Brandenburgische
Technische Universität
Cottbus

Policy and Environmental Communication in Mitigation of Non-Sustainable Forest Exploitation in Cameroon: An Impact Assessment of Anglophone Cameroon

Strategie und Umweltkommunikation zur Milderung von nicht-nachhaltiger Forstwirtschaft in Kamerun: Eine Folgenabschätzung des anglophonen Kameruns

A thesis approved by the Faculty of Environmental Sciences and Process Engineering at the Brandenburg University of Technology Cottbus, in partial fulfillment of the requirement for the award of the academic degree of Doctor of Philosophy (Ph.D) in Environmental and Resource Management

By

Victor Ngu Cheo

BA (Yaoundé) MA (Ibadan)

Matriculation Number: 2407370

Place of Birth: Wum, North West Region, Cameroon

Supervisor: **Prof. Dr. phil. habil. Wolfgang Schluchter, BTU Cottbus, Germany**

Supervisor: **Prof. Dr. rer. nat. habil. Hans-Jürgen Voigt, BTU Cottbus, Germany**

Date of Oral Examination: **28th October 2010**

DECLARATION

I hereby declare that this dissertation is the result of my original research work carried out at the Brandenburg University of Technology Cottbus, Germany within the framework of the International PhD (*Doctor of Philosophy*) programme in Environmental and Resource Management.

Professor Wolfgang Schluchter, Head of the Chair of Environmental Issues in the Social Sciences of the Brandenburg University of Technology Cottbus, has been the main supervisor of this research, while Professor Hans-Jürgen Voigt Head of the Chair of Environmental Geology at the Brandenburg University of Technology Cottbus, Germany, was co-supervisor.

I hereby admit that this dissertation has never been submitted in whole or in part for a degree at Brandenburg University of Technology Cottbus, or elsewhere. References to other people's research have been duly cited and acknowledged in this research work accordingly.

Victor Ngu Cheo

BA (Yaoundé) MA (Ibadan)

Matriculation Number 2407370

DEDICATION

This dissertation is dedicated to my three daughters; **Germaine-Ashley Nwesheligi Cheo, Erika-Kamille Dzekamo Cheo** and **Lea-Karen Ngwimetoh Cheo**, my guardians in Germany, **Erika and Rudolf Schirmer**, and naturally to my beloved wife, **Adeline Abimnwi Awemo Cheo,** "the rock of my life," for their endurance, encouragement, support and understanding throughout this exacting phase of my academic career.

ACKNOWLEDGEMENT

I am highly indebted to my main supervisor, Prof. Dr. Wolfgang Schluchter for his alacrity and diligence in supervising this work. As a point of fact, that this work has attained this quality and readability is thanks to his meticulous guidance and intellectual insight. In a similar way I extend my sincere gratitude to Prof. Dr. Hans-Jügen Voigt, my second supervisor whose advice and suggestions greatly enhanced my knowledge on the practical applicability of this research endeavour as well as in proffering solutions to the issues at stake in this research.

I avail myself of this opportunity to thank the following authorities of the University of Buea; Prof. Vincent Titanji, Vice Chancellor, Prof. Nalova Lyonga, Deputy Vice Chancellor in charge of Teaching and Development of ICTs, Prof. Joyce Endeley, Director of Academic Affairs, Dr Balgah Sounders, Chief of Service for Admissions and Records in the Faculty of Social and Management Sciences and Dr Talla Richard of the Research and Cooperation Division, for their encouragement and support

Special thanks to my former Dean and former Vice Chancellor, Prof. Cornelius Lambi without whose relentless efforts I would never have had my initial study leave to embark on this lofty academic journey. His constant panoramic support has been a daily motivation for my success. I owe no less to Professor Herbert Endeley (RIP), former Registrar and Deputy Vice Chancellor in charge of Cooperation.

My profound gratitude also goes to my mother, Thechla Dzekamo Cheo (RIP), for her unreserved contribution to my moral and academic wellbeing. Without her altruism and assiduity, I would never have gone this far in my social and academic life. Special thanks to my sister and niece, Mrs. Killi Florence and Eleanor Killi respectively for their moral and financial support as well as the support of Mr. and Mrs. Sadouma Roger, Dr and Dr (Mrs) Francis Cheo and Mr. and Mrs. Fidelis Makwondo Cheo. I will forever be indebted to Mr. and Mrs. Pascal Nji Atanga and Mr. and Mrs. Charly Ndi Nchia for always being

there for me whenever I needed their support. I owe no less to Mr. and Mrs. Abety Aloysius, Mr. and Mrs. Ndeh Christopher, Dr. Alemagi Dieudene, and Dr. Collins Ughochukwu, and Mrs. Minang Tabitha

Special thanks to the family of Mr. and Mrs. John Awemo for their invaluable panoramic support. Without your love, material and financial support throughout these years for me and my family, I probably would have abandoned the show. Thanks most especial to Mrs. Awemo Ruphina and my brothers-in-law, Dip.-Ing. Nchungong, Dr. Anuashie and Awemo for “carrying my cross” stoically. Ngwi, Lizzette and Joan, your prayers and baby-sitting in turns, enabled me to carry out field research for this study. Special thanks also go to Ms. Mubah Erica for all her support. The two Mubahs; Kelvin and Brian, your compound tricks afforded me some pleasurable distraction.

Last but not least, I thank God Almighty for all the special Graces received throughout the period of this study and for the moral and spiritual contribution of Reverend Dr. Thomas Olickal.

ABSTRACT

The economic crises of the mid 1980s and 1990s due to a fall in economic productivity inflicted serious negative consequences on Cameroon's forest ecosystems and forest resources which became the target of intense exploitation for multiple purposes. A forest policy reform at the behest of the World Bank was intended to regulate forest exploitation in a sustainable way. More than a decade since the inception of this policy, this study, through a three-tier methodological approach of survey, content analysis and observation, seeks to assess policy impacts per se, as well as the role of environmental communication in mitigating non-sustainable forest exploitation in Anglophone Cameroon. The study also investigates a valid and reliable option for the sustainable management of forest resources, by comparing and contrasting the two operational forest management paradigms. The outcome of the investigation reveals that both policy and environmental communication have a more positive impact in the community forest area than in the state-managed forest area, implying that the former is a better forest management option than the latter. However, forest sustainability is still at stake in both areas, due, generally, to bad forest governance such as corruption, minimal public participation, lack of transparency and accountability, as well as the ubiquitous presence of poverty, unemployment and inadequate public access to socio-economic development indicators. To this end, the study proffers some robust recommendations that if implemented will greatly enhance the badly needed forest sustainability.

Key Words: Policy, Environmental Communication, Forestry, Cameroon.

KURZFASSUNG

Die Wirtschaftskrisen von Mitte der 1980er und 1990er Jahre aufgrund des Rückgangs der wirtschaftlichen Produktivität hatten schwerwiegende negative Auswirkungen auf die Waldökosysteme und Waldressourcen Kameruns. Die Ausbeutung der Wälder und deren Ressourcen für verschiedene Zwecke war dadurch intensiver geworden. Eine Waldpolitikreform auf Anweisung der Weltbank sollte die Waldbewirtschaftung in einer

nachhaltigen Weise regeln. Mehr als ein Jahrzehnt seit Beginn dieser Politik ist verstrichen. In dieser Studie sollen durch einen dreistufigen methodischen Ansatz der Befragung, Inhaltsanalyse und Beobachtung die Auswirkungen der Politik selbst sowie die Rolle der Umweltkommunikation bei der Minderung von nicht-nachhaltiger Waldbewirtschaftung im englischsprachigen Gebiet Kameruns beurteilt werden. Die Studie untersucht auch eine gültige und zuverlässige Option für die nachhaltige Bewirtschaftung der forstlichen Ressourcen durch Vergleich und Gegenüberstellung der beiden operativen Waldbewirtschaftungsparadigmen. Die Untersuchungsergebnisse zeigen, dass beide, die politische und die ökologische Kommunikation, eine positivere Auswirkung sowohl auf die kommunale Forstfläche als auch auf das staatlich verwaltete Waldgebiet haben. Dies bedeutet, dass die erstere eine bessere Option der Bewirtschaftung der Wälder als die letztere ist. Allerdings ist die Nachhaltigkeit der Wälder in beiden Bereichen noch in Gefahr: im Allgemeinen wegen zu schlechter Forststaatsführung wie Korruption, minimaler Öffentlichkeitsbeteiligung, mangelnder Transparenz und Verantwortlichkeit ebenso wie aufgrund ubiquitär vorhandener Armut, Arbeitslosigkeit und unzureichendem Zugang der Öffentlichkeit zu sozio-ökonomischen Entwicklungsindikatoren. Die Studie bietet zu diesem Zweck einige solide Empfehlungen, die, wenn richtig umgesetzt, die dringend benötigte Waldnachhaltigkeit wesentlich verbessern wird.

Schlagworte: Umweltpolitik, Umweltkommunikation, Forstwirtschaft, Kamerun.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PLATES

LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
A/L	Advanced Level
ASSOFOMI	Association of Oku Forest Management Institutions
BA	Bachelor of Arts
BAC	Baccalaureate
BSc.	Bachelor of Science
CAMPER	Cameroon Programme for Environmental Reform
CAR	Central African Republic
CDC	Cameroon Development Corporation
CFA	Communauté Financière Africaine
CFAF	Communauté Financière Africaine Franc
CFP	Coastal Forest Programme
CIAT	Chartered Institute of Agricultural Technologists
CIFOR	Center for International Forestry Research
CIGs	Common Initiative Groups
EC	Environmental Communication
DFID	Department for International Development
DGIS	Directorate General International Cooperation
DRC	Democratic Republic of Congo
FAO	Food and Agricultural Organization of the United Nations
FCFA	Franc Communauté Financière Africaine
FOB	Free On Board
FSLC	First School Leaving Certificate
GDP	Gross domestic product
GEF	Global Environmental Facility of the World Bank
GFW	Global Forest Watch
GNP	Gross National Product
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)

HEVECAM	Hévéa du Cameroon
HIV	Human Immunodeficiency Virus
IBRD	International Bank for Reconstruction and Development
ICDPs	Integrated Conservation and Development Projects
ICRAF	International Centre for Research in Agroforestry
IK	Indigenous Knowledge
IMF	International Monetary Fund
IRA	Institut de la Reherche Agronomique
IRZV	Institut de la Recherche Zootechnique et Vétérinaire
ITTO	International Tropical Timber Organization
IUCN	World Conservation Union
M.A.	Master of Arts
MCR	Mount Cameroon Region
MKR	Mount Kilum Region
MINAGRI	Ministry of Agriculture
MINEF	Ministry of Environment and Forestry
MINFOF	Ministry of Forestry and Wildlife
MOCAP	Mount Cameroon Prunus
MSc.	Master of Science
NARP	National Agricultural Research Project
NE	North East
NEMP	National Environmental Management Plan
NFAP	National Forestry Action Programme
NFDA	National Forest Development Authority
NGOs	Non-Governmental Organisations
NTFPs	Non-timber forest products
ODA	Overseas Development Administration
O/L	Ordinary Level
ONADEF	Office National de Développement des Forêts
PAMOL	Plantations Public Limited Company
PHD	Doctor of Philosophy

SAFACAM	Société Agricole Forestière du Cameroon
SGS	Sociétè Générale de Surveillance
SNV	Netherlands Development Organisation
SOCAPALM	Société Camerounaise de Palmeraies
UFA	Unités Forestières d`Aménagement
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCSD	United Nations Commission for Sustainable Development
UNEP	United Nations Environmental Programme
UNRISD	United Nations Research Institute for Social Development
USAID	United States Agency for International development
WCED	World Commission of Environment and Development
WCMC	World Conservation Monitoring Centre
WRI	World Resource Institutes
WWF	Worldwide Fund for Nature

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Approximately half of the forest that initially covered our planet has been cleared, while another 30 percent have been degraded or replaced by secondary forests (GFW, 2000). Anxieties about forest decline is significant because forests provide a complex array of ecological, social and economic goods and services to humans, including protection of water and soil resources and storing carbon in biomass. According to GFW (2000), Forests help to slow global warming, by acting as sinks for vast quantities of carbon. They also control flooding, purify water and cycle nutrients and soil, ultimately influencing food production for billions of people. They also house an incredible array of living organisms that provide the genetic material for valuable products and a foundation for the resilience of natural systems.

About 25% of the world's people depend to some extent on forest resources for their livelihood, and about 500 million people living in or near dense forest, most of them extremely poor, depend crucially on it for their subsistence or livelihood. According to Ngwa and Fonjong, (2002) forest plays a strategic role in foreign earnings brought through timber exportation and tourism. It satisfies high local demand for fuel wood, building materials, meat from wildlife, parkland, medicinal plants, etc. Forest equally provides habitat for other ecosystems and wildlife. The International Labour Organization estimates that forestry and forest product industries provide the full-time equivalent of 47 million jobs worldwide.

Meanwhile, the complex and composite demand for forest and forest products makes the resource competitive among many users and consequently renders most of its components endangered. Indeed, forest vulnerability is compounded by the fact that it is very easy to exploit when compared to other natural resources like minerals such as copper, bauxite or petroleum, which require a high degree of technology and expertise (Finance and Development, 2003). Hence, the urgent necessity for appropriate measures

to be expedited to safeguard remaining forests, located mostly in the Amazon Basin, Central Africa, Canada, Southeast Asia, and Russia (GFW, 2000).

Degradation and clearing of forests worldwide over the past 150 years has contributed about 30% of the carbon dioxide that has accumulated in the atmosphere (Global Forest Watch, 2000; Finance and Development, 2003). According to World Bank, (2002) between 17 million and 20 million hectares of tropical moist forests disappear each year. This concern, alongside associated consequences actuated the world`s nations to discuss the emerging threats to the earth`s environment at the 1992 United Nations Conference on Environment and Development "Earth Summit" in Rio de Janeiro. Since then, forests have gained prominence on the international agenda of global environmental problems. Raison et al, (2001) posit that the set of non-binding but authoritative principles on forest management agreed at during the summit include an agreement by governments to develop sound criteria and guidelines for the management of all types of forests.

However, despite the considerable political attention accorded forests thus far, not much has been achieved. Forest loss and degradation in the tropics have continued at an alarming rate while the demands of present societies also continue to actuate the elimination of forest cover in developing countries. The United Nations Food and Agricultural Organization (FAO), in its Global Forest Resources Assessment 2000,main report, estimates that during the 1990s, 95 million hectares of forests were lost, most of which occurred in the tropics due to conversion to agriculture, forest plantation and other land uses (Wunder, 2000). It is estimated that agricultural encroachment alone accounts for about 4 million hectares of forest lost a year in Africa (Ngwa and Fonjong, 2002). However, the peak of global deforestation in the twentieth century is said to have been accelerated by unprecedented population growth, rapid technological change and the spread of trade-based commodity production, as an integral element in the upsurge of a global capitalist system (Wunder, 2000).

1.2 Forest in the Tropics

Forest is one of the most important and endangered natural resources in the tropics. It covers about 6% of the earth's land area compared to 12% a century ago (Ngwa and Fonjong, 2003; Ndenecho, 2005). They are found in the equatorial zones of Latin America, Africa and Asia. Apart from the economic value of the commercial logs, tropical forests are also important sources of non-wood products. Medicinal and aromatic herbs, flowers, valuable fat and chemicals are available in the tropical forest. They may be removed without cutting down the trees. *Cinchona* bark, critical as a source of quinine for malaria control in the last century, comes from trees in the tropical forest. The income from non-wood products is an important source of income for local indigenous rural populations. In addition, the virgin tropical forest has been a major source of fruit trees. Many commercial fruits important in world markets were native to the tropical forests of Asia and Africa.

Tropical forest is an extremely important source of genetic materials, both plant and animal. More than half of the world's species of plants and animals, and insects are native to the tropical forest. Tropical forests, reportedly, harbour a great deal of the world's terrestrial biodiversity. Generally, they constitute the basis of natural capital through timber, mineral, and energy extraction alongside non-consumptive uses like ecotourism that help fuel local and national economies. Tropical forests are also home to at least fifty million forest inhabitants worldwide. Thus, they sustain people and their environment by protecting water resources, soils, climate, and species diversity from the effects of erosion, salinisation, fire and floods, and provide habitat for an estimated 50% of all the world's plants and animal species (MINEF, 2002; Lima, 2000; Global Forest Watch, 2000; Gillis, 1987).

The tropical rainforest as it is known today seemed immense and almost indestructible. It first began to disappear in the Caribbean Island as early as 1671 after the sugar cane plantations swallowed up the forest of Barbados. Other islands in the region went through a similar experience, a foretaste of a global trend that has accelerated in the 20th century (Anil, 1982; Ndenecho, 2005). Each year, an area of about 130,000km^2 of forest is

cleared or burnt and about 56% of the world's tropical forests have been cleared or damaged (Miller, 2001). This appalling rate of destruction threatens to condemn the rainforest and its ecosystems. Moreover, it is a serious issue not so much for reasons of future supplies of hardwood logs for furniture, plywood and wood chips, but because unlike oil and hard mineral deposits, stands of virgin tropical timber have economic values well in excess of the value of the resource that might be extracted.

The bad news concerning the future of tropical forests, according to Gillis, (1987) is that deforestation rates have been and are rising through the world, particularly in Asia and Africa. In the tropics, deforestation rates are highest in Southeast Asia, followed by Africa and then Latin America. A total forest area of 450 million hectares has been lost since 1960, with one third of this occurring in Asia and 18% each in Africa and Latin America (WRI, 1997 in Wunder, 2000). Meanwhile Myers, (1994) found out in 1989 that out of an original 1400 million hectares of moist tropical forest cover, only 800 million (57%) was remaining. According to Lima, (2001) only about half of the mature tropical forests in the world still stand today. The latest estimates suggest that between 750 to 800 million hectares of the original about 1.6 billion hectares have been felled. The FAO/UNEP report estimates that an area of about 71,000 km^2 of tropical forest is cleared annually and worldwide deforestation rate stands at about 0.6% with only minor differences among continents. It should, however, be noted that this is only an average as the rate range from as low as 0.2% per year in the Congo/Cameroon basin to over 1% for Madagascar. This unprecedented rate of deforestation of the tropical forest over the last fifty years has led to the growing concern for the fate of those areas which are remaining as well as the impact of deforestation on the earth's climate, biodiversity and the local people whose livelihoods depend on the forest (MINEF, 2002). In fact according to Jeffrey A. Sayer, the former Director General of CIFOR, cited in Wunder, (2000):

> *Tropical deforestation has now been at the centre of the environmental stage for two decades. The issue has generated intense emotion, lofty political commitments, a plethora of reports, plans and strategies and a surprisingly large allocation of international funding. Yet, disturbingly, it is doubtful if all this activity has had much impact on saving the forests.*

1.3 An Overview of Forests in the Congo Basin (Central Africa)

The Congo Basin Forests span six countries namely, Equatorial Guinea, the Republic of Cameroon, the Central African Republic (CAR), the Democratic Republic of Congo (DRC, formerly Zaire), the Republic of Congo and Gabon. Its tropical forests, which stood at over 198 million hectares in 1995, are the second largest contiguous rain forest in the world after those of the Amazon Basin, and the largest in Africa. Between 1980 and 1995, on the average, an area the size of Jamaica (1.1 million hectares) was cleared each year in the region (Global Forest Watch, 2000).

According to data compiled in 1992, of the 40,850 plant taxa already enumerated in Central Africa, approximately 16% are endemic to the area and 175 classified as rare (UNEP, 2002 cited in Awemo, 2006). Meanwhile, the Republic of Cameroon disposes of about 8000 forest plant species while the CAR is home to 1000 endemic plant species (Awemo, 2006). Also, about 63% of Central African countries' population live in rural areas and are mostly dependent on forest resources for wood (construction and fuel), food, medicine, household items and clothing. Some of these resources, especially medicinal plants are traded internationally and this contributes to the economy of the countries of this region.

The rainforest in Central Africa support an extensive forest cover throughout the sub-region, except the Northern parts of Cameroon, Chad and CAR. Most countries in this sub-region, with the exception of Chad, have at least 50% of forest cover. Chad, because of its northerly location and arid environment has only 10% forest cover. Tropical forests are a predominant type in the sub-region, and these forests include montane forests, freshwater swamp forests and lowland evergreen broadleaf rainforest. Savanna cover is also significant in the northern parts of Cameroon, CAR, Chad, and southern DRC. According to Table 1 below, Cameroon possesses the highest number of plant species classified as threatened. It also has the highest number of threatened species in general. It must, however, be pointed out that data on this table is inadequate or incomplete because of a number of reasons some of which include unseriousness of departments and ministries in charge of documenting such information and poor work done by those in the

field, etc. Meanwhile, poor logistics and the lack of proper enforcement mechanism of protection measures have contributed to excessive rates of deforestation.

Table 1: Threatened Species in Central Africa in 2000

Country	Mammals	Birds	Reptiles	Amphibians	Fishes	Inverts	Plants	Total
CAR	12	3	1	0	0	0	10	26
Chad	17	5	1	0	0	1	2	26
Congo	12	3	1	0	1	1	33	51
DRC	40	28	2	0	1	45	55	171
Equatorial Guinea	15	5	2	1	0	2	23	48
Gabon	15	5	1	0	1	1	71	94
Sao Tome and Principe	3	9	1	0	0	2	27	42
Cameroon	37	15	1	1	27	4	155	240

Source: Awemo, 2006

1.4 The Republic of Cameroon: An Overview

The Republic of Cameroon is found in the Central African Region and located just north of the Equator. It is bordered by Nigeria to the west, Chad to the northeast, Central African Republic to the east, and Congo, Gabon and Equatorial Guinea to the south (see Fig. 1 below). Cameroon is located between latitudes 2° and 13° N and longitudes 8° and 16° E of the Greenwich Meridian with a total surface area of 475,442km^2 (183,569 sq miles). Yaoundé is the political capital. Cameroon opens at the Gulf of Guinea (southwest) into the Atlantic Ocean and cuts across three major vegetation belts (the dense equatorial forest in the south, and the Sudan and Sahel savannas in the north). It has rich volcanic soils in the south. Cameroon has two official languages (French and English) and about 279 local languages (Awemo, 2006; MINEF, 2003). She is often referred to as "Africa in miniature“, because it exhibits all the major climates and vegetation of the continent: mountains, desert, rain forest, savanna grassland, and ocean coastland (Embola, 2001). This natural diversity is believed to favour the existence of one of the richest ecological communities on earth (Ndenecho, 2005).

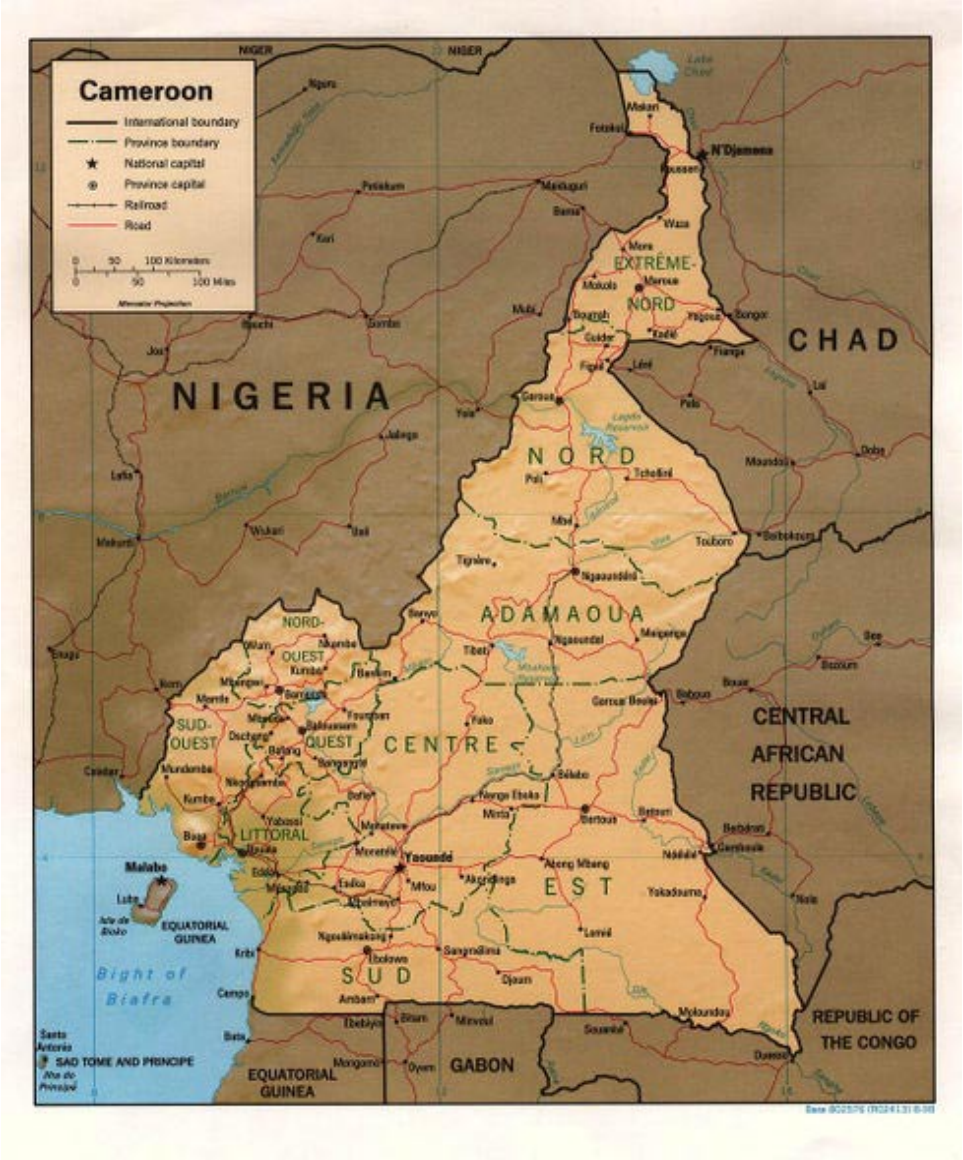

Figure 1: Map of Cameroon

Source: Wikipedia, 2009

Economy wise, Cameroon's gross domestic product is derived from a relatively diversified product pattern dominated by crude oil, cocoa, coffee and timber. Industrial development is mainly concentrated in the coastal zone while crop, livestock and forestry production are the main economic activities elsewhere in the country. The main agricultural products in the forest zone are cocoa, coffee, rubber, bananas and palm oil, with cotton, groundnuts, maize and livestock production predominating in the north (MINEF, 2003).

The population of Cameroon according to the UN was 4,955 in 1950, 5,273 in 1960 and 8,444 in 1980. Cameroon's population stood at 12.3 million in 1987, approximately 15 million in 2000 and 17.5 million in 2005 (Ndenecho, 2005). This gross increase in population has accelerated the rate of desertification as it causes people and their livestock to move further into marginal land. The productivity of the land is falling because of shorter periods of fallowing, soil degradation, overgrazing and deforestation. Population increase led to an increase in the demand for forest resources, drops in groundwater level and may further reduce rainfall in semi-arid regions in the Northern Provinces. There will, of course, be a consequent reduction in land distribution. Figure 2 below shows that the per capita land holdings assuming a constant family size of 5-7 children per family dropped from 3ha/person in 1960 to 2.1ha in 1975, 0.9ha in 2000 and will consequently drop to 0.4ha by 2025 (Awemo, 2006; Ndenecho, 2005). Careful population planning is required in order to reduce pressure on biological and land resources.

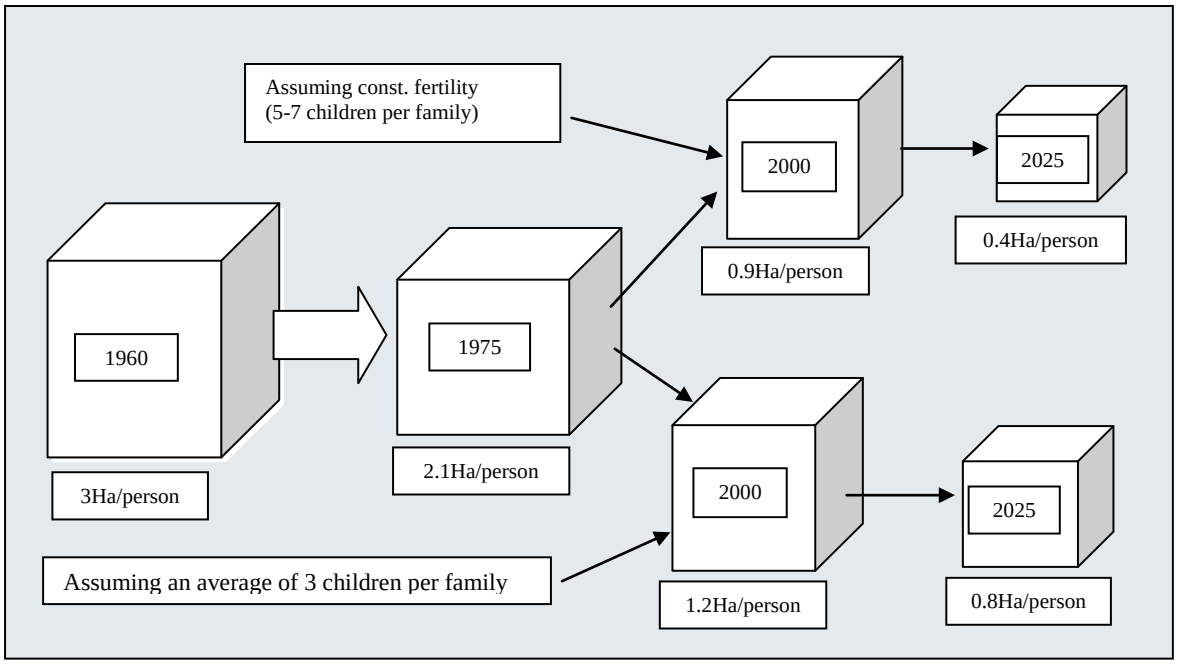

Figure 2: Cameroon's Cultivatable Land Area from 1960-2025

Source: Ndenecho, 2005

1.4.1 Current Status of Cameroon's Forests

Cameroon's forests resources are estimated to cover 22 million hectares (an approximate area of 200,000 km^2), of which 14 million are tropical forest and 8 million in the Savanna biome (CAMPER/USAID, 1993). She has the second forest reserve in terms of surface area after the Democratic Republic of Congo as well as the second biodiversity reserve after Madagascar (Ndenecho, 2005). Cameroon's forest vegetation comprises three types; the tropical rainforest, the swamp forest (mangrove forest), and the savanna area. The rainforest covers about 42% of the country and is of global environmental importance. The rainforest flourishes in the South Cameroon Plateau. This forest type is of interest to the international community because of its vast biological diversity, its role in the global ecosystem and climate. It is often described as immense, dense, and luxuriant and supports a wide variety of plants, animals, insects, etc, some of which are not in any other ecosystem. It occupies two swampy areas along the coast. These are the Douala basin and the southern parts of the Ndian basin that is the regions around Rio-de-Rey and from Bamboo through Tiko to Modeka and down to the whole of Douala basin. This region is characterized by estuaries, swamps and innumerable creeks. There is therefore little farmland (Ndamukong, 2001).

The tropical rainforest contains trees of economic importance such as iroko *(Milicia excels)*, mahogany *(Swietenia macrophylla)*, obeche *(Triplochiton scleroxylon)*, ebony (Diospyros ssp.) and many others. Cameroon has one of the largest reserves of rainforest left in the world, which extends into neighbouring Congo, Gabon and DRC (Ndenecho, 2005; Ngwa and Fonjong, 2002). There is a great deal of concern about the rain forest because the rate of destruction is higher than previously thought. Agriculture (subsistence, commercial and industrial) is the main human activity in this area. Consequently, deforestation is an excruciating problem here with consequences such as climate change, reduction of biodiversity, soil degradation, and extinction of species and revenue loss (Ndenecho, 2005; Ndamukong, 2001).

Meanwhile the Savanna forest type correspond to the highland area north of the forest zone and has an average annual rainfall of 252.5mm and is well drained that it lacks

sufficient moisture to support groups of large forest tress, hence, the prevalence of the savanna (ibid, 2005). On his part, Ndenecho, (2005) states that the term Savanna is usually employed to describe the grassland vegetation which covers the north of the country. Because of reduced precipitation from south to north, the area is less capable to support luxuriant vegetation or forest. This is a fragile ecosystem whose ecological equilibrium has been greatly disturbed by man. Three main types can be distinguished; the Guinea savanna, the Sudan savanna and the Sahel savanna.

Cameroon rain forest and its fascinating montane forest niches and savanna biomes offer fascinating flora, fauna, climates, cultures and terrains. Cameroon mountain forests have a high number of endemic species of plants, birds, amphibians, reptiles, mammals and insects. In Western Cameroon, volcanic activity in the last one hundred million years has lead to the formation of a chain of mountains of sufficient height and the development of one of the rarest of West African habitats, that of montane forest. Western Cameroon (Northwest and Southwest Regions), also known as Southern Cameroon, has less than 1% of the total area of flora of the West Tropical African region, and holds about 50% of the total plant species. The Montane Forest of Cameroon, West of the country is unique with the highest levels of endemism in the whole of Africa, particularly among birds and vascular plants. Despite their scientific importance and natural resource potentials the montane forest of Western Cameroon are receiving little attention (Ndenecho, 2005; Moreau, 1966; Stattersfield et al, 1998). Furthermore, these mountainous environments are fragile and delicate ecosystems. The intensive exploitation of this area has left imprints with the mountain landscape.

Generally, Cameron forests provide a wide range of products and services to the population, particularly the rural poor. According to Ndamukong, (2001) forest offers a wide range of woody and non-woody products which are used as food, in health, construction, art and crafts as well as for decoration. However, forests and ecosystems are being degraded through exploitative logging, fuel wood demand, clearing for agricultural activities, overgrazing and fires. It has been estimated that about 200,000 hectares of forests are lost every year to these activities, of which 75.000 to 95.000 hectares are taken up by shifting cultivation alone. Cameroon has thus lost over 60% of its forest due to

deforestation. In some areas of cleared forest, economic trees introduced by man such as rubber and oil palms replaced the original forest. The coastal regions, especially the slopes below Mount Cameroon and the Ndian basin are famous for oil palms, rubber, tea, and banana cultivation. It is within the coastal zone that we have most of the major plantation companies such as CDC with about 22,000 hectares (of rubber, oil palm trees, banana, tea, peppers), PAMOL at Lobe with about 9,000 hectares (of palm trees, rubber), SAFACAM at Disnature, littoral (rubber), SOCAPALM (palm oil plantation) and HEVECAM (rubber) (Ndenecho, 2005; Ndamukong, 2001; Essama-Nssah et al, 2002). Between 1984 and1994 about a million hectares was lost. During the same period annual deforestation rate stood at 0.8% 0f the remaining forest. Current deforestation rates stand at approximately 0.7% annually. Forest degradation is also a significant threat to forests. Cameroon has the second highest annual deforestation rate in the Congo Basin, after the Democratic Republic of Congo (Ndenecho, 2005).

1.4.2 Forest Contribution to National Economy

The logging industry is a mainstay of the national economy. Roughly 55,000 people are employed directly or indirectly in this sector (Essama-Nssah et al, 2002; GFW – Global Forest Watch, 2000; Ndenecho, 2005). Forest makes a major contribution to export receipts with timber accounting for about 28% of total export earnings, making it the second most important source of foreign exchange after petroleum (47%). This figure excludes the considerable levels of revenues lost to illegal logging each year (DFID, 2002). The economic solace gained by government finances from timber revenue became more critical during the early 1990s due to the decline in economic productivity and the low prices of some of Cameroon's other major commodities. In the face of negative growth during the later parts of the 1980s and the early 1990s, and a mounting debt burden, government obviously identified in timber, one sure means to mitigate the situation of inadequate finances. Total revenue generated by timber and sawn wood export in the same period was $233 million. Much of the production was concentrated in the country's five heavily-forested area with the East Province accounting for about 50%, followed by the South, Centre and Littoral (Tesi, 2004).

According to Table 2 below timber exploitation was again accelerated in the mid-1990s reaching an all-time high of 3.7 million cubic meters in 1996, an increase of half a million cubic meters over 1990 levels (Tesi, 2004; GFW, 2000). Meanwhile, the 1994 devaluation of the CFA led to an increase in production, partly because of reduction in transport cost which attracted new investment and made it more profitable to log remote areas and harvest lower-value species for the export market. Conversely, in 1998, however, industrial round wood production was down to slightly less than 3 million cubic meters as a result of the Asian economic crisis (GFW, 2000).

Plate 1: Round Hard Wood from the East Region

Source: Author's Collection

Table 2: Cameroon Industrial Round Wood Production and Export, by Volume 1961-98

Year	Industrial Round wood Production Volume (thousand cubic meters)	Industrial Round wood Exports Volume (thousand cubic meters)	Industrial Round wood Exports Value(thousand US$)
1961	758	165	5
1962	769	157	5
1963	799	207	6
1964	903	228	7
1965	1917	218	8
1966	994	286	9
1967	1,003	279	11
1968	1,064	364	14
1969	1,069	426	14
1970	1,195	511	15
1971	1,276	546	17
1972	1,287	515	18
1973	1,365	703	46
1974	1,493	647	49
1975	1,507	472	31
1976	1,721	599	49
1977	1,915	397	33
1978	2,154	654	79
1979	2,194	8,43	101
1980	2,196	743	114
1981	2,300	444	56
1982	2,324	448	46
1983	2,411	391	34
1984	2,576	496	33
1985	2,765	746	64
1986	2,779	411	37
1987	2,803	442	48
1988	2,708	538	75
1989	2,872	457	72

1990	3,136	623	180
1991	3,085	771	157
1992	2,929	680	205
1993	2,936	792	138
1994	3,311	1,255	161
1995	3,588	1,236	304
1996	3,733	1,307	267
1997	3,255	1,706	237
1998	2,980	1,280	190

Source: Tesi, 2004; GFW, 2000

Meanwhile by 1998, 479 logging companies were registered in Cameroon compared to 177 in 1990 and 106 in 1980. This reflects a trend toward increasing investment in this domain owing to the declining revenues from cocoa and other agricultural products. Other goods and services such as biodiversity and carbon stored in forests (a conservative estimate of at least 1.3 to 6.6 giga tonnes of carbon) are difficult to quantify economically, but represent sources of global value.

Table 3: Wood Exports and Export Value Added in Wood Processing, 1996

Product type	**Volume exported (m^3)**	**Volume of round wood equivalents processed (m^3)**	**Total export revenues (million CFA francs)**	**Avg. Export value per m^3 of raw log processed (CFA franc/ m^3)**	**Total export value added in transformation (million CFA francs)**
Raw logs	1,254,407	1,254,407	89,308	71,195	0
Sawn wood	236,340	675,257	60,369	89,401	12,294
Veneer and plywood	35,000	61,403	10,850	176,701	6,478
Total	1,525,747	1,991,067	160,527	337,297	18,772

Source: Essama-Nassah et al, 2002

1.4.3 Forest Inhabitants

In terms of forest inhabitants, the main inhabitants of the tropical forest regions of Cameroon are the Pygmies and the Bantus. The pygmies inhabit mostly the East and South provinces, wandering in the thick equatorial forest. They are great hunting communities and hunt animals such as elephants, gorillas, monkeys, etc, and also gather wild fruits for food. On the other hand, the Bantus inhabit the neighbouring forest areas close to the pygmies and also the savanna areas found at the northern fringe of the forest. They live in isolated villages in the forest and in most cases build along the road, forming a type of linear village. Examples of such villages in the South West Region are Ikiliwindi, Mato, Mbalangi and Kwakwa. These people clear a patch of woodland or forest, sow and harvest their crops year by year until decreasing yields show that the land is losing fertility and then they move to another area and clear new farms (Ndamukong, 2001).

Plate 2: The Bakas in Homestead, Jengi, East Cameroon

Source: Author's Collection

1.4.4 Biodiversity Potential

The highly diverse forests of Cameroon are representative of the biological diversity of Forests in the Congo Basin which is home to about 80% of Africa`s moist forests and 20% of the world`s tropical moist forests. Biodiversity in the moist tropical forest ecosystems of Cameroon is among the most extensive and unique to be found, both in Africa and across the globe. This, perhaps, justifies why these ecosystems are high on the protection and conservation list of international NGOs. Cameroon is also one of the few places in the world where tropical montane forest systems are found. These are particularly important centers for plant and faunal endemism. On Mount Cameroon alone, over 45 endemic plant species have been described (IUCN, 1994). Cameroon is also an important site for the so-called charismatic fauna such as elephants, western lowland gorillas, leopards, lions, forest buffalo, bongo antelope, chimpanzees, and has the only remaining population of black rhinos in West Africa.

The estimated over 10,000 plant species in Cameroon are only exceeded in number by the much larger Democratic Republic of the Congo (ex-Zaire) in West and Central Africa. Also, over half of Africa's birds and mammal species are found in the country. It is the second most biologically diverse country in Africa, after Democratic Republic of Congo, with a high rate of endemism (GFW, 2000; Sunderland and Tako, 1999; Okigbo, 1994). The country possesses a diversity of forest habitats including montane forests, noted for their globally unique endemic species, the Atlantic coastal forests, rich in plants and the inland Cameroon-Congolese forests which are renowned for their mammalian diversity. Cameroon is one of the most important countries in the world as it harbours 297 mammal species, 848 bird species, 300 amphibian species, 9000 plant species, 29 primate species and 39 swallowtail butterflies. Meanwhile some 156 plant species are endemic to the area (Ngome, 1992; USAID, 1991). Cameroon has one of the richest and most diversified wildlife assets in Africa. It contributes to the nutrition of the population and constitutes a vital factor in the forest environment. This rich biodiversity is also seriously under threat with heavy reduction of species numbers as a result of agriculture, fishery, forestry activities and wildlife poaching. Over 40 species of wildlife are identified as threatened with extinction throughout their range. These include the black

rhinoceros, western lowland gorillas and the African elephant, (Savanna and forest species) (CAMPER/USAID, 1993).

1.5 Problem Statement

The evolution of the forest sector in Cameroon is related to the agricultural and political economy. Between 1950 and the early 1970s, with the blessing of the World Bank, government encouraged the conversion of its moist tropical forests to small-holder coffee and cocoa agroforests. This yielded some positive economic growth, averaging about 5% a year. Furthermore, due to the discovery of commercial oil fields, real GDP per capita increased by 7% a year between 1978 and 1985. But a protracted decline in the terms of trade for its main agricultural exports actuated a dismal depression from 1986 through 1993. Per capita income and consumption fell by almost half and Cameroon`s large external debt became unserviceable. By 1989, shrinking export revenues constrained the government to stop subsidizing agricultural inputs and to reduce by half the price of coffee and cocoa offered to farmers. These measures were followed in the early 1990s by drastic cuts in public-service employment, and wages by 70%. This was exacerbated in 1994 when Cameroon's currency, the CFA franc was devalued by 100%. These economic shocks seriously, affected Cameroonians' income and also expenditure potential, with a dramatic impact in the rural areas. Rural populations cleared additional forest for subsistence crop production while the government on its part, granted more logging concessions. Impoverished city dwellers returned to the countryside to take up farming. The expansion of food crop, notably in remote forested areas helped accelerated deforestation. Also, a decline in food imports during this period, the phasing out of agricultural inputs subsidies to farmers, forced farmers to cultivate larger areas to maintain significant production, while logging which pave the way for food and cash crop also accelerated during the post 1994 currency devaluation by 35% (Geist and Lambin, 2003; Essama-Nssah et al, 2002; GFW, 2000).

Poverty in Cameroon is overwhelmingly concentrated in the rural areas. Approximately 86% of the country's poor are rural. The entire rural population relies on forest products

for food, medicine, fuel wood and construction materials. Also, non-timber forest products play an important role in the households of the urban poor and forest-dwelling communities. They are also an important source of cash revenue for Cameroon's forest-dependent people. To earn an economic basis for livelihood, they depend on trading in medicinal plants, rattan, bushmeat and other non-timber forest products. The collapse of commodity prices in the 1980s and the CFA franc devaluation in 1994 triggered greater reliance on these activities. According to CIFOR cited in GFW, (2000) in 1996, nine NTFPs including bush mango, the bark and fruits of bitter cola (*Garcinia cola),* palm nuts, Cola nuts (*Cola acuminata*), and the African pear generated 1.9 million US dollars. Also, in the post devaluation period of the CFA franc, prices of beer and whisky hiked thereby leading to an increase in the consumption of palm wine, a substitute for these products in both urban and rural areas. Similarly, the increase in the price of pharmaceutical products made the same category of people to substitute them for medicinal plants. However, the NTFP with the greatest economic value is bushmeat. Unfortunately, unsustainable hunting and poaching are threat to the availability of this resource. The NTFP trade constitutes a significant source of revenue for the women folk. The majority of women in rural Cameroon are poor, often refused land ownership and not guaranteed access to forest resources (GFW, 2000; Ndoye, 1998).

Meanwhile, according to Essama-Nssah et al, (2002), economic recovery in Cameroon since the dawn of the crisis, has been sluggish, with real gross domestic product (GDP) per capita averaging about 1.6% annually during the 1998-2000 period. Poverty remains widespread, and the prevalence rate of HIV/AIDS is estimated at 7 to 10%. In a bid therefore, to bolster Cameroon's economic recovery process, the government, in the early 1990s, initiated a forest policy reform process, in conjunction with a World Bank structural adjustment loan. The Bank sought to improve forest management in the region by using Cameroon as a model. This reform sought to address conflicting economic, social and environmental goals. Major innovations in the new forest management framework included community forestry. However, forests in Cameroon have continued to suffer degradation, (DFID, 2002; GFW, 2000). Ndenecho, (2005) attributes this perennial degradation to the fact that the indigenous people, in part, have not always

respected forest legislation, especially, when their livelihood or interests are threatened, and also because in most cases, protected area status have often been imposed which ignore the socio-economic and cultural situation of those whose survival depend on the forest as a result of no prior consultation. This approach has often provoked social tension and conflicts which usually undermine the possibility of implementing and achieving basic conservation objectives.

Furthermore, according to Lambi cited in Ndenecho and Balgah, (2007) a critical obstacle to the participation of rural people to sustainable natural resource usage and conservation is the lack of reliable and accurate information. Balgah, (2001) also decrees the lack of a viable environmental communication strategy which adequately addresses issues like deforestation and the loss of biological resources.

1.6 Hypotheses

In a bid to address the issues raised in this study and enhance forest sustainability, the following hypotheses have been adopted:

1. Mount Cameroon State forest is liable to degradation and deforestation than the Kilum community forest.
2. Environmental Communication approaches employed are ineffective and impact insignificantly in mitigating forest exploitation.
3. Poverty and unemployment spur forest exploitation.
4. Government forest policy is good but void of an appropriate strategy to guarantee sustainability.

1.7 Objectives of the Study

1. This study attempts at appraising the potentials of the current government forest policies to significantly, mitigate, on long term basis, non-sustainable forest exploitation.

2. Secondly, it investigates a valid and reliable option for the sustainable management of forest resources by comparing and contrasting two operational forest management approaches in Cameroon, viz State forest and community forestry.
3. The study further examines how indigenous customs and practices affect forest sustainability and the necessity of integrating both indigenous and exogenous conservation knowledge for effective conservation and forest management.
4. Last but not the least; the study examines the effective use of environmental communication in general and the extent to which the rural radio can be an asset for the effective promotion of forest sustainability.

1.8 Significance of the Study

The importance of this study within the framework of environmental sustainability and forest resource management in particular cannot be overemphasized. It is believed that the outcome of the study would provide forest stakeholders in Cameroon with valid and more reliable strategies for the effective and sustainable management of forests, given that the issues addressed in the study have to a large extent, accounted for the limited success of government, conservation agencies, local and international NGOs which have attempted to work in this direction in the past.

The study will also provide a valuable insight concerning environmental communication approaches, particularly with respect to forest resources conservation and management.

Last but not the least, this study will certainly make a positive contribution to the successful creation and management of the proposed National Park and Plant and Wildlife sanctuary in the Mount Cameroon and Kilum-Ijim regions respectfully, issues which are already a subject of much controversy and debate between the state and the indigenous populations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The global environmental crises, today, more than ever before, are a cause for concern not only to international and regional organizations but also at the national and local levels. There is much debate on how best to sustainably exploit the various natural resources. However, it has become axiomatic that the rich natural resource heritage of the present generation should be exploited in a rational manner to ensure intergenerational equity. Hence, any natural resource management approach or strategy which does not take cognizance of the sustainability factor is considered bogus. To this end, Essama-Nssah and Gockowski, (2000) are unequivocal in their assertion that in order to preserve forest patrimony, sustainable management that can guarantee the continued stream of economic benefits from forest must be developed. This chapter, therefore, highlights the major causes and mechanisms of unsustainable forest exploitation, the concept of forest sustainability and sustainable development, and some key approaches to effective forest management.

2.2 Causative Factors of Forest Degradation

Forests in the developing countries are in a crises and facing serious environmental degradation. In much of Sub-Saharan Africa deforestation is the major environmental problem due to the clearing of forest land for farming (employing traditional methods of slash and burn), high demand for fuel wood as a result of rapid population increase, and commercial logging among others (Cleaver and Schreiber, 1994). In 1980, there were about 646 million hectares of forests and woodlands in Sub-Saharan Africa. A 1980 FAO/UNEP study estimated that 3.7 million hectares of tropical Africa's forests, and open woodlands were being cleared yearly by farmers and loggers (Lanly, 1982). Recent estimates suggest that close to 2.9 million hectares were lost each year during the 1980s, mainly through conversion to farmland, but the rate of deforestation may be accelerated

as the aggregate area still under forests continues to shrink (Asong, 2001). Meanwhile the causes of deforestation are captured in the following statement by Bromley, (1999):

> *The issues for concern for deforestation are slash and burn agriculture, the spread of roads in remote areas, rapid population growth, the lack of viable economic opportunities in non-forested areas, cattle ranging, fuel wood gathering, the "frontier" and its weak or incoherent property institutions, the need for export earnings to service foreign debts, powerful logging interests, and often weak or corrupt governments.*

On their part, Gillis, (1987) attribute the rapid deforestation of the world's tropical forest to four basic factors in descending order of importance: poverty, ignorance, the nature of property rights in the virgin forest, and commercial use of the forest, by loggers and for conversion of natural forests to other uses (rubber and palm oil plantations in Asia, cattle ranges in Latin America). But a relatively more comprehensive analysis of the factors which favour deforestation, inefficient and unsustainable forest management and the ultimate loss of biodiversity in general and in the tropics in particular are discussed here below.

2.2.1 The Role of Logging Companies

Much of the blame of deforestation in the tropics is attributed to timber companies which trade in wood, thereby, responding to international demand for tropical wood. The resultant effect is that high-value tropical timber is increasingly becoming scarce especially at the local level of economically backward tropical regions where timber thus constitutes a powerful factor for the non-sustainable exploitation of forests. According to a study conducted in the 80s by the International Tropical Timber Organization (ITTO), the extent of tropical forest being deliberately managed at an operational level for sustainable production of timber is, on a whole scale negligible. Furthermore, there is little or no incentive for regeneration and management (Wunder, 2000).

2.2.2 Firewood Demand

Fuel wood from forest is the dominant source of energy in rural areas, and cooking is the most energy-intensive activity (Goldemberg, 1996). Population growth and unsustainable wood uses cause ever-increasing imbalance between firewood demand and supply, which then triggers deforestation. Also, sequel to the two oil crises, in the 1970s and throughout the 1980s, a significant interest arose regarding what was perceived to be the 'poor man's energy crisis'. This was also a contributory factor to the decline of forests in developing countries as the use of tree biomass for people's energy needs increased. Even today woody biomass is still a significant source of energy. Between 30% and 40% of the world's population rely on firewood for cooking. In Africa, household energy consumption outside larger cities depends almost exclusively on wood sources. In developed countries about 80% of wood is used for industrial and 20% for energy purposes, whereas the reverse is true in developing countries; four-fifths is consumed as firewood and charcoal. Firewood consumption reportedly increased by 30% between 1977 and 1988 due to the rising oil prices of the 1970s (Wunder, 2000).

Figure 3 below is a schematic explanation of the logic of the fuel wood trap. It assumes the form of a 'vicious circle` affecting the peasant's farming system, initiated by exogenous impacts, for instance demographic changes or conversion of forests by external agents, causing initial forest loss. "The fuel wood trap theory", suggests that population growth and unsustainable wood uses causes an ever-increasing imbalance between firewood demand and supply which in turn triggers deforestation. Deforestation, perceived from the perspective of a decline in woody biomass has three types of impact. First, traditional non-energy forest extraction (e.g. of fruits, game, medicinal plants, fodder, construction poles) is reduced. Secondly there is also a reduction in firewood quantities collected, and thirdly, a higher collection time from the more distant sources (triggering labour time cost, which is often borne by women) (Wunder,2000).

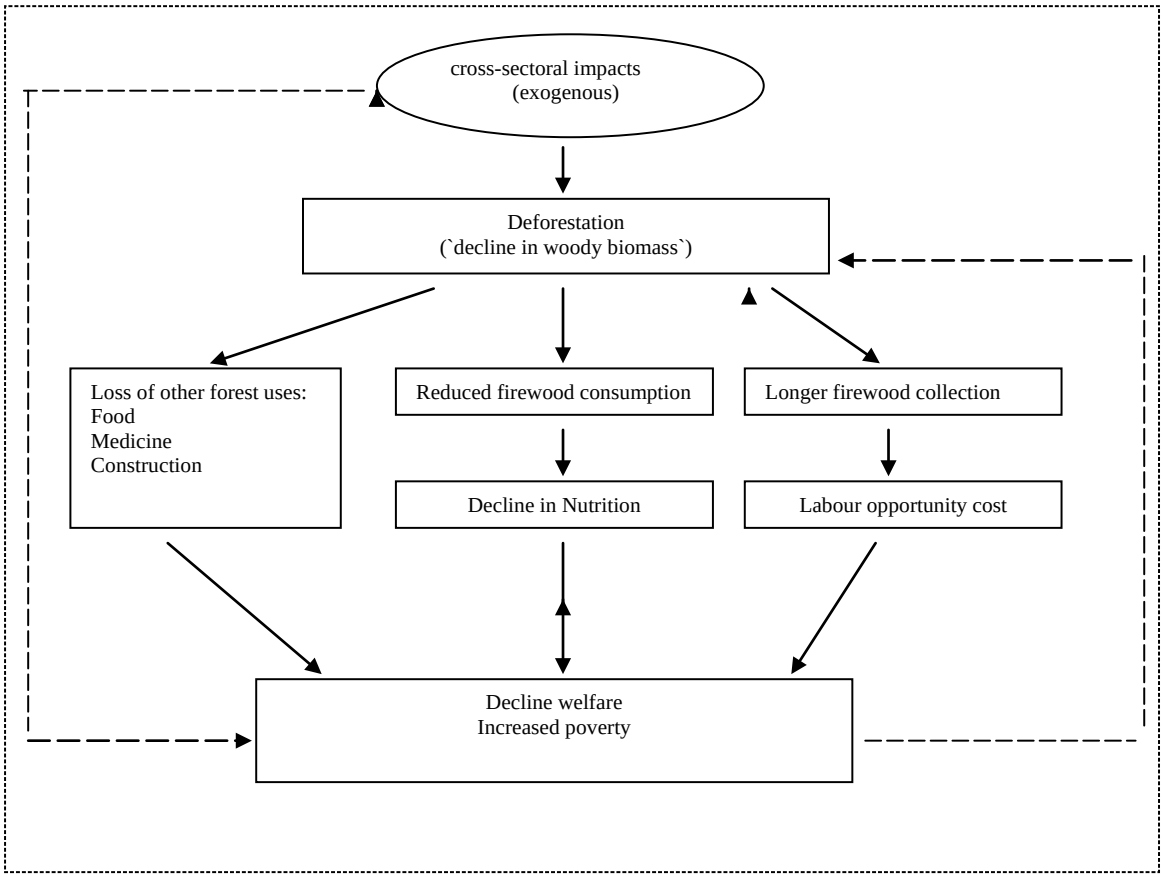

Figure 3: The Fuel Wood Trap and Peasant Immiseration

Source: Wunder, 2000

2.2.3 Poverty

Poverty is linked to the environment in complex ways, particularly in African economies which depend on natural resources. It is also a factor in accelerating environmental degradation owing to the fact that the poor, with shorter time horizons and often less secure access to natural resources, are unable and often unwilling to invest in natural resource management such as soil conservation and fertilizers (Mink, 1993; World Bank 1992 cited by IBRD/World Bank, 1996). Furthermore,

> *Poverty and high population growth often induce land degradation and deforestation, which lead to growing food insecurity and loss of biodiversity. The severity of these mutually reinforcing constraints is compounded by low investment in human capital, which often forces*

> *individuals to continue to rely on their own unskilled labour and short-term exploitation of natural resources as the only way to survive (World Bank, 1996).*

In the words of Eckholm et al, (1984), 'the poor are not ignorant of the processes of deforestation or blind to its effects. They cut because they must.' This same view is shared by, Tolba and El-kholy, (1992) cited in Wunder, (2000) who opined that 'people do not move into forests from choice, but from lack of it'. A rise in poverty is a potential push factor in smallholders' deforestation, including labour expulsion to the agricultural frontier. According to Lumley, (1997) the poor may be forced to adopt higher temporal discount rates (more myopic resource attitudes) because of risk aversion, lack of access to capital and shorter production horizons which run counter to conservation option. It is further stated that within the subsistence-led rural economy, a fall in agricultural productivity (or in output prices) will cause peasants to increase production and deforestation, because they need to generate a fixed value to survive and have no alternative income sources to switch to. This assertion has bearings on an important outcome of the Brundtland Commission on Environment and Development report, (1987) which states that:

> *Those who are poor and hungry will often destroy their immediate environment in order to survive: they will cut down forests; their livestock will overgraze lands; they will over use marginal lands; and in growing numbers they will crowd into the cities.*

The above citation of the Brundtland report is equally in concatenation with that of CIAT (Chartered Institute of Agricultural Technologists, 1992) cited in Wunder, (2000) which stipulates that:

> *In fragile agro ecosystems of the tropics, many millions of rural families are trapped in a vicious circle of poverty and natural resource degradation. Pushed to less favourable lands, these people struggle to make a living in areas characterized by unstable, infertile soils. To keep food on the table and meet their families' other needs, farmers overwork the same plot or clear new ones, sparking a chain reaction that results in deforestation, the loss of biodiversity, soil degradation, and reduced availability of water.*

2.2.4 The Impact of Population Growth

Rapid population growth is a recurrent theme of the day. Currently, one billion people are added to the population every eleven years. Since 1950 world population has grown from 2.5 billion people to over 5.4 billion. It is estimated that in the next three decades about 3 more billion people will be added to the current 6 billion. Furthermore, it is estimated that world population by the end of the 21st century may nearly triple the current figure. According to the new UN medium population projection, however, the world population in 2050 is expected to be 9.4 billion, 446 million less than the last projection done in 1994 and 652 million less than the projection done in 1992 (Harrison, 1997). The most rapid population increase, reportedly, is taking place in Africa, a crisis-ridden continent. Given its current rate of population expansion, it is expected to triple from 642 million in 1990 to 1.6 billion in 2025. This astronomical increase portends a greater disaster for an already crisis ridden continent whose environment has been exploited and plundered for a long time (Lambi, 2001).

According to Wunder, (2000) relatively few observers would dispute the correlation between population growth and deforestation. He further states that the acceleration of deforestation coincides largely with exponential growth. In the same vein, Westoby, (1989) posits that 'usually where there are a lot of people, there are few forests; and where there are many forests, there are few people'. He however, rejects a straightforward causal relationship between the two. Bedoya, (1991) acknowledges this fact by making an analogy to the Amazon countries, whereby those with the highest population density are the most deforested. Sunderlin and Resosudarmo, (1996) in Wunder, (2000) assert this correlation with respect to the Indonesian province-level cross-sectional data. Similarly, Collins and Painter, (1986) confirm the correlation between high population rate in recent decades and accelerating deforestation. However, there is much more consensus on the simple quantitative correlation between population and deforestation than on the causal links between them. Population growth may contribute to deforestation, but not always (Barraclough and Ghimire, 1990). Meanwhile, in most case studies, population growth is identified as the dominating driving force of impoverishment and forest loss. On the other hand, Steinlin, (1994) and Ponting, (1991)

referred to in Wunder, (2000) see population and consumption growth as approximately equal in global deforestation importance. As Baker and Bushell, (1971) rightly put it, as man undergoes population explosion, we now dig deep into the earth to extract raw materials, plough up land to grow crops, burn great quantities of fuel for power and chop down forests to provide timber for building and paper making.

2.2.5 Land Tenure and Access Rules

About 80% of all tropical forests are state property, and this is the tenure form that is usually exposed to severe degradation. State enforcement of forest tenure and access rules tends to be less efficient and more costly, and nationalization can be disastrous for local management incentives (Wunder, 2000). Open access regimes are usually apportioned the lion's share of responsibility for deforestation. Also tenure insecurity promotes forest mining and discourages long-term timber management (Southgate, 1990; Wunder, 2000). Furthermore, Wunder, (2000) notes that shifting cultivators, in many cases forest-dwelling ethnic groups, have traditionally been precluded from legalized forest tenure by an intentional state strategy towards forest colonization. This often results in clashes with immigrant farmers who tend to be in a better position to secure land titles. Government tenure and colonization policies thus tend deliberately to favour deforestation activities over sustainable forest uses (Bedoya, 1991; Rudel, 1993).

2.2.6 Policy Factors

Poor economic performance together with colossal external debts pushes countries to exploit forest resources for short-term gains. Generally, economic crisis drives marginalized people towards the frontier and forces countries to promote foreign exchange-generating primary export sectors, some of which are land-using (agriculture) or tree-consuming (timber) (Wunder, 2000). Governments often use fiscal, exchange rate, monetary policy as well as export promotion tax increases, privatization, and land reform as part of comprehensive adjustments packages for addressing economic imbalances, balance of payments, and structural weaknesses in their economies. Such approaches, however, have come under heavy criticism for failing to recognize the social and

environmental costs associated with them. Critics have argued that economic growth, trade liberalization, and increased primary product exports increase pressure on natural resources. Forest sustainability is part of that concern (Sedjo, 2005).

Also, road construction almost always facilitates tropical deforestation. Feeder and penetration roads can be built directly to promote settlement and product trade, but are often established for other purposes such as logging and mining, producing roadside deforestation as a side effect.

2.3 Forest Sustainability

Etymologically, the concept of sustainability is, from the field of forestry. It simply means that in order to guarantee that the existing potential of the forest is retained; the amount of timber felled and the natural losses sustained should on average not exceed the growth rate of the forest. When the sustainable yield is exceeded, the result is a long-term decline in the average yields because the resources will be over-exploited that its renewal cannot be guaranteed (Ndenecho, 2005). This notwithstanding, forest sustainability is a complicated concept incorporating a variety of views. But the concept of maintaining forests, forest cover, and biodiversity and minimizing overall forest destruction and conversion is widely accepted. On their part, Prabhu et al, (1996), cited by Tainter, (2001) define sustainable forestry as "a set of objectives, activities, and outcomes consistent with maintaining or improving the forest's ecological integrity and contributing to people's well-being now and in the future." On a more general basis, forests are managed and maintained for a number of different purposes, ranging from timber to biodiversity, and including a host of environmental services, such as clean water, erosion control, wildlife, carbon sequestration, and naturalness.

Although we may not be sure of what characteristics are necessary for sustainability, there is pretty clear agreement as to what the final outcome should be. The Brundtland Commission defined a sustainable system as one that is capable of meeting current needs without compromising its ability to meet future needs (WCED, 1987). In effect, the

system will have as many resources in the future as it had in the past. Taking a broad global view, this definition suggests that the relevant focus is on the global forest system (Sedjo, 2005).

2.3.1 Sustainable Development

According to the World Resources Institute's (1994–95) guide to the Global Environment, "Sustainable development is based on the recognition that a nation cannot reach its economic goals without also achieving social and environmental goals, that is, universal health and reproductive care, equitable access to and distribution of resources, stable populations and a sustained natural resource base" (Voices from Africa no. 6, 2009). This seems to be the preoccupation of international organizations at the moment. Wardle and Abdallah, (1999) review some contributions to this direction from mostly the UN. They report that in 1972, the United Nations Conference on the Human Environment in Stockholm confronted the world community with the global conflict between economic development and the environment, notably, with respect to pollution, energy, carbon dioxide, climate, and the vulnerability of living species. By the mid-1980s, the G7 began to demonstrate their recognition of the importance of the natural environment and of forests.

In WCED, (1987) sustainable development was recognized as a process of change in which the exploitation of resources, the direction of investment, and the orientation of technology and institutional evolution are all in harmony and enhance both current and future potentials to meet human needs. The UN Conference on Environment and Development, Rio 1992 (UNCED) achieved some consensus on these principles (Abdallah and Kaoneka, 1999). Earlier, the FAO and UNEP forest resource assessment of 1980, which drew attention to the loss and depletion of forests resources particularly in tropical countries, projected forests into the centre of this discussion. The forest principle adopted by the Rio Conference enjoined nations to look to the multiplicity of roles and functions of forests, their importance to people and the importance of involving the people relating to the forest in decisions about its use. Principle 8 of the Rio Declaration

on Environment and Development is to achieve sustainable development and a higher quality of life for all people. States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate democratic policies. The UN Commission for Sustainable Development (UNCSD), and particularly its Intergovernmental Panel on Forests, worked to build on consensus on collective approaches to the Conservation and Sustainable Management of all types of forest. The intergovernmental forum on forest has now been set up to take this issue forward (Abdallah and Kaoneka 1999).

2.3.2 Types of Sustainable Development

Sustainable development is a notoriously difficult, slippery and elusive concept to pin down. According to Fowke and Prasad, (1996) cited by Williams and Millington, (2004) the best known definition is that given in the Bruntland Report (published by the international governmental commission set up by the UN system in the mid-1980s under the chair of Gro Harlan Bruntland to report on environmental issues), where it suggested that sustainable development means "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." They distinguished two types of sustainable development, weaker and stronger.

Weak sustainable development adopts an anthropocentric (human-centered) discourse on the relationship between people and nature. This is composed of three strands: the perception that people are separate from nature, the idea that nature is a resource to be used for the benefit of society or individuals, and the view that we have the right to dominate nature. At the heart of weaker sustainable development is an implicit optimism. There is a confidence that people will be able to find a solution to any environmental problems that arise. They will be able to enhance the stock of 'resources'. Technological progress, it is assumed, will enable people to manipulate the earth to meet their enormous demands on it.

Meanwhile unlike the range of perspectives on the "weaker" side of the sustainable development spectrum that focus on the resource side of the equation so as to conjoin resources and demands, commentators on the "stronger" side of the spectrum focus upon changing the demands made on the earth. For them, the common strategy advocated is a more small-scale decentralized way of life based upon greater self reliance, so as to create a social and economic system less destructive towards nature. The common belief linking together stronger sustainability theorists is the view of the earth as finite and their conceding that no habitable future is possible unless the demand-side of the equation radically alters by rethinking our attitude towards nature as well as our view of economic progress and development.

2.4 Approaches to Natural Resource (Forest) Sustainability

2.4.1 Public Sensitization

Lambi, (2001) posits that lack of reliable and accurate information is a critical obstacle for the participation of rural people in natural resource usage and conservation. Hence, the need for public sensitization about attitude changes in the use and management of natural systems. He further explains that, a long-term perspective on development must be built, accepted and implemented through effective policy and participation by all stakeholders. On his part, Anyanwu, (1992) contents that education helps people in a community to understand their social situations and enables them to weigh objectively, the forces for and against social change. Similarly, Roger, (1992) posits that it is important to explain to the rural people the reasons behind certain conservation measures as well as the consequences of their actions in biodiversity degradation. He further states that explaining to the public the value of the forest in terms of the goods and services it provides is a better solution than using weapons to keep people out of designated areas for protection. He also underscores not just the importance of public communication with local residents who are crucial in protecting the forest but to do so in terms which they understand. This of course is very important to generate the necessary feedback. On his part Eyre, (1983) emphasizes that the objective of public communication is to transmit messages to receivers who may act upon the messages. The reaction of the receiver of a

message is in most cases, based on the comprehensibility of the message. Balgah, (2001) emphasizes the need for a viable environmental communication strategy which adequately addresses issues like deforestation and the loss of biological resources.

2.4.2 Considerations of Effective Public Communication

Besides, the proper framing of a message for better comprehensibility, the choice for a suitable location, medium, timing and scheduling are also important factors to be taken into consideration (Cheo, 2002). Perhaps, this illustration from Cameroon further clarifies the point. The people of Korup, Cameroon were informed of the creation of the Korup National Park by announcements displayed in the office of the Senior Divisional Officer and local forestry office. By this announcement, the people had thirty days to state their worries and make claims (Sombo Newsflash, 1996 no. 3). It is preposterous when one considers how many rural people visit the offices of administrative officers let alone regularly to read messages, that is if they can even read. Hence there is paucity or no public participation.

According to Obiago, (2009) the most efficient development medium in Africa still remains the radio. Radio is the most cost-effective and widespread medium for reaching Africa's 744 million people. Especially in highly populated urban areas and in rural communities, most people listen to the radio because it is cheap and does not always require electricity. There are approximately 31.1 million radio receivers in sub-Saharan Africa; compared with 7.73 million television receivers, and a newspaper circulation of 4.8 million. Clearly, more Africans receive information through the radio than from any other communications medium. If development NGOs want to get their message across to the African general public, they should invest in radio communications and take a special interest in sensitizing radio journalists and producers to development issues. Dufe, (2001) remarks that in the media landscape in Africa, there is still a wide gulf between public expectation and media performance. Thus the advent of rural radios on the continent heralded lots of hope for the masses, in need of a reliable informational link, able to channel through, their development initiatives. To this effect, the radio has

designed programmes on environmental health, environmental hygiene, environmental protection, community development, modern agricultural techniques, youth education, sports and religious programmes.

2.5 Presence of Functional Environmental NGOs

Santa and Park, (1999) point out that the importance of environmental NGOs goes beyond the practical considerations of choosing the right set of public policies. To them, the presence of vibrant and active environmental NGOs reflects the degree to which citizens play a participatory role in a given society. Environmental NGOs have been expanded at the same rate as the level of democracy in developing countries. This has been the case particularly in the forest and other resource sectors. As Princen and Finger, (1996) note:

> *NGOs act as agents of change in part because citizens alone or unorganized movements cannot. Organizations; legal, financial, and political are essential. NGOs can be independent actors reaching up to the states and international institutions, and down to local communities.*

2.6 Joint Forest Management Paradigm

One of the approaches to sustainable forest management and which reportedly seemed to have the highest future is the joint forest management paradigm. The system involves participative management between the government and the local communities. The incentives for the people to participate include collection right of most of the non-wood forest product, increasing the stakes of communities in the management and utilization of forests, and creating alternative sources of employment to reduce pressure on forests (Abdallah and Kaoneka, 1999). These include work on plantation and regeneration activities as well as building of sources of drinking water supply, approach roads, schools, etc. (Nalini and Naresh, 2002). According to them, the bottom line here is that villagers are incorporated in the management scheme. They are willing to cooperate

because they have seen the advantages of careful management. Previous knowledge of rapid depletion of forest resources and devastation of farmland caused by erosion also create enough concern to encourage village cooperation.

2.7 Reforestation, Afforestation and Poverty Alleviation

Scott et al, (2000) acknowledge the need for an aggressive reforestation and afforestation as a forest management strategy. They stress above all that any current strategy of sustainable forest management and biodiversity protection should embrace a wide range of development goals, including poverty alleviation. This proposition falls in line with the diagnoses of most scholars working in this domain, who underscore the poverty factor as a major cause of unsustainable forest exploitation. A drop in natural and old growth forest may signal a decline in biodiversity, wildlife habitats, and other environmental services provided by natural forests. Scott et al, (2000) further hinted on the fact that unplanned deforestation can trigger significant nefarious externalities; loss of biodiversity, elevated risk of erosion, floods and lowered water tables and increased release of carbon into the atmosphere associated with global climate change. Deforestation can also affect the welfare of forest dependents by eliminating habitat for game species, altering local climates and watersheds and destroying critical stocks of fuel, fodder, and food and building materials. Accordingly, they made the following suggestions of plausible and auspicious guidelines to effectively manage forest sustainable. They include:

- Improvement in country policies and strategies with direct and indirect impacts on forests
- Institutional development including improvement of the legal framework, a redistribution of roles between the public and private sectors, and participatory approaches to decision-making
- Improvements in technologies
- Capacity building and human capital formation
- Improvement in the incentive structure
- Improved information, monitoring, and evaluation systems.

2.8 Guarantee of Tenure

Security of tenure of natural resources is crucial in determining their sustainability. Tenure which is a set of rights that a person or some private entity holds to land or trees helps to determine whether local people are willing to participate in the management and protection of forests (Bromley, 1992/91; Bruce, 1989). Insecurity of land and tree tenure discourages local participation in forest management and forest protection activities. This in turn increases the cost of monitoring and rule enforcement by the state. Part of these increasing costs can be met by employing locals to monitor in the place of regular national staff. But the long term sustainability of a strategy which merely strengthens the enforcement of national laws is questionable. Lawry, (1990) contends that where forest habitats have little economic value to local people because of restrictive access rules, sustainable local management institutions are unlikely to emerge. Incentives for local people can be improved by increasing the value of the resource to local people by, for example, grant more access rights or by granting local communities a percentage of concession revenues.

A government forest reserve and a private forest can be as degraded as a communal forest if there are no effective institutional arrangements and associated organizational mechanisms to monitor and enforce rules that prevent wanton harvesting of the resource (Bromley, 1992/91). Underscoring this point further, contend that policies emanating from central governments generally give local communities infinitesimal rights over the natural resources with which they live (Gibson and Stuart, 1995). Without legal claims to the stock or flow of benefits from these resources, locals have little to gain from protecting them or using them sustainably. Such situations generate incentive structures that encourage individuals to “poach” natural resources. And because many governments lack the resources necessary to monitor and enforce the natural-resource policies, this often result in overexploitation of the resources.

2.9 The Existence of Local Institutional Arrangements

A growing number of scholars and practitioners recognize the crucial role played by local people in natural resource management (Ostrom, 1990; Ascher, 1995). They also assert the need for local-level institutions which according to them are considered better than central government institutions at providing, inter alia, rules related to access, harvesting, and management; flora that can respond to conflict quickly and cheaply; and monitoring and sanctioning methods that are efficacious. Furthermore, according to Acheson, (1989) and Ostrom, (1990) scholars of micro institutional solutions to common problems have the potential to craft durable institutional arrangements that enable them to successfully manage natural resources, even when confronted with political, economic and demographic pressures.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The study is geared towards an appraisal of government forest policy reforms in Cameroon as a whole and its impact assessment in Anglophone Cameroon with the view of coming up with a holistic strategy for sustainable management and environmental communication. The case study choice is predicated on the uniqueness of its montane ecosystems in the country, noted for their high endemism as well as demographic pressures owing to their rich volcanic soils.

3.2 Study Design

This study is designed as a descriptive case study and elicits data from two principal sources, viz, primary and secondary sources. Pertaining to secondary sources, journals, books, newspapers, decrees, laws, reports and internet sources were content analyzed for purposes of literature and other relevant data to the topic under investigation. On the other hand, the primary data technique employed here were personal interview survey, observation and focus group discussion. Personal observation and focus group discussions were embarked upon as means of gaining further insight and ascertainment of the data elicited through content analysis and survey.

3.2.1 Instrument Development

After two visits to the study areas during which the researcher held meetings with the chiefs and local authorities to ascertain their alacrity for collaboration, a questionnaire and interview guides were developed for the various categories of respondents as well as for focus group discussions. The questionnaire was closed-ended and designed predominantly on a likert-type scale (that is, strongly agree, agree no opinion, disagree, and strongly disagree). The same is true for very good, good, no opinion, bad and very bad. However, it should be noted that the rating, ‘no opinion’ within the continuum of

responses is ascribed the equivalence of neutrality. Furthermore, considering the fact that validity and reliability are the hallmark criteria for assessing the quality of such instruments (Mueller, 1986), a meeting was scheduled with Professor Dr. Wolfgang Schlucther of the Chair of Environmental Issues in the Social Sciences, an expert in social science research, to review the questionnaire content, format and language. Besides, a total of seventy questionnaires were pretested, thirty five in each of the two case study locations. The returned questionnaires revealed very minimal problems particularly concerning comprehension of the questions posed owing to the respondents' level of education. To minimize any negative impact, the researcher resorted to personal-interview survey and to employ the use of Pidgin English in some instances.

3.2.2 Study Population and Sample

The population of this study comprises the main forest adjoining communities of the arrears under investigation. However, the total population within the geographic area under study is about three hundred thousand persons.

A total of 235 people randomly selected from seven quarters of the case study sites, constituted the sample for this study. 135 people were elicited from Bokwango, Bova, Bonakanda and Bukwai in the Mount Cameroon forest region with an estimated forest cover of 50,000 hectares and an estimated population of 200,000 inhabitants as opposed to 100 people from Elak, Mvekei and Manchock in the Mt. Kilum forest region with an estimated forest cover of 20,000 square hectares and estimated population of 100,000 inhabitants. Prior to the sampling exercise, the research sites were stratified, followed by a simple random sampling of respondents. Hence, despite the size of the sample, it is considered representative of the population under study owing to the fact that no two respondents were from a single household. However, occasionally, other household members' opinions were sought in a bit to ascertain statements made by a respondents Moreover, an average household comprises on the average, between seven to ten people.

3.2.3 Demographic Characteristics of the Respondents

A total of 232 respondents from seven forest adjoining quarters were effectively interviewed/administered questionnaire out of an initially predetermined 235. The gender breakdown of the survey population sample was 108 (46.6%) female and 124 (53.4%) male. The surveyed population ranged in age between 15 and above 56 years. As shown in Table 4 below, the age bracket of 26 to 41years represented 46.6 %, of the surveyed population, followed by that of 41 to 56years (34.9 %), then that of 15 to 25 years (10.3%) and lastly, the age bracket of 56 years and above which constituted 08.2%. Meanwhile, the academic profile of effective respondents ranged from those with no formal qualification to Master's degree holders. Curiously enough not a single PhD hold was part of the respondents.

Table 4: Demographic and Social Characteristics of the Respondents (N=232)

Characteristics	**Categories**	**Number**	**Percent**
Gender	Female	108	46.6
	Male	124	53.4
Age groups	15-25 years	24	10.3
	26-40 years	108	46.6
	41-55 years	81	34.9
	56 years and above	19	08.2
Educational level	FLSC	111	47.8
	O/L	50	21.6
	A/L	32	13.8
	CAP	17	7.3
	BAC	00	0
	BSc./B:A	06	2.6
	MSc./M.A	1	0.4
	PhD	0	0
	No Formal Qualification	15	6.5

Occupation	Farmer	126	54.3
	Business	36	15.5
	Animal rearing	06	2.6
	Poultry farming	01	0.4
	Gardening	01	0.4
	Civil servant	26	11.2
	Private sector	30	12.9
	Retired	02	0.9
	Student	03	1.3

3.2.4 Data Collection and Analysis

As erstwhile alluded to, data for this study was elicited through personal interview survey/ questionnaire administration using a close ended format. The personal interview survey approach which was adopted because of the educational level of the respondents proved to be very successful particularly, as the need often arose for explanatory clarification in order to enable the respondents respond with precision and unambiguity to the issues under scrutiny. Hence, the topics under examination in the personal interview/ questionnaire ranged from forest utilities, driving forces behind forest exploitation, awareness of consequences of deforestation, policy perception, and corruption among others. There was also structured interview schedule with community forest management officials, officials of international agencies and forest NGOs as well as personnel of MINFOF. Last but not the least, the researcher also held focus group discussions with the inhabitants of forest adjoining communities, all in a bit to enhance the validity and reliability of the data quality.

After this data collection phase, the data was collated, computed and analyzed with the help of the Microsoft Excel for purpose of generating column charts bar charts etc. The ensuing results are presented using descriptive statistics comprising frequency counts and simple percentages.

CHAPTER FOUR: PRESENTATION OF POLICY IMPACT ASSESSMENT AREA

4.1 Introduction

This section is dedicated to a detail description of the forest areas singled out as case studies in this research. They consist of the Kilum-Ijim Forest and the Mount Cameroon forest regions. These areas which form part of the Western Highlands of Cameroon are, incidentally, situated in the former West Cameroon (former Southern Cameroons), today's North West and South West Regions, which corresponds to Anglophone Cameroon.

4.2 Anglophone Cameroon

The area referred to as Anglophone Cameroon is a former British ruled colony, consisting of two of the ten regions of the present Republic of Cameroon, the North West and South West Regions. Both regions cover a total surface area of 42,710 square kilometers, representing 9.1% of the land surface of Cameroon. The region has a population, estimated in 1998 of over 2.8 million inhabitants, corresponding to 19.4% of the national population. The population is predominantly rural, with farming, fishing, hunting, logging, and petty trading as their main source of survival and income generation. Thus they depend almost solely on nature for continuous existence.

An area covered by savannah, the North West Region has pockets and large stretches of thick gallery forests, montane forest under threat from human activities. It also has a rich biodiversity uncommon to most part of the African region. Meanwhile, the South West Region on the other hand is an extension of the coastal region of Cameroon that includes the Littoral province. It constitutes part of the Cameroon rain forest that stretches across five provinces; the Centre, East, Littoral, South and the South West. It is a region of dense agro-industrial farming by the Cameroon Development Corporation (CDC) and

others. Fishing, logging and tourisms constitute other activities. Although the South West and North West Regions have distinct physiography, they are nevertheless bonded by history and culture, as British Mandated and Trust territories of the League of Nations and United Nations, respectively. Furthermore, both regions have a common characteristic of montane forest whose ornithological importance has been underscored by previous researchers (Ndenecho, 2005; Ngwa and Fonjong, 2002; MINEF, 1996).

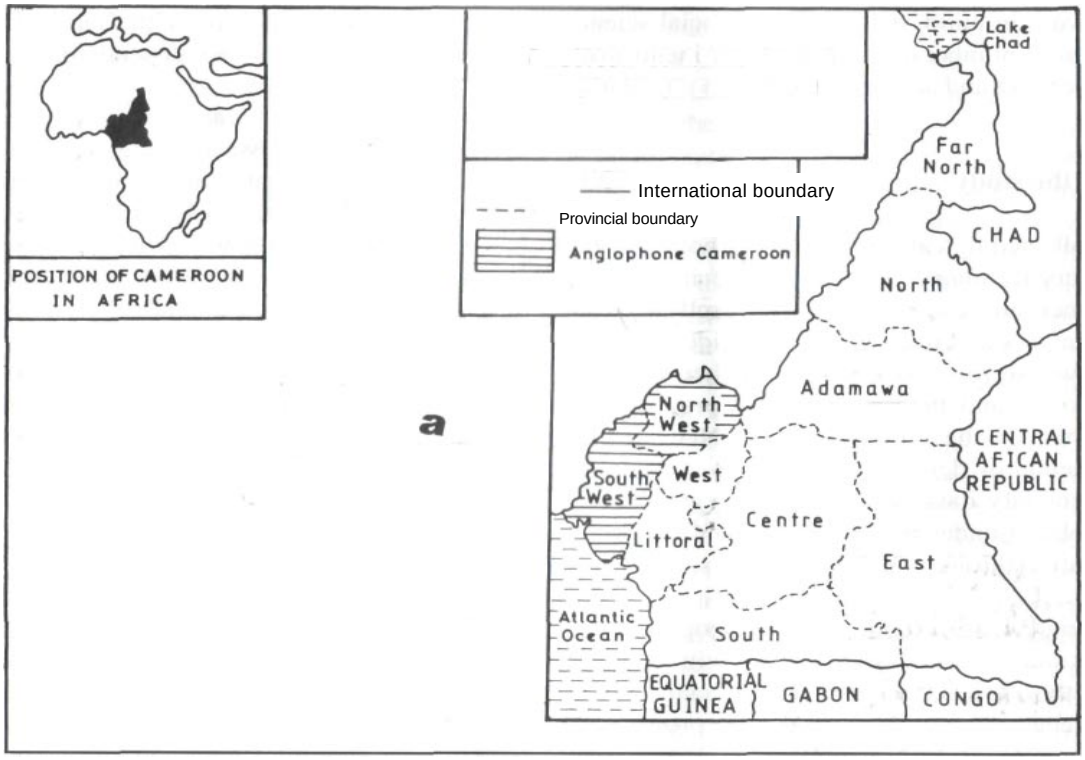

Figure 4: Position of Anglophone Cameroon in Cameroon

Source: Ngwa and Fonjong, 2002

4.3 Kilum-Ijim Forest

The Kilum Mountain Range and the Ijim Ridge are found within the Western Highlands of Cameroon commonly referred to as the Bamenda Highlands. The Kilum Range also known as the Mount Oku is situated in Bui Administrative Division in the North West Region of the country. The Ijim Ridge stretches northwest from Mount Oku, starting from the west side of Lake Oku to Kom in Boyo Division. The contiguous Kilum and Ijim Mountain Forests (now known as the Kilum-Ijim Forest) are located between

latitudes 6° 07´N and 6° 17´N, and longitudes 10° 20´E and 10° 35´E with an estimated population of about 100,000 people. It occupies 20.000 hectares and is the most significant remnant of Afromontane forest in West Africa with a unique and endangered ecosystem. The forest on Mount Kilum at 3011m (the second highest peak in West Africa) and the adjoining Ijim Ridge (2000-2500m) is recognised as a globally important centre of endemism and a hotspot for biodiversity conservation (Asanga, 2001; Nowak, 2001; Lima, 2001). Meanwhile to the west of Mt Oku at 2219m is a crater lake, called Lake Oku or "Mawes". The government of Cameroon, in 2002 after a research study on the lake, proposed that the lake should be considered a Plant Life Sanctuary. The Oku community considers it a god. The Kwifon protects the forest around this lake, and so there are no cutting of trees and hunting of animals from here.

Plate 3: The Crater Lake at Mt Oku in the Bamenda Highlands, Cameroon
Source: Birdlife International, 2003

4.3.1 Socio-Economic Environment of Kilum-Ijim Area

The Kilum-Ijim Forest communities like all others in the North West Region still operate on the basis of a traditional centralised political system. The *Fon* (a hereditary traditional ruler of an ethnic group or Fondom) and *Kwifon* (the Fon's Council of Elders or regulatory council) head the Fondom. Each ethnic group is made up of villages or

quarters that are managed by village heads or quarter heads and village councils. These all report to the Fon and Kwifon. Most of the village heads are members of Kwifon. All immigrants to the area equally respect the authority of the Fon and Kwifon. The Fon and Kwifon have traditional custody of the land/natural resources and de facto ownership.

Three Fondoms cover the Kilum-Ijim Forest, Nso and Oku in Bui Administrative Division (covering the Kilum Forest) and Kom in the Boyo Administrative Division (covering the Ijim Forest). The main immigrants to the area are Fulani pastoralists. Some are now settled within grassland enclaves within the forest, and have been living there in permanent houses for at least the last 60 years (Awemo, 2006; Asanga, 2002; Thomas et al, 2001).

The area around the Kilum-Ijim Forest is one of the most densely populated parts of Cameroon. It is estimated that close to 100,000 people live within a day's walk to the forest. Oku is made up of 36 villages, which are further sub-divided into quarters and compounds (His Royal Highness Fon Ngum II, 2000). This population is attracted by rich volcanic soils and the near temperate climate that favour the cultivation of crops like coffee, beans, maize, Irish potatoes and a wide variety of vegetables such as tomatoes, carrots, onions, cabbages etc. The potatoes and beans are exported to other parts of the country and also to neighbouring countries. These crops are gradually replacing coffee as the main cash crop of the area because of the dramatic decline in coffee prices in the mid 1980s. Infrastructure in the area is generally poor. Farm-to-market roads are seasonal and this makes evacuation of farm produce difficult. A new road was constructed in the mid 1990s to serve the communities on the south west side of the forest. On the other hand, the north east side is served by unsurfaced roads which are not easily accessible in the rainy season. Meanwhile the recent advent of mobile telephone networks has greatly improved communications with the outside world from the few areas around the Kilum-Ijim forest where network occurs.

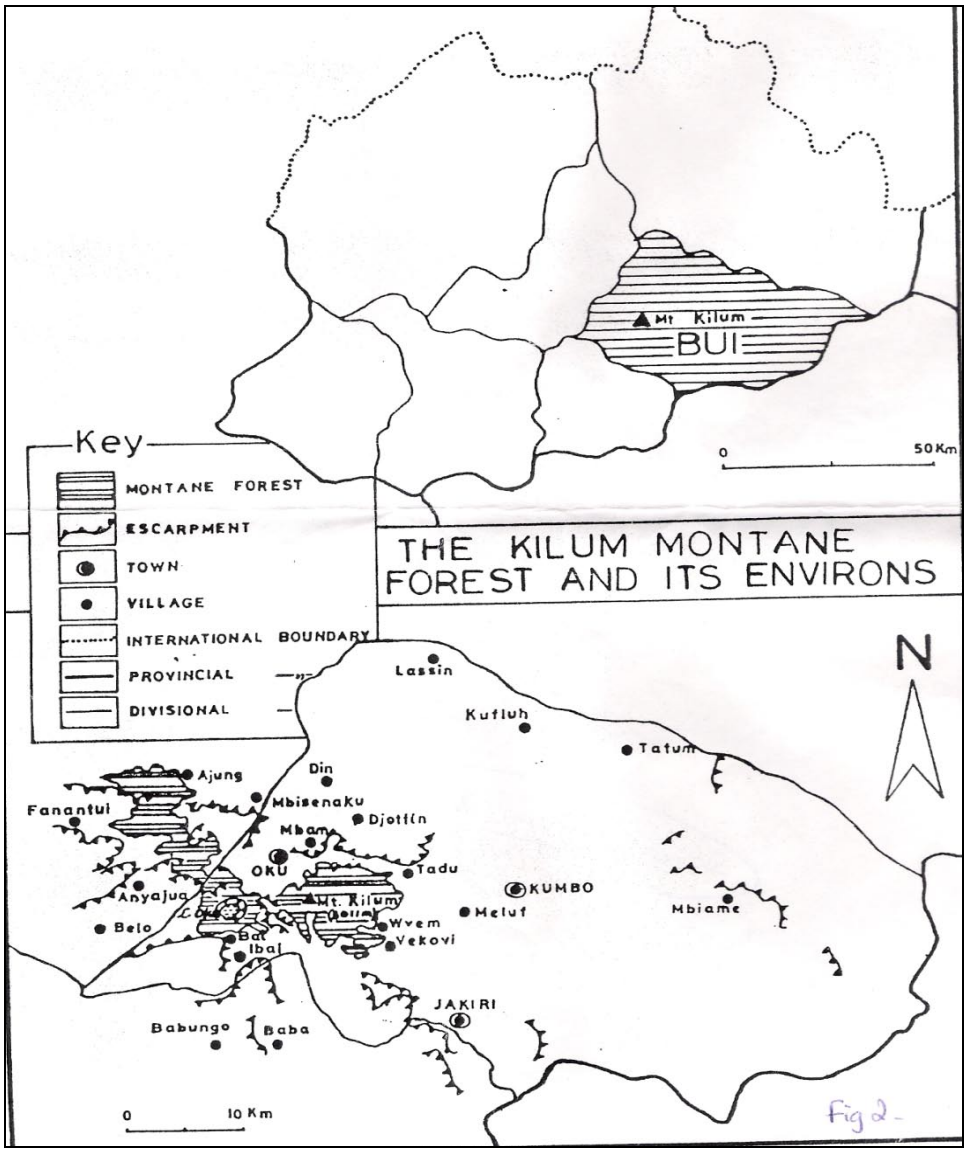

Figure 5: Map of Bui Division including the Kilum Montane Forest and its Environs

Source: Ngwa and Fonjong, 2002

4.3.2 Biodiversity and Socio-cultural Importance of the Kilum-Ijim Forest

The Kilum-Ijim forest supports many endemic birds and plants, and some other taxa such as amphibians, small mammals, and reptiles (Asanga, 2002). This forest is the most diverse in tree species, including endangered species like *Oxyanthus okuensis* (Rubiaceae). It is uniquely rich in both animal and plant species, some of which are endemic only to Mount Oku, Bamenda Highlands and Cameroon forest, e.g. plants

species like, bamboos (*Arundinaria alpina*) and *Podocarpus latifolius*. The natural vegetation at the highest altitudes of Mount kilum (2800m-3011m) supports *Podocarpus latifolius, Prunus africana, Rapanea melanophloeos* forest on deep soils. Also, there are 15 montane birds, which are endemic only to Cameroon. The most important of these birds are the Bannerman's Turaco (*Tauraco bannermani*), which is endemic only to Mount Oku and one of the most threatened in Africa, the Banded Wattle-eye (*Platysteira laticinctais*), green-breasted bush shrike and Bannerman's weaver, which is endemic only to the Bamenda highlands. These birds are threatened by habitat loss (Awemo, 2006; Asanga, 2002; Ndenecho, 2005).

Plate 4: Bannerman's Turaco (*Tauraco bannermanni*)
Source: BirdLife International, 2006.

The Bannerman's Turaco, as seen in plate 4, which is endemic to the Oku forest and the Banded Wattle-eye (seen in plate 5) which is endemic to the highlands of central Cameroon, are both benefitting from forest regeneration at Kilum-Ijim.

Plate 5: The Banded Wattle-eye (*Platysteira laticinctais*)
Source: BirdLife International, 2006.

In the Mount Oku area of the Bamenda Highlands there is a paucity of large mammals due to indiscriminate hunting and forest clearance, which continue to threaten many species and have reduced them to small populations (*Tragelaphus sprit's, Panthera pardus)*. Three species of primates are known to occur in very small populations. Preuss monkey (*Cercopithecus preussi*), vervet monkey (*Cercopithecus aethiops*) and baboon (*Papio anumbis*). The forest supports many small mammal species, amongst which are six strict endemics, namely, a Golden mole (*Chrysochloris balsai*), Woodland mice (*Grammomys nov. sp*.) African wood lice (*Hylomyscus grandis*), Mount Oku mouse (*Lamottemys okuensis*), Zebra mice (*Lemniscomys mittendorfi*) and *Lophuromys nov.sp*. Indiscriminate hunting has played a major role in the loss of Kilum-Ijim mega fauna, including species such as leopards (*Panthera pardus*), elephants, buffaloes, and antelopes.

The people who live around this forest depend on its resources for food, shelter, medicine, farmland, honey (bee hiving), fuel wood, building material, game, water sources and income (Ngwa and Fonjong, 2002). Most important of all the forest plays a very important role in the regulation of their water supplies (National Forestry Action Programme of Cameroon, 1995). The Kilum forest is divided into three parts. The first part is the Lake Forest, which is a sanctuary and is used to cleanse newly appointed Fons.

Only the *Kwifon*, Fon and elders are allowed to visit this part of the forest. The second part is the *Lambton* shrine of the spirit body of one of Oku´s greatest ancestors, *Mkong Moteh*, the sixth Fon who was finally crowned as priest of the shrine. *Mkong* is now the god of Oku because of the great powers he possessed during his reign. The third is the general forest, which is accessible to all people, but is still controlled by the Kwifon (His Royal Highness Fon Ngum II, 2000).

Medicinal plants in first two (sacred) parts are more potent because they are believed to possess more curative chemicals or powers. Only the rulers are allowed to collect medicinal plants from here. Oku is known throughout Cameroon as the headquarters for traditional medicine (Ndenecho, 2005; National Forestry Action Programme of Cameroon, 1995). Most people go there to get treated as their healing skills are held in high esteem throughout the country (National Forestry Action Programme of Cameroon, 1995). Traditional healers here carefully collect small quantities of a variety of plants within the forest and so their harvesting methods are non-destructive. At least 16 villages in Oku depend solely on forest resources for sustainability.

This forest is very important to the Oku people as it constitutes the basis for many traditional ceremonies. A very important cultural aspect is the red feather (won on the caps of notables) obtained from the Bannerman's Tauraco, which is used to crown and congratulate important personalities in the area. The Kwifon creates rules that govern access to the forest, their appropriations and conservation. He punishes all forest law defaulters. It is believed that the Kwifon possesses omnipresent mystical powers, which can detect those who flout its orders and injunctions. The local people believe and respect the Kwifon and hence follow the laws of the traditional council. This helps in conserving the forest and regulating the use of forest resources at the village and local level. But with the advent of the economic crisis and other socio-economic and political factors, the forest is facing serious conservation crisis. In February 2003, about 5000ha of the forest was burnt by a beekeeper. The destruction of this forest by human activities like farming, hunting and grazing is further intensified by the uncontrolled harvesting and over-

exploitation of medicinal plants by national and international companies (Ngwa and Fonjong, 2002).

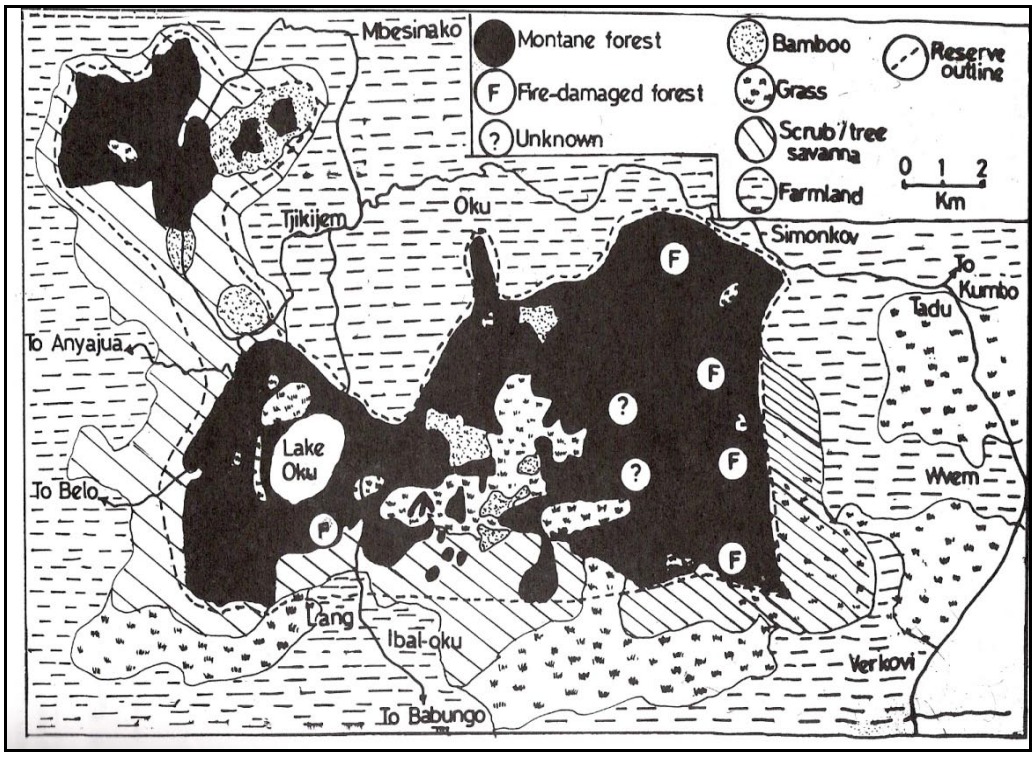

Figure 6: Degradation of Mount Oku Forest as at 1986 (Bamenda Highlands)
Source: Ndenecho, 2005

Attempts to conserve this forest dates as far back as 1931 when the conservator of the forests for Bamenda Division drew limits for the proposed Oku Mountain forest, erstwhile, 'Bush of Hill Forest Type'. When notice of the proposed reserve was published, the people adjacent to it objected very strongly. An agreement was then reached between the conservator and the local population with the latter given certain use rights in the proposed reserve. Subsequently, efforts by government to gazette the proposed reserve failed in 1938, 1961 and 1963. Finally in 1975, the conservator was successfully in demarcating part of the forest although the boundary was not universally respected. By 1986 the forest had been reduced to 50% of its 1963 size (figure 6 above; plate 6 below). Meanwhile a survey of the western mountain chain of Cameroon by the International Council for Bird Preservation (now Birdlife International) in the early 1980s

led to the establishment of an Integrated Conservation and Development Project in the Kilum-Ijim area in 1987.

The Kilum-Ijim Forest lies at the centre of the Bamenda Highlands in north-western Cameroon. This region includes the mountains and highland areas of the border region between Nigeria and Cameroon. Mount Oku is the highest point in this region at 3,011m above the sea level. The majority of the area enclosed by the Kilum-Ijim boundary is at an altitude of over 2000m. The vegetation is highly influenced by this altitude: above 2000m, chéré the study area is mainly located. It consists of montane forest mixed with montane grassland and sub-alpine communities.

Plate 6: Kilum-Ijims Forest Reserve Boundary
Source: Birdlife International, 2003

The "Kilum-Ijim Forest Project" started in 1987, when the most dramatic deforestation in the area occurred. Its establishment has been followed by a regeneration period (example in plate 7 below). After 1995 the rate of regeneration (3.9%) significantly exceeded the deforestation, and the forest area has increased by 10.6%. These results, showing the

excellent reserve performance, are of major importance to the Kilum-Ijim communities, since the reserve is under their direct management.

Plate 7: Villagers Erecting Forest Reserve Signs at the Beginning of the Project
Source: Birdlife International, 2003

4.4 The Mount Cameroon Region

The Mount Cameroon region is located principally in Fako Division in the South West Region of Cameroon. The area extends from the Atlantic coast to the enormous Mount Cameroon with an altitude of 4.095m. Mount Cameroon is the highest mountain of West- and Central Africa and the third highest in Africa after Mount Kilimanjaro and Mount Kenya. It is still an active volcano. The last eruptions occurred in 1999 and 2000. Due to the volcanic origin, the surrounding soil is rich in nutrients and provides high fertility for both natural vegetation and farmland. Its foothills are inhabited, predominantly by two tribes of the same language family, the Bakweri and the Bomboko as well as a very large migrant population from other parts of Cameroon, Benin and Nigeria, estimated at about 200,000. The region lies within one of the forest refugia of Central Africa and is among the priority areas for biodiversity conservation within Africa. It is the biggest tourist

attraction of South West Region as well as one of the most interesting touristic sites in Cameroon. Referred to sometimes as "The Roof of Central and West Africa," Mount Cameroon (see plate 8) has been built by very numerous volcanic eruptions each pilling one on top of the other for most part during the last half million years.

Plate 8: Mt. Cameroon, Highest Peak in West Africa, 4095m
Source: Author`s Collection, 2007

Due to the drastic changes in altitude, the natural vegetation is of great diversity and presents a sequence of vegetation forms like mangrove forests and freshwater swamps at sea level, evergreen lowland forests, sub-mountain and mountain forests to mountain and sub alpine grasslands (savannah) above 2000m. These different habitats host various endangered and endemic species, e.g. forest elephant, drill, chimpanzee, Francolin bird, as well as antelopes, reptiles and chameleons. Together with its associated low lands, the region covers an area of 175,000 hectares and is considered a biodiversity hot-spot because of its rare and endemic plant species, and endangered fauna, particularly the primate species. The main feature here is the Mount Cameroon, (the highest in West Africa). It is the beginning point of a range of mountains which stretches north to Adamawa and rises 4,095m in height and extends some 50km inland with a width of

about 35km. It runs for nearly 805 km into the Gulf of Guinea in a series of volcanic islands or cones.

Apart from the unique fauna and flora, the volcano itself, the craters and lava flows of recent eruptions, caves, crater lakes and waterfalls are a major source of attraction to nature-loving tourists and mountaineers to the region. Furthermore, the beautiful coastline with black sand beaches and river estuaries offers many possibilities for swimming and boating. The Botanical Garden and the Wildlife Centre in Limbe are also worthwhile visiting and provide good information on plants and animals of the region (Embola, 2001; Tumnde, 2001; Forbes and Bisong, 2002)

Certain parts of the Mt. Cameroon ecosystem are still fairly natural and untouched by man, like the remote crater lake of Debundscha (see plate 9). Although it is already very difficult to find primary forest around the mountain (there exist only small islands of it, the rest is secondary forest) and the savannah region is being burnt every year. The big part of the mountain covered by volcanic products like lava, ash and old rocks are completely unchanged by human activity.

Plate 9: A Crater Lake in Debunscha and the Bomana Waterfall

Source: Mount Cameroon CEO, 2006

Forest covering slopes of the mountain is a valuable natural resource, because it delivers timber and many other Non Timber Forest Products (NTFP's) like honey, medicinal, plants, etc.

4.4.1 Biodiversity Potential

Mt. Cameroon Region in southwest Cameroon is one of the world's biodiversity hotspots. Various ecosystems created by nature on relatively small area between Atlantic Ocean and 4095m high Mt. Cameroon, represent different ecological compositions. These are not only different vegetation zones, but also a home for various unique plants (e.g. medicinal plants like *Prunus africana*) and animal species living only under particular conditions, which can be met here. Furthermore, the region has a high level of endemism which are internationally recognized. For instance, about 45 of the 156 plant species found in Cameroon are endemic to this area as well as two bird species. There are also three species of endangered primate: *the singe drill, the Preuss guenon and the red ear guenon*, and a small population of elephant (Forbes and Besong, 2002). Mount Cameroon has a variety of timber species and non-timber forest products

January 2009, witnessed the successful collaring of a third elephant on Mt. Cameroon by WWF Coastal Forests (SAWA) Programme Limbe, with technical assistance from the North Carolina Zoological Park, and funds from WWF Sweden (Plate 10 below). The first two were tagged in March 2007 and January 2008, respectively. The latest one - the female elephant named Uppsala, estimated at 45 years of age, weighs about 3 1/2 tons, and has just one tusk.

4.4.2 Socio-cultural Significance of Forest in the Mount Cameroon Region

Forest products constitute an integral part of the rural economy and contribute to all aspects of rural life providing food, fuel, medicine, timber, building material, craft material and other household items to forest dwellers in the Mount Cameroon region.

Plate 10: Satellite Collar Fastened around the Neck of Tranquilised Elephant
Source: WWF CARPO/CFP_SAWA, 2009

The indigenous inhabitants of this area are very close to the forest such that local farming, hunting and gathering of plant materials for cultural dances, traditional rites and practices for medicinal purposes are a common feature. Furthermore, hunting is carried out as a means of procuring game for domestication, home consumption and for beef to be sold in other towns. Also wood from the forest constitute the main source of building materials. The houses of the native Bakweri and Bomboko consist of thatched mat-roof wooden houses locally called "*Karaboat.*" Sometimes large sections of tree bark were used to build walls of these houses.

Although the local people do not have many customary laws guarding against forest exploitation, the myths and legends connected to the mountain have helped to reduce such activities. Thus a good practice that has been applied in the conservation and sustainable utilization of biological diversity in the mountain area has been the portraying of the mountain as a mythological landscape by the traditional authorities. Their religion is ancestor worship blended with witchcraft and magic. They believe in the good and evil spirits of the forest. They consider the mountain itself as a shrine where they do go and

reverence their god "*Efasa Moto*", an elephant shaped-god whom they believe live in the mountain and who is the caretaker of the diverse resources of the mountain area.

The forest resources of the Mount Cameroon Region are under serious threat from uncoordinated land uses as well as the use of unsustainable hunting methods, the unsustainable exploitation of *Prunus africana*, large scale forest clearance for the production of food and cash crops by small farming systems and commercial planters. Also pressure from agro-industrial plantations, demographic pressures and natural catastrophes like volcanic eruptions jeopardize forest resources.

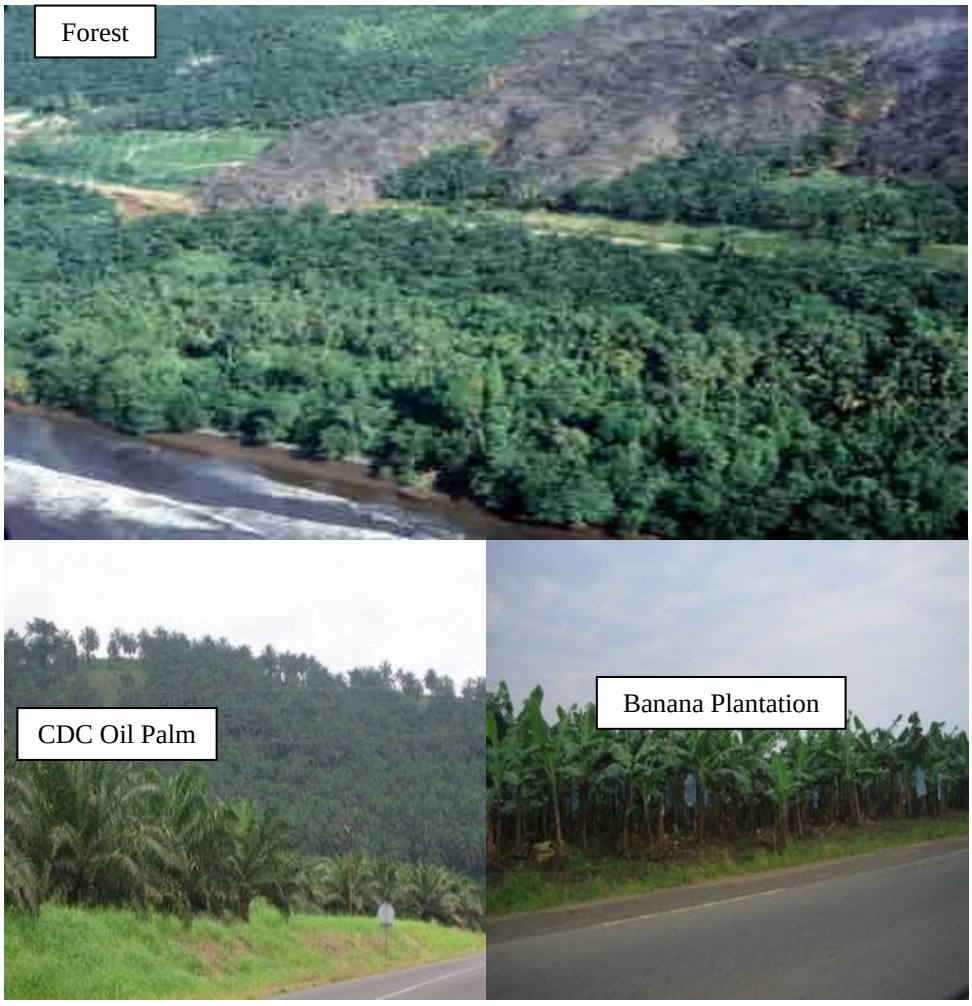

Plate 11: Partial view the destruction of CDC Plantations (Oil Palm and Banana) and Forest by the Last 2000 Mt. Cameroon Eruption

Source: Author's collection

CHAPTER FIVE: EVOLUTION OF FOREST ADMINISTRATION AND POLICY REFORMS IN CAMEROON

5.1 Introduction

This chapter focuses on an appraisal of the evolution of a forest administration and policy reforms in Cameroon. Of particular significance here is the operational definition of policy as, the laws and regulations governing forest exploitation as well as an assessment of the potentials of both past and present policies to enhance sustainable forest exploitation.

5.2 Situation Prior to Government Reforms

5.2.1 Forest Administration

According to Fonyam, (2001) of all the five-year Development Plans by the Cameroon government, beginning from 1961, only the fifth (1981/1986) and sixth (1986-1991) contained vague phrases alluding to the environment. In 1984 a decree on the re-organization of the government assigned an additional responsibility to the Ministry of Planning and Regional Development, namely, that of regional development policy and matters relating to the environment. A subsequent decree re-organizing the above ministry created the department of Regional Development and Environment. Section 51 (1) of decree no. 84/797 entrusted a Sub-Development of Human Settlements and the Environment with the task of evolving a national environmental policy and drawing up and updating reports on the country's environmental situation. The Sub-department was also charged with proposing all measures for the rational management of natural resources, the protection of the environment, the prevention of natural disasters and the fight against pollution. But the department was handicapped from inception by the lack of adequate human and financial capabilities to embark on any laudable activities. Furthermore, the severe economic crisis which started in 1986 may well have thwarted

any auspicious measures in the direction of environmental protection in general and forestry in particular.

5.2.2 The 1981 Forestry Law/1983 Decree of Implementation

Historically, Cameroon's forest sector has been hampered by weak institutions, lack of transparency and corruption. Legislation introduced by the Ministry of Agriculture (MINAGRI) and replaced by the Ministry of Environment and Forests (MINEF) in 1994, such as the1981 forestry Law and the subsequent 1983 Implementation Decree did not provide an adequate legal framework for land use planning and integrating forest conservation and production activities with agriculture (Essama-Nsssah et al, 2002; GFW, 2000). These same legislative orders failed to address the existing concession system that encouraged rent-seeking behaviour and inefficiency, and the distorted tax system, which was designed to protect an inefficient industry. The prevailing land tenure regime assigned usufruct rights to anybody who cleared and cultivated land in the state-owned forests that make up most of the dense forest. This, obviously, was an incentive for deforestation (O'Halloran and Ferrer, 1997).

Plate 12: Timber Extraction by Engine Saw

Source: Author's collection, 2008

5.2.3 Logging Regulations

The logging concessions allocation system was not transparent and gave the industry incentives to unsustainably exploit the forest. In addition, the lack of transparency in the allocation mechanism fuelled rent-seeking behaviour. This was exacerbated by the fact there was no prerequisite condition for the companies receiving the concessions to embark on sustainable forest exploitation methods. Concessions were awarded for a period of five years and based on mutual agreement between the timber industries and government authorities. Although these contracts were renewable, the preceding five year period, considered to be short, undoubtedly acted as incentive for companies to over-log their concessions. Some stakeholders contend that the short period for which concessions were awarded and the high capital cost involved in sawmill investment created incentives for companies to use old and cheaper machinery, leading to inefficiency at a rate of about 75% wastage (Ndenecho, 2005; O'Halloran and Ferrer, 1997). Furthermore, logging companies, reportedly, concentrated on a few very valuable species, and due to the extensive nature of the methods involved, they dug roads inside the forest to access the sought-after trees. Thus, the logging activities opened forest areas to individual settlers and bush meat hunters.

Plate 13: Road dug by Logging Companies for Timber Exploitation

Source: Author's Collection, 2007

Although section 23 of the 1981 law, and section 8 of the 1983 Decree clearly stipulate that the exploitation of any forest shall be subject to a prior inventory of the zone by the services in charge of forestry, this was to a large extent never respected. Worst still, government subsequently relied on inventory of private individuals or companies with vested interest in forest exploitation. Their result could not be trusted. There was also a policy requirement that 60% of all timber products be processed locally. Throughout the 1980s the government paid no attention to community forest management or to fostering any sense of partnership as a mechanism to enhance protection and sustainability of its forest resources or to ensure that the local elite did not capture the benefits intended for the local communities.

MINAGRI (Ministry of Agriculture) lacked the administrative capacity to ensure that the receipts from taxes were shared with local communities. Worse still, the forest sector policy was subservient to the development of the country's agricultural sector. With respect to the forestry fiscal system, it could be said that although it was used to boost government revenues, it was equally an indirect instrument of regulation, albeit a weak one. Four major taxes were enforced in Cameroon:

- A surface area tax at 98 CFA francs per hectare per year.
- Stumpage tax; a fixed 5% of the value of a cubic meter of wood. This value depended on the species and the origin of the log (to account for transport costs). The value of the log, however, was set administratively below market value. Besides, the government relied on the loggers' declarations with respect to the volume and the origin. This information led to low revenue.
- An export tax, a flat tax at 20% of an administratively estimated value of the log. This source account for about 75% of the total amount of taxes collected from the forest sector. This tax created distortions to the extent that processed wood was exempted, thus reinforcing the inefficiencies of the sawmill sub-sector by providing it a high level of protection.
- Finally, there was a specific forest export tax set at 10%, aimed at discouraging log export.

Generally, the situation prior to the current reform was characterized by lack of adequate legal and planning frameworks, a concession system that encouraged rent-seeking behaviors and inefficiency, and a tax system designed to protect an inefficient industry.

5.3 Government Forest Policy Framework (1990-1996)

5.3.1 Forest Administration

Against a backdrop of international agreements, many world governments are consecrating efforts in the development of strategies and policies, which favour sustainable use, protection and management of natural resources. In Cameroon, the degradation of forest, and international concerns about environmental issues motivated the government to revise its forestry policy with the view to promoting sustainable management and wise use of forest resources (Mertens, 1999; Mertens and Lambin, 2000). This initiative led to the creation of institutions such as Office National de dévelopment des forẻts (ONADEF) in 1990. The government of Cameroon`s resolve for environmental protection became more urgent after her participation in the Earth Summit in Rio de Janeiro in 1992. This resulted in the creation of the Ministry of Environment and Forests (MINEF) in April 1992 and the drawing up of the National Environmental Management Plan (NEMP). The NEMP gives provisions for policies, objectives and strategies that aim to deliver comprehensive sustainable development in Cameroon (Alemagi, 2006). The overall objective of the Cameroon forest reform is to improve practices of forest exploitation and management. The current forest policy is out to correct the past non-sustainable practices in natural resource management. It assigns a high priority to the protection of the rich and important biodiversity of the country.

5.3.2 Organisation Nationale de Regeneration des Forêts (ONADEF)

The Organization Nationale de Regeneration des Forêts (ONADEF) is a public establishment of an industrial and commercial nature with a legal personality and financial autonomy. Even though it was subsequently placed under the supervision of the Ministry of Environment and Forests, it has the responsibility of implementing

government policy on the development of national forestry sector and related activities. ONADEF is specifically charged with the following:

- Taking forest resource inventories at the expense of the state or private individuals.
- Drawing up and implementing plans for the development and regeneration of state forests,
- Implementing programmes on the control of desertification, the protection of fragile ecological zones, soil conservation and land reclamation,
- Providing assistance to the development of the timber sub-sector,
- Supervising and retraining nationals for placements in the fields of lumbering, timber processing and marketing and
- Carry out socio-economic or technical studies falling within its objectives.

5.3.3 Ministry of the Environment and Forests (MINEF)

This new ministry was charged with the following responsibilities:

- To manage and protect national forests and those belonging to bodies and councils,
- To control exploitation of forestry resources,
- To implement the execution of programmes and the regeneration of tress and development of forests,
- To collaborate with the professional bodies in the forestry sector,
- To develop and manage botanic gardens and
- To elaborate and put into effect, national policies on fauna and hunting.

In short, the Ministry of Environment and Forests implements the governments sustainable development policy, for which it has the responsibility to propose measures for a rational management of national resources in collaboration with other specialized ministries and organizations concerned with the environment.

5.3.4 The 1994 Forest Legislation

The creation of the ministry for forestry was followed two years later by the promulgation of Law no. 94/01 of 20th January 1994 by the president of the republic after approval by the parliament, which regulates forest activities. This law was followed by Prime ministerial Decree no. 95/531/PM of 23rd August 1995 which detailed the implementation of forestry regulations. This law introduced four major changes viz, allocation of concessions through an auction system, new price and taxing mechanisms, requirements for management plans and provisions for community forestry.

5.4 Main Provisions of the Current Forestry Code

5.4.1 Forest Estate

The national forest estate falls under two broad categories; Permanent Forest Domain and Non-permanent Forest Domains. Permanent Forests comprise lands that are used solely for forestry and/ or wildlife habitat. The implication of this restriction is that all other activities namely; agriculture, mining, livestock husbandry, urban development, road and other infrastructural development must not take place here. They include state and council forests, designated to cover 30% of the national territory. Examples of permanent forests include; national parks, game reserves, hunting areas, game ranches belonging to the state, wildlife sanctuaries, buffer zones, zoological gardens belonging to the state, integral ecological reserves, production forests, protection forests, recreation forests, teaching and research forests, plant life sanctuaries, botanical gardens and forest plantations. Any development of a permanent forest must be based on a management plan which ensures the sustained production of forest products and services, without affecting the primitive value, compromise the future productivity of the forest or causing any damage to the physical and social environment. Even access may be regulated depending on the type of resource and the management objectives. This implies that even customary rights could be curtailed for the surrounding population. The 1994 law, however, provides for compensation for such curtailment. This is a precautionary measure to guarantee that goods and services from these forests will always be available in the

country (Fonyam, 2001; Besong and Ngwasiri, 1995; Forestry Law, 1994). According to Besong and Ngwasiri, (1995) since access to permanent forest lands is restricted, the local population has no incentive to protect them for the sustainable production of goods and services.

Non-permanent Forests on the other hand, comprise forest lands that may be used for purposes other than forestry and includes communal forests, community forests and forests belonging to private individuals. Communal forests are those which do not belong to the state, local council or private individuals, and do not include orchards, agricultural plantations, fallow land, wooded land adjoining an agricultural farm, pastoral and agro-forestry facilities. Although there is provision for communal forests in the law, the most the local population can benefit from such forests is a customary right, defined as "the right which is recognized as being that of the local population to harvest all forest, wildlife and fisheries products freely for their personal use, except the protected species." The law further prescribes procedures for acquiring and disposing of forest products, beyond these rights (Fonyam, 2001; Besong and Ngwasiri, 1995; Forestry Law, 1994).

5.4.2 Logging Activities

According to the forest legislation currently in force in Cameroon, any logging activity is subject to approval by the authority in charge of forests and can only be granted to residents of Cameroon or companies registered in Cameroon. Furthermore, a state forest may equally be granted for exploitation to a government corporation, or to a company in which the government has at least 51% of the capital (Law of 20 January 1994, Article 41(1), Decree of 23 August 1995, article 35(3)). The 1994 forestry Law meanwhile provides for four types of exploitation titles:

- The exploitation contract
- The sale of standing volume
- Forest exploitation permits and
- Personal logging authorization

5.4.3 Exploitation Contract

An exploitation contract which can only be granted for a state production forest (Article 44(1), Law of 20 January 1994), gives its beneficiaries the right to collect a specific volume of timber from a forest concession. The surface area allocated, may not, under any circumstance be more than 200,000 hectares. The contract to be signed by the Prime Minister, after approval of the inter-ministerial commission for the granting of forest exploitation titles, has duration of 15 years renewable. The contract may only be signed after the beneficiary has signed a provisional exploitation contract with the administration, at a maximum duration of three years non-renewable. The ministerial approval is predicated upon the fact that the successful bidder produces a document showing that he has paid a deposit in a bank of good standing approved by the monetary authority. Also that the conditions provided for the allocation have been met by the tender.

The concessionaire may only sign the final contract if, during the period of validity of the provisional contract, he undertakes the following activities according to the rules in force and under the technical supervision of the forestry administration:

- Demarcate the boundaries of the concession and felling areas
- Submit a management inventory
- produce a management plan
- Produce the first five-year management plan
- Produce an annual action plan for the first year of the management plan
- Make an annual exploitation inventory for the surface area to be covered each year.
- Where necessary, set up a processing plant or equip an existing one for the purposes of timber activities emanating from the area.
- Where necessary, carry out an environmental impact assessment where the concession borders a protected area and/or is situated in a buffer zone of a protected area (Law of 20 January 1994, Article 49(1); Decree of 23 August 1995, Article 67, Provisional contract specimen appended to the order of 25 May 2001 on management plans, Article 4).

5.4.4 Sale of Standing Volume

The Minister of forestry is the one who grants this in state production forests and the national forest estate. Grants are made through a public invitation to tender, in which tenders are examined by an inter-ministerial commission for the granting of forest exploitation titles (Decree of 23 August 1995, Articles 58(1) and 82(2).

A sale of standing volume in a state production forest is an authorization to exploit for one year nonrenewable, a volume of timber sold as trees that does not exceed the allowable annual cut (Law of 20 January 1994, Article 45 (1 and 2). On the other hand, a sale of standing volume in the national forest estate is an authorization given to exploit a specific volume of timber sold as trees over a surface area not more than 2,500 hectares and not more than the allowable annual cut for a nonrenewable period of three years (Law of January 20 1994, Article 55).

5.4.5 Exploitation Permits

An exploitation permit is an authorization given to exploit or collect well specified quantities of forest products in a given area. These may be special products (ebony, ivory, wild animal horns, as well as certain animal, plant and medicinal species of particular interest), lumber in volumes not exceeding 500m^3, or firewood or poles for commercial purposes. The period of validity of a permit depends on the volume of products sold and indicated in the title. However, the duration cannot, for any reason whatsoever exceed one year. (Law of 20 January1994, Article 56 (2), Decree of 23 August 1995, Article 86(5) Equally, Article 56(3) provides that for other special forest produce (ebony, ivory, wild animal horns, plant and medicinal species), firewood, and poles, desired by an individual for non-commercial use, exploitation permit can be granted by mutual agreement for a nonrenewable period of three months.

Furthermore, it is the Minister in charge of Forestry who grants the permit after the approval of the inter-ministerial commission for the granting of forest titles (Decree 23 August 1995, Article 86(2). Meanwhile the Governor grants exploitation permits for

lumber and firewood or poles after the approval of the provincial technical commission (Decree of 23 August 1995, Article 86(4).This exploitation permit can only be granted in a national forest estate.

5.4.6 Personal Logging Authorization

This is an authorization issued by the provincial delegate of forestry for volumes of timber not more than $30m^3$ for private, non-commercial use. It is valid only in the national forest estate of which the period of validity cannot exceed three months. It usually specifies the area of exploitation and the number of trees per species that can be exploited (Law of 20 January 1994, article 57(1), Decree of 23 August 1995, Article 94).

Also, the hitherto, policy requirement that 60% of all timber products be processed locally was augmented to 70%. This had tremendous economic and environmental benefits for instance in slowing down deforestation through minimal fuel wood and charcoal utilization.

5.4.7 Management Plans

On the other hand, the law in section 40 provides that exploitation of any forest shall be subject to a prior inventory of the said forest in accordance with the rules fixed by the Ministry of Environment and Forests. This approach is aim at a systematic and scientific management, based on statistical data (inventories), subject to approved management plans. These plans must address the ecological, economic and social aspects of maintaining a sustainable logging operation, as defined by administrative texts (Decisions 0107/D/MINEF/CAB and 0108/D/MINEF/CAB of February 9th, 1998). Once these plans are accepted, the logging rights are finalized and the 15-year validity period officially begins. Each concession is supposed to be divided into sections to be logged during a five-year time frame with an overall rotation period of 25 years. The coming in force of the prerequisite of a management plan as well as the extension from 5 to 15 years renewable has gone a long way to curb this rent-seeking attitude of exploiters thereby enhancing sustainable management.

5.5 The Concept of Community Forests in Cameroon

A laudable innovation of the 1994 forest law was the provision allocated to community forestry. A community forest is defined in section 3(11) of the implementing decree as a forest forming part of the non-permanent forest, which is covered by a management agreement between a village community and the forestry administration. Management of such forests is the responsibility of the village community concerned, with the technical assistance of the forestry administration. Thus, in order to promote the management of forest resources by village communities who so desire, a management agreement is signed between the government and the community whereby the government destitute itself of part of its colossal forest reserves for the benefit of village communities. They must, in turn, manage it in accordance with a previously drawn up plan. Meanwhile all forest products resulting from the management of community forests belong wholly to the communities concerned (Sections 37 and 38, 1994 Forestry Law).

However, community participation cannot be restricted to ensuring that local population share in the benefits accruing from forestry activities, as the forestry laws seem to suggest. Thus although community forestry is one of the principal innovations of the new forestry law, the practical applications betray certain non-negligible flaws and contradictions. For instance, the concept of community forest as conceived by the 1994 Forestry Law is not a wholesale transfer of the rights in property but simply a transfer of management, since the state is the dejure owner of the resources. Hence, the appellation is a misnomer. According to Tumnde, (2001) the wording of section 37(1) of the Forestry Law suggests that there will be a partnership between the forest service on the one hand and the local community on the other in the management of the community forest. But this is not the case because the local community implements the management agreement under the supervision of the forestry service which can either suspend the activities in the management plan or annul the agreement. For example, the sale of standing volumes or authorization to cut poles falls within the prerogative of the state to be undertaken by it on behalf of the community. This gives the impression that the community forest is an ephemeral rather than a long-term project. This very fact constitutes to some extent, a disincentive to sustainable forest management. Furthermore, it does not provide any long

term assurance to the community as it is meant to perpetuate the firm grip of the state over forest resources. In the light of all these, participation actually becomes a burden and is passively accepted. And since the exploitation of forest resources are the prerogative of the state, there is thus no equitable distribution of benefits accruing from forest activities, a cardinal principle of the community forest management system.

Besides, despite legal provisions which stipulate that technical services will be provided free by the forestry administration to help the communities to prepare their applications, the cost remains high. The preparation of applications for the establishment of a community forest requires the mobilization of a great deal of resources. The cost of all preliminary work including the inventory of all forest resources, culminating in the drawing up of an acceptable management plan has to be entirely borne by the local community. Due to the fact that the preparation of inventories entails the hiring of experts, the cost, in the Southwest has been estimated at between 1,000,000FCFA and 16,000,000FCFA. This is a disincentive to the proliferation of community forests. Tumnde, (2001) postulates that since it will almost impossible for any local community to raise such a colossal sum of money, it is very probable that powerful elites with resources to pay for an inventory may become the de facto beneficiaries of community forests. Consequently, it is rather a utopia to talk of community forest as a tool within the reach of rural people wishing to manage their own resources.

In effect, the 1994 law was an instrument used by government to nationalize all forest resources with the exception of trees planted by public individuals and local councils. The state subsequently became the sole proprietor of these resources and can alone allocate or otherwise deal with them in any other manner. But one frequently asked question is whether it was appropriate to nationalize even forest resources which were actually in occupation by customary communities before the coming into force of the new forestry legislation? Fonyam, (2001) acquiesces with this governmental approach and contends that by subjecting all forestry resources to government regulations, the state can ensure effectiveness of government policies with regard to forest and wildlife

resources management, thereby curbing irregular dealings which are prejudicial to its goals.

Theoretically, 10% of the tax levied on concessions within the permanent forest domain is to be paid to neighbouring local communities. Conversely, within the non-permanent domain, a percentage of the felling tax levied on v*ente de coupe* is to be paid to neighbouring local communities. But the most unfortunate thing is that local communities do not often receive their financial entitlement from logging companies. Furthermore, in instances where the due is paid, it is not often put in good use and there is also no proper accountability. This is usually a catalyst for social upheaval and the lack of cooperation from the local people**.**

Table 5: Basic Forest Taxes in Cameroon

Stumpage Tax	**Allocation Tax**	**Export Tax**	**Transfers Tax**
2.5% of FOB price	Applied per year per hectare. 1,500CFA Francs (US$ 2.40) for UFA concessions and licenses. 2,500 CFA Francs US$ 3.90) for standing volume	Applied to volume of raw logs exceeding the allowed quota. Varies from 8000 CFA Francs (US$12.60) to 15000 CFA Francs (US$ 23.60) per cubic meter	100 CFA Francs (US$ 0.16) per hectare

Source: MINEF, 2003; GFW, 2000

It should be noted that the information presented in the above table is strictly for direct forestry taxes only. Other non-forestry taxes are applied to logging activities, just as they are to any other economic activity in Cameroon. Meanwhile the new taxation system increased fiscal revenue. However, tax recovery still remains a major problem. This responsibility has shifted from MINEF to the Ministry of Economy and Finance, which in turn has contracted an independent Swiss company (SGS – Sociétè Générale de Surveillance) to control log exports going through Douala (MINEF, 2003; GFW, 2000).

5.5.1 Offences and Penalties

The 1994 forestry law upholds the legacy that fines and terms of imprisonment can be imposed on defaulters with the twin objectives of deterring would-be offenders on the one hand and compensating the damage done on the environment on the other hand. As a matter of fact, Article 141(1) of the 1994 forestry law stipulates that:

> *Without prejudice to the prerogatives of the legal Department and the judicial police officers having general jurisdiction, sworn officials of the services in charge of forestry…shall, on behalf of the state, local councils, communities or private individuals, investigate, establish and prosecute offenses relating to forestry.*

The following therefore are some of the major highlights of offenses and penalties sanctioned by the law:

1. **Exploitation without a title**
   - This amounts to cessation of activity/seizure of products collected illegally as well as the objects used to commit the offence.
   - A fine of 3,000,000 to 10,000,000 FCFA and/or imprisonment of one to three years, in case of exploitation of a State or Council forest (Law of 20 January 1994, Articles 158 and 159).
   - A fine of 200,000 to 1,000,000FCFA and/ or imprisonment for one to six months, in case of exploitation in a Council or Community forest (Law of 20 January 1994, Articles 142(2) and 156 and 159).
2. **Exploitation beyond the boundaries indicated in the title or beyond the volume and time limit provided:**
   - A fine of 3,000,000 to 10,000,000 FCFA and/or imprisonment of one to three years.
   - Cessation of activity/seizure (Law of 20 January 1994, Articles 142(2), 158 and 159).
3. **Exploitation with permits, of unauthorized forest products, beyond the boundaries and above the volume and period provided:**
   - Damages for the illegally exploited products.
   - Cessation of activity/seizure.

- A fine of 50,000 to 200,000FCFA and/or imprisonment for twenty days to two months.

Meanwhile, by the provisions of article 42 of the 1994 forestry law, exploitation licenses are not transferable. Article 14 of the same law prohibits anyone from setting fire on a state forest or light fire that may cause damage to the vegetation without prior authorization. Any defaulter risks a fine of 50,000FCFA to 200,000FCFA francs or imprisonment of up to 20 days or both. Thus the law restricts overuse and destruction through fire and wanton clearing of the forests, of vegetation as a whole. Meanwhile though the law recognizes indigenous rights, it also controls the utilization of such rights and makes a charge for harvest and use of forest products.

Last but not the least, the 1994 law also covers wildlife and stipulates that anyone found in possession of part of dead or live protected wildlife species is liable to three years in prison or pay a fine of up to 10 million CFA francs. However, to achieve these, the law requires appropriate technical, professional and financial qualifications from those to be involved in managing these resources. Unfortunately this is not often the case owing to the pervasiveness of corruption in the country.

There was also the creation of a National Forestry Action Programme (NFAP) in 1995. The programme has as mandate;

- The establishment of mechanisms for the protection of the forest heritage.
- The participation in safeguarding the environment and the preservation of biodiversity in Cameroon.
- The increase participation of local people in forest conservation so as to improve on living standards.
- Develop forest resources with the view of increasing GDP while conserving production potential of fuel wood, timber, non-timber forest product and wildlife.
- Ensure resource renewal through regeneration, reforestation with a view to sustaining land potential.

- Revitalize the forestry sector by setting up an efficient institutional system that involves all parties concerned with the management of the sector.

5.5.2 The Log Export Ban

The government imposed a log export ban in 1999 on endangered hardwoods in *Clorophora excelsa* (iroko), *Erythrophleum ivorence* (maobi) and *Guibourtia demeusel* (bubinga), though not sapelli and ayous, the country's largest hardwood exports. This followed after five years of intensive logging and government's failure to effectively implement a policy aimed at reducing raw-log exports and encouraging processed wood exports. This act helped to promote the exploitation of hitherto underutilize species. Also, the policy requirement that 60% of all timber products be processed locally was increased to 70% (Article 71 of law 94-1). The advantage here is that bi-products of the timber processing such as saw dust used for cooking would be beneficial to the local people thereby mitigating fuel wood demand and consequently, deforestation.

Plate 14: Sawdust Cooker and a Three-Stone Fire-Side

Source : Author's Collection, 2008

5.5.3 Zoning Plan Strategy

In her continuous strife to ward off major threats to her rich tropical forest patrimony of tremendous benefit to the population, Cameroon is pursuing a zoning plan strategy. The

strategy aims at bolstering the expected 30% of the national territory as permanent forest estate. This is a good idea because each year 75-95,000 hectares of forest are lost to agriculture alone. Also, fuel wood demand is expected to increase coupled with a population growth rate of about 3%. Targeted by this strategy are the production forests, the designated locations for active logging concessions. For example, the land use planning exercise which covers the 14 million hectares of the forested southern part of Cameroon of which inventory data are already available is a means of ensuring that enough forests are conserved and well managed. The area now under permanent forest estate is about 13% of the national territory (Ndenecho, 2005; Essama-Nssah et al, 2002; Essama-Nassah and Gockowski, J.,2000, Besong and Ngwasiri, 1995), though Tesi, (2004) contends that this is merely on paper.

5.6 Agricultural Research/Personnel Training

Although the government has taken certain measures restricting some forest areas from the population, facilitated by a Global Environmental Facility (GEF) grant and a Dutch (DGIS) grant of about 12.4 million US dollars obtained in 1995 to help in the protection of the country's biodiversity, it is evident that these are no panacea to the problem of forest degradation. Hence, the government also stepped up its agricultural research through a National Agricultural Research Project which was made possible by funds from donor agencies like the World Bank, GTZ and ODA. With a total of about 24 million US dollars from these three agencies, this project whose aim was to increase the productivity and incomes of small-scale agricultural producers through technology creation and transfer ran effectively from 1988 to 1993 and involved some of the country's leading research institutes like Institut de la Recherche Agronomique (IRA) and Institut de la Recherche Zootechnique et Vétérinaire (IRZV).

Similarly, a national training and agricultural extension programme began in 1997. It employed 2,394 personnel. With the increased mobility of the extension agents following the distribution of motorcycles, a good number of farmers were reached. A major setback of this project was organizational insufficiencies such as lack of qualified technicians,

especially women, to serve extension demands and the arbitrary relocation of extension agents (Essama-Nssah et al, 2002).

5.7 Partnership with International NGOs

Still in a bit to mitigate unsustainable forest practices in the country, the government has reached technical and financial agreement with international NGOs working in this domain. Such NGOs like Birdlife International, World Wildlife Fund for Nature (WWF) and Living Earth etc, which have been working with local forest dwellers, transferring technology and knowledge in the domains of agriculture, bee farming as well as other alternatives to livelihood (Ngwa and Fonjong, 2002). This enhances forest sustainability. However, attempts by National Forest Development Authority (NFDA) to protect or rehabilitate the forest are at times contradicted by development measures of the Ministries of agriculture, and animal husbandry (increasing expansion and market orientation of market gardening food commodity production and livestock). These measures degrade the forest by promoting encroachment (Ndenecho, 2005).

5.8 Environmental Education

Some strides are being made in the domain of environmental education aimed at sensitizing pupils, students and the general public. The training of primary and secondary school teachers in seminars and workshops on environmental issues and the introduction of environmental education and clubs at all levels is evident. It is also in recognition of, and an attempt to respond to the serious environmental problems and challenges that the government created the pioneer environmental science department in the University of Buea in 1996. The department is involved in public sensitization and various researches is helping to create awareness as well as helping out with solutions to some of the environmental hazards.

Meanwhile to enhance public environmental education, both the government and other stakeholders like NGOs are employing the traditional mass media and other forms of

communication to disseminate environmental messages. As a matter of fact, virtually all Cameroon state own media have slots dedicated to environment. However, a major constraint to these conventional media use remains the fact that the national and regional stations do not transmit their broadcasts nationwide, especially to the remote areas. This imbalance and major disadvantage to the rural people necessitated the establishment of government rural radio stations in Kembong (Mamfe), Oku and other communities.

Muluh and Ndoh, (2002) posits that the main reasons behind the establishment of the rural radio stations were to reach out to the rural audiences and promote basic educational and technical skills, as well as to assist rural audiences undertake basic decision making at the community level.

On the whole, Cameroon could be said to have a fairly good environmental policy but for the fact that it lacks an auspicious implementation strategy. Some principal constraints to policy implementation are bad governance, corruption, weak institutional capacity, limited enforcement and lack of monitoring capacity (World Bank, 2002). Besides, most analyses of the causes of deforestation in Cameroon duel a lot on timber exploitation by multinational corporations and sometimes overlook the colossal damage usually brought about by small holder agriculture and practices such as shifting cultivation or slash and burns, firewood extraction, timber for local extraction, etc. All of these need to be taken seriously into account, in order to find a comprehensive and long lasting solution to the problem.

5.9 Afforestation and Re-afforestation

The government of Cameroon, meanwhile in 2009 launched a forest regeneration programme aimed at planting about 3 million trees in the country with special priority given to ecologically fragile zones. The Minister of Forestry and Wildlife, Elvis Ngolle Ngolle said that the forest regeneration program is aimed at fighting climate change. According to this programme, 13,000 trees will be planted across the North West Region, 60,000 trees in Mt Bamboutos in the West Region and 90,000 trees would be planted along Lake Chad, sponsored by the governments of Cameroon, Chad and the United

States of America. But perhaps suffice to mention here that tree planting is only part of the solution to the serious problem of deforestation and forest resources degradation. There is need for a twin approach of conservation and rural development.

CHAPTER SIX: RESULTS AND INTERPRETATION

6.1 Introduction

This section is dedicated to the presentation and interpretation of results arising mainly from the field survey. The sequential arrangement of the results also follows the logical ordering of the stated hypotheses.

6.2 Comparing Deforestation and Forest Degradation in the Mount Cameroun (MCR) and Mount Kilum (MKR) Regions

This comparison is necessitated by the assumption or hypothesis that the State forest of Mount Cameroon Region is more liable to deforestation and degradation than the community forest of the Mount Kilum Region.

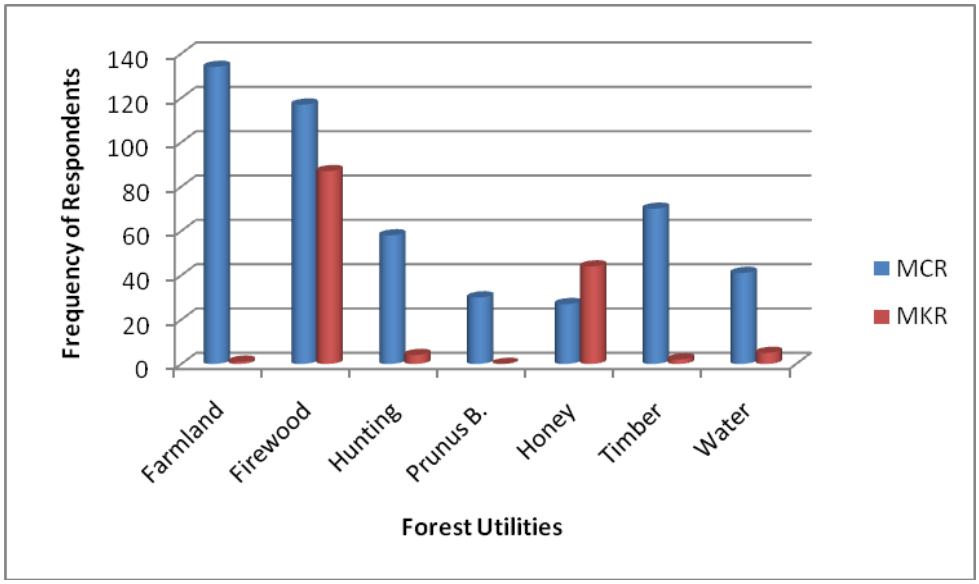

Figure 7: Forest Exploitation in Mount Cameroon and Mount Kilum

As can be deduce from Figure 7 above, the Mount Cameroon Region (MCR) is more vulnerable to deforestation and forest degradation than the Mount Kilum Region. This is evident given the scope and intensity of elements exploited in the forest. Mindful of the proportionality of respondents, when one considers for example forest exploitation as

farmland, all the 135 respondents (100%) in the Mount Cameroun Region were involved in this malpractice as opposed to only 1 (1%) out of the 97 effective respondents in the Mount Kilum Region. However, with regards to firewood extraction, both regions are almost at the same level with 117 respondents (86%) and 87 respondents (89.6%) in the MCR and MKR, respectively. This is because firewood is the dominant energy source in Cameroon. Timber extraction is almost a non event in the MKR as only 4 of the respondents (4.1%) are involved in this domain as compared to 70 respondents (51%) in the MCR. Similarly, as concerns one of the most non-timber forest products, wildlife hunting, which is contributing to the degrading state of biodiversity, the MCR dwarfs the MKR, with 58 respondents (42.9%) as opposed to 4 respondents (4.1%) respectively indulging in this activity. Meanwhile, the MKR overshadows the MCR in honey extraction. The reverse holds true for the extraction of the bark of *Prunus africanna*. However, given both the overall nature of elements exploited as well as the gender heterogeneity involved in the exercise, a statistical comparison was deemed necessary.

6.2.1 Gender Statistical Comparison of Forest Exploitation in MCR and MKR.

Table 6: Forest Exploitation by Gender in the MCR (Fako)

Utilities	Number of Males	% on Male Respondents	Number of Females	% on Female Respondents
Farmland	74	98.6	60	100
Firewood	69	92	45	75
Timber	65	86.6	2	3.3
Hunting	57	76	0	0
Prunus Bark	30	40	1	1.6
Honey Extraction	26	34.6	0	0
Water source	26	34.6	15	25

According to Table 6 above, and proportionate to the category of respondents, the male gender is more actively involved in forest exploitation than the female gender. Their activities span both the timber and non-timber forest products, NTFPs. Besides, they spearhead the conversion of forest for farmland, firewood extraction and timber, factors highly associated with deforestation and climate change. The same scenario holds true for the MKR, albeit at a highly mitigated level (See table 7 below). However, the only element of prominence, with serious nefarious consequences is firewood extraction. Meanwhile it is important to note that in the MCR more women than men exploited the forest for farmland. This has to do with the traditional tenure customs in which case, Women often have weaker land and natural resources rights than men, which, coupled with inequitable education, lessens the opportunities available to women. In Cameroon, for example, women have only user rights and not ownership rights to the land.

Table 7: Forest Exploitation by Gender in the MKR (Oku)

Utilities	**Number of Males**	**% on Male Respondents**	**Number of Females**	**% on Female Respondents**
Farmland	1	2	0	0
Firewood	47	95.9	31	64.5
Timber	2	4	1	2
Hunting	2	4	0	0
Prunus Bark	7	14.2	0	0
Honey Extraction	33	67.3	6	12.5
Water source	0	0	3	6.25

Given the scope of forest exploitation in Anglophone Cameroon, and with a high potential for deforestation and degradation, particularly in the MCR, a policy compliance ratings is hereby deemed necessary. From figure 8 below, the degree of forest exploitation policy compliance is higher in the MKR and by extension in the community-managed forest than in the MCR and by implication the state-managed forest, with a

compliance ratings (fully and partially inclusive) of 96.6% and 58.5%, respectively. Meanwhile the MCR registered a relatively high degree of disregard for the policy, 41.4% as opposed to none for the MKR.

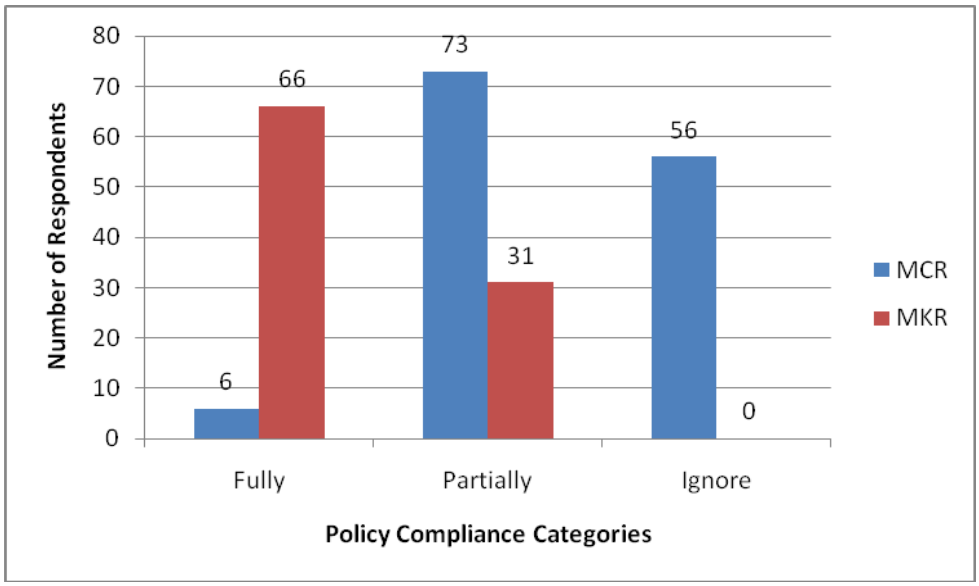

Figure 8: Respondents Compliance to Forest Exploitation Policy

6.3 Environmental Communication and Impact on Forest Exploitation

This section is dedicated to the appraisal of Environmental Communication (EC) approaches and whether or not they impact significantly in mitigating non-sustainable forest attitudinal change. It ensued because of the hypothesis that EC approaches employed are ineffective and impact insignificantly in mitigating forest exploitation.

As delineated in Tables 8 and 9 below, the overall environmental communication orientation adopted by MINFOF and collaborative partners, namely; GTZ and ASSOFOMI is appropriate. Employing from conventional mass media, meetings, seminars and workshops, to the recognition and very frequent use of the rural radio as is the case with Bonakanda in the MCR and the community radio in the MKR, is a serious boost for sustainability efforts, coupled with the vital information and technological transfer and the potential of communicating in either English, Pidgin English (lingua

franca) or local regional languages. Besides, the radio is the most accessible medium in Cameroon.

Table 8: Environmental Communication Approaches by MINFOF and GTZ

Institutions	Channels	Frequency	Information Themes	Media
MINFOF GTZ	Television Newspaper	Frequently	Forest policies, Land use management, Climate change, Global warming, Deforestation, Agricultural information Birth control and HIV	English, Pidgin and local dialect (Bakweri)
	Bonakanda Rural Radio	Very Frequently		
	Meetings Seminars Workshops Face to face Field Visits	Less frequently		

Table 9: Environmental Communication Approaches by MINFOF and ASSOFOMI

Institutions	Channels	Frequency	Information Themes	Media
MINFOF ASSOFOMI	Television Newspaper	Less frequently	Forest policies, Forest sustainability, Bush fire, Illegal activities, livelihood options, Alley cropping, Contouring and Organic Manure	English, Pidgin and local dialect (Oku, Fulfulde, Noni and Lambso)
	Oku Community Radio(Voice of Oku)	Very Frequently		
	Meetings Seminars Workshops	Less frequently		

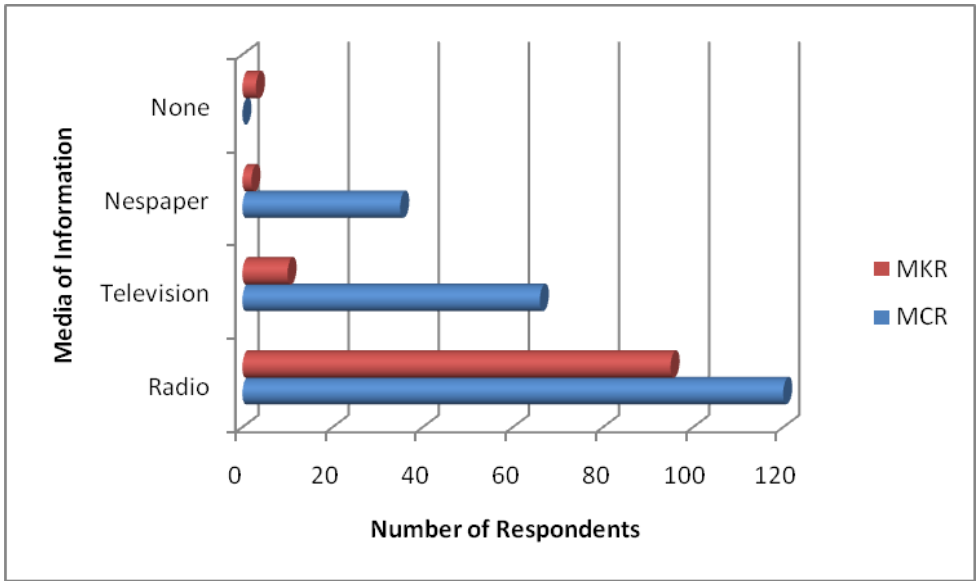

Figure 9: Public Access to Media of Information

According to survey statistics on public access to the media of information, presented in figure 9 above, the radio (rural and community) is the most depended upon, with more than 87% of respondents in both the MCR and MKR relying on this medium for environmental and other messages. This further justifies the choice of radio as the most frequently use medium by both the government and conservation support institutions in dissemination of environmental messages and effects. Furthermore, while there is a considerable measure of access to newspaper and television in the MCR, these are almost inexistent in the MKR due to the poor road network and enclave nature of the region because of lesser rural development.

From the column chart presented in Figure 10 below, it is evident that respondents from both the MCR and MKR have acquired a significant knowledge of deforestation consequences from the media, although, generally, respondents from the MKR dominate in all spheres except “Firewood Time.” This most probably has to do, overall with the age of the radio station, the duration of broadcast and the level of professionalism of the MKR broadcasters. How has these translated, significantly into the expected outcome, mitigation in forest exploitation? An attempt to check this is presented in figure 11 below.

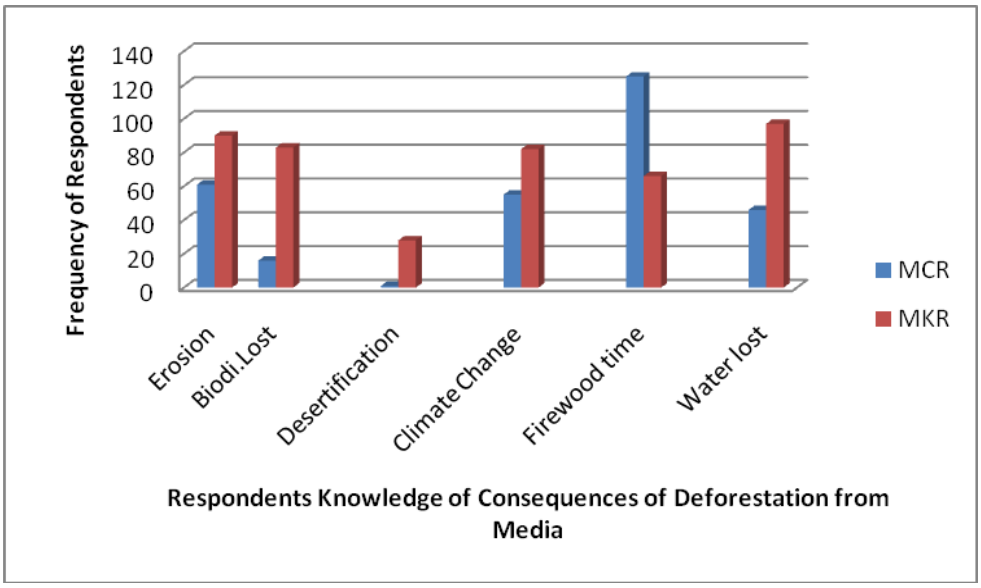

Figure 10: Respondents Knowledge of Effects of Deforestation from Media

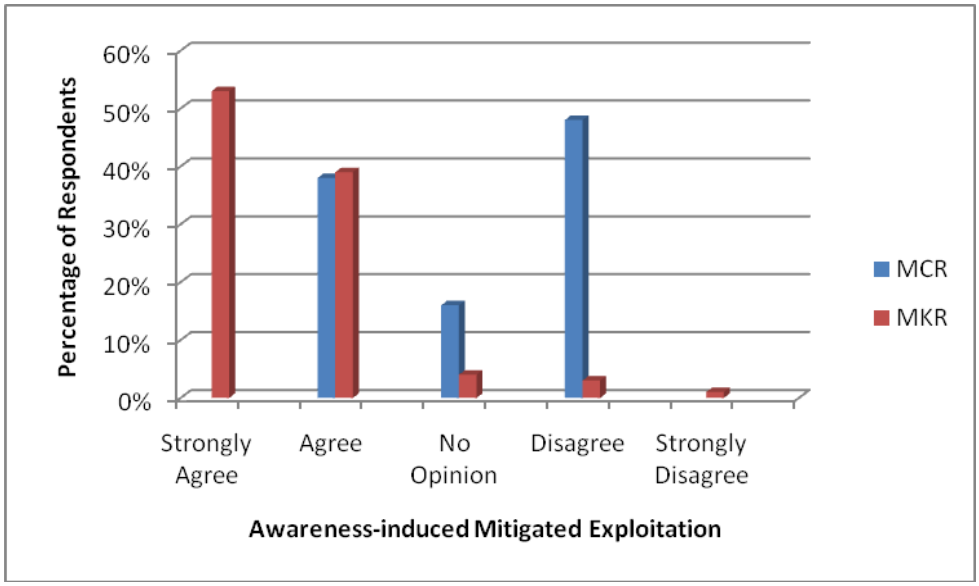

Figure 11: Respondents Opinion on Sensitization and Exploitation Rate

The overall environmental communication strategy, the mass media in general, and the rural radio in particular have, through public senstization on the negative conseconquences of deforestation, impacted positively in scaling down the rate of forest exploitation in both the MCR and the MKR (see figure 11). However, more positive results have been achieved in the MKR where 51 respondents (52.5%) agreed strongly

and 38 (39.1%) of respondents agreed that knowledgibility of the consequences of deforestation has brought about a reduction in their forest exploitation activities. Meanwhile the percentage of those who had no opinion, disagree or disagree strongly, 4.1%, 3% and 1% respectively were less than 10% . In MCR, a certain degree of nonchallence was observed as only 51 respondents (37.7%) agreed to have curtailed their forest activities while 65 respondents (48%) disagreed to any reduction of the intensity or scope of their forest activities. Also, 22 respondents (16.2%) proferred no opinion on regarding reduction in the way they exploited the forest.

6.4 Poverty and Unemployment Enhance Forest Exploitation

This section sought to either refute or ascertain the assumption that the wealth of the forest depends on the wellbeing of those who live adjacent to it. Consequently, it investigated the role of poverty and unemployment on forest exploitation. The outcome of this investigation is presented in Figure 12 below.

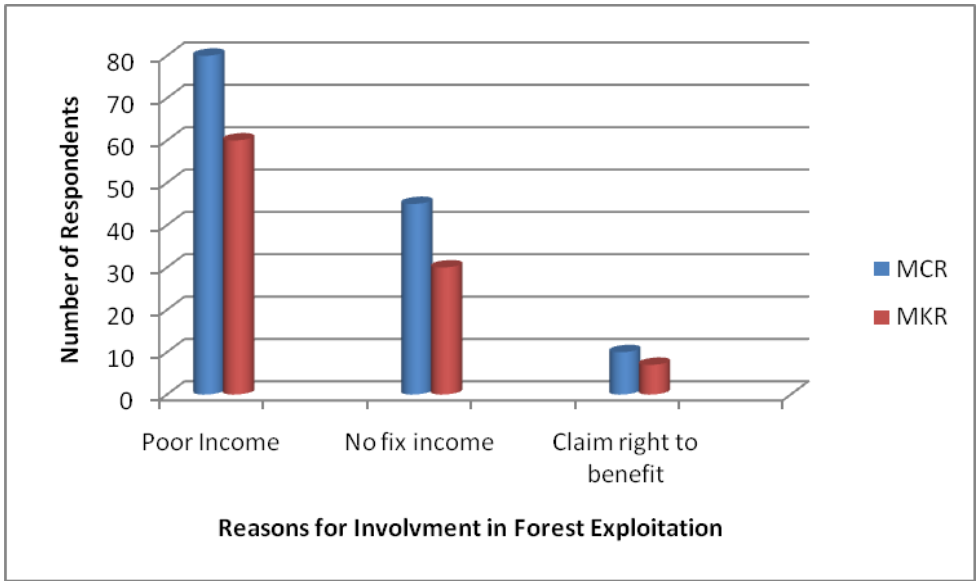

Figure 12: Reasons for the Exploitation of Forest in the MCR and MKR

Going by figure 12, poverty and unemployment are critical drivers of forest exploitation as 80 (59%) and 45 (33%) of respondents in the MCR acquiesced to the fact that poor income and no fix income (unemployment) respectively, were justifications as to why they indulged in forest exploitation. In the same vein, 60 (61.8%) and 30 (30.9%) of

respondents in the MKR, also said poor income and no fix income respectively were responsible for their intervention in the forest. However, their intervention is mostly in the domain of fuelwood due to the scarcity and cost of alternative energy sources. Forest exploitation on the basis of respondents' claimed-right to share in the benefits was not very significant as only 10 (7.4%) and 7 (7.2%) in the MCR and MKR respectively were observed under this category.

Meanwhile, given that poverty is the overriding reason of forest exploitation, it is important to investigate if the overall objective of the exploitation does translate into any form of enhancing human wellbeing. Figure 13 below confirms this fact.

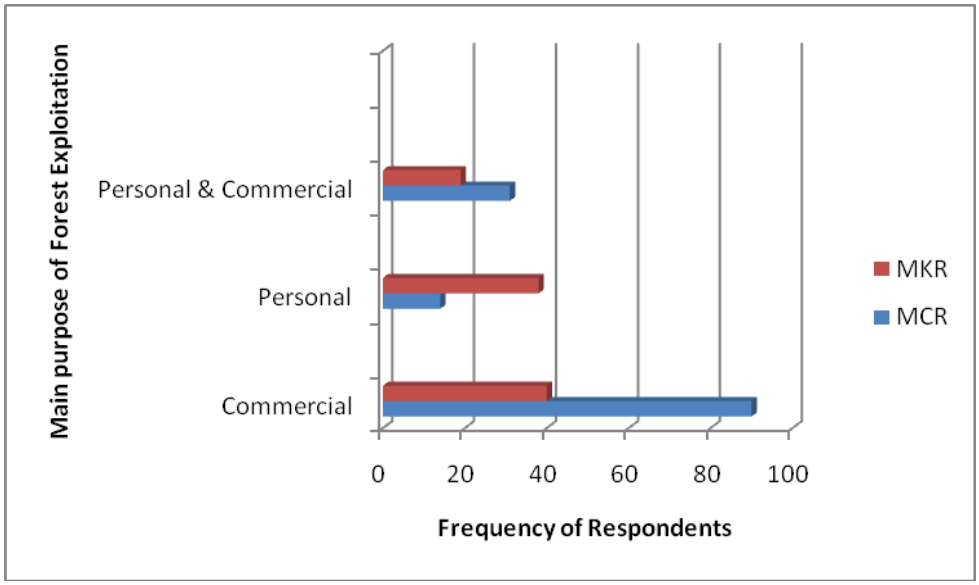

Figure 13: Motives of Forest Exploitation by Respondents

According to figure 13, the primary objective of forest exploitation is to enhance human wellbeing by either direct usage (personal) or by monetization (commercialisation) or by both (personal and Commercial). Each of these either mitigate expenditure or supplement income or provide the badly need legal tender. However, a potential danger is the fact that 90 (66%) of respondents in the MCR exploit the forest solely for commercial purpose as opposed to 38 (39%) of respondents in the MKR. The danger is signaled by the relatively high degree of nonconformity to policy requirements observed in the MCR. Similarly, 30 (22%) and 18 (18.5%) of respondents in the MCR and MKR respectively

indulge in exploitation for both personal and commercial purposes. A partial solution seems the introduction of some poverty alleviation measures. To what extent do respondents agree to this?

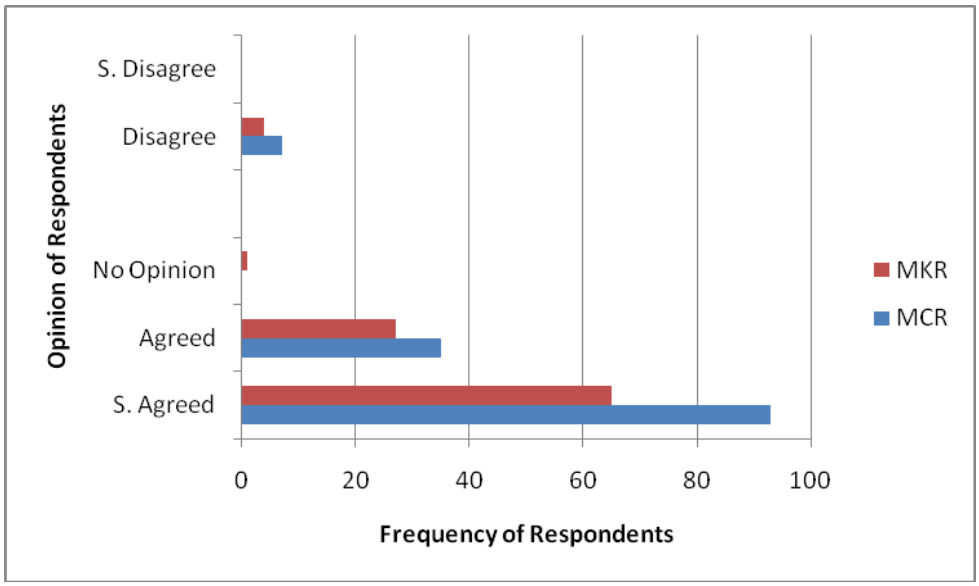

Figure 14: Opinion on Poverty Reduction as Boost to Sustainability

As can be deduced from figure 14 above, there is an overwhelmingly positive response on the aggregate, with regard to the fact that the introduction of certain poverty alleviation measures will take off some pressure frome the forest, thereby enhancing sustainability. To this effect, 92 (68%) and 63 (64%) of respondents in the MCR and MKR, respectively strongly agree, while 38 (24%) and 28 (28.8%) of respondents in MCR and MKR, respectively agreed to this axiom. Those who disagree were insignificant. However, to have a better insight on the plausible policy and strategies for the enhancement of sustainable forest exploitation, an appraisal of public perception of the current policy as well as incentives for compliance is important.

6.5 Policy Evaluation and Forest Sustainability Strategies

This section is dedicated to an evaluation of the forest policy by respondents with the aim of understanding the tendency for compliance by equally assessing respondents accessibilty to certain fundamental policy-enhancing elments.

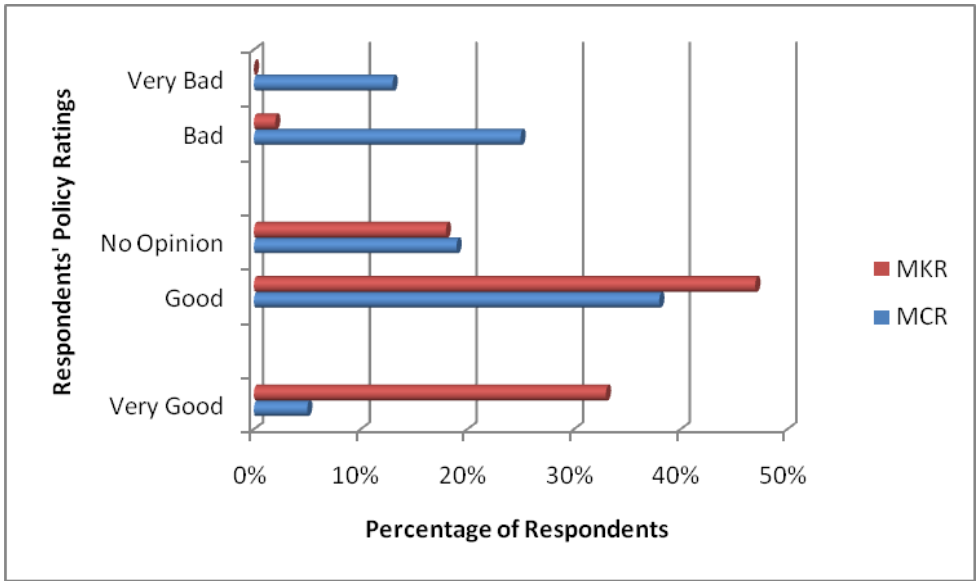

Figure 15: Respondents' Forest Policy Evaluation

According to the responses garnered from respondents concerning their appreciation of forest policy, presented in figure 15 above, 33% and 47% of respondent in the MKR said the forest policy was very good and good respectively.When the percentages of both categories are combinedly analysed, the total of 81% imply that the policy is generally perceived to be good. Meanwhile, in the MCR, only 5% and 38% of respondents said that the policy was very good and good respectively. The sum total of less than 50% overall implies that respondents had very low opinion about the policy. Hence the lower degree of compliance and by extension the nonsustainabillty guarantee. Furthermore, 25% of respondents in the MCR said the policy was bad as opposed to only 2% in the MKR. Similarly, 13% of respondents in the MCR said the policy was very bad as opposed to none in the MKR. These trends also emerged during the focussed group discussions.

6.5.1 Public Participation

As concerns public participation in decision-making, a critical factor in natural resource management, it is almost nonexistent or not given any due consideration. This is evident in figure 16 below wherein only 15% and 21% of respondents in the MCR and MKR respectively agreed to the application of public participation in decision making. On the contrary, 56% of respondents in the MCR disagreed that public consultation before

decision-making does occur, as against 39% for the MKR. Similarly, 25% of respondents in the MCR disagreed strongly as opposed to 33% in the MKR. By and large, the minimal inclusion of public participation in strategic decision-taking for managerial and sustainability purposes was highly deplored by the public, contacted also during focus group discussion and informally.

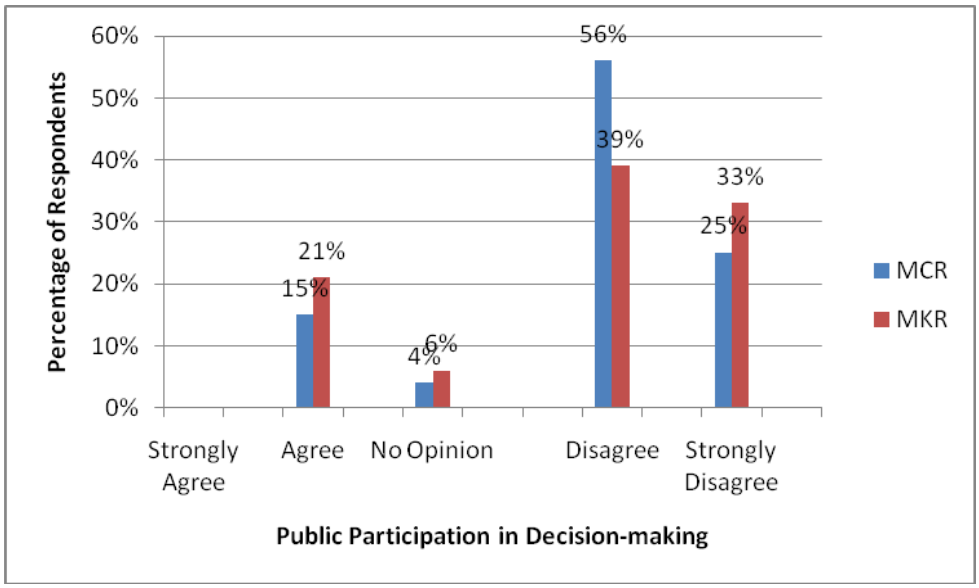

Figure 16: Respondents' Views on Public Participation in Decision-making

6.5.2 Mechanism of Sharing Benefits

In terms of accrued financial benefits resulting from the sale of forest products, the community rather than individuals do benefit in terms of communal projects. This therefore raises the question of fairness, transparency and accountability. As per fairness in the allocation of financial benefits, the community forest approach is better off. The management committee of the MKR, sets aside 30% of all financial benefits for regeneration, 50% for community development, 15% for running of offices and 5% as royalties to the Fon and traditional authorities. Meanwhile in the MCR like in all other state managed forests in Cameroon, 50% of accrued benefits are retained by the government, 40% go to the council of that area and only 10% to the relevant community. As to the issues of transparency and accountabilty in befits sharing, respondents' opinions were sought. The outcome is presented in figure 17 below.

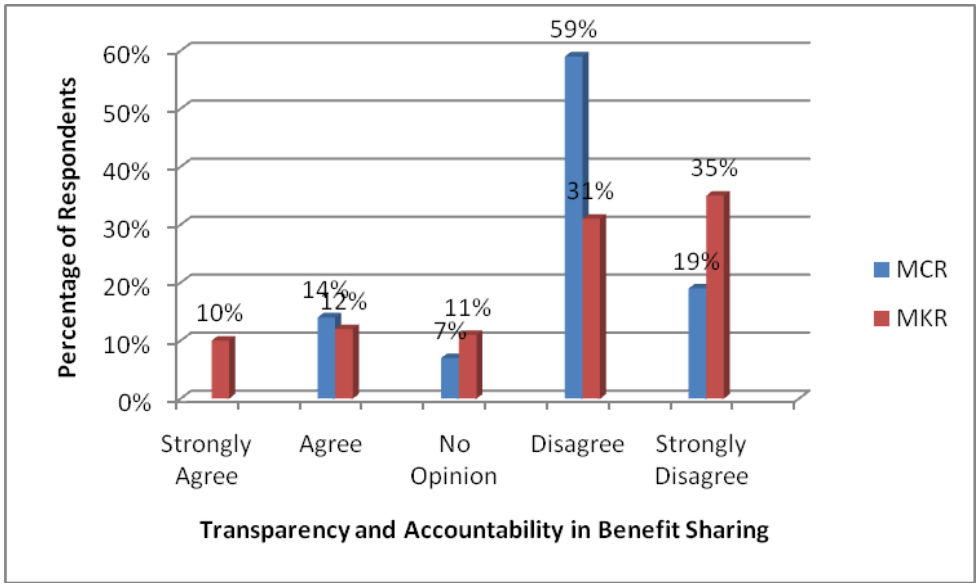

Figure 17: Public Opinion on Transparency in Benefit Sharing

Considering the various percentages of responses considering transparency and accountability in benefit sharing, it is evident that these are a serious cause for concerned. However, given the pervasive nature of corruption in Cameroon, it is not surprising that only 10% of respondents, exclusively in the MKR agreed strongly to the application of these variables while 14% and 12% in the MCR and MKR respectively simply agreed. But of greater significance is the 59% and 31% of respondents who disagreed in the MCR and MKR respectively, while another 19% and 35% respectively also disagreed strongly. Meanwhile going by the various focus group discussions and informal consultations, this vice is attributed to the corruption syndrome in Cameroon as reflected in their perception of corruption as an incentive for unsustainable practices.

6.5.3 Impact of Corruption on Forest Governance

Even though from the statistics on public opinion on benefit sharing, it could be deduced that this very cardinal principle of forest governance and management is shrouded in suspicion and corruption, the researcher also thought it wise to hit the hammer on the nail by inquiring on respondents' evaluation of the role of corruption in unsustainable forest exploitation. The outcome of this inquiry is presented in figure 18 below. Going by the responses, 26 (19%) and 51 (52.5%) of respondents in the MCR and MKR respectively,

strongly agreed to the fact that corruption is an impetus to bad forest governance. On the other hand, 106 (78.5%) and 24 (24.7%) of respondents in the MCR and MKR respectively agreed. However, an aggregate of the point of view of the respondents, overwhelmingly point to the fact that corruption seriously undermines policy implementation and good forest governance.

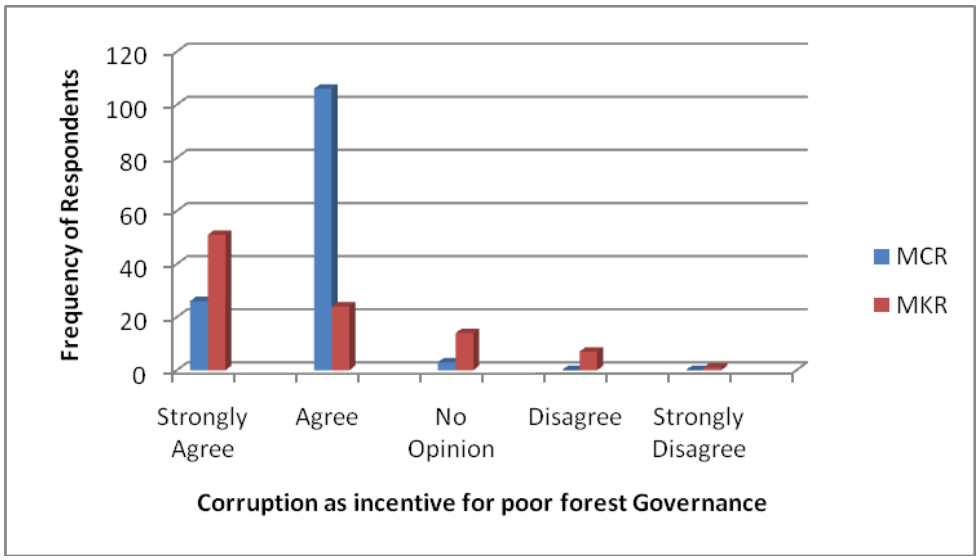

Figure 18: Perception of Corruption as Impetus for Bad Forest Governance

6.5.4 Public Access to Socioeconomic and Development Indicators

These aspects are given considerable importance in this study owing to their overarching significance in influencing the outcome of any conservation or sustainable forest management endeavour. On this basis, respondents' opinion were sought regarding their access to some basic and necessary socio-economic and development indicators. The result of the survey showed that portable water is not a problem. All the 97 respondents (100%) in the MKR have access to potable water (relatively safe to drink) compared to 68% in the MCR. Not surprising, 60% of respondents in the MCR have access to good road network (combination of earth and tarred roads) compared to only 1% in the MKR. The MCR region is the seat of Cameroon's lone oil refinery as well as many agro-industrial plantations. Less than 40% of respondents have access to good healthcare, while an insignificant number of respondents, 10% and 3% in the MCR and MKR respectively, have access to micro-concessional credits. And last but not least, in spite of

the crucial importance of education in mitigating poverty, only 40% and 18% of respondents in the MCR and MKR respectively have access to it. To this effect, a correlation between educational qualification and forest exploitation is observable in Tables 10 and 11 below.

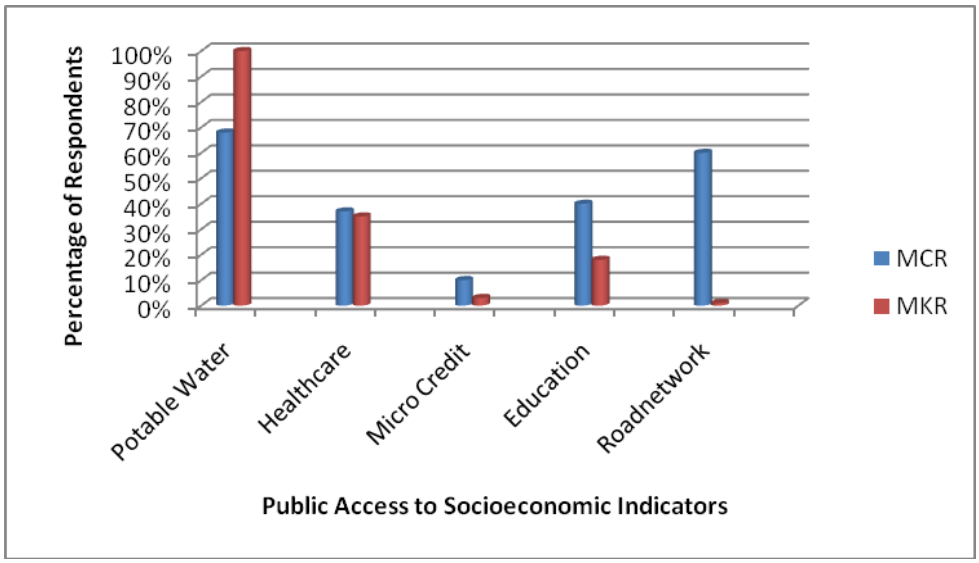

Figure 19: Public Access to Socioeconomic and Development Indicators

Table 10: Educational Qualification and Forest Exploitation in MKR

Educational Level	Farmland	Firewood	Hunting	Honey Extraction	Prunus Bark	Timber Extraction	Water Source
FSCL	0	32	1	21	1	0	1
O/L	0	9	0	4	4	2	1
A/L	0	5	1	8	2	0	1
CAP	0	0	0	0	0	0	0
BAC	0	0	0	0	0	0	0
BSc./B.A.	1	0	0	0	0	0	0
MSc./M.A	0	0	0	0	0	0	0
PhD	0	0	0	0	0	0	0
No Formal Qualification	1	33	0	4	0	1	0

Table 11: Educational Qualification and Forest Exploitation in the MCR

Educational Level	Farmland	Firewood	Hunting	Honey Extraction	Prunus Bark	Timber Extraction	Water Source
FSCL	50	50	28	11	15	26	13
O/L	23	28	12	7	9	13	11
A/L	16	13	3	1	2	8	6
CAP	9	6	2	2	3	6	3
BAC	0	0	0	0	0	0	0
BSc./B.A.	5	1	0	0	0	0	0
MSc./M.A	3	0	0	0	0	0	0
PhD	0	0	0	0	0	0	0
No Formal Qualification	28	16	10	5	2	12	8

A comparative analysis of the relationship between educational qualification and forest exploitation in the MKR (Table 10) and also in the MCR (Table 11) reveals that to a large extent, those with a lower educational status, everything being equal, turn to exploit the forest more than those with a higher educational status with obvious consequences for deforestation and degradation.

CHAPTER SEVEN: DISCUSSION OF FINDINGS

7.1 Introduction

While the preceding chapter deals exclusively with analysis and interpretation of primary data, this chapter integrates both primary and secondary data to furnish policymakers and stakeholders with more comprehensive information with regard to the causes and effects of the observed phenomena. Mindful of the stated hypotheses the discussion is patterned under rubrics which in actual fact are abridged and reformulated versions of the previously stated hypotheses to avoid repetition.

7.2 Evaluating State and Community Forests Vulnerability to Degradation and Deforestation

Using the state forest of the Mount Cameroon Region (MCR) and the community forest of the Mount Kilum Region (MKR) as case studies, an analysis of the responses regarding exploitation in these two forest types, with distinct management paradigms, reveals that the state managed forest in the MCR is more vulnerable to degradation and deforestation. Of the seven forest elements whose exploitation was assessed, the state forest overshadowed the community forest both in scope and intensity (figure 7), including prominent elements of forest degradation and deforestation, like conversion of forest for farmland, firewood extraction, timber exploitation and poaching. In fact, according to Robbins, (2004) agricultural land clearing by smallholders is believed to be responsible for between 85% to 95% of degradation and deforestation that has occurred in Cameroon.

The reasons for this wanton exploitation of forest in the MCR are due to attributes which are on the one hand associated with forests considered state property, and on the other hand socioeconomic and cultural attributes specific to the MCR region. The state-managed forest of the MCR does not connote any sense of ownership among the villagers

who play very little role in the management of the forests. This borders on bad forest governance which tends to be more exclusive rather than inclusive or community oriented. There is, therefore, no individual or collective motivation for forest-dependent communities to abide by forest laws and regulations. Wunder, (2000) posits that about 80% of all tropical forests are state property, a tenure form that is usually exposed to severe degradation. Meanwhile tenure insecurity promotes forest mining and discourages long-term timber management (Southgate, 1990; Wunder, 2000).

Also, the paucity of human resources and other logistics in Fako Division in particular, the South West Region and Cameroon in General have undermined sustainability efforts. An examination of the logistical capacity of MINFOF in the South West Region (Table 12 below), seat of the MCR further elucidates the point.

Table 12: Logistical Capacity of MINFOF, South West Region

Department	Number of Administrative Staff	Number of Foresters	Number of Vehicles	Number of Motor Bikes
Regional Delegation	11	28	5	3
Lebialem Division	5	5	1	3
Fako Division	1	30	5	8
Meme Division	3	27	2	2
Manyu Division	2	26	3	4
Kupe Muanenguba	33	33	2	9
Ndian Division	00	14	3	5

Source: South West Regional Delegation of MINFOF, 2009

From the above table, it is evident that staff shortage and limited transportation seriously hamper law enforcement, monitoring of policy compliance amongst many others. According to Tesi, (2004) and GFW, (2000) the Cameroon ministry in charge of forestry stopped hiring staff in 1992, and has been losing 10 to 15 employees each year through retirement. In point of fact, Omale, (1992) reasons that while it is possible to conceive of organizations without funds, it is, as of today's advancement in science and technology, absolutely inconceivable to have organizations without people. This is because it is

people who activate the other resources for things to happen, and the quality of work done in an organization is as good as the commitment of the people.

Furthermore, in the late 1980s most vehicles were sold as a result of the economic crisis. In 1998, provincial offices acquired a four-wheel-drive vehicle each while departmental offices remained without transportation except for vehicles made available by some bi- and multilateral projects. However, the maintenance of these vehicles remains a perpetual problem. Hence the movement of staff and equipment to enforce compliance is a difficult task. Besides, without vehicles, a dynamic enforcement and monitoring unit may be inconceivable and unrealizable. Another, crucial problem remains the fact that many provincial and departmental offices also suffer from nonexistent or inappropriate buildings (GFW, 2000; Essama-Nssah et al, 2002). To this effect Robbins, (2004) comments that Cameroon's capacity for policy implementation in the forestry sector remains weak. He attributes the cause to the fiscal compression prompted by structural adjustment, of which government opted to reduce salaries rather than staff numbers, thereby reducing efficiency. The economic austerity has made foresters susceptible to bribery and corruption by receiving payments to circumvent regulations, facilitate issuance of permits, avoid prosecutions and obtain contracts.

Apart from the above-mentioned issues, certain socioeconomic peculiarities in the region have also contributed to the current state-of-affairs as well as continue to pose as a future threat in the MCR. For example, forest conversion to farmland observed to be higher in this region, has been attributed to population growth among the indigenous Bakweries in the region. This has also been significantly supplemented by immigration from different parts of the country as well as from neighbouring Nigeria. The net effect has been an increase demand in the rich volcanic soil of the area, thereby fostering forest encroachment.

Another peculiar factor which has also favoured deforestation in the area is the presence of agro-industrial plantations which have had a tremendous impact on forests as well as the forest communities. The sizes of these plantations have deprived local populations of

their land needed for various uses. Some examples include the Cameroon Development Corporation (CDC) which specializes in rubber, palms, bananas, tea and pepper, and PAMOL which specializes in Palms. These corporations, which are currently undergoing privatization, control most of the land area in Fako Division (the seat of Mount Cameroon) where the Bakweri are the prominent indigenous group. As a result of this, the Bakweri are left without sufficient land in their own home. This has prompted a serious legal land dispute between the Bakweri and these corporations as they demand a return of their land. Meanwhile the resultant effect has been and increase pressure on forest land.

Plate 15: Forest Encroachment for Farmland in Bokwango, Buea in the MCR
Source: Author's Collection

Furthermore, a related issue that has exacerbated deforestation due to plantation agriculture is the fact that plantation workers during their non-working hours cultivate adjoining forest areas for food crop to supplement their poor wages. They access the forest through plantation roads, without which it would have been rather more difficult.

Also, socio-economic and cultural realities are push-factors of deforestation in the state forest of the MCR. Wood from the forest constitutes the main source of building materials. According to Embola, (2001) the houses of the native Bakweri and Bomboko

consist of thatched mat-roof wooden houses locally called "*Karaboat*". Sometimes large sections of tree bark are used to build walls of these houses. Hence human culture affects human action, which can either enhance or degrade forest. Tesi, (2004) further explains that most people would prefer houses built with cement blocks but cannot afford the high cost associated with them. Consequently, they settle on wooden built houses.

Plate 16: A Wooden House (Karaboat) under construction in Bonakanda, Buea
Source: Author's Collection.

Last but not least, with the advent of the University of Buea in1993, the lone Anglophone University in the country, the population in Fako has increased drastically thereby exerting more pressure on the limited land resource for various uses. Owing to poor developmental planning, the health of the forest is being compromised. In view of all the above therefore, it is safe to say that on a comparative basis, the state forest of the Mount Cameroon Region is more prone to degradation and deforestation.

On the other hand, the less vulnerability of the community forest of the Mount Kilum Region is due to the presence or vestiges of some sustainable forest management criteria. First and foremost, unlike the state forest where its status is imposed on the people without any prior consultation, a community forest is by choice. That is, the community

opts for its status as such, though it must be approved by the government and also subject to the respect of stipulated laid down management regulations such as a five year management plan etc. The fact that the villagers comply with the stringent regulations to acquire a community forest means that they value the resource enormously. This in itself acts as an incentive to preserve the resource.

Also a community forest connotes a sense of ownership. Even though it is more theoretical in Cameroon, since it is more of a transfer of management rights rather than wholesale ownership, it does work on the psychology of the villagers. Hence the communal approach towards protecting the resource as opposed to the nonchallence and individualism that characterize the state forests. Besides, forest management officials are elected from members of the community. Hence, management is decentralized, less bureaucratic and relatively more efficient as the managers are supposedly accountable to the people. Even the crucial problem of lack of human resources for monitoring becomes minimized while conflicts are equally resolved faster by local institutions. Colfer and Reed, (2001) further explains that local people live in local forests and thus have both the motivation and capability to perform various management functions that are much more complex for outsiders to perform. Integration of formal (exogenous) management and local management holds a potential for improved overall management.

Meanwhile, although fuel wood extraction in the MKR is slightly higher than in the MCR, 89.6% and 86% respectively, the dependence on wood as an energy source is more or less a general problem in Cameroon. More than three quarters of the population rely on forest for wood for heating and cooking and fuel wood extraction is causing some damage to forest (Ndenecho, 2007). Table 13 below, summarizes population access to various types of energy in Cameroon.

According to table 12 below, and as per 2002, the average national population usage of kerosene is slightly higher than that of firewood 70.47% and 68.5% respectively. This is because both are regarded as close substitutes when it comes to price. However, rural population firewood usage, 85.87% is also slightly more than rural population usage of

kerosene, 82.7%. Generally, firewood consumption in urban areas is less than that of rural areas because comparatively, the former have access to more energy alternatives and are usually more viable economically than the latter. For instance only 48.21% of residents in urban areas use firewood. On the other hand, 42.02% have access to electricity as opposed to only 4.24% in rural areas. Similarly, 11.95% of urban dwellers have access to natural gas (butane) as opposed to only 0.86% in rural areas. Also, the issue of easy access or proximity to forest in rural areas from where wood can be got free or cheaper is an incentive for this heavy dependence.

Table 13: Access Rate of Public to Energy types in Cameroon

Energy type	Urban population %	Rural population %	National population %
Kerosene	65.1	82.7	70.47
Firewood	48.21	85.87	68.5
Charcoal	26.6	36.65	31.12
Electricity	46.02	4.24	23.51
Gas (Butane)	11.95	0.86	5.91

Source: Ngwa and Fonjong 2002

Meanwhile, according to Tesi, (2004) most people will prefer houses with gas or electricity as the energy of choice but are unable to afford the high prices associated with them. Hence, they rely on firewood as main source of energy. Assessing the situation about a decade ago, Tesi, (2004) reports that in 1998, total fuel wood exploitation reached 12.192 million cubic meters mark, a 65% increase from the 1980 level. He comments further, that this is not surprising given the low incomes earned by Cameroonians. At the dawn of the current economic depression, the exponential increase in the price of energy inter alia, constituted the basis of the February 2008 nationwide strike. Even president Paul Biya, in his traditional end of year speech to the nation in December, 2009, did not shy away from the current energy crisis. In his own words, "…although some progress was made, notably in the domains of education, health and roads, one cannot but note that we fell short of our objectives, particularly in the energy

sector." Recent statistics by the Secretary General of the Ministry of Energy and Water Resources, Fritz Nasako, indicates that wood used for cooking now constitutes about 70% of household energy use (Bainkong, 2010).

On the whole, the less degradation and deforestation of the community forest is in part, due to both general and specific socioeconomic factors. For instance, traditional authorities such as chiefs or their superiors known as *Fons* and the traditional ruling council enjoy a lot of respect from their subjects. Anyone who disobeys them usually faces serious consequences. Hence, by integrating these respect-compelling authorities in the forest management committee, it is an indirect policy enforcement strategy. There have also been tremendous efforts from successive conservation projects viz the Mount Kilum Forest Project, (1992-2006) established in partnership with the Cameroon government, Birdlife International and the British Overseas Development Authority, and the Bamenda Hightlands Project, (1999-2004) to demarcate forest boundaries as well as introduce the population to various livelihood options. According to Tsi et al, (2006) the Mount Kilum Forest Project offered forest dwellers advice on how to make effective use of existing crop and grazing land as well as non-agricultural uses of the forest which can generate cash for the local economy. As a result, bee-keeping has been taken up enthusiastically and yet the number of hives in the forest is on the rise. Tsi et al, (2006) report that 42.2% of villagers in the Mount Oku region depend on apiculture, while according to this study 40 respondents (41.2%) depend on bee-keeping (figure 7).

Prior to the advent of the Mount kilum Forest Project, honey was obtained from wild bees using a traditional method. Bees are smoked out, often fatally damaging melliferus trees and causing accidental forest fires such as that which occurred in February, 2003 burning down about 5000 hectares of forest (Awemo, 2006). This still goes on today, albeit on a limited scale owing to the modern concept of bee- keeping using the top-bar hives, popular because of low cost and simplicity. The percentage of public involvement in apiculture is expected to rise according to Tsi et al, (2006) because wax which hitherto was considered a waste product is now used for producing body lotion, shoe polish and soap.

Plate 17: Bee Wax in the Oku Honey Cooperative

According to the Manager of the Oku Honey Cooperative, the common initiative group which was founded in 1994 now boasts of 209 bonafide members. The cooperative buys raw honey from farmers at the cost of 500FCFA (USD 1) and when processed it is resold in the market at 2,500FCFA (USD 5). The bonuses are shared among the members. But high cost of transportation is said to reduce bonuses. Oku produces at least 60 tons of honey per year.

Also, the fact that houses in the MKR are built predominantly with mud bricks implies that relatively less timber is exploited for construction purposes. What is more in use here is eucalyptus trees indulged in as a form of social forestry as can be seen by the mud bricks house below. This, coupled with the fact that there is no frequent threat from corporate commercial logging in the Kilum-Ijim forest, has had a positive impact on timber exploitation.

Plate 18: The Predominant Mud-bricks constructed House in Oku

Meanwhile the predominance of eucalyptus trees in the area is regrettable for various reasons. Ndenecho, (2007) reports that studies reveal that eucalyptus reduces top soil pH from 10.5 to 9.5 over a period of five years, and the electrical conductivity from 4 to 2 ds/m. Also, Gill and Abrol, (1986) reveal that because the eucalyptus tree grows fast, it is a greedy consumer of water and soil nutrients, thus unsuitable to be grown near crops. On their part, Poore and Fries, (1985) hold that some eucalyptus species produce toxins which inhibit the germination of some herbs, while Anil, (1982) considers eucalyptus as an *ecological terrorist* which harms the soil without providing fodder, green mulch or shade.

7.3 Environmental Communication and Impact on Forest Exploitation

As evident from this study, environmental communication is an indispensable tool for the propagation of information and knowledge regarding the proper utilization and

management of the forest. However, for this to be effective, the adopted approach must fulfill certain basic criteria, viz, suitability of both the channels and media of information, themes of the environmental messages, frequency and nature of the communication process. These in a nutshell constituted the basis for the appraisal of environmental communication and its impact on forest exploitation in Anglophone Cameroon. The three institutions that are actively involved with forest management in this region of Cameroon, and for which the appraisal of this environmental communication have directly implications are MINFOF, GTZ and ASSOFOMI.

The study revealed that in spite of the application of a different forest management paradigm in each case study area, environmental communication is well entrenched. The institutions involved, utilize a number of channels for information and knowledge dissemination with the rural radio as the most frequently used (Tables 7 and 8). Given both the context as well as other socioeconomic considerations such as accessibility, human resources, literacy and affordability, this channel is adjudged most appropriate. This is corroborated by figure 9, "Public Access to Media of Information," of which over 87% of respondents from both the MCR and the MKR reportedly depend on radio for all sorts of information. Other media channels such as television and newspapers also complement the radio, although to a limited extent, particularly in the MKR due to poor accessibility. In this wise, the government's decision to create rural radios as well as the mission assigned them, proved to be a well thought out policy. According to Muluh and Ndoh, (2002) the main objectives for establishing rural radio stations were, firstly, to reach the rural audiences and promote basic educational and technical skills, and secondly, to assist rural communities undertake basic decision making at the community level. Hence, the rural radios are effectively narrowing the information gap with respect not only to environmental matters.

Another major strength which abounds in the environmental communication strategy of the relevant institutions is the appropriate choice of themes for public sensitization. They embody not only the manifest causes of forest degradation and deforestation such as bush fires, conversion of forest land for farming, but also the latent ones such as birth control,

HIV/AIDS, public sensitization on the laws and policies enforce as well as prospective solutions and other livelihood options. Furthermore, the inclusion of strategic elements such as birth control or HIV/AIDS is crucial to forest conservation. According to Robbins, (2004), higher populations require higher ratios of resources for their sustenance which results in an over extended use of natural systems to satisfy higher resource needs. McDougall, (2001) on her part, says that the health of the forest, in turn, depends on human-wellbeing, because poor and unhealthy human beings or too many human beings may need to ravage the forest to survive. This becomes even more damaging environmentally when the population has access to highly sophisticated tools. All these, disseminated in the indigenous languages of the people and frequently, should obviously produce some positive impact. This obviously was the case in both regions where respondents reportedly acquired a significant knowledge of deforestation consequences from the media, predominantly radio, although, broadly, respondents from the MKR dominate in all spheres of the knowledge acquisition except “Firewood Time.” This most probably has to do with the age of the radio station, the duration of broadcast and the level of professionalism of the broadcasters.

Meanwhile, according to figures 10 and 11, the overall environmental communication strategy, and the rural radio in particular, through which the public has been sensitized on the negative conseconquences of deforestation, have impacted positively in mitigating the rate of forest exploitation in both the MCR and the MKR. However, more positive results have been achieved in the MKR where 51 respondents (52.5%) agreed strongly and 38 (39.1%) of respondents agreed that knowledgibility of the consequences of deforestation has brought about a reduction in their forest exploitation activities. Meanwhile the percentage of those who had no opinion, disagree or disagree strongly, 4.1%, 3% and 1% respectively were less than 10%. In MCR, a certain degree of nonchallence was observed as only 51 respondents (37.7%) agreed to have curtailed their forest activities while 65 respondents (48%) disagreed to any reduction of the intensity or scope of their forest activities. Also, 22 respondents (16.2%) proferred no opinion on regarding reduction in the way they exploited the forest.

Overall, the environmental communication strategy could be termed good and effective while the expected outcome is satisfactory. No matter how good or effective the approach or strategy is, it is not a panacea for forest degradation and deforestation as the mitigation of forest exploitation is not solely dependent on effective environmental communication but rather on a nexus of criteria. For instance, the livelihood and employment needs of forest-dependent poor ought to be addresed, particularly where the incidence of poverty is high.

7.4 Poverty and Unemployment Impact on Forest Exploitation

The data emanating from this study indicate that poverty and unemployment which is designated as either poor income or no fix income is an important determinant of the potential state and nature of forest exploitation. Averagely, 60% 0f respondents from both the MCR and MKR attribute their forest exploitation activities to poor income (see figure 12). The implication is that they are either employed, or have a stable income but are rather under-paid. Tesi, (2004) acquiesces to this. According to him, most cameroonians receive low incomes. On the other hand, an average of 30% of respondents from both case studies advanced no fix income as the reason behind their invasion of the forest, while another 7% average claim that their invasion of the forest is predicated on their self-arrogated right to do so.

Furthermore, according to figure 13 which details the motives of forest exploitation by respondents, the primary objective of forest exploitation is to enhance human wellbeing by either direct usage (personal) or by monetization (commercialization) or by both (personal and commercial). Each of these either mitigate expenditure or supplement income or provide the badly need legal tender (Asanga, 2001; Ndenecho, 2007). This of course raises serious concerns given the relatively high degree of nonconformity to policy requirements observed in the MCR with a wider scope and intensity of forest exploitation than the MKR (figures 7 and 8).

Meanwhile, as a corollary to the fact that poverty and unemployment are very instrumental in forest degradation and deforestation, there is an overwhelmingly positive public response on the aggregate, with regard to the fact that the introduction of certain poverty alleviation measures will deflect pressure frome the forest, thereby enhancing sustainability. However, Nalini and Naresh, (2001) point out that poverty alleviation by itelf, does not reduce dependence on open resources unless accompanied by a sense of ownership about the resources. The challenge, therefore, is to reconcile natural forest and biodiversity conservation with economic development and poverty alleviation. They further state that empowered communities may focus more on accessing credits, creating community assets or investing in non-farm economic activities (bee-farming, snail propagation, mushroom cultivation etc). These economic benefits are often long-lasting and sustaining. McDougall, (2001) seems to buy their idea when he posits that contributing to human wellbeing is directly making a significant contribution to sustainable forest management.

7.5 Government Forest Policy and Sustainability Potential

Cameroon forest policy is hail among the best in the Central African sub-region, given that it was initiated at the request of the World Bank which wanted to improve forest management in the region by using Cameroon as a model. Unfortunately, the potential for it to significantly mitigate forest exploitation on an overall basis has been compromised by inadequate logistics as well as incomprehensive and ineffective forest sustainability oriented strategies as examplified by this study.

7.5.1 Policy Implementation

In Cameroon, the much lauded 1994 forestry law, the 1996 environmental management regulation as well as the concomittant institutional capacities and incentives to enforce them have lagged in translating the national policy into an effectively implemented forest strategy. In fact according to Esama-Nssah et al, (2002) Cameroon's capacity for the implementation and enforcement of policy in the forest sector remains weak. Against a

backdrop of the economic crisis, the size of the civil service has dwindled amid hiring freezes, early retirement; low wages and inefficiency remain major huddles that stand in the way of strengthening the institutions necessary for the sustainable development of forest resources. Without additional support, full potential of the current forest policies would not be realized.

7.5.2 Public Participation

Also, despite the crucial importance of effective public participation in enhancing forest conservation and sustainability, it is yet to be given due consideration in Cameroon. For instance, only a meagre 15% and 21% in the MCR and MKR, respectively agreed that they have been consulted prior to forest management decisions. Those concerned about and making use of the forest should be actively involved in its management. In this light therefore, because of the role of the female folk in forest resources exploitation, there is also need for gender equity in public participartion for decision-making. Focus group discussion revealed that women are often marginalise when it comes to decision-making. The protection of any forest area implies an increase in women's daily drudgery. Moreover, merely shifting the management role from the state to the community does not provide any immediate relief to women, neither does it guarantee their increased participtionn. According to Tiani, (2001) women represent more than 51% of the Cameroonian population, and 80% of them live in rural areas. They are important not only because of their numbers but more significantly because they are the actors more closely related to the forest. Hence, their indispensability in forest management that claims to be truly sustainable.

On the contrary, many forest users in cameroon have had few opportunities to be heard or to integrate their views, knowledge, experience and preferences into formal forest management, thus compromising the chances of a better overall management. Tainter, (2001) points out that there exists bodies of indigenous knowledge in many forest dwelling communities such that when held by people whose voices are not heard and who have no recognised role in formal forest management, a valuable human resource is

wasted. It is against this backdrop that Robbins, (2004) and Disilvestro, (1992) argue that the successful implementation of policies is predicated partly upon indigenous knowlegde and grass root experience. Going by them, experience so far shows that unless the process through which participartion is to be secured is described in detail and monitored, it is likely to be ignored because of the lack of commitment and also the lack of the road map to the destination.

7.5.3 Benefits-Sharing Allocation

The method of benefits-sharing allocation in Cameroon, particularly, in the state-managed forest domains constitute a serious disincentive for cooperation and collaboration from the forest adjacent communities, thereby jeopardising any sustainable management and exploitation endeavours. Contrary to the community forest approach where there is a more reasonable method of benefits allocation with at least 50% of all accrued benefits from the MKR directed towards community projects, only 10% of this is allocated to the community in a state-managed forest domain. Paradoxically, the government retains 50% while the remaining 40% is doled out to the council of the area with the assumption that the council will embark on projects that will benefit all members of the community. Unfortunately, this is often not the case as this money is usually embezzled. Worst still, even for the community to access the meagre 10% allocated for them, they must initiate a good project. And since the local people are poor in project proposal, the council authorities, the custodian of this money usually syphone it. According to Tainter, (2001) people are more likely to manifest stewardship towards forest from which they derive benefit. Hence, unfair distribution of benefits can stimulate purposeful, retaliatory degradation of forest resources as well as other undesirable conflicts.

Besides the poor benefit-sharing allocation mechanism, there is also overwhelming evidence from the respondents' points of view that there is a high degree of lack of transparency and accountability in the benefit-sharing exercise (figure 17). This, of course, is not unconnected with the widespread corruption in the sector, also considered

to be seriously undermining policy implementation and good forest governance (see figure 18). Transparency has thus become a much debated issue and corruption has also trickled down to the village level.

7.5.4 Socio-economic Indicators

The study also revealed that the state of certain socio-economic indicators as well as forest-dependents' access to them is crucial in dictating the pace and pattern of forest exploitation. Hence, the non-availability of, or improper access to good healthcare, education, concessional micro-credit and good transport network greatly enhance policy failures and disillusionments. It is important to underscore the fact that these elements just like those previously discussed are not mutually exclusive. Thus, in spite of the fact that over 65% of the respondents in the MCR reportedly have access to potable water, or the fact that 60% have access to good transport network has not prevented them from violating the forest policies by invading the forest.

In fact, the good road network in the MCR, rather than being an asset, is more of a liability as it facilitates the evacuation of illegal forest products (Tesi, 2004). This is understandably so because these are no substitutes for the limited access of other human wellbeing or social welfare elements such as healthcare, education and micro credits. Unfortunately less than 40% of respondents in the MCR have access to these. The solution to the unsustainable exploitation of forest resources in Cameroon is inextricably linked to the limited or unequal access to these necessities by the rural poor. For instance, education has been described as the road out of poverty eradication. And when people are empowered educationally through training for capacity building, it follows logically that given the necessary logistics, they can further empower themselves economically. And according to Nalini and Naresh, (2001) empowered communities may focus on accessing credit, creating community assets and investing on non-forest timber products (bee-farming, snail propagation, mushroom cultivation and others). These economic benefits are often long lasting and sustaining.

The above explanation is begging for the question that how comes that the MKR is more forest sustainability orientated even with slightly worse state of the socio-economic indicators. The fact remains that the MKR which is experimenting the community forest management approach and fairing fairly well momentarily, exhibits no potential for future long-term sustainable management. In fact, intergenerational equity is at stake.

Plate 19: Oku Community Pipe-borne Water

Apart from the potable water which was a gift from the Canadian government, population access to any other social amenities is less than 41%. The road network is the worst and greatly hampers development and economic empowerment.

Plate 20*:* State of Oku road and Type of Vehicles Plying it

Plate 21: Indian Bamboo leaves, Produced Birthday card in local industry

Meanwhile, healthcarewise, the majority of villagers rely heavily on traditional medicine. In fact the MKR is famous for its traditional medical practitioners and practices (Ndenecho, 2005). However, despite the assiduity and industrious nature of the people of this region, the lack of any form of micro-financial and logistical support or concessional loans continues to frustrate the economic endeavours of the people. Cases in point include the Oku Honey Cooperative with 209 registered members and the Kilum Craft Paper Group, the only one in the whole North West Region. These two common initiative groups have contributed enormously in mitigating forest exploitation. The cooperative employs villagers and also facilitates the buying and selling of honey from bee farmers.

But as a result of the bad state of the road and consequent high transportation cost, this negatively affects the dividends that members receive and by extension their well-being and that of their families. Government subsidies could alleviate the effect.

Similarly, the absence of any government subsidies has caused this lone budding paper industry to stagnate. According to the Manager, Solomon Chimtom, the quality as a result of this has remained poor. Ordinarily, government ought to encourage this lofty initiative as the local paper industry no longer debark trees to produce paper, a factor which hitherto contributed to forest degradation and deforestation. But now, it has switched over to using corn stalks and the leaves of *Indian bamboo*. Hence, beyond the obvious environmental impacts of this, it also has socio-economic implication especially, with regard to the strife for economic empowerment.

CHAPTER EIGHT: RECOMMENDATIONS AND CONCLUSION

8.1 Introduction

The problem of forest degradation and deforestation in Cameroon can be blamed squarely on the government. Government policies and development ideology relied heavily on forest ecosystems and their resources as the best hope to bring about development, by setting state economic goals around excessive and "unregulated" exploitation of forest ecosystems and their resources (Tesi, 2004). With the advent of the economic depression in the mid 80s and 1990s, the state again turned to its forest resources for rescue by intensifying their exploitation. This action led to a significant reduction in the forest ecosystems by more than half (GFW, 2000). Furthermore, the consequences of the economic crisis; unemployment, fall in government revenue, devaluation, salary cuts, infrastructural decay and neglect, reduction in investments etc, seriously affected Cameroonians' income and also expenditure potential, with a dramatic impact in the rural areas. Rural populations cleared additional forest for subsistent crop production while the government on its part, granted more logging concessions. Impoverished city dwellers returned to the countryside to take up farming. This notwithstanding, the overall challenge in this study has been to proffer a barrage of solutions that if effectively implemented will ensure that anthropogenic impacts on forest is minimum in extent and least damaging socially and environmentally.

8.2 Recommendations

8.2.1 Improvement of the Logistical capacity of the Ministry of Forestry and Wildlife (MINFOF)

In order to preserve its forests, MINFOF must endeavour to translate the national policy into an effectively implemented forest strategy. Poor policy enforcement owing to insufficient logistical capacities; staff, transportation and lack of funds are serious huddles preventing MINFOF to effectively enforce, monitor and evaluate policy

compliance. The government should therefore provide MINFOF with all the necessary logistics and adequate financial resources required to enhance its successful implementation of the forest policy framework and effective delivery.

As funding for conservation is often limited, one very pragmatic way of boosting this is through tourism in protected areas. Besides, eco-tourism contributes to raising awareness of national and international visitors as well as creates jobs and sometimes leads to infrastructure development that contributes to poverty alleviation. Both the MCR and the MKR by virtue of their status as biodiversity hotspots possess a significant potential for contributing towards their own sustenance, provided the funds generated are managed in a transparent and accountable manner.

8.2.2 Minimization of Corrupt Practices

According to Nalini and Naresh, (2001) while the availability of sufficient funding is a necessary impetus for mitigating the problems of environmental degradation, it is no panacea. Among other determining factors is the issue of corruption. And in the forestry sector in Cameroon this is manifested mainly through bribery of MINFOF and other forestry personnel to circumvent regulations, facilitate the issuance of forest exploitation permits or licenses, avoid prosecutions, obtain contracts or acquire certification based on falsehood. Given that the basis of the corrupt nature of MINFOF officials is poor remuneration, Government should seek to enhance their income through special allowances such as risk allowances, field trip allowance as well as integrate them in the so called “grand corps de l’état.” These notwithstanding, government should take all necessary deterrent measures to stem the tide of corruption which pervades the forestry sector in particular and Cameroon in General. This needs to be tackle with an iron fist rather than the often empty threat and verbal rhetoric of the government officials in charge. The Ministry of Forestry and Wildlife should use all legal means within its jurisdiction to stop all forms of illegal and unsustainable exploitation of forests. This also according to Abugiche, (2008) will in turn require the establishment of a transparent and non-corrupt judiciary?

Also, owing to the potential success of third party monitoring, international NGOs should also be involved in the fight against corruption which pervades the forestry sector in Cameroon. For instance, according to Essama-Nassah et al, (2002) Global Witness, an international NGO, was involved in monitoring corrupt practices and illegal logging in Cameroon from 2002 to 2005. The NGO registered significant results and impacted on some of the companies logging out of limits. And last but not least, as proposed by Nalini and Naresh, (2001) there should be greater decentralization and participatory transparent sharing of forest management responsibilities with local communities as effective and significant mechanisms for minimizing corruption.

8.2.3 Improved Participation of Pubic and Local Institutions

In Cameroon, within the framework of the current forest policy, local indigenous communities have become involved in forest resources management, particularly with the advent of community forestry. Unfortunately, there is no broad-base public participation, transparency and accountability as revealed by the study. In this regard, the public at large, through a cross section of representatives should constitute a committee where the use and disbursement of funds are discussed unlike what obtains in the MCR where the government almost single handedly makes all management decisions. On the other hand, in the community forest domain, the power of decision-making lies with the powerful village elite. These have proved to be ineffective. Thus, the local people and communities should be given a direct and tangible interest in the sustainable management and conservation of forests. Communities cannot be effective at managing their forest resource unless their authority is clearly established and recognized. It is only by involving the local people as full partners with appropriate incentives that effective management can take place.

Also, greater decentralization by government and participatory sharing of forest responsibilities with local communities could be an effective and significant way of minimizing corruption. A good example to boost this point is the integration of the Mount Cameroon Prunus (MOCAP) management Common Initiative Group (CIG) in the

forest conservation activities in the MCR. The CIG which was created on the 31st of July 2000 in accordance with Law no. 92/006 of 14/8/92 and its Decree no. 92/455/PM of 23/11/92 has as global objective, to contribute to poverty alleviation around the Mount Cameroon region through sustainable management and conservation of *Prunus africana* and other forest resources. This has drastically reduced the illegal exploitation of *Prunus africana.* Hence government should collaborate with various civil society groups which share similar or same objectives.

8.2.4 Creation of a Forest Trust Fund for Poverty Alleviation

There is need for government to create a special trust fund dedicated to poverty alleviation to ensure long-term financial support for addressing the livelihood and employment needs of forest-dependent poor, especially where the incidence of poverty is large. Access to economic alternatives to meet the social requirements of indigenous people is still a big challenge. One way of enhance this is through Integrated Conservation and Development Projects (ICDPs) such as the improvement of road and school infrastructure, provide support for educational training, healthcare and welfare services and investment in non-timber forest activities such as bee-farming, snail propagation, cultivation of eru (*Gnetum africanum*) and domestic livestock and fish farming. The fund apart from promoting traditional income generating activities should also be dedicated towards the promotion and support of creativity and self-help initiatives such as the local paper industry in Kilum. ICDPs offer a valuable prospect of contributing to effective biodiversity conservation, increased local community participation in conservation, development and economic development for rural poor. This is an effective policy implementation strategy because it provides a potential mechanism to compensate local communities for the loss of livelihood typically associated with restrictions on forest resource use.

The creation of a special trust fund notwithstanding, government should encourage the creation of technical schools and rural artesian centres in Cameroon to train young Cameroonians to be self-employed hence divert their attention from natural resources. Above all, the government should create employment opportunities for Cameroonians and also cut

down the high taxes levied on private businesses such that more people will be self-employed and the pressure on natural resources will reduce.

8.2.5 Cooperation with International NGOs and Agencies

The contribution of international conservation NGOs such as BirdLife International, Worldwide Fund for Nature, GTZ, etc to forest conservation and the socio-economic development of Cameroon and Anglophone Cameroon in particular cannot be undermined. Hence, there is need for greater cooperation, especially in the domains of participatory management activities in the field of training, technological dissemination and the training of women's group. The focus should be on building social capital such as professional and crafts networking, and communities' capacity to manage common property resources. These organisations, which work with local communities, understand them better and could serve as effective intermediaries between government and these communities.

Also, collaboration with NGOs can lead to an alleviation of the heavy household dependence on fuel wood as principal source of energy. For instance in January 2010, the government of Cameroon and the Netherlands Development Organization, SNV, got into partnership to start a biogas project in the country.

8.2.6 Benefits Allocation Procedure

Benefits sharing or allocation is a very sensitive issue as people are more likely to manifest stewardship towards forest from which they derive benefit. Fair and equitable revenue sharing with local communities increases their stakes in protection. Also unfair distribution of benefits can spur intentional and retaliatory degradation of forest resources as well as other undesirable conflicts. It is therefore imperative not only for the procedure to reflect fairness and equity but also that there should exist a clearly defined, established and publicized procedure for benefits allocation. Cameroon's current Benefits sharing policy needs to be reworked to reflect all these.

8.2.7 Social Forestry

To bring deforestation and the degradation of forest resources under control, without jeopardizing the productive livelihoods of forest dependent communities, government should embark on a strategic social forestry policy by making use of the degraded lands. Social forestry will reduce pressure on natural forest by meeting the fuel wood and other wood product requirements of the local population. Uma, (2002) says the effectiveness of social forestry in replacing wood from poorly managed and unsustainable operation in natural forests highly depends on the economic competitiveness with products originating from natural forests. This requires both investment and research on the part of the government in order to find a suitable replacement of the non-environmental friendly eucalyptus trees ubiquitous in the North West Region of Cameroon.

8.2.8 Adoption of Rational and Efficient Energy policy Approach

As revealed by this study, fuel wood dependence in Anglophone Cameroon stands at above 85%. National statistics according to the Secretary General of MINFOF is estimated at about 70%. This constitutes one of the major causes of deforestation and degradation. To therefore mitigate this, government should invest in biogas and pellets production from the colossal amount of municipal solid waste generated in the area. Also government should exploit the ubiquitous presence of rivers and waterfall in the area for purposes of hydropower. This could eventual be used both for domestic and industrial purposes and to power some of the available sawmills. Furthermore, given the indispensability of fuel wood, in the short term, it is important to exploit all the potential byproducts of the timber industry such as sawdust and chipboards for locally made cooking stoves, the formation of pellets for energy purposes. Also the formation of briquettes from the dust of charcoal production such as in Kenya by a company called chardust is not only energy efficient but also enhances the efficient use of woody biomass products. However, government should also invest in both solar and wind energy.

8.2.9 Agricultural Intensification

Since smallholder agriculture is a major source of forest degradation, an active policy-led effort to intensify perennial crop and food crop systems to deflect further encroachment on the forest margin is needed. In this wise, Government should revive the loan and credit facilities available to farmers prior to the economic crises, through structures such as the defunct agricultural credit bank. The same holds true for other agricultural inputs or subsidies as fertilizers, etc. Meanwhile, public knowledge on soil management through convention practices of organic manure, use of cover-crops and composting should be enhanced. Also, the entrenchment of agroforestry practices through public education could supply part of the badly needed environmental services.

Furthermore, providing poor people with access to land, together with building their capacity to effectively use the land, is central to reducing poverty. It also empowers the poor and communities. Also effective land-use management, which takes into account equity and access issues and tenure rights, is critical to sustainable forest management in Cameroon. Ineffective land-use planning and management can only lead to overexploitation of the resource.

8.2.10 Consideration of Indigenous Knowledge

It is a widely accepted fact that indigenous people have developed knowledge systems for a long time which enabled them to live harmoniously with their environments. This was re-iterated at the Earth Summit in June 1992 at Rio de Janeiro, where Agenda 21 called for the deployment of major efforts to record Indigenous Knowledge (IK) systems (Besong and Ngwasiri, 1995). Indigenous Knowledge and management of tress and forest ecosystems by local communities should be taken into consideration in the formulation of forest policy. Furthermore, since certain indigenous traditional practices also enhance forest conservation such as the designation of specific areas as shrines, this should be encouraged.

8.2.11 Adoption of Participatory Environmental Communication Approach

Despite the good environmental communication strategy adopted by the government, local and international conservation agencies, the strategy is predominantly impersonal, unidirectional and vertical rather than horizontal. However, for purposes of more effective environmental communication, there is need for the adoption of the "consensus conference model," whereby environmental communicators, local people and experts are engaged more equitably in the problem solving process. The idea here is a kind of public debate in which a consensus is reached, followed by an agenda setting for policy makers and the general public. Last but not the least, in addition to the need for government subvention to sustain and promote the good work of the rural radios, government should also facilitate the public's access to the audio-visual media, this will enhance the so-called cultivation effect.

8.2.12 Access to Micro-concessional credits

One of the most heinous push-factors of forest degradation is poverty. Given a window of financial opportunity, many forest dependents will resort to various options of eking out a living. Thus, there is need for not only government financial handouts but most importantly for a review in the loans and credit policies in both state and private banks to accommodate even the poor. Current lending conditions inter alia collateral security and high interest rates are inimical to socioeconomic development, the growth of local small and medium-size industries and entrepreneurship.

Based on practical experience from Bangladesh, micro credit accessibility by the poor could be a potential tool for mitigating forest degradation. According to Muhammad Yunus, Nobel Laureate and founder of the Grameen Bank, (1974) the poor are neither too stupid nor too passive to earn money. Instead, the struggle for survival has honed their innovative skills such that all they need is small capital to get them going. Defying all his skeptics and continuing with his vision of providing loans to the poor, Muhammad reveals that 95% of Grameen's loans are paid back. He further, stresses the need that loans should be given on acceptable terms while condemning the issuing of handouts:

"Give someone a handout, he will feel and act like a helpless beggar. Give him a loan, and you treat him (or her) as a responsible business partner."

8.3 Conclusion

From the foregoing discussion, and based on the outcome of this empirical study, it is evident that unlike in the pre-early 1990s, the current forest policy has mitigated forest exploitation in Cameroon in general and Anglophone Cameroon in particular. However, the unpleasant side is that it has not been able to significantly contain the principal causes of deforestation and degradation of forest resources, particularly, in the state-managed forest domains. Here, unlike in the community forest domains, conversion of forest for farmland, especially, smallholder agriculture is still a major problem. Furthermore, owing to the absence of a viable national energy policy, the ravaging of forest for fuel wood as a means of domestic energy is ubiquitous. These and other causes constitute the driving forces underlying the considerable rate at which forest cover is being lost in Cameroon, due in part, to the inadequate capacity for implementing and enforcing policy in the sector and also a poor forest policy implementation strategy. The obvious conundrum therefore, is how to ensure that the loss is minimum in extent and least damaging socially and environmentally, rather than have the delusion that it can be completely averted.

In the face of this challenge therefore, it is imperative to reconcile forest conservation with economic development and poverty alleviation. So long as there is no improvement in the human wellbeing of forest-dependent communities, the health of the forest will remain in peril, without any long term sustainability guarantee both for the current and future generations. Furthermore, since the community forest management paradigm is more predisposed to success in sustainable forest management, unlike government forests which have failed, government should harness this through well established and enforced good forest governance policies. A well entrenched community forest management scheme coupled with the much heralded socio-economic development will go a long way to mitigate poverty and even some of the most ominous cultural practices, thereby enhancing forest sustainability with the support of the rural radios and other media. Of

course this cannot be achieved without the backing or support of the government through counseling, training, financing, etc. Hence, the concept of a joint forest management.

Meanwhile, if sustainable forest management is to become a reality in Anglophone Cameroon, and the Republic of Cameroon in general, the afore-mention recommendations should be given due consideration. Also, forest stakeholders should ensure that policy and institutional capacity as well as the incentives to enforce them do not lag, in order to translate the national policy into an effectively implemented forest strategy.

REFERENCES

Books

Anil, A., (1982). *The State of India's Environment*. Center for Science and Environment: New Delhi.

Anyanwu, C. N., (1992). *Community Development*. The Nigerian Perspective, Gabesther Educational Publishers: Ibadan.

Ascher, W., (1995). *Communities and Sustainable Forestry in Developing Countries*. ICS Press: San Francisco.

Baker, R. E., and Bushell, J. A., (1971). *The Unclean Planet: Social biology.* Ginn and Company Ltd., London.

Besong, J., and Ngwasiri, C. N., (1995). *The 1994 Forestry Law and Rational Natural Resources Management in Cameroon.* PVO-NGO/NRMS Cameroon: Yaounde.

Biya, P., (2009). *End of Year Address to the Nation.* CRTV, December 31st: Yaounde.

Bruce, J. W., (1989). *Rapid Appraisal of Tree and Land Tenure.* Common forestry Note 5, FAO: Rome.

Brundtland Commission on Environment and Development, (1987). *Our Common Future.* Oxford University Press: Oxford.

CAMPER/USAID, (1993). *Cameroon Programme for Environmental Reform*. CAMPER: Yaoundé.

Cleaver, K., and Schreiber G. A., (1994). *Reversing the Spiral, the Population, Agriculture and Environmental Nexus in Sub-Saharan Africa*. Directions in Development, World Bank: Washington DC.

Collins, J. L., and Painter, M., (1986). *Settlement and Deforestation in Central America: A Discussion of Development Issues*. Working Paper No. 31, Institute for Development Anthropology: New York.

Eckholm, E.; Foley, G.; Bernard, G., and Timberlake, L., (1984). *Fuelwood: the energy crisis that won't go away.* Earthscan: London.

Essama-Nssah, B., and Gockowski, J. J., (2000). *Cameroon : forest sector development in a difficult political economy*. World Bank Operations Evaluation Department Washington, DC.

Eyre, E. C., (1983). *Effective Communication Made Simple*. W. H. Allen: London.

Finance and Development, (2003). The *World's Forests*. IMF: Washington DC.

Gillis, M., (1987). Economics *of Development* (2nd Ed). W. W. Norton & Company: New York.

Global Forest Watch, (2000). *An Overview of Logging in Cameroon*. World Resources Institute: Washington D.C.

Goldemberg, J., (1996). *Energy, Environment and Development*. Earthscan Publications Limited: London.

IUCN, (1994). *Forest Atlas of Africa*. Gland, Switzerland.

Kellinger, F., (1986). *Foundations of Behavioural Research*. Holt, Rinehart & Winston: New York.

MINEF, (2003). *Legal Guide for the Control of Forestry Activities in Cameroon*. Edition Clé: Yaounde.

Miller, G. T., (1994). *Sustaining the Earth: An Integrated Approach.* Wadsworth Publishing Company: Belmont.

Moreau, R. E., (1966). *The Bird Faunas of Africa and its Islands*. Academic Press: New York.

Mueller, D. J., (1986). *Measuring Social Attitudes*. Teacher College Press: New York.

Munasinghe, M., (2001). *Macroeconomics and the Environment*. Edward Elgar Publishing: Cheltenham, UK.

National Forestry Action Programme of Cameroon, (1995). *Forestry Policy Document.* MINEF: Yaoundé.

Ndenecho, E., (2005). *Biological Resource Exploitation in Cameroon.* Unique Printers: Bamenda.

Ndenecho E. N., and Balgah S. N., (2007). *The Population-Resource Scarcity and Conflict Trinity*. Unique Printers: Bamenda.

Ngo, M. L.; Mpeck, E.; and Tchoundjeu, Z., (1999). *Contribution of Tree Domestication to the Conservation of Indigenous Medicinal Plants of African Forests.* ICRAF: Yaounde.

Ngome, M., (1992). *Environmental Education in Cameroon: Problems and Prospects.* WWF: Yaoundé.

Ndoye, O., (1998). *The Impact of Macro Economic and Agricultural Policies on Forest Conditions in Cameroon.* International Centre for Forest Research : Yaounde.

O'Halloran, E., and Ferrer, V., (1997). *The Evolution of Cameroon's New Forestry Legal, Regulatory, and Taxation System.* World Bank : Washington D.C.

Omale, I., (1992). *Policy Conflicts under the Federal System with Particular Reference to Local Government*. The Federal Planning Commission: Abuja, Nigeria.

Ostrom, E., (1990). *Governing the Commons: The Evolution of Institutions for Collective Action.* Cambridge University Press: Cambridge.

Raison, A., Brown, G. and Finn, D. W., (2001). *Criteria and Indicators for Sustainable Forest Management*. CABI Publishing: New York.

Reed, D., (ed.) (1996). *Structural Adjustment, the Environment and Sustainable Development*. Earthscan Publications/World Wildlife Fund: London.

Reed, D., (ed.) (1992). *Structural Adjustment and the Environment*. Westview Press: Boulder.

Repetto, R. & Cruz, W. (1992) *The Environmental Effects of Stabilization and Structural Adjustment Programs*. *The Philippine Case,* World Resource Institute: Washington, DC.

Robbins, P., (2004). *Political Ecology*. Blackwell Publishing: Oxford.

Roger, L. D., (1992). *The Rebirth of Nature.* John Wiley and Sons Inc: New York.

Rudel, T., (1993). *Tropical Deforestation: Small Farmers and Land Clearing in the Ecuadorian Amazon*. Columbian University Press: New York.

Scott R., Jerkin H., Husain, S. A. & Zazueta, A., (2000). *China from Afforestation to Poverty Alleviation and Natural Forest Management.* World Bank: Washington D.C.

Sedjo, R. A., (2005). *Macroeconomics and Forest Sustainability in the Developing*. World Resources for the Future: Washington, D.C.

Tiani, A. M., (2001). *The Place of Rural Women in the Management of Forest Resources: The Case of Mbalmayo and Neighbouring areas of Cameroon*. Resources for the Future: Washington D.C.

Westoby, J., (1989). *Introduction to World Forestry*. Basil Blackwell: Oxford.

Wollenberg, E., Edmunds, D., Buck L., Fox, J. and Brodt, S., (2001). *Social Learning in Community Forests*. CIFOR /East-West Center: Bogor.

World Bank, (1996). *Toward Environmentally Sustainable Development in Sub-Saharan Africa*. The International Bank for Reconstruction and Development/World Bank: Washington, D.C.

World Bank, (2002). *Managing a Global Resource.* Transaction Publishers: Washington D.C.

World Commission on Environment and Development, (1987). *Our Common Future*. Oxford University Press: Oxford.

Wunder, S., (2000). *The Economics of Deforestation*. Macmillan Press Ltd: London.

Book Articles

Abdallah R., and kaoneka, S., (1999). *"Asia – Pacific Forests, Society and Environment"*. In Palo Matti and Uusivuori Jussi (eds). World Forests: Vol. 1, Kluwer Academic Publishers: Dordrecht.

Acheson, J., (1989). *"Where Have All the Exploitings Gone. Co-management of the Maine Lobster Industry"*. In Fikret Berkes (ed). Common Property Resources, Belhaven: London.

Asanga, C., (2001). *"Facilitating Viable Partnerships in Community Forest Management in Cameroon: The case of the Kilum-Ijim Mountain Forest Area."* In Wollenberg, E.; Edmunds, D.; Buck, L.; Fox, J., and Brot, S. (eds). Social Learning in Community Forests, 21-44. CIFOR/East-West Center: Bogor.

Asong, A., (2001). *"Forest Degradation and Forest Reservation Strategies in the South West Province."* In Dunlop. J. and William, R. (eds). Culture and Development: A reader of Environmental Education. University of Buea: Buea.

Balgah, S. N., (2001). *Exploitation and Conservation of Biological Resources in Mount Cameroon Region.* In Lambi, C. M. and Eze, E. B. (eds). Readings in Geography. Unique Printers, Bamenda; pp 310-324.

Bromley, D., (1999). *"Deforestation – Institutional Causes and Solutions."* In Matti P. and Uusivuori (eds). World Forests: Vol. 1. Kluwer Academic Publishers: Dordrecht.

Cheo, V. N., (2002). *"Effective Public Communication."* In Eribo, F. and Enoh, T. (eds). Journalism and Mass Communication in Africa: Cameroon, Lexington Books: Maryland.

Colfer, J., and Reed, L., (2001). *"From Participation to Rights and Responsibility in Forest Management."* In Carol, J. and Yvonne, B. (eds). People Managing Forests, Resources for the Future: Washington D.C.

Embola, O., (2001). *"Traditional Architecture and Cultural Identity of Cameroon"*. In Jim Dunlop and Roy Williams (eds). Culture and Environment: A Reader in Environmental Education, University of Buea: Buea.

Essama-Nssah, J.; Gockowski, and Kelley, L., (2002). *"A New Deal for Cameroon's Forest."* In Uma Lele (ed). Managing a Global Resource: Challenges of Forest Conservation and Development, Volume 5. Transaction Publishers. Washington D.C.

Fonyam J., (2001). *"The Legal Protection of Forests: A Case Study of Cameroon."* In Dunlop, J. and William, R. (eds). Culture and Development, University of Buea, Buea.

Gill, S. H., and Abrol, I. P., (1986). *"Salt affect Soils and their Amelioration through afforestation."* In Prinsly, R.T. and Swift, M.J. (eds). Amelioration of Soil by Tree: A Review of Current Concepts and Practices. Commonwealth science Council: London.

Lambi, C. M., (2001). *"Environmental Problems and Prospects: An Introduction."* In Lambi, C. M. (ed). Environmental Issues: Problems and Prospects. Unique Printers: Bamenda.

Lambi, C. M., (2001). *"Land Degradation in the North West Province of Cameroon."* In Dunlop, J. and Williams R. (eds). Culture and Environment. A Reader of Environmental Education, University of Buea: Buea.

Lima, A., (2001). *"Environmental Education about the Rain Forest, Cameroon."* In Dunlop J. and Williams, R. (eds). Culture and Environment: A Reader in Environmental Education. University of Buea: Buea.

Matti, P., and Uusivuori J., (1999). *"Globalization of Forests, Societies and Environment."* In Matti P. and Uusivuori (eds). World Forests, Vol. 1. Kluwer Academic Publishers: Dordrecht.

McDougall, L. C., (2001). *"Gender and Diversity in Assessing Sustainable Forest Management and Human Well-Being."* In Carol, J. And Byron Y. (eds). People Managing Forests. Resources for the Future: Washington D.C.

Muluh, H., And Ndoh, B., (2002). *"Evolution of the Media in Cameroon"*. In Eribo, F. and Enoh, T. (eds). Journalism and Mass Communication in Africa: Cameroon. Lexington Books: Maryland.

Myers, N., (1994). *"Tropical Deforestation: Rates and Patterns."* In Brown, K. and Pearce, D. W. (eds). The causes of tropical deforestation. UCL Press Limited: London.

Nalini, K., and Naresh C., (2002). *"India's Forests: Potential for Poverty alleviation."* In Uma Lele (ed). Managing a Global Resource: Challenges of Forest Conservation and Development, Vol. 5. Transaction Publishers: New Jersey.

Ndamukong, K., (2001). *"Cameroon Forest: Yesterday, Today and Tomorrow."* In Dunlop, J. and Williams, R. (eds). Culture and Environment: A Reader in Environmental Education, University of Buea: Buea.

Nowak, I. (2001) *"The Potentials of the Kilum and Ijim Highlands as Watershed"*. In Dunlop, J. and Williams R. (eds) Culture and Environment: A Reader in Environmental Education, University of Buea: Buea.

Okigbo, B. N., (1994). *"Conservation and Use of Germoplasm in African Traditional Agriculture and Land Use System."* In Putter, A (ed). Safeguarding the Genetic Basis of Africa's Traditional Crops, CTA. The Netherlands/IPGRI: Rome.

Princen, T., and Finger, M., (1994). *Introduction.* In Princen, Thomas / Finger, Matthias (eds), Environmental NGOs in World Politics. Linking the Local and the Global. London: Routhledge: pp 1-28.

Santa D., and Park J., (1999). *"Global Threats and Opportunities."* In Palo Matti and Uusivuori (eds). World Forests, Vol. 1. Kluwer Academic Publishers: Dordrecht.

Tainter, J. A., (2001). "*Sustainable Rural Communities."* In Carol, J. and Yvonne, B. (eds). People Managing Forests, Resources for the Future: Washington D.C.

Tesi, M. K., (2004). *"Cameroon`s Endangered Environment: Economic Policy and Forest Loss."* In Kelechi Kalu (ed). Agenda Setting and Public Policy in Africa. Ashgate Publishing Company: Burlington.

Tumnde, M. S., (2001) "*Integrating Law and Local Customs in Forest Resources Management Around the Mount Cameroon Region*." In Lambi, C.M. and Eze, B. E. (eds) Readings in Geography, Unique Printers: Bamenda

Uma, L. (2002) "Managing a Global Resource: An Overview." In Uma Lele (ed). Managing a Global Resource: Challenges of Forest Conservation and Development, Volume 5. Transaction Publishers. Washington D.C.

Journals, Newspapers and Reports

Alemagi. D., (2006). *Mitigating Industrial Pollution along the Atlantic Coast of Cameroon: An Overview of Government Efforts.* The Environmentalist: Vol, 26, No.1 pp 41-50.

Barraclough, S., and Ghimire, K. B., (1990). *The Social Dynamic of Deforestation in Developing Countries.* Principal Issues and Research Priorities, UNRISD, Geneva. Discussion Paper No. 16.

Bedoya, E., (1991). *Social and Economic Causes of Deforestation in the Peruvian Amazon Basin: Natives and Colonists.* Institute for Development Anthropology, New York. IDA Working Paper no. 60.

Biwas, A. K., (1992). *Environment and Sustainable Development for Cameroon.* Report of a Multi-disciplinary and Multi-institutional Mission on the Environment, Yaoundé.

Bromley, D., (1991/92). *Property Rights as Authority Systems: The Role of Rules in Resources Management.* Journal of Business Administration: Vol. 20, no. 1 & 2, pp 453-470.

Bainkong G., (2010). *Biogas programme in Gestation.* Cameroon Tribune 15th January: Yaoundé, pp 6.

CAMPER/USAID, (1993). *USAID Cameroon programme for environmental reform.* CAMPER, Yaoundé.

Cunningham, A. B., and Mbenkum, F. T., (1993). *Sustainable Harvesting of Prunus africana Bark in Cameroon: A Medicinal Plant in International Trade*. People and Plant Working Paper 2, UNESCO: Paris.

DFID, (2002). *Cameroon* Country strategic paper, DFID Forest Programme Coordination: Yaoundé.

Forbes, A., and Besong, J., (2002). *Stratégie Participartive pour la conservation de la biodiversité du Mt Cameroun. Démontrer une situation "win-win" pour la biodiversité et la réduction de la pauvreté.* Document CMBL 1.

Geist, H., and Lambin, E., (2003). *Forces Driving Tropical Deforestation, ASB Policy briefs.* No. 6, ASB Programme: Nairobi.

Gibson, C., and Stuart, M., (1995). *Transforming Rural Hunters into Conservationists: An Assessment of community-based Wildlife Management Programs in Africa*. World Development Vol. 23, No. 6, pp 941-957.

Harrison, P., (1997). *Good News for 2050.* Newsfile, People and the Planet: Volume 6, No. 2, pp 4.

His Royal Highness Fon Ngum II, (2000). *The Oku Forest:- Our Life and our Future. Forest Tree and People.* Newsletter no. 45: 19 – 21.

Kaimowitz, D., Erwidodo, O. N., Pacheco P., and Sunderlin W., (1998). *Considering the Impact of Structural Adjustment Policies on Forests in Bolivia, Cameroon and Indonesia*. Unasylva: Vol. 49 No.194, pp 57–64.

Korup National Park, (1996). Sombo Newsflash, No. 3, pp 6.

Lanly, J.-P., (1982). *Tropical Forest Resources*. FAO For. Pap.: (30):106 p. Issued also in French and Spanish

Lawry, S. W., (1990). *Tenure Policy towards Common Property Natural Resources in Sub-Saharan Africa.* Natural Resources Journal: Vol.30, No. 2, pp 403-422.

Lumley, S., (1997). *The environment and the Ethics of Discounting: An Empirical Analysis.* Ecological Economics: Vol. 20, No. 1, pp 71-82.

Mertens, B., and Lambin. E., (2000). *Land Cover Change Trajectories in Southern Cameroon.* Annuals of the Association of American Geographers: Vol. 90 No. 3, pp 467-494.

MINEF, (1996) *National Environment Management Plan.* Main Report, Vol. 1, Yaoundé.

Munasinghe, M. and Cruz, W. (1995) *Economy-wide policies and the environment: Lessons from Experience.* World Bank Paper No. 10, Washington, DC.

Ndenecho, E. N., (2007*). Integrating the Livelihoods of Forest-Adjacent Communities in Forest Conservation Projects: Case Study of Mount Oku Cameroon.* Journal of Applied Social Sciences: Vol. 6 No. 1 & 2, pp 56-78.

Ngwa, N. E., and Fonjong, L. N., (2002). *Actors Options and the Challenges of Forest Management in Anglophone Cameroon.* GeoJournal: Vol. 57, No. 2, pp 95-111.

Poore, M. E. D., and Fries, C., (1985). *The Ecological Effects of Eucalyptus.* F.A.O. Forestry Paper No. 59, F.A.O. Rome, pp 36-45.

Southgate, D., (1990). *The causes of Land Degradation along Spontaneously Expanding Agricultural Frontiers in the Third World.* Land Economics 66(1): pp 93-101.

Stattersfield, A. J., Crosby M. J., Long A. J., and Wege D. C., (1998). *Endemic Bird Areas of the World. Priorities for Biodiversity Conservation.* Birdlife Conservation Series No. 7. Birdlife International, Cambridge.

Steinlin, H., (1994). *The Decline of Tropical Forests.* Quarterly Journal of International Agriculture: Vol. 33, No. 2, pp 25-36.

Sunderlin, W. D., Ndoye, O., Bikié, H., Laporte, N., Mertens, B., and Pokam, J., (2000). *Economic crisis, small-scale agriculture, and Forest Cover Change in Southern Cameroon.* Environmental Conservation: Vol. 27, No. 3, pp 284–290.

Tsi, E. A., Wiegleb, G., Peschel, T., and Forbid, G. T., (2006). *Socio-Economic Characteristics of a Community Forest in the Western Highlands of Cameroon.*

Case of Ijim Forest. Global Journal of Agricultural Sciences: Vol. 5, No. 1, pp 5-10.

Williams, C., and Millington, A., (2004). *The Diverse and Contested Meanings of Sustainable Development.* The Geographical Journal: Volume 170, No. 2, pp 99-104.

Unpublished Works

Asanga, C., (2002). *Community Forest Management at the Kilum-Ijim Mountain Forest Region, Cameroon: A Partnership for Conservation and Sustainable Use of Natural Resources* (Unpublished)

Abugiche, S.A (2008) Impact of Hunting and Bushmeat Trade on Biodiversity Loss in Cameroon. A Case Study of the Banyang-Mbo Wildlife Sanctuary (Unpublished Ph.D Thesis

Awemo, A. A., (2006). *Medicinal Plants and Intellectual Property Rights in Cameroon: Case Study of Prunus africana in Oku, Cameroon.* Brandenburg Technical University of Cottbus, Germany (Unpublished MSc. Thesis).

Dufe, S., (2001). *The Impact of Oku Rural Radio on Rural Development*. University of Buea, Cameroon (Unpublished BSc. Thesis).

Mertens, B., (1999). *Spatial Modeling of Diverse Deforestation Processes*. Université Catholique de Louvain (Unpublished PhD Thesis).

MINEF, (1994). A Compendium of official instruments of Forest and Wildlife management in Cameroon (unpublished).

Sunderland, T. C., and Tako, C. T., (1999). *The Exploitation of Prunus africana on the Island of Bioko, Equatorial Guinea.* Unpublished Report Prepared for the People and Plants Initiative, WWF-Germany, and the IUCN.SSC Medicinal Plant Specialist Group.

Laws and Decrees

Republic of Cameroon, (1994). *Law No. 94/01 of January 20, 1994 to Lay Down Forestry*. Wildlife and Fisheries Regulations. Cameroon.

Republic of Cameroon, (1995). *Decree No. 95/531/PM of August 23, 1995 to Determine the Conditions for Implementation of Forestry Regulations.* Cameroon.

Republic of Cameroon, (1996). *Law No. 96/12 of August 5, 1996 Relating to Environmental Management.* Cameroon.

Internet Sources

Birdlife International, (2003*). Cameroon Forest Expansion Success.* Http://www.birdlife.org/news/features/2003/08/kilum.html Accessed on November 20th, 2008

BirdLife International, (2006). *Working together for birds and people.* http://www.birdlife.org/worldwide/index.html Accessed on November 20th, 2008.

Molisa, J., (2009). *Cameroon: A Third Elephant Collared On Mt. Cameroon.* http://allafrica.com/stories/200901200208.html Accessed on 18th, June 2009.

Obiago, S. M., (2009). *Sustainable Development and the Press in Africa.* Http://wwwun-ngls.org/orf/documents/publications.en/voices.africa/number6/vfa6.05.htm Accessed on April 12th, 2009.

Voices From Africa, Number 6. http://www.un-gls.org/orf/documents/publications.en/voices.africa/number6/vfa6.05.htm Accessed April 12th, 2009.

WWF CARPO/CFP_SAWA, (2009). http://www.panda.org/who_we_are/wwf_offi.m Accessed on 13/06/2009.

Wikipedia, (2009). http://en.wikipedia.org/wiki/File:Cameroon_Map.jpg. Accessed on 08/09/2009.

APPENDICES

Appendix I: Questionnaire

Dear respondents, my names are Victor Cheo, a PhD student in the Faculty of Environmental Sciences and Process Engineering in Brandenburg University of Technology, BTU Cottbus, Germany. I am researching on approaches and impacts of sustainable forest manage in **Mt Cameroon and Mt Kilum Areas.** I would be very obliged if you respond candidly to the following questions. Rest assured that all data collected is solely for academic purposes. Thanks in advance!!!

SECTION A: *Demographics*

1) **Name**..... (Optional)

2) Sex::	Male	Female

3) Underline your Age Bracket **(15-25), (26-40), (41-55), (56 and above)**

4) What is your highest educational qualification? (Underline) **FSLC, O/L, A/L, CAP, BAC, Bachelors, Masters, PhD and No formal Qualification**

5) What is your main occupation? (Underline one only) **Farming, Business, Animal rearing, Poultry farming, Gardening, Civil Servant, Private Sector Employee and Retired**

SECTION B: *Respondents Dependence on Forest*

*(Please under questions **6, 7** and **23** more than one box can be ticked)*

6) What is the status of the forest in your Area?

State Forest	Community forest	Communal Forest

7) Such a status constitute a disincentive for conservation of forest by local people

Strongly agree	Agree	No opinion	Disagree	Strongly disagree

8) What do you use the forest for?

farmland	firewood	hunting	Honey extraction	Prunus bark	Timber extraction	Water source

9) My exploitation of the forest is for

Personal purpose	Commercial purpose	Personal and commercial purposes

10) Forest contributes significantly to my livelihood.

Strongly agree	Agree	No opinion	Disagree	Strongly disagree

11) My involvement in the forest is due to

Poor income	No fix income	Share in profit

SECTION C: *Respondents Perception of consequences of deforestation and Willingness to mitigating them.*

12) Which of the following are caused by deforestation?

Erosion	Biodiversity lost	desertification	Climate change	Longer firewood time search	Loss of water sources

13) Knowledge of consequences of deforestation and unsustainable exploitation have caused you to reduce the scale of my activities in the forest.

Strongly agree	Agree	No opinion	Disagree	Strongly agree

14) The introduction of poverty alleviation measures will enhance forest conservation.

Strongly agree	Agree	No opinion	Disagree	Strongly disagree

15) Are you willing to cooperate to prevent the forest in your area from disappearing?

Strongly Agree	Agree	No opinion	Disagree	Strongly disagree

SECTION D: *Policy* Approaches *and Forest Sustainability*

16) What do you think of the new Forestry Law and management policy?

Very good	good	No opinion	Bad	Very bad

17) Do you abide by them?

fully	Partially	Not at all

18) Which of the following sanctions have ever been meted out to you for violating forest rules?

Fines	Imprisonment	Seizure of products.	none

19) Corruption is a major setback for forest conservation

Strongly agree	Agree	No opinion	Disagree	Strongly disagree

20) Personally have you experienced corruption in the forestry domain?

Yes	No

21) You are consulted concerning forest management decisions

Strongly agree	Agree	No opinion	disagree	Strongly disagree

22) There is accountability and transparency in management of accrued benefits from forest

Strongly agree	Agree	No opinion	Disagree	Strongly disagree

23) Which of the following do you have easy access to?

Potable water	Good healthcare	Micro Financing	Quality education	Good transport network

24) Which Media of Information do you readily have access to?

Radio	Television	Newspaper	None

Appendix II: Interview Guides

Section A: Environmental Communication Interview Guide for Government Forest Institutions and Conservation Agencies

1. Through what media do you embark on environmental communication/education?
2. What informs your choice of the respective media?
3. What are your major communication barriers and how do you surmount them?
4. Who is the target of your message?
5. How do you tailor your message to suit the target audience?
6. What are the substantive issues of your communication?
7. What are the major considerations/ incentives for effective communication of your messages?
8. What are your Feedback mechanisms?

Section B: Policy Interview Guide with MINFOF Officials

1. Which activities contribute to deforestation and forest degradation?
2. Can you give me a sort of ranking of these?
3. What is the ministry doing to promote sustainable forest exploitation
4. Are there some special incentives for forest community dwellers?
5. How are proceeds from forest activities used?
6. Do you have any Mechanism in place to ensure that forest revenues are used in the intended manner?
7. What is the ministry doing to ensure forest exploiters comply with forest legislation and policy?
8. Do you have the mechanism and capacity to enforce this?
9. What is the estimated percentage level of compliance?
10. How is the ministry tackling the specter of corruption so pervasive among forestry official and forest exploiters in general?
11. How do you evaluate your success in this domain and what accounts for such a rating?

12. To what extent does the law guarantee the public's participation in the management of their forest resources?

Section C: Focused Group Discussions with Forest Dependents

1. In your opinion, what is public response to the current forest policy?
2. Comparatively, is there better compliance to policy nowadays than in the past?
3. What are the possible reasons why villagers depend heavily on the forest for livelihood?
4. Which forest resources are over exploited?
5. What can government do to reverse this trend?
6. What is your media ownership preference and Why?
7. Do you think revenue accruing from forest activities can improve on your socio-economic well-being?
8. Is that what obtains in your Area?
9. Do you know the reasons preventing this positive outcome?
10. Have you been educated on some potential alternative sources of income generating activities?
11. What prevents you from embracing these auspicious areas?
12. Do you people have access to any form of concessional micro-financing to support personal initiatives?
13. Have you been sensitize on proper land use management and methods of sustaining soil fertility?

Appendix III: Introductory Letter about Researcher

Brandenburgische Technische Universität Cottbus
Fakultät f. Umweltwissenschaften und Verfahrenstechnik
Lehrstuhl für Sozialwissenschaftliche Umweltfragen

Prof. Dr. Wolfgang Schluchter

TO WHOM IT MAY CONCERN

I, the undersigned, hereby attest to the fact that **Victor Ngu Cheo** is a Ph.D student under my supervision.He is currently in his final academic year and therefore rounding off data collection for his dissertation. The topic of his dissertation is **Policy Approaches and Environmental Communication in Mitigation of Non-sustainable Forest Exploitation in Cameroon.** Please do give him all the necessary cooperation he needs in order that he should achieve his goal.

Sincerely yours,

Prof. Dr. Wolfgang Schluchter Cottbus, 18. November 2008

BTU-Cottbus
LS Sozialwissenschaftliche Umweltfragen
Prof. Dr. W. Schluchter
Postfach 10 13 44

03013 Cottbus