

UNIVERSITY OF CAPE COAST

WILDLIFE CONSERVATION AND LIVELIHOOD OPTIONS:
A CASE STUDY OF KAKUM CONSERVATION AREA

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JOSEPH YAW OPPONG

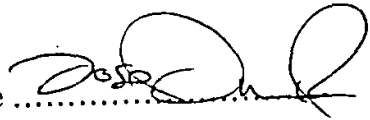
A MASTER'S THESES SUBMITTED TO THE CENTRE FOR
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DECLARATIONS

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"I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this University or elsewhere".

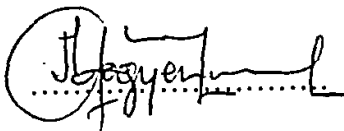
Candidate 

Date 30/8/07

Joseph Yaw Oppong

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Supervisor 

Date 30/8/2007

Mr. Joseph Boateng Agyenim

ABSTRACT

The Kakum Conservation Area (KCA) was part of a system of social cohesion within a culture. That environment created a sub-culture providing for the people food, clothing and shelter among others. By the creation of the conservation area, restrictions were imposed on the communities around it. There is therefore a persistent attempt by the communities to illegally enter the restricted area in the quest to satisfy their livelihood needs.

This work examined the conservation and livelihood situations in twelve (12) communities around the Kakum Conservation Area (KCA). The purposive sampling method was used in selecting the communities. The study relied on the outcome of focus group discussions (FGDs) and data collected from the field. The use of data from other published and unpublished works were employed to buttress findings and trend analysis.

The study confirmed that resource decline in fringe lands encourage poaching. Other findings include the absence of benefit sharing scheme resulting in high poverty levels, inadequate public education and awareness creation, high land acquisition rent charges and, community involvement in park management.

Recommendations are offered based upon the findings to curb the menace of poaching and encroachment in KCA include increasing public education and awareness creation to win support of the fringe communities; benefit sharing and gender equity; and above all the introduction of sustainable livelihood options to meet the livelihood requirements of the fringe communities.

DEDICATION

To my parents, wife and children.

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ABBREVIATIONS

A.D	Anno Domini (In the year of the Lord)
CBNRM	Community-Based Natural Resource Management
CI	Conservation International
CITES	Conservation of International Trade in Endangered Species of Flora and Fauna
CREMA	Community Resource Management Area
DFID	Department for International Development
FSD	Forest Services Division
FAO	Food and Agricultural Organization
GWS	Ghana Wildlife Society
HDI	Human Development Index
IEC	Information, Education and Communications
IIED	International Institute for Environmental Development
KCA	Kakum Conservation Area (made up of Assin Attandanso Resource Reserve and Kakum National Park)
MNP	Mole National Park
NEST	Nigerian Environmental Study and Action Team
NTFPs	Non -Timber Forest Products
NGO	Non Governmental Organization
P A	Protected Area (s)
PAMAB	Protected Area Management Board
UN	United Nations

UNCED	United Nations Conference on Environment and Development
WCS	World Conservation Society
WCED	World Commission on Environment and Development
W D	Wildlife Division

CHAPTER ONE

INTRODUCTION

Background

Wildlife utilization has been a life long pre-occupation of mankind from antiquity to the present day. This preoccupation could be traced from evolution of society through the primitive society, pastoral, horticultural, industrial and post-industrial periods, to the present day high-speed technology.

Man appeared on earth about two million years ago (Shaw, 1985). Throughout the whole period, man has had relationship with his environment in the quest for satisfying biological and physiological needs, which include food, shelter, clothing and water, using animals and plants. When he started cultivating the land, man cleared relatively limited areas that served his needs (de Klemm, 1991). The utilization of wildlife took the form of hunting wild animals and gathering fruits and other plants parts, and other renewable natural resources showing that mankind relied on hunting and gathering for their subsistence in those days. Owing to this human habit, Robertson (1987) referred to this period with the accolade Hunting and Gathering Society.

During the early periods (primitive era) man had unlimited access to land, air and water, which supported his life. The population of this society was small and sparse. Man used simple tools like clubs and spears in his hunting and gathering expedition, which had little or no impact on the environment. Early

civilisation in Africa maintained close and harmonious linkages with nature, a tradition that is still clearly evident in many tribes. Man had good relationship with nature and responded positively to its dictates. In Ghana, in particular, man traditionally regarded the earth (Asase) as "Mother" (Asase Yaa/ Efua), the provider and sustainer of life. Man, therefore, offered prayers before cultivation and celebrated harvests with festivals such as Homowo, (Ga), Ohum (Akim Abuakwa) and Odwira (Akuapem) to commemorate the generosity of Mother Earth (Danquah 1968). Robertson (1987) also stated that until the middle of the 19th century the destruction of natural environment was very moderate; only a few species became extinct and the conservation of biological diversity was not a major problem.

However, as society advanced the demand for and access to natural resource use increased and became even more complex as the people congregated and in-breeding began, resulting in rapid population growth. With advancement in civilization, man increasingly sought to master nature, up to the industrial age. Advances in technology generally increased overall harvests as well as the diversity of species harvested.

The deteriorating effect of man's activities called for total and pragmatic management of the situation. In response to this some level of interventions were initiated. An example of the earliest wildlife management came from Egyptian hieroglyphics that depict 'rat traps' being used to reduce damage to stored grains. Many of the first wildlife conservation practices were related to hunting for food and sport, in which hunting customs developed into wildlife laws. The Book of

the Covenant in The Holy Bible contains one of the first restrictions on the taking of wildlife, in which Moses decrees that, "...if a bird's nest chances to be before thee in the way, . . . and the dam sitting upon the young, or upon the eggs, thou shall not take the dam with young: thou shall in any wise let the dam go, but the young thou may take.

Leopold (1933) believed that the first record of a systematic wildlife management programme was to be found in Marco Polo's journal in which he described Kublai Khan's (1259-94 A.D.) game laws as, "... an order, which prohibits every person throughout all the countries subject to the Great Khan, from daring to kill hares, roebucks, fallow deer, stags, or other animals of that kind, or any large birds, between the months of March and October. This is that, they may increase and multiply; and as the breach of this order is attended with punishment, game of every description increases prodigiously..."

Most modern religions contain edicts or stories concerning the conservation of wildlife. The story of Noah's Ark is considered by many as the first endangered species manifesto that calls for the preservation of breeding stock of all species. Strict adherence to the Hindu religion prohibits the killing of any animal.

The right to hunt wild game became a privilege in many Asian and European countries in historic times. The King of England and his nobles, for example, claimed ownership of game animals and exclusive hunting rights until the Magna Charta was signed in 1215 A.D. Although the Magna Charta transferred ownership of wildlife from the crown to the people, land ownership,

and thus access to game was still largely controlled by the noble class. By the fifteenth century, the practice of setting aside hunting parks and preserves for privileged hunters was well established in both Europe and Asia. This class distinction in the access to wildlife, to some extent, persists today in many countries.

To the African, from antiquity to present day, most hunting is done for subsistence. It is noted that even in those days, there were traditional norms that imposed privileges and restrictions on hunting in general. This was to allow the earth to continuously play its motherly role and to enhance the biodiversity conservation. Some of the norms and regulations imposed in various traditional societies in present day Ghana were known as taboos. They were meant to control man and his relationship with the environment. Others were to protect economic trees, regulate hunting, and establish sacred groves. Examples of economic trees are Odum (*Chlorophora excelsa*) and African Mahogany (*Khaya invorensis*), Dawadawa (*Parkia clapertoniana*), Shea butter (*Butyrospermum parkii*) etc. These trees were also regarded as trees with spirits and should not be felled without some ritual being performed.

In some communities, taboo days (also known as rest-days) during which the land was expected to rest were enforced. People had to obey this taboo since such days had been regarded as "Nnabone" - bad days- (Abayie, 1993). Each locality had its own day of rest. Similarly, some rivers and streams had specific days during which people should not fetch water from them. Coastal ethnic groups also had taboo days during which there should be no fishing. The day set

aside being Tuesdays, the day the sea god, 'Nana Bosompo', was expected to rest. Additionally, there was a long period during which no fishing was expected to be done exclusively in the lagoons. The resting period coincided with the period when the fishes in the lagoon laid their eggs hence the institution of some festivals like 'Bakatue' by the Chiefs and people of Elmina and Cape Coast in the Central Region of Ghana.

Furthermore, in the farming communities, there was a taboo to protect the clearing of the immediate vegetation (about thirty metres wide) at both sides of streams to protect the river from drying up in the dry season.

Other means of protecting the environment was the setting up of sacred groves in communities. These parcels of land were set aside for spiritual purposes. They ranged from a few metres to several acres wide. These groves were reputed to be the abodes of some respected traditional spirits. Some of the groves have existed over the years because of the taboos associated with them and the respect and fear that have persisted. Often people were forbidden to enter the groves, except when there was a ritual to be performed.

Unfortunately, some of these groves have been encroached upon because the reverence, which used to be associated with them does not seem to be adhered to in modern societies. Today, it is only the human element of traditional sanctions that is sustaining the rest of the groves. The spiritual sanctions in most cases seem lost to new social order, which colonialism, western education and Christianity, and other faiths have ushered into this society. Nevertheless, the

remaining sacred groves serve as botanical museums from which a lot can be learnt about the original biodiversity of the communities.

The situation in Ghana has not been different from the African pattern. Primitive gathering through cultural evolution to the industrial era have been mainly for subsistence until the development of urban centres. These centres have developed into markets for wildlife products especially bushmeat; and the need for food has reduced fallow periods in fringe community lands to the detriment of animals and many plant species.

The need to reverse the fast depletion of wildlife resources cannot be overemphasized. There is also the expressed need to exploit into non-traditional sources of national income like ecotourism promotion by creating Protected Areas in the country. These and other reasons were the rationale behind the creation of the Kakum Conservation Area.

Kakum Conservation Area is one of such ecotourism attractions that is also supporting ecotourism drive as a non-traditional income earner in the country. It is therefore of high national importance in addition to its normal role of conserving biodiversity (e.g. tropical rain forest ecosystem in the area). Other facilities that have attracted tourists to the area include the conservation education centre, gift/craft shop and the canopy walkway, the first of its kind in Africa and the third in the world.

Tourism is no doubt one of the most important and the fastest growing industries worldwide. World Trade Organisation (WTO) recorded a 7.4% increase in 2000 (over 1999 figure) in visitors' arrival worldwide, generating US\$476

billion from 698 million arrivals. In these developments, Sub-Sahara African countries are noted to be 'competing for a bigger share of world tourism market in a consolidating tourism industry, which wields considerable marketing power.'

In Ghana, the tourist industry has demonstrated capacity to accelerate in growth. Between 1992 and 2002, tourists' arrivals in Ghana increased from 213,316 to 482,643 with a corresponding increase in receipts from US\$166million to US\$519.57 million. Currently, Kakum National Park is one of the favourable tourists' destinations in the country. Figures from the Park alone suggest that over seventy thousand (70,000) people visited the Park in 2001. Tourists' visitation to the conservation area between 1992 and 2002 is worth noting. The rate of increase of visitors shows a mixed trend as depicted in Table1 below.

Table 1: Tourists visitation to Kakum National Park, 1992-2004.

Year	Nationals	Non- Nationals	Total No Of Visitors	Percentage Change (%)
1992	316	290	609	-
1993	966	930	1896	211
1994	3435	3373	6907	264
1995	11376	10205	21581	212
1996	9769	9245	19014	-12
1997	18241	2906	28147	48
1998	25387	12117	37503	33
1999	44816	16458	61274	68
2000	38384	19276	57660	-6
2001	36582	15703	52285	-9.3
2002	53909	17335	81719	56

Source: Kakum National Park Records.

In 1992 when the Park was opened, there were 609 visitors. In 1993 the rate of change was 211%; 264% (1994); 212% (1995). In 1996 the records showed negative growth (-12%) as shown in the table, meaning visitation to the Park was not up to the figures recorded for the previous year. There were also drops in the rates for 2000 (-6%) and 2001 (-9.3%).

As stated by Mensah-Ntiamoah (1989), wildlife has been used by society as a source of livelihood. It provides tangible and intangible values. Tangible

values (direct use) include protein food, employment/trade, medicine and other materials. Intangible (indirect use) are research and scientific use, education, recreational, aesthetic/leisure and heritage values. The packaging of wildlife for any or a combination of all or some of the values normally makes the resource an attraction and a tourist one.

KCA is noted for its ecotourism role. Today, these values are even more important due to the threats posed to our wildlife and ecosystems from rapid population growth and industrial development as protected areas will preserve such wildlife

Problem statement

The creation of parks or nature reserves has prevented communities of their very existence, particularly those who depend on the environment for their livelihood. Natural resource-dependent individuals and communities become marginalized in the process of park creation because they are denied access to these valuable resources and have no rights to them. The process gets to a stage when the communities "fight back" into the reserve in the form of poaching. Thus protected areas in Ghana also suffer the same fate.

Although KCA has all the tangible and intangible values there are to attract tourists, there is a particular deficiency that tourists complain about: that of seeing wildlife in their natural habitat. However viewing wildlife *in situ* is severely curtailed.

In recent past KCA has been plagued with poaching for flora and fauna. Evidence of this includes poaching camps, hunting traps and footprints of suspected poachers. Others are cartridge cases, carbide ash, trapping wire snares, gin-traps put on habitual routes of animals and tree felling. Some farmers have also encroached on the Park.

Efforts to bring this under control have been particularly frustrated by lack of credible information on poacher movement. The communities seem to welcome the killings for various reasons including crops damage by animals, especially elephants. Crops damaged are cocoa pods, maize, plantain, and other foodstuffs. Damage to crops has led to low crop yield thereby discouraging many potential farmers. In turn this has led to impoverishment due to low-income levels and hence the "need" to rely on the Park and its resources for livelihood for their sustenance.

For these and other reasons Park authorities report that poaching has assumed alarming proportions and have therefore stepped up law enforcement. From 2002 to 2004 a total of one hundred and twenty-seven (127) poachers have been arrested and prosecuted. The Convention on International trade in endangered species of Wild Fauna and Flora (CITES, 2004) reports that, twelve (12) elephants were killed in KCA by poachers from 2000 to 2004. Many times, in their attempts to enforce laws on wildlife conservation, the authorities have come into conflict with poachers, sometimes resulting in fatalities. It is believed that those who escape arrests might be in the majority.

Besides, the Park is surrounded by about four hundred (400) local communities with a population of 93,562 (2000 Census) who basically are peasant farmers cultivating various food and cash crops. The population figures for 1970 (14,045) and 1984 (55,389) show a rapid trend of growth in absolute terms.

The favourable agricultural microclimate created by the conservation area, serves as an attraction to farmers from other parts of the country who keep on migrating to the adjacent lands to take advantage of the situation. These settler-farmers encroach upon the buffer zone created around the conservation area, which has affected the catchment area of the Kakum River which is the main source of water to the Cape Coast Municipality. Their activities also threaten the purposes for which the buffer zone was created - that of forming a barrier between the Park and the fringe communities.

Over exploitation of more valuable timber species through the negligence of concessionaires and attendant illegal chainsaw operations that take place in and outside the reserve has been cited as one of the problems. The effect is unsustainable harvest of marketable trees. Such activities affect the capacity of the forest to regenerate itself, which further deteriorates the habitation, feeding patterns of the animals and consequently their reproduction cycle.

Justification of study

Tourists to KCA prefer to see "flagship" species like the elephant, bushbuck, antelopes, monkeys etc., in addition to going on to the canopy walkway to provide them with different experiences but most of them express their

disappointment at not sighting any of these animals. The situation may be attributed to poaching, which has decimated game numbers. Again the harassment of game by poachers makes the animals shy away from or wary of visitors and consequently become more remote to see.

It is thus becoming increasingly necessary to recognize and evaluate the intensity of present wildlife utilization, and to attempt, where necessary, to regulate the use of wildlife by introducing control mechanisms aimed at sustainable utilization.

Abane, et al (1999) in their study suggested the need for a search into hunting activities of communities fringing the Kakum Conservation Area as majority of community members have expressed concern about being deprived of their livelihoods.

Several fora have also been held and others planned to consider the effect of the bushmeat trade on wildlife resources in Central and Western Africa (File report on bushmeat). The outcome of such meeting would be an important step to further develop the international consensus and momentum needed to address the effect that bushmeat trade is having on the world's poor and on wildlife resources.

It is against this background that this study is being undertaken to beef up documentation of information on protected areas, as it will offer alternative livelihood enterprises that will draw the communities away from relying on the park for livelihood requirements. At the same time, the Food and Agriculture Organization (FAO) in collaboration with Conservation International (C.I-Ghana)

and the Ghana government is implementing a project that aims to address the conflict between the communities, wildlife (e.g. elephants) and park authorities. In these respects, the study is very timely, as it will add to the numerous literatures that draw attention to the problem and offer solutions.

Objectives

The general objective of the study is to examine the livelihood systems of the communities in the Kakum Conservation Area and their effects on wildlife conservation, and suggest livelihood options.

The specific objectives are:

- To describe the socio-economic characteristics of the communities around Kakum Conservation Area;
- To describe wildlife and conservation practices;
- To examine and describe the degree of poaching in Kakum Conservation Area and why there is the need for alternative livelihood systems, and
- Investigate the various alternative livelihood systems available;
- Make recommendations that will help solve the problem of poaching associated with wildlife conservation in KCA.

Research questions

These research questions will guide the studies.

- In what ways do poaching affect biodiversity conservation?

- What linkages exist between livelihood activities and biodiversity conservation?
- What alternative livelihood systems exist among fringe communities to minimize poaching?

Limitations

Poaching in conservation areas in Ghana in general, and Kakum Conservation Area in particular, has always been a thorny issue where it involves fringe communities and their livelihoods. Therefore, people were reluctant in providing vital information necessary for the research.

Subjectivity of responses cannot be overlooked in such a social research, particularly so when the subject of study, poaching, is known to be illegal within the community.

The work used a lot of secondary data collected by earlier researchers and one needs to acknowledge the fact that whatever shortcomings these works encountered have equally been inherited in the current study.

Operational definitions of concepts

Conservation Area (CA), two (2) adjoining protected areas managed under one authority example Kakum National Park and Assin Attandanso Resource Reserve in the Central Region.

Flagship animals, big animals such as Elephant, bongo, hippopotamus, lions, duikers and some primates that attract tourists

National Parks (N.Ps.), areas set aside by law for their scenic beauty with or without wildlife and of national and international importance purposely for the promotion of tourism, recreation, scientific research and education. They are targets for infrastructure development for tourist and recreational uses.

Protected areas predominantly natural areas established and managed in perpetuity through legal or customary regimes primarily for conservation of biological diversity and natural resources

Resource Reserve (R.Rs), areas of variable size in which habitats are managed to guarantee conditions essential to the well being of selected species for the sustained production of wildlife products for cultural practices, tourism and trophy hunting. Other compatible land uses may be allowed. These were previously known as game reserve or game production reserves. Presently classified as protected area

Sustainable livelihood, a livelihood is sustainable when it can cope with and recover from the stresses and shocks and maintain or enhance its capabilities and asset both now and in the future without undermining the natural resource base.

Household livelihood security, adequate and sustainable access to income and resources to meet basic needs.

CHAPTER TWO

LITERATURE REVIEW

Introduction

In the literature review wildlife varieties and values, chronology of wildlife management- Worldwide, African Region and Ghanaian situations as written by earlier and contemporary researchers have been examined and categorised into sub headings as below.

Wildlife varieties

Wildlife is a general term for all animals and plants that are non domesticated and live in their natural habitat. However, this definition includes the animal species that are kept at the zoos. Example of some animal species are: elephant (*loxodonta africana*), leopard (*panthera pardus*), bongo (*tragelaphus euryceros*), lion (*panthera leo*), north African crested porcupine (*hystrix cristata*), monkey (*cercopithecus- diana*, spot nosed, mona, green etc) all parrots (*psittacidae*) crocodile (*crocodilus nile* and long snouted), snake, butterfly etc while plants include weeds, flowers, grass and trees which serve as fodder to both man and the animals.

The animal species could further be classified as vertebrates and invertebrates. The vertebrates are animals with backbone; and those without

backbone are the invertebrates. Bramwell (1994) has classified the animal species into four categories based on the environment in which they find themselves. These are amphibians; reptiles; mammals in the air; and mammals on the land.

Mammals on the land are of two types –larger or higher mammals and smaller mammals. The term “higher” means “higher up the ladder of evolution”. It describes the most advanced kind of animals. One important feature of this class is that many “higher animals” live in family groups: pride of lions; herd of elephants, troops of chimpanzee and others. “Smaller mammals” are also referred to as ruminants. They are mainly animals found in fallow and farmlands sometimes with little cover for protection. One characteristic of these animal species is that they eat quickly and then find some safe place to rest and digest their food. Some of them are the antelope group like duikers; grass cutter and others.

The Kakum Conservation Area (KCA) is rich in terms of wildlife which includes about forty species of higher and ‘smaller mammals’ for example elephants, bongo; red river hog; seven primates (monkeys) and four squirrels. Bird life is also varied. Two hundred bird species, four hundred species of butterflies and plants have been recorded.

Together with other elements in the environment, these animal species combine to produce an ecosystem that not only promotes ecotourism, but also a microclimate with their attendant benefits.

Socio-economic and cultural values of wildlife resources

Humans recognise wildlife and ecosystems on which they depend for numerous values put on them. Values are characteristics of things that make them more or less desirable, important, or useful. Some values can be quantified while others are difficult to quantify. In addition, wildlife has both positive and negative values.

Positive values

Wildlife have aesthetic values that are sometimes difficult to be appreciated, quantified or described. Aesthetic values are those attributes of wildlife that relate to their inherent natural beauty or the artistic appreciation of various species. The values are difficult to assess or measure, but they have always been important in the conservation process. Examples might include tigers in the jungles of Asia, grizzly bears in wilderness areas of North America, or scarlet macaws in the rainforests of South America, elephants in the Mole National Park in Ghana and Diana monkeys in Kakum Conservation Area.

Recreational values are qualities assigned to wildlife related sports or hobbies. Recreational values can be subdivided into consumptive and non-consumptive uses. Hunting for example is one consumptive use of wildlife. Tourists visit many wildlife 'spots' in South Africa to hunting for trophy. Bird watching and photography are some of the more common non-consumptive uses. Since the 1960s non-consumptive uses of wildlife have been the most rapidly increasing recreational values in the US.

There are many non-consumptive forms of wildlife utilization. The droppings of the great seabird colonies of Peru and dwelling caves of bats and swifts in South-east Asia are a source of guano (manure). Feathers of eider ducks in Iceland have been used in specially constructed shelters and protected from the predator, Arctic foxes (Swanson and Barbier, 1992).

Ecological values are characteristics of wildlife related to the relationship of a species or group of species to its environment, community, or ecosystem. Every species plays a role in its natural community and ecosystem, and the removal of that species is likely to have ramifications, many of which are difficult to assess. Voles or meadow mice are major herbivores in many grassland communities and are also the principal prey for many mammalian and avian predators. Deer and elk have the ability to influence succession patterns of plant communities in most ecosystems. Beavers modify and influence wetland and riparian habitats through their dam construction and tree cutting.

Educational and scientific values are characteristics related to learning and teaching about wildlife. Little is known about most of the wildlife species in the world, and our endeavours to learn about them teach us much about who we are and the world we live in. The existence of a zoo cannot be justified if its only function is to display animals for the entertainment of the public or to satisfy their curiosity. Normally it is only the zoo which makes a meaningful effort to educate the public about the value of wildlife through guided tours, special school programmes, and production of educational booklets, talks, and lectures illustrated by live animals which fulfil some of the purpose of a zoo.

Utilitarian values are characteristics of wildlife that make them useful to humans. Wildlife have been used for food, clothing, and fibre for as long as we have records of human existence. All livestock and pets were domesticated from wildlife, and native animals may still play important roles in development of new breeds. Wildlife are also important for medicinal and biomedical research purposes. Primates, because of their close relationship to humans and the relative ease of maintaining groups in captivity, are used for research in the cure for many diseases. Venom from snakes is used to make antivenom and drugs that fight cardio-vascular disease and pain. Bears and other wildlife that hibernate have extremely efficient kidneys, and research on these animals may lead to new cures for kidney diseases or important advances allowing prolonged space flight.

Commercial values are qualities of wildlife that make them economically valuable. Markets for wildlife meat, fur, leather, and parts (claws, bladders, teeth, antlers and tusks) can be found throughout the world. The exotic pet trade is another example of commercial use of wildlife. Unless the animals are semi-domesticated or raised in captivity, the commercialisation of wildlife often leads to the decline of species. Asibey (1968) pointed out that there is a growing need for zoological gardens to aid conservation worldwide because there is an ever increasing demand for the live animals whose capture and exportation provide employment and foreign exchange. Further, there is demand for live animals for scientific work as well as desire for pets.

There are cultural dimensions to wildlife values. Specific species of wildlife are preserved for spiritual and emotional beliefs associated with them.

Certain trees serve as deities to be consulted by the local witch-doctor or fetish priest for advice in the performance of their duties. Such trees include: Edinam (Entandrophragma angolense), Hyedua (Daniellia ogea) and Ofram (Terminalia superba). Most herbs are used for traditional and orthodox healthcare. Also, animals which symbolize family or clan totems are not hunted by family or clan members. Carvings of such animals are placed on the staffs of linguists of chiefs to symbolize that clan's relationship with that animal thereby communicating non-verbally to the society about the background of such chieftdom. Parts of some animals are displayed during festivals to show bravery and stories untold. Other animals such as the bushbuck are used for sacrifices like that of "Aboakyir" Festival of the Awutu and Efutu people of Winneba in the Central Region of Ghana.

These positive values discussed above might include others yet to be unearthed as wildlife management is encouraged and improved upon over time

Negative values

Much as there are positive values for wildlife, there are negative values as well. These negative values come about with man's utilization of the environment and probably because man's understanding of wildlife behaviour is quite minimal.

Accidents involving wildlife kill or injure people and damage property. Automobile collisions with deer, elk, bear, and moose occur. The result is usually the death of the animal, loss of human lives and significant damage to property. Airplane-bird strikes occur infrequently, but the results can be disastrous.

Occasionally, humans are attacked or even preyed upon by wildlife. Examples include swam of bees, grizzly bears, lions, and tigers. Usually, the frequency of wildlife-human accidents increases as more humans move into areas where wildlife habitats are disturbed, particularly rural areas.

Crop, livestock, and property can be damaged by wildlife. Coyotes kill millions of goats, sheep, cattle and other livestock. Birds and mammals cause damage to crops ranging from ground squirrel and elk damage in alfalfa to bird damage in berry, grain, and grass crops. Woodpeckers cause damage to trees and utility poles. The drilling on house sidings by woodpeckers are probably common problems in residential areas. Furthermore, deers eat roses whilst raccoons also eat pet fish in the backyard pond. These problems are not confined to rural or farm properties.

Wildlife can transmit and also act as reservoirs for diseases that affect both livestock and humans. Rabies occurs in many animal populations, examples being bat, raccoon, skunk, and fox, and sometimes these wildlife are implicated in the spread of the disease. Ebola, is transmitted from primates to humans in Central Africa; Hantavirus is transmitted by deer mice in the US; and Hanta has been responsible for 16 deaths in the US since 1993. Livestock are also a concern. Brucellosis and hoof-and-mouth diseases are just two of many pathogens that can pass from wildlife to livestock, just like the South-East Asia Bird-Flu (Avian Influenza- AI).

The transmission processes have been a debate among natural resource professionals and the public for many years and will continue to shape wildlife conservation into the future.

In the end it must be mentioned that in any single wildlife, one could find multi-purpose values. The lion at the zoo has aesthetic, educational as well as recreational values just as can be found in primates, birds and even snakes.

The values put on wildlife resources seem to have influence on the management of the resource either "sustainably" or "unsustainably".

Global growth of environmental concern

The concept of biodiversity is embedded in the environment. And since man started interacting with the environment some two million years ago it was only recently that there came the need to have hindsight into what had happened to the environment in man's attempt to develop.

The concept of sustainable development emerged in the 1980s in response to a growing realization of the need to balance economic and social progress with a concern for the environment and the stewardship of natural resources. The World Commission on Environment and Development (WCED) defined Sustainable Development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The United Nations (UN) held Conference on Human Environment in Stockholm, Sweden in 1972. The conference focused attention on environmental concerns and led to the creation of many environmental ministries, departments

and agencies and indeed non-governmental organizations (NGOs) working to conserve the planet's resources. Thereafter the global community has acknowledged that more exploration was needed of the interrelationships between the environment and natural resources and socio-economic issues of poverty and underdevelopment.

The UN General Assembly resolved by Resolution 38/161 to create a Commission in 1983 to re-examine environmental and development issues, see to international cooperation to combat the looming threat to the environment and raise stakeholder understanding and commitment to action.

The Commission organized the 1992 UN Conference on Environment and Development (UNCED), otherwise known as the Earth Summit held at Rio de Janeiro, Brazil, which first brought together governments, international organizations, NGOs and civil society to discuss environmental concerns and carve out a global plan of action to meet the challenges. Over one hundred and seventy (170) countries adopted the plan of action, also termed Agenda 21. In 1992, the UN Commission on Sustainable Development was created to ensure follow-up to the Earth Summit (UNCED) and monitor and report on actions being taken by all stakeholders towards the Agenda 21. However, reacting to reports from the World Commission on Environment and Development, the UN Secretary General, Kofi Annan on March 14, 2001 had cause to comment thus: "Our biggest challenge in this new century is to take an idea that seems abstract- sustainable development- and turn it into a reality for the entire world's people". Owing to slower pace of acting towards Agenda 21, new problems as HIV/AIDS and old

ones as malaria together with the fact that Agenda 21 was ten years old, and the need to set new quantifiable targets and review the ones set in Agenda 21, the World Summit on Sustainable Development was called from 26 August to 4 September in Johannesburg, South Africa at which a more fully developed paradigm of sustainable development was endorsed. At that conference it was a consensus that sustainable development should be seen as a process of change that is heavily reliant upon local contexts, needs and priorities.

It was also to act as a forum for the on-going negotiation for international policies on sustainable development.

It is important to note that Ghana has been a participator and signatory to the global environmental concerns and its various documents. At the home front, led by the Environmental Protection Agency (EPA), a lot is being done to implement the Agenda 21 and its targets. Within the context of sustainable development the historical perspectives of bio-diversity and the challenges it faces are the subject matter for the next section.

Historical perspectives of wildlife conservation

Wildlife conservation as we know it today has not been a historical episode; rather it has been a long-drawn out process with its ups and downs as documented from Worldwide, African and the Ghanaian perspectives.

The case of North America

In the literature, conservation has been well documented on North America because the continent was the genesis of many of the modern conservation programmes and techniques that are used throughout the world, and because there is a complete history of conservation movement illustrating the broad potential for success and failure in management of wildlife resources. A number of authors have placed wildlife conservation history in North America into five distinct eras as found below.

Firstly, the era of abundance (1600-1849) was a period when most wildlife numbers were relatively high and abundant and little interest was paid to the resource. As Europeans began to settle in North America and started to build roads and establish farms and cities, wildlife habitats changed and so did wildlife populations. There was little or no recognition that these resources needed to be managed in order to be maintained. The first wildlife laws in North America were established in this era. European settlers brought with them a fear of predators, especially wolves, and the first wildlife regulation in North America was a one-penny bounty, established in 1630, on wolves in the Massachusetts Bay Colony. The first "close hunting season" on white-tailed deer was around the Portsmouth Colony on Rhode Island in 1646. The Massachusetts Bay Colony established a similar regulation in 1718. Upland game bird seasons were established in some New York counties as early as 1708.

Secondly, the era of overexploitation (1850-1899) was a period in which wildlife populations declined. Without adequate laws, many of North America's

wildlife species were overexploited in a relatively short time period. Habitats were continually modified, but the most important factors were the development of repeating firearms, transportation systems, and markets developing for wildlife. Animals that were easy to hunt or trap or that had high market values for their fur or meat declined rapidly, some almost to extinction.

During this era more conservation measures were enacted to protect valuable game species. Maine hired the first game wardens in 1852, and New York established the first hunting license requirement in 1864. The first daily bag limit, 25 prairie chickens, was instituted in Iowa in 1878. The world's first national park, Yellowstone, was established in 1872. Although not established specifically for wildlife, Yellowstone and the parks that followed provided a refuge for wildlife.

Thirdly, the era of protection (1900-1929) was a period marked by laws protecting certain wildlife species. By the 1900s, many wildlife species that had market value or were otherwise vulnerable to overexploitation were at all-time population lows. The American public began to recognize that overexploitation was the principal cause for these declines and responded with more effective protection measures. During this period, most states established fish and game departments that functioned from the sale of hunting and fishing licences. Federal regulations were also necessary to coordinate interstate protection of wildlife. The Lacey Act of 1900 made the interstate transportation of illegally taken wildlife a federal offence, and established formal regulations on imported wildlife species. The federal government began protection of waterfowl with the Weeks-McLean

Act of 1912, and in 1917 the Migratory Bird Treaty Act established formal cooperation between the United States and Canada for the purpose of protecting birds that migrated between the two countries.

Fourthly, the era of game management (1930-1965) was a period, which resulted in the first scientific research and management programmes. This period in North American natural resources history gave birth to the science of wildlife conservation. Research and management programmes were directed towards relationships of wildlife and the habitats they depended on for survival. Aldo Leopold (1933) published his seminal work, *Game Management*, in 1933, which was the first book exploring the science of game management. The Cooperative Wildlife Research Programme, which established university-based research and graduate education centers, began in 1935, and the first North American Wildlife Conference was held a year later. The Wildlife Society, a professional organization for wildlife biologists, was established in 1937.

The era of game management was also a period of significant legislation. The Federal Duck Stamp Act of 1934 required waterfowl hunters to purchase a duck stamp each year, the proceeds of which went to wetland protection. The Pittman-Robertson Act of 1937 placed a 10% excise tax on the sale of guns and ammunition; these funds were distributed to state fish and wildlife agencies on a matching basis. The Multiple Use Act of 1960 required the U.S. Forest Service to manage lands for other resources besides timber. The era closed with the passage of the Wilderness Act of 1964, which established the National Wilderness Preservation System.

Lastly, the era of environmental management (1966-1993) was a period of growing environmental awareness that resulted in many of our existing environmental regulations. Environmental awareness increased substantially among the American public in the 1960s, resulting in numerous laws designed to protect environmental quality and non-game wildlife. The first Endangered Species Act in 1966 authorized the Secretary of Interior to establish a list of endangered species, but this act provided no real protection. A modification of the act in 1969 prohibited the importation of endangered species or their parts. Also in 1969, the National Environmental Policy Act established the Council on Environmental Quality and required that Environmental Impact Statements be prepared for all federally assisted projects that might impact on the environment. The Environmental Protection Agency was established in 1970. The Endangered Species Act of 1973 was the first comprehensive legislation in the world protecting threatened and endangered species. The Endangered Species Act was amended in 1979 and again in 1989 and was strengthened both times.

The African perspective

Hunting in Africa was traditionally almost exclusively done for subsistence for several years and there are places today where the people only make game solely for subsistence. Originally, there were certainly traditional hunting rules, privileges and restrictions, which in part also served to conserve wildlife resources. These hunting rules largely became ineffective through colonization and western technology and through local population migration.

Today, 'traditional' hunting in Africa is characterized by an ingrained self-service mentality, which seems to give little thought to sustainable wildlife utilization.

Kelvin et al (1992) observed that the impact of traditional hunting on biodiversity is not yet quantified but is presumably very serious. He indicated that significant degradation of wildlife to supply urban centres with bushmeat has been reported to affect large areas. He also emphasised that, the commercial bushmeat trade is the most significant and immediate threat to the future of wildlife populations in Africa today, and could well lead to the loss of several species of animals.

The number of bushmeat consumers has increased by eight-fold since 1900 and now represents an equally important conservation concern as growing global population and resource consumption. Tropical forests and other ecosystems are being emptied of their wildlife for this unsustainable trade, which is leading toward both ecological and human tragedy. World Conservation Society (WCS) has reported that since 1999, the "ecoguards" in Republic of Congo have confiscated 18 high calibre rifles and automatic weapons, and 18,965 snares used in illegal hunting activities

The Nigerian Environmental Study and Action Team (NEST) reported that problems of wildlife management in Nigeria are social and ecological but the major problem among them have been excessive wildlife poaching, illegal grazing of livestock in the reserves and indiscriminate setting of fires to vegetation in wildlife conservation areas. The report mentioned Kamuku Game Reserve and Kainji Lake National Park (KLNP) as the worse affected. It is feared some

species were locally becoming extinct through these unauthorized poaching activities (Kelvin, et al, 1992).

The Ghanaian perspective

Ghana's conservation philosophy since 1900 to date has largely followed the accepted traditional western concept of "setting aside" areas for National Parks with the Wildlife Division (Forestry Commission) being the implementing agency. This is as a result of inadequacies inherent in traditional conservation methods adopted in pre-colonial days by some individual communities in protecting the ecosystem within their localities due to their ineffectiveness and general misconception that wildlife is purely a government property.

The new concept excluded indigenous people from access to Parks and their resources, with little or no regard for impact of these changes on the livelihood of members of the communities. Thus local people have borne the "cost" of protected areas without "benefits". The separation of people from wildlife has succeeded only in legally closing off important alternative access to food, but has not stopped people from using protected areas (Grainger, et al 1994, Jachmann 1998). In addition, revenues derived from wildlife, instead of being reinvested back into the area, were channelled into the Government's central treasury.

The hunting and bushmeat trade has through two decades of unsustainable resource use, reduced virtually all-animal populations in protected areas. Several species off reserve have already been exterminated just as a majority of the

Subsistence gathering is the gathering for household consumption purposes by majority of members of rural communities. This class is widespread and involves the collection of honey, plant material, firewood and sometimes-live animals for sale on local markets. In general, this class of illegal activity does not have a major impact on the wildlife resources (1998).

Subsistence hunting is the most widespread on the continent, often involves many members of the community, and is an essential part of the subsistence rural economy. In Zambia, most subsistence hunting is done with dogs, locally manufactured muzzle-loading guns, and snares mostly obtained from electrical conductors. Often, lineage tradition determines the animals' species that can be killed and the method that should be used to hunt them (Marks, 1989).

In unprotected rural areas with low densities of small game and little or no law enforcement, dogs are used to pursue duiker, grysbok, bushpig and warthog. In protected areas with higher densities and greater varieties of game, wire snares are used to trap animals. Snaring has been noted to be the most destructive and indiscriminate way of killing wild animals. It is extremely difficult to control, since wires are usually available in large quantities, and it attracts little attention from lawmakers.

In Republic of Congo, since 1999, the "ecoguards" have confiscated 18 high caliber rifles and automatic weapons, and 18,965 snares (Bennett et al 2001). Three basic means of hunting widely occur in Protected Areas in Ghana (Holbech, 1998). These are shooting, trapping and dogs, which are used in hunting small as well as big game. Four other minor methods exist, that is catapult, use of fire,

cutlass slaying and hand picking, which are mainly used in hunting smaller game and are often species specific.

Commercial large-scale hunting of large herbivores, such as buffalo and wildebeest also constitutes another category, which is found in the literature. This class of illegal wildlife use is not as widespread as subsistence hunting, but sometimes constitutes a major industry, as in the Serengeti region of northern Tanzania (Campbell, 1989). In Ghana however, commercial hunting of large herbivores has never constituted a major industry, but small-scale commercial hunting of mainly bushbuck, duiker, antelopes and others (Hofmann 1989; Ntiamoah-Baidu 1998; Kasim 2000) has always taken place.

Commercial trophy hunting encompasses such commercial hunting of elephants and rhino for high value, non-perishable commodities as ivory and rhino horn. This may be considered the most serious class of illegal hunting, firstly because it has caused the near extinction of black rhino and a drastic reduction in elephant numbers throughout the continent. West Africa is the sub region where elephants are at greatest risk and where problems of elephant conservation and management are most urgent.

Wildlife biologists have traditionally been most interested in, and most competent at, dealing with the biological aspects of the profession: observing and managing wildlife populations and habitats. However, wildlife resources and their habitats are managed for the benefit of the general public and a large segment of that public will express an interest in the conservation of those resources. Thus, the human dimensions of wildlife conservation become very important for

understanding how and why these resources are managed. Furthermore, conservation efforts that do not assess human attitudes, perceptions, values, philosophies, and economics are likely to be unsuccessful regardless of the quality of the biological science. Among these variables the values put on wildlife seem to have more influence on the management of wildlife resources.

Degree of poaching

Poaching, referring in part to the illegal trapping or killing of wild animals or birds is a very widespread activity. Within the UK game birds and fish are regularly poached and the USA is currently experiencing tremendous difficulties with illegal poaching in its 366 National Parks. More than 100 species are particularly at risk, including the brown bear, bighorn sheep, elk, grey-banded king snake and various species of butterfly. Estimates suggest that at least 3000 American black bears are shot illegally every year; some to supply the black market traffic in animal parts for culinary or medicinal purposes. Citing Van Biema (1994) Edge stated that the size of poaching operations is astounding: 1994 estimates suggest that in the USA alone illegal killing of animals is worth more than \$200 million per year.

The global gloomy perspective of poaching has received attention in various forms: Public fora, regional meetings and conferences. Law making and enforcement are some of the strategies to deal with the matter. Another strategy worth noting is the institution of awards to conservation heroes. Speaking on the dimension of illegal exploitation and trade in Wildlife at Species Survival

Network Reception in April 2000, an event used to honour wildlife conservation heroes, Mrs Maneka Gandhi, the then India's Minister of State for Social Justice and Empowerment said, "...the totally illegal but nevertheless thriving trade in Indian Wildlife is directed primarily at the international market. Our tigers go to China in the form of bones, penises and claws for homemade remedies. Our antelopes go to Shahtoosh shawls. Our butterflies go to Japanese hobbyists as our elephants in the form of ivory trinkets. Our bears go to Afghanistan. Our sharks go to the Hong Kong Soup..." She noted that "countries that lack respect to all living beings may not be poor in monetary terms but their moral poverty; their rapaciousness will destroy all of us." Mrs. Gandhi concluded that, "... today animals need us more than never... The past century has been the cruellest in history...it is time to declare the hunting years 'war over' and stop trading in their pain and blood".

The above quotation shows the degree of wildlife poaching and trade worldwide, in and outside protected areas. In Ghana many researchers have studied the phenomenon of bushmeat trade that resulted to poaching especially in conservation areas and have come out with findings and recommendations which include the introduction of alternative livelihood skills.

Alternative livelihood skills

In a situation where a community has been denied their access to parts of the land by park creation, community members illegally enter the park to poach to sustain themselves. Many local hunters therefore operate secretly, hunting for

commercial and personal gain. To solve this problem the concept of Alternative Livelihood Skills has been introduced. This builds the capacity of community members to live without necessarily depending on the park and hence helping to effectively manage the park and the fringe lands.

Livelihood security

Livelihood security refers to adequate stocks and flows of food and cash to meet basic needs and security as secure ownership of, or access to resources and income generating activities to offset risk, ease shocks and meet contingencies (Chambers, 1988). It can also be looked at in terms of livelihood diversification which is the process by which households construct a diverse portfolio of activities and social support capabilities such as the activities, assets and access that jointly determine the living gained by individuals or households for survival in order to improve their standard of living (Ellis, 1999).

Livelihood assets consist of five types of capital assets. These are Social, Human, Physical, Financial and Natural capital that constitute livelihood building blocks from which people can build up or draw upon. Agyare (2000) quoting Farrington et al (1999) said the boundaries between the assets are not very sharp and so to some extent they can be substituted for each other when the other is in short supply .

The process by which households construct a diverse portfolio of activities and social support capabilities is mediated by local, governmental and non-

governmental institutions in developing livelihood strategies in order to achieve the anticipated livelihood outcomes.

Indicators of livelihood security

Livelihood security indicators are categorized into economic and socio-cultural issues, social infrastructure and other facilities, biophysical resources and also for environmental conservation. These indicators together with those for empowerment can be used to assess the impact of community-based natural resource management projects (Hinchcliffe *et al*, 1995)

Economic issues

The overall economic benefit leads to increased livelihood security through diversification of livelihood sources and changes in productivity. Specifically the economic benefits lead to promotion of non-farm economic alternatives, stability or increase in rural labour opportunities for all of working age and improved access to credit. Other benefits are the increase of per capita produce from land, people investing in their surrounding in terms of tree planting and increase in diversity of crops grown. Yet in other circumstances the benefits have led to maintenance or increase of food sufficiency and well balanced diets, increases in fodder and fuel production, stable herd structures in grazing area and increase in land value.

Socio-cultural issues

This implies changes in local resilience, vulnerability and mutual-dependence of local groups and communities and has led to means of conflict resolution without violence, people recognizing the need to balance number of people with natural resource use and maintenance of spiritual or emotional links to land. Other benefits are the acknowledgement of relationship between natural resources maintenance and human culture as important, lower cultural disintegration and absence of rural-urban migration. Other fallouts include increase in primary school attendance rates and attention to the needs of landless groups.

Physical capital provision

The provision of social infrastructure and building of the capacity of the people to use them will further enhance their security. Some of these social overheads are roads networks, communication services, water supply and sanitation units, and access to manufactured goods and markets for their produce. Others include schools, health facilities, farm equipment and vocational training (Ellis, 1999).

Rural livelihoods and asset security

Rural livelihoods and asset security have long been identified as crucial in project design and implementation and are being widely adopted by governments and development agencies to increase food security and eliminate poverty. Rural

livelihoods security is a model that puts people at the centre and examines the complex ways in which people live. Livelihoods describe how people access resources, what gets in the way of access, how resources are used to build assets such as land, savings, skills and family and community relationships, and crucially how assets reduce people's vulnerability to stresses, such as ill health, or disasters. A livelihood approach is a useful tool for understanding complex issues and for charting the links between disasters and development. Most importantly, the start and end points are vulnerable people themselves. The underlying principles are people-centred and reflect the diversity of poor people livelihoods and the need to analyse these in a holistic manner. They stress the inter-relationship between community-level activities and the broader policy and institutional framework ("the rules of the game"); they recognize that people's priorities and opportunities change and those interventions which seek to reduce poverty must be dynamic and responsive to these evolving opportunities. The principles also acknowledge that "sustainability" encompasses economic, environmental, institutional and social parameters.

In a work published on Namibia's experience on tourism, Ashley (1998) observed that ensuring that tourism enhances livelihood security requires recognition that local needs are not just cash maximization and that local livelihoods depend on multiple activities. Adams (2001) traces the emergence of sustainable development back to the 1972 UN Conference in Stockholm, but notes that it was the UNCED in Rio de Janeiro in 1992 that firmly entrenched it in development discourse. At first, mainstream sustainable development meant

simple adding an environmental dimension to the previous economic and social development programmes. However, the introduction of the Human Development Index (HDI) and Human Poverty Index (HPI) by the UNDP in the late 1990s signified a more holistic and multi-dimensional approach to defining poverty, and thus development. Whilst the complexity and dynamism of poor people's lives had long been recognised by writers such as Chambers (1997), this finally became apparent in mainstream development thinking, with the publication of the Department for International Development's (DFID) Sustainable Livelihoods Framework (DFID 1999). The framework provides a basis for examining the multitude of factors that influence the way in which poor people seek to achieve livelihood security.

Ashley has adapted the sustainable Livelihoods Framework and used it extensively to determine the impacts of various tourism, wildlife and Community-Based Natural Resource Management (CBNRM) initiatives on communities in East and Southern Africa (Ashley 2000b, 2000a; Ashley & Hussein 2000). Much of Ashley's recent work focuses on community based tourism projects, which constitute just one form of community involvement in tourism. However, an earlier collaboration with Roe (Ashley & Roe 1998) as part of research for the International Institute for Environment and Development's (IIED) Evaluating Eden' series considers the challenges of involving local communities in tourism at different levels. Drawing on various case studies, it proposes strategies for increasing tourism's contribution to livelihood security. A later in the same series (Goodwin, et al. 1998) focuses on three national parks in Asia and Africa and

finds that those closest to the parks generally bear the brunt of the costs, yet remain largely marginalized by tourism opportunities. Yet involvement in tourism does not necessarily imply either control over tourism (Ashley & Roe 1998) or sustainability (Mowforth & Munt 1998). Pretty's typology of participation highlights the way in which, what appears to be 'participation' may, in fact conceal paternalistic and unsustainable practices (Pimbert & Pretty 2000).

Rural livelihood and gender empowerment

Natural environmental resources are important inputs for the livelihood systems of agrarian households. Environmental degradation is both a cause and a consequence of livelihood vulnerability. In societies that are to a large extent based on subsistence agriculture this affects women's role as gatekeeper of household food and nutrition security, and indeed, of family well-being in general. Owing to women's role as caregiver in the family and their intimate involvement with natural resources management and indigenous knowledge of those resources is therefore, to a high degree gendered. Issues like soil quality, water availability and quality, agro-biodiversity, and availability of wild foods relate directly to women's roles as family feeders and caregivers. Often women experience constraints in meeting these needs. It is expedient therefore that such marginalised biodiversity managers are empowered to participate in decision making in order to promote equitable access to biodiversity.

Research that focuses on the gendered nature of this kind of issues will reveal gaps in the existing knowledge and provide new theoretical insights. The

main methodological innovation will be the integration of gender theory with theoretical paradigms on livelihood, food security, and nutrition security. This calls for bridging gaps between disciplines in an open-minded way.

Consequently, in dealing with these concepts, information, education and communication (IEC) become critical components of livelihoods approaches. They are essential to supply the information required by the poor in order to make decisions on their livelihood strategies. They are also essential to supply information to and educate institutions responsible for making decisions about the policies and processes to support these strategies

In spite of the important role of IEC in the livelihood strategies, the new information and communication technologies which are expanding rapidly into many developing countries are creating a digital divide between those who can afford state of the art telecommunications and internet access, and those who cannot. This is threatening to submerge well established and effective traditional information systems and could pose a great challenge to rural households in an effort at securing their livelihoods among others.

In addition to the above problem, rural households face a number of challenges including macro-economic policies that result in higher food and transport prices, chronic illness which means increased expenditure on medical bills and funerals, poor agricultural practices and environmental degradation, isolation from support services like advice, inputs or markets.

Generally rural households rely on a number of coping strategies often emphasizing off-farm income for household survival and development.

Utilisation of resources from KCA

Bailey *et al* (1995) examined the impact of Park creation on local communities and suggested ways to rectify any negative impacts. He investigated into forest and local land use in the Kakum Conservation Area (KCA). In his submission, he indicated the variety of values the NTFPs represent to the local people. Some of them were provision of bush meat hunted from the park not only fed families, but provided food without expenditure of cash. The same was true of snail picking, harvest of cane for baskets, and several other products.

It came out from his report that local residents now had to purchase these (NTFPs) items at the market because they lack access to the park while personal and occupational values were also altered. Hunters essentially became unemployed; young men who gathered a variety of NTFPs became idle; basket weavers had to find alternative sources of cane or other work making them vulnerable and unsecured in providing for their livelihoods. In sum, creation of Park meant a shift for community members from a cash-poor, resource-sufficient economy to cash-poor, resource-poor.

CHAPTER THREE

METHODOLOGY

The study area

The KCA is located in the Central Region of Ghana approximately 35 kilometers north of Cape Coast. Kakum lies between latitudes $5^{\circ} 20'$ and $5^{\circ} 40'$ north and longitudes $1^{\circ} 30'$ and $1^{\circ} 51'$ west. It is located in the Twifo Heman Lower Denkyira and Assin District Assemblies. The conservation area consists of the Kakum National Park and the Assin Attandanso Resource Reserve, which cover 210 and 150 sq. km. respectively (Refer figure 1 showing KCA).

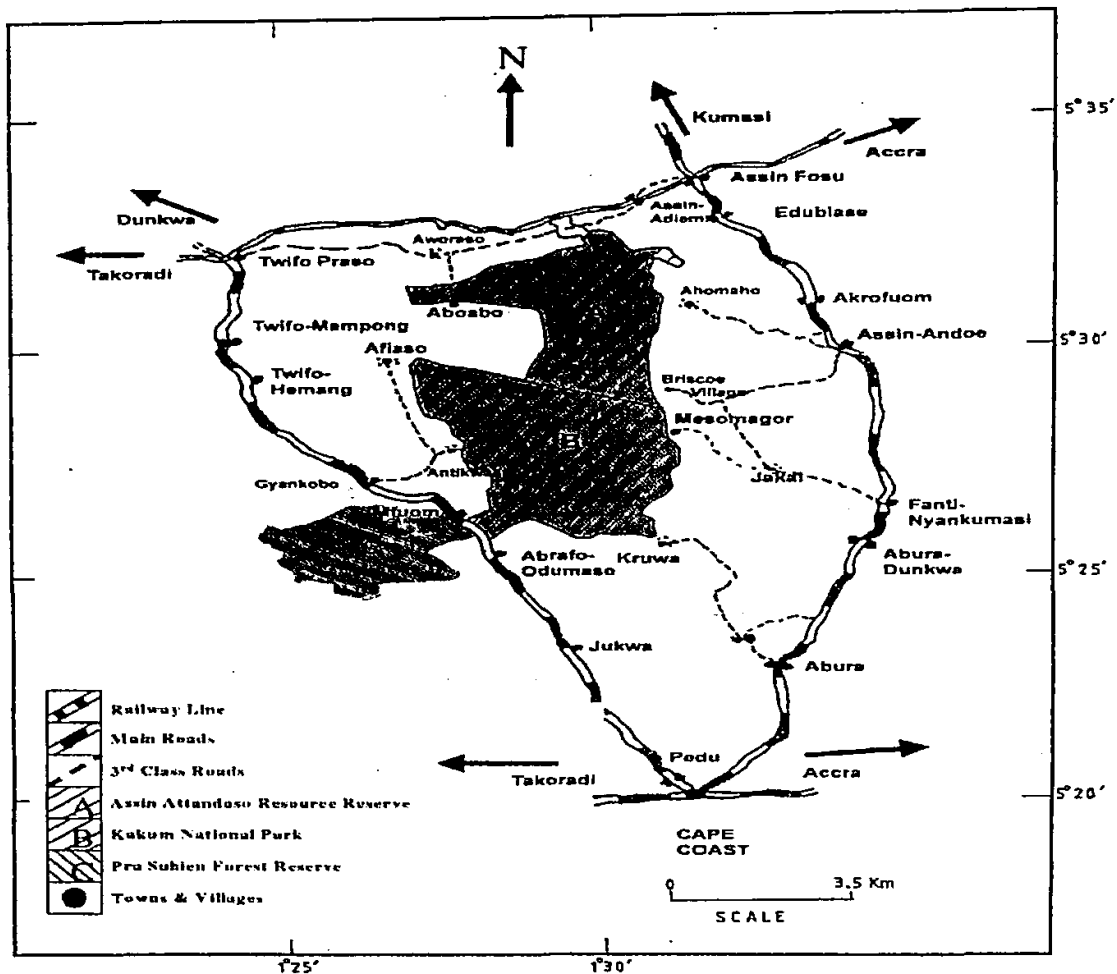


Figure 1: Kakum Conservation Area

Source: Wildlife Division Library

The study design

The study is a survey. The phases are pre-field work or reconnaissance survey, fieldwork analysis and report writing. Both quantitative and qualitative methods of data collection were applied. This was because no single study method was sufficient for data collection and analysis for the topic of study. This approach was informed by the fact that the optimisation of validity and reliability

of research findings through mixed methods and triangulation can yield added value (Ashley, 1998).

Sources of data

This falls under the fieldwork phase of the entire survey. Data was gathered from both primary and secondary sources.

Primary source

Primary data source constitutes data collected in its original form from the field by the researcher. These data was collected using interviews (structured and unstructured) and questionnaire administration.

Secondary source

The study also reviewed the past and contemporary authorities, who have researched into the environment particularly forest and wildlife conservation. In addition, relevant departments, organizations and institutions were contacted for data. This included the Central Library (University of Cape Coast), the Balme Library (University of Ghana), the Center for Development Studies' Library (UCC) and the Wildlife Division Library. Contact was also made at the Twifo-Hemang – Lower - Denkyira, Abura – Asebu – Kwamankese and Assin District Assemblies and authorities of the Kakum National Park for data. The data included published and unpublished materials. Other secondary data sources were

situational reports, project reports; newspapers, internet, magazines and newsletters.

Target population

The research covered the Kakum Conservation Area (KCA). The target populations are all the four hundred (400) fringe communities in the KCA with a total population of 93,562 (2000 Census Report). Refer figure 2 a map of KCA showing some of the fringe communities.

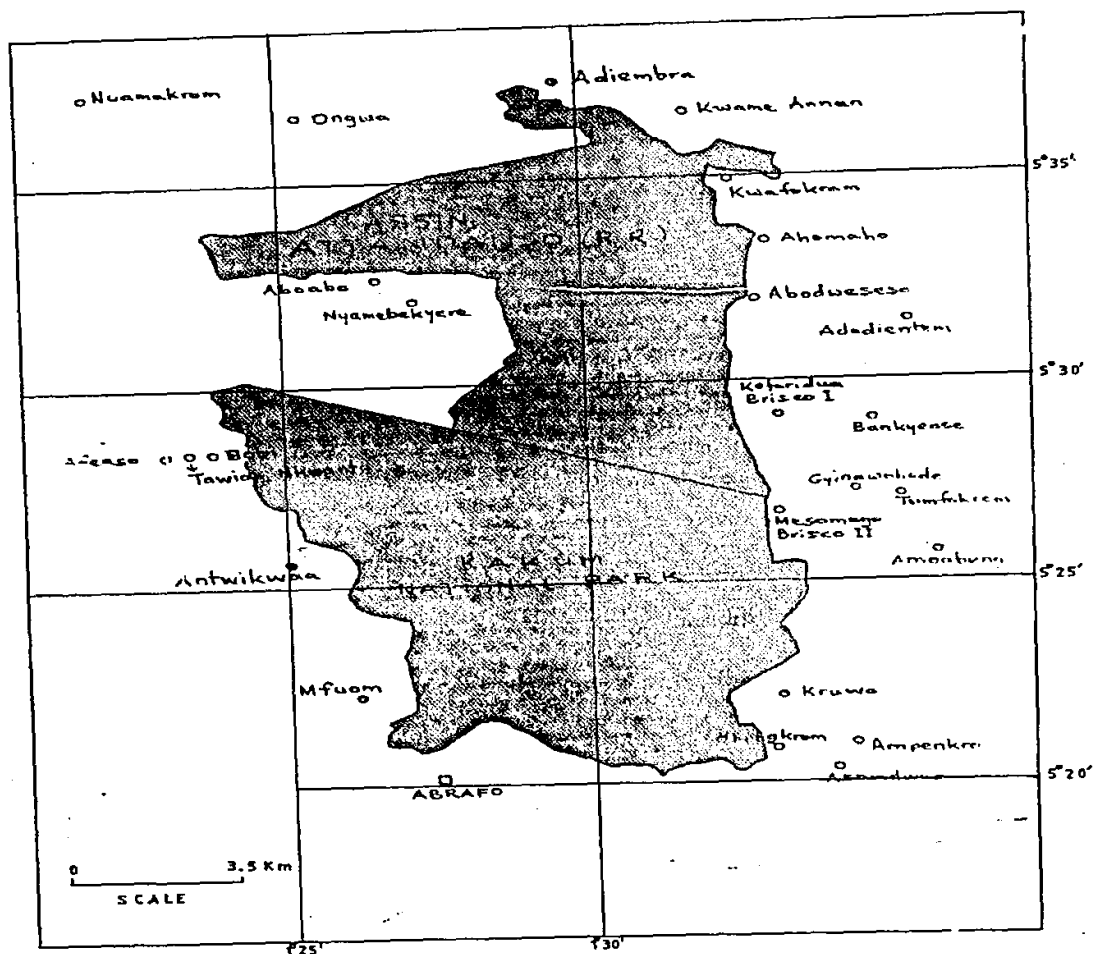


Figure 2: Kakum Conservation Area showing fringe communities

Source: Wildlife Division Library.

Before the acquisition of the KCA, the area used to be a forest reserve for hunting, palm wine tapping, and collection of forest products for carving, crafts, medicine and thatches as building materials under permission.

Reconnaissance survey

An exploratory survey was embarked upon to acquaint the researcher with the area, and to find out whether the stated problem and objectives were worth studying. It was also intended to get an idea of the extent of conservation and poaching and the probable livelihood options in the study area. During, the visit, the researcher was able to establish good rapport with local people, traditional authorities, managers and staff of KCA and other people who were involved in the study. The socio-cultural and economic characteristics of the people were also studied at this stage. The possibility of selecting communities for detailed study was considered during the exploratory survey.

Sampling technique

Sampling has to do with the selection of samples from a sample frame or population for detailed study. To achieve the objectives of the survey both the probability and non-probability sampling techniques were employed.

Probability sampling method

In the selection of communities, the study area was put into four (4) quadrants or strata using the stratified sampling method. In each case of these strata or quadrant, a further stratification of five (5) categories of respondents was carried out. Hence, in each of the eight (8) communities selected, five (5) categories of hunters, farmers, bushmeat traders, opinion leaders and the youth were identified and put in different strata. Then, in each category, three (3) persons were randomly selected, using a table of random numbers for interview making a total of twenty (24) respondents in each of the five categories. Hence, one hundred (120) respondents were interviewed in all.

Non probability sampling method

Non-probability sampling means a sample that is not representative of the sampling frame. The probability that an element in the sample frame would be chosen is not known. The selections of these eight (8) communities were predetermined based on the prevalence of poaching activities in these communities. In addition to these eight (8) communities that were purposively sampled for interview, four (4) others were selected using the purposive sampling method for focus group discussion. They were selected based on their closeness to the forest. They are Abrafo and Adiembra which are both indigenous communities and Gyaeware and Gyahadzie both settler communities. Hence, one settler community and one indigenous community (Abrafo and Gyaeware) were

purposively selected from the south of the fringe communities while Adiembra and Gyahadzie an indigenous and a settler community respectively were selected from the north. The reason for selecting both settler and indigenous communities was to see whether these groups of people share the same or similar views on the importance of the reserve and as to whether their activities have any effect either (negative or positive) on the reserve.

Table 2: Sample size/ selection for the study.

Selected categories	No of communities	Respondents	Total persons interviewed in each case
Hunters	8	3	24
Bushmeat Traders	8	3	24
Opinion Leaders	8	3	24
Farmers	8	3	24
Youth	8	3	24
Total numbers of	-	-	
People Interviewed			120

Source: Field study, 2004.

Data collection methods

Interview

All the selected respondents within the chosen settlements were interviewed using a flexible format that allows for the interview to follow the

interests of the persons being interviewed. This was done using structured open-ended and close-ended questionnaires. The questionnaires survey helped to obtain a picture of how a number of people feel about the problem, possible solutions; and personal consequences. The questionnaire was structured in five parts. The first part covered the social, cultural, economic and demographic background of the people. The second part covered household characteristics, the third covered forest resources, the fourth covered conservation issues and the final part covered issues on livelihood. Well qualified staffs of the Ghana Statistical Service were used to conduct the interviews.

In addition, interviews were conducted for key informants using unstructured interview schedules. This included staff of the KCA, traditional authorities and the Chief Executives of the District Assemblies. The results were valuable as original (first hand) data were gathered for analysis

Focus group discussion (FGD)

Small group of eleven (11), eight (8), twelve (12) and twelve (12) were put together for the general purpose of sharing ideas on the topic and finding solutions to the problem by sharing experiences, information and support. Group discussions are probably the most widely used method in participatory research. The group was made up of elderly men and women who were put together and their views on the subject were sought.

The communities in which the group discussion were held included Abrafo and Adiembra which are both indigenous communities and Gyaeware and

Gyahadzie both settler communities. Hence, one settler community and one indigenous community (Abrafo and Gyaeware) were randomly selected from the south of the fringe communities and another settler community and an indigenous community (Adiembra and Gyahadzie) from the north (see figure 2).

The group in Abrafo was made up of 11 members. They included the chief, elders and opinion leaders in the community. Members of the group discussion of Gyaeware were 12. It was made up of opinion leaders of the settler farming community and the youth. In Adiembra also, the group was made up of 12 members which included the chief, 4 of his elders and 7 well informed youth in the community. Moreover, the members in the discussion group at Gyahadzie were 8. They were mostly the youth and opinion leaders because the community is a youthful community.

In the case of the settler communities, the selection of the members for the group discussion was done such that all the ethnic groups in the communities were represented. The ethnic groups in Gyaeware were Akuapim, Gomoa and Ekumfi, while those in Gyahadzie were from Efutu and Akuapim. Similarly, the traditional rulers, opinion leaders and the youth were selected for the focus group discussion in the indigenous communities of Abrafo and Adiembra.

There was one moderator (the researcher) who led the discussions and another person, the recorder. Also, an audio tape recorder was used to record the entire discussion which was later transcribed for detailed analysis.

During the discussions, the problem was posed, and then causes were identified, possible solutions discussed and evaluative actions taken. This created

a situation which people felt comfortable and free to speak. It also built a sense of trust, support and solidarity among the people who shared the same problem but were not aware of it until they talked to each other.

Non-participant observation.

This involved visits to the field (that is the KCA.) and fringe communities sampled for study. This enabled the researcher obtain some kind of intimacy with the group studied. The researcher adopted the perspectives of the people in the situation being observed. The researcher's role was that of conscious and systematic observation and sharing insofar as circumstances permit. The purpose was to study the pattern and extent of poaching, traditional conservation methods, and the existence of alternative livelihood options and how they are managed at first hand.

This community based approach brought out a depth of feeling and vividness of expression or otherwise about poaching, conservation and alternative livelihood options in the study area. The informal approach allowed for the development of a relationship with those who were interviewed for follow up activities.

Data analysis

Statistical software- Statistical Product for Service Provision (SPSS) was used to analyse the raw data. Tables, graphics and charts were constructed for both data from primary and secondary sources.

Conceptual framework

Many analytical frameworks have been used to study the environment, sustainable development, poverty/ livelihood, and Conservation of biodiversity. Hopkins used the concept of global sustainability that seeks to merge the environment and economics in dealing with deforestation and biodiversity decline. Kevin et al (1992) used the concept of evaluation of human attitudes towards the environment.

Elliot (2002) of DFID's Livestock and Wildlife Advisory Group in analysing wildlife-poverty linkages adopted three conceptual approaches. Firstly, the DFID sustainable livelihoods approach, which was used to assess the role of wildlife in poor peoples' livelihood. The sustainable livelihoods framework helps to explain how assets such as wildlife are affected by policies, institutions and processes, and can be used in poor peoples' livelihood strategies to deliver desired livelihood outcome. Secondly, the disaggregating total economic value (TED) of wildlife was used to understand the distribution of cost and benefits between local, national and international levels. This approach differentiates between direct use values, indirect use values, options and existence values. With this approach, the cost of supplying and maintaining wildlife are, to a significant degree, borne by the poor (in terms of wildlife damage to crops, livestock and human health, and the opportunity costs of land), whereas some of the most significant benefits including much of the option and existence values flow internationally. Thirdly, the role of wildlife as an international public good, which was also used to review the extent to which national policies fail to accord due

value to wildlife, and the need for donors to support supranational governance, enable collective action and ensure the voice and needs of the poor are represented.

In reference to the prevailing old livelihood opportunities, as seen in the framework are socio-cultural in nature. Some of them are hunting, farming, collecting of construction and carving materials, pharmaceutical etc. These are the factors that move the communities to encroach on the conservation area. The poaching brings about the negative effects on the area namely: habitat loss, reduction of plant and animal species numbers, micro climate, pollution and drying up of rivers, high cost of law enforcement, declined tourism revenue and increased poverty.

The literature so far reviewed did not come out with a single analytical framework which this study could fit into. A new one, figure 3 has been designed and adopted so that the objectives of the study could be met.

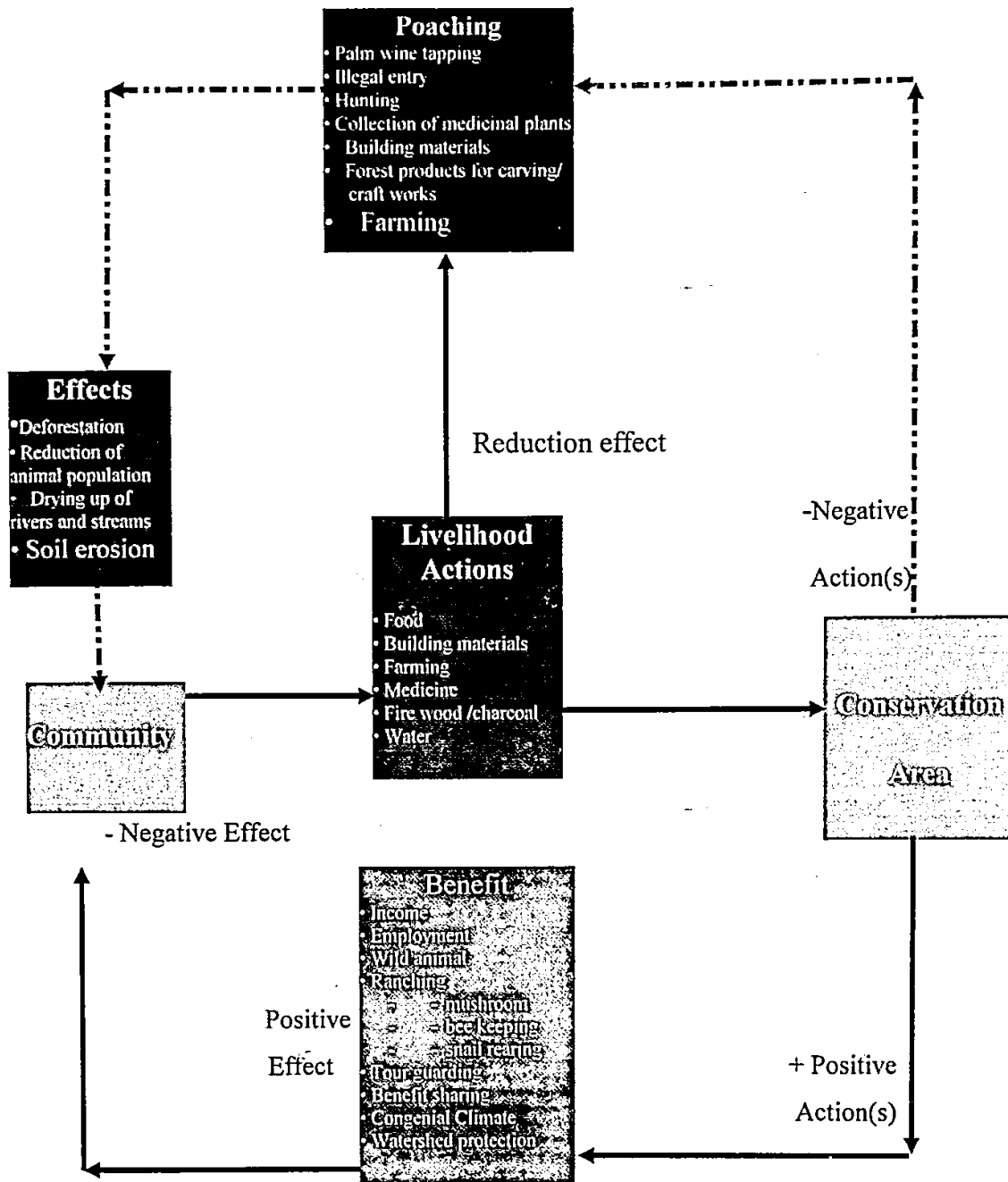


Figure 3: Analytical framework showing both positive and negative actions on the conservation area

Source: Adopted from Salafsky et al (1999) and Modified.

Legend: - - - - - Negative action (s) on the Conservation Area
 _____ Positive action (s) on the Conservation Area

The figure 3 analytical framework describes how community livelihood actions could affect a conservation area. Impact of the conservation area on the communities could be positive and/or negative. Some of the positive effects are generation of income, employment, increased wild animal population, watershed protection, improved ecological climate and many more. There are a number of livelihood actions that can negatively affect the reserve. They may include hunting, collection of fuel-wood, medicine, charcoal burning, palm wine tapping, farming and others as in the figure above. The negative actions bring about deforestation, reduction of animal population, drying up of water bodies and others.

The rather uncalled for negative effects prompt conservation area authorities to introduce alternative livelihoods and other intervention strategies. These are done to redirect the communities' attentions from the livelihood actions that have negative effects. This measure would demand changes of structures and processes of sustainable outcomes which would in turn result in balancing the natural resource management objectives. These intervention activities may promote poverty reduction objectives. The intervention activities include projects that encourage the development of strategies and methods that are dependent on sustained local biodiversity conservation. A key feature is to monitor the social, economic and biological impacts of the intervention on the local people.

Eventually with such interventions in place, aimed at improving the lifestyle of the local people their attitudes and perceptions would be influenced

and enhanced in support of better management of the reserve. Such a change is expected to bring more benefit inflows from the conservation areas so that the livelihood needs would have been addressed.

The study is expected to contribute to the solution of the rather negative impacts on the Kakum Conservation Area due to poaching which is a result of the Socio-cultural background of the communities surrounding the park. Therefore it has been identified that the concept of Alternative Livelihood Skills as postulated by Salafsky *et al* (1999) will be adopted and modified, if necessary to help explain the findings of the study.

In the concept, Salafsky sought to evaluate linkage between business, the environment and local communities. He used the framework above. However, for this intervention strategy to be a successful and effective community based conservation method, the following conditions must be satisfied. Firstly, the generation of short and long-term benefits to the communities must be ensured. These benefits must be in the form of economical, social and environmental benefits for a community of stakeholders both in the short run and, with a high probability, in the long-term. Secondly, there is the need for stakeholder involvement. It must involve members of the local communities who are stakeholders in the natural resources (biodiversity) of the area, and who have the capacity to take action to counter threats to the biodiversity. Finally, there must exist a viable linkage between the local people and the natural resources of the area. The local people must be financially viable (the intervention must support

them financially) in order not to interfere with the work of the conservation authorities.

CHAPTER FOUR

LIVELIHOOD SYSTEMS AND WILDLIFE CONSERVATION

Introduction

Mention has been made in the Methodology that there was a field study in the form of questionnaire administration, supported by focus group discussions (FGDs) in some selected communities. The analysis of the administered questionnaire and report of the FGDs have been discussed in this chapter.

The respondents were made up of 66.7% male and 33.3% female and out of this total 75% were married. Fifteen percent were single, 4.2% divorced and the rest either widowed or had consensual union. Their ages ranged between twenty-one (21) and eighty (80) years. Many more men were sampled because they were the heads of their households. They provided the households with food, education, and health needs of their dependants. As a result of responsibility reposed in them by society they are mainly found in occupations that make them come into conflict with laws on conservation of forest and wildlife resources.

In the case of the FGDs four communities, chiefs, elderly males and females and the youth were randomly sampled for four discussion groups.

Educational status

Respondents have had some level of formal education from the middle schools to the tertiary levels. Analysis shows that the constituents were middle/junior secondary school (J.S.S.) 57.5%, primary 10.8%, second cycle 15.0%, less than 1% in tertiary and others were those who had not attained any formal education. Their levels of education presuppose that greater a number of respondents had no qualifications to merit opportunity of being employed in the formal sector and thus employment by the park authorities was not possible. Persons with second cycle education and above qualify by park authorities' standards to be engaged as park wardens, game guards, visitor interpreters, or labourers.

Ethnicity

The study wanted to know the ethnic background of respondents. This would help reveal their various occupations. Among the respondents 34.2% were Fanti; and 8.3% Ashanti. The others constitute 57.5%, which was the highest. They have migrated from other parts of the country (Ghana) to the place. They include: Afutu, Ahanta, Akuapim, Akyem, Boso, Gomoa, Guan, Ewe, Krobo and Anum. The assigned reasons for their migration to the area were farming, trading, hunting, hair dressing, logging tailoring, baking, teaching and administrative duties.

Traditionally, the KCA is shared by the Twifo, Assin, Denkyira and Fanti (Abakrampa) people, all of the Central Region. The Assins are however said to

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have migrated to the present location from different parts of Ashanti. They are made up of Assin Attandanso, Apimanin and Efutu-Ekwa (Agyare, 1995).

Quite often, activities of migrant small-holder farmers who are engaged in agriculture at resource-poor areas such as KCA, lead to over exploitation resulting in depletion of natural resources. This normally happens because they are forced to convert resources into other forms of capital to better their lot.

Occupation

The main thrust of the occupation of the respondents is agriculture, their source of livelihood. They are engaged in plantation cultivation- (Cocoa, Palm, Citrus), food crop (Plantain, Cocoyam, Cassava, Vegetables), hunting, trading and other economic activities. Their minor activities include logging and chainsaw operations, tour guiding, carpentry, radio mechanics, and driving. Respondents' main occupation is shown in Figure 4 below:

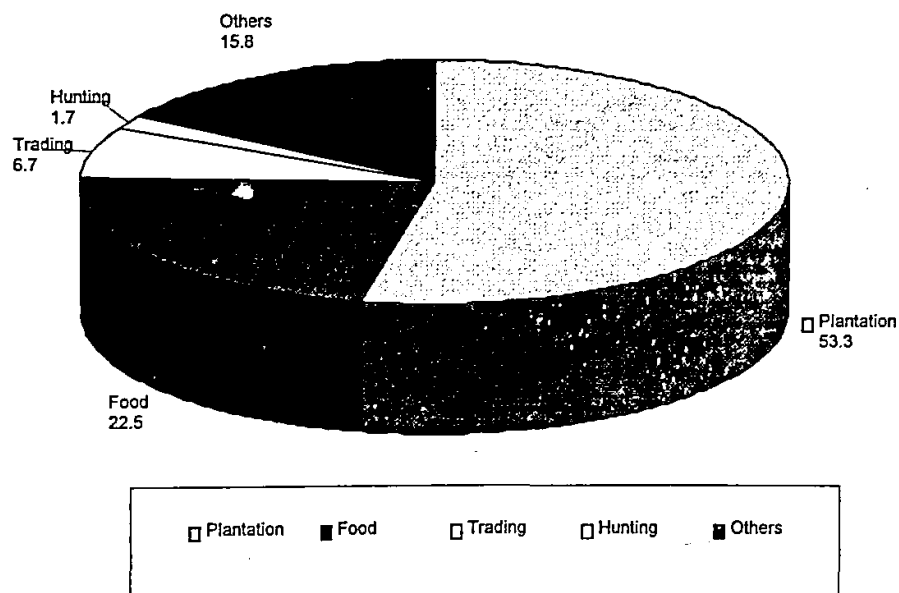


Figure 4: Occupation of Respondents

Source Field Study 2004

In Figure 4 above respondents who engaged in plantation cropping as occupation represented 53.3%; compared to food crop farmers (22.5%); traders were (6.7%); hunting was (1.7%); and other lesser known occupations were (15.8%). About 84.9% of them were not associated with any organized groups in the form of cooperatives, and therefore they did not benefit from organized farm inputs supply, extension support and marketing opportunities for their produce. This calls for the formation of community co-operatives or associations.

Natural habitat before the conservation area was created

The vegetation of KCA is classified as tropical moist semi-deciduous forest. It is a continuation of the tropical moist evergreen found in Western Ghana. The undergrowth is luxuriant and there are a great number of species of plants, and animals. The diversity and the prominence of woody plants are also particularly striking. These evidently find highly favourable growth conditions in the stable hot and humid climate which is characteristic of the forest.

Respondents were asked about trees, plants, animals and other Non-timber Forest Products (NTFPS) that were available in the area before it was acquired as a protected area and whether they could still be found. The enquiry was expected to show whether the condition is a factor why there is poaching in the KCA. The respondents identified the under listed trees and plants as available. Some of these trees mentioned are *Khaya ivorensis* (African Mahogany), *Millicia excelsa* (Odum), *Triplochiton scleroxylon* (Wawa), *Entandrofragma candollei* (Ceda), *Entandrophragma cylindricum* (Sepele), *Terminalia ivorensis* (Emire),

Ceiba pentandra (Onyina); and other lesser-known non-timber forest products like medicinal plants and cane.

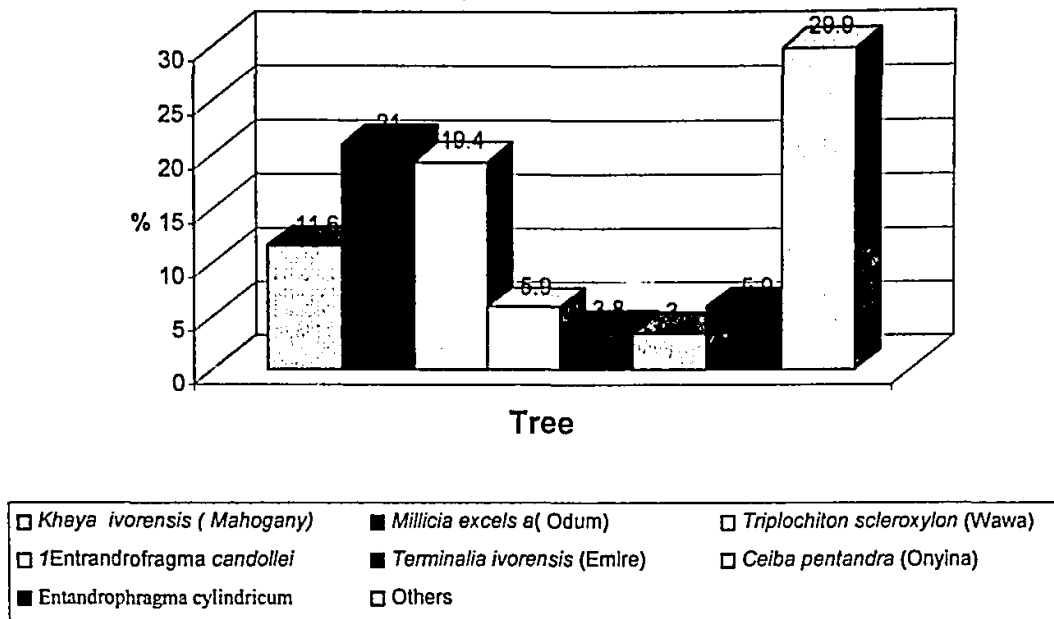


Figure 5: Trees commonly found before Park creation.

Source: Field Study 2004.

These trees provide canopies and buttress roots suitable as foliage and habitat for the animal species. The shrubs also serve as pharmaceutical library for the local people. As a result of the conditions respondents mentioned some animal species that are currently commonly found. These included antelope, elephant, bushbuck, grass-cutter and rats.

According to the respondents the trees also had timber value, which fetched the country foreign exchange in addition to satisfying the local market demand for lumber. The lumber is used for construction purposes such as places of accommodation, roads and railways; other uses are furniture, craftwork and

above all fuel wood. To the respondents animals and plants contributed greatly in providing their daily livelihood.

When asked whether the plants and animals well known to them were still available after creation of the KCA about a decade ago, respondents replied in the negative. The perception of the respondents was that human activities had impacted on the environment leading to biodiversity loss. They attributed this situation to continuous cultivation, excessive exploitation, (which would include hunting and logging), and bush fires as main causes. More than half of the respondents said continuous cultivation and exploitation were the main causes. They attested to the fact that by farming close to the park, there is loss of habitat for some of the animals. The farms also lure some of the animals, which search for food and thus come into contact with human population. The lured animals include elephants, buffalos, duikers, monkeys and other rodents, which raid the farms. This situation sometimes leads to animal-human conflict resulting in fatalities, destruction of crops and poaching. Wildfires and other causes were negligible. These showed that activities of the communities are widely responsible for the current state of affairs. Figure 6 denotes the graphic presentation of the situation.

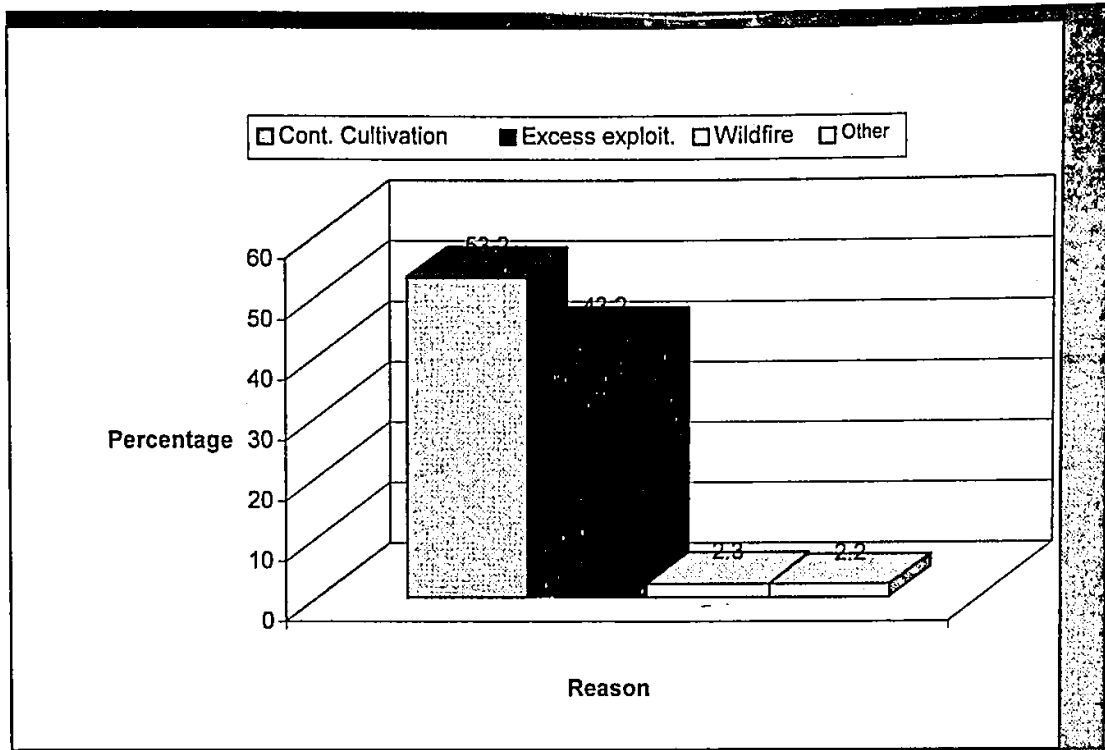


Figure 6: Reasons for biodiversity decline

Source: Field Study 2004

In figure 6, 53.2% of respondents agreed that excessive cultivation is responsible for biodiversity depletion, while 43.2% assigned excessive exploitation as the next important reason. Wildfires and other reasons seemed quite insignificant as reasons for biodiversity depletion.

Frequency of hunting in the last five (5) years

Respondents were also quizzed on their frequency of sighting hunters making game about five years ago in areas outside KCA. This produced varied results: ranging from daily to any other time. These were as follow: those who

sighted hunters daily were 2.6%, weekly 20.0%, monthly 28.7%, seasonally 22.6% and others 26.1%.

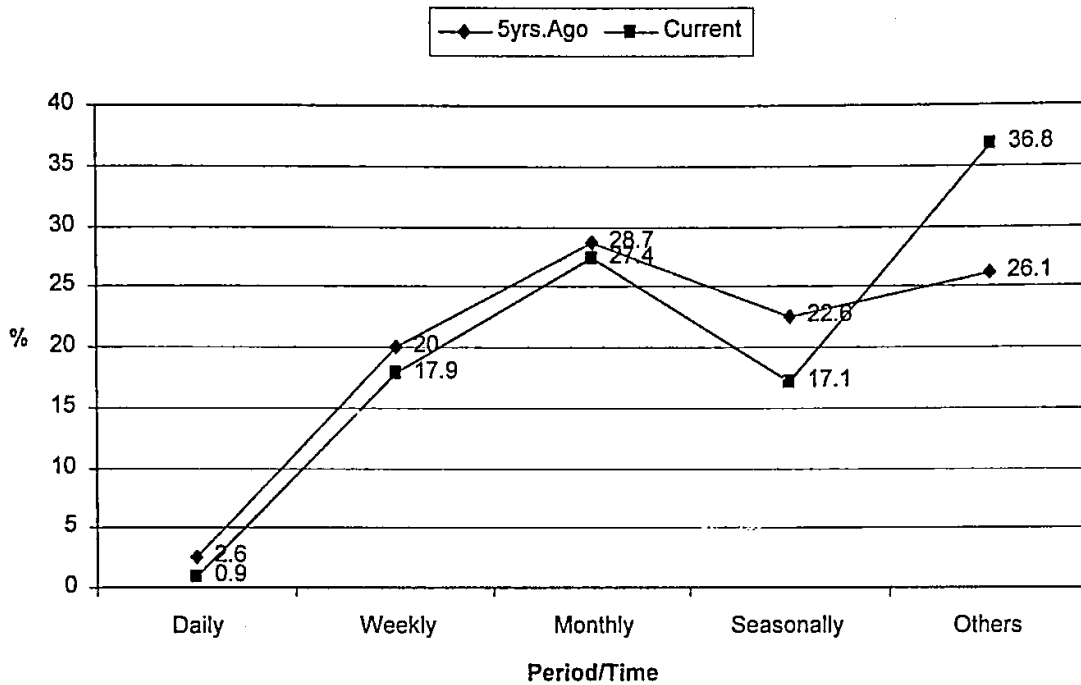


Figure 7: Sighting of game.

Source: Field Study 2004

In Figure 7 above hunting five years ago for all the periods shown were higher than current; except for the other undefined periods which show that with decline of wild animal species in the fringe lands, KCA provides the alternative grounds for hunting hence the increase in incidence of poaching in the park.

In normal situations forest outside PAs abound in animal species especially small mammals such as duikers, various monkey species and rodents which serve as pest control owing to cultivation of food crops on which the animals feed. Rodents are an important source of proteins for local communities because they can easily be hunted with simple equipment. They are therefore

heavily hunted for on subsistence basis. This however is not the case in communities studied. Currently, the situation has changed. This is because when the same respondents were asked to assess the hunters' success of hunting in the recent times these scores were made. Daily 0.9%, weekly 17.9%, monthly 27.4%, seasonally 17.1% and others 36.8%. It appears that the number of large mammals (example: elephants, bushbuck, bongo) outside the park seem to have declined.

The study also revealed that subsistence and small scale commercial types of hunting are predominant in the area whilst subsistence gathering is minimal. This confirms the assertion of Marks (1989), Hofmann (1989); Ntiamoah-Baidu (1998); and Kasim (2000) in the literature review. It has been observed that during festivals like "Akwambo" that is held in the traditional area hunters kill more wild animals and this is what has been confirmed in figure 7. According to KCA authorities, it is during this period that they encounter a lot of illegal activities including hunting in the park. Besides, chopbar operators were identified as another group whose activities have contributed to the demise of wild animal populations in KCA. The respondents agreed that most of the chopbar operators prefer to use wild animal species popularly referred to as 'bushmeat' such as the *tragelaphus scriptus* (bushbuck), *cephalophus* (duikers-ogilby maxwell bayblack, black-backed, grey -crowned), *neotrbgus pygaeus* (royal antelope), *mains gigantean* giant (pangolin) *thrynonys svinderienous*, (cane rat) and others be they wholly protected species (First Schedule) or those in the Second schedule which could be hunted rather than the elephant for their chores.

The respondents however would not confirm or deny the fact that they have been gathering NTFPs for example snail picking, harvesting of cane baskets, and several other products as submitted by Asare in the literature review. Again, because the park authorities would arrest poachers, respondents did not like to specify periods they make more game, thus the un-named periods recorded more game than the named ones.

Comparing the two scenarios, one could easily conclude that the uncertainty of sighting hunters making game in their immediate environment in recent times has increased. This is perceived to mean that the forest outside KCA is empty of animal species as a result of single or combination of factors mentioned earlier. Therefore, it is not surprising that poaching is on its ascendancy at KCA depriving visitors of encountering “flagship” animals, which could sustain their visit to the park thereby, promoting tourism in the country.

Effects of loss of biodiversity

The loss of biodiversity has remotely created unemployment, migration and poverty among members of communities studied. As many as 68.3% of the respondents contended that the shortage of some plant and animal species are a result of degradation that has compounded the incidence of poverty among them. A further 24.4% claimed that the non-availability of the resources had resulted in unemployment among those who previously depended on hunting for a living. The effects of loss of biodiversity have not been too significant for out-migration, schooling and other social vices, each one scoring 2.4 percentage points.

How degraded forest resources could be replenished

Responses showed some ideas about how the degraded forest resources could be replenished. About 33.3% of them suggested that the best way of doing this is by reforestation, with a further 30.8% of them saying law enforcement should be the best option. Another measure to replenish the forest is environmental education suggested by about 19.2% of respondents. 7.5% of the people suggesting community resource management. Alternative livelihood option was also suggested by 9.2% of respondents as a means of curbing resource misuse, degradation and to enhance forest resources management.

They again suggested that strict enforcement of statutory laws and by-laws by the central government and the District Assemblies could help. The Forestry and Wildlife Guards could enforce these laws. Penalties and sanctions must be instituted and made to apply to everybody and at all times. In their view, the local people must be involved in the management and conservation of the forest resources. If they feel part of the management then they can employ measures or invest in the conservation and management of these resources to prevent further environmental decay and poaching in the Kakum Conservation Area (KCA).

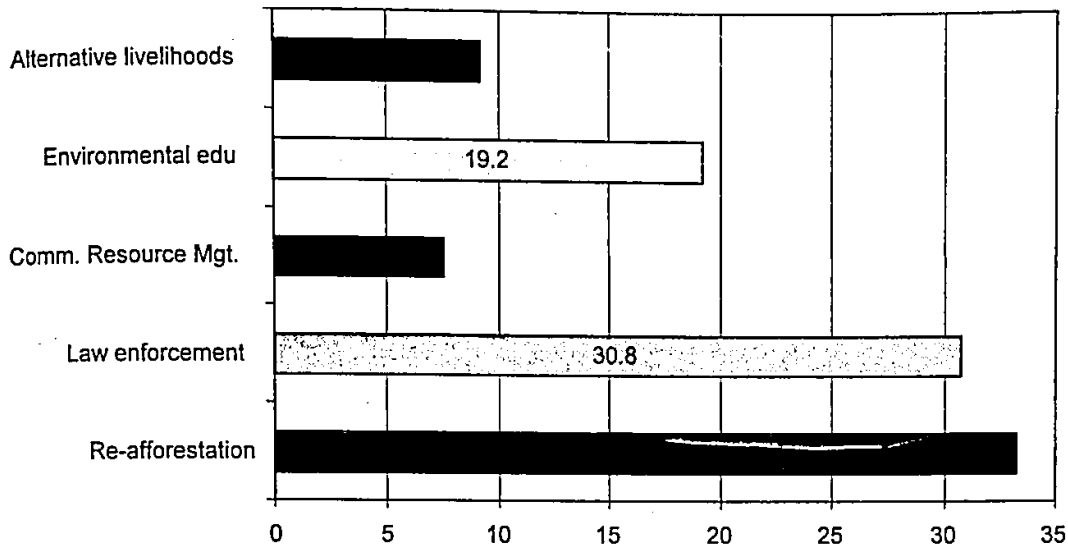


Figure 8: Measures for Replenishing Forest

Source: Field Study 2004.

Figure 8 shows the views expressed by respondents on measures to be employed to replenish degraded lands. Majority of respondents wanted re-forestation followed by law-enforcement, environmental education, alternative livelihoods and community resource management in that order. They explained that cultivating fast growing trees like the acacia (*acacia dudgeoni*, *sieberiana*, *hockii* etc) could relieve them from their financial difficulties since they could harvest these trees for sale to fish mongers to smoke fish, burn charcoal for sale to people in the urban centres in addition to contributing to ensuring improved environmental quality. Besides, it will save them from the ravages of elephants that destroy their food crops.

Community support at replenishing the degraded forest

The study wanted to know whether respondents were ready to contribute to efforts at replenishing the degraded forest. 49.2% of them are prepared to contribute their resources in the form of time and knowledge to the efforts at replenishing the degraded forest. They will do so because they think forest resources are beneficial. 70.6% of the respondents claim that the forest has ecological benefits. They mentioned its contribution to rainfall, maintenance of micro-climatic conditions, source of timber, medicine and a library of biological species as some of the ecological benefits of the forest resources and most especially the Kakum Conservation Area.

Another 11.8% mentioned tourism as a benefit of the KCA, hence their preparedness to contribute to the efforts at replenishing the degraded forest. Employment and education are other benefits of the KCA mentioned by respondents. About 39% of the respondents do not think it is necessary to contribute their efforts to replenish the forest. They do not get any direct benefit of the forest but rather it is elephants that destroy crops on their adjoining farms. Another 11.7% are disillusioned, in that they do not see any direct benefit of the forest. As a result, they do not know whether to contribute to the effort to replenish the forest or not.

Activities carried out in forest before Park creation

The study took particular interest in finding out the occupation of the community members before the park was created. This, it is believed, would

direct the recommendations for livelihood options. Hunting was mentioned as the major activity (41.5%) that was carried out in the forest before it was taken over and being used as a protected area (Park). Men in the study area had hunting as their major occupation and depended on the forest as their source of livelihood.

This was followed closely by farming with 36.4% these people said they were doing farming in the forest as their source of livelihood. They cultivated food crops like cocoyam, plantain, cassava and maize for subsistence and commercial purposes. Some tree crops like oranges and palm trees were also cultivated there. These have all been lost to the Protected Area (PA) and are having a serious effect on the communities since it has reduced their source of income and for that matter, economic capital.

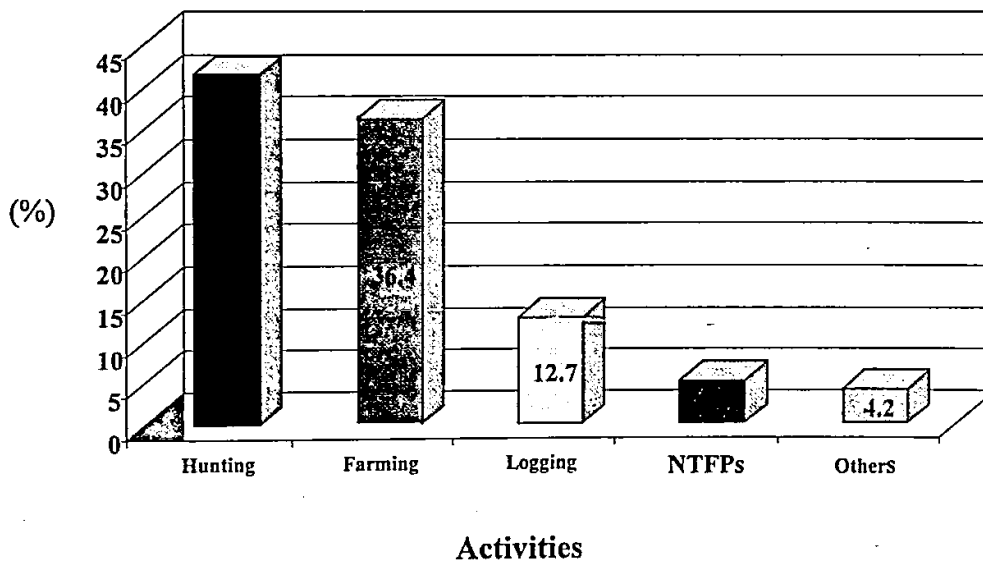


Figure 9: Activities before creation of Park

Source: Field Study 2004

Other activities that used to be carried out in the area before it became a conservation area were logging and gathering of forest products. Respondents also claimed the forest was the source of building materials. Their inability to enter the forest presently therefore constitutes a major worry. Construction poles and 'bamboo' for roofing their houses are now in limited supply since the few outside the PA have been depleted while at the same time they are in abundance in the PA which no one has access to. Young men and women are not able to put up their own places of abode because of scarcity of local materials like raffia palm. Raffia palm grows well along rivers and in low-lying swampy areas. These areas have been put under constant rice cultivation and the effect is that there are no more raffia palms in the fringe lands. The communities therefore illegally depend on the KCA where because of conservation; raffia palm abounds.

In addition, those who depended on cane and timber and their associated activities before the area became PA were thrown out of business. The result is increased poverty and hunger.

Community attitude towards the acquisition of the Park

The study assessed the benefit flow from KCA to a number of respondents. 53.3% reiterated that they do not benefit from the park. 40.8% however, said they still benefit from the park, and 5.8% did not know there is any benefit. On the question of whether the conservation idea was a laudable one, 66 % of respondents think the conservation idea is laudable. They believe there is nothing wrong with government taking over the forest as a protected area.

About 24% of respondents did not agree with government taking over lands for conservation purposes. Their reasons are that it prevents the local people from carrying out agricultural activities on it, hunting, and extraction of building materials, logging and gathering of non-timber forest products. The taking away of their source of livelihood has rendered them jobless and in turn afflicted impoverishment. The Ghana Poverty Reduction Strategy Document- 2003-2005 recognizes this and states among other things that poverty may be caused or exacerbated by low capacities through lack of vocational skills, entrepreneurial abilities and the inability of the poor to influence social processes, public policy choices and resource allocations. These in turn lead to vulnerability and exclusion.

The impact of exclusion of local communities in public policy choices and resource allocations fall in line with the analytical framework by Salafsky (1999). It examines the introduction of livelihood options that aim at addressing some concerns of fringe communities to help mitigate the negative impacts on the environment as reviewed in the literature.

About 71.9% opined that it should not be abolished because of its socio-economic benefits to the past, present and future generations at local, national and international levels. The benefits may include ecological, tourism, education, employment and others. They emphasized that PAs should be maintained for the protection of ecosystems, biodiversity and gene diversity library and other ecological benefits. This point has been expounded on in the values of wildlife resources in chapter two (2) of this study. About 28% of respondents want the PA

abolished and the land reverted back to the local people to work on so that they could earn some income to better their quality of life. 10.3% of respondents could not tell whether the PA has some benefits or not. Upon further probing it was discovered that the concept of forest reserve and Protected Areas has not been fully explained to the local people. What they know is the taking over of their lands by government and preventing them from going to perform any activities (farming, hunting, gathering etc) on the land. The people must be involved in the siting and location of projects especially when it directly affects their very sustenance or survival.

Conservation issues after Park creation

KCA was acquired under the Wildlife Reserve Regulations L.I 710, 1971 as amended by Legislative Instrument L.I. 1525, 1991. The implementation of L.I. 1525, 1991 led to a change in management strategy. A number of restrictions were introduced which excluded the fringe communities from accessing the resources in the park. The L.I. 710, 1971 prohibits the unlawful entry and consumptive utilisation of wildlife resources in protected areas.

The establishment of KCA catalysed vigorous infrastructural development aimed at promoting the ecotourism drive in the Central Region. Some of the facilities developed so far include the Canopy Walkway, gift shop, conservation education centre, tree platforms, and guided trails. The development of these infrastructure facilities did not leave the fringe communities out. Other infrastructural developments which the fringe communities are indirectly

benefiting from include road construction. Prior to the establishment of KCA the trunk road from Jukwa to Twifo Praso was hardly motorable. However, the road was improved and given a doubled surface dressing with the establishment of the park there by improving general transportation in the corridor. The fringe communities now have improved access to market centres to sell their farm produce as well as easy access to health facilities to cater for their health needs.

Mention must also be made of extension of electricity to some villages like Kruwa and its environs. Alternative rural livelihood and asset security measures were also put in place to provide direct benefit to the fringe communities in order to reduce the level of poverty among the people. These include the introduction of wildlife- based enterprises such as mushroom production, grasscutter and snail rearing, woodlots establishment and small community – based ecotourism projects.

Opportunities were created to enable community members to benefit directly from the tourism drive in the Park. Some community members have been trained in tour guiding to supplement the effort of park guides. The Mesomagor Bamboo Orchestra has also benefited from similar training to fine tune their cultural performances. Consequently, they are featured regularly in the park to provide entertainment to the teeming visitors. This exposure has given the group both local and international recognition and are frequently contracted to perform at various occasions in the country.

The boost in tourism in the area has also created a large market for services and other products which the fringe communities have taken advantage

of. Already, home stays accommodations are organised by some community members for tourists. Hotels are springing up in Gyaeware and Abrafo to cater for the increasing tourists' population to the park. The local grocery market and traditional restaurants (Chop bars) have also developed in direct response to the increasing visitation to the park.

Size of conservation area, management and conflict occurrence

The study wanted to find out whether the size of KCA had any thing to do with the attitude of community members. In this perspective, 55.5% suggested that KCA is too large as against 4.2% who held the view that the KCA is small. These may be mostly the environmentally conscious ones who are at risk because their farms may be located at the fringe of the park and suffer animal crop raiding (elephant conflict). They would be better off should the size of the park increase. The latter argued that more land should be acquired as reserves because of the benefits enumerated above. Those who believed the area is too big are among the communities who lost greater proportion of their farmlands to the park. 36.1% also suggested that the size of the KCA was just enough and the local people should be educated to understand on the need for creating the park (especially the ecological importance).

What worried most of the respondents is the fact that the park is managed solely by government. Some 83.2% claimed they were not happy with the current arrangement. They felt it should not be run solely by the government since the

lands belong to them and constitute their source of sustenance. As such they must be involved in its running and should enjoy some of the benefits of the park.

In Ghana, rural livelihood is derived mainly from the land and natural resources and therefore many people are integrally linked to land. Denial of such access leads to strained relationship. Owing to this situation, there have been some conflicts between the communities and KCA management. 15.5 % of interviewee admitted to have had conflict with park management but when asked about the kind and cause of conflict, 6.7% of them gave reason that they wanted some benefit in a form from KCA. This gave cause to mean that they might have been involved in crimes such as poaching and collecting and gathering of NTFPs in the park. The communities along the fringes of the forest feel strongly that they must be given a share of the benefits since their lands, which is their source of livelihood have been taken away from them. Meanwhile, as much as 84.5%, have not had conflict with park management and seem to be living peacefully with forest guards.

This argument brings to the fore that they see benefit only in the form of extrinsic values such as infrastructural developments, employment for community members, award of scholarships and the like.

On the question of community involvement in park activities, few of the respondents said they have been involved in the KCA activities. This was in the form of communal labour, emergency help due to fatalities and some being employed to work in the park. Most of these contributions come under emergency help due to some fatalities in the communities. Most of the time elephants go out

of the protected area and cause severe damage to farms destroying crops and community members are called upon to help return or drive these animal back into the reserve and others.

Community involvement was also strongly advocated. Park management in this sense means community involvement in boundary cleaning; bushfire prevention; tour-guiding; serving on protected area management boards (PAMAB), preventing potential poachers from illegal entry, and reporting or arresting them.

Such levels of park management may be another way of enhancing co-operation among park authorities and local people so that frequent conflicts could be avoided or solved amicably. This is in fulfillment of the country's Forest and Wildlife Policy of 1994 which advocates for government and community partnership in forest and wildlife management.

Community participation in Park management

The study delved into the preparedness of community involvement in park management in spite of the above. About 54.1% respondents are prepared to contribute to the management of the park. Interestingly, they are prepared to do this voluntarily because they believe the benefits associated with the reserve are immense and would not like to see it being depleted. Again, they noted that if the communities would be fully involved in the management but not financial management and made to enjoy some of the direct benefits of the reserve, it would encourage them to feel part of the ownership. If they feel the reserve belongs to

them, they would ensure that the reserve is not misused. It was also suggested that as part of communities' contribution to the management of the reserve poaching could be stopped. "...It is we who live with the poachers and we know them, we can help to stop their activities if we know we are part of the ownership...", indicated by a respondent. They believed that poaching can deplete the resource base of the reserve and must be stopped. In addition a little about 4% of the people suggested that the people in communities along the fringes of KCA and who depended on the protected area for livelihood should be given alternative sources of livelihood.

Introduction of alternative livelihood programmes

The respondents were asked whether they had ever benefited from alternative livelihood skills training. It came out of the study that 1.7% have benefited from bee keeping, 6.8% grasscutter rearing, 7.6% snail rearing, soap making, and mushroom growing 0.8% each with 82.2% engaged in other projects. As of now only 8.5% of the respondents are still benefiting from bee keeping, grasscutter rearing and soap making on a very small scale. These programmes could be repackaged, relaunched and invigorated to become more economically viable in communities that have benefited from such training before whilst training in such skills are introduced in new communities in order to improve food security.

It is however, worth noting that in the course of the researcher's interaction with the local people, over 90% expressed interest in all the support

programmes mentioned above. These programmes would create employment and generate income for those who no longer have access to the park on which they depended for their livelihood. About 50% each would prefer going into either grasscutter rearing or soap making, with 21.7%, 10.5% and 6.7% going into snail rearing, beekeeping and mushroom growing consecutively.

Benefit sharing, gender and equity

Benefit sharing has always been a very sensitive issue when it comes to benefits for community members. Ensuring a transparent, workable and acceptable benefit sharing system based on gender equity is a priority and must be attended to early in the process of managing poaching.

The respondents provided the following suggestions on how the communities could benefit from KCA. About 45% of them suggested that, the youth and energetic ones among them should be given employment as park workers. About 40% also suggested the establishment of Community Resource Management Areas (CREMA) where the local people would be responsible for the management of their own reserve. In that case they would manage it effectively because the benefits derived would directly go to them.

Another 6.7% of the respondents suggested the formation of community-based associations. These associations would give some form of education to their members on how best to manage forest resources in more sustainable manner. Through the associations, they could be provided with intensive and

continued extension support, compatible farm production yields and record keeping for participatory monitoring.

Except for few of them who have been directly employed and in a few more cases where some projects have built their skills for other livelihood options the generality of respondents have been left to their fate, particularly when gender perspectives were not given any priority. In most cases because males were found to be the offenders when it came to poaching, livelihood option trainings given so far focused more on males than females. Food security, children's education and status of health are all not the best and these are blamed on their inability to access resources from the park.

Formation of cooperation groups and associations to boost local people's access to micro-credit facilities to reduce poverty levels was non-existent.

Focus group discussion (FGD)

Focus Group Discussion (FGDs) was conducted to share ideas on the information collated during the fieldwork. Four communities namely: Gyaware, Adiembra, Abrafo and Gyahadzie were randomly selected. Gyaware and Gyahadzie are migrant farmers whilst Abrafo and Adiembra are indigenous communities. The discussion dwelt on murky issues identified during the analysis of information collected (such as land ownership, land acquisition process and arrangement, traditional conservation methods, poaching, effects of conservation on livelihood, contribution of conservation to environmental quality and expectation from park authorities).

Land ownership

There are three main kinds of landowners in Ghana namely: traditional authorities, government and individual or firms (Okyere 2005). In the deliberations, it came to light that the entire KCA land is owned by five (5) Chiefs. They are Denkyira, the Assin Apemanim, Efutuakwa/Hemang, Assin Nyankomase, and Abura stools. Traditionally, these chiefs hold the land in trust for their subjects. Therefore, the land is a common, communal, clan and extended family property used by those owning it but paid for in kind by the growing number of tenants.

In the case of KCA, comprising Assin Attandanso Resource Reserve and Kakum National Park, was acquired in 1925 by the Government through a legislative instrument upon the consent and agreement of the chiefs of the traditional areas mentioned earlier on among others to protect the Kakum river (Brimso Dam), which serves Cape Coast and its environs with water. According to the Park authorities, compensation has since not been paid to the landowners.

The FGDs brought out that until its acquisition the KCA served as a source of livelihoods for the people. Both plants and animals were a source of products for subsistence and sale to generate a cash income. Principal among them was that the area served as the hunting grounds for the chiefs and clan-heads. Hunters were resident there and their principal function was to hunt for game for the chiefs. The cherished tradition was severely curtailed after the declaration of the land as conservation area in the late 1980s when it was taken over by the

Wildlife Division (Forestry Commission). This means in principle that the chiefs lost control over the KCA to the park authorities.

However, the forest outside the boundaries of KCA still belongs to the chiefs who have individual inheritance "use rights" to the land. Each of the chiefs has appointed sub-chiefs or family heads who oversee their boundaries and other activities especially that of migrant farmers. The migrants therefore owe allegiance through these sub-chiefs and family heads to the chiefs on whose land they work.

Land acquisition process and arrangement

From the outcome of the FGDs, the land tenure systems practised around the KCA is not different from what pertains in other areas in Ghana. Land tenure or land holding defines the terms governing access to, land acquisition and ownership, control and use of farmlands and forests. In Ghanaian communities, owners of land have very strong attachment to it and its resources.

As one moves from one ethnic area to another in Ghana, many land tenure systems may be recognized. Notwithstanding this variety, it should be possible to detect in each arrangement the agreement, conditions and rights under which land is owned or held. Inherent in all land tenure types is a basic incentive or disincentive for exploitation, abuse and sustainable use of the resources associated with the land.

Understanding the land tenure systems operating in a locality is very important because it sheds light on: -

- The individuals or institutions that have right of holding agricultural lands;
- Procedures in place that guide people interested in farming to obtain land;
- Whether the procedures for land acquisition and inheritance are transparent, fair, and devoid of quarrels and conflicts;
- The sort of agreements entered or binding between land owners and farmers;
- Whether tenure arrangement encourages farmers to conserve land or embark on sustainable land use; and
- The incentives and disincentives in tenure arrangements, and how these affect critical issues such as technology adoption, crops that are cultivated, production and productivity.

Participants at the FGDs held the opinion that the traditional land acquisition process vary in arrangement from one traditional area to another. However, in general, the representatives of specific families and clans exercise control over who gets a parcel of land to farm. Through the chief, family head of persons who have been given inheritance rights, individual members of a community or family may acquire user's rights to a particular piece of land. Land acquired this way may not be sold or given out to another interested party on any long-term arrangement.

During the FGDs, it was learnt that most migrant farmers who admitted to have stayed in the fringe communities since the 1960s said they acquired the land on which they are working from the Denkyira stool or other chiefs earlier mentioned whilst land title ownership of the Abrafo and Adiembra is through

inheritance. They eluded that during that period one could be allocated a parcel of land between ten (10) and twenty (20) acres for a minimal fee and some drinks. This arrangement has since changed. Citing an example of the Denkyira stool, it was gathered that in the past twenty (20) years the Denkyira stool used to charge an amount of fifty thousand (¢50,000.00) cedis per migrant farmer as annual rent irrespective of the size of one's farm and the crop cultivated. Currently, it has been reviewed upwards to two hundred thousand cedis (¢200,000.00). On the same note, farmers working on the Assin stool land pay five hundred thousand cedis (¢500,000.00) per farmer per year.

According to participants at the FGDs the rent charges are on the higher side, particularly so when it did not take into account the size of land cultivated in the year of assessment, damage to crops by wild animals and even crop failure. Therefore besides acquisition arrangements with the chiefs, some individual migrant farmers have acquired the 'abunu and abusa' user's rights arrangement with some indigenous farmers to cultivate more land to augment their income that will enable them meet their financial commitment to the stools. Among the Akans the 'abunu and abusa' agreements are very common, where half or a third of the farm produce is respectively given to the migrant farmer.

Traditional conservation methods

The discussion revealed that forest conservation by the indigenous people is largely effected through established system of cultural rules and social beliefs, which include prohibitions popularly called "taboos", festivals, and spiritual

believes. In the traditional area where KCA is located, people are not supposed to till the land including water bodies on 'Tuesdays and "Akwasidae". The FGDs confirmed that the chiefs set these days aside so that the earth goddess "Asaase Yaa/Efua" may have enough rest. They explained that as farmers they also need some time off their daily routines to rest while the animals and plants get time to replenish themselves in the process. Furthermore the adoption of the bush fallowing and shifting cultivation practices helped to preserve and conserve most wildlife species.

Asked whether these traditional conservation methods are still working they responded in the negative. Some of the reasons cited were that the land tenure arrangement has meted untold financial hardship on them leading to reduced fallow periods, in turn impeding conservation effort in on- and off-reserve areas.

They reiterated that at first a piece of land could lie fallow as long as six (6) years, which was long enough for the land to regenerate. They attested to the fact that variety of animal species could also be found in these fallow lands.

They attributed the perceived rapid decline of wildlife resources with many species on the brink of local extinction in addition to those that have already disappeared in recent past, to inadequate fallow periods less than one (1) year coupled with timber felling that may have driven most of the animals into the KCA. It was generally agreed at the meetings that trees like *odum*, *dahoma*, *mahogany* and *edinam*, which keep some of the animals like primates on their farms have all been felled and has sharply reduced availability of protein in the

form of bush meat, loss of biodiversity and an impoverished environment in general.

The introduction of new land tenancy agreement, which has reviewed rent charges upwards, has forced farmers to clear any available piece of land for cultivation, fearing that fallow land could be interpreted by landowners as uncultivated and therefore be reallocated to someone else. It was again learnt at the FGDs that it is because of the above pressure exerted on them by the landowners that is why a good number of farmers cultivate closer to the KCA boundaries.

Poaching

On the question of poaching in KCA, participants quickly denied entering the park to poach. However they admitted hearing about or coming across suspects who have been apprehended by park authorities. Some farmers confirmed that historically KCA was a hunting ground for the chiefs who owe that land and therefore most indigenous villagers are hunters. In view of this they are not surprised that some unscrupulous persons trespass to hunt.

To the participants people poach for various reasons. Some of the reasons were that animals such as elephants have been destroying their food crops seasonally. They said a habit one acquires is difficult to abandon and therefore it will take a longer time for behaviour change in line with current conservation expectations. In spite of this, they insisted that plant and animal populations have not declined in the reserve.

Some also said that because the KCA is a big area and big trees which harbour animals like bongo, duikers and antelopes still abound in it, the animals might be roaming in search of fruits majority of which flower seasonally. The foliage so created makes sighting of animals by tourists very difficult. Therefore, the participants asserted that it is not only the poaching that makes sighting of flagship species difficult.

To manage poaching as a problem, participants suggested enforcement of both traditional methods and current law enforcement by the park authorities. This means that traditional and park authorities must combine forces in managing the park.

Effects of conservation on livelihood

The indigenous communities were of the opinion that with the exception of the increase in their family size, which has affected the total area of their farmlands, they do not experience any crop raiding effect on their farms. This is so because none of the indigenous communities farm around the KCA. The migrant farmers who farm as close as fifty (50) metres to the park boundaries wished all the animals in KCA were extinct owing to damage caused to crops. All of them complained of lack of access to bush meat and other forest products as they no longer hunt in the forest or collect building materials among other resources that used to support their livelihoods prior to creation of the reserve.

Contribution of conservation to environmental quality

In spite of the above stance, participants saw some positive attributes to the conservation at Kakum. Some commented on the micro-climatic condition that has been created by the reserve and how it impacts positively on regular rainfall for farming activities for instance. They were unanimous that KCA provides protection to watersheds. The entire vegetation serves as wind brakes, protects animals, which are getting extinct, promote rainfall and facilitates ecological improvement.

Expectation from Park authorities

Participants showed that they have huge expectations from the park authorities. They agreed that the conservation practices could continue on condition that the park authorities equitably share the benefits accruing from it among the chiefs. They also expect job opportunities for the youth of the area. While the indigenes especially Adiembra community are clamouring for infrastructural development such as tourists centres, patrol camps, access roads and benefit sharing, the migrant farmers expect park authorities to stop their animals from damaging their crops so that the animosity between them would stop.

They also suggested institution of forums between fringe communities and park authorities to discuss issues regularly. This they believe could help solve most of the problems militating against farming activities and conservation.

Additionally, they admitted that the current law enforcement measures in safeguarding the KCA must be strengthened to secure the forest.

Conclusion

The FGDs revealed in-depth knowledge of participants about both traditional and modern concepts and methods of conservation and management of the environment in general. Commitment of park authorities to fulfill various promises upon which the collaboration of traditional authorities and other opinion leaders will be built upon, could be the basic ingredients that are needed for effective management of KCA to conserve the wildlife resources and biodiversity, thereby contributing to the country's economy through tourism and recreation and the security of livelihoods in fringe communities.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Forest and wildlife policies affect not only forest and animal species but also national development, livelihood and poverty reduction. As a result of this, the aim of the study was to examine the livelihood systems of the communities of the KCA and their effects on conservation. This problem and the resultant effect for now and in the future may negatively affect the tourism potential and others made the study very relevant.

Conclusions

The literature review, field study analysis and focus group discussions that were undertaken yielded the following conclusions.

Inadequate conservation education

While in the field, respondents showed lack of understanding in conservation concepts. For example they misconstrued park management to include community auditing of the accounts of the park authorities. Again, they said they were not benefiting directly from the park except when probed further.

Their attitude about the park therefore might be as a result of their misconceptions.

This calls for public education to explain the objectives for the establishment of the park to the traditional leaders in the area, and for indigenous people to feel that the park is addressing their rights and responsibilities as well as those of the settlers living close to the PA. Besides, it promotes capacity building to increase human capital and build on local knowledge, developing the skills needed to influence decisions about forest and natural resource management through debate and negotiation.

The local people must also be supported by Forest Services Division (FSD) to replenish degraded areas outside the park whilst the Wildlife Division (WD) introduces its Wildlife Based Enterprises (WBE) to improve their livelihoods. This will help the integration of best practices for participatory resource management. Additionally, it will increase natural stocks, and expand natural capital from which resource flows and services useful for livelihoods are derived.

Resource decline in fringe lands encouraging poaching in the Park

The land tenure systems, excessive cultivation and exploitation, bush fires and other practices that have gone on in the fringe lands are responsible factors for the steady decline of tree, animal and other forest resource populations in those lands thereby encouraging poaching in KCA. This situation has led to illegal

activities and encroachment in the Park as the communities' attempt to satisfy their livelihood requirements and food security.

Hunting in the Park is on ascendancy

One major finding is that currently for unknown periods that were not named, hunters make more game now (36.8% of respondents) than it was five years ago (26.1%). Hunting, which was ranked the highest on the occupation list of respondents before the creation of the reserve is on the ascendancy.

Review of land acquisition process and arrangement

It was found out that, high land acquisition rent charges coupled with reduced fallow periods are also responsible for depletion of wildlife resources in the fringe community lands in KCA forcing the communities to depend on the KCA illegally for their livelihoods. The review of the rent charges and the entire land tenure systems in the area could help reverse the trend.

Need for community involvement in Park management

The need to replenish the forests through forestation was echoed by respondents. According to them they stand to benefit from a well managed park, particularly if they are made part of the park management.

The need for community involvement in park management is in line with Forest Wildlife Policy (1994) of the country which recognises the need to

associate local communities with protected area management and the development of benefit sharing system

Poverty levels and livelihood options

Responses to enquiries on social issues indicated that the communities have been deprived of their livelihoods by the acquisition of the land as a park. The taking away of their source of livelihood has rendered them jobless and in turn afflicted impoverishment. The Ghana Poverty Reduction Strategy Document- 2003-2005 recognizes this as earlier alluded to in paragraph 4.8 and this is in consonance with the analytical framework by Salafsky (1999). It has been noted that alternative livelihoods may help to solve the problem so created at KCA

Recommendations

The recommendations mentioned in this section are not based on the study alone but also on the literature reviewed as the review informed the thoughts that led to these recommendations. It is believed that students and other stakeholders will find the recommendations implementable to help solve the problem of poaching in KCA

Public awareness and education support

The role of public awareness and education is to implement more conservation education programmes at both formal and informal levels. Conservation education has been identified as a management tool to help improve understanding, appreciation, and increasing knowledge of local people about their environment in order to win their support.

Therefore, conservation education backed by effective laws and policies and capacity empowerment will lead to sustainable resource management and poverty reduction.

Reducing poaching

Inadequate resources in fringe lands lead to poaching in the park. It is therefore recommended that local community farmers are provided with intensive and continued agricultural extension support which is compatible with farm production planning, crop diversification and increasing yields, record-keeping and provision of market avenues. To this end, it is further recommended that market gardening (cultivation of vegetables- pepper, tomatoes, cabbages, garden eggs etc) must- be introduced in the area through strong advocacy and building of communities' capacity in agricultural extension services. With Cape Coast serving as a market for their produce, farmers' income will serve as an incentive to draw them away from engaging in illegal activities in KCA. When this is embarked upon it is believed that poaching will be reduced.

Introduction of sustainable alternative livelihood

Provision of alternative livelihood systems must be up-scaled. As the declaration of an area as a park usually results in denial of fringe communities' access to natural resources which form the bases of their livelihood, it is imperative that an alternative is found to supplement the livelihood requirements as atonement for the deprivation. It would also help reduce poverty, boost biodiversity conservation and sustainable development. In this respect, the Wildlife Division (WD) should seek synergy with other stakeholders to embark on sustainable livelihood skills programmes for the fringing communities.

The following livelihood skills programmes are recommended:

- Bee-keeping
- Grass-cutter rearing and livestock integration
- Snail rearing
- Establishment of woodlots
- Fish farming

It must be mentioned that before any such venture is embarked upon a needs assessment must be undertaken to make the programme more effective and participatory.

Benefit sharing and gender equity

In benefit sharing, the issue of social equity must be adequately considered and addressed. It is suggested that qualifications for job opportunities for

community members must be liberalized in favour of women especially those who have demonstrated interest in wildlife management. Special provisions need to be made in community wildlife-based enterprise development programme(s). This will ensure that the politically and socially weak groups, including women and the youth, are equally catered for because much of women's exclusion from mainstream economic opportunities has led to their involvement in casual, informal and unregulated labour at rates that exceed those of men.

Strengthening cooperation with law enforcement agencies

In general, public perception of wildlife as a free resource and therefore can be exploited without recourse to laid down rules and regulations has been compounded by lack of cooperation from law enforcement agencies in the country. As an example, penalties meted out to those who breach forest and wildlife laws have not been deterrent enough.

It is suggested that advocacy for the law enforcement agencies, especially the judiciary must be stepped up to enable them understand the magnitude of the problem created by breaching forest and wildlife laws. This will make them prescribe appropriate penalties for culprits. Consequently, it is suggested that, the park authorities should combine both traditional and modern concepts of law enforcement techniques to protect the resource.

Further studies

The study unearthed a lot more researchable topics and it is here recommended that individuals and research institutions are encouraged to embark on such studies. This is expected to broaden the horizon of poaching as a problem and therefore the suggestions that may result in finding solution to the problem. Some of these are:

- Rapid population growth in the Cape Coast Municipality vis - a - vis demand for forest resources and farm produce, impact on fringe lands and their total effects on the park;
- How population growth in the fringe communities lead to poaching in the park;
- Community involvement in the management of the park;
- The effectiveness and relevance of wildlife laws and polices in the country today.
- The impact of land tenure systems on the management of biodiversity conservation in KCA

Finally the report is recommended to traditional authorities, communities and policy makers in their collective efforts at finding solutions to environmental problems particularly wildlife conservation, poaching and livelihood systems in the KCA.

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APPENDIX

QUESTIONNAIRE AND INTERVIEW GUIDE

Wildlife Conservation, Poaching and Livelihood; A Case Study of Kakum
Conservation Area

SECTION A: PERSONAL CHARACTERISTICS

1. Questionnaire No.
2. Date Interviewed.....
3. Village/Community
4. Sex: 1. Male [] 2. Female []
5. Age:.....
6. Marital Status:
 1. Single []
 2. Married []
 3. Divorced []
 4. Widowed []
 5. Consensual Union []
 6. Other (specific)..... []
7. Level of education attained:
 1. None []
 2. Primary []
 3. Middle/JSS []
 4. Second Circle []

- 5. Tertiary
- 6. Non-formal (but can read and write)
- 7. Other (specific).....

8. Ethnicity/Tribe

- 1. Fante
- 2. Asante
- 3. Northern
- 4. Other (specify).....

9. If migrant, state reason(s) for migration.

- 1. Farming
- 2. Trading
- 3. Hunting & gathering
- 4. Tour guiding
- 5. Other (specify)

10. Religious affiliation

- 1. Christian
- 2. Moslem
- 2. Traditional
- 3. Others (specify)
- 4. None

11. What is your primary occupation?

- 1. Plantation crop farming
- 2. Food crop farming

- 3. Trading []
- 4. Hunting []
- 5. Bushmeat trading []
- 6. Other (specify)..... []

12. What is your minor occupation?

- 1. Plantation crop farming []
- 2. Food crop farming []
- 3. Trading []
- 3. Hunting []
- 4. Bush meat trading []
- 5. Other (specify)..... []

13. Do you belong to any farmers/hunting association?

- 1. Yes []
- 2. No []

14. If yes, how does it help you in your farming activities? Rank your response.

- 1. Land acquisition []
- 2. Credit/capital []
- 3. Inputs []
- 4. Marketing []
- 5. Labour []
- 6. Extension/Support services []
- 7. Other (specify)..... []

(Rank order: 1= highest; 2=medium; 3=lowest)

If No, Skip

SECTION B: HOUSEHOLD CHARACTERISTICS

15. Who is the head of the household?

1. Male [] 2. Female []

16. What is the size of the household?.....

17. How many of the people in the household are your own children?.....

18. Migration of members of household, if any, during the last five years.

Member of Household	Where to		Duration		Reason
	In- mig.	Out- mig.	Rural Area	Urban Centre	
1					
2					
3					
4					
5					

19. Does any member of the household own this house?

1. Yes [] 2. No []

20. List building materials used, and explain why.

21. Facilities in the house

1. Energy []
2. Water []

3. Toilet

4. Others (specify).....

22. What are your financial obligations?.....

SECTION C: FOREST RESOURCES

23. List the forest resources of this settlement in order of importance to you

1. Timber

2. Bush meat

3. Firewood

4. Building materials

5. Tourist attraction

8. Others (specify).....

(Rank order: 1= highest; 2=medium; 3=lowest)

24. Do you depend on any of these resources for your living?

1. Yes

2. No

If No skip to 26

25. If Yes, how?

1. Food

2. Building materials

3. Household items (mortars, pestles, etc.).

4. Others (specify)

26. How often were you / did you see others making game 5 years ago?

- 1. Daily
- 2. Weekly
- 3. Monthly
- 4. Seasonally
- 5. Other (specify).....

27. These days how often do you / do you see others making game?

- 1. Daily
- 2. Weekly
- 3. Monthly
- 4. Seasonally
- 5. Other (specify).....

28. Have you ever been attacked by any wild animal?

- 1. Yes
- 2. No

29. Do you have any weapon to protect yourself in case of an attack?

- 1. Yes
- 2. No

30. You are going to help me to name forest products that were here and those that can no longer be found here. Name them.

A. Trees and other plant species

Name/Type	Available	Non-available
1.		
2.		
3.		
4.		

B. Animals

Species	Available	Non-available
1.		
2.		
3.		
4.		

C. Other NTFPs

Name/Type	Available	Non-available
1.		
2.		
3.		
4.		

31. Why are they not available now? Rank your responses.

1. Excessive exploitation []
2. Extensive cultivation []
3. Building and construction []
4. Wildfires []
5. Others (specify).....[]

(Order: 1 = highest... 5 = lowest)

32. How has their non-availability affected your household or community?

1. Unemployment []
2. Out-migration []
3. Poverty []
4. Schooling []
5. Other social vices (specify)..... []

33. The following are some of the measures that can be taken to replenish the forest. Rank responses

1. Re-afforestation []
2. Law enforcement []
3. Environmental education []
4. Community resource management []
5. Alternative livelihood options []

(Rank order: 6= highest....1=lowest)

34. Are you prepared to contribute to these efforts?

1. Yes { } 2. No. { }. 3. Don't know []

Explain

SECTION D: CONSERVATION

35. What benefits do you derive from KCA

- | | |
|-------------------------|-----|
| 1. Employment | [] |
| 2. Ecological | [] |
| 3. Tourism | [] |
| 4. Education | [] |
| 5 Others (specify)..... | [] |

36. Rank the activities (in order of importance), which were carried out, in the forest before the reservation.

- | | |
|---------------------------------|-----|
| 1. Farming | [] |
| 2. Hunting | [] |
| 3. Logging | [] |
| 4. Gathering of forest products | [] |
| 5. Others (specify)..... | [] |

(Rank order: 1= highest...5=least)

37. Do you benefit from the reserve now?

1. Yes [] 2. No [] 3. Don't Know []

38. What do you think of the government taking up of people's land for reservation?

1. Good [] 2. Bad [] 3. Indifferent []

39. Should reserves be abolished?

1. Yes { }, 2. No { }

40. What do you think of the size of the reserve in your locality?

1. Too big []
2. Too small []
3. Just okay []
4. No idea []
5. Other (specify)..... []

41. Who manages the reserve?

1. Government []
2. Community []
3. Gov't & community []
4. Other (specify)..... []

42. Have you or the community had any conflict with management before?

1. Yes [] 2. No []

43. If yes what was/were the cause(s)?

1. Killing of animals from the reserve []
2. Timber products []
3. Picking NTFPs []

4. The community wanted some benefits from
the management of the reserve []

44. Have you or the community ever been involved in their activities?

1. Yes { } 2. No. { }

45. If yes, how?

1. By employing community members to work in the reserve []

2. Reserve management appealed for communal labour []

3. Emergency help due to fatalities []

4. Others (Specify)..... []

46. Will the community's participation (in the reserve management) help in the
management of the reserve?

1. Yes { } 2. No { }

47. How can community participation help in the reserve management

1. Community feels ownership []

2. Stop poaching []

3. Look for other means of livelihood []

SECTION E: LIVELIHOOD

48. Which of these livelihood support programmes have you benefited from?

1. Bee keeping []

2. Grass-cutter rearing []

3. Snail rearing []

4. Soap making []

- 5. Mushroom growing []
- 6. Kuapa-kookoo activities []
- 7. Others (Specify)..... []

49. Which of these livelihood support programmes are you still engaged in?

- 1. Bee keeping []
- 2. Grass-cutter rearing []
- 3. Snail rearing []
- 4. Soap making []
- 5. Mushroom growing []
- 6. Kuapa-kookoo activities []
- 7. Others (Specify)..... []

50. What income generating activities could you suggest for implementation in order to create employment in your community?

- 1. Bee keeping []
- 2. Grass-cutter rearing []
- 4. Soap making []
- 6. Mushroom growing []
- 7. Kuapa-kookoo activities []
- 8. Others (Specify)..... []

51. What other things would you suggest to be made so that you benefit from the park?

- 1. Employment as park workers []
- 2. Formation of Community Resource Management Areas []

3. Formation of community-based associations []

4. Others (Specify)..... []