory conceptualises human behaviour as an exchange of goods and services, both tangible and intangible, and based on rewards for services rendered. The study combined both quantitative and qualitative research techniques. Hence, the main modes of data capture were survey, focus group interviews and in-depth interview. While

quantitative data was analysed using SPSS version 14, qualitative data obtained were transcribed and analysed according to emerging themes.

The results showed that natural resource exploitation declined following the introduction of ACREMA. This was as a result of the more effective collaboration and partnership developed between park management and local community members. Where exploitation existed, the study showed that this was primarily due to poverty and a lack of alternative resources. Secondly, the research demonstrated that ACREMA community members were willing to support nature conservation and as a result have undertaken several measures to minimise natural resource exploitation within the Ankasa region. The high level of enthusiasm to support nature conservation and tourism development was largely attributed to benefits already received for undertaken conservation measures as well as benefits perceived to result from the development of tourism in the future. Due to lack of alternative livelihoods, household heads also expressed interest in providing tourism-related services such as accommodation, catering services, working as drivers and tour guides if and when tourism becomes available in the region.

This case study confirms that community-based natural resource management has been successful in achieving nature conservation and natural resource management in the Ankasa Resource Reserve and area.

The study also provided several policy implications and pointed out areas for further study.

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The usual disclaimer applies.

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## **List of Abbreviations**

<b>ACREMA</b>	Amokwawsuazo Community Resource Management Area
<b>ARR</b>	Ankasa Resource Reserve
<b>CAMPFIRE</b>	Communal Areas Management Programme for Indigenous Resource
<b>CBNRM</b>	Community-Based Natural Resource Management
<b>CBOs</b>	Community-Based Organisations
<b>ERP</b>	Economic Recovery Programme
<b>FCG</b>	Forestry Commission of Ghana
<b>GEF</b>	Global Environment Facility
<b>GWD</b>	Ghana Wildlife Division
<b>GWDP</b>	Ghana Wildlife Development Plan
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources
<b>NDC</b>	National Democratic Congress
<b>NGOs</b>	Non-Governmental Organisations
<b>NPP</b>	National Patriotic Party
<b>NTDP</b>	National Tourism Development Plan
<b>PA</b>	Protected Area
<b>PADP</b>	Protected Area Development Programme
<b>PAMWCP</b>	Protected Areas Management and Wildlife Conservation Project
<b>PAs</b>	Protected Areas
<b>PDNC</b>	Provisional National Defence Council
<b>SAP</b>	Structural Adjustment Programme
<b>SMFC</b>	Supreme Military Force Council
<b>UNDP</b>	United Nations Development Programme
<b>UNESCO</b>	United Nations Education, Science and Culture Organisation
<b>WTO</b>	World Tourism Organization
<b>WWF</b>	World Wildlife Fund

# Chapter One

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## General Background Information

### 1.0 Introduction

In recent times, natural resource exploitation in national parks and nature reserves has been a major concern to many governments, especially those in sub-Saharan Africa. In rural Africa, most local communities live in close interaction with the environment and the type of rural livelihood is dependent on the location. For instance, local communities located along the coast are mostly fishermen, while those found within forest areas or along their fringes are predominantly farmers.

The impact of local communities on the environment in Africa in the 17<sup>th</sup> and 18<sup>th</sup> centuries was negligible as human populations were low and natural resources abundant. For example, vast populations of large wildlife roamed the plains of Africa while tropical forests were densely populated with diverse biological species. Today, this condition no longer holds as the human population has vastly increased. The impact of human activities on the environment has reduced these natural resources to such levels that active conservation is needed (Gordon, Hester, & Festa-Bianchet, 2004).

Of particular concern is the rapid destruction of the world's forests, especially the species-rich tropical forests, through such activities as the expansion of commercial logging, cattle ranching and agriculture (Crook & Clapp, 1998). In order to slow this forest loss,

conservation actions must be taken to protect biodiversity, beyond just saving flagship species (Rozdilsky, Chave, Levin, & Tilman, 2001).

Tropical deforestation and the associated economic, ecological, political and social issues have become a matter of general interest and concern for scholars, national and international governments, international conservation and environmental organisations, as well as local pressure groups. One of the ways to preserve the forest environment is to establish protected areas (PAs). Protected areas are recognised as the single most important method of conserving wildlife and preserving biological diversity (Johannesen & Skonhoft, 2005). According to the International Union for the Conservation of Nature and Natural Resources (IUCN) and renowned tourism scholars, a protected area (PA) has long been defined as “an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural artefact, and managed through legal or other effective means” (IUCN, 1994; Eagles, McCool, & Haynes, 2002; Hockings, 2003). This definition was modified recently. This modification occurred during the IUCN categories summit held in Almeria, Spain from the 7<sup>th</sup> - 11<sup>th</sup> of May 2007. At the summit, a protected area was defined as “a specifically delineated area designated and managed to achieve the conservation of nature and the maintenance of associated ecosystem services and cultural values through legal or other effective means” (IUCN, 2007). According to the new definition, by referring to a “specifically delineated area” rather than “an area of land and/or sea” removes the problem of lack of reference to freshwater. Also, replacing “biological diversity and of natural and associated cultural resources” with “nature and the maintenance of associated ecosystem services and cultural values” is more inclusive of natural values such as geodiversity, natural processes and environmental services that were perceived to

be missing from the past definition. This definition therefore puts emphasis on nature conservation as the principal defining feature of protected areas.

With increasing concern about biodiversity and nature conservation locally and internationally, several countries signed agreements, created protected areas, passed conservation laws and established institutions targeted at specific plant or animal species designated as having international or national importance to address the problem of natural resource exploitation. In spite of this, studies have shown that some protected areas continue to experience heavy exploitation of their natural resources; both wild animals and wild plants (Bawa & Seidler, 1998; Steinmetz, Chutipong, & Seuaturien, 2006). This may be due to the fact that most conservation laws and designations of protected areas, such as national parks and wildlife sanctuaries in developing countries, followed the 'preservation-oriented' approach, which advocated centralised-regulatory control and the exclusion of local people (Mehta & Kellert, 1998).

The protectionist model, which some consider to have begun with the Yellowstone National Park in 1872, spread to other parts of the world including Ghana. The protectionist or exclusionist model considered human settlements or local communities within PAs a menace to the success of natural resource conservation and hence all such forms of human settlements were removed from lands designated as national parks or reserves. As a result, many displaced local communities lived in proximity to boundaries of parks and reserves and persistently exploited the natural resources within and near these areas. Thus, during the 1992 United Nations Conference on Environment and Development held in Rio de Janeiro, it was recognised and affirmed that local communities play a pivotal role in securing natural resources and that any long-term conservation strategy requires their involvement (Brandon, 2001).

As a result, many environmental conservation groups attest to a paradigm shift in nature conservation, away from exclusive protected areas towards a more people-centred approach or community-based conservation (Brown, 2003). Put differently, effective conservation of wild animal and plant species both inside and outside reserves demands the cooperation of the local communities surrounding protected areas. Therefore, the search for solutions to resource decline in some protected areas has focused on various forms of natural resource management programmes. Examples of methods marshalled to conserve the environment and its natural resources include: extractive reserves, where people harvest wildlife resources from semi protected areas; protected-area outreach, where people living adjacent to protected areas are offered compensation for foregoing the use of natural resources; and ecotourism where the government and/or local communities benefit financially from tourism in protected areas. Other conservation methods incorporate integrated conservation and development projects, built on the premise that conservation cannot occur without local development and co-management schemes, in which local communities and government authorities share responsibility for the design and implementation of conservation strategy and community-based protected areas (Mulder, Caro, & Msago, 2007). All of these conservation activities or programmes take place both within and outside existing protected areas.

Of all the conservation activities operating in protected areas worldwide, nature-based tourism, and in particular, ecotourism reigns supreme for two major reasons. First, tourism or ecotourism is seen as a conservation tool having the power to preserve the world's natural resources (Garrod, 2003). Secondly, it is recognised as a catalyst for socio-economic change (Kim & Pennington-Gray, 2003) offering significant opportunities for employment creation and local economic development (Roe, Goodwin, & Ashley, 2002). The convention on biological

diversity encourages national governments to adopt economically and socially-sound measures, for example tourism development in PAs, to provide incentives to local people in return for their support towards conservation (Walpole & Goodwin, 2001).

The provision of incentives to local community members in exchange for their support and involvement in nature conservation and tourism development brings social exchange theory into the discussion. The research on social exchange has its historical roots in the works of Homans, Blau, Thibaut, Kelley and Emerson with each social scientist presenting unique contributions to social exchange theory. This theory is primarily concerned with social behaviour. Simply put, the theory tries to analyse why people behave in the way they do in a given situation (Homans, 1961; Thibaut & Kelley, 1961; Blau, 1964). Likewise, an understanding of the social behaviour of the local community members living adjacent to a protected area and their relation to the reserve in terms of natural resource exploitation, resource management measures and their willingness to support tourism development will contribute to shedding light on the status of nature conservation and resource management inside and outside nature reserves.

Like many developing countries, Ghana has adopted a community-based conservation approach in recent years to manage its protected areas. Under the Community Resource Management Area (CREMA) programme, the national government devolved some legal authority to local-level institutions to manage local resources. One such institution is the Amokwawsuazo Community Resource Management Area (ACREMA) programme introduced in the Ankasa Resource Reserve. The Ankasa Resource Reserve is a tropical wetland reserve in the south-western region of Ghana. ACREMA is a community-based natural resource management

programme operating in the Ankasa Resource Reserve. Ankasa is the study area for this research and ACREMA is the community-based conservation approach assessed for this research.

In addition to the introduction of community-based natural resource management approaches, local development has also been a priority of the government. As a result, the government of Ghana also promotes tourism in the resource reserves and national parks across the country.

## **1.2 Problem Statement**

Most of the national parks and resource reserves in Ghana were established during the 1960s and 1970s to protect Ghana's various ecological communities. Since their establishment, management programmes were directed at maintaining protected areas in a natural, undisturbed state by following the protectionist model, of which the Ankasa Resource Reserve (ARR) is an example. Despite this measure, natural resource exploitation continued inside the ARR.

Frustrated and unable to effectively manage the reserve due to lack of funds and inadequate human resource capacity, the management team at the Ankasa Resource Reserve moved away from the protectionist model by introducing a community-based approach to nature conservation and natural resource management on the reserve.

However, the current state of natural resources inside and outside the Ankasa Resource Reserve following the introduction of the Amokwawusuazo Community Resource Management Area (ACREMA) programme has not been studied. It is not clear whether the new program has been successful in creating a supportive local community and in reducing exploitation of reserve resources. It is therefore important to know whether the introduction of the ACREMA

programme has affected the behaviour of the ACREMA community members and their exploitation of natural resources from inside and outside the ARR, their willingness to undertake nature conservation measures and their willingness to support tourism development in the area. In other words, has the introduction of the Amokwawsuazo Community Resource Management Area programme minimised natural resource exploitation inside and outside the Ankasa Resource Reserve, motivated local community members to adopt natural resource management measures outside the Reserve, and encouraged the ACREMA community members to support tourism development in the area?

### **1.3 Research Goal**

The goal of this study was to assess the extent of natural resource exploitation inside and outside the Ankasa Resource Reserve, under the operation of the ACREMA programme. This assessment was done by examining the level of local community members' dependence on natural resources from inside and outside the ARR. The study also investigated the types of conservation measures undertaken by the ACREMA community members with the intention of minimising natural resource exploitation in the area. Additionally, the study sought to understand the impact of the ACREMA community members' socio-economic activities, demographic characteristics and local institutional arrangements on the Ankasa Resource Reserve. Finally, the study analysed the ACREMA community members' understanding of the concept of tourism and their willingness to support tourism development in the Ankasa Resource Reserve.

## **1.4 Research Objectives**

To effectively comment on the success or failure of the ACREMA programme in achieving nature conservation and natural resource management inside and outside the ARR, the study sought to meet the following research objectives:

1. Assess the socio-demographic characteristics and economic activities of the ACREMA community members
2. Assess the ACREMA community members' impact on natural resources inside and outside the Ankasa Resource Reserve before and after the ACREMA programme was introduced.
3. Evaluate the extent of natural resource exploitation inside and outside the Ankasa Resource Reserve following the introduction of the ACREMA programme.
4. Examine the measures undertaken by park management and the ACREMA community members to minimise natural resource exploitation in the Ankasa Resource Reserve after ACREMA was introduced.
5. Understand ACREMA community members' willingness to support nature conservation and other alternative livelihood programmes such as tourism.
6. Provide guidelines and recommendations for policy makers, park management and other parties in the implementation of any development project in the Ankasa region based on the study findings.

## 1.5 Research Questions

Following the research objectives, seven research questions were developed to more fully explore those objectives. These seven questions are listed below.

1. What are the socio-demographic characteristics and economic activities of the ACREMA community members?
2. Do the socio-demographic characteristics and economic activities of the ACREMA community members' impact the Ankasa Resource Reserve?
3. Is natural resource exploitation occurring inside and outside the Ankasa Resource Reserve after the introduction of the ACREMA programme?
4. What types of natural resources are exploited inside and outside the Ankasa Resource Reserve following the introduction of the ACREMA programme?
5. What measures have park management and the ACREMA community members put in place to minimise natural resource exploitation inside and outside the Ankasa Resource Reserve?
6. Are the ACREMA community members willing to support nature conservation and tourism?
7. Why are the ACREMA community members willing to support nature conservation and tourism?

## **1.6 Justification and Rationale of the Study**

The justifications of this study centres on four important areas. First, the study seeks to apply social exchange theory to an arena of study different than the experimental and simulation arenas for which it is better known. The application of social exchange theory to a real life situation, such as this study, may help explain the social behaviour of the research subjects.

Secondly, community-based natural resource management programmes, known in different countries and under unique names, have been introduced worldwide as one means of preserving the world's natural resources for the present and future generations. However, with the exception of the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) programme in Zimbabwe, very little has been documented about the effectiveness and/or ineffectiveness of this approach in promoting nature conservation in Africa (Murphree, 2004). It is therefore worthwhile to examine the effectiveness of the Amokwawsuazo Community Resource Management Area in Ghana in relation to natural resource exploitation and resource management in the Ankasa Resource Reserve. Given that no such study has been done since the inception of the ACREMA programme in the Ankasa Resource Reserve, undertaking this study would contribute to our understanding of the effectiveness of community-based resource management programmes in achieving nature conservation in Ghana. The findings of the study may allow for knowledge sharing and proper comparison between and among countries with such programmes already in place.

Thirdly, a clarion call has been sounded for the adoption and introduction of tourism and, in particular, ecotourism in protected areas worldwide (Drumm & Moore, 2002; Fuller, Buultjens, & Cumming, 2005; Gossling, 1999). Ghana has responded to this call and has joined the movement. This call has been made because tourism has been recognized as a tool for nature

conservation and local economic development. The success of such development projects depends largely on the support of local community members. A major component of this study therefore is to examine local community members' willingness to support tourism development by exploring their (local community members') interest in specific tourism-related jobs.

Appreciating the roles local community members desire to undertake will assist park managers and other stakeholders to effectively plan for tourism development with the needs of the local community members in mind.

Lastly, the study seeks to contribute to the literature on natural resource exploitation, nature conservation, tourism, and social exchange theory.

## **1.7 Overview of the Research Design and Methodology**

This study adopted a mixed method research design. Attention was given to both quantitative and qualitative techniques. Research methods included the use of a questionnaire for the quantitative research design. Methods were utilised under the qualitative research design comprised reviews of published and unpublished documents on the Ankasa Resource Reserve, focus group interviews with five local men and seven local women, informal in-depth interview with the wildlife officer and overt participant observation. The case study for this research is the Ankasa Resource Reserve. The sample for the study was drawn from the target population of eight local communities, also known as the ACREMA communities. The study design took into consideration the fact that the majority of the population is illiterate and made up of people who may, for some reason, not feel disposed to fill in a survey questionnaire themselves. Thus, the administration of the questionnaire took the form of face-to-face interviews, as opposed to self-

administration. Quantitative data were analysed using Statistical Package for the Social Sciences (SPSS 14), while the qualitative data were transcribed and manually analysed according to themes.

## **1.8 Overview of the Study**

The thesis has eight main chapters which can be summarised as follows. Chapter 1 presents a brief introduction to the main issues underlying this thesis, provides the research goal and objectives, justification for this research, and outlines the research methodology.

Chapter 2 gives an account of the political and economic situation in Ghana. The chapter also discusses Ghana's natural resources, protected area management, and tourism development in the country. Additionally, a brief account of the study area is also presented.

Chapter 3 presents the relevant literature review. The review consists of studies on natural resource exploitation, causes of natural resource exploitation, and drivers of successful community-based natural resource management. The review depicts the existence of wide-ranging natural resource exploitation. The review also shows that most of the studies done on willingness to support tourism were mainly empirical in nature, often lacked a theoretical foundation and such studies primarily focused on developed countries. The lack of mixed methods and the absence of a theoretical underpinning were found to be inadequate in understanding the actual mechanisms of nature conservation. To this effect, the current study proposes an alternative approach using both quantitative and qualitative research designs as well as social exchange theory.

Chapter 4 presents a detailed discussion of social exchange theory. A conceptual framework to guide the study is developed. Descriptions of concepts in the framework for the study are outlined and elucidated. The research design and methodology are also presented in the Chapter 4.

Chapter 5 presents an analysis of household survey data beginning with an analysis of respondents' socio-demographic characteristics and economic activities. The analysis continues by examining the extent of natural resource exploitation within the Reserve. The extent of natural resource exploitation is measured first by looking at the exploitation of wildlife species followed by the exploitation of non-timber forest products. Exploitation of natural resources by location is also examined.

Chapter 6 examines respondents' support for nature conservation. Second, the chapter presents a discussion of willingness to support nature conservation from the perspective of tourism development. Finally, the chapter concludes by discussing the role of ACREMA community members in tourism development.

Chapter 7 presents an analysis of qualitative data on the state of natural resources prior to and after the establishment of ACREMA and role of community members in natural resource management. Qualitative data was captured mainly through focus group interviews with five local men and seven local women and informal in-depth interview with the wildlife officer. The analysis was complemented and enriched by review of written documents on the Reserve and overt participant observation.

Chapter 8 wraps up the study with summary, conclusions and recommendations for policy makers. The chapter is organised into six sections. First, the chapter provides a summary of the study's purpose i.e. the research problem and objectives. This is followed by a discussion

of the theoretical and conceptual framework developed to guide the study. Third, a summary of findings is presented followed by a brief conclusion to the entire study. Fourth, the study's policy implications are presented. Lastly, recommendations for further future study are made.

## Chapter Two

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### Background Information on Ghana

#### 2.0 Political and Economic Changes in Ghana

The Republic of Ghana, formerly known as the Gold Coast, lies on the West Coast of Africa, south of the Sahara and north of the Equator on the Gulf of Guinea. Ghana is bounded on the north by Burkina Faso, on the west by Cote d'Ivoire, on the east by Togo, and on the south by the Atlantic Ocean. The country is administratively divided into 10 regions, 110 districts and 200 constituencies, and has a human population of 18 million (Ghana Statistical Service, 2000). Ghana's 10 administrative regions are Greater Accra, Eastern, Western, Ashanti, Central, Brong-Ahafo, Northern, Volta, Upper East, and Upper West Regions with Accra being the capital city of the country. There are different ethnic groups in Ghana with the main ones being Akan (49.1%), Mole-Dagbani (16.5%), Ewe (12.7%) and Ga-Adangbe (8%). The climate is tropical. The eastern coastal belt is warm and comparatively dry, the south-western corner is hot and humid, and the north is hot and dry. There are only two major seasons in Ghana: the wet (rainy) season and the dry (harmattan) season. The wet season takes place from May to November while the dry season occurs from December to May.

Unlike Kenya, Tanzania, South Africa, Malawi, or Namibia, serious tourism development in Ghana did not begin until the mid-1980s. The late tourism development in Ghana can be viewed as politically-oriented. Like most African countries, Ghana was colonised by different European countries but in 1957 became independent from British rule under the

leadership of Osagyefo Dr. Kwame Nkrumah. As the first Prime Minister of Ghana, Nkrumah was overthrown through a coup d'état in 1960. After 1960, Ghana experienced many more military takeovers with some lasting just a few months. The last military revolution was in 1979 under Flight Lieutenant Jerry John Rawlings of the Supreme Military Force Council (SMFC). In 1981, the Rawlings government changed its name from SMFC to the Provisional National Defence Council (PNDC). The PNDC government stayed in power until the first general multi-party elections in 1992 when it changed its name from PNDC to the National Democratic Congress (NDC). The NDC government served its two terms of office but in 2000 was voted out of power by the National Patriotic Party (NPP). The series of military overthrows did not auger well for tourism development in the country. Each government that came to power kicked aside all projects begun by the previous government. The terminology “continuity” was non-existent in the lexicon of those military rulers.

After 1985, the face of the tourism industry in Ghana began to change. During that year, the PNDC government launched the Economic Recovery Programme (ERP) and the Structural Adjustment Programme (SAP) and identified tourism as an area deserving development. Recognising the need for careful planning, the Ministry of Tourism in conjunction with the United Nations Development Programme (UNPD) and World Tourism Organization (WTO) prepared a 15-year National Tourism Development Plan (NTDP) to develop tourism in a sustainable manner. The National Tourism Development Plan identified the potential of developing ecotourism and community-based tourism throughout the country. In addition to developing a National Tourism Development Plan, measures were enacted to protect and preserve Ghana's natural resources from further exploitation and decline.

Tourism is currently one of the fastest growing areas in the Ghanaian economy. It is the third largest foreign exchange earner after gold and cocoa, and is expected to move up the ladder to occupy the first position by the year 2010 (Ghana Wildlife Department, 1997c, p.2). As in the case of most African countries, the rationale for tourism development in Ghana is primarily economic. That is, to promote economic growth by generating foreign exchange and to facilitate job creation, income and revenue distribution. Another reason is to improve the quality of life of local community members. Therefore, in the early 1990s, Ghana officially embraced tourism development as a socioeconomic development strategy and took tangible steps to identify specific projects for tourism development.

According to the Ghana Wildlife Department (1997c, p.2), international tourist arrivals have increased from 85,000 in 1985 to 300,000 in 1996. The main tourist generation countries are the United States of America, Germany, The Netherlands, Britain and France. Even though Ghana seems to have a bright tourism future, tourism to protected areas has been restricted to five areas, namely Mole National Park, Kakum National Park, Shai Hills Resource Reserve, Agumasta Wildlife Sanctuary and Boabeng-Fiema Monkey Sanctuary because of the existence of proper tourist facilities. Ghana has other areas with tourism potential that can easily be promoted with proper planning. A case in point is the Ankasa Resource Reserve in the south-western region of Ghana in the Jomoro District.

## **2.1 Natural Resource Management in Ghana**

The history of Ghana's forestry dates back to 1906 when legislation was enacted to control the felling of commercial tree species. The demarcation and reservation of the forest

estate was completed in 1939 and a Forest Policy was adopted in 1948. The policy provided for the creation of a permanent forest estate for the welfare of people, protection of water supplies, and maintenance of favourable conditions for agricultural crops, as well as public education and research (Ghana Wildlife Department, 1997b, p.10).

Ghana's main natural resources include gold, timber, industrial diamonds, bauxite, manganese, fish and rubber. The name of the ministry responsible for natural resources often changed depending on the area of policy emphasis. For instance, in the early 1990s, the ministry responsible for natural resources was known as Lands, Forestry and Mines. With the change in government and shift in policy, the Ministry of Lands, Forestry and Mines was changed to Lands, Forestry and Energy. Currently, we have a Ministry of Lands, Forestry and Mines as was the case in the early 1990s.

Under the Ministry of Lands, Forestry and Mines, there is the Forestry Commission (FC) and two other implementing agencies namely, the Lands Commission and the Minerals Commission. The Wildlife Division which until 1999 was known as the Wildlife Department is one of the three divisions of the Forestry Commission. It began as a branch of the Forestry Department of the Ministry of Agriculture responsible for wildlife issues. In 1965, it became a full-fledged line agency of the Ministry of Forestry known as the Department of Game and Wildlife, which later changed to Wildlife Department after the adoption of the Forestry and Wildlife Policy of 1994. The Game and Wildlife Department was changed to the Wildlife Division in 1997 after the development of the Wildlife Development Plan and it is currently housed under the Ministry of Lands, Forestry and Mines. The Ghana Wildlife Division is responsible for all wildlife in the country and administers 18 wildlife-protected areas (PAs), five

coastal Ramsar Sites and two zoos, one in Accra, and the other in Kumasi, in the Ashanti region (Ghana Wildlife Department, 1997d, p. iii).

## **2.2 Protected Areas Management and Tourism Development in Ghana**

The Wildlife Division of the Ghana Forestry Commission manages 18 protected areas, which include seven national parks, six resource reserves, four wildlife sanctuaries, and one strict nature reserve. Together, these areas account for 5.7% of Ghana's total land area (Ghana Wildlife Department, 1998, Vol. 8, pp. 1-2). The Ghana Wildlife Division with a head-office in Accra is the sole authority responsible for protected area management in Ghana. Protected areas are scattered over the 10 regions of Ghana. In the Western region of Ghana, the Ghana Wildlife Division manages two widely-spaced protected areas, the Ankasa Resource Reserve and the Bia National Park.

Over a long period of time, Ghana's natural resources have been diminishing due to poor management and population growth. The rapid decline of Ghana's natural resources compelled the Game and Wildlife Department, now the Wildlife Division of the Ghana Forestry Commission, to take drastic measures to curtail the problem. With financial support from Japan and technical assistance from IUCN and under the Protected Areas Management and Wildlife Conservation Project (PAMWCP), the Game and Wildlife Department undertook an appraisal of all its protected area systems in May 1992.

The aim of the Protected Areas Management and Wildlife Conservation Project was to assist Ghana in managing and conserving its biodiversity (Ghana Wildlife Department, 1997a, p. 3). To help achieve biodiversity conservation in Ghana, the Protected Areas Management and

Wildlife Conservation Project developed park management plans for the various parks and reserves in Ghana. One reserve which benefited from the Protected Areas Management and Wildlife Conservation Project is the Ankasa Resource Reserve (ARR). With financial assistance from the European Union (EU), the Ankasa Resource Reserve was in a position to implement its management plan under the Protected Areas Development Programme (PADP). The implementation of the Ankasa Resource Reserve management plan was done in phases and the first phase began in 1997. The second phase of the programme has already started (J. Mason, personal communication, October 27, 2007).

### **2.3 Description of the Study Area: Ankasa Resource Reserve**

The Ankasa Resource Reserve (ARR) lies within the administrative rule of the Jomoro district and is under the paramount chief at Beyin. From 1934, the Ankasa Protected Area was managed as a protected timber producing area until 1976 when it was designated as the Ankasa Resource Reserve (Ghana Wildlife Department, 1998, Vol. 8). As a twin park, the Ankasa Protected Area covers an area of 509 square kilometres and is composed of the Nini-Suhien National Park (166 square kilometres) in the north and the adjoining Ankasa Resource Reserve (343 square kilometres) in the south. Ankasa Resource Reserve also has lodges and an exploration centre.

The population of the western region of Ghana was estimated at about 1.84 million with an annual population growth rate of about 2.7% (Ghana Statistical Service, 2000). The Jomoro District, the district of interest containing the Ankasa Resource Reserve, experienced dramatic population fluctuations from 1960s onward. For instance, in 1960, the estimated population of

the district was 45,162 but declined drastically to 37, 685 by 1970. Due to lack of financial resources, the 10 year census slated for 1980 was delayed until 1984. The results of the census indicated a population of 70,881, an increase of 88% from that observed in 1970. According to the 2000 census, the population for the Jomoro district had increased significantly and was estimated at 111,348, an increase of 57% from that of 1984. This reveals a population density of 83 persons per square kilometre.

To effectively plan for the Ankasa Protected Area, the Protected Areas Development Programme conducted a detailed census of the area and found that there were about 25,000 people living in about 1,800 settlements within 5 to 7 kilometres of the Ankasa Protected Area boundary (Ghana Wildlife Division, 2000, p. 20). Though these figures may not be accurate, they clearly show that the human population around the Ankasa Protected Area has doubled from the 1980s to 2000. More people means more demands for resources and therefore potentially more resource pressure on the reserve. This is an indication that attention needs to be paid to the demographic dynamics of the local communities surrounding the Ankasa Resource Reserve.

Demographically, very little information is known about the human population adjoining the Ankasa Protected Area. There are, however, about eight local communities close to the Nini-Suhien National Park and nine local communities surrounding the Ankasa Resource Reserve (Ghana Wildlife Division, 2000, p. 20). The ninth human settlement near the Ankasa Resource Reserve (ARR) is known as Dinorharle. This settlement is unique in the sense that it comprised only a single hut. Personal communication with the wildlife officer at the ARR indicated that Dinorharle was occupied by a man and his wife only.

Located in the fourth largest and south-western region of the country, Ankasa is a wet evergreen forest, largely pristine and rich with rare and endangered species. It was gazetted in

1976 and covers a land size of 509 square kilometres. It is the only rainforest in Ghana and is home to over 800 plant species, forest elephants, leopards, chimpanzees and other primates (Ghana Wildlife Division, 2000, pp. 13-14). The Ankasa Resource Reserve area experiences two major rainfalls, one occurring from April to July and one from September to November. The average annual rainfall is 1,700 to 2,000 mm with daily temperatures ranging from a low of 24 °C to a high of 28 °C (Ghana Wildlife Division, 2000, p. 10).

Generally, the soil in the Ankasa Resource Reserve is highly acidic, infertile, and prone to leaching. There are many rivers and streams that flow through the Reserve. These rivers and streams provide sanctuary for fish breeding during the wet seasons. The Ankasa Resource Reserve has great tourism potential – mainly ecotourism as a result of its status as one of the best evergreen rainforests in Ghana. There are all kinds of birds of prey, kites, hawks, eagles, long snorted and broad fronted crocodiles and other primates. Other attractions in the region are the Beyin Fort, Nzulezo settlement on stilts on river Amanzure, and Dwenye Lagoon which is ideal for boat riding. All these attractions offer beautiful scenery for tourists and there are plans already under way to develop ecotourism in the Ankasa Resource Reserve (Ghana Wildlife Department, 1997c, p. 6). Figure 1 is a photograph of the main entrance of the Reserve and Figure 2 is a map showing the parks and reserves of Ghana.



*Figure 1. Main Entrance of the Ankasa Resource Reserve.*



Source: [www.newafrica.com/maps](http://www.newafrica.com/maps)

**Figure 2.** Map of Parks and Reserves of Ghana.

## **2.4 The Amokwawsuazo Community Resource Management Area**

Community-based natural resource management is central to many efforts to reduce environmental degradation. The underlying philosophy of community-based natural resource management approaches states that under the right conditions and incentives, people will manage wildlife and other natural resources sustainably (Johnson, 2001, p. 970; Mahanty & Russell, 2002, p. 180). To address the challenges of wildlife management, the Ghana Wildlife Division developed a Collaborative Wildlife Management Policy, which gave practical meaning to the 1994 Forest and Wildlife Policy (Forestry Commission of Ghana, 2004, p. 6). In line with the policy, collaborative wildlife management systems were developed to ensure a more active participation of local communities and other stakeholders in wildlife management in Ghana.

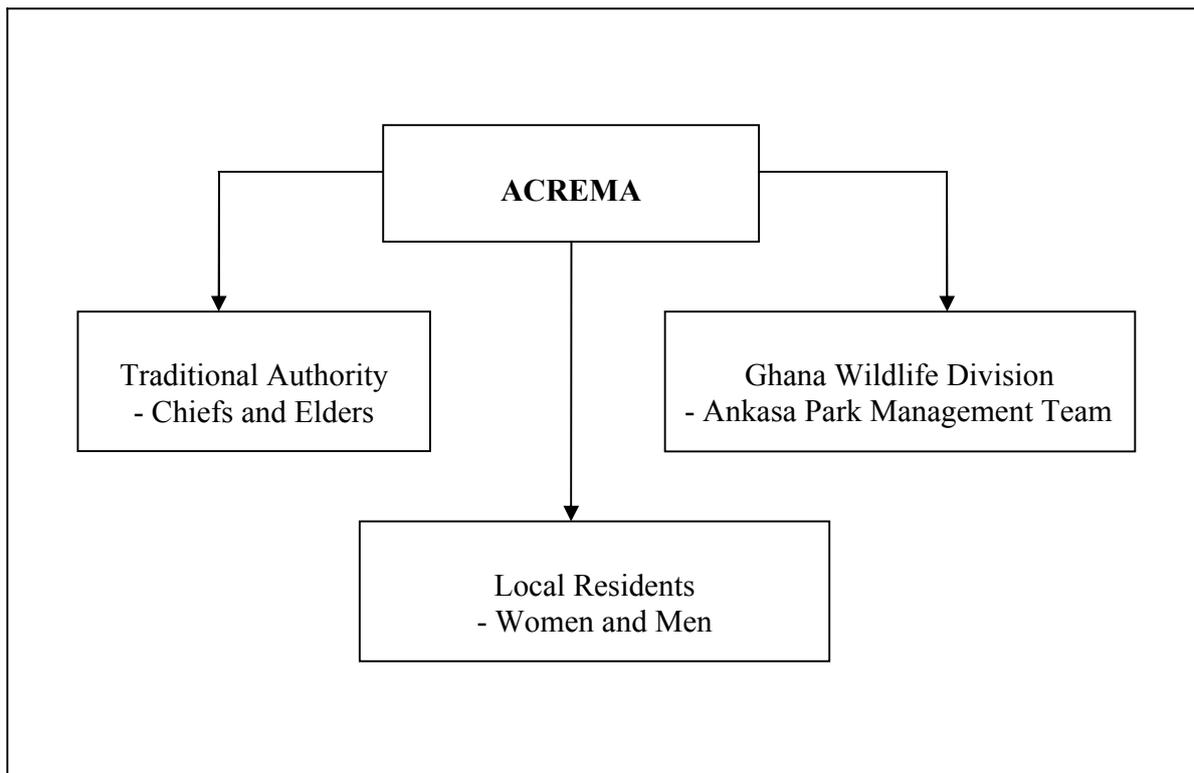
One of the protected areas in Ghana that has adopted and implemented a community-based natural resource management programme is the Ankasa Resource Reserve. Community-based conservation programmes are known by different names depending on the country context. For example, in Zimbabwe, there is the famous CAMPFIRE programme (Barrett, Brandon, Gibson, & Gjertsen, 2001, p. 498; Sammy & Opio, 2005). In Ankasa, the name of the community-based natural resource programme in place is the Amokwawsuazo Community Resource Management Area (ACREMA). The ACREMA programme was established in 2001 and became fully operational in 2003 (Forestry Commission of Ghana, 2004, p. 44).

Physically, the Amokwawsuazo Community Resource Management Area is a geographically-defined area that includes one or more local communities that have agreed to manage natural resource in a sustainable manner. In Ankasa, only local communities lying within 5 to 7 kilometre-radius from the Reserve's boundary are members of the Amokwawsuazo Community Resource Management Area programme (ACREMA). The ACREMA communities

are Amokwawsuazo, Old Ankasa, Fante Newtown, Frenchman, Dinoharle, Sowudadzemu, Paradis, Odoyefe and Faya. Institutionally, ACREMA is a community-based organisation that is built on existing decision-making structures, with an executive committee consisting of traditional authorities, community resource management body, and a constitution that guide the activities and regulations of the organisation or association. Structurally, ACREMA works in conjunction with traditional authorities, local residents and the Ghana Wildlife Division. The organisational structure is illustrated with Figure 3.

The executive body of ACREMA develops a constitution which states the function of the organisational structure and establishes the rules and responsibilities of the members. From a community perspective, it is a structure that enables collective decision-making regarding resources. It enables the community to make collective rules and gives them the means to enforce them. From an external perspective, the ACREMA provides a forum to access the community and most importantly a structure that can be legally recognised.

In the global arena where there is considerable debate around issues such as deforestation, the trade in bushmeat, and the subsequent depletion of wildlife and other resources, community-based natural resource management offers an encouraging alternative to the devastating and depressing scenarios offered by many conservation organisations.



**Figure 3. Organisational Structure of ACREMA.**

## **Chapter Three**

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### **Literature Review**

#### **3.0 Introduction**

Chapter 2 presented information on Ghana's political, economic, natural resource and protected area management as well as a brief description of the study area. Chapter 3 presents the literature review. Given the wide scope of the literature on natural resource exploitation and management, the review was undertaken along three broad themes. The first theme is natural resource exploitation in protected areas. This was done focusing on both wildlife species and non-timber forest products. Second, the study examined the causes of natural resource exploitation in protected areas. Last, a critical review was undertaken to examine factors that contribute to successful community-based natural resource management.

#### **3.1 Natural Resource Exploitation in Protected Areas**

Natural resource exploitation is a major issue confronting protected area managers in sub-Saharan Africa. In spite of the 1992 Rio Convention on Biological Diversity, the world's biological resources continue to be lost at an alarming rate, and for the most part in developing countries where many biological resources are concentrated (Grimble & Laidlaw, 2002, p.1). This section presents global studies on the extent and nature of natural resource exploitation. The section begins with a review of natural resource exploitation of animal products and the types of

hunting devices and techniques employed in the process. An account is given of non-timber forest products exploitation in section 3.1.2.

### **3.1.1 Exploitation of animal products.**

Globally, different types of wildlife species are exploited in and around protected areas. The exploitation of wildlife species demands skill in their capture. Consequently, unique and distinctive hunting devices and techniques have been designed for such purposes. A review of some of the global studies on exploited wildlife species and hunting techniques employed are presented below.

Hunting wildlife was not always recognised as a major conservation issue because earlier wildlife existed in abundance and human population densities were low. However, worldwide demand for ivory between 1979 and 1989 caused elephant populations to decline sharply. A study by Hogan (2000) revealed that in 1977 about 1.3 million elephants lived in Africa; but by 1997, only 600,000 remained. A two-year study carried out in seven Eastern and Southern African countries (Botswana, Kenya, Malawi, Mozambique, Tanzania, Zambia and Zimbabwe) generated a total of 23 surveys conducted from 1997 to 1998, of which 16 of the surveys focused on illegal use of wildlife. The results of the study revealed that species such as insects, rodents, birds, duikers, elephants, and impalas were utilised regularly throughout the studied areas (Barnett, 2000). In Mozambique, it was found that more than 50 metric tonnes of bushmeat could be sold in one month, while in Botswana, 46% of households consumed at least 18.2 kg of bushmeat every month. Trade in bushmeat was also found to be very high in Botswana, Kenya, Malawi Mozambique, Tanzania, Zambia and Zimbabwe (Barnett, 2000). Bushmeat is the meat of wild animals, usually taken from forests (Cowlshaw, Mendelson, & Rowcliffe, 2004).

In an attempt to generate quantitative data on game harvest, Carpaneto and Fusari (2000) studied the hunting activity of 10 hunters from seven villages during a nine-week period in central-western Tanzania and the techniques employed in capturing wild mammals. An inventory of the mammal species living in the study area was conducted by three different methods namely direct field observation of animals and their tracks, identification of animals captured by villagers and interviews with hunters. During the nine weeks of field work, a total of 236 mammals belonging to 37 species were killed. Therefore within one year approximately 1,364 animals were removed from the ecosystem by the people of the seven villages. A large number of antelope were killed, because of their large size, availability and preferred taste. All carnivores and primates, 27.5% on the whole, were killed because they destroyed crops or preyed on domestic animals. It was observed that 61% of mammals were eaten by the hunter's family, 14% were sold, and 27% were eliminated because they were harmful to crops and poultry. Four different hunting techniques used in the study area included guns (53.8%), traps (19.1%), spears (11%), and dogs (16%). In exploring the social, economic and biological dimensions of the bushmeat trade in Takoradi, Ghana's third largest city, a detailed case study was presented on the actors involved in the bushmeat trade and their patterns. This study highlighted that hunters lived and worked in rural areas and captured their prey using snares and shotguns (Cowlshaw, Mendelson, & Rowcliffe, 2006).

In central Africa, a series of case studies were conducted around the Dzanga-Ndoki National Park and the Dzanga-Sangha Special Dense Forest Reserve. The study focused on the impact of human migration on natural resources in and around protected areas. The results indicated that hunters utilised various forms of hunting technologies, including rifles, snares, and traps (Mogba & Freudenberger, 2002). Steel snare, although forbidden by forest regulations in

Central African Republic was a widespread hunting device and particularly damaging to forest mammals because it entrapped and killed animals without regard to species, age, sex, or fertility. A single hunter in Bayanga village could have 200 steel snares and three locally-manufactured guns. In Salo's Kouapili district, over 60% of the population possessed at least one firearm. Setting 200 snares in a plentiful area, a hunter could catch between 40 and 80 different animals in one round of hunting. Unfortunately, hunters were often forced to abandon part of their catch because they could not transport all the meat to the market before it rotted (Mogba & Freudenberger, 2002).

Surveys conducted in Indo-China showed that in Vietnam wildlife products were used (Compton, 2000). The results of a three-month survey conducted around the Pu Mat Nature Reserve in Vietnam found that in Vietnam, 40% of the bushmeat was from reptiles such as tortoise, cobras, rat snakes and pythons (Compton, 2000). Captured animals were usually sold in markets around Lao, Hanoi or to local restaurants operating around the Pu Mat Nature Reserve. Live individual animals and parts of mammal species comprised 18% of the total observable trade, including tigers, bears, leopards, Eurasian otter, and serows. The study also confirmed that captured animal species were sometimes consumed as bushmeat by local Vietnamese. Furthermore, reptiles and mammals were also used as medicinal ingredients, decorations, and pets.

Over-exploitation of wildlife was reported to be high in Sulawesi, Indonesia. In response to the problem, the Wildlife Crimes Unit program in Indonesia was established and assigned to monitor wildlife transportation into North Sulawesi markets. Using road blockades and market surveys to monitor indexes of wildlife transported to and traded in the province, the Wildlife Crimes Unit in Sulawesi identified at least 25 markets in the province that sold wildlife. The

findings demonstrated that over a period of two years 6,963 wild mammals en route to markets were encountered and 96,586 wild mammals were documented during market surveys (Lee et al., 2005). Animals were usually sold dead. Large animals, such as pigs or other ungulates were sold in pieces. Small animals like bats and rats were generally sold whole. Of mammalian wildlife recorded by road patrol teams, large bats were the most frequently encountered (66.4% of all animals), followed by the Sulawesi pig (29.6%), and rats (2.6%). The remaining 1.4% of animals recorded included small bats, babirusas, macaques, cuscuses, and civets.

Wildlife exploitation is a problem worth addressing because wildlife species have and continue to decline in some national parks across Africa and Southeast Asia. Additionally, the types of hunting devices used in wildlife exploitation have also been exposed. Furthermore, the literature revealed that wildlife species or bushmeat exploited were mainly for consumption, but in some instances were sold on the local and distant markets to generate income.

### **3.1.2 Exploitation of non-timber forest products.**

The term non-timber forest products (NTFPs) refers to any wild biological resources generated from the forest, not timber-based and used by rural households (Chamberlain, Bush, & Hammett, 1998; Shackleton & Shackleton, 2006). Non-timber forest products come from a large variety of plant parts and are formed into a diverse set of products such as: leaves and twigs; food items such as fruits, fungi, and juices; wood carved or woven into pieces of art or utilitarian objects; and roots, leaves, and bark processed into herbal remedies or medicines. They can be classified into four general product lines namely: edibles, specialty wood products, floral greens, and medicinal and dietary supplements (Chamberlain, Bush, & Hammett, 1998).

Fungi, particularly mushrooms and berries, nuts, saps and resins, ferns, and wild tubers and bulbs are perhaps the most well-known and documented edible forest products. Any item produced from trees or parts of trees without sawing can be considered as specialty wood. Specialty wood products include handicrafts, carvings and turnings, utensils, and containers. Also included in this product line are furniture made from branches, twigs, and vines, as well as tools and musical instruments made from wood that is not sawn from logs. Many forest plants and parts of plants are used in decorative arrangements. The end uses for many forest-harvested floral greens include fresh or dried flowers, aromatic oils, greenery, basket filler, wreaths, and roping. The use and trade of herbal medicines derived from forest products has a long history and may constitute the highest valued segment of the non-timber forest product industry. Forest-harvested plants used for their therapeutic value are marketed either as medicines or as dietary supplements (Chamberlain, Bush, & Hammett, 1998). Studies have shown that in Indonesia alone, almost 60,000 tonnes of non-timber forest products were harvested annually and the value of the world trade in rattan was at least US\$1,200 million, most of which was accounted for by the furniture industry (Jacobs, 1984).

Authorities in Kenya worry as traffickers are nearly depleting Kenya of its East African Sandalwood (*Osyris lanceolata*). Once abundant along the Kenya-Tanzania border, the sandalwood plant is now a threatened species in the Oloitokitok and Amboseli National Reserves (Opala, 2006). The plant's heartwood contains essential oil that blends well with many fragrance materials. It is also believed to be potent against Hepatitis B and other incurable diseases. Reports have it that a kilo of the sandalwood oil extracted from 25 kilos of sandalwood stems can be sold from between 5 and 8 Kenyan Shillings in Kenya while the same amount can go for

Sh500 in Tanzania. Yet, oil extracted from 25 kilos of sandalwood stems which may cost as little as Sh105 at the source, fetches \$3,470 (about Sh250, 000) in London, UK (Opala, 2006).

In 2005, a Kenyan Wildlife Service officer impounded a three-tonne consignment of sandalwood destined for Tanzania. The sandalwood plant, which takes 30 years to mature, took less than two years to be depleted in the Oloitokitok and Amboseli Reserves (Opala, 2006). Shockingly, some unscrupulous harvesters uproot the whole plant which eliminates the possibility of future plant regeneration as roots are most preferred. This is a major threat to the plant's survival as it reduces the regenerative potential of the tree, which is known to sprout from root suckers. To forestall detection, traffickers resorted to many strategies. Following swoops by authorities, smugglers started using motorbike riders as advance parties to forestall arrests. Smugglers also operated using mobile phones and other communication devices to evade arrest (Opala, 2006). Kenyan authorities have been worried that the threat posed by illegal harvest of the tree may be more pervasive than the poaching danger on elephants and rhinos.

In exploring whether the use and value of non-timber forest products consumed by rural households in the Kat River valley, South Africa, correlated with household wealth status, data on NTFP consumption, purchase, and sale were collected from households in three rural villages. There was some supporting evidence that poorer households derived more benefits from NTFPs than wealthy or intermediate households. Also, a greater proportion of poorer households were involved in the sale of one or more NTFPs, and they sold a greater number per household, compared to wealthy and intermediate households. Detailed examination of use and value of four NTFPs (fuel wood, wild fruits, edible herbs, and grass hand brushes) revealed that in all instances, the poorest households used more of the resource per capita than wealthier households (S. M. Shackleton & S. E. Shackleton, 2006).

Not many studies have been done in Ghana on natural resource exploitation within and around protected areas. The best known study on natural resource exploitation is that of Mole National Park in the northern region of Ghana. Using participatory rural appraisal, the study assessed local people's perceptions of the benefits and difficulties of their life near the Mole National Park in Ghana (Mason, 1993; Mason & Danso, 1995). The study area consisted of 27 villages surrounding the Mole National Park with a minimum of three visits to each of the 27 villages. The results of the study found that six villages were evicted from the park in 1964 and resettled in the surrounding area. The eviction, together with the general loss of access to traditional hunting, gathering, farming areas and religious sites, were expressed as the main sources of dissatisfaction with, and antagonism toward, park staff. Local community members also felt that the park had taken away their best farm land, restricted their hunting activities and disturbed their subsistence gathering sites (Mason & Danso, 1995).

Though the denial of local access of local community members to natural resources in the Mole National Park may be a sign of management success, it is also be an indication that local community members were not involved in the management of the Mole National Park, hence their dissatisfaction with wildlife officials. To avoid a similar scenario from occurring, park managers must be encouraged to involve local community members in park management in order to minimise conflict and also gain local community members' support.

The use of other non-timber forest products such as chewing sticks and sponges is very common in Ghana. For many people in rural communities and for some in urban centres, the use of chewing sticks and chewing sponges are good substitutes for toothbrushes. Chewing stick usage was assessed with a sample of 887 people living in southern Ghana. The results indicated that chewing sticks were gathered rather than bought. Also, more people living in small towns

and villages frequently collected their chewing sticks than those living in cities and illiterates collected more sticks than the educated people (Adu-Tutu et al., 1979). However, no difference in the amount of collection was found between males and females, but there were striking differences between the sexes in species selection.

Like wildlife species, non-timber forest products are also being depleted at an alarming rate for different purposes. Non-timber forest products like the sandalwood plant were sought after because of its sweet fragrance and medicinal value. In some cases, chewing sticks and sponges served as toothbrushes for those who could not afford the purchase of real toothbrushes. Furthermore, the collection of non-timber forest products was associated with poor households and uneducated people in small towns and villages. To minimise the exploitation of non-timber forest products, park managers must be aware of the types of products exploited in order to find ways to minimise their exploitation.

### **3.2 Causes of Natural Resource Exploitation**

Declining natural resources in and around protected areas are a major issue confronting many governments worldwide. Several factors are known to contribute to natural resource exploitation or decline in protected areas. Notable causes are human impacts (such as population growth, large household sizes, and migration from one location to another).

Mather, Needle and Fairbairn (1998) argued that approximately half of the deforestation that has occurred in human history can be explained statistically in terms of population growth. Using ecological and anthropological methods, Abbot and Homewood (1999) investigated the impact of local harvest of woody products in Lake Malawi National Park. The study was

undertaken in Chemba and Msaka, the two largest villages within Lake Malawi National Park. Aerial photography was used to detect and monitor changes in the park woodlands over a period of eight years beginning in 1982 to 1990. Woody resources were extracted for use as domestic fuel wood, for construction, and for commercial fish smoking. The study concluded that because of large human populations within the Lake Malawi National Park, the extraction of woody products from the park reduced the closed canopy woodland to sparse woodland (Abbot & Homewood, 1999).

Evidence from the Swagaswaga Game Reserve in Tanzania illustrated serious land use conflicts due to encroachment and establishment of human activities such as agriculture, charcoal burning, brick making and lumbering (Madulu, 2001). To demonstrate the increasing pressure of human population on the Swagaswaga Game Reserve, Madulu (2001) drew evidence from Chololo village in a study started in 1976.

In this study, quantitative data were collected through structured questionnaires administered to heads of households. The questionnaire gathered economic, demographic information and people's perceptions and implications of human activities on the game Reserve's ecosystem. In total, 183 households were interviewed. Secondary data were gathered through documentary reviews, direct observations, and focus group interviews. A checklist was prepared and used to guide informal discussions with village leaders and other key informants.

According to the local informants, the village was started on a densely forested area covered with flourishing miombo trees. Slowly the forests disappeared as the slash and burn agriculture took its course. Within a period of about 25 years, the forests were removed and the frontiers of the remaining forests were pushed back by more than 10 kilometres (Madulu, 2001).

Using combined measures based on social surveys, remote sensed data and various GIS digital maps, Entwisle, Walsh, Rindfuss, and VanWey (2005) examined the effects of village size, density, and change on the area devoted to the cultivation of upland crops in Nang Rong, a district in northeast Thailand over a period of 10 years. The Nang Rong district used to be a sparsely populated frontier area in 1948 but the situation changed as migrants moved into the district in the 1950s and 1960s, establishing new villages and adding to already existing villages. The findings revealed that an increase in the number of households put pressure on land potentially available for agriculture because in a rural setting with few non-agricultural jobs, households need access to land to grow cash and subsistence crops.

Liu, Daily, Ehrlich, and Luck (2003) reported that growth in household numbers in countries with biodiversity hotspot areas rich in endemic species and threatened by human activities were more rapid between 1985 and 2000. The study quantified the effects of household dynamics on biodiversity and compared the rates of change in human population size and the number of households in 76 hotspot and 65 non-hotspot countries. The study also investigated the sources of growth in household numbers, comparing the relative contributions of changes in aggregate population size and household size. The result of the study indicated that the growth in household number resulted directly from an increase in population size.

The ease of human movements (migration) from one country to another and even movements within the same region can be seen as a major threat to nature conservation as people frequently bring with them different, and often opposing, approaches to wildlife. In an attempt to determine the types and number of traps laid and the species affected by poaching in Israel, Yom-Tov (2003) undertook a 65-day field research by driving a car along roads and fences erected in and around agricultural areas, mainly in orchards, plantations and irrigated areas

where vegetables and flowers were grown. The results of the study highlighted that many Thai immigrant workers engaged in illegal hunting and gathering of wildlife (Yom-Tov, 2003). At least 28 species of mammals, 25 species of birds, seven species of reptiles, three species of amphibians and various species of fish, molluscs and other invertebrates were found in noose traps laid by Thai workers. Since the immigrants create constant demand for wildlife from forests, many hunting devices and methods were utilised. Methods of capture used by Thai immigrants in Israel included the use of hand-held catapults, netting, the collection of bird eggs, and the gathering of slow-moving vertebrates and invertebrates (Yom-Tov, 2003).

In sum, natural resource exploitation is bound to occur as people continue to engage in exploitative activities and as human population keeps on growing. The above review has shown that the more people moved to an area and undertake farming and other exploitative activities, the more the land cover changes, resulting in resource reduction.

### **3.3 Factors Contributing to Successful Community-based Natural Resource Management**

The early years of nature conservation followed a fortress approach that separated people from the use of natural resources on which they had previously depended. This top-down approach to conservation generally failed to protect wildlife as fully as intended (Grimble & Laidlaw, 2002, p. 2). Since the mid-1980s, the fortress approach has been replaced by community-based approach aiming to work closely with local people and where local people play a much more active role (Shackleton, Campbell, Wollenberg & Edmunds, 2002).

Community-based natural resource management is a strategy that seeks to reconcile the dual goals of biodiversity conservation and improved livelihoods for local communities (Schmink, 1999). Some countries in Africa practising community-based natural resource management have recorded vast improvement in nature conservation in their protected areas. In Namibia, local communities were pleased to see increasing game numbers of black rhino, desert-adapted elephant, giraffe, springbok and gembok in areas where community-based natural resource management was practiced (Jacobsohn, 2003). South Africa has also experienced positive results of community-based conservation. Poaching within the Blyde River Canyon Nature Reserve, South Africa declined noticeably (de Beer & Marais, 2005).

Successful management of natural resources at the community level depends on several factors. Among such factors are the role of traditional authorities and traditional knowledge in natural resource management. Also important is the role of women, local institutions, law enforcement and ecotourism. In the subsequent paragraphs, the review dwells specifically on gender analysis, local institutions, law enforcement and ecotourism as factors most important for community-based natural resource management.

### **3.3.1 Gender analysis and natural resource management.**

Social scientists argue that using a gender-aware framework provides insight into important power dynamics underlying issues of access to resources and their management. The application of a gender-aware framework, however, presents both benefits and challenges when analysing gender and access to resources and their management, because, the term *gender* is so broad and complex that its definition cuts across many disciplines.

Depending on the emphasis of research, the term gender can be defined as a biological construct, an anthropological phenomenon, or a sociological concept (Kimmel & Messner, 2001). Biological definition models simply focus on the differences between females and males (Lorber, 2000; Martin & Ruble, 2004). Early sociological and developmental understandings of gender constructs stressed on the importance of socialising girls and boys into accepting sex roles specific to their biological make-up (Roos, 1985), while anthropologically-oriented concepts of gender focus on the conceptualisation of masculinity across cultures and stress variations in behaviours and attributes associated with being either a female or a male (Kimmel & Messner, 2001).

Gender can also be a categorical construct representing any two numbers for females and males during statistical analysis (Thorne, 2000). The basic idea about such dualistic grouping is purely for differentiation. However, dichotomous portrayals may be unavoidable when the basic strategy is to compare females and males. While gender is a social construct that assigns to women and men a series of socially-differentiated roles and responsibilities (Aguilar, Castaneda, & Salzar, 2002; Francis, 2002), gender analysis on the other hand, is the systematic effort to document and understand women's and men's roles in a determined context (Poats, 2000).

Gender analysis of access to resources and their management requires an understanding of how demographic, institutional, cultural, socio-economic and ecological factors affect relations between women and men of different groups, which partly determine forms of natural resource use and their management (Schmink, 1999). Attention to differences within local communities is important in working toward sustainable natural resource management. This is because rural women are noted to have considerable knowledge of the characteristics, distribution and site requirements of indigenous trees, shrubs and herbs (Wickramasinghe, 1997,

p. 18; Upadhyay, 2005, p. 229). According to Upadhyay, women in India and Nepal play a leading role in maintaining populations of valuable wild plant species, as they know about the diverse and multiple uses of plants. Women's traditional knowledge of the uses of plants for food, fuel, health and crafts can play an important role in the conservation of different species and varieties according to their usefulness to the community (Upadhyay, 2005).

Gender analysis of divisions of labour revealed that women are often overwhelmed with work, both productive and reproductive (Temu & Due, 2000; Upadhyay, 2005, p. 228) yet often have little control over the resources to do the work. When access is limited because individuals lack voice, the ability to sustain the natural resource base is endangered. Access to resources gives people capability to build their livelihoods. Valdivia and Gilles (2001) and Flora (2001) examined the role of gender relations in natural resource management in Latin America, Asia, Africa and North America. The study results indicated that not only were women the major sources of family well-being but were also stewards of natural resources. If women's voices are not heard, their efforts to provide for their families may result in losses to the environment and society.

In India, Gupte (2004) found that gender stratification adversely affected women's participation in Forest Protection Committees in terms of women's needs not being considered, women being left out of decision-making processes, and women not being consulted regarding various forest management options. To help conserve the world's natural resources, it is imperative that both women and men are involved in matters affecting the natural environment.

### **3.3.2 Local institutions and natural resource management.**

Poor conservation outcomes from weak natural resource management strategies and planned development often forces policy makers and scholars to reassess the role of local community in resource use and conservation. Successful conservation is determined by the institutions associated with resource management decisions. What then are institutions? North (1991) defined institutions as the human-devised constraints that structure political, economic and social interaction. They range through laws, constitutions, and property rights such as land tenure which are formal and with which compliance is obliged, to informal conventions such as taboos to which conformance is expected (Sarch, 2001). Institutions, therefore, are social constructs or specific practices that guide user behaviour.

According to Agrawal and Gibson (1999), a focus on institutions rather than community is likely to be more fruitful in community-based natural resource management (Agrawal & Gibson, 1999). Case studies on property rights regimes in Indonesia and Vietnam indicated that wetland resources were often managed as common pool resources, and that state appropriation of resources or the imposition of private property rights could contribute to unsustainable utilisation or conversion of wetlands to other uses (Adger & Luttrell, 2000).

In examining the concept of adaptive capacity in community-based natural resource management, Armitage (2005) stressed the point that some community-based regimes perform better than others because of having in place successful institutional design principles. A comparative analysis of the significance of market forces, population pressures, and institutional variables as they influence resource use in India played a critical role in mediating the influence of structural and socio-economic variables (Agrawal & Yadama, 1997), while in Mexico the absence of effective institutional arrangements led to forest degradation (Tucker, 2004). Pavri

and Deshmukh (2003) suggested that strengthening local institutions in conservation offers potential for more effective reserve protection.

Using a household questionnaire survey as well as focus group discussions, migrant tenant farmers in the south Tongu district of Ghana, were interviewed over a range of issues related to tenure and natural resource management (Koku & Gustafsson, 2003). The results of the survey indicated that security of tenure had a key influence on resource use behaviour. However, with secure use and access rights, people were more likely to invest in resource conservation and land management, even under customary tenancy arrangements (Koku, 2001).

### **3.3.3 Law enforcement and natural resource management.**

One way by which natural resource conservation has been achieved in protected areas is through law enforcement. Governments have sought to limit the impact of human activities on the environment by establishing regulatory systems of control whereby those who engage in practices with a potentially negative environmental impact must comply within a complex set of rules and regulations. The essence of law enforcement is to achieve compliance with a proposed set of rules (Abbot, 2005) and to reduce crime in society (Gallo, 1973). However, the establishment of such rules and regulations is not a panacea to minimising environmental impacts unless they are thoroughly enforced. Berglöf and Claessens (2006) distinguished between two types of law enforcement, namely private and government law enforcement. Private law enforcement takes place when private agents avail themselves of the framework defined by law or regulations to punish violations, using the courts to adjudicate and the state to enforce the final judgment. Public law enforcement involves the enforcement and prosecution of the law by the government.

Regular monitoring and sanctioning of rules or rule enforcement is a necessary condition for successful resource management (Gibson, Williams, & Ostrom, 2005). Eisma, Christie, and Hershman (2005) argued that the sustainability of integrated coastal management in Philippines depend on a legal framework and its effective enforcement. Laws, regulations, ordinances and other legal instruments buttress the sustained implementation of integrated coastal management programs, if they are applied or enforced. Using semi-structured interviews with key informants in two coastal sites in Philippines, the results of a qualitative analysis showed that because of conflicting policies, confusion of roles, political interference, lack of interest to fully prosecute cases, selective enforcement, and informal enforcement mechanisms, law enforcement in Mabini and Bais Bay coastal sites was weak (Eisma, Christie, & Hershman, 2005). The actual enforcement of laws in the study was used as a tangible measure of integrated coastal management sustainability. Local court dockets showing the number and status of cases that were filed, prosecuted and decided were used to enrich the data sets.

The findings of a mail survey on illegal waterfowl hunting revealed that increased law enforcement, large fines, and mandatory jail sentences were believed to be effective in lowering illegal waterfowl hunting (Gary & Kaminski, 1996). In addition to law enforcement, fines and imprisonment, education was said to have potential for alleviating natural resource exploitation. A survey conducted in Phoenix South Mountain Park, Arizona indicated that relative abundance of rock-dwelling lizards decreased with increased habitat destruction caused by collectors. The study recommended that increased management attention to rock outcrops as important wildlife habitats, including increased enforcement of existing regulations but above all, education of reptile collectors, via conservation societies, should emphasise the importance of leaving habitat in an unaltered state (Goode, Horrace, Sredl, & Howland, 2005).

Successful natural resource management at the local community level calls for the recognition of factors such as gender, local institutions and law enforcement. Gender analysis was noted to play a very important role in natural resource management as women and men interact differently with the environment. Proper utilisation of natural resources also requires that rules and regulations are laid down to guide resource users especially those at the local community level. Such rules and regulations are known as local institutions or institutional arrangements. The existence of rules and regulations are meaningless unless they are obeyed, hence the need for law enforcement regarding resource use.

#### **3.3.4 Ecotourism: nature conservation and community development tool.**

Tropical rainforests are important land-based ecosystems that contain rich biodiversity due to the fact that they house significant and diverse species. Measures aimed at successful natural resource conservation and forest protected areas management are therefore important, since they represent instruments against deterioration. Thus, ecotourism has been introduced as another form of nature conservation management strategy in protected areas. However, not only is ecotourism promoted as a conservation tool but also as a tool for community development at local tourist destinations. The review in the subsequent sections enlightens readers on the underlying philosophy of ecotourism and demonstrates how adherence to ecotourism principles can lead to nature conservation and community development. Also reviewed are the negative environmental and socio-cultural impacts of ecotourism on host destinations.

### **3.3.4.1 Contribution of ecotourism to nature conservation.**

The term *ecotourism* is a contraction of two words ‘ecology’ plus ‘tourism’ (Leksakundilok, 2004). Ecotourism is perceived as a form of nature-based tourism. Nature-based tourism is a form of special interest tourism and a type of travel and tourism activity dependent upon the destination’s attributes and the natural environment (Eagles, 2001; Eagles, Bowman, & Tao, 2001). Ecotourism is a subset of nature-based tourism. Therefore, ecotourism is a specific type of nature-based tourism that involves the act of travelling for recreational purposes (discovery or learning about the wild and natural environments) where sensitive natural and cultural environments are visited with the principal activities being observation, learning and non-consumptive sports and the desire to preserve local culture or ecology to enrich the local population (Blamey, 1997; Manning & Dougherty, 1999, p. 17; Eagles, 2001; Weaver, 2001; Wood, 2002). The three main characteristics associated with the definition of ecotourism are nature-based or ecological-based tourism, environmental education-based tourism, and sustainably-managed tourism (Eagles, 2001; Weaver, 2001; Wood, 2002). These characteristics suggest that the desire to understand and appreciate natural attractions implies the desire to ensure that the integrity of those attractions is not undermined.

Ecotourism is one way to ensure effective use of natural resources (Al-Sayed & Al-langawi, 2003). Natural resources, particularly protected areas such as national parks and wildlife sanctuaries, are the main ecotourism attraction sites. Ecotourism is promoted at the local community level because of its potential to achieve conservation goals as well as to improve the well-being of local communities (Sherman & Dixon, 1991; Langoya & Long 1998; Masberg & Morales, 1999; Gulinck, Vyverman, Van Bouchout, & Gobin, 2001; Drumm & Moore, 2002; Ngece, 2002; Che, 2006). In South Africa, the contribution of the Phinda Game Reserve to

nature conservation was huge in that the Reserve successfully reclaimed and rehabilitated 140 square kilometres of critical plants and animal habitats. In addition, the Phinda Game Reserve has become a successful model for the reintroduction of large cats such as cheetahs. Conversion from agriculture to conservation and tourism at Phinda also generated economic, social and environmental benefits (Buckley, 2003, pp. 13-15).

Similar to the Phinda Game Reserve is the Eselenkei project in Kenya. This project is on Maasai community land near the Amboseli National Park which is famous for its elephants. A private company, Porini Ecotourism Society established an arrangement with the Maasai community to set aside a piece of land as wildlife conservation area and ecotourism area. According to Ogutu (2002) the project halted local snaring and spearing of wildlife. The numbers of resident wildlife species in the conservation area also increased due to regeneration of woody species and reduced frequency of livestock. For the first time in many years, elephants were seen in the Eselenkei conservation area.

In Zambia, uncontrolled poaching had a major impact on wildlife population in national parks. As a result, a government programme known as AMADE was initiated in 1988 to address the problem. The AMADE programme established Game Management Areas where responsibilities and revenues from wildlife were transferred from the central government to local communities. Evidence showed that since the introduction of AMADE, poaching including the use of snares and trade in bushmeat declined (Buckley, 2003, p. 29). In the same way, the introduction of the Nyae Nyae Conservation programme in Namibia also led to a major reduction in illegal hunting (Gariseb, 2000). The Olango Island Wildlife Sanctuary of Philippines is an important wetland for migratory birds. However, the sanctuary was at risk from illegal harvesting so the Coastal Resource Management project proposed an ecotourism venture as a

means of involving the local community in wetland protection. Today, the ecotourism project has successfully been used as a mechanism to involve local community in protecting an internationally significant conservation area, rather than posing a continual threat to its ecological integrity (Buckley, 2003, pp. 78-79).

The above discussion has shown that ecotourism can be used as a conservation tool in protected areas experiencing heavy poaching or wildlife decline. The introduction of ecotourism in some national parks and reserves is seen to have halted poaching including the snaring and spearing of wildlife and even trade in bushmeat. In other cases, the introduction of ecotourism led to the reintroduction of some endangered species such as cheetahs and elephants. Finally, some of the case studies indicated that the role of local community members in this endeavour is of paramount importance as local residents could help to protect the integrity of the ecosystem rather than pose as a threat to it; and which could in effect, bring about local development.

#### ***3.3.4.2 Contribution of ecotourism to community development.***

There are often intense pressures on local people to over-exploit their natural resources. Many countries have established protected areas to guard against over-exploitation of important areas. However, when the only way for local people to obtain food is to exploit the natural resources within a protected area, understandably the resources in a protected area become depleted. To save the environment, local people must be provided with alternatives to destruction and one way this has been done is through ecotourism development at local tourist destinations (Whelan, 1991). For many developing countries, tourism is a significant vehicle for economic progress that creates jobs, foreign exchange, and tax revenues, all of which contribute in one way or another to improving poor people's lives.

The tourism industry is one of the world's major industries that offers significant opportunities for employment creation and local economic development (Roe, Goodwin, & Ashley, 2002). Some local people make a living by supplying tourists with a variety of services such as selling of drinks, home-made food, and crafts because many tourism jobs occur in the lodging, eating and drinking sectors (Christensen & Pickerson, 1995). In Horquetas, Costa Rica, the Rara Avis ecotourism project has been successful in providing a viable economic alternative to natural resource exploitation in the environment. Visitors to the Rara Avis Reserve are brought in jeeps driven by villagers from the capital to the closest village. Since the journey to the Rara Avis Reserve was long, tourists were allowed to refresh in nearby villages with local home-cooked meals while drivers loaded their jeeps with food stuff purchased from local farmers for the reserve. The Rara Avis ecotourism project became the third most important source of income for the inhabitants of Horquetas (Whelan, 1991).

In the Budongo Forest Reserve in Uganda, an attempt was made to involve local people in the management of Forest Reserves and to create opportunities for local communities to benefit from the forest (Langoya & Long, 1998). After four years of ecotourism development in the Budongo Forest Reserve, six local primary schools received material benefits purchased from the Reserve's common development fund and 28 local people employed by the project were trained as guides, trail cutters, and caretakers. Tourist sites in the area provided a means for women to sell their handicrafts as a supplement to their income and local people began taking responsibility for protecting the forest. In addition, farmers' groups in the Budongo Forest Reserve diversified into vegetable growing and beekeeping, with training provided by the project. The vegetables produced were eaten in farmers' homes, and part was sold to hotels,

lodges and tourism developments connected to the forest and the nearby Murchison Falls National Park (Langoya & Long, 1998).

In the same way, some local women in Belize formed cooperative gift shops to sell handicrafts to tourists. As a result, some community members were trained as guides, while others started offering tourists services such as room and food for tourists, boat trips and horse riding. In Mexico, residents supplied transportation services to the Monarch Butterfly Reserve (Boo, 1990, p. 15). In response to a series of violent car hijackings in South Africa, a private tour company, Wilderness Safaris set up a community security team by training some local members to work as security guards for its lodge. The project was successful because of the presence of local people as security guards for the area (Buckley, 2003, pp. 23-24).

It can be concluded that ecotourism can lead to local community development. In this section, I examined the role of local community members in the tourism industry. Particular attention was given to the types of services that local people rendered to tourists. The review showed that supplying services and sourcing local goods can contribute to job creation and community development for local people. Though income from these enterprises may be small, it can be a critical income buffer for local residents. In spite of having several positive impacts, ecotourism, can also generate a number of negative environmental and socio-cultural impacts at local destinations. Some of these negative impacts are discussed in Section 3.3.4.3.

#### ***3.3.4.3 Negative impacts of ecotourism.***

Ecotourism's primary appeal as a conservation and development tool is that it can, provide local economic benefits while also maintaining ecological integrity through low-impact, non-consumptive use of local resources (Stem, Lassoie, Lee, Deshler, & Schelhas, 2003). Several studies however indicate otherwise. While ecotourism provides considerable economic

benefits for many countries, regions and communities, its rapid expansion has also had detrimental environmental and socio-cultural impacts.

Environmental degradation can be a common problem in protected areas open to recreational use. Intensive tourism activity in natural areas for example can interfere with fragile vegetation and wildlife and cause irreversible damage to ecosystems. Assessment of recreation impacts on camping sites and nature trails in the wet and dry seasons concluded that the impact was clearly the result of higher use frequency (Obua & Harding, 1997) and in China, examination of trampling impacts on vegetation indicated that visitor usage was proportionate to trampling impacts of two most used trails in the Zhangjiajie National Forest Park (Deng, Qiang, Walker, & Zhang, 2003).

Other negative environmental impacts resulting from ecotourism are pollution and waste generation (Neto, 2002; Nyaupane & Thapa, 2004). Similarly, a study done in Bako National Park on the island of Borneo, Malaysia reported one of the first efforts to identify the impacts of ecotourism in Malaysia. The results of the study indicated that environmental conditions that had greatest influence on visitors' experiences were litter, soil erosion and vegetation damage (Chin, Moore, Wallington, & Dowling, 2000) and these impacts have the potential to reduce the natural experience ecotourism offers.

There are also negative socio-cultural impacts associated with ecotourism and this is demonstrated with case studies from Costa Rica, Botswana, and the Himalayas. In the Monteverde region of Costa Rica, the establishment of the Santa Elena Rainforest Reserve contributed towards negative socio-cultural impact such as drugs and alcohol, and changes in the community values and culture (Wearing & Larsen, 1996). In other cases, the introduction of ecotourism generated conflicts between and among resource users. The open access to resources

and protected areas created conflicts between users. One of them was the lack of knowledge about the carrying capacity in the use of beaches, diving and wildlife observation sites, together with conflicts between consumptive and non-consumptive activities (i.e. fishing vs. ecotourism) (Monteros, 2002).

In Botswana, the relocation of traditional communities, the break-up of traditional family structure and relationships, increase in crime, prostitution, adoption of foreign lifestyles and the use of bad language by young people were some of the negative socio-cultural impacts that resulted from the development of nature tourism in the Okavango Delta (Mbaiwa, 2004). Likewise, ecotourism development could bring about unequal distribution of income, inflation in the price of goods, land, labour and houses (Nyaupane & Thapa, 2004). In the Himalayas, camping and white-water rafting generated negative socio-cultural impacts such as increased out-migration as children started escaping their school and preferred to earn money by working in and around tourist camps. In addition, some local residents have abandoned traditional subsistence agriculture and animal husbandry. What is more, some villagers have changed their land use and now prefer to cultivate vegetables and earn more money rather than opt for their traditional cultivation (Farooquee, Budal, & Maikhuri, 2008).

In spite of what is usually known about ecotourism, these case studies have shown that ecotourism also has some weaknesses. Ecotourism will not on its own save the disappearing of national parks and forest reserves nor will it liberate rural communities from the shackles of poverty. Unless it is planned to minimise environmental damage, maximise economic outcomes and involve local communities, then it may actually harm the environment and the local community members.

### **3.4 Emerging Issues from the Review**

On the basis of the review undertaken, several issues emerge. First, the review demonstrated that natural resource exploitation (both wildlife species and non-timber forest products) is a common phenomenon in tropical forests that have increasing human populations. Additionally, the types of hunting techniques used in wildlife exploitation are varied and effective. As noted, wildlife species were used for personal consumption and in some cases were sold in markets for income generation. Such natural resource exploitation can have negative implications on protected areas. Hence, to minimise natural resource exploitation in protected areas, planners need to be aware of both wildlife species and non-timber forest products exploited in order to find ways to minimise their exploitation. The current study will endeavour to assess the extent of exploitation of wildlife species and non-timber forest products inside and outside the Ankasa Resource Reserve in the Ghanaian context.

Second, the review examined the causes of natural resource exploitation. The main causes of exploitation identified were predominately attributed to the impact of human activities such as high population growth, large household sizes, and migration dynamics and poverty. Similarly, the current study will examine the causes of natural resource exploitation in the region by looking at more or less the same factors. A detailed discussion on this is provided in the next chapter.

Third, the review examined factors contributing to successful community-based natural resource management. Gender was noted to play a very important role in natural resource management as women and men interact differently with the environment. As a result, the extent to which women and men are involved in resource management in the Ankasa region will need

to be assessed. The information obtained will enable appropriate conclusions to be drawn on the role of gender relations in resource management in the Ankasa region.

Proper utilisation of natural resources requires that rules and regulations be laid down to guide resource users, especially those at the local community level. Such rules and regulations are known as local institutions. The existence of rules and regulations are meaningless unless they are enforced, hence the need for law enforcement regarding resource use. Relating to the current study, the eight ACREMA communities surrounding the Ankasa Resource Reserve contain mostly farmers who operate under different local institutions or land tenure systems. Though the tenure systems may be known, it is not clear whether a particular type of land tenure arrangement affects resource management in the area. As a result, this study will examine the prevailing land tenure systems in the Ankasa Resource Reserve area to determine their impact on natural resources.

Furthermore, ecotourism was considered to be a major conservation tool in protected areas experiencing heavy poaching or wildlife decline. The introduction of ecotourism in some national parks and reserves was seen to have halted poaching including the snaring and spearing of wildlife and even trade in bushmeat. In other cases, the introduction of ecotourism led to the reintroduction of some species such as cheetahs and elephants. The review also showed that supplying services and sourcing local goods were areas that contributed to job creation and local community development.

On the flip side, the development of ecotourism at some tourist destinations negatively impacted the environment by generating litter and destroying vegetation cover or the ecosystem. Socio-culturally, it negatively modified local culture and increased social vices such as crime and prostitution. While not a panacea, ecotourism has great potential for both economic development

in remote areas where few other possibilities exist – and for conservation of the natural environment and human cultures if it is properly planned. Therefore, bearing in mind both the positive and negative aspects of ecotourism development, the Ankasa Resource Reserve management team, in partnership with other stakeholders, could also introduce ecotourism in the region.

## Chapter Four

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### Conceptual Framework and Methodology

#### 4.0 Introduction

Chapter 4 presents a discussion of social exchange theory and proceeds to develop an integrated conceptual framework to guide this study. The chapter also outlines the research design and methodology. To help explain the conceptual framework developed (Figure 4), the study objectives raised in Chapter 1, are restated as follows:

1. Assess the socio-demographic characteristics and economic activities of the ACREMA community members
2. Assess the ACREMA community members' impact on natural resources inside and outside the Ankasa Resource Reserve before and after the ACREMA programme was introduced.
3. Evaluate the extent of natural resource exploitation inside and outside the Ankasa Resource Reserve following the introduction of the ACREMA programme.
4. Examine the measures undertaken by park management and the ACREMA community members to minimise natural resource exploitation in the Ankasa Resource Reserve after ACREMA was introduced.
5. Understand ACREMA community members' willingness to support nature conservation and other alternative livelihood programmes such as tourism.

6. Provide guidelines and recommendations for policy makers, park management and other parties in the implementation of any development project in the Ankasa region based on the study findings.

#### **4.1 Social Exchange Theory**

This section of the review focuses on the theoretical nature of Social Exchange Theory (SET) as well as the processes and factors involved in social exchange. Major proponents of social exchange theory include scholars like Peter Blau, John Thibaut, Harold Kelley, Richard Emerson, and George Homans. Social exchange theory derives its strength from two bodies of literature, namely behavioural psychology and elementary economics. Behavioural psychology embodies a set of propositions that stem from experimental studies of animals in laboratories in which the behaviour of party “A” affects and is affected by the behaviour of party “B” or another. Elementary economics, on the other hand, entails a set of propositions describing statements about supply and demand in a so-called perfect market (Chadwick-Jones, 1976).

Social exchange theory is a collection of explanations, propositions and hypotheses representing certain assumptions about social behaviour. The theory rests on the assumption that evaluation, decision-making and social interaction processes cannot be understood separately from the social context in which they occur (Chadwick-Jones, 1974) and self-interest and interdependence are central properties of exchange processes (Lawler & Thye, 1999; Zafirovski, 2005). Since the theory of social behaviour requires making assumptions, an understanding of the concepts used in developing and analysing social behaviour is a prerequisite to theory building. Some of the concepts commonly used in social exchange theory building are

interaction, social attraction, rewards, costs, reciprocity, comparison level, norms, and conformity.

#### **4.1.1 Description of concepts used in social exchange theory building.**

An important component of any interpersonal relationship is *interaction* or *social attraction*. According to Homans (1958), interaction is an exchange of goods, material and non-material. Interaction means that individuals emit behaviour in each other's presence and they communicate with each other (Thibaut & Kelley, 1961, p. 12). The consequences of any interaction or social attraction can be described in terms of the *rewards* a person receives and the *costs* incurred. Rewards refer to the pleasures, satisfactions or gratification a person enjoys. Costs, on the other hand, are the factors that operate to inhibit or deter the performance of a sequence of behaviour (Thibaut & Kelley, 1961, p. 12). Social attraction is the force that induces human beings to establish social associations. It refers to liking or being drawn to another person (Blau, 1964, p. 20). In the course of interaction comes the exchange of services and the process of exchanging mutually gratifying pattern of goods and services, which is known as reciprocity (Gouldner, 1960, p. 170).

An individual is attracted to another because of the benefit or reward to be derived from an association (Blau, 1964, p. 20). In evaluating the adequacy of anticipated outcomes of a relationship, members in a relationship need a standard or criterion on which such evaluation would be based. Two important kinds of standard for such an evaluation are identified. The first of these, called the *comparison level* (CL) is defined as the average value of all the outcomes known to a person which he uses to evaluate the "attractiveness" of a relationship (Thibaut & Kelley, 1961, p. 80). The comparison level (CL) can be equated to Blau's *extrinsic benefits*.

Extrinsic benefits constitute objective criteria for comparing associates, choosing between them and abandoning one in favour of another (Blau, 1964, p. 36). The second, called the *comparison level for alternatives* ( $CL_{alt}$ ) is the standard a member uses in deciding whether to remain in or to leave a relationship that is regarded as unsatisfactory (Thibaut & Kelley, 1961, p. 21).

Central to an examination of social exchange theory are *norms*, which add a sense of cohesiveness to the accomplishments within a social order. Norms are rules about behaviour and can be described from different points of view. A norm is an idea in the minds of members of a group, an idea that can be put in the form of a statement specifying what members or others should do, ought to do, or are expected to do under given circumstances. Nonconformity of norms is punished while conformity rewarded. A norm in this sense is known as sanction pattern (Homans, 1950, p. 123).

Another factor important to social exchange theory concerns *conformity* behaviour. Conformity behaviour occurs when members of a group find the activity of another person valuable because it follows the norms of the group (Homans, 1958). As groups grow larger, norms become increasingly important both because consensus is difficult to attain and without norms interferences are likely to occur. Norms develop so that members perform behaviour that they would not perform in the absence of norm enforcement. For instance, when members of a group try to change the behaviour of others, they would direct most interaction to members whose behaviour most needs changing (Homans, 1961, p. 112). Individuals are encouraged to conform for group reasons rather than for personal or self interest in order to enjoy group benefits and to be part of the group (Thibaut & Kelley, 1961, p. 129).

#### **4.1.2 An exchange paradigm: building the social exchange theory.**

Drawing support from the social sciences, namely behavioural psychology and elementary economics, social exchange theory is an effective tool in studying social behaviour. In what follows, I discuss the processes involved in exchange behaviour and suggest the nature of the propositions or assumptions such a theory contains. The issues to be discussed are voluntary association, rationality, reciprocity, justice principle, norms, and conformity. Social behaviour is an exchange of goods, tangible and intangible such as approval or prestige (Homans, 1958). Central to all the social exchange theorists is their interest in the interdependency of relationships between persons and in the actual process of social behaviour (Emerson, 1976).

##### ***4.1.2.1 Voluntary association in social exchange theory.***

Social exchange refers to the voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do in fact bring from others (Blau, 1964, p. 91; Chadwick-Jones, 1974, p. 36). Human beings enter into new social associations and expand their interaction with them because they actually find doing so rewarding. Reference here is to social relations in which individuals enter of their own free will rather than those imposed on them by forces beyond their control. In other words, individuals participate in a relationship out of a sense of mutual benefit rather than coercion.

#### **4.1.2.2 *Rationality in social exchange theory.***

A general assumption is made that, for a relationship to be viable, it must provide rewards and costs, which compare favourably with those in other competing relationships or activities available to individuals in a relationship (Thibaut & Kelley, 1961, p. 49). In explaining rewards and costs associated with social exchange, Blau made reference to a number of human acts and concluded that the same human acts that cause pleasure to some typically cause displeasure to others (Blau, 1964, p. 15). That is, the rewards individuals obtain in social associations tend to have costs to other individuals. The question is: are human beings rational in the decisions they take when associating with others? Blau stated that the only assumption made is that human beings choose between alternative potential associates or courses of action by evaluating the experiences in terms of a preference ranking and selecting the best alternative (Blau, 1964, p. 18). On the issue of rationality, Homans (1961, p. 80) stated that whatever a person's values may be, their behaviour is irrational if it is not so calculated as to get the largest supply of values in the long run. A person would always prefer outcomes better than those already available and would attempt to repeat activities that yield good outcomes and avoid activities that produce unsatisfactory ones (Thibaut & Kelley, 1961, p. 80). If good outcomes are experienced in the initial contacts or the contacts lead persons to anticipate good outcomes in the future, the interaction is likely to be repeated.

The comparison of successful and unsuccessful relationships provides a basis for drawing inferences about the factors that contribute to rewards and costs. If the outcomes in a given relationship surpass the comparison level (CL), that relationship is regarded as a satisfactory one. And to the degree the outcomes are above or supra-CL, the person may be said to be attracted to the relationship. If the outcomes endured are infra-CL, the individual is dissatisfied and unhappy

with the relationship. If possible, individuals would leave the group, so we may say their attraction to the group is negative. A person's CL depends not only upon outcomes he has experienced or seen others experience, but also upon those that are actively stimulating to the individual (Thibaut & Kelley, 1961, p. 81). This implies that an individual's selection of alternatives is based on rational decision. That is, when a person is confronted with a range of choices for a course of present action, the individual is more likely to choose the one he believes will bring success, reward or benefit.

#### ***4.1.2.3 Reciprocity in social exchange theory.***

Reciprocity is seen as resulting from an inclination to associate with others to give and to receive rewards or to stay out of debt in social transactions. A person will enter into a social exchange transaction with others if and only if he believes the exchange transactions will bring him success (Gouldner, 1960, p. 170). Social exchange rests on the norm of reciprocity where one individual has an obligation to another. This means that, in the process of social exchange, a return is expected. Accordingly, all contact among persons rests on the schema of giving and returning the equivalent (Blau, 1964). The need to reciprocate for benefits received in order to continue receiving serves as the beginning of social interaction. Reciprocity expresses mutual returns or exchange of benefits between two or more people in interpersonal relations (Gouldner, 1960, p. 164; Chadwick-Jones, 1974, p. 243). A person for whom another has done a service is expected to express his gratification and return a service when the occasion arises. Failure to express his appreciation and to reciprocate tends to brand him as ungrateful and does not deserve to be helped (Blau, 1964, p. 4). However, if a person reciprocates, the social rewards the other

receives serves as inducements to extend further assistance and the resulting mutual exchange of services creates a bond between them (Blau, 1964, p. 4).

#### ***4.1.2.4 Justice principle in social exchange theory.***

Distributive justice or the justice principle refers to the relationship between the returns received for services rendered and the investment costs incurred in order to be able to render them. Distributive justice involves the evaluation of investments and rewards by a number of criteria and it also involves assessing one's own returns against those of another (Chadwick-Jones, 1974, p. 243). This implies that a person in an exchange relation with another would expect that the rewards of each person be proportional to the costs, thus the greater the rewards, the greater the costs. Also, the net reward of each person should be proportional to the investments, the greater the investments, the greater the profit (Homans, 1961, p. 75).

The discussion on distributive justice is moved a step further when Homans (1961, p. 73) states that people express anger, mild or severe when they do not get what their past history has taught them to expect. The more often in the past an activity emitted under a particular stimulus-condition has been rewarded, the more anger they would display at present when the same activity, emitted under similar conditions goes without its reward. That is, people whose standards of justice are violated feel angry as well as dissatisfied and give vent to their anger through disapproval of and sometimes hostility and hatred against those who caused it. Correspondingly, people whose standards of fairness are met or possibly even exceeded by the magnanimity of others express their appreciation through approval.

#### ***4.1.2.5 Norms and conformity in social exchange theory.***

The social exchange process utilises the self-interest of individuals to produce a differentiated social structure within which norms tend to develop that require individuals to set aside some of their personal interests for the sake of those of the collectivity (Blau, 1964, p. 92). Norms are verbal descriptions of behaviour that many members find valuable for the actual behaviour of themselves and others to conform to (Homans, 1958). Conformity to normative standards often requires that group members refrain from engaging in certain direct exchange transactions with outsiders or among themselves. By adhering to the principles, individuals establish a good reputation, which places them in good standing in subsequent social interaction with the rest of the group. Conformity frequently entails sacrificing rewards that could be attained through direct exchange, but it brings other rewards indirectly (Blau, 1964, p. 259).

By the same token, a deviant is a member whose behaviour is not particularly valuable and does not conform to a group's norms. Therefore, when members of a group come to see another member as a deviant and effort to influence the deviant fails, members interact little with the deviant and start to withhold social approval from that member. Conversely, the more closely a member's activity conforms to the norms, the more interactions received from other members and also the more liking choices given from them. Though conformity leads to liking, it could result in less liking especially if a person who conforms closely to the group's norms also exerts too much power, control or authority over others in the group (Homans, 1958).

From the above discussion, the model that emerges to explain social exchange theory consists of five explanatory propositions of social behaviour. First, social exchange theory is based on voluntary association. This implies that the more authoritarian a relationship is to a person, the more likely a person would leave that relationship and vice versa. Secondly, social

behaviour is based on the notion of rationality. The more a given behaviour results in a reward, the more individuals are likely to choose that behaviour. Thirdly, relationship within the social exchange paradigm is based on the concept of reciprocity. Reciprocity means that the more valuable to a person the activity another gives him, the more often he will emit activity rewarded by the activity of the other. Fourthly, social relationships based on the justice principle states that, rewards should be equal to costs, hence the greater the reward, the greater the cost. Also the truth about the justice principle is that people are likely to be angry if they are not rewarded for performing similar activities that were rewarded in the past. In the same way, people whose standards of fairness are met by the generosity of spirit of others express their appreciation through approval. Fifthly, social behaviour must be based on conformity to norms. That is, the more individuals conform to group's norms, the more they are rewarded, and the more they deviate from the norms, the more they incur costs or are punished.

## **4.2 Empirical Studies on Social Exchange Theory**

A number of potential theoretical frameworks may exist to help explain residents' or local community members' perception and willingness to support nature conservation and tourism development. However, the theoretical framework which has most often been applied to residents' perception of tourism studies is social exchange theory. Social exchange theory suggests that residents evaluate tourism development based on the net gain or loss which they perceive to have received from the exchange of resources with tourists or other parties. This section of the review concerns itself with local community members' support of tourism and in

particular ecotourism. Of particular interest is why local people support tourism or ecotourism at various tourist destinations.

Social exchange theory specifies the exchange of tangible or intangible resources that residents and tourists may give and receive in the host-resident tourism context. As a result, the starting point for social exchange comes from the need to reciprocate for benefits received in order to continue receiving them. Empirical studies on local community members' support for tourism indicated that support may be achieved when community members derive benefits from protected areas. Previous studies have empirically demonstrated that the majority of local people held favourable attitudes toward wildlife conservation when personal benefits were derived from protected areas (Fiallo & Jacobson, 1995; De Boer & Baquete, 1998; Mehta & Heinen, 2001; Sekhar, 2003).

Unlike in other studies where attitudes and perceptions of local communities are sought after the implementation of a development project, Andereck and Vogt (2000) investigated residents' attitudes toward tourism and how they related to tourism development across several Arizona communities in the United States of America prior to the implementation of a Rural Tourism Development programme. Results indicated that communities differed with respect to residents' support for specific tourism development options and attitudes toward tourism. But in general, residents perceived tourism positively and supported most specific types of development. In Crete, Andriotis and Vaughan (2003) set out to identify and explain the attitudes of urban residents toward tourism development. Findings of the study were similar in Crete to those from the USA. The results of the study showed that residents who found exchange beneficial for their well-being were keen to support tourism development and had positive

reactions to tourists. Conversely, residents who viewed the exchange as problematic opposed tourism development.

A self-administered survey carried out in a dozen communities in Arizona examined the factors predicting attitudes toward tourism (McGehee & Andereck, 2004). Overall, respondents were positively inclined toward tourism. The study results revealed that, in general, personal characteristics such as age, did not predict attitudes toward tourism, but community dependence on tourism was a predictor. Personal benefit from tourism predicted both positive and negative effects of tourism and support for additional tourism development among some residents of the Arizona communities. Residents felt that tourism has positive effects on the local economy, such as improving the economy and creating jobs, and they also agreed that tourism can result in a number of quality-of-life improvements. Respondents were uncertain regarding personal benefit from tourism but were quite supportive of additional tourism development (McGehee & Andereck, 2004).

In measuring host destination attitudes toward tourism in Washington and Idaho in the United States of America, Gursoy and Rutherford (2004) developed and tested a model based on social exchange theory that examined both perceived impacts and the factors that are likely to influence residents' perceptions. Support was measured by responses to three items. Respondents were asked to indicate how much they would oppose or support nature-based tourism, cultural, or historic based attractions (such as visitor centres or museums) and nature programs (such as guided nature walks) developments in their community on a 5-point anchor scale with "strongly oppose" at the low end and "strongly support" at the high end. The findings of this study revealed that the host community's backing for tourism development was affected directly and indirectly by nine determinants that included: (1) the level of community concern, (2) eco-centric

values, (3) utilisation of tourism resource base, (4) community attachment, (5) the state of the local economy, (6) social, (7) economic, (8) cultural benefits, and (9) social costs (Gursoy & Rutherford, 2004). Findings also indicated that the more residents felt the economy needed improvement, the more likely they were to support tourism, and the less likely they were to be troubled by any social costs. Also, residents who expressed a high level of attachment to their communities were more likely to view tourism as being both economically and socially beneficial. Thus, while most members of the community were found to be concerned about economic benefits, others were more concerned about specific benefit and cost factors.

Just as tourism benefits may lead to community support of conservation, unequal distribution of benefits can also create problems for park managers. Alexander (2000) examined resident's feelings about resource protection in their community and attitudes toward management. Alexander (2000) found that some residents in Belize were less supportive of conservation initiatives because of unequal access to benefits such as employment allocation, training, sound management structure, equal representation and local participation in decision-making process.

Tourism is recognised both as an economic tool and a conservation strategy in protected areas. For tourism to thrive at the host destination, it is important that local community members support its implementation. Local community support of tourism development has been measured using the social exchange theory. Empirical studies presented under this review showed that local people supported tourism if the associated benefits to be gained were greatest and did not support tourism if the cost incurred were larger than the benefits.

### **4.3 Social Exchange Theory: Towards a Conceptual Framework**

As proposed in Chapter 3 and flowing from the above discussion, this section develops an integrated conceptual framework to help examine the objectives outlined in this study. The section begins with definitions of key concepts followed by a detailed discussion of the conceptual framework.

#### **4.3.1 Definition of key concepts.**

Natural resource management is central to global efforts to reduce environmental degradation and advance sustainable development (Lenton, 2002). In this section, definitions of key concepts used in the study are presented. The section begins with concepts such as conservation, natural resources, and natural resource management. Other key concepts defined and also adopted in the study include community conservation and community-based natural resource management.

##### ***4.3.1.1 Conservation and resource management.***

The term *conservation* came into use in the late 19<sup>th</sup> century and usually involves the active management of natural resources to ensure long-term viability of a resource, but in some cases, conservation means leaving the land and wildlife alone (Thoms & Betters, 1998). Conservation also means intelligent use of resources so that they can be utilised to the fullest without being depleted (Chapman & Hartman, 1962). Conservation has been put forth as the means to rehabilitate native biota, their habitats and life support systems to ensure their sustainability and biodiversity (Shuter, Minns, & Olver, 1997).

The word *resource* has been interpreted narrowly as denoting a physical entity such as land (Czajkowski, Foster, & Kesselman, 2005). Resources refer to a bundle of entities such as land, forests, plants, fuel-wood, water and certain wild animals (Barrow, 1998; Pearl, 2003). In contrast, *natural resources* are naturally-occurring resources that are considered valuable to people (Eagles, 2002, pp. 265-266) and in their relatively unmodified form (Barrow, 1998; Pearl, 2003). Natural resources are often classified into renewable and non-renewable resources. Renewable resources include living resources such as fish, cocoa, rubber, coffee, and forests which can restock or renew themselves if they are not over-exploited. As the name implies, non-renewable resources cannot restock themselves and are finite. Non-renewable natural resources can be listed as fossil fuels, oil, coal, copper, diamonds, natural gas, iron ore, minerals, gold, silver, platinum, rocks, and many more. Once non-renewable resources are removed, they cannot be replaced. The rate of sustainable use of a renewable resource is determined by the replacement rate and the amount of standing stock of that particular resource. Once renewable resources are consumed at a rate that exceeds their natural rate of replacement, the standing stock will diminish and eventually run out. At this point, a natural resource could be said to be over-exploited which calls for proper resource management.

*Management* as defined by Frew (1971, p. 396) consists of planning, organizing, motivating and directing. It means directing or steering of things by any means possible (Knudson, 2001). Management can also mean guiding or controlling and can refer to setting goals and taking actions to fulfil those goals (Eagles, 2002, p. 266). Natural resource management therefore entails the management of natural resources so as to ensure sustainability (de Beer & Marais, 2005). In other words, natural resource management involves the ability to formulate and implement effective goals with the objective of achieving a sound and ecological

environment. A number of natural resource management approaches exist but the most practical for nature conservation at the community level is community conservation.

#### ***4.3.1.2 Community conservation approach to natural resource management.***

Community conservation is an approach for involving rural people in natural resource management and seeks to change the ways in which resource users and state agencies interact so that conservation goals are achieved in dynamic environments (Hulme, 1997, p. 2). More importantly, it refers to a broad spectrum of management arrangements and benefit-sharing partnerships, which promote the conservation of natural resources as well as the welfare of local people (Barrow, 1997). Characteristically, community conservation strategies include integrated conservation and development projects (ICDPs), protected-area outreach, ecotourism, co-management or community-based resource management.

Integrated ICDPs attempt to link the conservation of natural resources within protected areas to social and economic development outside that protected area (Newmark & Hough, 2000) while protected area outreach involves dialogue with local people aimed at building trust (Hulme, 1997). Ecotourism is a form of tourism which seeks to minimise its negative impact on the environment (Orams, 1995; Valentine, 1993). It focuses on the preservation of natural and cultural resources while promoting local development (Masberg & Morales, 1999). Co-management enables local people to participate in protected area management and gain responsible access to agreed resources agreed upon from a protected area (Carlsson & Berkes, 2005, pp. 66-67); while community-based natural resource management is based on the recognition that local people must have the power to decide over their natural resources in order to encourage sustainable development (Rozemeijer & van der Jagt, 2000).

#### **4.3.1.3 Community-based natural resource management.**

Until the 1980s, conventional wisdom held that central governments should manage all conservation efforts in developing countries (Barrett, Brandon, Gibson, & Gjertsen, 2001). However, more recently, scholars, conservation practitioners and policy-makers have advocated an alternative approach based on bottom-up direction by local communities resulting in an attempt to address the continuous depletion of the world's natural resources. It was recognised that in many cases, rural communities play a pivotal role in securing natural resources and that any long-term conservation strategy required their involvement. The result of this was the development of a range of Community-Based Natural Resource Management (CBNRM) programmes across Africa (Barrow & Murphree, 1998).

Community has been a contentious term in social science research for at least a century. Recent studies view community as a dynamic entity comprised of individuals who interact through various practices (Broderick, 2005, p. 289). According to Kumar (2005), a community is a small, homogeneous, harmonious and territorially-bound unit and the lowest level at which people organise to achieve common goals (Kumar, 2005). The term community has also been defined to include groups of people joined by interest or geographic location (Kelly et al., 2003) or a very heterogeneous group of people with multiple interrelated axes of difference, including wealth, gender, age, religion, race/ethnicity, sexual orientation, beliefs, values, interests, norms or goals (Korten, 1986; Cornwall & Jewkes, 1995). Schmink (1999) defined community as a heterogeneous group of people who share residence in the same geographic area and access a set of local natural resources. Because no single definition of community best suits the study area, I propose a new definition that is more eclectic and encompasses relevant aspects of the various definitions already discussed. For this reason, community in this study is defined as: *a*

*heterogeneous group of people with differences in gender, age, education, wealth, religion, ethnicity, values, and norms and who are joined by interest or share residence in the same geographic area and access to a set of local natural resources.*

This definition is appropriate because the local communities surrounding the Ankasa Resource Reserve are diverse in nature and all may access the natural resources within their reach. Though they are geographically located within one area, the members may have different backgrounds and such differences can impact on the resources around them. Since community can refer to many things, it is essential to qualify the type of community under discussion. It is not uncommon to have a community of environmental organisations, or nurses, and scientists. Therefore, to avoid any confusion, communities surrounding the Ankasa Resource Reserve will be qualified by referring to them as local communities and the people living within them as local community members.

If community is defined as a heterogeneous group of people with differences in gender, age, education, wealth, religion, ethnicity, values, and norms and who are joined by interest or share residence in the same geographic area and access a set of local natural resources; and natural resources are naturally-occurring entities such as flora, fauna and precious minerals with management being the ability put things into perspective; then *community-based natural resource management* refers to resource management practices in which people dependent on those resources or affected by management practices are involved in the management and exploitation of the resources (Ashley & Roe, 1998; Turner, 2004). Specifically, community-based natural resource management is the ability to formulate and implement effective conservation goals by involving local community members with the aim of preserving, protecting and conserving the natural environment (Brosius & Tsing, 1998).

### **4.3.2 The conceptual framework.**

To examine the above objectives, this study proposes a conceptual framework to guide the analysis (Figure 4). The description and interrelationship of concepts as used in the conceptual map are presented in the subsequent paragraphs.

The study of social life or social behaviour is concerned with the relations among human beings. The analysis of interpersonal relations is to derive from the analysis a better understanding of the complex structures of association amongst women and men, women with women, and men with men that develop (Blau, 1964, p. 2). According to Blau, two conditions must be met for behaviour to lead to social exchange. First, the behaviour must be oriented toward ends that can only be achieved through interaction with other people and second, it must seek to adapt means to further the achievement of these ends (Blau, 1964, p. 5). In this study and using the conceptual framework, the study illustrates the propositions within social exchange theory and shows how these propositions can be used to explain social behaviour of the local community members and their interaction with the Ankasa Resource Reserve under the Amokwawsuazo Community Resource Management Area (ACREMA) programme.

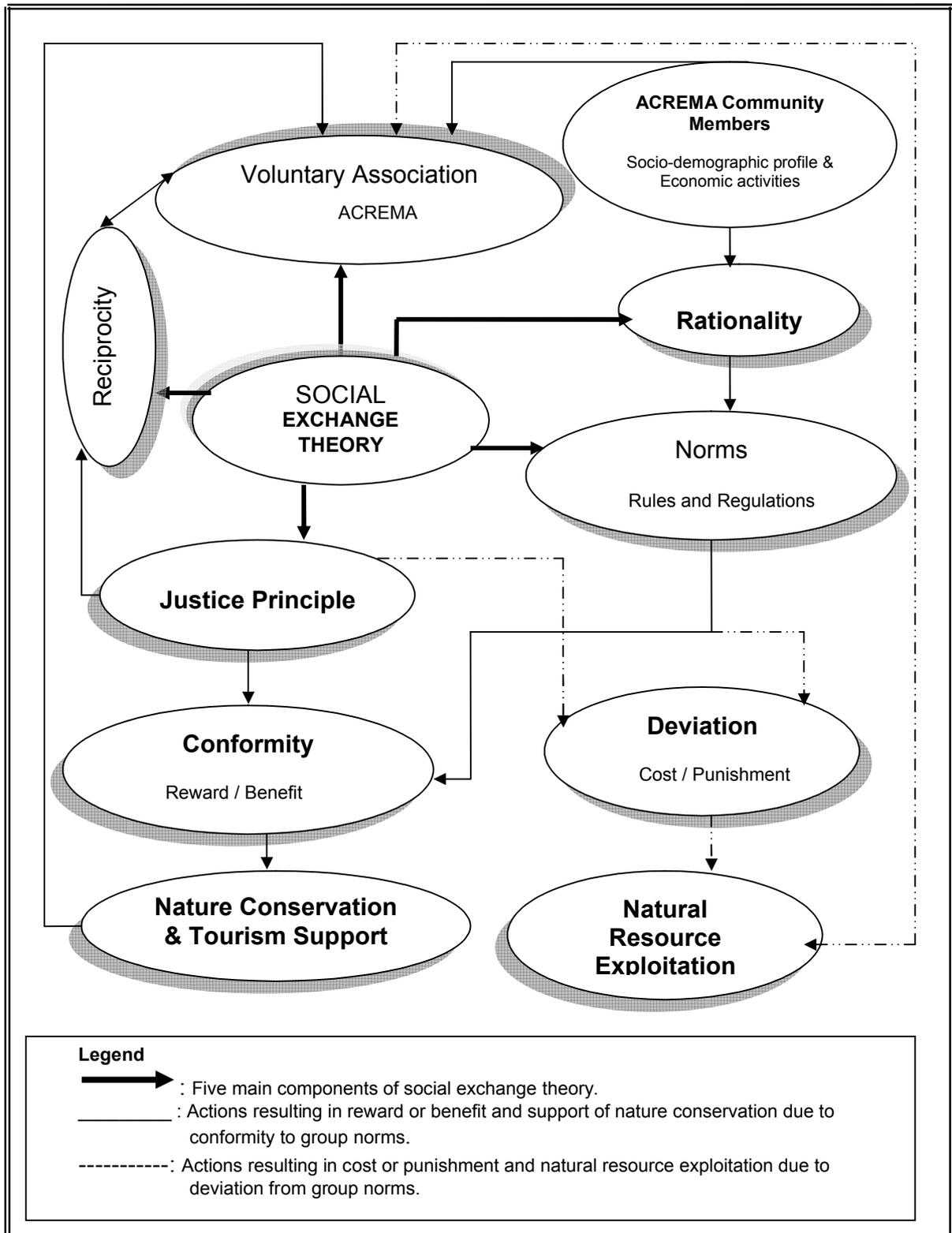


Figure 4. Conceptual Framework.

The ACREMA programme is held by the Ghanaian government to be a model of a community-based natural resource management programme. Realising the need to minimise or control natural resource exploitation inside and outside the Ankasa Resource Reserve, the park management team at Ankasa established the Amokwawsuazo Community Resource Management Area programme in 2003 where local community members became active participants or partners in resource management (Forestry Commission, 2004).

The first proposition developed out of the social exchange theory states that association with a group or an individual is voluntary rather than coercive (Homans, 1961; Blau, 1964). Physically, the ACREMA is a geographically defined area that includes local communities that agreed to manage natural resources in a sustainable manner. In Ankasa, eight local communities lying within a 5 to 7 kilometres radius from the Reserve's boundary are members of the ACREMA organisation. The *voluntary proposition* relates well to the Amokwawsuazo Community Resource Management Area programme in that membership in the organisation is *voluntary* and involves a commitment to protect, manage and conserve forest resources. For community members to join the ACREMA organisation, the management team at Ankasa informs the local people about the importance of the ACREMA concept and existence of such an organisation. Local community members must also be made aware of the potential benefits likely to be enjoyed as well as the costs to be incurred by joining such an organisation. Based on the available information received, local community members can then decide to freely join the ACREMA organisation or not.

The decision to become a member of the ACREMA association depends on the different choices available to local community members living around the Ankasa Resource Reserve. The process whereby local community members in the Ankasa Resource Reserve area choose

between available alternatives brings into the discussion the *rationality* proposition. The rationality proposition states that in choosing between alternative actions, a person will choose alternatives which have more perceived benefit. In other words, the more a given behaviour results in a reward, the more individuals are likely to take that behaviour. This means that social exchange first acknowledges human behaviour as an exchange of rewards between actors (Emerson, 1976; Byrd, 2006) and assumes that self-interested persons will transact with other self-interested persons to accomplish individual goals that they cannot achieve alone. In a similar way and before any decision is taken, local community members are likely to compare and evaluate the options available to them before any final decision is taken. This proposition further states that options or choices that fall below an individual's comparison level (CL) or expectation renders the relationship or association unsatisfactory and the person may leave the relationship altogether. However, should the available choices be above a person's expectation, the individual may be attracted to the relationship and even remain in it because the outcome looks satisfactory. The discussion indicates that individual's selection of alternatives as well as becoming a member of the ACREMA organisation is based on rational decisions.

The ACREMA community members and the park management team can be said to be in a *reciprocal* relationship when community members receive incentives from the park management team for their participation in the organisation's activities. That is, each person in the relationship will provide benefits to the other so long as the exchange is equitable and the units of exchange are important to the respective parties. As previously noted, a person will enter into a social exchange transaction with others if and only if he believes the exchange transactions will bring him/her benefit or reward (Ndonga, 2002). In the process of giving incentives to the ACREMA community members, park management team obligates the ACREMA community

members to uphold their end of the bargain. In other words, the ACREMA community members must, for example, cease poaching wildlife and as well put an end to the gathering of non-timber forest products from inside and outside the Reserve if they are to continue to enjoy benefits from the park management team. The benefits to be derived from the park management team could take the form of money, clothing, text books or farm inputs such as fertilizers or machetes. The social exchange between the two parties (ACREMA community members and the park management team) must therefore be seen as fair by both for the relationship to continue.

Social exchange based on the *justice principle* requires that, in each exchange, there should be a norm of fairness governing behaviour. The exchange must be viewed as fair when compared in a context of a wider network or to third and fourth parties. The idea of distributive justice goes beyond equity between the two parties' contribution. To a certain extent, individuals want to ensure that they receive reasonable, equal returns for their involvement as compared to others who are members of the same organisation. The establishment of the ACREMA association is to ensure that both park management and the local community members at Ankasa work towards the conservation and management of natural resources inside and outside the Reserve.

For example, the ACREMA community members are encouraged to adopt certain conservation measures such as setting aside of buffer zones and planting of non-timber forest products as a way to minimise natural resource exploitation. The justice principle explains that local community members will be willing to undertake conservation measures if they perceive the rewards to be gained are greater or equivalent to their invested time. However, where some individuals suspect unequal distribution of rewards, they are bound to be angry and dissatisfied and in some cases even revolt against their leaders or superiors. That is people whose standards

of justice are violated feel angry as well as dissatisfied and give vent to their anger through disapproval of and sometimes hostility and hatred against those who caused it. Correspondingly, people whose standards of fairness are met or possibly even exceeded by the magnanimity of others express their appreciation through approval. To forestall any unpleasant situation, park management must see to it that individual's investment is commensurate with rewards or incentives.

Another feature of the social exchange theory concerns *norms and conformity*. Norms are of importance in that they make certain that individuals adhere to the rules and regulation of any organisation or association. While *conformity* may lead to reward, *deviation* could also lead to sanction or punishment on the deviate. As a result, individuals must act as neighbourhood watchdogs to report any deviant behaviour to the appropriate authorities. Any ACREMA member found to contravene the stated rules and regulation regarding proper resource use and management could either be punished by the leaders of the ACREMA organisation or by the park management team following appropriate standards. It is probable that community members who are punished for breaking resource use norms may get angry and cease to become members of the ACREMA organisation. Conversely, members who abide by the rules of the organisation by not exploiting the natural resources inside and outside the Reserve may be handsomely rewarded by getting fertilizers, machetes, textbooks or even bicycles for keeping their end of the bargain. Such members are likely to support all other conservation measures including nature tourism and continue to be a member of the ACREMA organisation because of the expected benefits they are likely to enjoy.

Chapter 4 of this study has presented the theoretical framework and discussed the concepts underlying the conceptual framework. The discussion revealed that social exchange

theory is well suited to studies trying to understand human behaviour in a natural environment. The theory explains that people enter into social contracts voluntarily based on rational decisions taken. People's continued relationships with others depend on their satisfaction with the outcome of the relationship as well as the associated benefits and costs incurred in the process. Satisfied people will maintain the relationship and vice versa.

#### **4.4 Research Design and Methodology**

In this section, I present a detailed description of the research design and methodology employed for this study. First, an account of the exploratory phase of the study is given followed by the sampling procedure. Quantitative and qualitative data collection methods are described. A detailed description of data measurement, analysis and fieldwork procedure are presented.

##### **4.4.1 Preparatory phase of the study.**

Ankasa Resource Reserve is one of the few remaining rainforests in West Africa and the only evergreen rainforest in Ghana. Like many forest reserves around the world, this Reserve is also confronted with the issue of wildlife poaching and resource extraction. Though unfamiliar with the Reserve at the onset of this study, the researcher was taken in by photographs that portrayed the Reserve's luster and green beauty and other magnificent attractions. Drawn in by its spectacular beauty and also concerned about its further destruction, the researcher decided to look into the Reserve's resource exploitation issue with the aim of finding solutions to the problem.

Due to the novelty of the Ankasa region to the researcher, it was imperative that some preparation be done before the commencement of the actual fieldwork. Thus, in line with protocol and procedure and before embarking on the visit, the researcher wrote letters to the Director of Ghana Wildlife Division expressing interest in and requesting permission to conduct research in the Ankasa Resource Reserve. With permission granted and funding from the International Development Research Centre (IDRC), the researcher first travelled to the Ankasa Resource Reserve and its neighbouring communities in January 2005 and again in July-August 2006.

The first visit to the study area served as a familiarization tour for the researcher. Essentially, the visit was to establish rapport with community members. During the visit, the community development and wildlife officer introduced the researcher to the paramount chief, the elders of the various communities as well as some community members. As tradition demands and in-keeping to the custom of the area, the researcher presented a bottle of Gordon's Dry Gin to Nana Nuba, the paramount chief of the area. The acceptance of the drink was significant in two ways. First, it signified that Nana Nuba had officially granted me permission to proceed with the study and secondly, the ACREMA community members were to give me their utmost support and cooperation during the period I stayed in their community. The second visit to the ACREMA communities was to develop and build trust and confidence among community members in order to pave way for the actual fieldwork. The two visits to the Ankasa region gave the researcher the opportunity to prepare well for the third and actual fieldwork which began in April and ended in May 2007.

#### ***4.4.1.1 Selection and interview with local community men.***

On my second trip to the Reserve, I managed, with the help of the wildlife officer interview five local men on natural resource exploitation and management issues. Interview questions touched on ACREMA and the role of local community members in ACREMA's activities. The men were also asked to talk about things they would like to see done differently with respect to ACREMA. The same set of questions was used for the focus group interview with the seven women. Although there were some local women present during the interview, they remained silent the entire period. In other words, the presence of the local women did not affect the focus group interview with the five local men because they neither spoke nor contributed to it.

Selection of the male interview participants involved a number of processes. First, the wildlife officer instructed some community members to inform the rest of their community of this study and also to ask if community members would be willing to participate in a 45 minute to 1 hour informal group interview. On the appointed day, the group interview took place under a shed in Amokwawsuazo, the oldest of the eight ACREMA communities. Interview participants were in their early 50s. From the time the message was delivered to the time the interview took place was approximately three days. The message was delivered to community members on Monday while the interview was held on Wednesday. The selection of the different days was strategic in the sense that Monday is the biggest and busiest market day at Sowudadzemu where people from all the eight ACREMA communities and even beyond arrive to display and sell their farm products while Wednesday is the no-farming policy day. It was therefore easier to circulate messages to local community members as they sold their products.

The interview questions although written in English language were read out to participants in Twi, the dominant local language. With participants' permission, the focus group interview was audio-taped for accurate transcription and analysis. The results of the interview with the five local men are presented in Chapter 6.

#### **4.4.2 Sampling procedure.**

This section presents the sampling procedure adopted for this study. The section begins with a brief description of the target population. An overview of the sample design, sample selection and size are also presented.

##### ***4.4.2.1 Defining the target population.***

The first stage of the research was to identify the research population. The target population for this study included members from the eight ACREMA communities that lie within 5 to 7 kilometres radius from the Ankasa Resource Reserve boundary. These communities are Amokwawsuazo, Sowudazemu, Fante Newtown, Old Ankasa, Faya, Frenchman, Odoyefe, and Paradis. Prior to the commencement of the actual fieldwork, the researcher undertook two visits to all the ACREMA communities in order to gain a better understanding of the area and to establish a personal contact with local community members.

The unit of the analysis at the community level was the household, where the 'head' of the household was the respondent. As a general guiding principle, the survey was restricted to respondents above 18 years. The underlying reasons were twofold: first, the age limit was set at

18 years and above because the universal adult suffrage in Ghana is 18 years; and secondly, they are old enough to provide relevant responses to the issues addressed by the study.

The definition of a household as used in the Ghanaian Population and Housing Census (2000) was adopted, but with slight modification. The Ghanaian Population and Housing Census defines a household as a group of people who have usually slept in the same dwelling (such as a house or a hut) and taken their meals together for at least nine of the 12 months preceding the survey. Though this definition of a household head is good, it is not appropriate for this study because the duration of one's stay (nine months) in the community is not long enough to effectively comment on the issues raised in this study. Therefore, to qualify as a respondent for this study, the household head must have lived in the community for at least three years or more and before the ACREMA programme came into effect in 2003.

As an example, a typical household comprises a man and his wife or wives and children, nieces and nephews and other relatives or non-relatives. Also, a household can consist of a single person, a couple or several couples with or without their children. The household head is the person who provides most of the needs of the household and also takes most of the major decisions affecting the welfare of the household. Usually, he or she is most familiar with all the activities and occupations of the household members. In this study, both female and male household heads above 18 years qualified as respondents.

#### **4.4.2.2 *Sample design.***

The sample design for this study was unique in that the study utilised both random sample and census data. With permission from local chiefs and elders and before the random sample was drawn, the researcher first undertook a count of all the households in each

community and assigned a number (1, 2, 3...n) to each household because there was no readily available information on the number of households in the study area. After the count, I found that four of the eight ACREMA communities had many more households than others. The four ACREMA communities with over 20 households were Amokwawsuazo, Sowudadzemu, Old Ankasa and Fante Newtown while four communities, Frenchman, Faya, Odoyefe and Paradis had less than 20 households. Since interviewing every household head in each community would have been cost intensive and time-consuming, it was decided that to minimise cost and resources, household heads from communities with more than 20 households would be selected for interview using a 50% random sample while a complete census would be taken for those communities containing 20 or less households.

#### **4.4.2.3 *Sample selection.***

Sample size has implications for the outcome of any study. While small sample size could present challenges for the researcher during data analysis, which could lead to statistical inaccuracies, large sample size can also be tedious, time-consuming and overwhelming when many open-ended questions are analysed. For this reason, the current study achieved a manageable sample size.

Having counted and assigned each household a number, a random sample was drawn from each of the four ACREMA communities that had more than 20 households. First, the number of each household was written on a piece of paper, folded and placed in a box before the sample was drawn. A random sample of households without replacement was drawn based on the number of households counted in each community until an appropriate sample size was achieved for each of the four communities. Random sampling without replacement means that

each time a household number was picked from the ballot box, it was put aside and the ballot box was shaken several times before the next household number was picked. This approach gave each household number an equal chance of being picked.

The random selection of respondents ensured that the selected respondents represented at least half or slightly more than half of the sampled population. For instance, if a community contained about 50 households, at least 25 respondents representing half of the population were selected for interview. On the other hand, if a community contained about 83 households as was in the case of Amokwawsuazo, slightly more than half (42) of respondents were randomly selected for interview. To illustrate this point, the study counted 52 households in a community known as Old Ankasa so 26 respondents were randomly selected for interview. By the end of the sampling process and out of 278 households counted, 140 respondents were randomly selected from four larger communities for interview (Table 1).

*Table 1. Random Sample Data for Four Larger ACREMA Communities*

<b>Name of Community</b>	<b>Number of Household Counted</b>	<b>Number of Household Heads Selected</b>
Amokwawsuazo	83	42
Sowudadzemu	97	49
Old Ankasa	52	26
Fante New Town	46	23
<b>Total</b>	<b>278</b>	<b>140</b>

In addition to random sampling, census data were also used. Census data for this study came from the remaining four smaller communities namely, Frenchman, Faya, Odoyefe and Paradis. This means that every household head in Frenchman, Faya, Odoyefe and Paradis were

selected for interview because each of these communities had less than 20 households. Unlike the other four communities, these communities had only 47 household heads (Table 2).

*Table 2. Census Data for Four Smaller ACREMA Communities*

<b>Name of Community</b>	<b>Number of Household Counted</b>	<b>Number of Household Heads Selected</b>
Frenchman	18	18
Faya	11	11
Odoyefe	9	9
Paradis	9	9
<b>Total</b>	<b>47</b>	<b>47</b>

Table 3 shows the total number of households realised from the eight ACREMA communities as well as the number of household heads selected for interview. Out of the 325 households counted, 187 household heads were selected for the study. Though effort was made to ensure that respondents were evenly selected from the eight ACREMA communities, it should also be emphasised that some of the ACREMA communities were more densely populated than others; hence, the differences in sample sizes. For instance, more respondents were drawn from Sowudazemu and fewer from the other seven local communities because Sowudazemu is more densely populated than the others. For sampling purposes, Dinorharle, the ninth local community, was excluded from the sample of this study due to its very small size.

*Table 3. Total Number of Communities Counted and Number of Respondents Selected*

<b>Name of Community</b>	<b>Number of Household Counted</b>	<b>Number of Household Heads Selected</b>
Amomkwawsuazo	83	42

<b>Name of Community</b>	<b>Number of Household Counted</b>	<b>Number of Household Heads Selected</b>
Sowudadzemu	97	49
Old Ankasa	52	26
Fante Newtown	46	23
Frenchman	18	18
Faya	11	11
Odoyefe	9	9
Paradis	9	9
<b>Total</b>	<b>325</b>	<b>187</b>

#### **4.4.3 Data collection methods.**

This study adopted a multi-method approach relying on both quantitative and qualitative data from primary and secondary sources. Quantitative data were collected via a researcher-research assistant administered survey.

Under quantitative data collection methods, the study focused on the survey questionnaire. Key qualitative methods included focus-group discussions with some ACREMA community women, open-ended informal in-depth interview with the community wildlife officer, and overt participant observation during survey administration. In addition, qualitative content analysis of written records such as the Reserve's Management Plan and other written documents on Ankasa Resource Reserve were used.

#### **4.4.3.1 *Quantitative data sources: survey questionnaire.***

Quantitative data sources for this study came from the administration of a survey questionnaire. Survey questionnaires involve the gathering of information from individuals using a formally designed schedule of questions called a questionnaire (Veal, 1992, p. 145). They are used when quantified information is required concerning a specific population (Veal, 1992, p. 72). Examples of survey questionnaires include household survey, street survey, telephone survey, mail survey, and site or user survey.

Survey questionnaires can either be interviewer-completed or respondent-completed. When completed by the interviewer, the questionnaire provides the script for an interview. The interviewer reads the questions out to the respondent and records the respondent's answers on the questionnaire. On the other hand, when the questionnaire is completed by the respondent, respondents read and fill out the questionnaire themselves (Veal, 1992, p. 147). A basic assumption underlying quantitative research is to conduct an objective and scientific research free from human interference. Though this is really a challenge, with care, it can be achieved.

Quantitative data were captured using a structured questionnaire designed with the help of the thesis supervisor. The survey questionnaire is attached in Appendix A. The questionnaire was written in English and administered face-to-face to household heads in the ACREMA communities. Questions were translated to respondents in a local language comprehensible to the researcher, research assistants, and community members. As noted during the researcher's previous two visits to the eight ACREMA communities, most people were shy to speak or express themselves in English. Thus, the use of Twi, a local language which is common knowledge to the research team and the ACREMA members was used. This ensured that the

ACREMA members were comfortable in expressing themselves when providing answers to the survey questionnaire.

The survey instrument had four sections. The survey instrument was designed in such a way that it included both closed and open-ended questions. The use of closed ended questions allowed for easy quantification of results while the open-ended questions gave research participants room for expression by adding more substance and detail to the study.

#### ***4.4.3.2 Qualitative data sources: focus group interviews, in-depth interview and written documents.***

Qualitative methods have become important tools in large part because they provide valuable insights into the local perspectives of study populations. One of the contributions of qualitative research is the culturally specific and contextually rich data it produces (Mack, Woodson, MacQueen, Guest, & Namey, 2005).

Qualitative research studies include ethnographies and case studies. Research methods under qualitative design include focus group discussions, in-depth interviews, participant observations, historical, and document analysis. Qualitative research design takes place in a natural setting without intentionally manipulating the environments. The perspective is that humans construct their own reality and an understanding of what they do (Tripp-Reimer, Sorofman, & Waterman, 1994). A major task of the qualitative researcher is to ensure that group discussions are held in a friendly environment whereby each participant has an equal chance to express himself (Morgan, Gibbs, Maxwell, & Britten, 2002).

Several data collection methods were employed under qualitative research design. The methods used in this study included focus group discussions, in-depth interviews, overt

participant observation and qualitative content analysis of written documents. Each of these methods is discussed in detail in the paragraphs that follow.

(i) *Focus group discussions.*

Kreuger defined a focus group as a ‘carefully planned discussion designed to obtain perceptions in a defined area of interest in a permissive, non-threatening environment’ (1988, p. 18). Kreuger also suggested that focus group interviews or discussions were born in the late 1930’s by social scientists that had doubts about the accuracy of traditional information gathering methods. Focus group interviews tap into human tendencies where attitudes and perceptions are developed through interaction with other people. The group discussion is essentially a qualitative data gathering technique that finds the interviewer/moderator directing the interaction and inquiry in a very structured or unstructured manner, depending on the interview’s purpose (Denzin & Lincoln, 1994, p. 365).

Most focus groups consist of between six to 12 people but Merton, Fiske, and Kendall (1990, p. 137) suggested that the size of the group should not be so large as to prevent adequate participation by most members nor should it be so small that it fails to provide substantially greater coverage than that of an interview with one individual. However, small groups of (4-6 people) are preferable when the participants have a great deal to share about the topic or have had intense or lengthy experiences with the topic of discussion (Kreuger, 1988, p. 94). Kreuger (1988) suggested that a focused interview should include less than 10 questions and often around five or six. Stewart and Shamdasani (1990) proposed that most interview guides should consist of fewer than a dozen questions. The questions for discussion could be structured, unstructured

and/or open-ended to allow respondents to answer from a variety of dimensions depending on the goal of the study.

Before the commencement of the discussion, it is recommended that the moderator must attempt to build rapport in the group. Stewart and Shamdasani (1990) suggest that it is a good idea to have group members introduce themselves and tell a little about themselves. This method can help 'break the ice'. The recommended pattern for introducing the group discussion includes the welcome, overview of the topic, ground rules and the first question (Kreuger, 1988, p. 80).

*(ii) Informal in-depth interview.*

The interview as a data collection method may be described as an interaction between an interviewer and interviewee with the view to soliciting reliable information (Marshall & Rossman 1989). In-depth interviews entail asking questions, listening and recording answers and then posing additional questions to clarify or expand on a particular issue. In-depth interviews aim at understanding respondents' views (Veal, 1992).

*(iii) Overt participant observation.*

The familiarity of the researcher with the culture of the area was an added advantage. The researcher and the research assistants adopted direct observation rather than complete participation, which meant that the research team did not try to become participants in the context (Trochim, 1999). This was done to avoid being drawn too far and "going native" (Hunt, 1985) instead of focusing attention on the objectives of the research. Local community members were aware of our presence (i.e. the presence of the research and two research assistants) and the

purpose for being in the community. This method was used to allow for recording of behaviour as it occurred, rather than relying on a subject's retrospective reports of personal behaviour (Selltiz, Marie, & Deutsch, 1995). The observation method also helped the researcher to explore for information and gather supplementary data that were not captured with the questionnaire.

*(iv) Content analysis of written documents.*

The study analysed existing data in order to answer some of the research questions. Secondary data sources came from the Reserve's Management Plan, reports from government ministries and the Department of Ghana Wildlife Division. The study undertook a review of the Reserve's Management Plan (Ghana Wildlife Division, 2000). Specifically, the review concentrated on management strategies that have been taken to address natural resource exploitation, nature conservation and tourism development in the Ankasa Resource Reserve. In addition to a review of the Ankasa Resource Reserve's Management Plan, government documents as well as other written documents on the Reserve were reviewed in relation to the topic under study.

#### **4.4.4 Data measurement and analysis.**

This section presents data measurement and analyses that were used for this study. Statistical tests are associated with different levels of measurement but the essence of tests relates to comparisons and relationships between variables. The type of test to be performed depends on the data format, levels of measurement and the number of variables involved (Veal, 1992). Using multi-modal approaches, the study gives an overview of the data measurement and

the type of analysis used in this study. Using SPSS 14, quantitative data were analysed using simple descriptive statistics while qualitative data were transcribed and analysed manually for major themes.

#### ***4.4.4.1 Socio-demographic characteristics and economic activities.***

To understand and appreciate the study objectives and research questions, Sections 1 and 2 of the survey questionnaire asked for information on the ACREMA community members' socio-demographic characteristics and economic activities. The socio-demographic characteristics of respondents included variables such as: 1) name of community; 2) length of stay in community; 3) gender; 4) age; 5) marital status; 6) ethnicity; 7) religion; 8) level of education; 9) household size; 10) number of children; and, 11) prevailing land tenure arrangements. Economic activities variables addressed issues such as: 1) occupation; 2) years in occupation; 3) annual income; 4) types of crops grown; 5) animals reared; and, 6) the availability of local restaurants in the area.

Descriptive statistics were used to compute frequencies and percentages of respondents' socio-demographic characteristics and economic activities. Cross tabulations and means were also used. It was easier to see how many of the respondents were for instance males or females, which age group they belonged, their marital status, their level of education and the income group to which they fell. The study also examined the impact of the respondents' characteristics on the Ankasa Resource Reserve.

#### **4.4.4.2 *Natural resource exploitation inside and outside the Ankasa Resource Reserve.***

The extent of natural resource exploitation was measured using different methods or approaches. The different methods used were to determine: 1) the types of natural resources (wildlife species and non-timber forest products) exploited inside and outside the Reserve; 2) the location of their exploitation; 3) the hunting devices used; 4) frequency of natural resource consumption; and, 5) reasons for their consumption.

With reference to the survey questionnaire, Questions 3.1 through to 3.22 specifically gave a sense of the types of natural resources (wildlife species and non-timber forest products) exploited inside and outside the Ankasa Resource Reserve. Using a set of 81 statements for question 3.22, the ACREMA community members were asked to indicate with a (Yes) or (No) the location points where each natural resource utilised in their household came from. Three locations points were given out as (1) “inside the Reserve”, (2) “outside the Reserve” or (3) “purchased from the open market”.

In addition to the set of 81 statements, several other questions on natural resource exploitation were also addressed. Questions relating to natural resource exploitation included both wildlife species and plant products. Relating to wildlife species or bushmeat, questionnaire number 3.1 through to 3.10 looked at the types of wildlife species exploited, the types of hunting devices or techniques (such as snares, traps etc.) used in their capture and location of kill or capture. Respondents were also asked to state their frequency of bushmeat consumption and reasons for bushmeat consumption.

Questions 3.11 through to 3.21 dealt with non-timber forest products or plant products consumption. For instance, respondents were to indicate: 1) the type of fuel used for domestic

purposes; 2) frequency of fuel usage; 3) where fuel for domestic purposes came from; and, 4) whose duty it was to gather firewood. Additionally, frequency with which old pestles and mortars for fufu (a local dish) and palm fruits were replaced was also raised. Finally, respondents were to indicate their use of herbs for medicinal purposes and the frequency with which such herbs were used as an alternative mode of treatment. As the socio-demographic characteristics and economic activities of respondents were analysed using descriptive statistics, so also was the extent of natural resource exploitation.

#### ***4.4.4.3 Gender and natural resource exploitation and management.***

Bearing in mind the guidelines for focus group discussions as discussed above and using a checklist, this study held another focus group interview with seven local women. Focus group participants were selected using snowball sampling. Snowball sampling was used because it is an approach for locating information-rich key informants (Patton, 1990). It also uses recommendations to find people with specific range of characteristic that has been determined as being useful (Black, 1999; Patton, 1990). Although the process is cheap, simple and cost-efficient, the researcher has little control over the sampling method because the subjects that the researcher can obtain rely mainly on the previous subjects that were observed (Black, 1999).

Using a common local language (Twi) the interview began with the exchange of pleasantries as a warm-up to the main interview/discussion after which the purpose of the interview was stated. The seven local women who took part in the focus group interview were on average a bit younger than the five local men previously interviewed. The local women were entreated to comment on two major issues in Twi. First, local women were asked to comment on the current state of natural resources (the abundance or depletion of wildlife species and non-

timber forest products) prior to the establishment of ACREMA and after ACREMA was introduced. Secondly, the women were asked of their involvement in the activities of the ACREMA programme (Appendix C).

Questions asked were followed with other probe questions as the interview unfolded. The follow up questions were spontaneous and were based on participants' previous answers. A similar approach was followed during the interview with the men. The interview took approximately an hour. With permission from participants, proceedings were audio-taped and later transcribed from Twi to English because the discussion was conducted in Twi. In addition to audio-taping of interview, short notes were also written down when necessary.

Large qualitative data sets are best handled using qualitative data software such as Nvivo. But for small qualitative data set such as obtained for this study, a manual approach to its analysis seemed most appropriate. First, the audio file from the focus group interview was transcribed. The transcripts were analysed manually by looking for emerging themes that related to the study's objectives. The qualitative aspect of the study complemented the survey data generated and also provided a deeper understanding of women's perspective on the state of natural resource exploitation in the Ankasa region.

#### ***4.4.4.4 The role of park management in natural resource management strategies.***

This study also involved an in-depth interview with the community development and wildlife officer at the Ankasa Resource Reserve. The in-depth interview was guided by the use of a checklist. This was to enable the researcher gain more insight into park management strategies aimed at minimising natural resource exploitation inside and outside the Reserve as well as other

issues pertaining to park management and tourism development. The wildlife and community development officer was asked to describe: 1) park management strategies put in place to minimise natural resource exploitation inside and outside the Reserve, and 2) to elucidate on the measures that management team has introduced to promote alternative livelihoods that could lead to development at the community level (Appendix D). The researcher probed the participant when it became necessary and as the interview proceeded. The interview with the wildlife and community development officer was also audio-taped with occasional hand written notes. As the interview was in English, there was no need for translation. The audio interview was transcribed and analysed manually, taking note of the major themes that developed.

#### ***4.4.4.5 Overt participant observation.***

To obtain a rich understanding of the issues at hand, the researcher and her two research assistants paid special attention to the study's environment, particularly the region's market days. The purpose of the market visits was to gain first-hand experience of the different forest products made available for sale in order to understand the extent of natural resource exploitation ongoing in the region and to develop effective solutions. The market days for the Ankasa region are Mondays, Wednesdays, and Fridays and held in the communities of Sowudadzemu, Anyinase, and Elubo respectively. On market days, the researcher and her two research assistants paid attention to the different food crops and meat products sold. The research team recorded interesting scenarios that occurred in the communities in mini pocket diaries but more importantly, the researcher always carried a digital camera in her backpack and never missed an opportunity of taking photographs, when allowed to so do. These observations enriched the study.

#### **4.4.4.6 *Review of written documents.***

Secondary data sources were also utilised for this study. The study undertook a review of the Reserve's Management Plan. Specifically, the review concentrated on management strategies that address natural resource exploitation, nature conservation and tourism development in the Ankasa Resource Reserve. In addition to the review of the Reserve's Management Plan, reports from the Ministry of Tourism, Wildlife Division and other written documents on the Reserve were also examined.

#### **4.4.5 *Fieldwork guidelines and processes.***

Fieldwork guidelines ensured that all field activities were properly planned and coordinated and that documented procedures were followed. The field activities were the most important stage of the research. The identification of households and the arrangement of visiting periods were important to ensure that the objectives of the research were met and that errors which usually occur in the field were corrected and handled without further cost. For example, with permission from household heads, selected houses in each community were numbered and after each household head had been interviewed, the number on the house was crossed out to avoid repeat visits. More importantly, care was taken to ensure that markings on houses were minimal and did not affect selected houses in anyway.

#### ***4.4.5.1 Field trip participants: identification of research assistants and their training.***

Situated in the south-western region of Ghana, the Ankasa Resource Reserve covers an area of 343 km<sup>2</sup> and borders Ivory Coast to the West. There are eight local communities lying between 5 to 7 kilometres from the Reserve's boundary. In order to finish data collection on time and given the wide coverage required in terms of geography, it was found useful to engage research assistants. Consequently, two local men about to be enrolled into tertiary institutions in Ghana were identified and requested to assist the researcher with data collection.

Identification of the two local men was done with the help of the wildlife officer at the Ankasa Resource Reserve. In particular, the two research assistants were chosen because of their time availability, their desire to learn, and their ability to be trained as research assistants. Another criterion taken into consideration was their knowledge of the region and proficiency in the local languages. The survey team consisted of three persons; the researcher and two research assistants, both of whom hail from the Ankasa Township. The names of the research assistant were Bernard Sakyi and Horis Mensah.

Two-day training was organised for the research assistants in the Town of Elubo at the King James Hotel. The purpose of the training was to ensure that research assistants understood the survey questions and were confident to administer the questionnaire to respondents. The training of research assistants entailed familiarisation with the questionnaire used and data collection ethics. A script (Appendix B) detailing the various steps to be followed in the selection of household heads was also designed to guide the research assistants. For instance, the script stated that research assistants should knock at doors and wait to be welcomed in before entering any house.

Furthermore, the research assistants were to greet community members in the local language when entering any house. After being offered a seat, the research assistants were to introduce themselves formally and also to brief household members of the purpose of their visit and the study before administering the questionnaire. Using the script as a guideline (Appendix B), the research assistants screened respondents to ensure that only household heads 18 years and above were selected to answer the questionnaire. Survey questions were read out clearly to respondents in the local language and the answers recorded in English immediately.

Selected household heads were interviewed on the first visit. However, where household heads were unavailable for interview on the first visit, an appointment was made to return later at an agreed date. Although there was the need for second visits, subsequent visits were at a minimum because before a community was surveyed, local announcements (i.e. the wildlife officer ensured that community leaders were contacted and informed of our visit to their community) were made to inform residents of our arrival and administration of the questionnaire. The training process worked well and also served as a good forum to share and exchange experiences especially with the people from the region where the study was conducted. As part of the training, a pre-test was conducted in the ACREMA area, as will be described below.

#### ***4.4.5.2 Pre-test and mapping the survey region.***

A pilot study was conducted to pre-test the questionnaire design. This involved a practical field test of the questionnaire by conducting face-to-face interviews with five people within the ACREMA communities. The questionnaire was pre-tested for appropriateness and relevance. No major modifications were found necessary, so the questionnaire was adopted and

the interviews commenced forthwith. Lessons learned provided useful insights during the actual survey.

#### **4.4.5.3 *Actual fieldwork.***

With the help of the wildlife officer, local chiefs and elders were approached and data collection commenced only after local authorities had given the research team consent. The local residents accorded the study overwhelming support and cooperation. Community elders were particularly useful for introduction purposes within the community.

Actual survey data collection commenced in April 2007 and operated through to May 2007, lasting approximately four weeks. The research assistants met with the researcher every day to share their field experiences and to return the answered questionnaires. The researcher also double-checked the returned questionnaires to ensure that they were properly and fully completed before storage. All poorly answered and incomplete questionnaires were rejected because the answers provided indicated that respondents did not meet the selection criteria (i.e. respondents were not household heads and they had not lived in the community long enough to be aware of ACREMA and its objectives). In addition, the disqualified respondents were unable to answer fully questionnaire numbers 3.21 and 4.10 which sought to understand the types of natural resources exploited and the types of services respondents were willing to take on if and when tourism became available in the study region respectively.

#### 4.4.5.4 Survey performance (response rates).

Household participation was excellent and even non-household heads were ready and willing to be interviewed. As a result, this study did not encounter any incidence of non-responses. From an expected coverage of 187 households, 174 households were completed representing a 93.1% response rate. Only 13 questionnaires were rejected. The expected coverage and completed responses by location are presented in Table 4.

Table 4. Percentage of Interviewed Respondents against Expected Coverage

Name of Community	Expected Coverage	Rejected Questionnaire	Completed Questionnaire	Percentage Interviewed
Amokwawsuazo	42	8	34	81.0
Sowudadzemu	49	3	46	93.9
Old Ankasa	26	1	25	96.2
Fante New Town	23	0	23	100
Frenchman	18	0	18	100
Faya	11	0	11	100
Odoyefe	9	0	9	100
Paradis	9	1	8	88.9
<b>Total</b>	<b>187</b>	<b>13</b>	<b>174</b>	<b>93.1</b>

#### 4.4.6 Data Processing.

Survey data processing commenced immediately after the completion of fieldwork. A total of 174 questionnaires were received for processing. Once the quantitative surveys were complete, each was entered into a computer data file. The survey questionnaire was coded and data cleaning was done alongside data entry with occasional consistency checks to minimise

errors during the real analysis. The statistical package used was SPSS (Statistical Package for Social Scientist Version 14). Data analysis on this file was done using descriptive statistics such as frequencies, means, variances, cross tabulations among others.

## Chapter Five

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### **Conservation and Natural Resource Management in the Ankasa Resource Reserve: Quantitative Analysis**

#### **5.0 Introduction**

Chapter 5 presents analyses of the household survey data collected from the ACREMA communities. The chapter begins with an analysis of respondents' socio-demographic characteristics and economic activities. The analysis continues by examining the extent of natural resource exploitation within the Reserve. The extent of natural resource exploitation looks first at the exploitation of wildlife species followed by exploitation of non-timber forest products. The analysis of natural resource exploitation will also be done by examining natural resources obtained from multiple entry points (locations) namely, natural resources obtained from inside the Reserve, natural resources obtained outside the Reserve and natural resources purchased from markets.

#### **5.1 Socio-demographic Characteristics and Economic Activities**

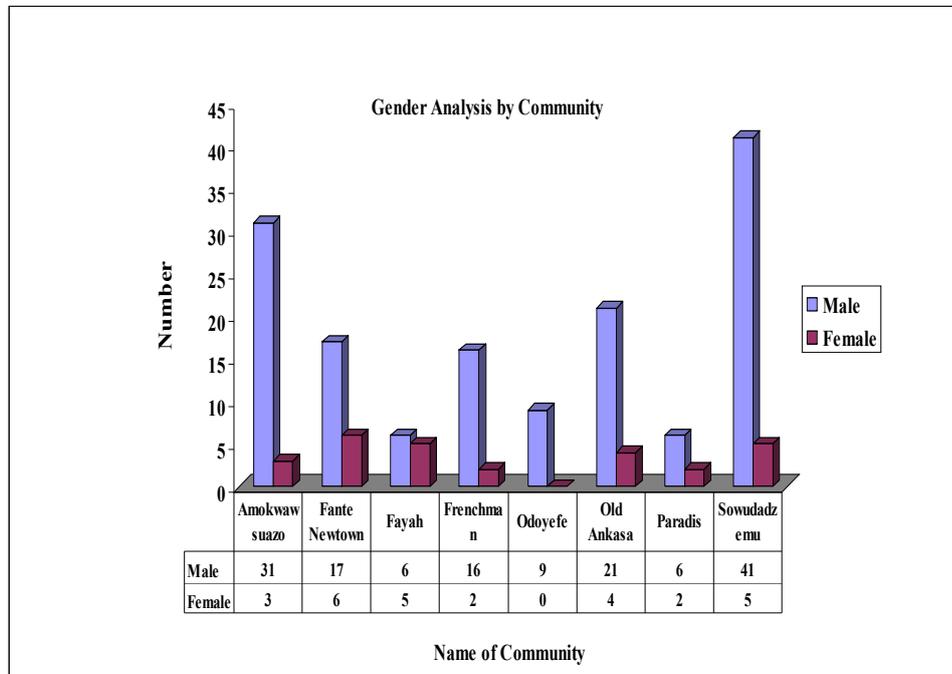
Socio-demographic characteristics and economic activities of any population are the product of its culture and ecological factors. Knowledge of these characteristics and activities helps in the analysis of several aspects of the population. This section gives a detailed overview of the demographic characteristics of the ACREMA population, such as age and sex, as well as other socio-demographic variables, including marital status, education, ethnicity, and economic

activities. The results are presented at both household and individual levels. This helps to create a larger picture about each respondent and the household in which the respondent lives. It also describes some of the outcomes that are used as a basis for subsequent analysis in other chapters.

### **5.1.1 Household characteristics.**

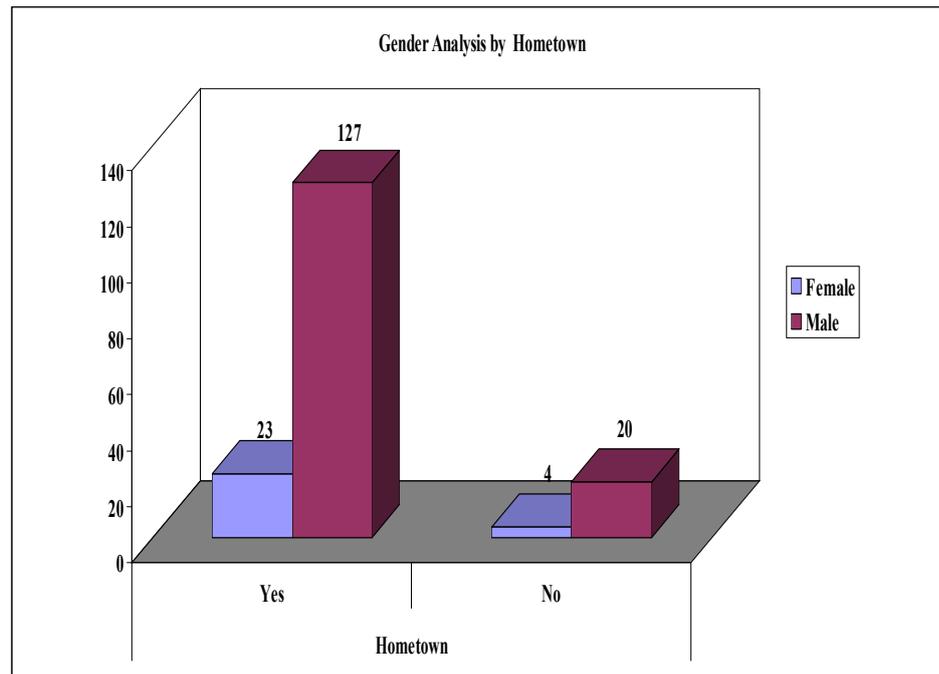
Table 5 provides details of household characteristics. The eight ACREMA communities involved in this study were (1) Amokwawsuazo, (2) Old Ankasa, (3) Fante Newtown, and (4) Frenchman. The rest of the communities were (6) Sowudadzemu, (7) Paradis, (8) Odoyefe and (9) Faya. Gender differences were disproportionate for the total sample. Of the 174 respondents surveyed, 147 (85%) were men, who dominated in all locations with just 27 being (15%) women. Looking at Figure 5 and beginning with Amokwawsuazo, the distribution by gender shows that of the 34 people surveyed, 3 (8.8%) were women while 31 (91.2%) were men. Fante Newtown had 23 households of which 6 (26.1) were women and 17 (73.9%) were men. Of the 11 household heads interviewed in Fayah, 5 (45.5%) were women and 6 (54.5%) were men. In Frenchman, only 2 (11.1%) women were household heads as opposed to 16 (88.9%) male household heads. A total of nine people were interviewed in Odoyefe and not even one was a female household head. Out of the 25 household heads interviewed in Old Ankasa, 4 (16%) were women and 21 (84%) men. Similar patterns were depicted in Paradis and Sowudadzemu. Of the eight household heads interviewed in Paradis 2 (25%) were women and 6 (75%) were men. Even though Sowudadzemu had the highest number of households (45) involved in the study; the distribution by gender was not different. Of the 45 people interviewed only 5 (10.9%) were

women while the rest were men 41 (89.1%). Based on these results, it can be concluded that the Ankasa region is a male-dominated society.



**Figure 5. Gender Analysis of Household Heads by Community.**

While only 24 (14%) of household heads were originally from the Ankasa region, 150 (86%) were non-indigenous which shows that most residents are migrants. Further analysis showed that of the 27 female household heads interviewed, only 4 (16.7%) were from the region while 23 (83.3%) were not. The number of indigenous male household heads was 20 (83.3%) as against 41 (16.7%) who were originally not from the region (Figure 6).



**Figure 6. Gender Analysis of Respondents' Place of Origin.**

In terms of the number of years lived in the community, this findings reveal the recent migration pattern saw many people move into the area. The average number of years lived in the community was 14.4 years, with 10 years being the longest most respondents have lived in the community followed by 15 years and 20 years. About 46% of the household heads claimed to have lived in the community for between 6 and 15 years.

The average household size or number of people in a household within the ACREMA communities was 6.8 per household. Understandably, the household size for the region was higher than national household size (5.1) according to the 2000 Ghana census. This is a common characteristic of poor rural communities, and going by the above results, of recent migrants who were attracted to the region because of its natural resources. If this trend persists, it could have negative implications on natural resources in the region because studies have shown that large household sizes lead to natural resource depletion (Bramoh & Vlek, 2005). Relating to

household size, a vast majority of household heads 167 (96%) had children and the average number of children per household was 4.7 or 5, again higher than the national level (4.5) as per the 2000 Ghana population census. Households with between 4 and 6 children accounted for 68 (39.1%) of the sampled population.

Table 5. Household Characteristics of Respondents

Category	Amokwawuazo	Fante Newtown	Fayah	Frenchman	Odoyefe	Old Ankasa	Paradis	Sowudadzemu	Total
<b>Gender</b>									
Male	31 91.2%	17 73.9%	6 54.5%	16 88.9%	9 100%	21 84%	6 75%	41 89.1%	147 84.5%
Female	3 8.8%	6 26.1%	5 45.5%	2 11.1%	0	4 16%	2 25%	5 10.9%	27 15.5%
<b>Hometown</b>									
Yes	11 32.4%	2 8.7%	0	2 11.1%	0	1 4%	1 12.5%	7 15.2%	24 13.8%
No	23 67%	21 91.3%	11 100%	16 88.9%	9 100%	24 96%	7 87.5%	39 84.8%	150 86.2%
<b>Years in Community</b>									
<5	10 29.4%	2 8.7%	0	2 11.1%	1 11.1%	1 4.0%	1 12.5%	10 21.7%	27 15.5%
6 to 10	6 17.6%	6 14.0%	3 27.3%	6 33.3%	3 33.3%	8 32.0%	3 37.5%	8 17.4%	43 24.7%
11 to 15	6 17.6%	3 8.1%	3 27.3%	6 33.3%	4 44.4%	6 24.0%	2 25%	7 15.2%	37 21.3%
16 to 20	7 20.6%	8 34.8%	2 18.2%	3 16.7%	1 11.1%	4 16%	2 25.0%	4 8.7%	31 17.8%
20+	5 14.7%	4 17.4%	1 5.6%	1 5.6%	0	6 24.0%	0	17 37.0%	36 20.7%
<b>People in Household</b>									
1 to 3	5 14.7%	0	3 27.3%	2 11.1%	1 11.1%	5 20%	2 25%	4 8.7%	22 12.6%
4 to 6	13 38.2%	10 43.5%	3 27.3%	7 38.9%	5 55.6%	10 40%	2 25%	18 39.1%	68 39.1%
7 to 10	10 29.4%	18 34.8%	4 36.4%	8 44.4%	3 33.3%	6 24%	3 37.5%	15 32.6%	57 32.8%
10+	6 17.6%	5 21.7%	1 9.1%	1 5.6%	0	4 16%	1 12.5%	9 19.6%	27 15.5%
<b>Children</b>									
Yes	32 94.1%	22 95.7%	9 81.8%	18 100%	9 100%	24 96%	8 100%	45 97.8%	167 96%

Category	Amokwawsuazo	Fante Newtown	Fayah	Frenchman	Odoyefe	Old Ankasa	Paradis	Sowudadzemu	Total
No	2 5.9%	1 4.3%	2 18.2%	0	0	1 4%	0	1 2.2%	7 4%
<b>Number of Children</b>									
0 to 3	15 44.1%	6 26.1%	3 27.3%	7 38.9%	4 44.4%	8 32%	3 37.5%	12 26.1%	58 33.3%
4 to 6	14 41.2%	9 39.1%	4 36.4%	8 44.4%	5 55.6%	9 36%	4 50%	21 45.7%	74 42.5%
7 to 10	4 11.8%	5 21.7%	1 9.1%	3 16.7%	0	4 16%	1 12.5%	11 23.9%	29 16.7%
10+	1 2.9%	3 13%	3 27.3%	0	0	16%	0	2 4.3%	13 7.5%

Note. Data in the Table shows the number of respondents in each cell, as well as the percentage within each category.

### 5.1.2 Individual characteristics.

This section, 5.1.2, discusses individual characteristics of household heads. Variables such as age, marital status, education, ethnicity and religion were considered (Table 6). Figure 7 shows that respondents within the 30-39 (35%) year age bracket form the largest group, followed by those between 40-49 years (26%); implying that majority (61%) of household heads were between the age bracket 30-49. This indicates that most of the ACREMA communities are characterised by middle-aged household heads and this was similar to the gender age distribution pattern illustrated with Figure 8.

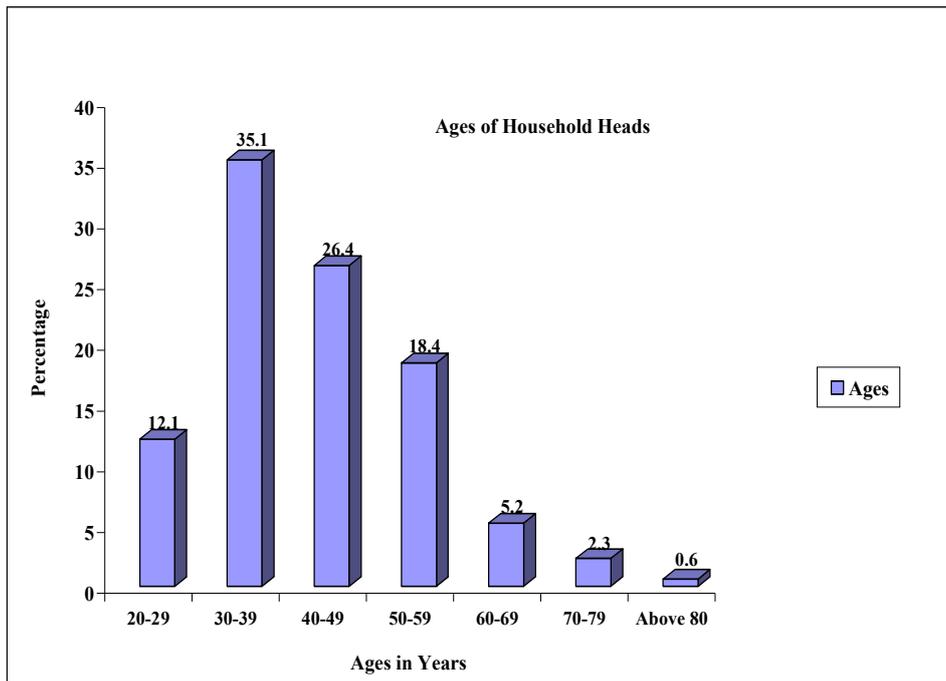


Figure 7. Age Distribution of Household.

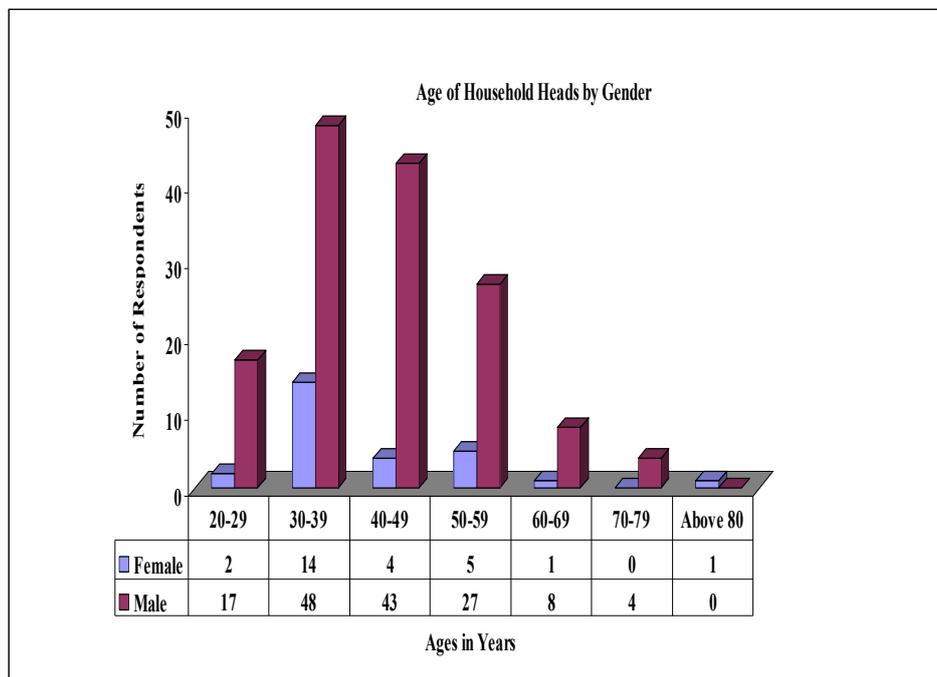


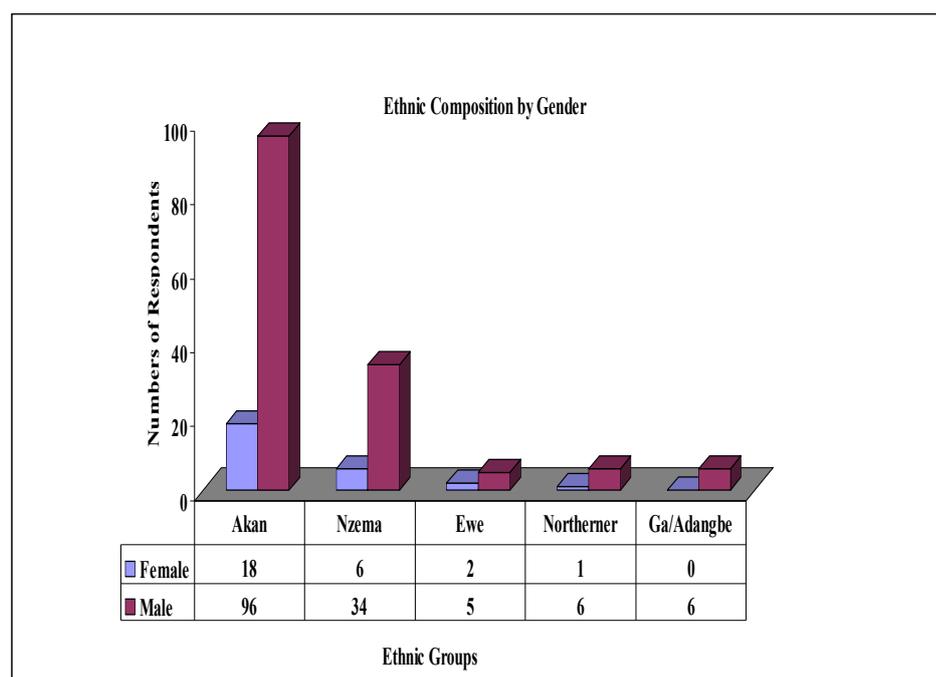
Figure 8. Age Distribution of Household Heads by Gender.

The survey data split by marital status show that 137 (78.7%) of household heads are married, while 13 (7.5%) are divorced and separated respectively. Those living with a partner accounted for 3 (1.7%). The never married and widowed also accounted for 4 (2.3%) respectively. The category “otherwise” comprised the never married, divorced, separated, living with partner and widowed.

Pertaining to ethnic composition, the ACREMA population was very diverse and comprised different ethnic groups. The Akan ethnic group dominated at 114 (65.5%), followed by Nzema at 40 (23 %), and with all other cases below 6%. Of the 114 Akan people interviewed 18 were women and 96 men. All six Ga/Adangbe people involved in this study were men. For more details, see Figure 9.

The high level of the Akans in the region can be explained by the fact that Akans are predominantly farmers who migrate in search of rich, fertile farming lands. This attribute was highlighted during the focus group discussion where it was echoed that Akans migrated to the Ankasa region in large groups.

Christianity was the widely practiced form of religion 150 (86.2%), with Islam accounting for a low 14 (8%). Cases of traditional believers and other worshippers were minimal. This finding is not surprising because based on the 2000 Ghana population census Ghana is largely a Christian (69%) country.



**Figure 9. Ethnic Composition of Respondents by Gender.**

*Table 6. Individual Characteristics of Respondents*

Category	Amokwawuazozo	Fante Newtown	Fayah	Frenchman	Odoyefe	Old Ankasa	Paradis	Sowudadzemu	Total
<b>Age of Respondents</b>									
20-29	5 14.7%	3 13%	2 18.2%	2 11.1%	0	3 12%	0	4 8.7%	19 10.9%
30-39	8 23.5%	9 39.1%	5 45.5%	6 33.3%	6 66.7%	9 36%	4 50%	15 32.6%	62 35.6%
40-49	10 29.4%	5 21.7%	2 18.2%	4 22.2%	3 33.3%	7 28%	2 25%	14 30.4%	47 27%
50-59	8 23.5%	5 21.7%	1 9.1%	5 27.8%	0	4 16%	1 12.5%	8 17.4%	32 18.4%
60+	3 8.8%	1 4.3%	1 9.1%	1 5.6%	0	2 8%	1 12.5%	5 10.9%	14 8%
<b>Marital Status</b>									
Married	28 82.4%	19 82.6%	6 54.5%	14 77.8%	8 88.9%	17 68%	4 50%	41 89.1%	137 78.7%
Otherwise	6 17.6%	4 17.4%	5 45.5%	4 22.2%	1 11.1%	8 32%	4 50%	5 10.9%	37 21.3%

Category	Amokwawuazo	Fante Newtown	Fayah	Frenchman	Odoyefe	Old Ankasa	Paradis	Sowudadzemu	Total
<b>Educational Level</b>									
No Education	12 35.3%	4 17.4%	3 27.3%	4 22.2%	3 33.3%	6 24%	3 37.5%	17 37%	52 29.9%
Primary School	6 17.6%	10 43.5%	4 36.4%	6 33.3%	3 33.3%	10 40%	3 37.5%	8 17.4%	50 28.7%
Junior Secondary	5 14.7%	6 26.1%	3 27.3%	2 11.1%	2 22.2%	1 4%	1 12.5%	8 17.4%	28 16.1%
Senior Secondary	5 14.7%	1 4.3%	0	2 11.1%	0	1 4%	0	3 6.5%	12 6.9%
Middle School	4 11.8%	2 8.7%	1 9.1%	3 16.7%	1 11.1%	6 24%	1 12.5%	7 15.2%	25 14.4%
Technical	1 2.9%	0	0	1 5.6%	0	0	0	2 4.3%	4 2.3%
University	0	0	0	0	0	1 4%	0	0	1 0.6%
Other	1 2.9%	0	0	0	0	0	0	1 2.2%	2 1.1%
<b>Ethnic Group</b>									
Akan	11 32.4%	22 95.7%	10 90.9%	11 61.1%	7 77.8%	13 52%	5 62.5%	35 76.1%	114 65.5%
Nzema	18 52.9%	0	0	5 27.8%	1 11.1%	9 36%	1 12.5%	6 13%	40 23%
Ewe	1 2.9%	1 4.3%	0	1 5.6%	0	1 4%	0	3 6.5%	7 4%
Other	4 11.8%	0	1 9.1%	1 5.6%	1 11.1%	2 8%	2 25%	2 4.3%	13 7.5%
<b>Religion</b>									
Christianity	29 85.3%	22 95.7%	9 81.8%	15 83.3%	8 88.9%	23 92%	7 87.5%	37 80.4%	150 86.2%
Islam	1 2.9%	0	2 18.2%	0	1 11.1%	2 8%	1 12.5%	7 15.2%	14 8%
Other	4 11.8%	1 4.3%	0	3 16.7%	0	0	0	2 4.3%	10 5.7%

Note. Data in the Table shows the number of respondents in each cell, as well as the percentage within each category.

With reference to education (Table 6), household heads within the ACREMA communities are characterised by low levels of formal education (primary, junior, senior, middle, and technical school). Most respondents are without formal education 52 (29.9 %), while 50

(28.7%) had primary education. Respondents with junior level education represented 28 (16.1%) while only 25 (14.4%) had attained middle school education and 1 person (0.6%) had university education in the region. Overall, Sowudadzemu reported the highest number of residents without formal education 17 (37%) followed by Amokwawsuazo 12 (35.3%). These figures demonstrate a largely uneducated people in a rural society.

Due to the importance attached to education, the decision was made to analyse education further and separately for more insight as shown in Figure 10 and Table 7. In terms of education, the results show that 12 out of the 27 female household heads interviewed had no formal education, representing (44%) of women without education which is significantly higher than that of men 40 (27%). The women without formal education are above 60 years of age and are classified as “other” that is, divorced, widowed or separated. The results furthermore indicate that although these women were predominantly Northerners, they owned land and were in the medium income group. The women in the no education category were also characterised by medium to large household sizes.

Men, 25 (17%), although a smaller percentage compared to women 3 (11%) had junior secondary school education. The men in the junior secondary school education category were between the ages of 20-29, married and were also Northerners. These young men did not own land, were characterised by small household size and were also in the low income group.

The comparative analysis of education by gender revealed striking similarities and differences about the survey respondents’ educational levels. Despite the fact that Northern women and men had low educational levels, younger men were better educated than older women.

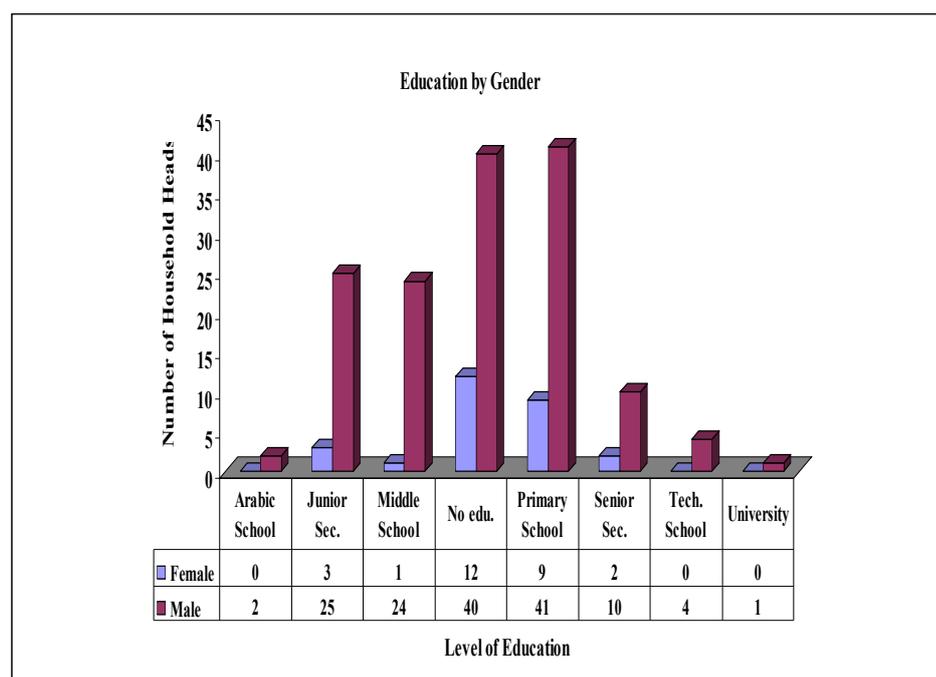


Figure 10. Analysis Education by Gender.

Table 7. Highest Level of Formal Education Completed

Category	No Education	Primary School	Junior Secondary	Senior Secondary	Middle School	Technical School	Universities	Other	Total
<b>Gender</b>									
Male	40	41	25	10	10	4	1	2	147
Female	12	9	3	2	2	0	0	0	27
	27.2%	27.9%	17%	6.8%	83.3%	2.7%	0.7%	1.4%	84.5%
	44.4%	33.3%	11.1%	7.4%	16.7%				15.5%
<b>Age of Respondents</b>									
20-29	0	4	10	5	0	0	0	0	19
30-39	17	22	14	2	1	3	1	2	62
40-49	15	15	3	3	11	0	0	0	47
50-59	12	8	1	1	10	0	0	0	32
60+	8	1	0	1	3	1	0	0	14
	15.4%	2%		8.3%	12%	25%			8%
<b>Marital Status</b>									

<b>Category</b>	<b>No Education</b>	<b>Primary School</b>	<b>Junior Secondary</b>	<b>Senior Secondary</b>	<b>Middle School</b>	<b>Technical School</b>	<b>Universities</b>	<b>Other</b>	<b>Total</b>
Married	38 27.7%	38 27.7%	24 17.5%	9 6.6%	22 16.1%	3 2.2%	1 0.7%	2 1.5%	137 78.7%
Otherwise	14 37.8%	12 32.4%	4 10.8%	3 8.1%	3 8.1%	1 2.7%	0	0	37 21.3%
<b>Ethnic Group</b>									
Akan	35 30.7%	40 35.1%	17 14.9%	4 3.5%	14 12.3%	2 1.8%	0	2 1.8%	114 65.5%
Nzema	7 17.5%	7 17.5%	7 17.5%	7 17.5%	9 22.5%	2 5.0%	1 2.5%	0	40 23%
Ewe	3 5.8%	1 14.3%	1 14.3%	1 14.3%	1 14.3%	0	0	0	7 4%
Other	7 53.8%	2 15.4%	3 23.1%	0	1 7.7%	0	0	0	13 7.5%
<b>Own Land</b>									
Yes	48 30.4%	49 31%	23 14.6%	11 7%	22 13.9%	3 1.9%	1 0.6%	1 0.6%	158 90.8%
No	4 25%	1 6.2%	5 31.2%	1 6.2%	3 18.8%	1 6.2%	0	1 6.2%	16 9.2%
<b>Household Size</b>									
Small	8 19.5%	10 24.4%	12 29.3%	6 14.6%	4 9.8%	0	0	1 2.4%	41 23.6%
Medium	19 27.9%	21 30.9%	10 14.7%	4 5.9%	9 13.2%	3 4.4%	1 1.5%	1 1.5%	68 39.1%
High	25 38.5%	19 29.2%	6 9.2%	2 3.1%	12 18.5%	1 1.5%	0	0	65 37.4%

Note. Data in the Table shows the number of respondents in each cell, as well as the percentage within each category.

### **5.1.3 Socio-economic activities of household heads.**

This section, 5.1.3, presents an analysis of the respondents' socio-economic conditions.

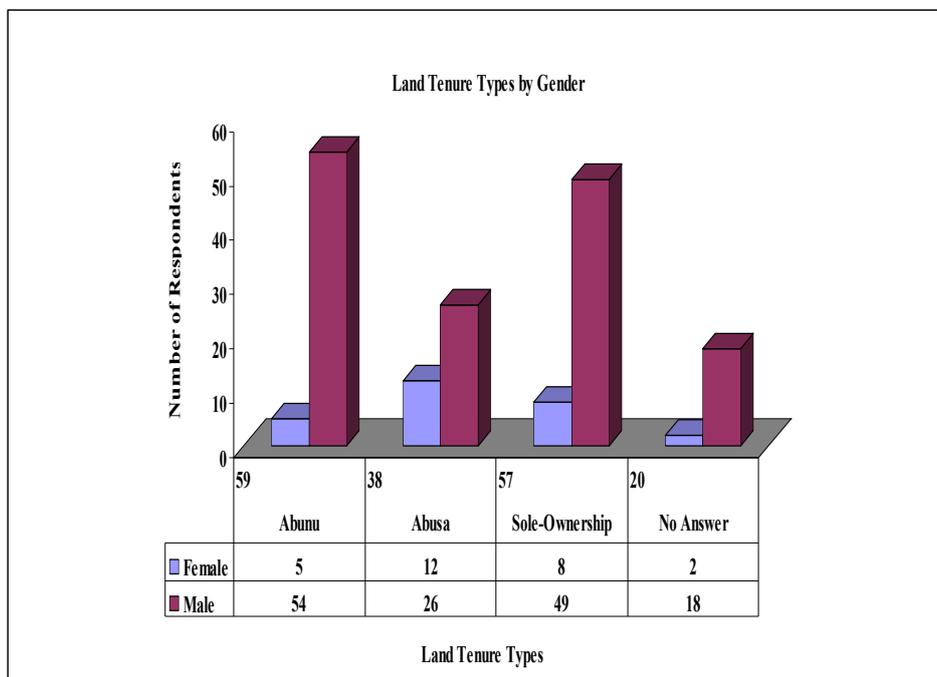
### **5.1.3.1 Primary occupation: type and duration.**

Table 8 shows that the main occupation of household heads was farming 162 (93.1%). Besides one lady who was a teacher, the rest of the women (26) were engaged in farming activities. Farming was also the main occupation for most male household heads 136 (84%) followed by teaching 5 (83.3%). Three other men worked as purchasing clerks and another as a chainsaw operator. Other economic activities engaged in on a smaller scale were tailoring and coconut oil-making. The high level of farming was supported by the large proportion of those who owned land 158 (90.8%). The high level of land ownership primarily devoted to farming could in many ways result in land cover change – from forest land to open land. The average number of years engaged in primary occupation (farming) was 16 years. This compared with the number of years lived in the community, which implies that farming started immediately when people migrated to Ankasa. The results show that about half of the people had been engaged in their main occupation between 6 to 15 years, while about two-thirds had been engaged in farming between 6 to 20 years.

### **5.1.3.2 Land tenure system.**

Farmers in the study area operated under various land tenure systems, which included *abunu*, *abusa* and sole-ownership tenure systems (Table 8). Of the three land tenure systems, *abunu* emerged as the most common tenure system 59 (33.9%), followed by sole-ownership 57 (32.8 %) and *abusa* 38 (21.8%). Analysis by gender shows that while female household heads, 12 (31.6%), prefer the *abusa* system of share-cropping, most men 54 (91.5%) on the other hand like better the *abunu* system. Female household heads prefer the *abusa* system because they profit more with respect to sharing of farm products between the tenant farmer and the

landowner. While the landowner gets only one-third of the proceeds from the farm, the tenant farm takes two-thirds. All household heads however prefer the sole-ownership system of land tenure. Although people may begin their farming activities under either the abunu or abusa system of arrangements, they are later able to purchase their own parcels of land as they sell their farm products, hence, the large number of people who now own land in the region. More details are provided in Figure 11.



**Figure 11. Gender Analysis of Land Tenure Types.**

According to Koku (2001) security of tenure plays an important role in resource use behaviour. Therefore, the higher the stake for the tenant farmer the better the chances of the farmer taking good care of the land. It could be argued that as farmers in the region continue to buy parcels of land for farming purposes, they would also manage it well because of the

investment made. It is therefore important that park management take note of prevailing land tenure systems. The *abunu* / *abusa* are examples of share-cropping tenure agreements. Both *abunu* and *abusa* land tenure systems entail arrangements whereby crops produced by tenant farmers are shared between the farmer and the landowner in the ratio of 1:1 and 1:2 respectively. As the name implies, sole-ownership is land acquired through purchase. Sixty-five percent of people in Fante Newtown were sole-owners of farming lands while 46% of people in Fayah practiced *abunu* share-cropping.

Table 8. Economic Activities of Household Heads

Category	Amokwawusuazo	Fante Newtown	Fayah	Frenchman	Odoyefe	Old Ankasa	Paradis	Sowudadzemu	Total
<b>Occupation</b>									
Farming	31 91.2%	21 91.3%	11 100%	18 100%	9 100%	23 92%	8 100%	41 89.1%	162 93.1%
Teaching	1 2.9%	0	0	0	0	1 4%	0	4 8.7%	6 3.4%
Other	2 5.9%	2 8.7%	0	0	0	1 4%	0	1 2.2%	6 3.4%
<b>Years in Main Occupation</b>									
1 to 5	3 8.8%	2 8.7%	1 9.1%	2 11.1%	1 11.1%	2 8%	0	6 13%	17 9.8%
6 to 10	8 23.5%	5 21.7%	2 18.2%	6 3.3%	5 5.6%	6 4%	3 37.5%	11 23.9%	46 26.4%
11 to 15	7 20.6%	4 17.4%	3 27.3%	6 33.3%	2 22.2%	7 28%	2 25%	9 19.6%	40 23%
16-20	8 23.5%	7 30.4%	2 18.2%	3 16.7%	1 11.1%	4 16%	2 25%	5 10.9%	32 18.4%
20+	8 23.5%	5 21.7%	3 27.3%	1 5.6%	0	6 24%	1 12.5%	15 32.6%	39 22.4%
<b>Own Land</b>									
Yes	25 73.5%	21 91.3%	11 100%	18 100%	9 100%	25 100%	8 100%	41 89.1%	158 90.8%
No	9 26.5%	2 8.7%	0	0	0	0	0	5 10.9%	16 9.2%
<b>Land Ownership Types</b>									
Abunu	11	2	2	10	5	11	5	13	59

Category	Amokwawsuazo	Fante Newtown	Fayah	Frenchman	Odoyefe	Old Ankasa	Paradis	Sowudadzemu	Total
Abusa	32.4%	8.7%	18.2%	55.6%	55.6%	44%	62.5%	28.3%	33.9%
	4	5	5	3	2	6	2	11	38
None	11.8%	21.7%	45.5%	16.7%	22.2%	24%	25%	23.9%	21.8%
	8	2	0	0	0	1	0	9	20
Sole-ownership	23.5%	8.7%	0	0	0	4%	0	19.6%	11.5%
	11	14	4	5	2	7	1	13	57
	32.4%	60.9%	36.4%	27.8%	22.2%	28%	12.5%	28.3%	32.8%

Note. Data in the Table shows the number of respondents in each cell, as well as the percentage within each category.

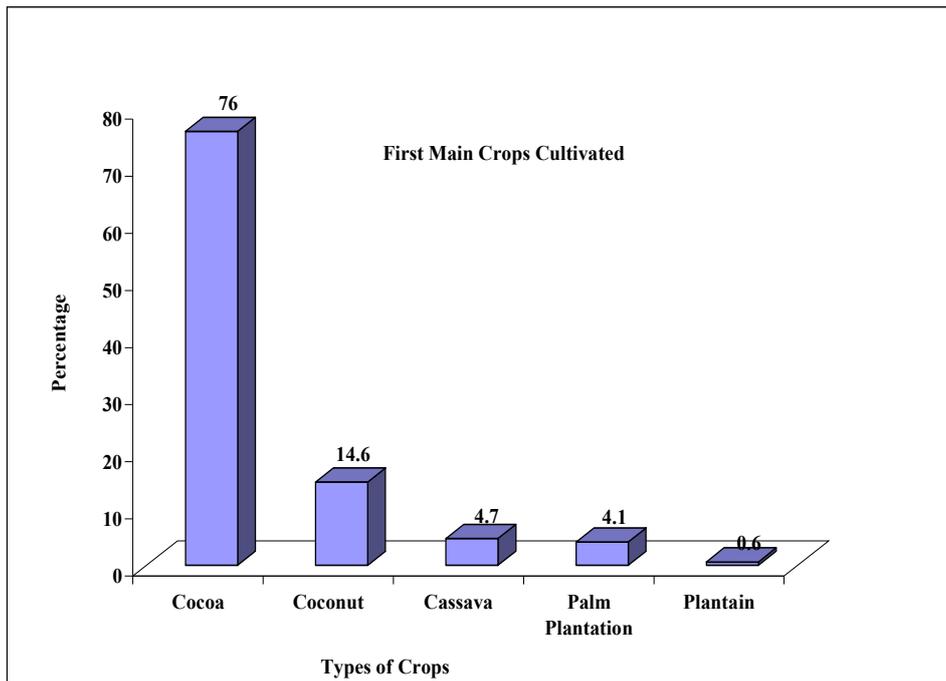
### 5.1.3.3 Household income.

The results of this study show that the average annual income for household within the ACREMA communities was 7,180,059 old Ghanaian Cedi, with the lowest annual income being 200,000 and the maximum being 60,000,000 old Ghanaian cedi. In order to obtain a better perspective based on income, the income was re-classified into three categories. The category between 0-10,000,000 was classified as “low income”; 10,000,000-20,000,000 as “medium income” and over 20,000,000 as “high income”. In 2007/2008, the Ghanaian currency was changed. For example, 7,180,059 old Ghanaian cedi became 7,180.59 GHS (new Ghanaian cedi). Likewise, 200,000 and 60,000,000 old Ghanaian cedi were 20 GHS and 6,000 GHS new Ghanaian cedi respectively. When converted, 7, 80.59 GHS is equivalent to 5,120.86 Canadian dollars while 20 GHS is 14.2604 Canadian dollars. Information gathered showed that most of the community members belonged to the low income category (78%), signifying a very poor region.

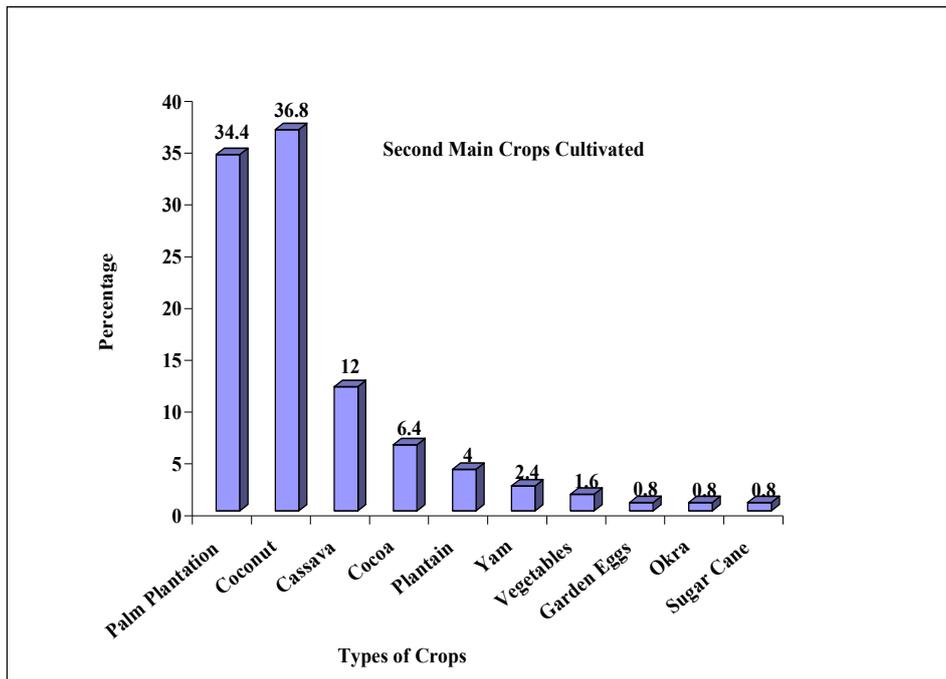
#### **5.1.3.4 Farming activities: crop types and crop farm size.**

Section 5.1.3.4 is organized to meet two objectives. The first objective is to identify the major crops cultivated in the Ankasa region while the second objective assesses land use dynamics and land cover changes. Figure 12 shows cocoa as the first major crop 130 (76%) cultivated followed by coconut 25 (14.6%) with cassava at 8 (4.7%). This was not surprising since cocoa is also the main cash crop in Ghana. Figure 13 shows that the second major crops cultivated were coconut and palm plantation. The two crops (coconut and palm plantation) were also in the category of commercial crops. The third major crops cultivated were coconut, plantation, cassava, palm fruits and vegetables (Figure 14). Figure 15 shows cocoa plantation and the processing of cocoa seeds.

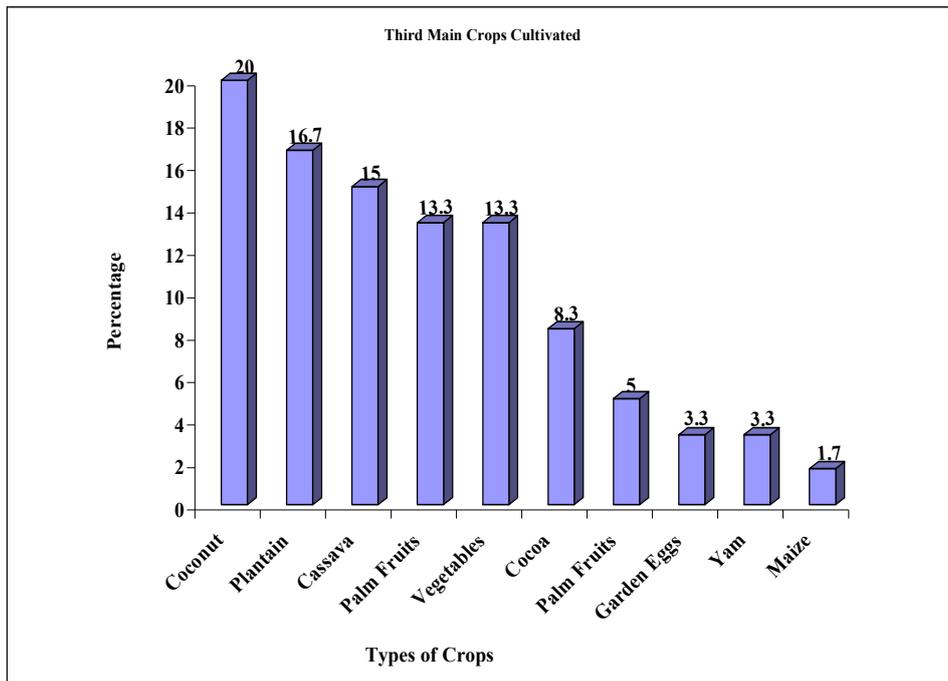
In sum, it can be argued that the three leading crops cultivated in the region are cocoa, coconut and palm plantation. Subsistence crops included cassava, vegetables, plantain, and yam, etc., but on a small scale. The nature of crop cultivation in the region also indicates that most farmers practice mixed cropping; hence, the different crop types recorded under first, second and third main crop categories.



**Figure 12.** First Main Crops Cultivated in Ankasa.



**Figure 13.** Second Main Crops Cultivated in Ankasa.



*Figure 14. Third Main Crops Cultivated in Ankasa.*



*Figure 15. A Photo Showing Cocoa Plantation and the Drying of Cocoa Seeds in Ankasa.*

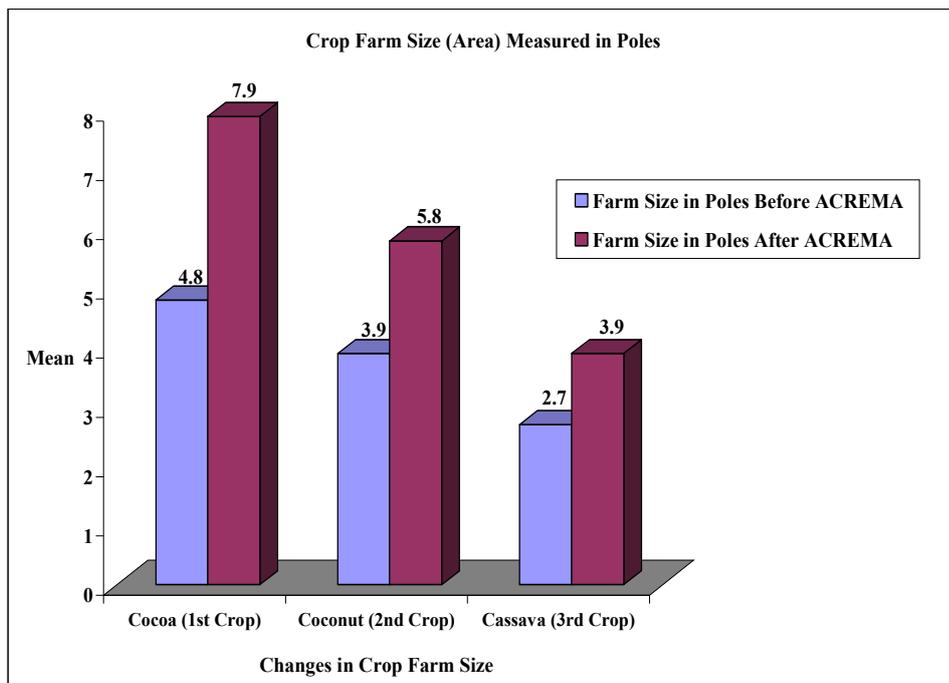
Many people in developing countries depend entirely on natural resources for their livelihoods. The reliance on natural resources creates competing demands for utilisation and development which results in land use and land cover changes. Land use and land cover change is the way people use land or decrease vegetation cover (Mwavu & Witkowski, 2008).

The second objective examined dynamics in land use and land cover change and its effect on the Ankasa Reserve. For more than 20 years, most household heads have engaged in different crop farming. In the process of such farming activities, huge parcels of land were cleared. To understand land use dynamics and land cover change in the Ankasa region, this study undertook a comparative analysis of respondents' crop farm size before and after the introduction of ACREMA. The purpose of the analysis was to document changes in land size and land cover and their effect on the Reserve.

Although most people no longer use the imperial system of land measurement (i.e. Rods, Poles and Perches), household heads in the Ankasa region still do. The unit of land measurement in the Ankasa region was the pole. Crop farm size was measured using poles and the average farm size for cocoa cultivation before and after ACREMA's establishment was 4.8 and 7.9 poles respectively. That of coconut was 3.9 poles before ACREMA and rose to 5.8 poles after ACREMA was introduced. For cassava cultivation, the study recorded land area of 2.7 poles before ACREMA and 3.9 poles after ACREMA was established (Figure 16).

Using the metric system of measurement, farmlands measured in poles can also be converted to square meters. For instance, one pole is approximately 25 square meters. Therefore, to obtain the size of any farmland measured in poles; one needs to multiply the area of the land by 25 square meters to obtain the farm size.

Using the values obtained from our study as an example, farm size for cocoa cultivation before ACREMA came into effect was 4.8 or approximately 5 poles and 7.8 or 8 poles for after ACREMA was introduced. When converted to square meters, 5 poles would be equivalent to 125 square meters while 8 poles would correspond to 200 square meters. Going by the same formula, the average farm size for coconut which was 4 poles would be equivalent to 100 square meters before ACREMA was introduced and 6 poles or 160 square meters for after ACREMA was formed. The third main crop identified in the study area was cassava. Likewise, the land size for cassava production before and after the introduction of ACREMA was 3 poles or 75 square meters and 4 poles or 100 square meters respectively.



**Figure 16.** Analysis of Changes in Land-Use and Land Cover Change before and after ACREMA's Establishment.

The analysis of land use dynamics and land cover change shows that on the basis of means computed, two clear trends emerged. First, there was an increased farming area viewed in terms of the poles for the three crops, cocoa, coconut and cassava. This implies that there is increased pressure on farmlands due to population growth. Another possible reason for the increased farm size even after the introduction of ACREMA could be the availability of farm capital to farmers because most farmers in the region finance their own farming activities. But under the Village Infrastructure Project and the Social Investment Fund, farmers who are able to save 10% of the cost of input they require are given financial assistance with payment spread over a period of three years (Jomoro District Assembly, 2002). Unfortunately, increased demand for farm land could destroy wildlife species as well as non-timber forest products in protected areas. Personal communication with the wildlife officer however revealed that park management was aware of this trend and had enacted strategic measures, which included demarcating the boundaries around the Reserve.

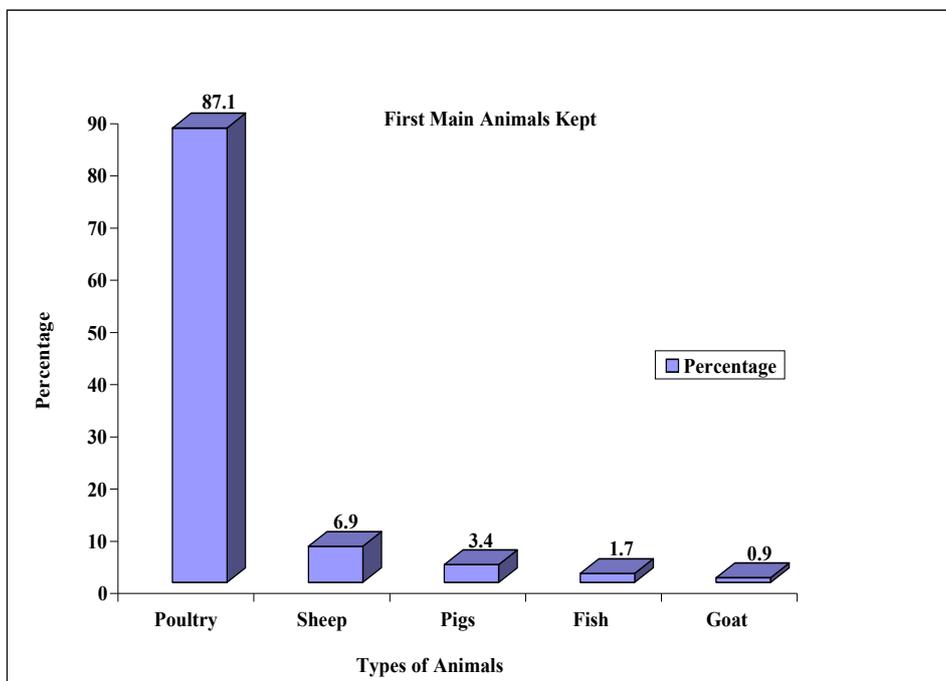
#### ***5.1.3.5 Animal keeping: animal type and animal size dynamics.***

Similar to the above, this section 5.1.3.5 addressed two objectives. The first objective examined the types of animals kept while the second objective explored changes in the number of animals kept over time. Changes in animal keeping consisted of either an increase or decrease in the number of animals kept over time. The importance is to try and discern the consequence of exploitation this is likely to have on the environment.

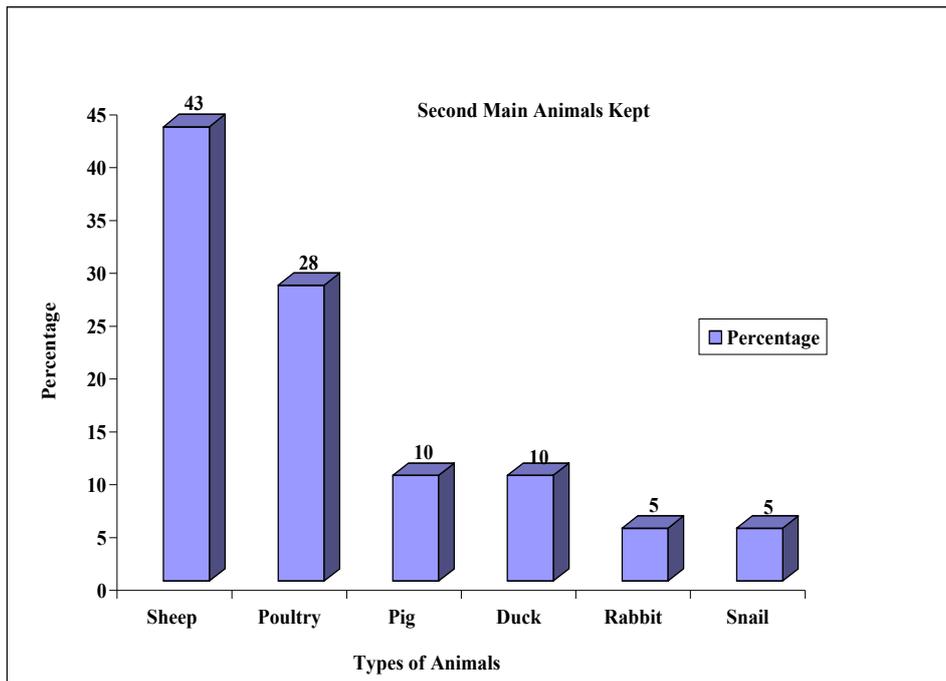
The analysis shows that 115 (66%) of household heads kept some form of animals at home while 59 (33.9%) did not. Poultry or chicken 101(87.1%) emerged as the first main type of animal kept by household heads in the Ankasa region (Figure 17). Other animals kept included

sheep and pigs with goat keeping least on the list. The immediate observation here is that there is a low level of animal keeping.

The second major types of animals reared were sheep 9 (42.9%) followed by poultry (28%) with pigs and ducks at (10%) each. Rabbits and snails were at the bottom at 5% respectively (Figure 18). The question on the third type of animals kept was dropped at the analysis phase because the numbers reported were negligible and no meaningful analysis could be done.



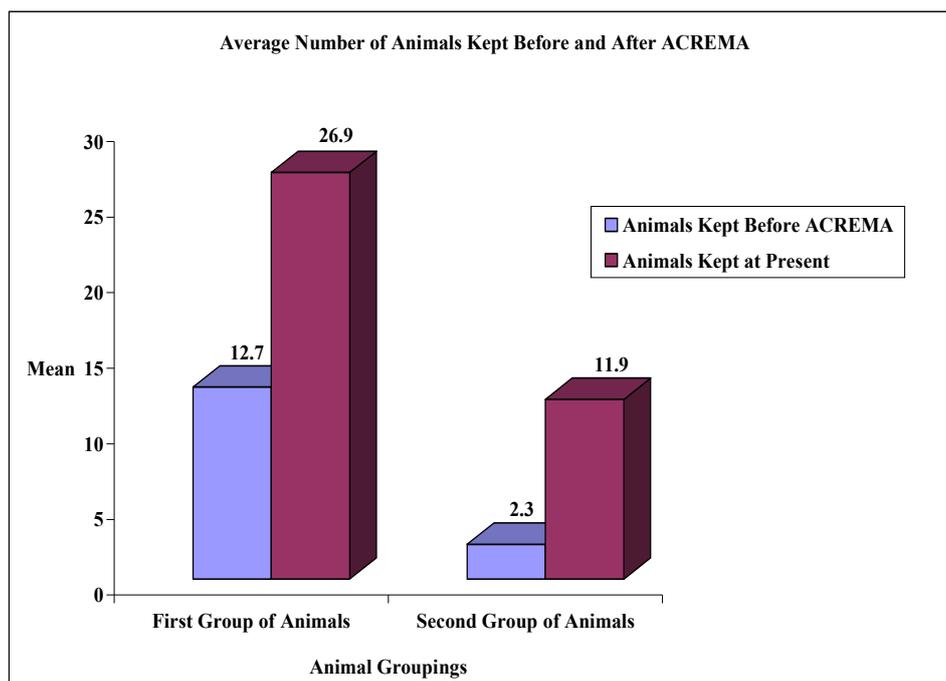
**Figure 17. First Main Types of Animals Kept.**



**Figure 18. Second Main Types of Animals Kept.**

Similar to the crop case above, Figure 19 shows the average number of animals kept before ACREMA was established compared to the present. The results show an increase in the average number of animals kept before ACREMA compared to now. The first group of animals kept increased from 12.7% to 26.3%. The second group of animals kept increased from 2.3% to 11.9%. The best explanation for the increase in animal keeping is that local community members do not have easy access to wildlife species inside the Reserve, hence the need for them to engage in animal husbandry. Although there was an increase in animal keeping this was unlikely to have any severe consequences on the environment because these animals are less destructive to the environment. For example, poultry and sheep, which turned out to be the most commonly kept animals are generally known to be docile and easy to manage. This also explains why sheep emerged as the second main animal kept. The third animal was dropped in the analysis because very few people kept a third type of animal.

Although animal keeping increased, it was generally low. The low level of animal keeping in the region could partially be attributed to some local institutions such as taboos. For example, it was mentioned during the focus group interviews that goat keeping along the banks of the Tano River was prohibited because it was seen as a big taboo. However, it was not uncommon to sight sheep and pigs in the area. Unfortunately, the animals that were kept in the region did not live in enclosed areas or pens but were left to roam about freely – similar to the free range type of animal keeping. Obviously, it is cheaper for the owner to allow the animals to feed themselves than to enclose and feed them. To address this issue, people need to be educated to break away from such cultural practices which inhibit agricultural and developmental growth.



**Figure 19. Comparative Analysis of Average Number of Animals Kept before and after ACREMA's was Established.**

## **5.2 Natural Resource Exploitation**

Having examined the socio-demographic characteristics and economic activities of households, I now examine the next research objective, which is to determine the extent of natural resource exploitation occurring inside and outside the Ankasa Resource Reserve following the introduction of ACREMA. Natural resource exploitation is a major issue confronting protected areas worldwide. Confronted with similar challenges in the Ankasa Resource Reserve and with the desire to curb the situation, this study seeks to understand natural resource exploitation in the Ankasa Resource Reserve with the aim of finding solutions to the problem. Natural resource exploitation is examined in three parts. Part one presents the type of wildlife species exploited inside and outside the Reserve while part two presents findings on non-timber forest products (NTFPs) exploitation. Finally, part three presents results of exploitation from three entry points.

### **5.2.1 Exploitation of wildlife species.**

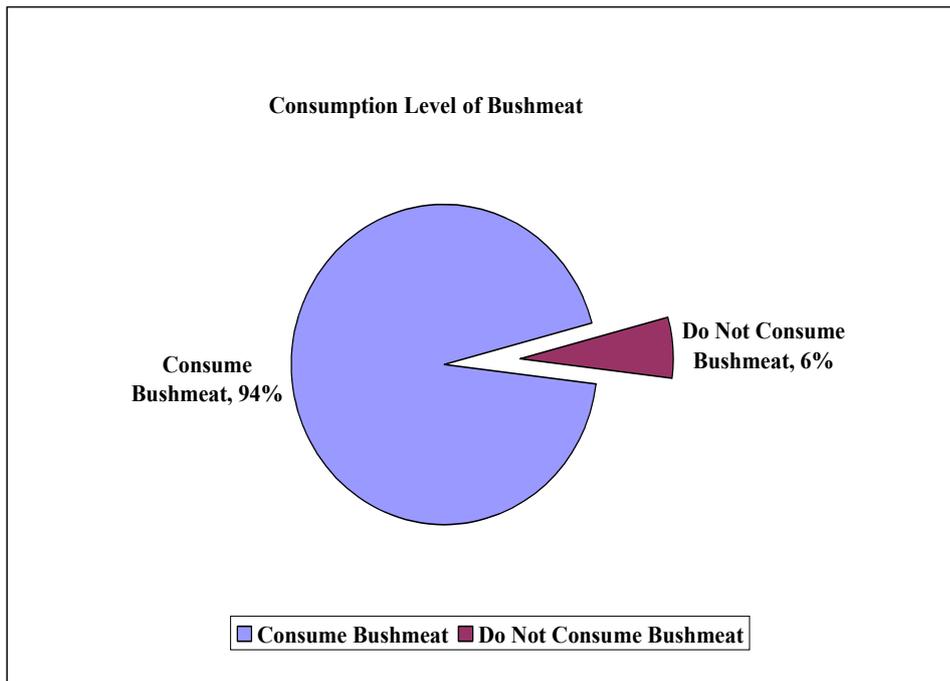
To understand the exploitation of wildlife species, the study investigated households' level and frequency of bushmeat consumption. Additionally, household heads were asked to explain why they consumed bushmeat and where they got it. They were also asked to indicate the devices used in their search for wildlife species and the number of wildlife species caught daily, weekly, monthly, or yearly. Finally, respondents were asked to comment on what they did with the animals hunted and to indicate whether they would put an end to bushmeat consumption if alternative meat products were available.

### **5.2.1.1 Bushmeat consumption: level, frequency and reason.**

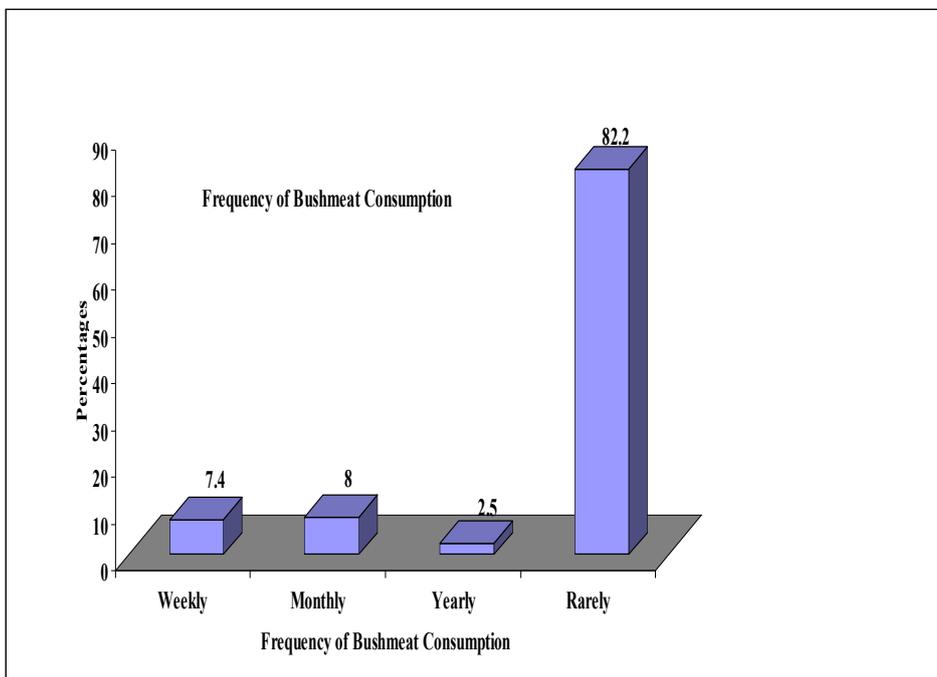
Analysis of bushmeat consumption shows that 164 (94%) of households consumed bushmeat, while only 10 (5.7%) did not (Figure 20). Although a large number of households consumed bushmeat, 134 (82.2%) of households reported that they did it rarely (Figure 21). Table 9 also demonstrates that bushmeat consumption cut across all ages, marital status, education, household size, gender, ethnic group, and community type.

Reasons given for bushmeat consumption included: rooted in my culture 85 (81.7%), while 18 (17.3%) stated that it could easily be collected (Figure 22). Bushmeat was also consumed because it is cheaper and has great taste compared to other meat sources. Other reason given for bushmeat consumption “I was born to meet people eating it” or “I live in a village so bushmeat is normal to me.” This result concurs with a similar study done by Carpaneto and Fusari (2000) which revealed that wildlife species such as antelopes were killed, because of their large size, availability, and preferred taste.

Despite the fact that almost every household head interviewed consumed bushmeat, its consumption was very low as most respondents seldom did it. This could mean that either the Reserve has very few wildlife species remaining or that park management has been effective in minimising unlawful entry into the Reserve.



*Figure 20. Bushmeat Consumption in Ankasa.*

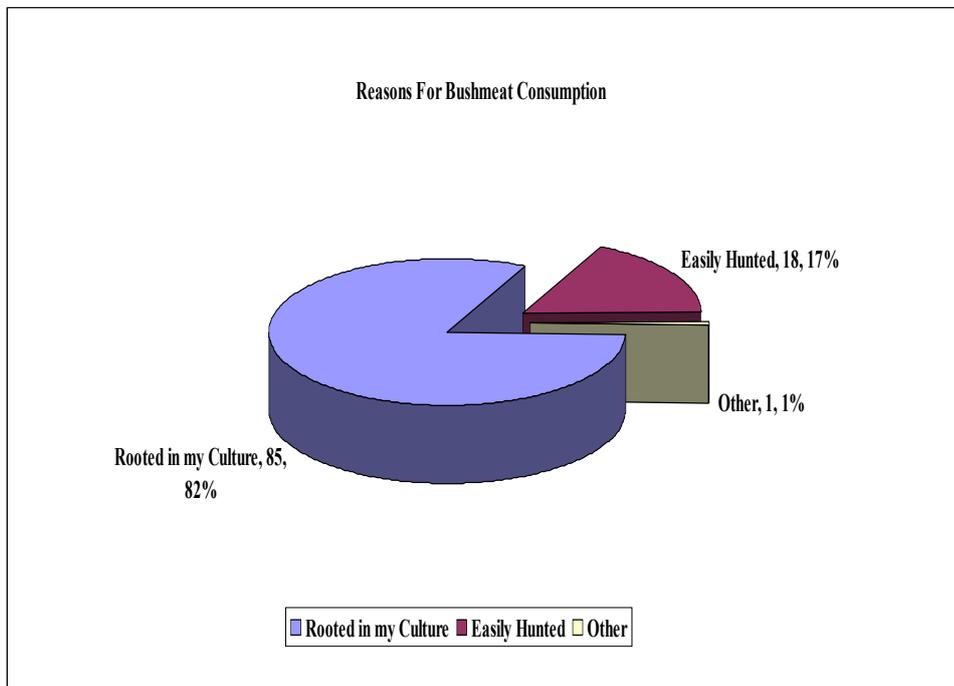


*Figure 21. Frequency of Bushmeat Consumption.*

Table 9. Bushmeat Consumption by Socio-demographic Characteristics

Category	Consume Bushmeat	Do not Consume Bushmeat	Total
<b>Marital Status</b>			
Married	130 (94.9%)	7 (5.1%)	137 (78.7%)
Otherwise	34 (91.9%)	3 (8.1%)	37 (21.3%)
<b>Age of Respondents</b>			
20-29	19 (100.0%)	0	19 (100)
30-39	58 (93.5%)	4 (6.5%)	52 (100)
40-49	45 (95.7%)	2 (4.3%)	47 (100)
50-59	29 (90.6%)	3 (9.4%)	32 (100)
60+	13 (92.9%)	1 (7.1%)	14 (100)
<b>Household Size</b>			
Small	68 (95.8%)	3 (4.2%)	71 (40.8%)
Medium	71 (93.4%)	5 (6.6%)	76 (43.7%)
High	25 (92.6%)	2 (7.4%)	27 (15.5%)
<b>Gender</b>			
Male	140 (95.2%)	7 (4.8%)	147 (84.5%)
Female	24 (88.9%)	3 (11.1%)	27 (15.5%)
<b>Ethnic Group</b>			
Akan	107 (93.9%)	7 (6.1%)	114 (65.5%)
Nzema	39 (97.5%)	1 (2.5%)	40 (23.0%)
Ewe	6 (85.7%)	1 (14.3%)	7 (4.0%)
Other	12 (92.3%)	1 (7.7%)	13 (7.5%)
<b>Own Land</b>			
Yes	148 (93.7%)	10 (6.3%)	158 (90.8%)
No	16 (100%)	0	16 (9.2%)
<b>Name of Community</b>			
Amokwawsuazo	32 (94.1%)	2 (5.9%)	34 (19.5%)
Fante Newtown	21 (91.3%)	2 (8.7%)	23 (13.2%)
Fayah	11 (100%)	0	11 (6.3%)
Frenchman	18 (100%)	0	18 (10.3%)
Odoyefe	8 (88.9%)	1 (11.1%)	9 (5.2%)
Old Ankasa	23 (92%)	2 (8%)	25 (14.4%)
Paradis	8 (100%)	0	8 (4.6%)
Sowudadzemu	43 (93.5%)	3 (6.5%)	46 (26.4%)

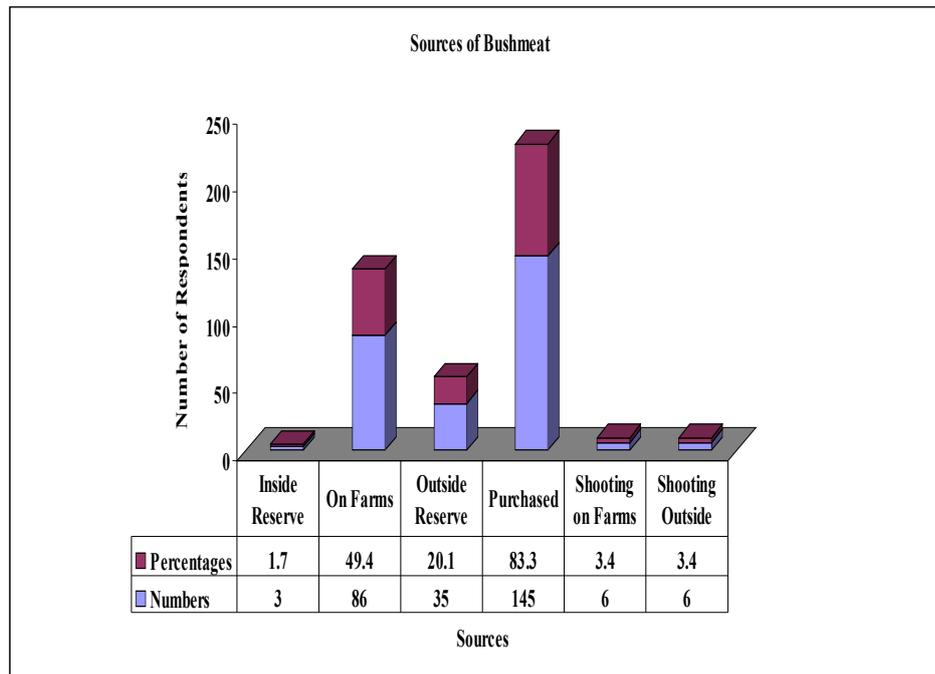
Note. Data in the Table shows the number of respondents in each cell, as well as the percentage within each category.



**Figure 22. Reasons for Bushmeat Consumption.**

Respondents were asked to state the sources of bushmeat consumed in their households by providing multiple responses. Figure 23 shows that 145 household heads or over 80% of respondents purchased bushmeat while 86 people or almost 50% of respondents obtained it from their farms. About 22% of respondents obtained it from outside the Reserve while less than 10% obtained it by shooting animals (outside and on their farms). Only 2.3% stated their source of bushmeat to be from inside the Reserve.

Deducing from the results, it can be said that the exploitation of wildlife species from inside the Reserve is minimal and almost non-existent compared to other sources. That notwithstanding, wildlife exploitation is still going on in the Ankasa region as 80% of respondents surveyed claim to buy bushmeat. Therefore, park management strategies must continue to include intensive patrols around the Reserve and at local markets.

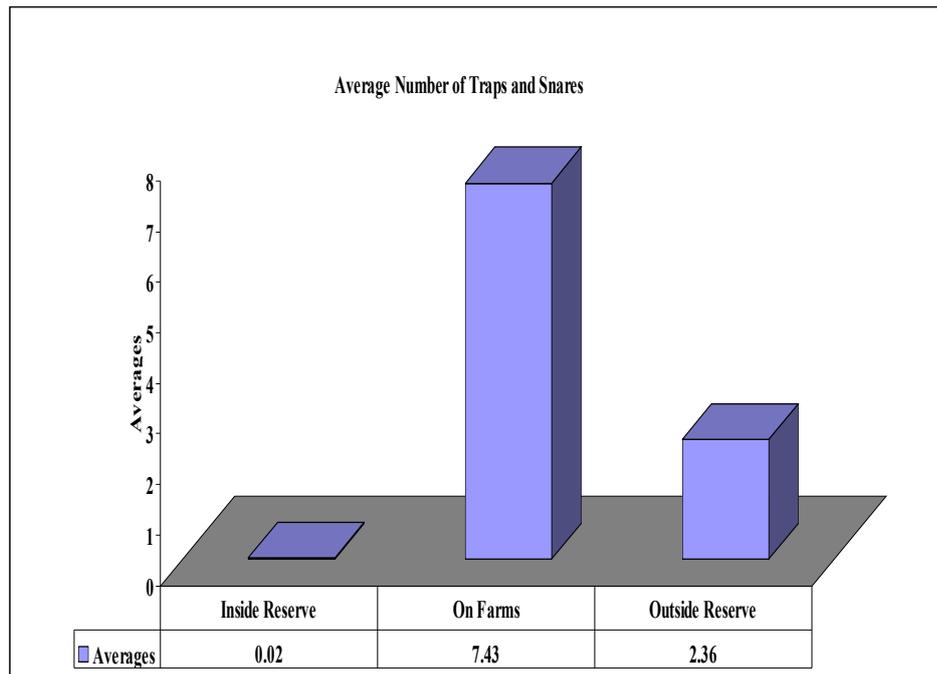


**Figure 23. Sources of Bushmeat for Household Consumption.**

**5.2.1.2 Bushmeat: types of hunting devices and common species hunted.**

In this section, 5.2.1.2, I examined the types and number of hunting devices used in wildlife exploitation. The types of wildlife species most exploited or hunted were also presented.

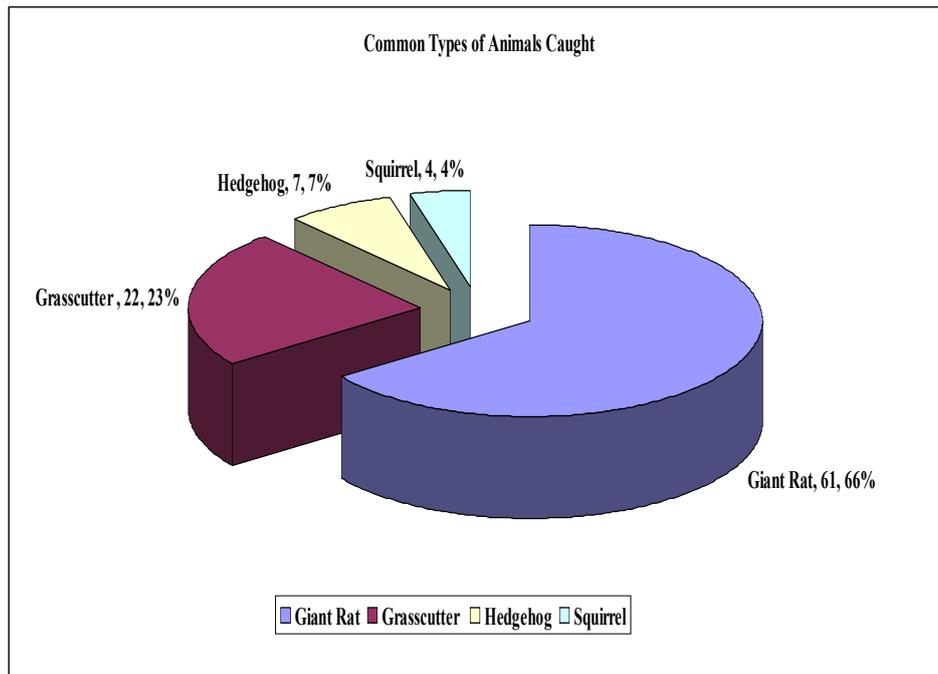
Devices commonly used in wildlife exploitation in the Ankasa Resource Reserve were traps and snares. This finding compares to a similar study done by Cowlshaw, Mendelson and Rowcliffe (2006) who reported that hunters who lived and worked in rural areas captured their prey using snares and shotguns. Figure 24 shows that farms had the highest number of traps and snares with an average of 7.4 followed by outside the Reserve at 2.3. The average number of traps and snares set inside the Reserve was just 0.02. The results show that wildlife exploitation is almost non-existent inside the Reserve but ongoing on people’s farms and outside the Reserve.



**Figure 24. Average Number of Traps and Snares Set.**

Figure 25 shows that the three most common wildlife species hunted using traps and snares were giant rat (64%), followed by grasscutter (23%), and hedge hog (7%). Other animals caught included deer (2%) and squirrel (4%).

The implication of this finding is that giant rat and grasscutter were the most exploited wildlife species in the Ankasa region and their overall population needs to be monitored to keep the ecosystem in balance. This is useful information that park management needs to consider when designing management strategies for the Reserve.



**Figure 25. Common Wildlife Species Hunted in Ankasa.**

### **5.2.1.3 Bushmeat: quantity and usage.**

In addition to the types of wildlife species hunted, respondents were asked to indicate the number (quantity) of wildlife species caught in a day, week, month or year. The results show that on average, one animal was caught in a day while three animals were caught in a week. Wildlife species caught monthly or yearly was negligible. The average number of animals caught in a month was 3 and 4 for a whole year.

Of those catching animals, 74 (80.4%) households indicated that wildlife species/bushmeat was used for home consumption while 18 (19.6%) respondents consumed and sold portions of it. Although households sold part of the meat caught, 11 (61.1%) indicated that bushmeat trade was not a profitable venture to be pursued and were willing to put an end to bushmeat consumption 103 (59.2%) if alternative meat sources existed.

One possible explanation for the low levels of wildlife species recorded for daily, weekly, monthly and yearly periods could be the result of effective park management as all avenues accessible to hunters and other poachers may have been blocked hence local community members no longer have easy access into the Reserve. Another reason could be that wildlife species may have declined in the Ankasa Resource Reserve hence the low numbers of animals recorded. The third possible reason could be the result of active local community involvement in natural resource management in the region.

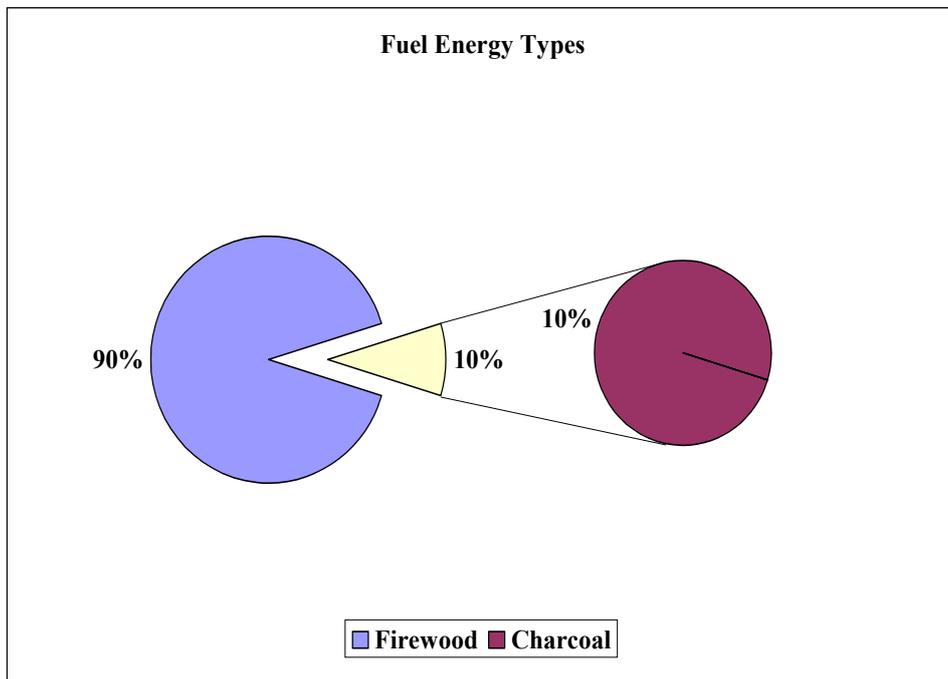
### **5.2.2 Exploitation of non-timber forest products.**

Exploitation of non-timber forest products is viewed as a major threat to protected area management. The types of products exploited depend on the nature of the protected area. Examination of the exploitation of non-timber forest products inside and outside the Ankasa Resource Reserve specifically looked at fuel energy types, the use of domestic wood products such as fufu pestles and mortars, palm fruit pestles and mortars, and the use of herbal medicine.

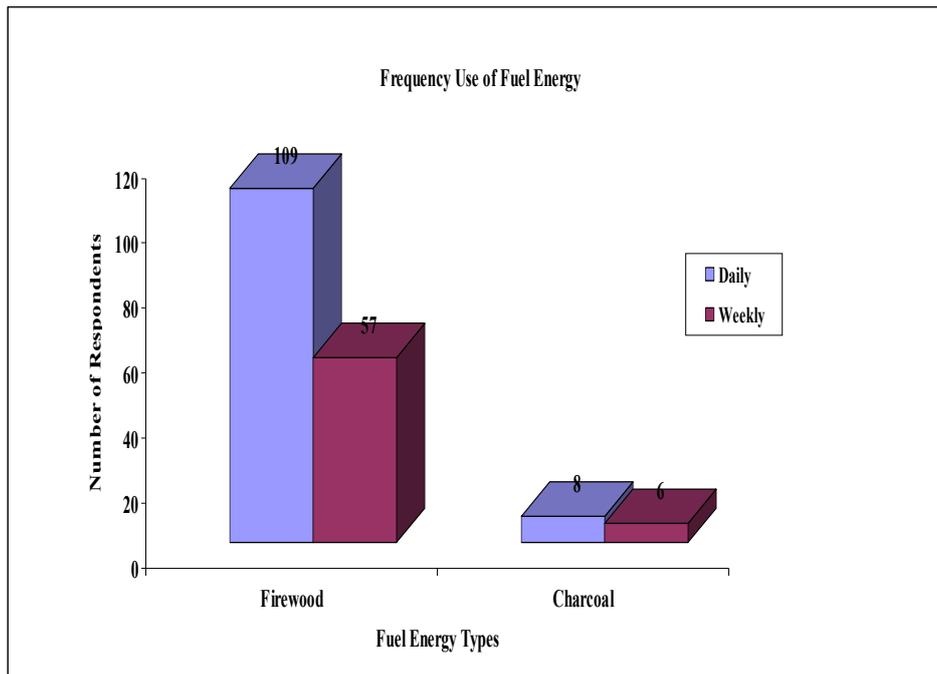
#### **5.2.2.1 *Fuel energy types and firewood collectors.***

The most common fuel energy types used within the ACREMA communities were firewood 152 (90%) and charcoal 16 (9.5%) (Figure 26). Of the 174 respondents surveyed, 109 (65.7%) people used firewood for domestic purposes on a daily basis while only 8 (50%) used charcoal for similar purposes daily (Figure 27). Firewood was therefore the main fuel energy for the region. Firewood for domestic purposes was obtained at no cost to household heads. The results show that 94% of respondents obtained dead firewood from outside the Reserve for

domestic purposes (Table 10). Firewood collection within the ACREMA communities was also the sole responsibility of women and girls. Only a small fraction of men were involved in firewood collection. This implies that women and girls can pose a threat to the survival of woody products in the environment. Environmental education must therefore be geared towards this group of people.



**Figure 26.** Types of Energy Used in Ankasa.



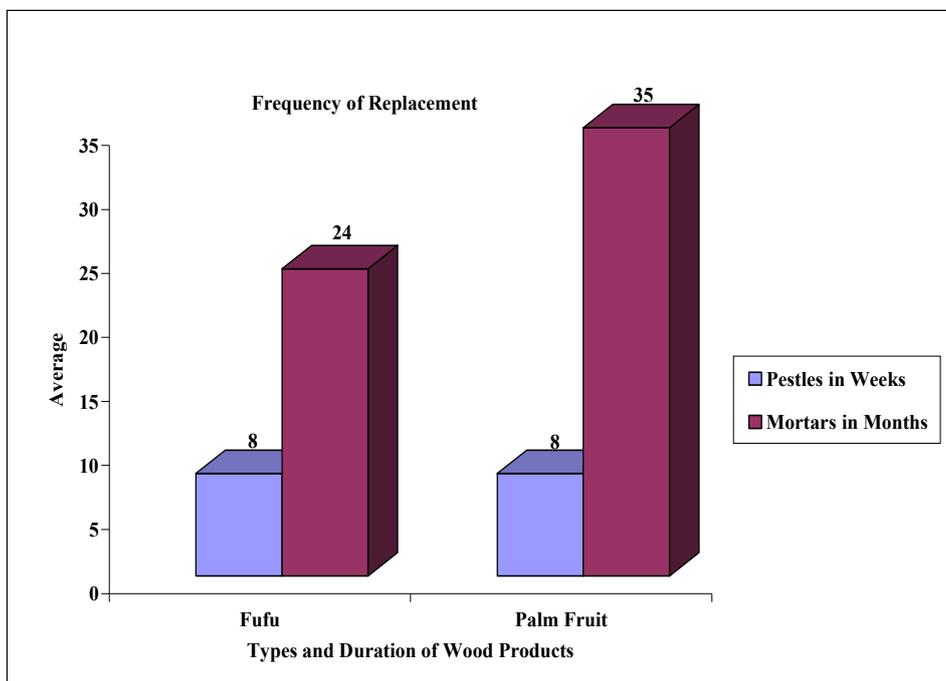
**Figure 27. Frequency Use of Firewood and Charcoal in Days and Weeks.**

#### **5.2.2.2 Utilization of wood products: Pestles and Mortars and herbs.**

Pursuant to the research objectives, analysis of the utilisation of other wood products such as pestles and mortars as well as the use of herbal medicine was undertaken.

The use of wood products such as pestles and mortars were examined in the study area. Results obtained indicated that households within the ACREMA communities replaced their old pestles more regularly than mortars. The findings show that household heads replaced their old fufu and palm fruit pestles almost every other month or at an 8 week interval (Figure 28). The results also reveal that the number of households 57 (33.7%) that replaced their old fufu pestles was more than those that replaced their old palm fruit pestles 40 (23.3%). Similarly, about 58 (39.2%) respondents replaced their old fufu mortars every 24 months while 53 (35%) replaced their old palm fruit mortars every three years. The first notable trend with this result was that old

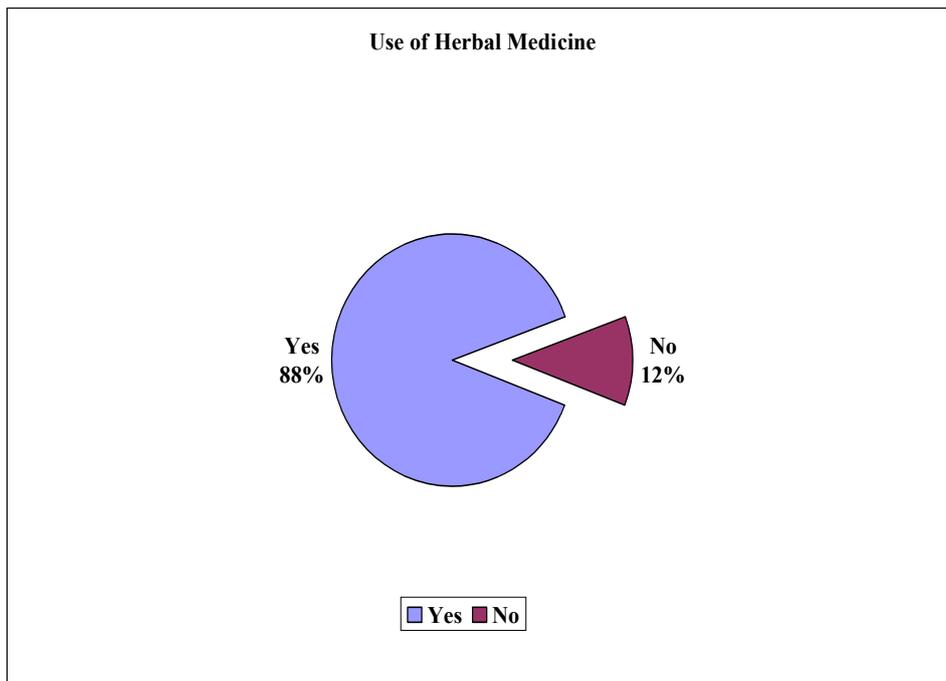
fufu and palm fruit pestles were more frequently changed than old fufu and palm fruit mortars. Second, a higher percentage of households replaced their old fufu pestles and mortars more frequently than their old palm fruit pestles and mortars. The frequent replacement of pestles (both fufu and palm fruit) by household heads should be looked into especially if such wood products are obtained from the Ankasa region as this demand could further lead to over exploitation of natural resources.



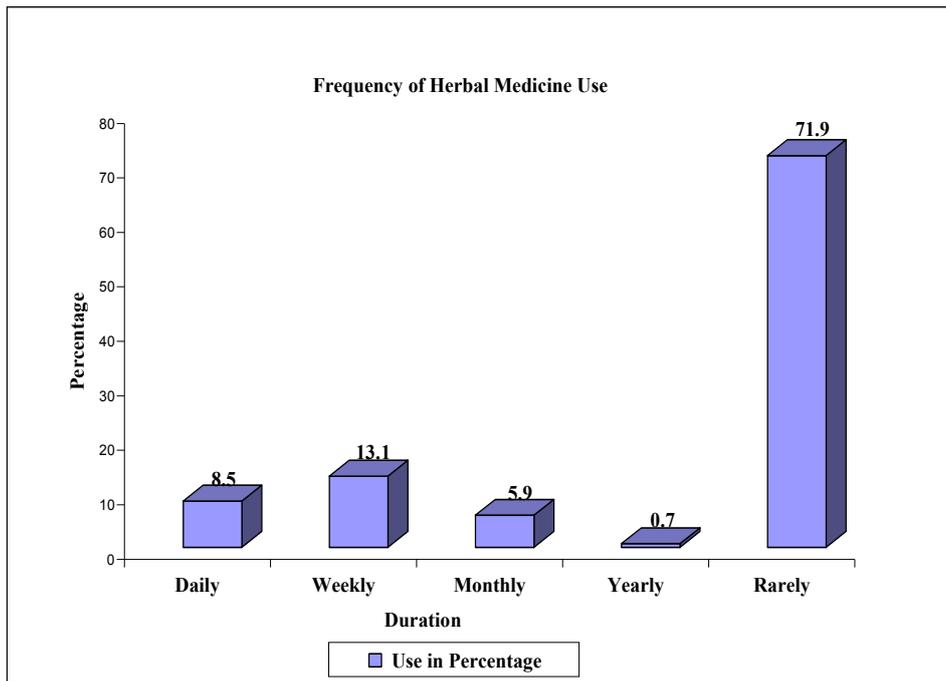
**Figure 28. Frequency of Replacing Old Fufu and Palm Fruit Pestles and Mortars.**

Knowledge and use of herbal medicine was found to be common in the Ankasa region. The results show that 154 (88.5%) respondents (Figure 29) use herbal medicine in the study area, although 110 (71.9%) households rarely used it (Figure 30) but when they did, they got the herbs from outside the Reserve 145 (83.9%) while an equal number claimed to buy it from market 145 (83.3%) (Table 10). Once again, this implies that there is extraction of non-timber forest

products such as herbs on a small scale. This, however, calls for proper understanding and management of the type of herbal products gathered and consideration of the potential that some of these products are illegally collected in the Reserve.



**Figure 29.** Use of Herbal Medicine.



**Figure 30.** Frequency Use of Herbal Medicine.

### **5.2.3 Exploitation of natural resources by locations.**

Natural resource exploitation is a complex phenomenon that warrants a thorough understanding if meaningful solutions and measures are to be proposed toward its management. Accordingly, this study examined three locations or entry points through which natural resources were likely to be exploited in the Ankasa region. The three entry points under consideration were natural resources taken from: 1) inside the Reserve; 2) outside the Reserve; and, 3) natural resources purchased from open markets. Using a set of 27 questions, 81 statements were generated on the questionnaire where respondents were to indicate with a YES or NO response whether natural resources utilised at home came from inside the Reserve, outside the Reserve or were purchased from markets.

Exploitation of natural resources by the three entry points or locations is presented in Table 10. The results reveal that on average, most natural resources (wildlife species and non-timber forest products) consumed in the region were either purchased from open markets or obtained from outside the Reserve (Table 10). Examples of natural resources commonly obtained from outside the Reserve were water from rivers and streams (95%), dead firewood (94%), bamboo sticks (84%), mushrooms (76%), thatches (75%) and squirrel (63%). On the other hand, natural resources purchased from open markets included products like wood for tables and chairs (98%), rattan for basket weaving (93%), grasscutter (83%), chewing sponge (83%) and wood for traditional drums (77%). Deer (55%) and duiker (51%) were also taken from outside the Reserve.

Almost an equal number of the same products that were purchased from open markets were also gathered from outside the Reserve (Table 10). The results further show that while 170 (97.7%) household heads purchased fruits and nuts from markets, 163 (93.7%) respondents also gathered the same type of products from outside the Reserve. Similarly, 167 (96%) household heads indicated that palm fruit pestles and mortars used for domestic purposes were bought from markets while 107 (61.5%) respondents stated that the same types of products were equally obtained from outside the Reserve. The results also highlighted that about 162 (93.1%) household heads purchased fufu pestles and mortars from markets while 107 (61.5%) respondents obtained fufu pestles and mortars from outside the Reserve. Although 166 (95%) household heads purchased fresh fish from markets, a good number 155 (89%) people also gathered their fresh fish from rivers and streams outside the Reserve. Lastly, about 137 (78.7%) household heads mentioned that hedgehog meat consumed at home was bought from markets. Another 102 (58.6%) of household heads stated that hedgehog was obtained from outside the

Reserve. The reported levels of resource exploitation within the Reserve varied from 0 to 6.3%.

The highest levels of use of resources from inside the Reserve were for fish and water, both 6.3%

To summarize, although natural resource exploitation by locations showed that most natural resources were purchased from open markets, a good number of forest products used by household heads were also obtained from outside the Reserve. The reported levels of natural resource exploitation occurring inside the Reserve were quite low.

*Table 10. Types of Forest Products and Exploitation Locations*

Forest Products	Inside %		Outside %		Purchased %	
	Yes	No	Yes	No	Yes	No
Duiker	0	174 (100.0)	45 (25.9)	129 (74.1)	89 (51.1)	85 (48.9)
Monkey	0	174 (100.0)	6 (3.4)	168 (96.6)	14 (8.0)	160 (92.0)
Grasscutter	2 (1.1)	172 (98.9)	102 (58.6)	72 (41.4)	145 (83.3)	29 (16.7)
Deer Meat	5 (2.9)	169 (97.1)	31 (17.8)	143 (82.2)	95 (54.9)	78 (45.1)
Squirrel	4 (2.3)	170 (97.7)	110 (63.2)	64 (36.8)	72 (41.4)	102 (58.6)
Bat meat	2 (1.1)	172 (98.9)	6 (3.4)	168 (96.6)	7 (4.0)	167 (96.0)
Porcupine	0	174 (100.0)	1 (0.6)	173 (99.4)	1 (0.6)	173 (99.4)
Hedgehog	0	174 (100.0)	102 (58.6)	72 (41.4)	137 (78.7)	37 (21.3)
Giant rat	1 (0.6)	173 (99.4)	127 (73.0)	47 (27.0)	144 (82.8)	30 (17.2)
Giant Snail	5 (2.9)	169 (97.1)	147 (84.5)	27 (15.5)	131 (75.3)	43 (24.7)
Trumpet Snails	6 (3.4)	168 (96.6)	152 (87.4)	22 (12.6)	111 (63.8)	63 (36.2)
Shrimps & Crabs	9 (5.2)	165 (94.8)	156 (89.7)	18 (10.3)	133 (76.4)	41 (23.6)
Fresh Fish	11 (6.3)	163 (93.7)	155 (89.1)	19 (10.9)	166 (95.4)	8 (4.6)
Mushrooms	3 (1.7)	171 (98.3)	132 (75.9)	42 (24.1)	61 (35.1)	113 (64.9)
Fufu Pestles & Mortars	3 (1.7)	171 (98.3)	107 (61.5)	67 (38.5)	162 (93.1)	12 (6.9)
Palm Fruit Pestles & Mortars	7 (4.0)	167 (96.0)	107 (61.5)	67 (38.5)	167 (96.0)	7 (4.0)
Tree barks & Herbs	5 (2.9)	169 (97.1)	146 (83.9)	28 (16.1)	145 (83.3)	29 (16.7)
Chewing Sponges & Sticks	3 (1.7)	171 (98.3)	63 (36.2)	111 (63.8)	144 (82.8)	30 (17.2)
Bamboo Sticks	3 (1.7)	171 (98.3)	146 (83.9)	28 (16.1)	24 (13.8)	150 (86.2)
Thatches	0	174 (100.0)	131 (75.3)	43 (24.7)	67 (38.5)	107 (61.5)
Rattan Baskets	4 (2.3)	170 (97.7)	26 (14.9)	148 (85.1)	161 (92.5)	13 (7.5)
Wood for Tables & Chairs	0	174 (100.0)	22 (12.6)	152 (87.4)	170 (97.7)	4 (2.3)
Fresh Firewood	1 (0.6)	173 (99.4)	71 (40.8)	103 (59.2)	3 (1.7)	171 (98.3)

Forest Products	Inside %		Outside %		Purchased %	
	Yes	No	Yes	No	Yes	No
Dead Firewood	0	174 (100.0)	164 (94.3)	10 (5.7)	13 (7.5)	161 (92.5)
Water for Domestic Use	11 (6.3)	163 (93.7)	166 (95.4)	8 (4.6)	5 (2.9)	169 (97.1)
Wood for Traditional Drums	0	174 (100.0)	1 (0.6)	173 (99.4)	134 (77.0)	40 (23.0)
Fruits & Nuts	1 (0.6)	173 (99.4)	163 (93.7)	11 (6.3)	170 (97.7)	4 (2.3)

Note. Data in the Table shows the number of respondents in each cell, as well as the percentage within each category.

### 5.3 Summary

Chapter 5 presented an analysis of respondents' socio-demographic characteristics and economic activities and natural resource exploitation.

The survey results revealed that the majority of household heads were men and this tendency occurred with all communities. On average, household heads within the ACREMA communities were between the ages of 30 to 39 years. Most of the respondents were married and had children with the average number of people living in a house being seven. The results further indicated that respondents in the Ankasa region were characterised as people with low education as well as poor income backgrounds. With regard to ethnic composition, most household heads were migrants with the Akan ethnic group being the dominant. Despite the diverse ethnic backgrounds, a great majority of respondents practiced Christianity, with a few practicing Islam.

In terms of respondents' economic activities, household heads were predominantly farmers. As a farming community, household heads operated under different land tenure systems. The most common land tenure system in the region was *abunu* share-cropping system where crops produced by tenant farmers were shared into two equal parts between a farmer and a

landowner. Crops commonly grown in the region were cocoa, coconut, and cassava. It was also noted that crop farm size increased with time and as the years went by. In addition to farming activities, household heads kept animals such as poultry and sheep to supplement their food.

The analysis of natural resource exploitation in the Ankasa region reported on all three fronts namely; types of wildlife species, types of non-timber forest products and entry point (location) of exploitation. Beginning with wildlife exploitation, the results demonstrated that bushmeat was the major meat source for household heads within the ACREMA communities and almost every household head in the study area consumed bushmeat. Several reasons were given for bushmeat consumption among which included rooted in their culture or can easily be hunted. Despite the fact that almost household head in the community eat bushmeat, it was eaten rarely.

The self-reporting about wildlife species consumed indicated that bushmeat was obtained from farms or purchased from markets. Common devices used in wildlife exploitation on farms were traps and snares and the three types of animals usually caught were giant rat, grasscutter and hedgehog. Most of the wildlife species caught were consumed or sold on the market. While a good number of household heads were prepared to give up bushmeat consumption if other meat sources existed, there were those who will continue to eat bushmeat regardless.

The use of non-timber forest products was also examined. Firewood and charcoal were the two main types of fuel energy used by households within the ACREMA communities. Of the two fuel energy sources, firewood was more often used than charcoal. Firewood collection was the sole responsibility of women and girls. In addition to fuel energy use, household heads were also known to use other non-timber forest products such as pestles and mortars for processing fufu and palm fruits. Pestles for fufu and palm fruits were more often replaced than mortars. As an alternative to scientific medicine, household heads used herbal medicine once in a while.

Although natural resource exploitation by location showed that most natural resources were purchased from open markets, a good number of forest products used by household heads were also obtained from outside the Reserve. Natural resource exploitation occurring inside the Reserve was however negligible and almost non-existent.

## Chapter Six

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### **Willingness to Support Nature Conservation and Tourism**

#### **6.0 Introduction**

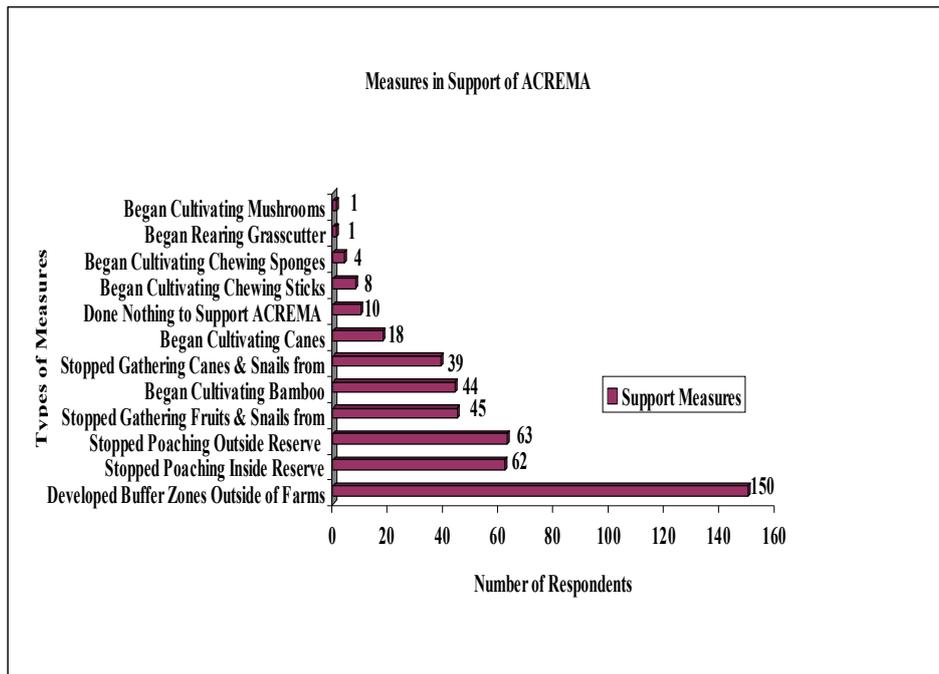
Communities at travel destinations are increasingly becoming mindful of the value of their heritage, and the need to develop initiatives to preserve that richness. All over the world, community stakeholders are taking responsibility for protecting and enhancing their heritage and environments, and implementing exciting sustainable nature conservation initiatives. Such actions are paramount to the long-term viability of nature conservation and deserve to be encouraged. Chapter 6 first examines respondents' support for nature conservation. Second, the chapter presents analysis of local community members' willingness to support tourism development. Finally, the chapter concludes by discussing the role of ACREMA community members in tourism development.

#### **6.1 Measures in Support of Nature Conservation or (ACREMA) in Ankasa**

Community-based natural resource management programmes have been introduced around the world as one of the effective ways to achieve nature conservation in protected areas. Therefore, to understand the extent of natural resource exploitation inside and outside the Reserve, survey respondents were asked about their involvement with ACREMA. In addition, households were to indicate measures put in place to achieve nature conservation and their reason for supporting ACREMA.

The findings illustrate that 142 (82.6%) respondents (i.e. household heads as well as other members of the household) were members of ACREMA, while 139 (80.1%) also supported ACREMA. Differences between membership and support exist because even though most local community members are members of ACREMA not every household member may support it. A study done in the Central region of Ghana showed that residents who were members of a community organization demonstrated greater levels of support for tourism (Sirakaya, Teye, & Sönmez, 2002).

In addition to being members of ACREMA, some households have undertaken several measures to show their commitment and support for nature conservation and ACREMA. As part of the measures taken Figure 31 shows that of the 174 respondents surveyed, 150 (86%) households have developed buffer zones around their farms. A good number, 62 (98.4%) and 63 (98.4%), of households have stopped poaching wildlife species inside and outside the Reserve respectively. About 45 (26%) of households have stopped gathering canes and snails from inside the Reserve; a small number, 44 (25.3%), of households have begun to cultivate bamboo sticks.



**Figure 31. Conservation Measures Taken in Support of ACREMA.**

Other measures undertaken in support of ACREMA included helping in the construction of the ACREMA building. About 37% of households assisted in the construction of the ACREMA building while others supported ACREMA by attending meetings and paying dues (27%). Some comments worth reporting included: “I helped in the construction of the ACREMA house” or “all my family members devoted their time to help put in place the ACREMA house.” More importantly, some measures came in the form of acting as community watch-dogs. As community watch-dogs, some of the household heads arrested people who violated park laws. Another person was noted saying: “I arrest people who hunt inside the Reserve” or “I report suspicious activities to the appropriate authorities for culprits to be sanctioned accordingly.”

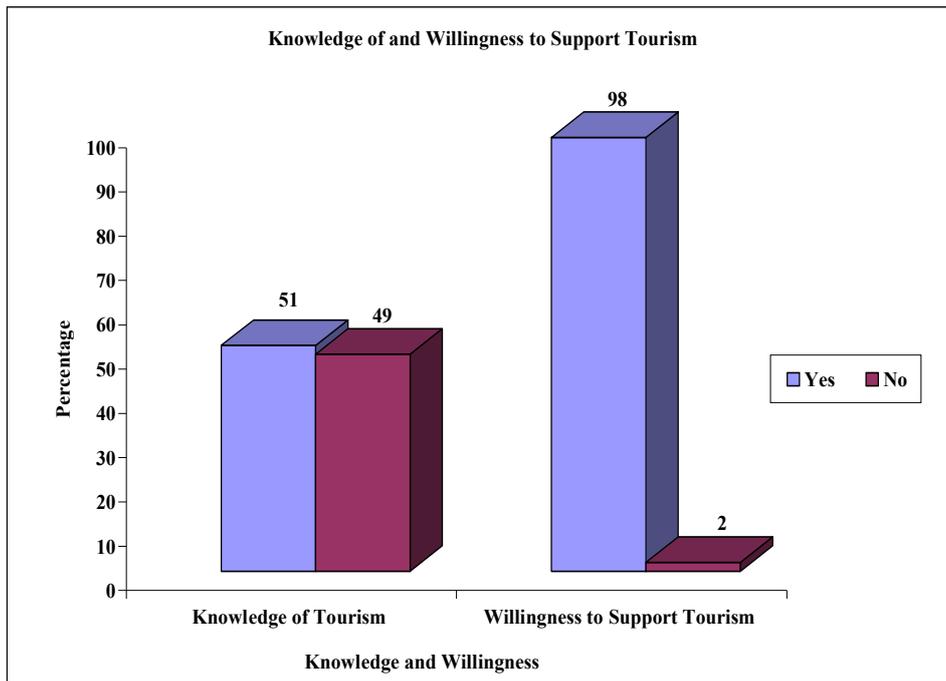
All these measures indicate that most households within the ACREMA communities have embraced the concept of community-based natural resource management, especially ACREMA, and are therefore willing to work with the park management to see it succeed.

## **6.2 Willingness to Support Nature Conservation: Towards Tourism**

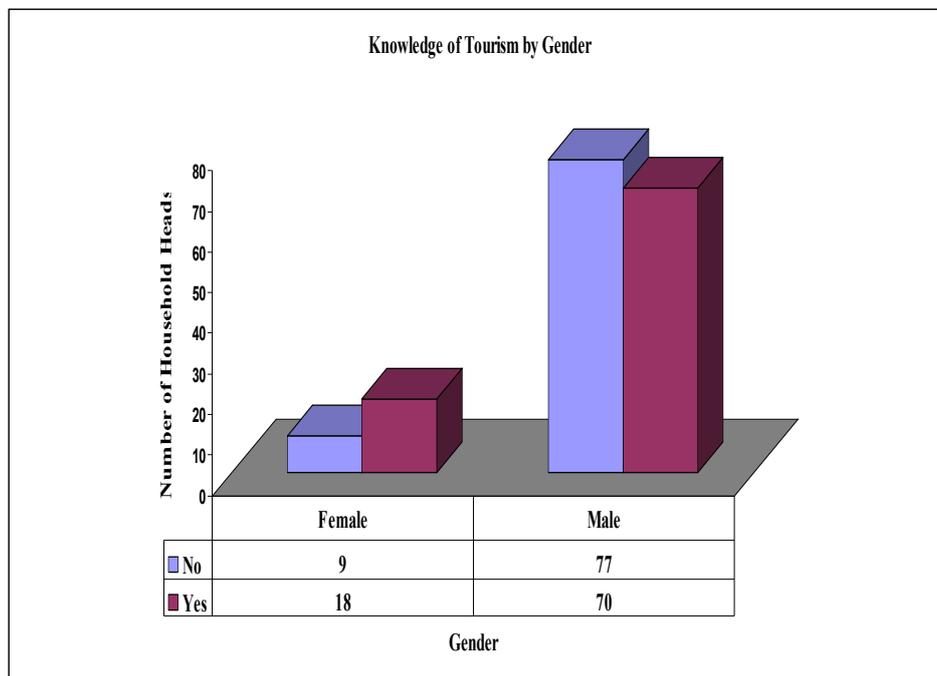
### **Development**

Few studies exist on local community members' support for tourism development prior to its development. Existing studies have focused on communities that are already experiencing tourism development and very few studies pay attention to the preferred role and involvement of local community members in tourism prior to tourism development. On the contrary, this study developed a list of tourism-related jobs based on pro-poor development project papers and personal experience of the tourism industry. The goal was to understand local community members' willingness to support tourism as well as roles they are likely to play or services may be rendered should tourism become operational in the region.

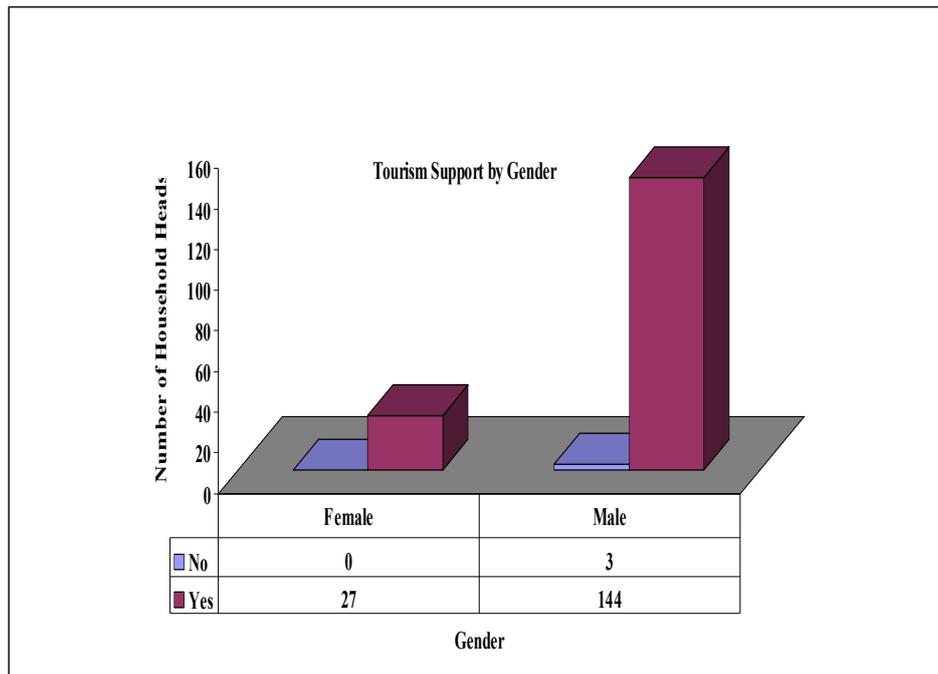
Respondents were first asked to indicate their knowledge of tourism and their willingness to support tourism. Answers to these questions show that 89 (51.1%) respondents had some idea of what tourism entails, while 85 (48.9%) did not (Figure 32). Despite the slight differences in knowledge of tourism, 171 (98.3%) of the total population surveyed were willing to support tourism (Figure 32). Comparatively, 18 of the 27 women household heads interviewed were more knowledgeable about tourism than men, 147 in number (Figure 33). More importantly, all 27 female household heads involved in this study supported tourism and only three men did not support it (Figure 34). This is not surprising because the region lacks other income generating activities so community members are willing to welcome other economic activities besides farming.



**Figure 32. Knowledge and Willingness to Support Tourism.**



**Figure 33. Knowledge of Tourism by Gender.**



**Figure 34. Support for Tourism by Gender.**

Irrespective of the fact that respondents have poor understanding or knowledge of tourism, 171 (98%) were willing to support it. The results of an open-ended question (Figure 35) showed that 51% of household heads are willing to support tourism because it is viewed as a source of income. Comments like “tourism can generate income for the government” show the importance of the Ankasa Resource Reserve as viewed by local community members. Other comments included: “their presence [tourists] gives the nation income which the community gets part for its developmental projects.”

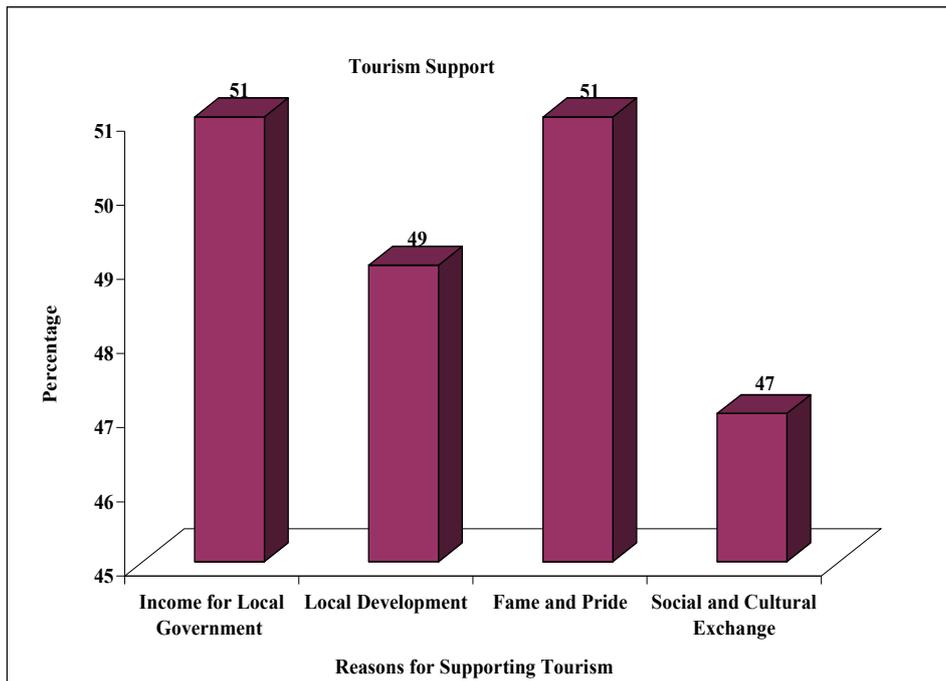
For many households, tourism is good because it has made the Ankasa region famous and it has also instilled an element of pride in the local folks (51%). Some of the comments noted included: “tourism makes the name of our beloved country get far because of the pictures they [tourists] take along with them” and “the coming of tourists makes us proud because Ankasa Resource Reserve is well known.”

About 49% of respondents support the idea of tourism development because of its potential to trigger local development. One of the participants said: “It is through these tourists that we have the ACREMA house.” Another comment noted was:

Tourists normally buy some of our goods like fresh coconuts and soft drinks. Sometimes these tourists come to help by providing us with fertilizers and cutlasses. I have been leading the tourists, interpreting and guiding them through the forest and around it and I do earn some money for my family.

Finally, there were others who support tourism development because of the social and cultural exchange (47%) to be developed. Some people believe that they could learn a lot from tourists while others said: “It is nice to meet different people. I believe they will also tell others about our way of life.” These percentages total more than 100% because respondents gave multiple answers.

Of the 174 respondents surveyed, 153 (88%) of the respondents were willing to put an end to wildlife poaching and exploitation of other non-timber forest products if they could gain or benefit from tourism revenues. This finding concurs with the principles of social exchange theory and also with Andriotis and Vaughan (2003) who found that residents who found exchange beneficial for their well-being were keen to support tourism development and conversely, residents who viewed the exchange as problematic opposed tourism development. One of the respondents commented: “If my household members gain income from tourism, then I don’t think it will be necessary to exploit the natural resources inside the Reserve.”



**Figure 35. Reasons for Supporting Tourism.**

### **6.3 Role of Community Members in Tourism Development**

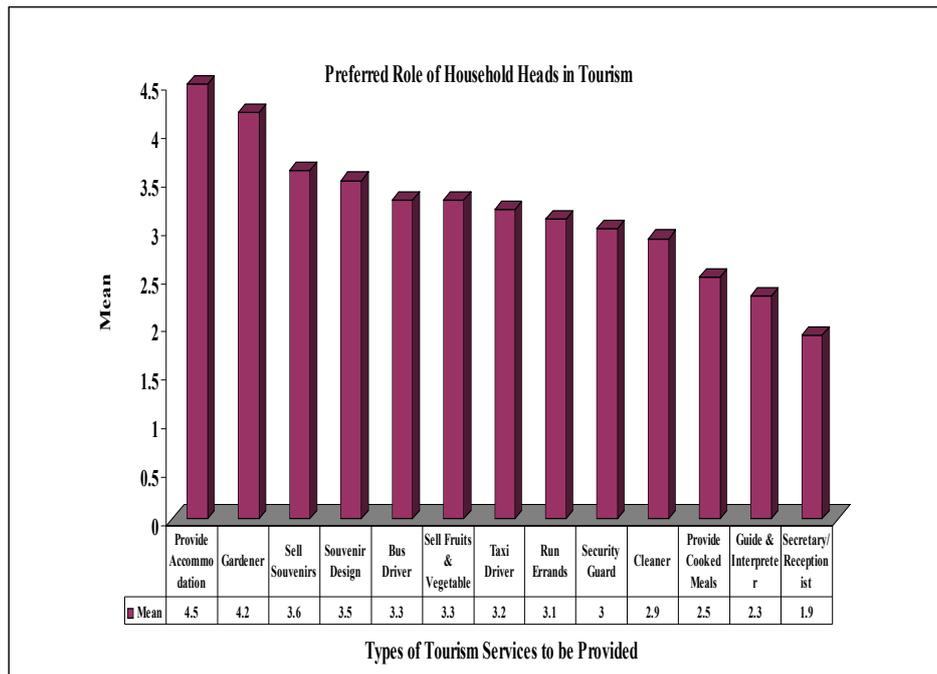
Households within the ACREMA communities have indicated high levels of support for nature conservation in spite of their poor understanding of tourism. Willingness to support tourism development was high because of the perceived benefits to be derived when its development becomes fully operational in the region.

In Section 6.3, I present analyses of the potential roles that local community members are willing and likely to play should tourism become operational in the region. Respondents were asked to indicate their preferred interest in specific tourism-related jobs using a five-point scale (1= Very uninterested to 5 = very interested). The assessment of tourism-related jobs was done for household heads, their partners/spouses and children using means. First, household heads were asked to indicate their preferred role in tourism using the five-point scale. Second, they

were to give similar accounts on behalf of their partners/spouses and finally on their children. The results are presented in the subsequent paragraphs.

### **7.3.1 Preferred tourism-related jobs of household heads.**

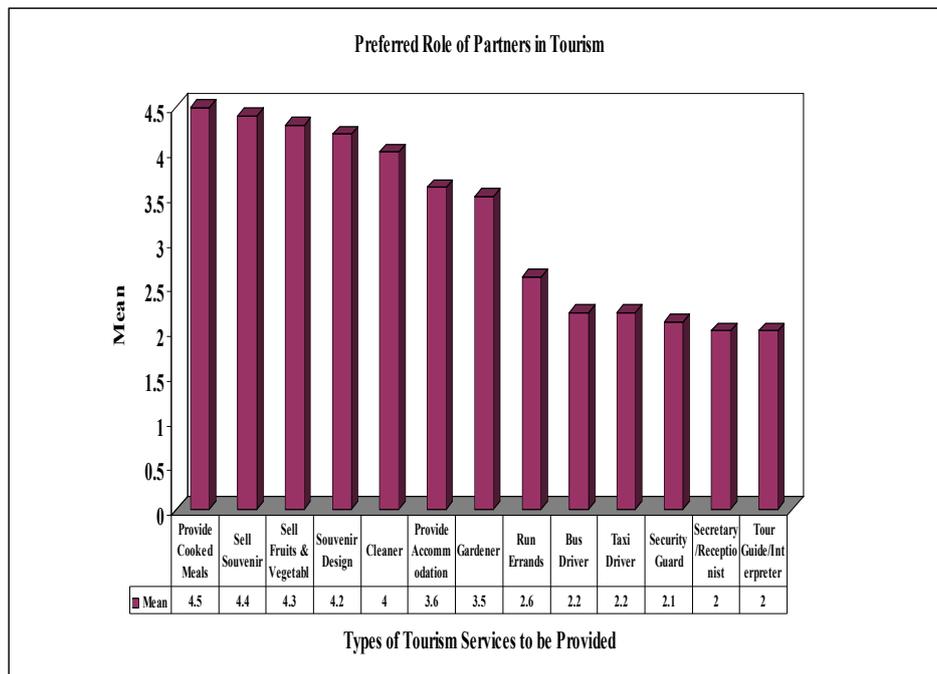
Based on means computed, the analysis shows that providing accommodation for tourists (4.5) and working as gardeners (4.2) ranked highest among all household heads (Figure 36). Souvenir design (3.6), souvenir making (3.5), bus driver (3.3), selling of fruits and vegetables (3.3), becoming a taxi driver (3.2), running errands (3.1) and becoming a security guard (3.0) were other job types household heads would wish to do. Other jobs favoured less by household heads included housekeeping (2.9), provision of cooked meals (2.5), and serving as tour guides and interpreters (2.3). The least preferred job type among household heads was to work as a secretary/receptionist (1.9). This is not surprising because most of the household heads are illiterate or poorly educated.



**Figure 36. Preferred Role of Household Head in Tourism in Ankasa.**

### **6.3.2 Preferred tourism-related jobs of partners/spouses.**

The most preferred tourism-related jobs identified by household heads, usually men, for their partners (wife/wives) in the Ankasa region included providing cooked meals to tourists (4.5), selling souvenirs (4.4), selling fruits and/or vegetables (4.3), souvenir design (4.2) and housekeeping (4). Providing accommodation services (3.6) or working as gardeners (3.5) was equally preferred. Jobs not so much liked by the household heads' for their partners/spouses were secretarial/receptionist job (2) and working as a tour guide/interpreter (2). Running errands (2.6), working as bus (2) or taxi drivers (2) and/or as security guards (2.1) had lower rankings. See Figure 37 for detailed results.

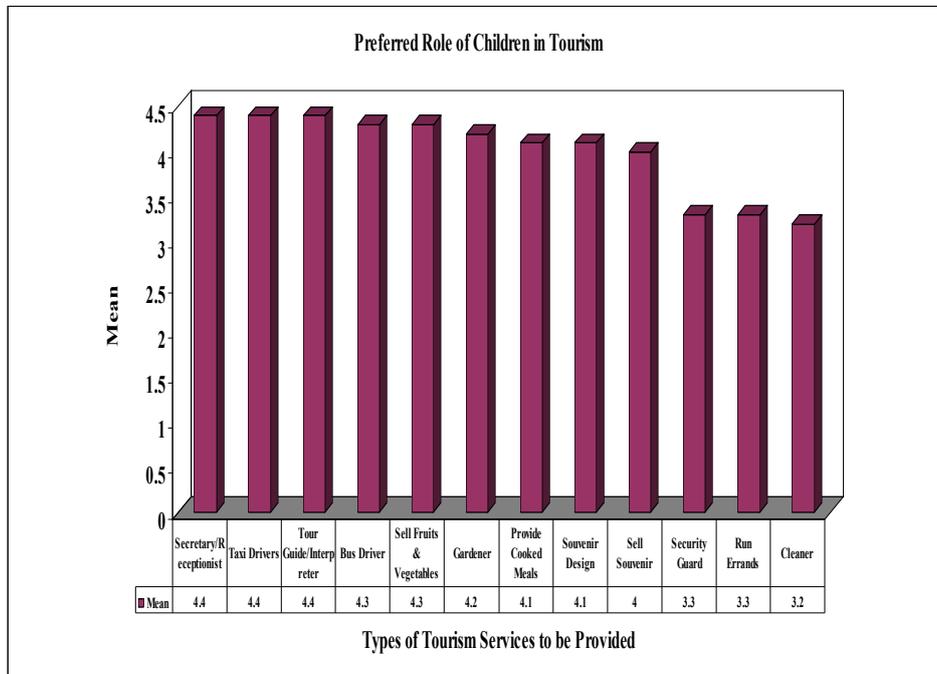


**Figure 37. Preferred Role of Partners/Spouses in Tourism in Ankasa.**

### **6.3.3 Preferred tourism-related jobs of children.**

Household heads are believed to be knowledgeable about their household needs thus, household heads were asked to indicate the type of tourism-related jobs that they thought their children would want to do. While household heads did not like to work as secretaries/receptionists, they preferred to see their children employed as secretaries/receptionists (4.4). Working as taxi drivers (4.4), tours guide/interpreter (4.4), bus drivers (4.3) were highly favoured jobs for children within the Ankasa region (Figure 38). Additionally, jobs like selling fruits and vegetables (4.3), working as gardeners (4.2), and providing cooked meals to tourists (4.1) were also considered to be good jobs for children. Designing and making of souvenirs (4.1) and sale of souvenirs (4) were preferred but not as much as others. Tourism-related jobs that

were least preferred by children included housekeeping (3.2), running errands (3.3), and security guards (3.3).



**Figure 38. Preferred Role of Children in Tourism.**

## 6.4 Summary

In summary, the analysis on willingness to support nature conservation and tourism yielded very good results. The results showed that 83% of respondents (i.e. household heads as well as other household members) were members of ACREMA, while 81% of all household heads as well as other members of the household also supported ACREMA and had even taken measures to support nature conservation in the area. Examples of measures undertaken in support of nature conservation included the development of buffer zones, cultivation of non-timber forest products such as bamboo sticks among others.

Concerning knowledge of tourism, respondents were evenly split with 49% unsure of what tourism entailed. However, 98% of household heads were willing to support tourism development. Some of the reasons given in support of tourism development were income for the central government, local community development, community fame and pride and social and cultural exchange.

Support for tourism was also assessed by examining preferred roles that some community members were willing to play if and when tourism commences in the region. The results showed that household heads were willing to provide a variety of tourism activities such as providing accommodation to tourists or working as gardeners.

Besides household heads, spouses or partners were said to be ready to provide cooked meals to tourists; sell souvenirs, fruits and vegetables and also provide housekeeping. Children within the ACREMA communities were said to be willing to do any kind of job ranging from secretarial/receptionist services, tour guiding/interpretation or driving. It was clear that there was a gender bias, with men wanting to be involved in activities somewhat different than those desired for their wives.

This research confirms that the ACREMA approach to community conservation has received high levels of community support in the eight local communities as expressed by organisational membership, willingness to help with ACREMA activities and modifying personal resource management activities. It has also revealed a strong desire to become involved in the provision of tourism services when and if ecotourism activity starts to occur in this area. The desire to take on any job also demonstrates the need for the development of other alternative livelihoods especially for the young people in the community.

## Chapter Seven

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### **Conservation and Natural Resource Management in the Ankasa Resource Reserve: Qualitative Analysis**

#### **7.0 Introduction**

Chapter 7 presents analyses of qualitative data captured through focus group interviews with five local men and seven local women, informal in-depth interview with the wildlife officer and overt participant observation. Also presented are the results of the informal interview held with five local community men before the commencement of the actual fieldwork. The analysis is complemented and enriched by a review of written documents on the Reserve.

#### **7.2 Account of Natural Resources**

After the administration of the survey questionnaire, it was realised that only a handful of women had participated in the survey. The researcher determined it was necessary to hold an informal focus group interview with selected local women to gain their perspective on the state of natural resources in the area and their involvement in the activities of ACREMA. Consequently, seven local women were selected for a group discussion. First, women were to give an account of natural resources prior to and after the establishment of ACREMA. Second, they were to discuss their involvement in the activities of ACREMA and what they would like to see done differently as far as ACREMA is concerned. As already mentioned, I also had the chance to speak with five local community leaders before the actual fieldwork began. Similarly,

the five local men were interviewed concerning the state of natural resource exploitation and management. The interview also touched on ACREMA and the community's level of involvement in ACREMA's activities. Major themes that emerged from the two separate interviews (i.e. interview with men and women) and presented in the subsequent sections are historical account and establishment of ACREMA communities, densely forested region, easy access to natural resources, human population growth and resource use, ACREMA establishment and local involvement, and community concerns and needs.

### **7.1.1 Historical account and establishment of ACREMA communities.**

One of the major themes that emerged from the interview with the seven local community women and five men touched on the historical account of the various communities. Other written documents on the Reserve also provide similar historical accounts. Analysis of the interviews and written documents on the Reserve revealed that most of the people living along the fringes of the Ankasa Reserve are settlers as opposed to indigenes. With the exception of Amokwawsuazo, which was established in 1912, the remaining seven communities came into existence after independence and largely in the early 1980s. Residents of Amokwawsuazo migrated from Kwahu in the Eastern region of Ghana to the present day Ankasa Resource Reserve area much earlier than all the other communities.

The leader of Fayah community, Nana Fayah came to settle in the Ankasa region in 1983 making it the second community to mushroom in the area. Nana Fayah and his family migrated from Gomoa and Samrabo in the central region of Ghana to Ankasa. In 1986, Mr. Kofi Paintsil also led a group of people from New Adubiasi-Subriso in the Ashanti region to Ankasa. Upon reaching the Ankasa region, the leader called the place Fante Newtown because the people were

originally from Fante localities or from the Central region of Ghana. Under the leadership of Nana Kofi Adam, Sowudadzemu community was established around 1983/84. Nana Kofi Adam and his family migrated from Gomoa Ajumakwansa also in the central region of Ghana. Due to the rich and wild nature of the environment, the leader of the group, Nana Kofi Adam named the area Sowudadzemu which literally means hold your cutlass well. The rich environment also meant hard work for the new settlers.

A year after the establishment of Sowudadzemu, there was an upsurge in the establishment of four other communities in the Ankasa region. The communities concerned were Old Ankasa, Odoyefe, Frenchman and Paradis. These four communities were all established in 1986 with the exception of Paradis which came into existence in 1990. Led by a fetish priest, the people of Old Ankasa first settled at Nkwanta in the Western region of Ghana before migrating to their present location. Oral tradition had it that on their way to their present location, the group came across a stream and deciding on how to cross the stream; their spiritual leader, the fetish priest instructed them not to talk or “Enkasa” as they crossed the stream. It was believed that they would have drowned if they had disobeyed. Fearing for their lives, the group obeyed, crossed the stream quietly without talking to each other until they reached their present location. Upon reaching their current location, they all agreed to call their new home Ankasa which was derived from the Akan word “Enkasa”.

The founding father of Frenchman community was Nana Paul Kojo. Unlike most other settlers, Nana Kojo is an indigene but lived and worked in Côte d'Ivoire for many years before relocating to the Ankasa region. While away in Côte d'Ivoire, his younger brother became the care-taker of his estate in the Ankasa region. The care-taker did not speak any other language but French so he could not communicate well with community members. As a result of the

communication gap, some community members gave him the pet name, Frenchman which also happens to be the name of their community.

The last and newest community to come into existence was Paradis in 1990. Oral history has it that prior to 1990 there was evidence of human settlement in the area. This was confirmed by the new leader Nana Kojo Ebenezer who originally hails from Great Ningo in the Greater Accra region of Ghana. According to the new leader, he found an old and abandoned house in the place now called Paradis when he arrived. Upon touring the dilapidated house, he came across an old wooden sign post on the floor. He picked up the sign post and saw the faded inscription, Paradis without the letter 'e' so he also decided to name his new home or community Paradis.

The analysis has shown that historically, the eight ACREMA communities came into existence at different time periods with Amokwawsuazo being the oldest and Paradis the youngest to be established. Account was given of how the names of some of the communities were selected. The major reason cited for relocating to the region was purely to search for jobs and better living conditions because the 1980s was one of the most difficult times for Ghanaians because of drought. The Ankasa region was obviously a great location for the new settlers because of its rich forest environment.

#### **7.1.4 Densely forested region.**

Another major theme that emerged from the two interviews (interview with women and men) was the fact that the Ankasa region used to be or was a densely forested region. As already mentioned, in 1983 and beyond, Ghana experienced one of the worst famines ever to be recorded in the history of the country. The drought forced many people to move to other parts of the

country in search of basic necessities of life such as food and water. There was general agreement among the women interviewed that prior to the establishment of ACREMA, Ankasa was a densely-forested region as shown in Figure 39. In other words, participants indicated that before their migration into the Ankasa region, natural resources in the area were available in great quantities. This confirmed earlier comments made by the five local men interviewed at the preparatory phase of this study. With reference to the abundance of natural resources in the region, participants had this to say, “the whole area was forested when we moved to this region so we started felling the trees in 1988.”

Another comment that stood out was the name “Sowudadzemu”. This name came about as a result of the rich and wild environment that some migrants encountered. Comments were made to the effect that because Ankasa was a thick forest region, some of the early settlers decided to call one part of the area “Sowudadzemu ye”. The word name “Sowudadzemu” when literally translated means, hold your cutlass well. “In effect, if you don’t work hard, you will not eat.” For the migrants to survive and adapt to the new environment, they had to tame the environment; and this was done by clearing huge parcels of land. The Ankasa region is an example of the exploitation of natural resources by local community members. It also suggests that as forest is converted to farmland, forest resources would become scarcer.



*Figure 39. A Section of the Ankasa Resource Reserve.*

### **7.1.5 Easy access to natural resources.**

The seven local women and five local men interviewed agreed that access to natural resources was also fairly easy prior to the establishment of ACREMA. Similar to what the men had indicated, the women also stated that there were no restrictions and people could go into the Reserve at any time for resources. Wildlife species were also in abundance and commonly sighted around residents' homes and amongst shrubs. One of the participants said, "We see their foot prints when we wake up in the mornings and also on our way to our farms." The discussion also highlighted that wild animals were found among shrubs which residents hunted using traps or guns. In some cases, dogs were used to hunt wild animals. Wildlife species often caught were giant rat which is locally known as "agyaaku." Other animals caught included grasscutter, duikers, civet cats, or porcupines. Community members also had free access to forest products

like canes, sponges, chewing sticks, raffia and bamboo. Some of these materials especially bamboo sticks and canes were used as building materials. The results of the interviews indicate that local residents' access to natural resources was easy prior to the establishment of ACREMA because resources were in large quantities and park laws and regulations were hardly enforced.

#### **7.1.6 Human population growth and resource use.**

Based on the analysis of the men's interview, the impact of population growth on natural resources emerged as another important theme. The abundance of natural resources and infrastructural development, particularly road construction brought significant changes to the Ankasa region. Road construction facilitated further human migration to the Ankasa region. In support of this statement, a male participant made this comment:

Initially, we were only five people who came to settle here but when the ABU Road Construction Company cleared this mountain top more people moved to this place. There was no road so there were few people in this area but as soon as the Trans-ECOWAS highway was opened people started to settle around the Ankasa Resource Reserve.

Another man was noted saying "I was the only settler in this area but now my children have married and given birth so the number of people in my community has increased tremendously."

The creation of the Reserve in 1976 as well as the establishment of ACREMA in 2003 brought with it associated changes in the living conditions of the people. Access to natural resources became very difficult as a result of tight park rules and regulations and the fear of being arrested. Once again, these sentiments were also echoed by men at the preparatory phase of the study.

We buy everything from the market because the Reserve has been fenced and no longer an open resource field or a free for all property. We try to cultivate vegetables like tomatoes and onions but they do not thrive here due to too much rain. However, if allowed to gather resources from the forest, we will go for bushmeat because meat is expensive to buy. Above all, staff patrol has been high and a number of arrests made occasionally.

Flowing from the above discussion, it can be concluded that the wave of human migration into the Ankasa region swelled in the 1980s as a result of road construction and the abundance of natural resources. However, as human population increased, forests were removed and park regulations tightened community access to natural resources became more difficult. Difficult access to natural resources could also result in conflict between park managers and local community members.

#### **7.1.7 ACREMA establishment and local involvement.**

The establishment of ACREMA and the level of community involvement in ACREMA also came up as one of the themes. The idea of the Amokwawsuazo Community Resource Management Area (ACREMA) surfaced in 1999/2000 and became fully operational on November 3<sup>rd</sup>, 2003. Although local residents now recognise the importance of ACREMA as a good natural resource management programme, it was not without stiff opposition at the onset. Focus group interview with the seven local women revealed that some people within the community had no long-term vision for the Reserve and feared that the Reserve management would implement stricter measures in the future. A similar sentiment had been expressed by men before. There was also the fear that farming land was going to be used for mining purposes. As some of the women said, “initially, we were worried because we thought that our land was going

to be taken away from us or that the land was going to be used for mining activities.” This encouraged some local residents to hunt as much as possible because their future was uncertain.

But when park management adopted community-based conservation programme and incorporated the eight local communities in natural resource management, attitudes of the local people changed. Park management explained to local residents the importance of ACREMA. Community members were also educated to know that they could stop poachers and protect the Reserve if they organised themselves. In addition, park officials informed community members about the benefits associated with ACREMA. According to participants (local women and men), residents were also educated about the importance of wildlife to tourism and were told that people could travel far and wide to see the animals in the Reserve if they were preserved and protected. Above all, local residents were told that as wildlife multiplied, some would find themselves outside the Reserve which local residents could hunt for their own use. Many local people began to see the long-term benefits of the Reserve for them and their communities and at present are helping to conserve the area. There was general consensus that poaching in the Reserve had decreased substantially because local people are currently working together to protect the Reserve from local and external poachers. Commenting on this issue, one man had this to say: “There used to be heavy poaching but not anymore. The frequency of gun shots has gone down too.” This comment clearly demonstrates that poaching has indeed declined.

The establishment of ACREMA seems to have generated conservation awareness among community members. Most of the women and men interviewed agreed that ACREMA is good because it has helped to protect the forest and kept animals from dwindling. As one man said, “ACREMA has helped us a lot, especially on how to cope with the animals in order not to exploit the forest. It is my wish that we keep these animals alive. I hate to see them die.” Another

comment made by one of the women interviewed also touch on nature conservation. The woman said, “At first I thought buffer zones are of no importance, but now through the ACREMA I have come to realise its importance.” What is more, participants from both interview groups expressed the view that conserving the resources in the Reserve would go a long way to instil in children the importance of nature conservation as they grow up and see wildlife in their community. As one man said “There is the need to protect the forest so that the animals do not dwindle. The CREMA is good because in future children will know the differences in wildlife. In short, it would enable children to see and know the names of forest animals.”

While ACREMA seems to have engendered the spirit of nature conservation in local community members, its establishment has brought hardships to community members as well. One of the male participants said, “we have been facing problems since we stopped going inside the forest to kill animals so we need maximum assistance.” Relating to the hardship created as a result of ACREMA another man had this to say: “Consider our situation, the forest was reserved for us by our fathers but now you have put a ban on this forest which has lowered our current standard of living. I wish to expect employment and other social amenities in this community.”

Community involvement in ACREMA and its activities on average is very minimal even though participants (men and women) attest to the fact that ACREMA is good. Some of the local men interviewed indicated that community members do not attend ACREMA meetings regularly and those who do are usually men. The analysis further revealed that women were less involved ACREMA because they do not play active role in decision-making. The low level of community involvement and the non-payment of ACREMA’s dues hinder ACREMA executives from undertaking development initiatives. As one man succinctly puts it, “The ACREMA constitution states that each member should pay 2,000 old Ghanaian cedi a month but people do not pay.”

To sum it up, it can be said that the establishment of ACREMA raised some issues. First, the introduction of ACREMA has minimised natural resource exploitation and created conservation awareness among local communities. On the other hand, the existence of ACREMA has brought hardships by limiting community members' easy access to natural resources inside and outside the Reserve. Finally, poor participation of community members in the activities of ACREMA and financial challenges such as failure to pay dues inhibit ACREMA's executives in performing their duties.

#### **7.1.8 Community concerns and needs.**

Results of the two focus groups showed that ACREMA members had several concerns and needs. One of the concerns expressed and shared by all those interviewed touched on the way junior park officials handled arrested park offenders. The majority of the male participants made it known that some community members were unhappy when junior wildlife officials released poachers without prosecuting them. This is what one man had to say on the issue “Most of the community members are unhappy when junior wildlife officers let go or release poachers.”

Although participants acknowledged an increase in the number of wildlife species after the establishment of ACREMA and effective law enforcement, some local community members argued that benefits to communities and individuals were unevenly distributed by park management. For instance, some women and men complained about the uneven distribution of fertilizers and bicycles. As one man said: “The ACREMA should support everybody not whom they know.”

Another concern raised and shared by interview participants (women and men) concerned the lack of social amenities and services due to the remoteness the various communities.

Participants expressed the concern that because their communities are not situated along the main road, they are normally deprived of the good things that come to any society.

Focus group participants expressed the need for a number of things in their community among which were health centres, efficient transportation system, schools, a post office, employment and entertainment. Community members wished for health centres or modern clinics because there are no health-centres in any of the ACREMA communities. The only nearby health centre is at Sowudadzemu and it is a community health post. For this reason, some people have resorted to the use of herbal medicine. One of the male participants said, “I do not use any traditional herbs as a cure but I know of a man who uses herbs to cure sick people in the area. He can cure broken limbs or legs.”

Access to public transportation in the region is extremely poor and therefore not surprising that reference was made to it. Female participants complained about the difficulty with which they have to transport sick people to the hospital and their farm products to the market. The women indicated that most often, farm products are carried on the head to the market by walking several kilometres. As one woman said, “transportation is also needed in the region as there are no regular vehicles even to transport sick people.” This comment was shared by men as well.

Education including educational facilities was viewed as highly problematic in the Ankasa region. The reason given for this was that only one primary school exists in the entire region and was located extremely far away from other communities. To paraphrase some of the responses made, the region lacks good teachers and schools. The only school for the entire

region is at Amokwawsuazo community and only up to level six. The implication of this is that for children to further their education beyond level six, they would have to travel long distances to other communities. As explained, that discourages pupils from furthering their education.

Lack of employment was a source of great concern for many people in the area. The results of the interview with the women and men revealed that women and men have different economic activity preference. While the majority of the women interviewed expressed interest in trading in cooking utensils and plastic bowls at Sowudadzemu market, men on the other hand were interested in coconut-oil making. Besides engaging in trading activities, working in the tourism industry seemed to appeal to some of the community members. As one man said: “it has always been my desire to work in the forest thus helping to maintain the resources or any available job which can earn my family and I some amount of money which can cater for us all.” Participants from both interview groups communicated the need for the young generation to find decent jobs and not end up like them. One of the male participants said: “I am old now, but it is my prayer that your goals will be achieved..., so that our young ones will not suffer as we did.”

The need to diversify the economic base of the region in order to earn other source of income was well articulated by participants. One of the male participants said: “farming is the only work we do every day from infancy, we will be very grateful if you can help by creating other job opportunities.” A directly related comment made by one of the men was: “we need other sources of work which can give us small amount of income and revenue that can support the family and other basic needs.”

Due to a lack of animal protein, male as well as female participants have seen the need to go into poultry, grasscutter and fish-pond farming. Similarly, all interview participants believe that having a post office and some forms of entertainment could create jobs as well as uplift the

image of the community. Besides streams and rivers, there was no good potable water. Therefore, the need to have good drinking water especially pipe borne water in the region is a necessity.

To this end, the analysis of the two focus group interviews with the five local men and seven local women has shown that not only do community members have concerns but they also desire a number of facilities and services in the region. Some of the concerns conveyed touched on poor handling of park offenders, unequal distribution of benefits and lack of social amenities. Consequently, the need for schools, effective means of transportation, employment opportunities, post office, and entertainment centres were advocated for by both men and women.

## **7.2 Participant Observation**

In the process of administering the survey questionnaires, the research team paid particular attention to the surroundings of the ACREMA communities. Observations were written down as and when they occurred.

### **7.2.1 Socio-cultural structure of the ACREMA communities**

As previously noted, most of the community members in this region are either migrants from different parts of Ghana or children of migrants. It was observed that the Ankasa region is characterised by mud houses and thatch roofs. Most of the ACREMA communities were without electricity and the main source of light at night is the moonlight. But for those who can afford them, paraffin lamps or flash lights were used instead. With the exception of the leader of

Frenchman community who had access to gas stove, food preparation in the ACREMA communities was done using tripod/wood stoves and firewood.

Although with a very small economy, commercial activities are higher on certain days than others due to the different market days. The biggest market day of the week takes place on Mondays at Sowudadzemu. On Wednesday, another market day takes place at Anyinasi, in a near-by village. The last market day of the week is on Friday. The Friday market day takes place at Elubo. Elubo is a border town and neighbours Cote D'Ivoire to the West. On market days, people travel far and wide to display and sell their market wares very early in the mornings. By three in the afternoon, most traders and sellers are heading back to their various communities.

Common food items displayed for sale on the different market days are palm fruits, cassava, yams, cocoyams, taro roots, and plantains. Other products sold were charcoal, fufu and palm fruit pestles and mortars, fresh tomatoes, fresh hot peppers, and many more. Common protein sources sold were dried fish, fresh fish, and occasionally frozen beef and chicken. However, the sale of frozen beef and chicken was not common because they too expensive and most people cannot afford to buy it. Besides being expensive, selling frozen foods in the region is also problematic because of the lack of electricity in many parts of the area. With regard to bushmeat, not a single type of bushmeat was seen or sold openly on the market. Even if bushmeat was sold, the sellers were very discreet about it for fear of being arrested by wildlife officers who patrolled the market area. Figure 40 is a picture of Fayah, one of eight ACREMA communities in the Ankasa region.



*Figure 40. A Photograph of Fayah Community in the Ankasa Region.*

### **7.2.2 Socio-political structure.**

As law enforcement and punishment are to modern societies so are local institutions to rural societies. Social behaviour in most rural African societies is governed by local, informal institutions such as norms and taboos. These local institutions shape society and mould people into law-abiding citizens. Where such local institutions are broken, offenders may be punished, asked to pay fines or imprisonment to serve as deterrent to others.

The Ankasa region is also governed by local institutions such as taboos. It is for instance a taboo and an offence in the region to fish on Tuesdays or farm on Thursdays. Besides, non-fishing and non-farming activities on Tuesdays and Thursdays, it is also forbidden for local community members to rear goats. Even though not a single goat was sighted in the region, it was not uncommon to see sheep roam about. Some community members as well as the research

assistants narrated to me very strange but confirmed stories of incidents that had occurred as a result of some people breaking local laws or taboos. The bottom-line is, local community members are aware of the existence of such taboos and norms and the consequences likely to follow if broken. Hence, people are cautious in their dealings with one another.

Through participant observation, the researcher as well as the two research assistants learned many things about the ACREMA communities as a result of our presence in the communities and our interaction with local community members during the administration of the survey questionnaires. The two major themes that emerged from the observation focused on communities' socio-cultural and political structures. Socio-culturally, the research team came to understand some aspects of community life such as the use of woodstove in food preparation and the use of alternative energy sources like paraffin lamps or flash lights due to lack of electricity. Our presence in the community also helped us to learn about the various market days of the region and the types of products sold on such market days. Above all, the role of local institutions such as taboos was seen to play a very significant role in the socio-political structure of the ACREMA communities by ensuring that community members live right with one another in society.

### **7.3 Review of Ankasa Resource Reserve Management Plan**

The Forest and Wildlife Policy of 1994 enshrines the principle of conservation through sustainable development. The policy recognises the need to associate local communities with protected area management through the generation of benefits such as natural resource utilisation and employment.

According to the Reserve's Management Plan, the major threat to the integrity of the Ankasa Resource Reserve comes from external pressures arising from increasing human population, uncontrolled immigration and settlement leading to major changes in land use and the depletion of natural resources outside the Reserve. The Ankasa Resource Reserve Management Plan also recognises that authority and responsibility must be linked for successful wildlife management. The Management Plan thus presents mechanisms that allow the Wildlife Division to devolve authority to manage wildlife outside the Reserve.

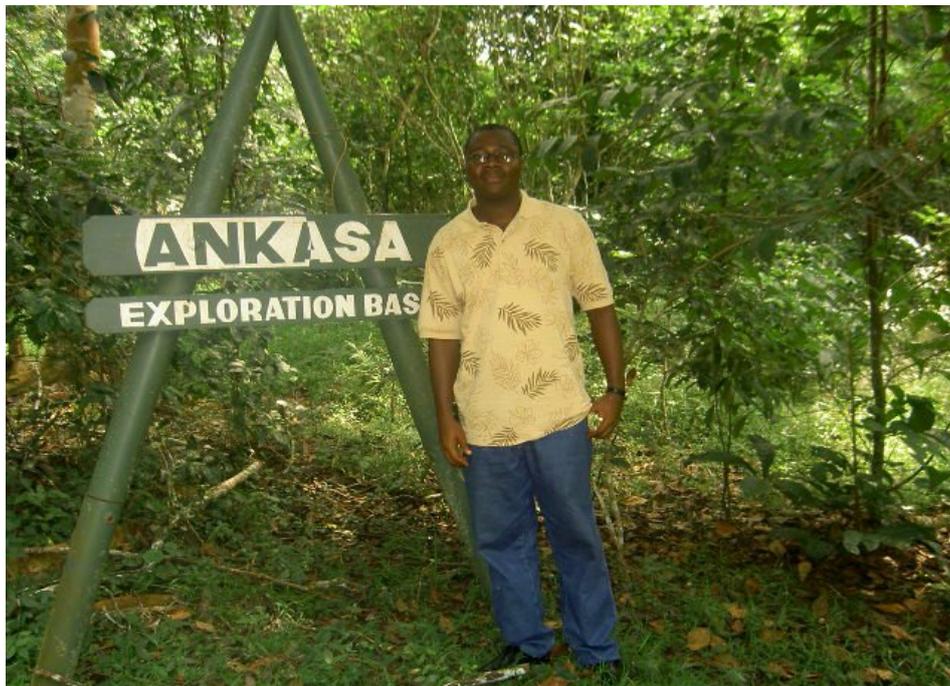
### **7.3.1 Human resource issues.**

Ankasa is staffed by officers of the Wildlife Division and the various categories of staff employed include professional officers with university degree, technical officers with certificate qualification, and sub-technical officers that include driver, secretaries, mechanics, and accountants to mention. The Reserve's Management Plan indicates that the staff level has consistently been below requirement, meaning that Ankasa is understaffed. Field staff, comprising technical and sub-technical officers and whose tasks focus on anti-poaching and maintenance duties have been about half the required number. More importantly, Ankasa has no tourism officer currently although there is an accountant, community development and wildlife officer, driver, secretary and two rangers. Staff numbers at the Reserve needs to be addressed.

Staff training is determined at the national level and all newly-recruited staff members are supposed to be sent to Mole National Park for an induction course but many staff members of Ankasa have little or no formal training beyond their recruitment qualification. When staff training occurs, it is a three-week general training course in leadership and anti-poaching tactics.

### **7.3.2 Available infrastructure and tourist facilities.**

In addition to the West Africa Highway, there are a number of roads that provide good access to the Ankasa Resource Reserve with the aim of providing year-round vehicular access to the Reserve. Even though the Division has a pickup truck, this is inadequate for the daily tasks due to the fact that the area is rugged and need more resource for effective management. Visitor facilities provided in Ankasa include an exploration base which serves as an educational facility for school children and also available for educational conferences on a commercial basis (Figure 41). Other facilities available include tourist camps, nature trails, visitors' centre and restaurant, and the bamboo cathedral. The visitors' centre and restaurant are presently not in use and in need of serious renovation (Figure 42)



*Figure 41. A Research Assistant at the Ankasa Exploration Base.*



*Figure 42. Visitors' Centre and Restaurant.*

#### **7.4 Emerging issues from in-depth Interview with the wildlife officer**

The Reserve's Management Plan states that the future integrity of the Reserve relies on developing a system through which different players can interact to regulate their resource use efficiently. The management plan recognises the need to associate local communities with protected area management through generation of benefits such as natural resource utilisation and employment.

With this background in mind, the wildlife officer of the Ankasa Resource Reserve was asked to throw light on two major issues. The interview questions generated were based on the Reserve's management plan, especially issues relating to conservation management and the development of alternative livelihoods. First, the park official was to comment on measures put

in place to minimise natural resource exploitation in the Reserve and secondly to elucidate on the management measures relating to the promotion of alternative livelihoods and community development. Analysis of the interview transcript revealed three main themes, namely: community partnership and incentives, law enforcement, and alternative livelihood development.

#### **7.4.1 Community partnership and incentives.**

In almost every case, relationships with local residents have developed in the context of mutual respect following an initial stage of mistrust. Mistrust is usually overcome by making the conservation objectives explicit and making sure that local residents' perspectives are incorporated in biodiversity conservation efforts. Concerning community partnership and incentives, the park official indicated that rapid depletion of natural resources outside the Reserve necessitated the forging of partnerships with local communities surrounding the Reserve. Consequently, the park management team, in collaboration with local communities, is in the process of setting up a hunters' association with the goal of documenting accurately wildlife species sighted within and outside the Reserve.

Park management has also set ambitious goals for the preservation of Ankasa Resource Reserve. The interview with the wildlife officer revealed that policies have been implemented at the local community level by using incentive packages to increase conservation and natural resource management. The use of incentives is believed to have restored confidence in the local people about their natural resource management practices while preparing them to be open to change some of these practices if necessary in the future.

Incentives to community members come in different forms. At one time, ACREMA members were given fertilizers for their farms because one of the major problems that farmers

encounter in the Ankasa region is high levels of rainfall. Although heavy rainfall is needed for farming activities, it can also be harmful to some crops with regards to low levels of soil nutrient; because heavy rainfall often leads to a process known as leaching which is the removal of top soil nutrients necessary for plant growth. Plants most affected by leaching are shallow-root crops whose roots do not reach far into the soil to obtain nutrients for their growth. Consequently, to support plant growth, farmers need to restore soil fertility through manure and/or fertilizer application.

Besides fertilizers, some farmers received bicycles to facilitate their mobility within the communities. Most residents have no personal cars and access to public transit is weak. With the exception of market days, public transportation to ACREMA communities is non-existent. In the absence of reliable means of public or private transportation, local people have no other choice but to walk. People most affected by the inefficient public transit system are school children. Most children in this region walk long distances to school and back each day. So with the help of external donors, the management staff managed to obtain some bicycles for community members. Based on park staff assessment, they decided to give bicycles to ACREMA members with children in school so that those children could ride bicycles to school instead of walking. Teachers reported seeing remarkable improvement in school attendance. Students became more punctual and absenteeism went down.

The most fascinating thing about these bicycles was that they were all assembled locally in the communities. Community members were very excited as they watched donors fix the bicycles. More importantly, donors ensured that people had the right type of bicycle so older and bigger people had bigger bicycles and vice versa.

Unfortunately, some community members also complained to the researcher by expressing their dissatisfaction about the way and manner in which bicycles were distributed. The unhappy local residents felt cheated because according to them, certain people did not deserve or should not have been given bicycles. The wildlife officer however explained to the researcher that those who complained had no children in school hence there was no need to give them bicycles. To avoid a similar episode from occurring in the future, park management should ensure that communication with its partners is well articulated. This is important because it has negative connotations in the sense that when local residents feel that resources are unevenly distributed; they are unlikely to support nature conservation or tourism development. This is in consonance with Alexander (2000) study, which found that some residents in Belize were less supportive of conservation initiatives because of unequal access to benefits such as employment allocation, training, sound management structure, equal representation and local participation in decision-making process.

#### **7.4.2 Law enforcement.**

The interview with the wildlife officer revealed that prior to the development of the Reserve's Management Plan in 1998/99; actual enforcement of rules was limited due to lack of financial resources and human resource capacity. According to the wildlife officer,

During this period, law enforcement was the paramilitary type and in spite of the restrictions, local people still made it into the Reserve to gather resources. A game of cat and mouse developed between the poachers and the park guards.

The wildlife officer was of the view that through the ACREMA programme, poaching and the extraction of natural resources from the Reserve have declined considerably mainly

because of the understanding reached between community members and park management and the type of rules put in place. ACREMA community members now recognise park management more as working partners rather than the enemy. As a result of the healthy relationship developed between park management and community members, some community members, especially ACREMA members, now adhere faithfully to stipulated conservation rules and regulations. For example, being a member of ACREMA requires that community members refrain from hunting practices from August through to December of each year. This five month period is believed to be the breeding season for most wildlife species and therefore hunting during this period could be detrimental to the survival of some wildlife species. The wildlife officer indicated that the five month no hunting season has been a success so far and there are even indications that some wildlife species, such as duikers, are increasing in numbers. Also, the frequency of gun shots at night has gone down considerably.

The analysis further showed that illegal and forceful entry into the Reserve is non-existent and the cutting of non-timber forest products such as bamboos and canes has diminished significantly as a result of strong enforcement of rules and regulations. The wildlife officer emphasised that arrested park offenders are dealt with according to existing laws. Illegal forest products found in the possession of park offenders are confiscated and such products sold. Any money derived from the sale of illegal forest products is put into government coffers for the maintenance of the Reserve and other purposes. Depending on the seriousness of a crime, culprits could sometimes face imprisonment and/or fine for park regulation violation.

Confiscation of illegal forest products brings to mind an incident the researcher once witnessed. On one of my visits to the study area, we (i.e., the wildlife officer and I) saw a man in possession of a bundle of firewood. The man suddenly disappeared into the bushes upon seeing

the Reserve's patrol vehicle approaching. He left behind the bundle of firewood he had illegally gathered from the Reserve. This is indicative that local residents are aware of park laws, regulations and sanctions associated with park violations.

The wildlife officer admitted that local involvement in natural resource management has helped to complement park management's over-stretched human resource capacity thus enabling them to better enforce park laws. In the collaboration process, community members have accordingly become more responsible by acting as local police and overseeing the effective management of natural resources inside and outside the Reserve. As a comment, the wildlife officer said "we do not have the required human resource capacity to patrol the entire Reserve area. But with tip-off from some of the ACREMA members we are able to deal with park offenders".

### **7.4.3 Alternative livelihood development.**

Like many rural communities, the Ankasa region is in dire need of alternative livelihoods because most community members do not have jobs besides farming. Young people, unlike the older generation, are not as interested in farming activities, says the wildlife officer. The wildlife officer also pointed out that with the help of and funding from a non-governmental organisation (NGO), some people in the community were given a head-start in grasscutter farming and honey-making. Unfortunately, the promising businesses collapsed soon after the leaders of the NGO left the Ankasa region and the financial resource flow ceased.

As an alternative measure to diversifying the region's economy, the wildlife officer expressed management's desire to develop ecotourism in the region. The wildlife officer made it known that management was in the process of upgrading existing tourists facilities such as the

Reserve's Exploration Base, chalets and the Ankasa Restaurant. With the renovated tourist facilities up and running, the wildlife officer expressed optimism about potential job creation which he believed could help the youth to find some blue-collar jobs within the community. The exploration base, for example, would serve as a nature-based learning facility, which would be open to the general public including young school children, researchers, visitors and all Ghanaians at a fee. The renovated chalets and the restaurant would serve as accommodation and eating joint for visitors respectively.

## **7.5 Summary**

Chapter 6 presented the results of the qualitative data obtained for this study. Qualitative data sources came from focus group interview with seven local women, another focus group interview five local men, an in-depth interview with the wildlife officer at the Ankasa Reserve, and personal observation and recording of events as they occurred in the region. The results of the focus group interviews revealed insightful information about the historical background of the ACREMA communities and the reasons behind their migration to the Ankasa region. Evidence from the focus group interviews also indicated that community members had easy access to natural resources at the onset of their settlement in the region. Access to natural resources became limited following the establishment of the Reserve and ACREMA, hence the lack of community involvement in and support for natural resource management.

However, with dialogue and communication, community members came on board and began to work with park management. In spite of the cordial relationship that exists between ACREMA members and park management, concerns were voiced about the behaviour of some

junior wildlife officials. Interview participants made it known that some community members were unhappy with some junior wildlife officials over the release of park offenders without proper prosecution. The need for the creation and development of facilities like schools, hospitals and clinics, good drinking water, electricity and post offices were also expressed. Participants were of the view that having a post office or clinics could provide jobs for some local residents.

The interview with the wildlife officer on natural resource management highlighted that the rapid depletion of natural resources within the Ankasa Resource Reserve led to partnership development with local communities resulting in collaborative resource management. In exchange for community support and cooperation, park management gave local residents incentives such as fertilizers, bicycles and cutlasses. What is more, incentives are seen as a major driving force to changing social behaviour if natural resources are to be managed effectively. Effective implementation of law enforcement was also seen to yield successful resource management. Lastly, the development of alternative livelihoods such as ecotourism was seen as a viable option for the region in order to diversify the region's rural and poor economy. Consequently, park management plans to renovate existing tourist facilities in order to bring the idea into fruition.

## **Chapter Eight**

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### **Discussion, Conclusion and Policy Implications**

#### **8.0 Introduction**

In Chapter 8, the study's discussion, conclusion, and policy implications are presented. The chapter provides a summary of the study's purpose i.e., the research problem and objectives. This is followed by a discussion of the theoretical and conceptual framework developed to guide the study. Discussions of the findings are presented followed by a brief conclusion to the entire study and the study's policy implications. Lastly, recommendations for future studies are made.

#### **8.1 Research Problem and Objectives**

This thesis focuses on natural resource exploitation and arose out of concern to understand how community-based natural resource management can bring about nature conservation within protected areas; particularly in the Ankasa Resource Reserve in Ghana. The broad objectives were outlined in Chapters 1 and 4. The thesis investigated the extent of natural resource exploitation occurring inside and outside the Ankasa Resource Reserve following the introduction of the Amokwawsuazo Community Resource Management Area (ACREMA) programme. The analysis was done by examining the types of natural resources (both wildlife species and non-timber forest products) exploited. Second, the study assessed measures put in

place to minimise natural resource exploitation. The study also examined local community members' willingness to support nature conservation and tourism development in the Ankasa region. All these objectives were assessed alongside socio-demographic characteristics.

## **8.2 Application of Social Exchange Theory to Research in Conservation and Natural Resource Management**

This section demonstrates how social exchange theory can be used as a foundation for research into conservation and natural resource management in the Ankasa Resource Reserve, Ghana. Furthermore, the model of social exchange can provide direction with respect to data collection processes used and the measurement of the variables. The fundamental argument of this theory states that individuals engage in activities or actions believed to satisfy a need. Usually the need emerges as being important, although sometimes it is transient. From the five components previously described, exchange must take place in order for people to remain in social relationships and individuals will continue to remain in a relationship so long as they perceive it to be satisfied. For relationships to be considered as an exchange, one or more of the five components of social exchange must be present.

A relationship is considered a voluntary association when individuals recognise their relationships with others to be free from coercion and every decision taken independently based on rationality. Comparing the findings of this study to the principles of social exchange theory, it can be said that local community members joined ACREMA voluntarily and out of their own free will without any form of coercion, leading to the high level of support enjoyed by

ACREMA. The results revealed that at least 83% of household heads as well as other members of the household were members of ACREMA.

Membership of ACREMA was largely due to the expected benefits to be gained. However, the most difficult aspect of any relationship is the ability to match rewards with services rendered; reciprocity. The cordial relationship that existed between ACREMA members and park officials resulted in the implementation of conservation initiatives by some ACREMA members. In return for local community support, park management rewarded ACREMA members with incentives like fertilizers, bicycles, and cutlasses.

Household heads would want to ensure that they receive reasonably equal returns for their involvement otherwise people are likely to vent an emotional behaviour such as anger. For example, if local community members see the Park Management as partial in the distribution of incentives, this can lead to feelings that the situation is unfair and that the norm of distributive justice has been violated. Thus, ACREMA members may discontinue involvement in the programme. Dissatisfied individuals are more likely to break groups' norms and walk out of a relationship than satisfied parties. However, non-conformity to groups' norms is subject to punishment while conformity leads to rewards.

With the exception of an incident where some ACREMA members registered their disapproval of the behaviour of some junior park officials, the general relationship between the two parties had been congenial. On a positive note, ACREMA members have embraced the concept of nature conservation and are very much aware of park rules and regulations and the consequences of their violation.

## **8.3 Discussion of the Study's Findings**

In this section I provide a brief discussion of the study's findings. However, only important highlights are presented. Among the topics to be covered are household size and resource depletion, migration and land cover change, land tenure systems, and use of non-timber forest products.

### **8.3.1 Impact of socio-demographic characteristics and economic activities.**

#### ***8.3.1.1 Household size and resource depletion.***

The results of the survey showed that some aspects of respondents' socio-demographic and economic characteristics could negatively impact natural resources in the Ankasa region. For instance, average household size (6.8) recorded for the Ankasa region was higher than the national average (5.1) which raises concerns with respect to natural resource utilisation because large household size leads to natural resource depletion if proper resource management policies do not exist (Braimoh & Vlek, 2005). In view of the fact that many rural communities in Ghana are characterised by large household sizes, care must be taken to ensure that local communities that surround reserves and national parks have minimum to no negative impact on the environment because such people tend to exploit the resources found within their reach leaving the ecosystem to suffer.

### **8.3.1.2 Migration and land cover change.**

Whereas some land cover changes occur naturally, most of them are caused by human activities. Sivrikaya and colleagues (2007) found that the general and main causes of deforestation are human population pressure and an increasing demand of land for agriculture and timber products from forests. In southern Burkina Faso, the main reasons cited by respondents for migrating to Neboun included declining soil fertility in the home village, scarcity of arable land, and erratic rainfall (Ouedraogo et al., 2009).

In the same way, focus group interviews with some local men and women revealed that Ankasa was a densely forested region and migration to the area in the early 1980s was primarily in search of fertile land and better living conditions because Ghana was experiencing severe famine at that time. As people settled in the region, they began to till the land by cultivating crops like cocoa, coconut and cassava and a comparative analysis of farm size before and after the establishment of ACREMA confirmed a gradual increase in respondents' farm sizes.

Therefore, even though survey respondents as well as focus group participants did not mention land cover change per se, it could be inferred from the findings that land cover change is occurring as a result of crop farming by migrant farmers and will continue if unchecked. In North Western Uganda, farmers expressed concerned that land-use and cover changes were occurring because of increase in sugarcane plantations and that change was attributed to factors like rapid human population increase and agricultural expansion (Mwavu & Witkowski, 2008). The result of this study also supports or reinforces other studies on land-use and land cover change. It is imperative that park managers perceive the entire landscape instead of individual parcels of land because understanding the causes of landscape change may lead to the

development of proper management strategies for the sustainable conservation of forest resources.

### **8.3.1.3 Land tenure and land access.**

The migration of farmers into relatively empty forest lands leads to complex changes in the agrarian and ecological system in the Ankasa region. Migrant farmers can gain access to land under different land tenure arrangements such as sharecropping, sole-ownership or outright purchase and through gifts (Benneh, 1988). The two share cropping systems in Ghana are locally known as *abunu* and *abusa*. Under the *abunu* tenancy, the proceeds from the harvest are divided equally between the tenant and the landowner. In the case of the *abusa*, the ratio of the tenant farmer's acreage to that of the landowner is two to one.

The most common tenancy arrangement prevailing in the Ankasa region is the *abunu* followed by outright purchase or sole-ownership. A gender analysis of tenure systems showed that female household heads preferred *abusa* to the *abunu* system of sharecropping. The reason being that in the case of *abunu*, the landowner is expected to contribute labour, capital, and seedlings while in the case of *abusa*, the landowner contributes nothing apart from the tract of land. The share cropper is expected to use one third of the harvested crop to finance the cost of operations on the farm and the other one-third as his personal remuneration, while the landowner receives one-third as his rent for the land.

Obviously, tenant farmers gain a lot more under the *abusa* system than landowners. Consequently, landowners now prefer *abunu* to *abusa* tenancy. The reason given for this preference is whereas a landowner would lose half of his land to a migrant farmer under the *abunu* system, he would lose two-thirds in the case of *abusa* (Benneh, 1988). Even though

landowners may be alarmed at the rate at which they may be losing land to migrant farmers, Koku (2001) has shown that security of tenure influences resource use behaviour so the higher the stake for the tenant farmer, the better the chances of the farmer taking good care of the land. On the other hand, land tenure systems that impose unequal access to and control of resources contribute to degradation (Gyasi, 2007). Facilitating equitable access to and security of tenure is therefore crucial to ensuring economic survival, reducing land-related conflicts and placing communities on a steady course towards the achievement of sustainable development.

#### ***8.3.1.4 Use of non-timber forest products such as fuel wood, pestles and mortars.***

Tropical rainforests contain many useful products in addition to timber but there is increasing degradation of non-timber forest products (NTFPs). The results generated in this study showed that firewood and charcoal were the main fuel energy types used in the area. While charcoal was mainly purchased from open markets by household heads, firewood was obtained from outside the Ankasa Reserve and on people's farms. The use of fufu and palm fruit pestles and mortars was also high. Cutting down and removing large trees without doubt damages the forest canopy and the soil, and removes large quantities of minerals. If present trends continue, not only will forest products disappear, but domestic economies will also be adversely affected, both directly and indirectly (Jacobs, 1984).

Since women are primarily responsible for sustaining the livelihood of their families, they play a critical role in managing the diversity of the ecosystem. In some African and Latin American societies, women are responsible for the selection, improvement and storage of seeds (United Nations, 2002; Deda & Rubian, 2004). Laboratory evidence has also indicated that the

corn varieties preferred by women were the most resistant to the local weather, the most nutritious ones, and had the highest tortilla yields due to their capacity to absorb water (Cabrera, Martelo and Garcia, 2001). In spite of possessing these qualities, women also undertake unfavourable activities such as the gathering of wildlife products for food and fodder in protected areas (Aguilar, 2002). The findings from this study demonstrated that women are often responsible for firewood collection in the Ankasa region, a phenomenon very common to many rural communities in Africa.

Regardless of the fact that some studies have shown that women play a very important role in the maintenance of biodiversity especially in the selection of corn seeds, other studies have also shown that some aspects of their daily activities (collection of firewood) could also lead to environmental degradation. The world's ecosystems and its biodiversity form the backbone of people's health, security and sustainable development. The role of women in the conservation and sustainable use of natural resources needs wide recognition, as does their knowledge of these resources.

Even though household heads in the Ankasa region claimed to buy charcoal from markets, one needs to query the source of wood for charcoal processing because there were no designated woodlots in the region for such purposes. Charcoal may not be produced in the Ankasa region, but obviously it comes from nearby communities – which still reflect some form of natural resource exploitation within the region. Wood energy utilization patterns and its impact on deforestation in Nigeria also showed that respondents use between 13.8 kg and 27.6 kg of wood as fuel per day. And sources of fuel wood came from open access areas where most of the forest resources have been abused and degraded (Adedayo, Sale, & Kekeh, 2008). Heavy reliance on non-timber products such as wood could negatively impact the local environment if

the extraction is done unsustainably. However, measures such as the introduction of alternative forms of energy, conservation education, and the availability of fuel wood on private woodlots appear to have been successful in reducing pressure on native forests in Nepal (Bakracharya, Furley, & Newton, 2005).

### **8.3.2 The role of institutions in natural resource management.**

Institutions are specific practices and rules that guide user behaviour (Agrawal & Yadama, 1997) and are known to play a crucial role in shaping environmental landscapes. Interviews with the wildlife officer, focus groups with some selected local men and women, analysis of the Reserve's Management Plan and the survey results all point to the fact that prior to the establishment of ACREMA effective park management was almost non-existent due to the Wildlife Division's inadequate human resource capacity. Consequently, local community members freely gathered forest products from inside and outside the Reserve for consumption and sale. Pandit and Thapa (2003) pointed out that depletion of NTFPs is due primarily to the lack of proper institutional arrangements, including the lack of a comprehensive government policy framework, for sustainable use and management of NTFPs. Natural resources are however best controlled when monitored.

Some authors argue that regular monitoring and sanctioning of rules or rule enforcement are a necessary condition for successful resource management (Gibson, Williams, & Ostrom, 2005). Revisiting the results of this study, the findings showed that natural resource exploitation in the Ankasa Resource Reserve has declined due to effective park patrol and rule enforcement. The fear of being arrested and fined or imprisoned for unlawful entry into the Reserve places checks on local residents as expressed by some. What is more, the no-hunting season (1 August

to 1 December) which prohibits community members from engaging in any form of hunting activities is strictly adhered to by all ACREMA community members. This is made possible because of the institutions put in place. Armitage (2005) points out that some community-based natural resource management regimes perform better than others because of the existence of successful institutional design principles.

Indisputably, the establishment and enforcement of park rules and regulations have led to a decrease in natural resource exploitation signifying effective resource management. Natural resource exploitation in the region is currently very low and has been reduced significantly due to the establishment of ACREMA – a community-based resource management strategy, and as a result of active participation of local community members in natural resource management. As Agrawal and Gibson (1999) suggest, for community-based natural resource management to be successful, emphasis must be placed on institutions while Adger and Luttrell (2000) argue that analysis of institutions is a necessary prerequisite to understanding the management and successful conservation of natural resources.

### **8.3.3 Willingness to support nature conservation.**

Social exchange is a form of interaction in which two individuals voluntarily provide each other with resources that each perceives as rewarding. People enter exchange relationships with the expectation of receiving a benefit. The voluntary transfer of resources from one person to another in return for resources is social exchange (Byrd, 2006). In the Ankasa region, local community support for nature conservation revealed that a large majority of household heads and other household members support nature conservation. Some studies have shown that support is often influenced by benefit (McGehee & Andereck, 2004). Support for forest conservation was

driven by a belief that forest cover was responsible for good rainfall and as a reliable source of fuel wood (Arjunan, Holmes, Puyravaud, & Dsvidar, 2006). This sentiment was equally shared by one old man in Ankasa. In measuring the impact of casino development on a community, Lee and Back (2003) found that because residents were not receiving much benefit from casino development, their support level was lower after the casino was opened. Likewise, support would be diminished if expectations are not met (Johnson & Snepenger, 1994).

Some of the measures that local community members had undertaken in support of nature conservation were the development buffer zones (86.2%) around their farms. In some cases, community members have stopped hunting inside (36.2%) and outside (35.6%) the Reserve. While the development of buffer zones is an attempt on the part of community members to derive benefits for supporting nature conservation initiatives within the Ankasa region, they also attest to the fact that local community members have embraced community-based natural resource management in the region. Furthermore, focus group participants revealed that community members sometimes acted as community-watchdogs by arresting park offenders who were handed over to park management or to appropriate local authorities for sanctioning. Although interview participants agreed that attendance at ACREMA meetings and paying of club dues are poor, most of the community members claimed to have assisted in the construction of the ACREMA building by contributing their labour.

Besides community support, active involvement of local communities in resource management is vital. In this study, focus group interviews with five local men and seven local women as well as personal communication with the wildlife officer revealed that the eight local communities now known as ACREMA were educated on the importance of nature conservation and its associated benefits before ACREMA was established. In spite of the fact that local

community members were initially uncomfortable with the whole idea of nature conservation, they later got on board and began to work collaboratively with park management.

Protected areas are central to the global effort to conserve biodiversity and over the past 20 years, protected area managers have increasingly recognized and addressed the needs and concerns of local communities by giving incentives. Incentive-based programs (IBPs) have become a favoured approach to protected area management, geared at fostering local stewardship by delivering benefits tied to conservation to local people (Spiteri & Nepal, 2008). However, unequal distribution of benefit could also affect local support for nature conservation and also generate conflict among group members. During the focus group interviews it came to light that some ACREMA members were unhappy with the way incentives (e.g., machetes or cutlasses, fertilizers and bicycles) were distributed to ACREMA members. Some participants were of the view that certain communities or individuals deserved less incentive because of their minimal role or input in ACREMA and its activities.

On the other hand, giving ACREMA members incentives has gone a long way to minimise natural resource exploitation inside the Reserve. It has, in a way, also instilled in members the need to be environmentally conscious by observing park rules like the no-hunting season or ban. The desire to act as watch-dogs over their own natural resources is also attributed to the benefits they are already enjoying. These observations wholly support social exchange theory as an effective framework with the potential to understand social behaviour within any given context.

Conserving biodiversity in tropical countries is a challenge because a large proportion of the rural poor are dependent on forest resources for sustenance. Exclusion of people from forests in order to protect wildlife often antagonizes the local communities and creates an unfavourable

climate for conservation. Overall, the results suggest that adopting a community-based approach (with its people-oriented policies and programs) to managing protected areas in developing countries is likely to improve peoples' understanding of their environment and, thus, park–people relations.

#### **8.3.4 Willingness to support alternative livelihoods such as tourism.**

To assess ACREMA members' support for the creation and development of an ecotourism project, there is the need to obtain information that would ascertain local community members' acceptance of any proposed ecotourism project in Ankasa.

Although respondents were almost evenly split on knowledge of tourism, the results showed that 171, representing 98.3% of respondents were willing to support tourism as an alternative means of livelihood. Reasons cited for tourism support were many and include income for the government (51%), local development (49%) and social and cultural exchange (47%). For many of the ACREMA community members, supporting tourism was good because it made the Ankasa region famous and it also instilled an element of pride in the local people. According to Mehta and Heinen (2001) local Nepalese liked conservation areas mainly because of community development and community forestry programs (Mehta & Heinen, 2001).

Willingness to support tourism was also measured by the types of roles community members would prefer to play if and when tourism becomes operational in the region. Once again, household heads expressed high interest in tourism for themselves but more especially for the youth because most children in the region are unemployed and desperately seeking jobs. Residents' desire to seek active participation in tourism development and the youth's willingness to do any kind of job demonstrates the lack of employment in the region and the need for

alternative livelihoods. Similar to a study by Sirakaya, Teye, and Sönmez (2002) the results indicated that unemployed residents were more supportive of developments in tourism infrastructure and attractions than those employed. Since local support for tourism is already high, it would be a good venture if the government and other stakeholders could take the initiative to implement tourism in the area. In addition to the high local support, the Reserve possesses the requisite attractions that could be harnessed to set the ball in motion for proper tourism development. Being the only evergreen rain forest in Ghana with diverse birds and other wildlife species, Ankasa holds great potential for ecotourism development. That said, the development of tourism needs to be planned carefully as some studies have shown that tourism can also generate a number of negative impacts on the host destination.

Theoretically, this research is consistent with other studies on willingness to support tourism. Community benefits of tourism perceived by local residents have a direct and positive relationship to support for tourism development and this finding can provide useful information to tourism development agencies and other stakeholders. Respondents of this study showed that their support for ACREMA was largely due to the expected gains, both tangible such as income, and intangible benefits such as community pride and fame.

#### **8.4 Conclusions of the Study**

Flowing from the above discussion, it can be concluded that some aspects of respondents' socio-demographic characteristics and economic activities have had negative impacts on natural resources in the region. For instance, attention must be paid to socio-economic drivers of deforestation and resource depletion like large household sizes, in-migration, and land cover

change, as a result of extensive crop farming activities. Other factors worth paying attention to are current land tenure systems and farmers' access to land and the extraction of non-timber forest products. Being aware of these factors may help plan environmental policies at a later stage.

On a much brighter note, the results clearly indicate that natural resource exploitation has declined tremendously upon the introduction of ACREMA. This was demonstrated by the low levels of resource exploitation inside the Ankasa Resource Reserve. The decline in natural resource exploitation was primarily due to the collaborative partnership formed between park management and local community members. This was confirmed through the focus group interviews as well as interview with the wildlife officer. The decline in natural resource exploitation in the Ankasa Resource Reserve does not mean a complete absence of resource exploitation since bushmeat was noted to be a source of meat for most households. This supported the cases of exploitation noted, though to a limited extent, and involved smaller animal species like rodents. Nonetheless, the fact that bushmeat was consumed (obtained from outside the Reserve and purchased from markets) indicated a need for stakeholders to play a more active role to completely eradicate natural resource exploitation in the region by providing alternative meat sources.

Similar to the case of wildlife species, exploitation of non-timber forest products from inside the Reserve also witnessed a steady decline after ACREMA was established. This was a result of park management working together with local community members. The study showed that non-timber forest products such as firewood and charcoal were the main forms of fuel energy used, with firewood being the most predominant fuel energy used by households within the ACREMA communities. Although data on natural resource exploitation by location showed

that most natural resources were purchased from open markets, some forest products used by household heads were also obtained from outside the Reserve. The decline in natural resource exploitation (wildlife species and non-timber forest products) proves that community-based natural resource management such as ACREMA has been effective in minimising natural resource exploitation in the Ankasa Resource Reserve. Similar models could therefore be introduced in other protected areas in Ghana to effectively manage natural resources.

The results generated also showed that 83% of respondents were members of ACREMA which reflected their support for nature conservation. Furthermore, the findings of the study showed that about half of the respondents were aware of the concept, tourism, and its associated socio-economic benefits. Interestingly, most households, over 90%, were willing to support tourism.

These results are encouraging for the Ghanaian tourism industry because of the positive attitudes expressed by local community members towards tourism development. Residents' acceptance of tourism development is considered important for the long-term success of tourism in a destination. Therefore, host communities should be involved in the development and planning process. It is pointless for a community to expand tourism without the full support of its members.

To improve residents' perceptions towards tourism, park management should attempt to distribute tourism benefits more equally within local communities, allowing a larger proportion of the local population to benefit from tourism expansion rather than merely bearing the burden of its costs. If benefits from tourism are to spread more equally within host communities, efforts should be made to provide incentives to the local population for employment opportunities and establishment of tourism businesses.

Adopting a mixed method approach in this study has been very illuminating as each method complemented the other because mixed methods are used to enrich understanding of an experience. The use of mixed methods in this study was useful in that it helped to strengthen the research and to examine the research objectives from all sides. More importantly, a mixed method approach of gathering and evaluation increases the validity and accuracy of the information.

Social exchange theory has provided us with an understanding of why people enter into various social contracts and remain in them. The theory also provides a link between studies of everyday social life and further improves our understanding of the social processes that govern relations between persons. Relating this theory to the current study, it can be said that social exchange theory has been helpful in aiding our understanding of why local community members are willing to support nature conservation and tourism development in the Ankasa region.

## **8.5 Policy Implications**

This study generated some important implications for policy. These implications are presented below seriatim.

- ❖ The ACREMA communities were characterised by large household sizes (6.8) higher than the national average (5.1) with many children within a very poor rural farming community. The average number of children per household was once again higher (5) than the national which is currently 4.5. This observation calls for family planning

education for both men and women in the region. Community members should be sensitised to family planning issues such as birth spacing.

- ❖ The results of the study also indicated that women in the Ankasa region are economically poor and have low education compared to men. Development projects must ensure that the needs of women are addressed through self empowerment. For older women, access to adult education and income generating activities would be most effective. The needs of men should also not be ignored either as the differences in income and education between them (men and women) was very small.
  
- ❖ Livestock keeping was limited, which translates to an inadequate supply of meat. The scarce supply of meat and other protein sources could lead to poaching of wildlife species and the extraction of other non-timber forest products in the Ankasa Resource Reserve. Community members must be encouraged and assisted to engage in other sources of meat supply. Local residents could be trained to go into grasscutter, snail and mushroom farming as these products are less capital intensive and could reduce stress on wildlife species in the Reserve.
  
- ❖ Environmental education should be a central piece of park management strategies. Local residents must be encouraged to cultivate woodlots and other fast-growing plants to supplement household needs. Neglecting to take action could have negative ramifications for nature conservation and the environment as women and children continue to gather firewood for household purposes.

- ❖ The study's findings also showed that land cover change was a phenomenon that could not be ignored. To rectify the situation, park management must ensure that proper land demarcation exists between farm lands and Reserve's boundary. Also, agricultural extension officers could introduce farmers to proper farming practices.
  
- ❖ Government must be cognisant of the fact that human resource capacity is low and should endeavour to enhance it through formal classroom education, on-the-job training as well as through other academic programs designed in the line of nature conservation, ecotourism design and development. Training should focus on park management as well as local community members – to know and appreciate the importance of nature conservation. Government should also provide adequate financial support to enable effective management and achievement of designed/proposed strategic plans for its protected areas.
  
- ❖ Equally important is the provision of necessary infrastructure and other vital amenities such as all weather roads, markets, schools, alternative energy sources such as electricity and liquid petroleum gas. The availability of these facilities and amenities could attract potential investors to the region. The development of business opportunities in the region could in turn create jobs for people in the region.
  
- ❖ This study showed that community members were poor and in need of jobs. Since community members were willing to support tourism, it would be worthwhile if the

government sped up its tourism development plan for the Ankasa Resource Reserve with the hope that introduction of ecotourism in the area would ease the unemployment situation. Intensive marketing of the Reserve could also pull other private investors to invest in tourism development in the region.

## **8.6 Recommendations for Further Studies**

The study has three suggestions for further research, which can be outlined as follows: First, the study focused on only one main protected area. This was due to the limited resources available and the narrow scope adopted in the study. There is a need to expand future studies to include other protected areas that have adopted community-based natural resource management in Ghana.

Second, the main theoretical contribution of this study lies in the fact that these findings are from a developing African country and in communities where tourism is at the inception stage of tourism development. Social exchange theory appears to be robust when put to test in a variety of conditions and countries including Ghana. It would be worthwhile to conduct similar studies in other sub-Saharan countries applying the conceptual and analytical framework designed. With the application of the conceptual framework developed, inter-country comparisons could be undertaken.

The third recommendation relates to level of experience with tourism. Local community members in communities with little or no tourism have limited experience with the effects tourism has on a community. Future research needs to investigate changes in local residents'

opinions after a number of years of community-based tourism development and marketing efforts to determine changes in tourism support.

It is worth mentioning at this point that although park management recognises the need for ecotourism development in the Ankasa Resource Reserve, management should only act as facilitators. As facilitators, park management should contract out the ecotourism development aspect of the Reserve to outside agencies. Companies would have to tender in their bids and the company with the best ecotourism proposal would be given a contract for operation in the reserve.

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## Appendices

### Appendix A: Survey Questionnaire

#### THESIS QUESTIONNAIRE



#### CONSERVATION AND NATURAL RESOURCE MANAGEMENT IN THE ANKASA RESOURCE RESERVE, GHANA

#### SURVEY OF NATURAL RESOURCE EXPLOITATION IN AND AROUND THE ANKASA RESOURCE RESERVE

#### SURVEY OF LOCAL COMMUNITY MEMBERS

##### Research Group:

GRACE A. BANDO – UNIVERSITY OF WATERLOO  
PROF. PAUL EAGLES – UNIVERSITY OF WATERLOO

#### CONFIDENTIALITY

*Please note that complete confidentiality is assured with this survey. The information provided will not be divulged to other persons or institutions without your permission. Similarly all the information will be used in an aggregate form only.*

## 1.0 GENERAL INFORMATION SOCIO-DEMOGRAPHIC CHARACTERISTICS

**NB\* Questions raised in this survey are meant to be answered by the household head only. It is important that respondents are screened to ensure that only household heads address the issues raised.**

**This section of the survey instrument solicits basic information about the head of the household. We would therefore appreciate if you could kindly answer these questions about yourself.**

- 1.1 What is the name of your community?  
 (a) Amokwawsuazo  (b) Old Ankasa  (c) Fante New town   
 (d) Frenchman  (e) Dinoharle  (f) Sowudadzemu   
 (g) Paradis  (h) Odoyefe  (i) Fayah   
 (j) Other(s) specify \_\_\_\_\_
- 1.2 Is this place your actual home town? (a) Yes  (b) No
- 1.3 If no, how long have you lived in this community? Please state duration. \_\_\_\_\_ years.
- 1.4 Please check the appropriate gender of the respondent: (a) Male  (b) Female
- 1.5 Age of respondent. (a) 20-29  (b) 30-39   
 (c) 40-49  (d) 50-59  (e) 60-69   
 (f) 70-79  (h) Above 80
- 1.6 Marital status of the respondents: (a) Never Married  (b) Married  (d) Divorced  
 (e) Separated  (f) Widowed  (g) Living with partner  
 (h) Other (s) \_\_\_\_\_
- 1.7 Which ethnic group do you belong to? (a) Nzema  (b) Akan  (c) Ewe  
 (d) Ga/Adangbe  (e) Northerner  (f) Other (s) \_\_\_\_\_
- 1.8 What religious group do you belong to? (a) Christianity  (b) Islam  (c) Traditionalist  
 (d) Atheist  (e) Other (s) \_\_\_\_\_
- 1.9 What is your highest completed level of formal education?  
 (a) No Education  (b) Primary School  (c) Junior Secondary   
 (d) Senior Secondary  (e) Middle School  (f) Technical School   
 (g) University  (h) Other (s) \_\_\_\_\_
- 1.10 How many people live in this house? \_\_\_\_\_
- 1.11 Do you have children? (a) Yes  (b) No
- 1.12 If yes, how many? \_\_\_\_\_
- 1.13 How many are (a) males \_\_\_\_\_ (b) females \_\_\_\_\_
- 1.14 Do you own a parcel/piece of land in this community? (a) Yes  (b) No
- 1.15 If your answer in question 1.14 was yes, what is the nature of your land holding in this community?

- (a) Abunu  (b) Abusa  (c) Sole-ownership  (d) Other \_\_\_\_\_

## 2.0 ECONOMIC ACTIVITIES OF RESPONDENTS

**Understanding various economic activities undertaken in communities is extremely important in developing alternative sources of livelihood. It will therefore be appreciated if you could respond to the questions below as appropriately as possible.**

- 2.1 What is your *primary/main* occupation?  
 (a) Farmer  (b) Trader  (c) Hunter   
 (d) Fisherman  (e) Carpenter  (f) Mason   
 (g) Mechanic  (h) Apprentice  (i) Teacher   
 (j) Clerk  (k) Health worker  (l) Forestry Worker   
 (m) Student  (n) Coconut oil-maker  (o) Other (s) \_\_\_\_\_
- 2.2 How many years have you been in your *main* occupation? Please state. \_\_\_\_\_ years.
- 2.3 What is the estimated *annual income* from ALL your economic activities (*primary and secondary occupation*) engaged in? Please state the amount in Ghanaian cedis. \_\_\_\_\_ Cedis.
- 2.4 Do you have a farm? (a) Yes  (b) No
- 2.5 If yes, what crops do you cultivate on your farm? Please name the THREE MAIN ones starting with the most important.

Crops Grown (Rank by importance)	Type of crops grown	Yrs of crop farming	Number of acres	
			4 yrs ago	Present
(i) First main crop				
(ii) Second main crop				
(iii) Third main crop				

- 2.6 Do you keep or rear animals? (a) Yes  (b) No
- 2.7 If yes, what types of animals do you keep? Please name THREE types starting with the most important.

Animals Kept (Rank by importance)	Type of animals kept	Number of animals	Number of animals kept	
			4 yrs ago	Present
(i) First main animals kept				
(ii) Second main animals				
(iii) Third main animals				

- 2.8 Are there local restaurants or chop bars in this community? (a) Yes  (b) No
- 2.9 If there is no restaurant or chop bar near your house, do you know somewhere else in Ankasa where these local restaurants or chop bars can be found? Please name TWO communities.
- (a) \_\_\_\_\_ (b) \_\_\_\_\_

### 3.0 NATURAL RESOURCE EXPLOITATION

*The questions in this section are aimed at understanding the extent of wildlife exploitation within and around the Ankasa Resource Reserve.*

- 3.1 Do you eat bushmeat in your household? (a) Yes  (b) No
- 3.2 If yes, how often do eat bushmeat in your household?  
 (a) Daily  (b) Weekly  (c) Monthly  (d) Yearly   
 (e) Rarely  (f) Never
- 3.3 Please explain why you eat bushmeat in your household. (*Multiple answers can be provided*):  
 (a) Cheaper compared to other kinds of meat.   
 (b) It can easily be hunted.  (c) Rooted in our culture.   
 (d) Other (s) \_\_\_\_\_
- 3.4 Where is the bushmeat consumed in your household obtained from? (*Multiple answers can be provided*):  
 (a) By setting traps and snares inside the reserve.   
 (b) By setting traps and snares outside the reserve.   
 (c) By setting traps and snares on our farms.   
 (d) By shooting animals inside the reserve.   
 (e) By shooting animals outside the reserve.   
 (f) By shooting animals on our farms.   
 (g) Other (s) \_\_\_\_\_
- 3.5 How many traps and snares do you set on your (a) farms \_\_\_\_\_?  
 (b) inside the Ankasa reserve \_\_\_\_\_ and (c) outside the Ankasa reserve \_\_\_\_\_
- 3.6 Please provide the number of animals you catch. (a) Daily \_\_\_\_\_ (b) Weekly \_\_\_\_\_  
 (c) Monthly \_\_\_\_\_ (d) Yearly \_\_\_\_\_
- 3.7 What do you do with all the meat you get from the wild animals? (a) Eat  (b) Sell
- 3.8 If bushmeat is sold, how would you describe the bushmeat trade? (a) Profitable  (b) Unprofitable
- 3.9 Provided there are alternative meat products, would you put an end to bushmeat consumption and trade?  
 (a) Yes  (b) No
- 3.10 If no, please explain your answer.  
 \_\_\_\_\_  
 \_\_\_\_\_
- 3.11 What type of fuel energy do you use for domestic purposes in your household? (a) Charcoal   
 (b) Firewood  (c) Kerosene  Gas  (d) Electricity
- 3.12 If charcoal is used, how often do you use charcoal for domestic purposes?  
 (a) Daily  (b) Weekly  (c) Monthly  (d) Yearly  (e) Do not know
- 3.13 What type of wood is used in charcoal burning? (a) Fresh firewood only  (b) Dead firewood only   
 (c) Both fresh and dead firewood  (d) Do not know

- 3.14 Where does the wood for making charcoal come from? (a) Inside the reserve  (b) Outside the reserve  (c) Purchased from the open-market  (d) Do not know
- 3.15 If firewood is used, how often do you use firewood for domestic purposes? (a) Daily  (b) Weekly  (c) Monthly  (d) Other (s) \_\_\_\_\_
- 3.16 Whose duty is it to gather firewood for domestic purposes in your household? (a) Girls only  (b) Boys only  (c) Boys and Girls  (d) Women and girls only  (e) Other (s) specify \_\_\_\_\_
- 3.17 Fufu is processed using pestles and mortars. How often do you replace your fufu pestles and mortars? Please state the duration in weeks or months. a) Fufu Pestles \_\_\_\_\_ b) Fufu Mortars \_\_\_\_\_
- 3.18 Palm fruits are processed using pestles and mortars. How often do you replace palm fruit pestles and mortars? Please state the duration in weeks or months. a) Palm fruit Pestles \_\_\_\_\_ b) Palm fruit Mortars \_\_\_\_\_
- 3.19 Do you use herbal medicine as an alternative mode of treatment? (a) Yes  (b) No
- 3.20 If yes, how OFTEN do you use herbal medicine as an alternative mode of treatment? (a) Daily  (b) Weekly  (c) Monthly  (d) Yearly  (e) Rarely
- 3.21 **In 2003, management at Ankasa introduced the Amokwawsuazo community resource management area (ACREMA) programme as a way of involving local communities in natural resource management in an attempt to minimise natural resource exploitation in the Ankasa Resource Reserve. Still on natural resource exploitation, more questions will be asked under three main categories namely, natural resources taken from within the Ankasa Resource Reserve, natural resources taken from outside the reserve and natural resources purchased for household use. Please indicate your level of agreement or disagreement with the following statements using a two- point scale with (1) being Yes and (2) being No.**

STATEMENTS		YES	NO
1.	In the past four years, duiker meat consumed in my household is taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
2.	In the past four years, duiker meat consumed in my household is taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
3.	In the past four years, duiker meat consumed in my household is purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
4.	In the past four years, monkey meat consumed in my household is taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
5.	In the past four years, monkey meat consumed in my household is taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
6.	In the past four years, monkey meat consumed in my household is purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
7.	In the past four years, grasscutter meat consumed in my household is taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
8.	In the past four years, grasscutter meat consumed in my household is taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
9.	In the past four years, grasscutter meat consumed in my household is purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
10.	In the past four years, deer meat consumed in my household is taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
11.	In the past four years, deer meat consumed in my household is taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
12.	In the past four years, deer meat consumed in my household is purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
13.	In the past four years, squirrel meat consumed in my household is taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
14.	In the past four years, squirrel meat consumed in my household is taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
15.	In the past four years, squirrel meat consumed in my household is purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
16.	In the past four years, bat meat consumed in my household is taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
17.	In the past four years, bat meat consumed in my household is taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
18.	In the past four years, bat meat consumed in my household is purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
19.	In the past four years, porcupine meat consumed in my household is taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
20.	In the past four years, porcupine meat consumed in my household is taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
21.	In the past four years, porcupine meat consumed in my household is purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2

STATEMENTS		YES	NO
22.	In the past four years, hedgehog meat consumed in my household is taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
23.	In the past four years, hedgehog meat consumed in my household is taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
24.	In the past four years, hedgehog meat consumed in my household is purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
25.	In the past four years, giant rat meat consumed in my household is taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
26.	In the past four years, giant rat meat consumed in my household is taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
27.	In the past four years, giant rat meat consumed in my household is purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
28.	In the past four years, giant snails consumed in my household are taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
29.	In the past four years, giant snails consumed in my household are taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
30.	In the past four years, giant snails consumed in my household are purchased from the open markets	<input type="checkbox"/> 1	<input type="checkbox"/> 2
31.	In the past four years, trumpets snails consumed in my household are taken from streams and rivers inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
32.	In the past four years, trumpets snails consumed in my household taken are from streams and rivers outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
33.	In the past four years, trumpets snails consumed in my household are purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
34.	In the past four years, shrimps and crabs consumed in my household are taken from streams and rivers inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
35.	In the past four years, shrimps and crabs consumed in my household are taken from streams and rivers outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
36.	In the past four years, shrimps and crabs consumed in my household are purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
37.	In the past four years, fresh fishes consumed in my household are taken from rivers and streams inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
38.	In the past four years, fresh fishes consumed in my household are taken from rivers and streams outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
39.	In the past four years, fresh fishes consumed in my household are purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
40.	In the past four years, mushrooms consumed in my household are taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
41.	In the past four years, mushrooms consumed in my household are taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
42.	In the past four years, mushrooms consumed in my household are bought from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
43.	In the past four years, pestles and mortar sticks for pounding <i>fufu</i> in my household are taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
44.	In the past four years, pestles and mortars for pounding <i>fufu</i> in my household are taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
45.	In the past four years, pestles and mortars for pounding <i>fufu</i> in my household are purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
46.	In the past four years, pestles and mortars for pounding <i>palm fruits</i> in my household are taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
47.	In the past four years, pestles and mortars for pounding <i>palm fruits</i> in my household are taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
48.	In the past four years, pestles and mortars for pounding <i>palm fruits</i> in my household are purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
49.	In the past four years, tree barks and herbs used for medicinal purposes in my household are taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
50.	In the past four years, tree barks and herbs used for medicinal purposes in my household are taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
51.	In the past four years, tree barks and herbs used for medicinal purposes in my household are purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
52.	In the past four years, chewing sponges and sticks used in brushing teeth in my household are taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
53.	In the past four years, chewing sponges and sticks used in brushing teeth in my household are taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
54.	In the past four years, chewing sponges and sticks used in brushing teeth are purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
55.	In the past four years, bamboo sticks used for the body of my house/hut are taken from inside the	<input type="checkbox"/> 1	<input type="checkbox"/> 2

STATEMENTS		YES	NO
	reserve.		
56.	In the past four years, bamboo sticks used for the body of my house are taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
57.	In the past four years, bamboo sticks used for the body my house/hut are purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
58.	In the past four years, thatches used in roofing my house/hut are taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
59.	In the past four years, thatches used in roofing my house/hut are taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
60.	In the past four years, thatches used in roofing my house/hut are purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
61.	In the past four years, baskets used in my household are made from rattan taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
62.	In the past four years, baskets used in my household are made from rattan taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
63.	In the past four years, baskets used in my household are made from rattan purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
64.	In the past four years, tables and chairs used in my household are made from wood taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
65.	In the past four years, tables and chairs used in my household are made from wood taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
66.	In the past four years, tables and chairs used in my household are purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
67.	In the past four years, fresh firewood used for cooking and lighting in my household is taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
68.	In the past four years, fresh firewood used for cooking and lighting in my household is taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
69.	In the past four years, fresh firewood used for cooking and lighting is purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
70.	In the past four years, dead firewood used for cooking and lighting purposes in my household is taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
71.	In the past four years, dead firewood used for cooking and lighting in my household is taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
72.	In the past four years, dead firewood used for cooking and lighting in my household is purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
73.	In the past four years, water used for domestic purposes in my household comes from streams and rivers inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
74.	In the past four years, water used for domestic purposes in my household comes from streams and rivers outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
75.	In the past four years, water used for domestic purposes in my household is purchased.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
76.	In the past four years, traditional drums used during festive occasions in my community are made from wood taken from inside the reserve	<input type="checkbox"/> 1	<input type="checkbox"/> 2
77.	In the past four years, traditional drums used during festive occasions in my community are made from wood taken from outside the reserve	<input type="checkbox"/> 1	<input type="checkbox"/> 2
78.	In the past four years, traditional drums used during festive occasions in my community are made from wood purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
79.	In the past four years, fruits and nuts consumed in my household are taken from inside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
80.	In the past four years, fruits and nuts consumed in my household are taken from outside the reserve.	<input type="checkbox"/> 1	<input type="checkbox"/> 2
81.	In the past four years, fruits and nuts consumed in my household are purchased from the open markets.	<input type="checkbox"/> 1	<input type="checkbox"/> 2

## 4.0 WILLINGNESS TO SUPPORT BIODIVERSITY CONSERVATION AND TOURISM DEVELOPMENT

**This section seeks to assess community's willingness to support biodiversity conservation and tourism in and around the Ankasa Resource Reserve and their implications for natural resource management and community development.**

4.1 Who in your household is/are a member (s) of the Amokwawsuazo community resource management area (ACREMA)? (a) I only  (b) All members of my household  (c) I and all members of my household  (d) None

4.2 Who in your household supports the Amokwawsuazo community resource management area programme? (a) I only  (b) All members of my household  (c) I and all members of my household  (d) None

4.3 If your answer in question 4.2 was *none*, please give reasons.

---

4.4 What measures have you and members of your household put in place in support of the Amokwawsuazo community resource management area (ACREMA) programme? (*Multiple answers can be provided*):

- (1a) I/we have developed buffer zones or set aside portions of land outside our farms
- (2b) I/we have stopped killing wild animals and birds inside the reserve
- (3c) I/we have stopped killing wild animals and birds outside the reserve
- (4d) I/we have stopped gathering products such as canes and snails from inside the reserve
- (5e) I/we have stopped gathering products such as canes and snails from outside the reserve
- (6f) I/we have begun rearing grasscutters and snails
- (7g) I/we have begun cultivating mushrooms
- (8h) I/we have begun cultivating economic non-timber forest products such as bamboos
- (9i) I/we have begun cultivating economic non-timber forest products such as canes
- (10j) I/we have begun cultivating economic non-timber forest products such as chewing sticks
- (11k) I/we have begun cultivating economic non-timber forest products such as chewing sponges
- (12l) I/we have done nothing to support the ACREMA programme
- (13m) Other (s) specify

---

4.5 Do you and members of your household know what tourism is? (a) Yes  (b) No

4.6 Would you and members of your household support tourism in and around Ankasa? (a) Yes  (b) No

4.7 If your answer in question 4.5 was *yes*, why would you and members of your household support tourism in and around Ankasa? Please explain.

---

4.8 If you and members of your household were earning an income from tourism, will you be less likely to take natural resources from the reserve? (a) Yes  (b) No

4.9 If your answer in question 4.8 is *no*, please give reasons.

---

4.10 What role would you and members of your household like to play in tourism in and around Ankasa? Using a five-point scale with (1) being very uninterested and (5) being very interested, please determine your level of interest or uninterest with the following tourism roles.

Very uninterested = 1      Uninterested = 2    Neutral = 3    Interested = 4    Very interested = 5

	STATEMENTS	1	2	3	4	5
1.	I would like to be a security guard	<input type="checkbox"/>				
2.	I would like to be a bus driver	<input type="checkbox"/>				
3.	I would like to be a taxi driver	<input type="checkbox"/>				
4.	I would like to be a tour guide & interpreter	<input type="checkbox"/>				
5.	I would like to design and make souvenirs	<input type="checkbox"/>				
6.	I would like to sell souvenirs	<input type="checkbox"/>				
7.	I would like to provide cooked meals to tourists	<input type="checkbox"/>				
8.	I would like to provide accommodation	<input type="checkbox"/>				
9.	I would like to be a cleaner or do housekeeping	<input type="checkbox"/>				
10.	I would like to be a gardener	<input type="checkbox"/>				
11.	I would like to be a secretary/receptionist	<input type="checkbox"/>				
12.	I would like to run errands	<input type="checkbox"/>				
13.	I would like to sell fruits and/or vegetables to the tourists	<input type="checkbox"/>				
14.	My partner would like to be a security guard	<input type="checkbox"/>				
15.	My partner (husband/wife) would like to be a bus driver	<input type="checkbox"/>				
16.	My partner (husband/wife) would like to be a taxi driver	<input type="checkbox"/>				
17.	My partner (husband/wife) would like to be a tour guide & interpreter	<input type="checkbox"/>				
18.	My partner (husband/wife) would like to design and make souvenirs	<input type="checkbox"/>				
19.	My partner (husband/wife) would like to sell souvenirs	<input type="checkbox"/>				
20.	My partner (husband/wife) would like to provide cooked meals to tourists	<input type="checkbox"/>				
21.	My partner (husband/wife) would like to provide accommodation	<input type="checkbox"/>				
22.	My partner (husband/wife) would like to be a cleaner or do housekeeping	<input type="checkbox"/>				
23.	My partner (husband/wife) would like to be a gardener	<input type="checkbox"/>				
24.	My partner (husband/wife) would like to be a secretary/receptionist	<input type="checkbox"/>				
25.	My partner (husband/wife) would like to run errands	<input type="checkbox"/>				
26.	My partner (husband/wife) would like to sell fruits and/or vegetables to the tourists	<input type="checkbox"/>				
27.	My son (s) would like to be security guards	<input type="checkbox"/>				
28.	My son (s) would like to be bus drivers	<input type="checkbox"/>				
29.	My son (s) would like to be taxi drivers	<input type="checkbox"/>				
30.	My son (s) would like to be gardeners	<input type="checkbox"/>				
31.	My son (s) and daughter (s) would like to be tour guides & interpreters	<input type="checkbox"/>				
32.	My son (s) and daughter (s) would like to design and make souvenirs	<input type="checkbox"/>				
33.	My son (s) and daughter (s) would like to sell souvenirs	<input type="checkbox"/>				
34.	My son (s) and daughter (s) would like to be cleaners or do housekeeping	<input type="checkbox"/>				
35.	My son (s) and daughter (s) would like to be secretaries/receptionists	<input type="checkbox"/>				
36.	My son (s) and daughter (s) would like to run errands	<input type="checkbox"/>				
37.	My son (s) and daughter (s) would like to sell fruits and/or vegetables to the tourists	<input type="checkbox"/>				
38.	My son (s) and daughter (s) would like to provide cooked meals to tourists	<input type="checkbox"/>				

          END          

**Thank you for your time and kind cooperation.**

## Appendix B: Household Script

### Guidelines: Recruiting Household Heads (Respondents)

<b>HOUSEHOLD SCRIPT</b>		
	<b>STEP ONE : INTRODUCTION</b>	<b>COMMENTS</b>
1.	Knock at the door when entering a house and wait until you are invited in.	
2.	If a child opens the door, greet the child and exchange pleasantries and ask for the senior most person in the house.	
3.	Should no adult person be available for interview, thank the child and leave the house. Before you leave the house, ask the child for the best time to meet an adult person in the house and remind the child to inform the parents of your subsequent return.	
<b>STEP TWO: SCREENING OF HOUSEHOLD HEADS</b>		
4.	Should you meet an adult person at the entrance of a house, <b>skip lines 2 &amp; 3</b> and greet the person who opens the door in the local language depending on the time of the day. For example ‘Maakye’ means good morning and ‘Maaha’ means good afternoon.	
5.	Ask the adult person if he/she is the head of the household. ◆ If “ <b>YES</b> ” → go to line 7. If “ <b>NO</b> ” → go to line 6.	
6.	If the adult person is not the head of the household, schedule an appointment to come back some other time to meet with the household head. Thank the adult person and leave the house to come at a later date.	
<b>STEP THREE: TAKING VOLUNTEERS THROUGH THE SURVEY GUIDELINES</b>		
7.	Briefly introduce yourself by stating your name. At this point, ensure that the household head standing before you is 18 years or older. The household head can be male or female.	
8.	State that the purpose of the survey is to determine the extent of natural resource exploitation within the Ankasa Resource Reserve and to determine community members’ willingness to support nature conservation and other alternative livelihood such as tourism.	
9.	Indicate that participation in the survey is voluntary and is expected to take between 25-30 minutes. Volunteers may decline to answer questions if they wish and may withdraw from participating at any time. Indicate that possible questions to be addressed will focus on their socio-demographic characteristics, economic activities, types of natural resource gathered from inside and outside the Ankasa Resource Reserve, and their willingness to support nature conservation and tourism.	
10.	Extend an invitation to the volunteer to participate in a survey being conducted by Grace Bandoh for her doctoral research at the University of Waterloo, Canada.	
11.	Inform volunteers that all information collected will be kept confidential. Under no circumstance will personal names of respondents appear in any report, publication or presentation resulting from this study. Data with identifying names will be removed and kept for a period of 3 years and will be securely stored under lock and key. Paper documents will be destroyed by confidential shredding while all electronic materials will be deleted.	

<b>HOUSEHOLD SCRIPT</b>			
	As a token of our appreciation, volunteers will receive gifts (cash or kind) from the researcher.		
<b>STEP FOUR: VALIDITY OF THE STUDY &amp; CONCERNS</b>			
	Inform volunteers that this doctoral research is supervised by Dr. Paul Eagles and funded by International Development Research Centre. Also, the project was reviewed and received ethic clearance through the Office of Research Ethics at the University of Waterloo.		
	If you have any questions concerning this study please contact Grace Bandoh or her thesis supervisor using the contact information given. If you have any concerns resulting from your participation in this study, please contact the Director of the Office of Research Ethics, University of Waterloo, +1-519-888-4567, extension 36005 or <a href="mailto:ssykes@uwaterloo.ca">ssykes@uwaterloo.ca</a>		
<b>CONTACT INFORMATION</b>			
	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> Grace Akosua. A. Bandoh  Principal Researcher  Recreation &amp; Leisure Studies  University of Waterloo  Waterloo, Ontario , N2L 3G1  Tel: +1-519-885-4567 Ext 33894  Email: <a href="mailto:gaabando@ahsmail.uwaterloo.ca">gaabando@ahsmail.uwaterloo.ca</a> or  <a href="mailto:akuapinaman@yahoo.com">akuapinaman@yahoo.com</a> </td> <td style="width: 50%; vertical-align: top;"> Dr. Paul Eagles  Thesis Supervisor  Recreation &amp; Leisure Studies  University of Waterloo  Waterloo, Ontario, N2L 3G1  Tel: +1-519-885-4567 Ext 32716  Email: <a href="mailto:eagles@uwaterloo.ca">eagles@uwaterloo.ca</a> </td> </tr> </table>	Grace Akosua. A. Bandoh Principal Researcher Recreation & Leisure Studies University of Waterloo Waterloo, Ontario , N2L 3G1 Tel: +1-519-885-4567 Ext 33894 Email: <a href="mailto:gaabando@ahsmail.uwaterloo.ca">gaabando@ahsmail.uwaterloo.ca</a> or <a href="mailto:akuapinaman@yahoo.com">akuapinaman@yahoo.com</a>	Dr. Paul Eagles Thesis Supervisor Recreation & Leisure Studies University of Waterloo Waterloo, Ontario, N2L 3G1 Tel: +1-519-885-4567 Ext 32716 Email: <a href="mailto:eagles@uwaterloo.ca">eagles@uwaterloo.ca</a>
Grace Akosua. A. Bandoh Principal Researcher Recreation & Leisure Studies University of Waterloo Waterloo, Ontario , N2L 3G1 Tel: +1-519-885-4567 Ext 33894 Email: <a href="mailto:gaabando@ahsmail.uwaterloo.ca">gaabando@ahsmail.uwaterloo.ca</a> or <a href="mailto:akuapinaman@yahoo.com">akuapinaman@yahoo.com</a>	Dr. Paul Eagles Thesis Supervisor Recreation & Leisure Studies University of Waterloo Waterloo, Ontario, N2L 3G1 Tel: +1-519-885-4567 Ext 32716 Email: <a href="mailto:eagles@uwaterloo.ca">eagles@uwaterloo.ca</a>		

## **Appendix C: Focus Group Interview Questions**

1. Discuss your access to natural resources prior to and after ACREMA was established? In other words, how has the introduction of the ACREMA impacted your lives in terms of your access to natural resources?
  - a. How would you describe your access to natural resources before ACREMA came into effect?
  - b. How would you describe your access to natural resources after ACREMA was established?
  
2. Thinking specifically about the activities of ACREMA (in terms of meetings and decision-making processes) how would you describe your involvement and what would you like to see done differently?
  - a. Do you attend ACREMA meetings? Why?
  - b. To what extent are you involved in ACREMA decision-making processes?
  - c. What are some of the things you would like see done differently as far as the ACREMA is concerned?

## Appendix D: Management Interview Questions

Welcome and thank you for taking the time to do this interview on conservation and natural resource management in the Ankasa Resource Reserve. This interview seeks to understand park management measures introduced to minimise natural resource exploitation and also to understand management strategies created to promote alternative livelihood in the region. It is hoped that findings from this interview may help organisations develop programmes such as ecotourism in the Ankasa Resource Reserve.

1. All around the world, biodiversity decline has been on the increase which calls for measures to safeguard the world's remaining natural resources. The Ankasa Resource Reserve in Ghana is not immune to this situation. What measures has management put in place to minimize natural resource exploitation? (*Probes: Can you provide examples? Please elaborate.*)
2. The Reserve's Management Plan makes mention of the development of economic activities in national parks and resource reserves in Ghana. One of the management objectives of the Ankasa Resource Reserve is to support economic activities through zoning and to develop opportunities for local communities to bring about biological conservation and economic development. To what extent is park management committed to ensuring that the development of alternative livelihood becomes a reality in the region? (*Probes: Can you think of the measures put in place or underway to are to achieve this objective? Please elaborate.*)
3. Are there any other important issues we may have missed that you feel should be mentioned? (*Probes: Can you provide an example? Please elaborate.*)