

PROTECTED AREAS AND RURAL LIVELIHOODS INTERLINKAGES
CASE STUDY : TISSOH COMMUNITY ,KAMBUI HILLS FOREST RESERVE NORTH

BY

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DEDICATION

I wish to dedicate this work to Baby Nyanda ECO (Ex Ceabilis Ogblatus)Kawah..." -A true"
gift from heaven."

ACKNOWLEDGEMENT

The production of a work like this would not have been possible without the Divine guidance of the almighty ALLAH.

I thank Him from the beginning and the finishing protection and good health.

I wish to sincerely thank my supervisor Mr Morrison Lahai of The Institute of geography and development studies, School of environmental Sciences.

I owe a debt of gratitude to all the lectures especially Mr Sesay for their collective Support.

I Thank my mother ,Madam YEAWAH NYANDA SWARAY for her constant support, unflinching love and wisdom.

CERTIFICATION

I hereby certify that this work is carried out by KAWAH HAJI ALUSINE (I.D 17490) of the Institute of Geography And Development Studies ,Njala University .Under my supervision and that this dissertation is the authentic product of his diligent research and results obtained by him.

.....

Supervisor

.....

Date

DECLARATION

I hereby declare that this dissertation it's based on my original work - the supervision of Mr. Morrison Lahai - lecturer of The Institute of geography and development studies .Except except for questions and citations which have been duly acknowledged I also declare that it's what has not been formally submitted for any other degree Australia University or other institutions in and out of Sierra Leone. Finally I do declare that the errors contained in this dissertation I solely my responsibility

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sign:... ..

LIST OF

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

Protected areas have emerged as major arenas of disputes concerning both rural livelihoods and environmental protection and as the main hope for the imperil biota in Sierra Leone.

The ecological equilibrium,integrity and stability of our natural biodiversity requires sincere of the sustenance,needs and economic aspirations of the rural people livelihood activities in tandem with sustainable forest management. ()

The earth was once a beautiful,' green ' planet ; full of life and biodiversity. But ever since the industrial revolution:mankind's livelihood activities has slowly but surely depleted the natural resource base,polluted water sources, and introduced toxic gases into the once pure athmosphere at an unprecedented rate and amount,degraded and fragmented natural habitats and disrupted the equilibrium of the once stable natural ecosystems.(Our Common Future,1989)

According to a study by carried out by Ellen Macarthur's Foundation,"The overexploitation

Of the natural resource base is as a result of the linear model of production and consumption practices adopted by both industries and consumers alike. The aforementioned organization advocates for a Circular-Economy / 'Blue' Economy

Model of production and consumption this essentially based on the principles of sustainable economic development (Ellen MacArthur Foundation, Report , 2013; Wikipedia 2013)

It is mainly due to the aforementioned devastating phenomenon; in order to curb and buffer the the negative impacts of rural livelihoods activities on the environment (primary forests) and consequently on the wellbeing of rural people- " geographic areas; terrestrial, marine etc where set aside as Reserves and Protected areas"(IUCN Report; Wikipedia) these areas are generally known as protected areas(Jimmy Mariama, 2012).

The prevalence of state governed PAs originates from Africa's colonial past as the first African PAs were created starting in the mid 1920s and 1930s ,when the power to govern these was firmly vested in the State (Papaco Report, IUCN p.1)

Ever since the ' Race For Independence ' ; the Top-Down approach to PAs management was inherited which often meant that states centralized control, access to natural resources and land tenure rights (Büscher and Dietz, 2005; Roe et al, 2009, Ribot , 2002). Excluding rural communities from the management and policy formulation , project planning phase can have a negative impacts on the effective management of protected areas (Kothari, 2000. Sowmern et al, 2011)

Due to the alarming rate of desertification in the Sahel Belt- with the Sahara Desert 'creeping ' towards the equator - The 'Green Belt Programme' was initiated (Deutsche Welle Documentary) which is essentially a massive conservation effort: with the aim of not only protecting the environment but also providing 'green-jobs' for the massively

unemployed youths population in the Sahel region.(Janani ,Vivekanada,Deutsche welle, 2019).

Historically Sierra Leone was covered by 70 % primary forest(Forestry Division Archives)

Since the inception of Sierra Leone Forestry Department Act in 1911, the department was mandated with the responsibility of setting up forest ordinances;protected areas, forest reserve,game reserves,national parks, game parks and wildlife sanctuaries in order to protect wildlife and plant species(Forestry Division Archives).The 1972 wildlife conservation Act of Sierra Leone governed the exploitation of wildlife and provided legal protection rights for those endangered species. ()

The Forest Act 1988 reinforces the Wildlife Conservation Act and focuses on the utility and management of forest resources and allowed for the participation of local communities in forest resources management(Mamoud Jah 2011) .More over Sierra Leone is a signatory to the international Conservation of Biological Diversity and the Ramsar Conservation (Sierra Leone Conservation and Wildlife Policy, 2010).Therefore so far it can be safely concluded that there exists both locally and internationally the legal framework and institutions for protected area management and conservation .The only aspect lacking is the proper implementation and follow_up on such policies (EPA-SL Report, 2020)

1.2 STATEMENT OF PROBLEM

The survival of mankind depends to a very large extent on the natural capital available to us,for the provisioning of the basic necessities for life such as: food,fibre(clothing) ,shelter,that will ensure the humankind's overall wellbeing (Content, 2012).Not only the availability of such natural capital is important but also the fair access and control is also crucial .(Mr Sesay Lecture Notes)

Due to the rapid increase in population and the resulting increased rate of deforestation and urbanization - the natural capital available to the rural man is being exploited at a faster rate;above its threshold for recovery by natural processes alone.("How To Avoid A Climate Disaster ",Bill Gates).It is because of these grim event that holistic conservative and sustainable forest management practices and principles must be adopted and

incorporated into National, regional and local policies governing protected areas and their management.

Generally environmental impact assessment in Sierra Leone is very weak despite the high proportion of the population engaged in *logging, mining and agricultural livelihood activities* (Komrabai, 2012).

Personally I think that the extent of deforestation, biodiversity degradation and fragmentation, air pollution, water shed and bodies depletion and pollution is under reported, down played (either because of the influence of politics in research or other unforeseen reasons). Therefore the negative impacts on KHFR are not tackled holistically ; using a multi-sectoral, multidimensional and multidisciplinary approach. Therefore at best existing policies are not appropriately and sustainably implemented, and consistent follow up, monitoring and proper evaluation is lacking.

Whilst previous researchers; Komrabai, Jimmy , Conteh focused more on the ecological aspects of Protected areas and the destruction of the natural ecosystems thereby paying less attention to the cultural, socioeconomic inter relationships and inter linkages between rural livelihood activities and the ecology of the protected areas and its environs. A study of this nature is a prerequisite for establishing a robust baseline from which future conservation efforts can be developed: by providing an unadulterated perspective on the current ecological status , and trends in the Kambui Hills Forest Reserve , whilst at the same time showing interlinkages to the sustainable livelihoods approach framework(DFID, 1998)

1.3 AIMS AND OBJECTIVES

The main AIM of this study : Is to investigate the negative impacts of rural livelihood activities on the ecological equilibria on protected areas , specifically Kambui Hills Forest Reserve and how in turn the anthropogenically modified environment impacts rural livelihood activities and welfare , examining the inter linkages and relationships between

rural livelihood activities with respect to Protected areas based upon The Sustainable Livelihood Approach Framework (DFID 1999).

SPECIFIC OBJECTIVES:

1. *Examine the socio-economic and demographic status of the respondents, influencing the natural integrity of the aforementioned protected area.*
2. *Examine the rural livelihood activities that disrupts this ecological balance and harmony.*
3. *Investigate how the damaged ecosystem of the Kambui Hills Forest Reserve affects the wellbeing of the rural people.*
4. *Show interlinkages and relationships between rural livelihood activities and the ecological status and integrity of The Kambui Hills Forest Reserve based on 'The Sustainable Livelihood Approach Framework (DFID 1998).*

1.4 JUSTIFICATION FOR STUDY

- *A study of this nature is required to establish a robust baseline , from which future policies concerning Conservation and sustainable use and management of protected areas can be developed.*
- *Also amongst all the protected areas within Sierra Leone; up-to-date information on the present ecological status of the Kambui Hills Forest Reserve is lacking. Therefore this study is carried out in order to serve as an update to preexisting knowledge as the destruction of the natural resource base is a continuous cycle and happens at an ever increasing rate due to over population and the demands of agriculture and urbanisation.*

1.7 LIMITATIONS OF STUDY

This study was face with certain challenges, such as ;

Identifying the age of the respondents owing to the fact that most of the respondents were illiterate and did not keep documented records of their respective date of birth, nevertheless this issue was tackled through a strategy _ wherein the given ages we're correlated to the historical hallmarks ; such as

- The appearance of the first aeroplane in Sierra Leone ie in 1939.
- The Second World War 1945
- National Independence day(1961)
- Visitation of H.M Queen Elizabeth

This study focuses mainly on the exploitation by rural livelihood activities on the Kambui Hills Forest Reserve's primarily by rural people of Tissoh Community for their respective livelihood outcomes, not focusing on external actors such as ; private companies -both national and international, private investors and entrepreneurs whom are based in urban areas- that exploit KHFR on a much more larger scale than the rural poor , because these investors and multinational companies have access to large capital for investment and heavy duty machinery that are in contrast to the manual labour that is employed by the rural poor.

- This study was limited to semi structured questionnaire, recording schedule, direct observation and schedule audio recordings.
- Not also overlooking the inherent human bias of the aauthor in interpreting some qualitative data- though the researcher tried Hu is best to be as objective as possible.
- Interpreters we're consulted in some cases of language barriers , which may lead to certain linguistic nuances and concepts to be misinterpreted of over generalized.

1.8 DEFINITION OF TERMS

Assets The word is not used here in the strictest economic sense but rather as a means to achieving rural livelihood outcomes.

Livelihood a set of activities that people engage in to secure welfare and wellbeing .

Natural Capital Is the term used for the natural resource stocks from which resource flows and services (eg. nutrient cycling,erosion protection) usefull for livelihoods are derived.

Rural areas are places that are not urban in nature ,that they are remote,with little economic activities and diversification....()

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 INTRODUCTION

This chapter is consistent with the objectives of the study, the review is not merely a narrative summary of different authors but rather an analysis of what is known so far and related trends and development in the areas of Protected Areas and Rural Livelihoods Interlinkages.

2.1 Conceptual Framework

The sustainable livelihood framework is a tool that is used to improve people's livelihood particularly. The livelihood of the rural poor it was developed over a period of several months the sustainable livelihoods advisory committee, building on earlier works by The Institute of development studies.

The sustainable livelihood framework DF ID 1998 the main factors that affects people's livelihood and typical relationships between these. Can be used in both planning new development activities assessing the contribution to livelihood sustainability made by existing activities in particular provides a checklist important issues and sketches out the way these links to each other,

Draws attention to core influences and processes and Emphasizes the multiple interactions between the various which affects livelihoods.

The SLA people is people's centered and does not work in a linear manner. The SLA does not claim to present a perfect model of reality - its primary purpose is to help stakeholders with different perspectives to engage in structured and coherent debate about the many factors that affect livelihoods their relative importance and the way in which they interact. This in turn, should help in identification of appropriate entry points for support of rural livelihoods (Robert Chambers)

Therefore people-centered analysis is most likely to begin with simultaneous investigation of people's assets , their objectives (the rural rural livelihood outcomes which they are seeking and the strategies which they adopts to achieve these objectives.

Important feedback is likely between :

A. Transforming structures and process and the vulnerability context and

B. Livelihoods outcome and Livelihoods assets for example if it has other been show that if people feel less vulnerable they frequently choose to have fewer Children.This has implications for population trends which might be an important part of the vulnerability context .

The framework should be adopted to meet the needs of any given circumstance.The arrows within the framework are used as a short hand to denote a variety of different types of relationship s all of which are dynamic.None of the arrows imply direct causality though all imply a certain level of influence.

UNDERSTANDING THE FRAMEWORK TO HELP ELIMINATE POVERTY

The framework summaries the main components of and influences on Rural Livelihoods; it does not claim to provide an exhaustive list of the issues to be considered.It should be adapted to meet the needs of any given circumstance.

Rural Livelihoods are dynamic,complex,integrated and local.("Whose Reality Counts ",Chambers)

- **Vulnerability Context**

Vulnerability concept frames the external environment in which people exist people's livelihood and why the availability of assets affected by critical trains as well as my shocks and seasonality- over which they have no control .

The factors that make up the vulnerability context important because they have a direct impact upon people's assets status and the options that are available to them in pursuit of beneficial rural Livelihoods outcomes.

Shocks can destroy assets directly (in the case of floods ,storms,civil conflict etc) it can also force people to dispose of assets such as land prematurely as part of coping strategies.

Trends on the other hand may or may not be benign ,they are more predictable . They have a particularly important influence on rate of return economic or otherwise to a chosen livelihood strategy.

Seasonal shifts in prices, employment opportunities and food availability

Natural Capital Is the term used for the natural resource stocks from which resource flows and services (eg. nutrient cycling,erosion protection) usefull for livelihoods are derived.There is a wide variation in the resources that make up natural capital,from intangible public goods suchas the athmosphere and biodiversity to divisible assets uses directly for production (trees,land,etc).

Examples of Natural Capital and services deriving from it :Land, Forest,Marine/wild resources,water quality,air quality,erosion,wasteassimilation,storm,protection,Biodiversity degree and rate of change .

Human Capital

Human capital represent the skills,knowledge,ability to labour and good health that together enable people to pursue differnt livelihood strategies and achieve their livelihood objectives.Human appears in the generic framework as livelihood asset,that is a building block or means of achieving livelihood outcomes.But it accumulation can also be an end in itself

Social Capital:

In the context of the sustainable livelihood framework ,it is taken to mean the social resources from which people draw in pursuit of their livelihood objectives .These are developed through

Networks and Connectedness ,Membership of more formalized groups ,Relationships of trust,reciprocity and exchanges that faciltate co-operation,reduces transaction cost and may provide basis for informal safety net among the poor.

2.2 Sustainable Rural Livelihoods

Rural areas are places that are not urban in nature ,that they are remote,with little economic activities and diversification....()

The concept of 'sustainable livelihoods' is increasingly important in the development debate. This paper outlines a framework for analysing sustainable livelihoods, defined here in relation to five key indicators. The framework shows how, in different contexts, sustainable livelihoods are achieved through access to a range of livelihood resources (natural, economic, human and social capitals) which are combined in the pursuit of different livelihood strategies (agricultural intensification or extensification, livelihood diversification and migration). (Scoones Ian, IDS, 1998)

According to Koroma Ibrahim, July 2007, the term sustainable livelihood was first used as a development concept in the early 1990's.

Chambers and Conway (IDS, 1992) stated that, "A livelihood comprises people, their capabilities and their means of living, including food, income and assets. Tangible assets are resources and stores, and intangible assets are claims and access.

A livelihood is environmentally sustainable when it maintains or enhances the local and global assets on which livelihoods depend, and has net beneficial effects on other livelihoods.

Jah Mamoud (Lawrence 1998) 2010) Defined livelihood as consisting of assets, activities and entitlement that enable people to make a living.

2.3 Common Property Resources

According to Chambers (2000), he states that common property resources -CPRs are often a major source of livelihood for the rural poor.....safety nets and source of food and income in bad times.

He refers to common property resourcesCPRs to include fishing, hunting grounds, grazing sites, quarry etc.

(Chambers 2000) Also mentioned that livelihood activities that are forest based or are diversified and supported by forest and woodlands...to livelihood activities especially be found through non-timber forest products (NTFPs).

NTFPs found in Kambui Hills forest reserve are: game, medicinal and culinary herbs, insects, leafy vegetables(wild variety), leaves, nuts, fibre, etc (Researcher's Field Report)

2.4 Protected Areas In Perspective.

The practice of designating an area as a Protected Area (PA) or 'sanctuaries' reaches long back into the human psyche .

The first PA were built by the Persians and were known in Greek as "Paradeisi", from which the word 'paradise' has evolved..(Strauss,,B.,2005).

Salamis(Arrow,London).p45The classical Greeks, also learn to embrace the values of nature("The love Of Nature Among The Greeks and Romans' ,Longmans,London))

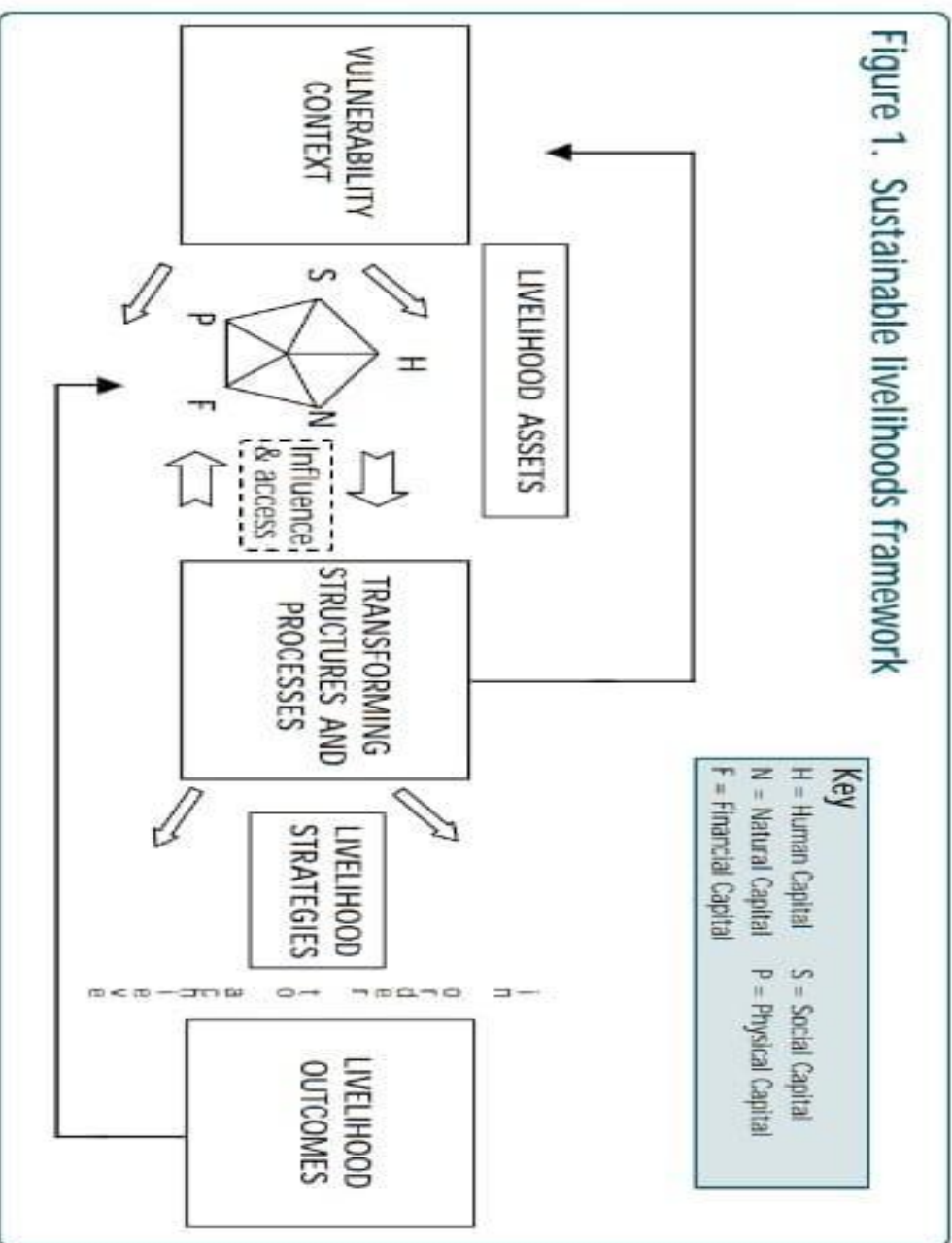
From the Dark Ages to The Age of Enlightenment, throughout Europe vast areas of land were protected for the benefits of the nobility and the pursuits of hunting .(Pool,A(1954)from the Domesday Book To The Magna Carta(Oxford University press ,Oxford 30-32)).

In ancient Africa,it was common especially amongst West African tribes ; partly due to their animistic Religious /Spiritual beliefs- large areas of land and water bodies were designated as 'Sacred' no-go areas.

Therefore in this light our African ancestors subconsciously practiced forest conservation , albeit for a different purpose.It was common amongst our West African ancestors to 'sacralize' certain hills,caves,groves,rivers ,springs and dedicate them to a Familiar spirit or ancestral totem.Sometimes referred to as 'evilforest' ,these areas were not accessed by the clan's shamans,high priests,digbas,oracles and interestingly on the social outcasts of society had their homes there.(" " ,David Basil)

In this present century ,there has been four regional treaties for the creation of PAs in Africa,viz: 1900,1933,1968 and 2003(Paparot Repor 2021)

Figure 1. Sustainable livelihoods framework



Since the 'Race for independence' from the 1950's to onwards, the top-down approach to protected areas management and governance was inherited from the Colonialist... which often meant that states further centralized control, including power over natural resources and land tenure rights. (Büscher and Dietz, 2005; Şoe et al, 2009, Ribot, 2002)

Many African states therefore maintained ultimate control of PA governance through shortfalls in decentralization policies and rights to natural resources, even when responsibilities and decision making powers are meant to be shared or fully devolved to rural communities. (Murphee, 2009; Nelson and Agrawa, 2008; Ribot, 2002)

2.4.1

Protected Areas with Sustainable Use of Natural Resource.:

Biodiversity conservation and poverty alleviation are two of the world's major challenges, and the search for synergies in the pursuit of both agendas is enshrined in their respective global policy frameworks – the Convention on Biological Diversity and the Sustainable Development Goals.

A protected area with sustainable use of natural resources or managed resource protected area is a protected area in which the aim is to protect and preserve biological diversity in the long term.

The IUCN defines such areas as Category VI. (Wikipedia August 2021) () According to the IUCN, protected areas with sustainable use of natural resources are defined as areas that: "conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems.

They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area. (Category VI - Protected Area with sustainable use of natural resources Archived 2011-06-29 at the Wayback Machine at www.iucn.org. Accessed on 11 Jun 2021.)

Generally speaking though, protected areas are understood to be those in which human presence or at least the exploitation of natural resources (e.g. firewood, non-timber forest products, water, ...) is limited.[Lele, Sharachchandra; Wilshusen, Peter; Brockington, Dan; Seidler, Reinmar; Bawa, Kamaljit (1 May 2010). "Beyond exclusion: alternative approaches to biodiversity conservation in the developing tropics".

2.5

Ensuring Protected Areas and Rural Livelihoods Equilibrium.

2.5.1 Alternative ,Adaptive and Coping Mechanisms

Alternative livelihoods can be defined as livelihood activities that supplement people's basic income. These activities usually depend on people's spare time, their skills, resources and art.(ILO Report, p.21)

They include cocoa bi-products production, palm oil processing, gari processing, vegetable farming, grasscutter rearing, mushroom production and bee keeping.

Income from alternative livelihoods could lead to two possibilities. The gradual replacement of the traditional livelihoods or part of the income generated by the alternative livelihood is re-invested in the traditional livelihood, such that coexistence of both approaches can be maintained. This coexistence can provide a buffer against climatic variations and economic shocks, thus conferring stability and sustainability to rural livelihoods.

The mentioning of Alternative Livelihoods implicitly suggests several scenarios, namely; that prevailing livelihoods are either not producing enough benefits for the individuals or communities engaged in them, or that current activities are in contravention of existing legislations, or pose a danger to the sustainability of other resources. In the context of agriculture-dominated economies, the resources at risk may be land, forest, or water bodies.(<https://www.ilo.org/ipecinfor/product/download.do?type=document&id=19775>, September 11, 2011)

Alternative livelihoods are therefore thought of in the context of providing livelihoods that may replace or supplement existing livelihoods that are in danger as a result of resource

constraints, or those livelihoods that do not generate sufficient incomes to enable those engaged in them to live decent lives (Tropendos, 2005).

2.5.4 Coping And Adaptive strategies

Coping is conscious or unconscious strategies used to reduce unpleasant emotions. Coping strategies can be cognitions or behaviours and can be individual or social.

Wikipedia Weiten has identified four types of coping strategies: appraisal-focused (adaptive cognitive), problem-focused (adaptive behavioral), emotion-focused, and occupation-focused coping. Billings and Moos added avoidance coping as one of the emotion-focused coping.

Some scholars have questioned the psychometric validity of forced categorisation as those strategies are not independent to each other. [wikipedia 2021 Coping Strategies] Besides, in reality, people can adopt multiple coping strategies simultaneously.

2.5.2 Sustainable Agriculture

Definition: Sustainable agriculture is farming in sustainable ways meeting society's present food and textile needs, without compromising the ability for current or future generations to meet their needs. It can be based on an understanding of ecosystem services. There are many methods to increase the sustainability of agriculture. When developing agriculture within sustainable food systems, it is important to develop flexible business process and farming practices.

2.5.3 Collaborative Forest Management

Taking a conventional view of forest management, a broad distinction may be drawn between professional forest management as a 'scientific' discipline that enables states and nations to control, regulate and exploit forest resources under their jurisdiction; and indigenous forest management systems, developed locally by forest-dependent communities and varying greatly in technical and social sophistication.

Collaborative Forest management it's loosely defined as working relationship between the key stakeholders in the management of a given forest- key stakeholders being rural forest users and state forest departments, as well as parties such as Local

governments, civic groups and non-governmental organizations and the private sector.(
www.cifor.org/knowledge/publication/1791/ , 25 August,2021)

As has been widely documented, the new approach focussed initially on encouraging communities to regenerate patches of degraded forest land to produce a range of subsistence products. Support for these programmes often focussed excessively on community mobilisation, participatory tools and technical prescriptions. Gradually professional foresters recognised the ability of local people to contribute more conceptually to forest management and acknowledged their right to participate in many forest-related decisions (Arnold 2001).

Approaches to involving local people in forestry have multiplied over the years. These include social forestry, community forestry, rural development forestry, joint forest management (JFM), shared forest management, co-management and participatory forest management, each of which tends to have a specific meaning

and be associated with particular projects or programmes. All are essentially interventions, based to a varying extent on local people's knowledge and wishes, but 'legitimized and strengthened by government recognition' (Ingles et al. 1999).

2.5.5 Circular Economy

A circular economy (also referred to as "circularity"[2]) is "a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible"[3] that aims at tackling global challenges like climate change, biodiversity loss, waste, and pollution. It is defined in contradistinction to the traditional linear economy.(^ Geissdoerfer, M., Pieroni, M.P., Pigosso, D.C. and Soufani, K. (2020). "Circular business models: A review" (PDF). Journal of Cleaner Production. 277: 123741. doi:10.1016/j.jclepro.2020.123741. S2CID 225282542.)

In a linear economy, natural resources are turned into products which are ultimately destined to become waste because of the way they have been designed and made. This process is often summarised by "take, make, waste".[4] ^ Brydges, Taylor (2021-04-15). "Closing the loop on take, make, waste: Investigating circular economy practices in the Swedish fashion industry". Journal of Cleaner Production. 293: 126245. doi:10.1016/j.jclepro.2021.126245. ISSN 0959-6526.

By contrast, a circular economy employs a circular economy employs reuse, sharing, repair, refurbishment, remanufacturing and recycling to create a closed-loop system, minimising the use of resource inputs and the creation of waste, pollution and carbon emissions.[5]c Geissdoerfer, Martin; Savaget, Paulo; Bocken, Nancy M. P.; Hultink, Erik Jan (2017-02-01). "The Circular Economy – A new sustainability paradigm?". *Journal of Cleaner Production*. 143: 757–768.

The Ellen MacArthur Foundation (EMF) defines the circular economy as an industrial economy that is restorative or regenerative by design and aims.

2.5.6 Blue economy

Initiated by former Ecover CEO and Belgian entrepreneur Gunter Pauli, derived from the study of natural biological production processes the official manifesto states, "using the resources available...the waste of one product becomes the input to create a new cash flow".

2.5.7 Cradle to cradle

Created by Walter R. Stahel and similar theorists, in which industry adopts the reuse and service-life extension of goods as a strategy of waste prevention, regional job creation, and resource efficiency in order to decouple wealth from resource consumption.

CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTION

This chapter describes the methods, technique, and tools used to collect, analyze and present the research data.

3.1 RESEARCH DESIGN

A case study design was used we see intention to examine our livelihood activities undertaken by the adults in Tissoh Community, in the Kambui Hills Forest Reserve.

3.2 Description of Study Area

This research was conducted in the Kambui Hills Forest Reserve - North Coordinates x : 7deg 51'34" y : 11Deg19'27"

The Kambui Hills Forest Reserve occupies an area of 14,335 hectares in the Eastern Province of Sierra Leone. It is located 10 kilometres from the town of Kenema with terrain consisting of steep slopes that reach an altitude of between 100 and 645 metres. The area mainly contains forest habitat but there is also some savanna and wetland

RELIEF

The KHFR is part of the interior hills and plateaux regions of Sierra Leone is characterized by ancient crystalline rocks undulating and well drained. The terrain of KHFR is a heterogeneous landscape of rolling hills with rugged relief and isolated rock outcrops dissected by a series of watercourses and seasonally dry valleys (Gwyne Jones et al)

CLIMATE

The study area experiences a tropical climate and comprises of two main seasons - dry and rainy seasons respectively.

The rainy season are longer from May - November with mean annual rainfall of over 500 cm, compared to other areas with a short dry season.

3.3 SAMPLING

Sample the sample frame for this study comprises of all adults engaged in rural livelihood activities that is a total of 418 persons.

A sample size of twenty percent was selected from the sample size, that is a total of 70 adults were interviewed using recording schedule based on a semi structured questionnaire developed for the purpose of the study.

3.4 RESEARCH INSTRUMENTS

The major research instruments used in acquiring primary data were semi structured recording schedule, focus groups discussions, google forms and semistructured questionnaire.

3.5 DATA COLLECTION PROCEDURES

i. Semi Structured Questionnaire

Semi structure questionnaire administration, one questionnaire was administered per respondent. Answers to close ended questions were recorded by a tick to the correct answer while the other questions the researcher search further for clarity of what the respondent might mean.

An interpreter was used as the author was not fluent in speaking Mende and also many elders preferred using Mende as their preferred medium of communication.

ii. Focus group discussions

Were designed to discuss specific topics such as : local livelihood activities, local demographics, community forest management etc.

All the recorded audio clips from these discussions and all related digital research media : pictures, geometric coordinates can be found online on this dissertation companion website :

<https://hankx-blog-001.web.app> The companion Android app for this dissertation can be found at this website

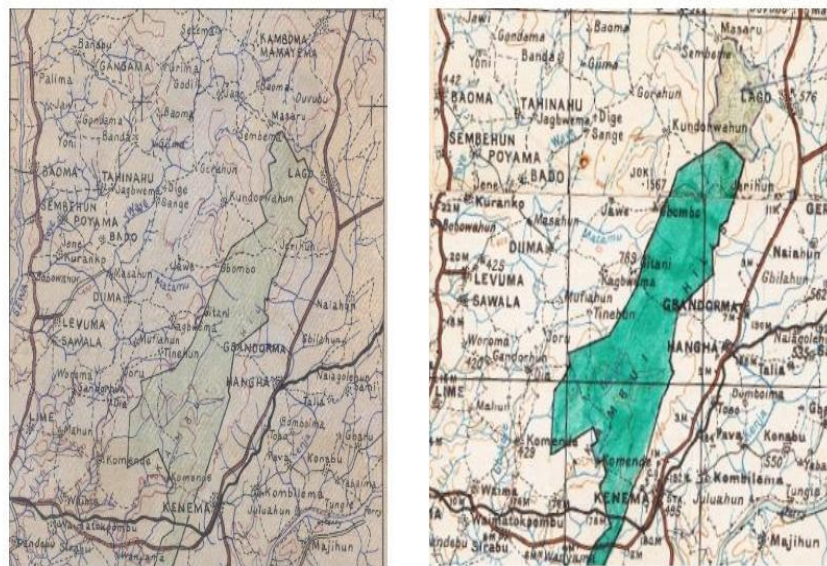


Figure 2 - Map of KHNFR from the Forestry Office in Freetown (left) and map of KHNFR from the District Forestry Office in Kenema. Note the slight difference in boundaries, particularly in the area of Komende just to the west of Kenema.

iii. Google forms :

was used by the author for online questionnaire administration and was popular amongst the youths and relative educated tech savvy rural folks. the link to the online questionnaire can be found at this website.: <https://hankx-blog-001.web.app>. SCAN the QR Code In next page to access This Dissertation ONLINE And as an Android Mobile Application.



3.6 DATA ANALYSIS

3.6.1 CODING OF DATA

After the data was collected I made frequency tables of various responses provided in the questionnaire by the respondents. A pre-coding schedule was done by assigning numbers to close ended questions, the YES or NO responses only closed values " 1" and "2" respectively. The codes were later transferred into a spreadsheet in a table.

3.6.2 SOURCES OF DATA

Both primary and secondary data were collected in a bid to extract information on rural livelihood and protected areas forest conservation management.

The primary data for the research was obtained through personal interviews, semi-structured questionnaire, personal observations. Whilst secondary

data was obtained from relevant published materials..

STATISTICAL APPROACHES USED

Frequency distribution ,Pie charts ,Histogramsstandard and mean devaition were employed to analyse the colected primary data.

The author used MeteChart .com an online API for data visualization.

4.0 RESULTS AND DISCUSSIONS

INTRODUCTION

Data to investigate has been collected range from environmental degradation and impacts to rural livelihood activities in Tissoh Community.

The findings revealed that there is visible negative impacts on the environment due to rurallivelihood activities and also the many people do not primarily depend on agriculture for their livelihoods.

4.1 SOCIO ECONOMIC PROFILES AND DEMOGRAPHICS OF TISSOH VILLAGE

Table 1 Shows Sex / Age Distribution Amonga Respondents

Elderrly	26	5 %
Males	186	40%
Females	232	45%
Infants	76	10

The figures illustrate that forty five percent of Tissoh Population are adult female whilst forty percent are male.And five percent are elderly whilst fifteen percent are infant And Adolescent.

The age sex pyramid of Tissoh is Mushroomed shape ,thus indicating a predominant youth full population albeit the fact that most youths engage in lumbering,motorcycle,rockmasonry,trading Charcoal production and wood fuel production as opposed to sustainable agriculture..

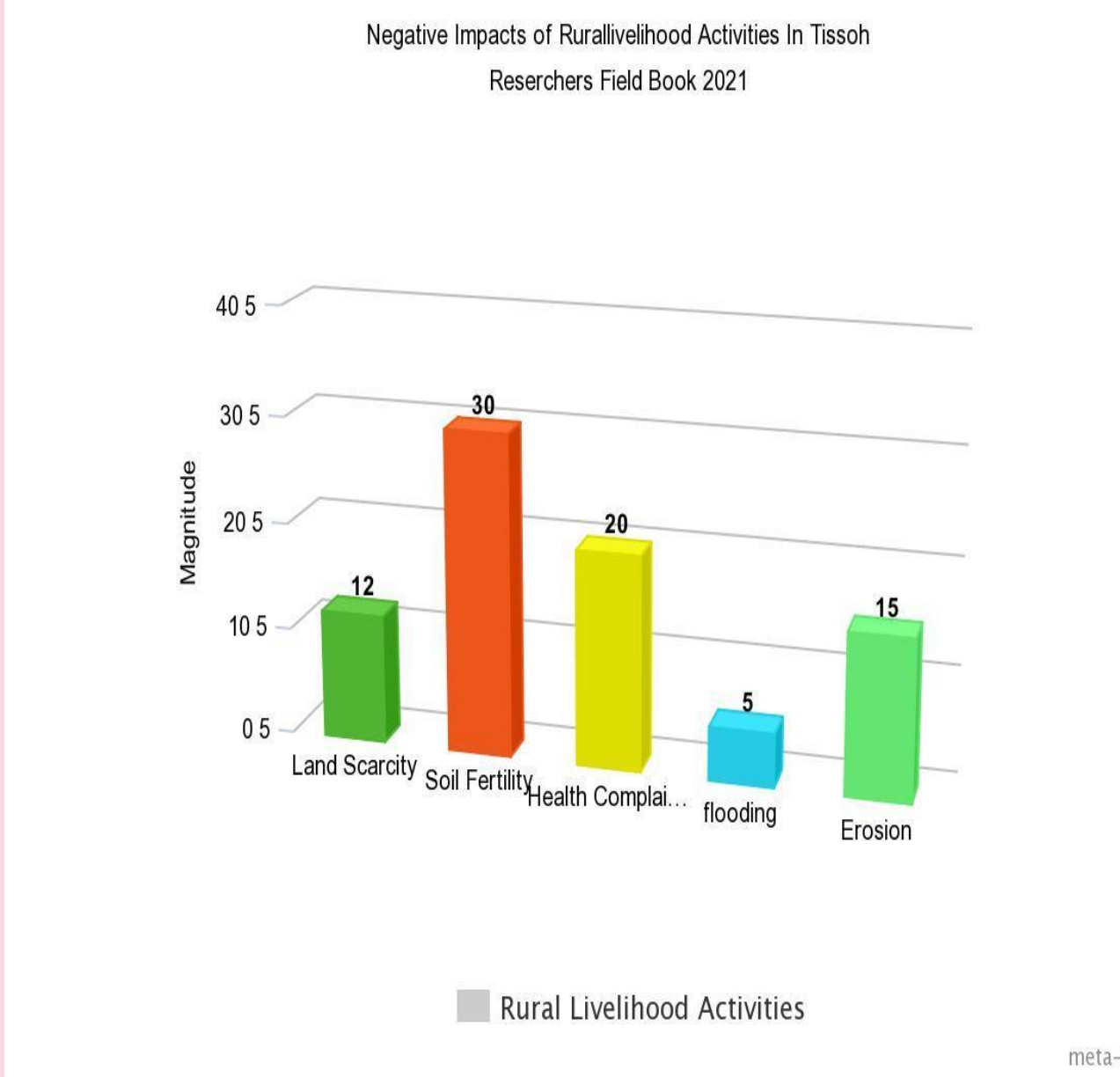
Fig . Age Sex Distribution

4.2

PROBLEMS RESULTING FROM DEGRADATION OF TISSOH VILLAGE BY RURAL LIVELIHOOD ACTIVITIES

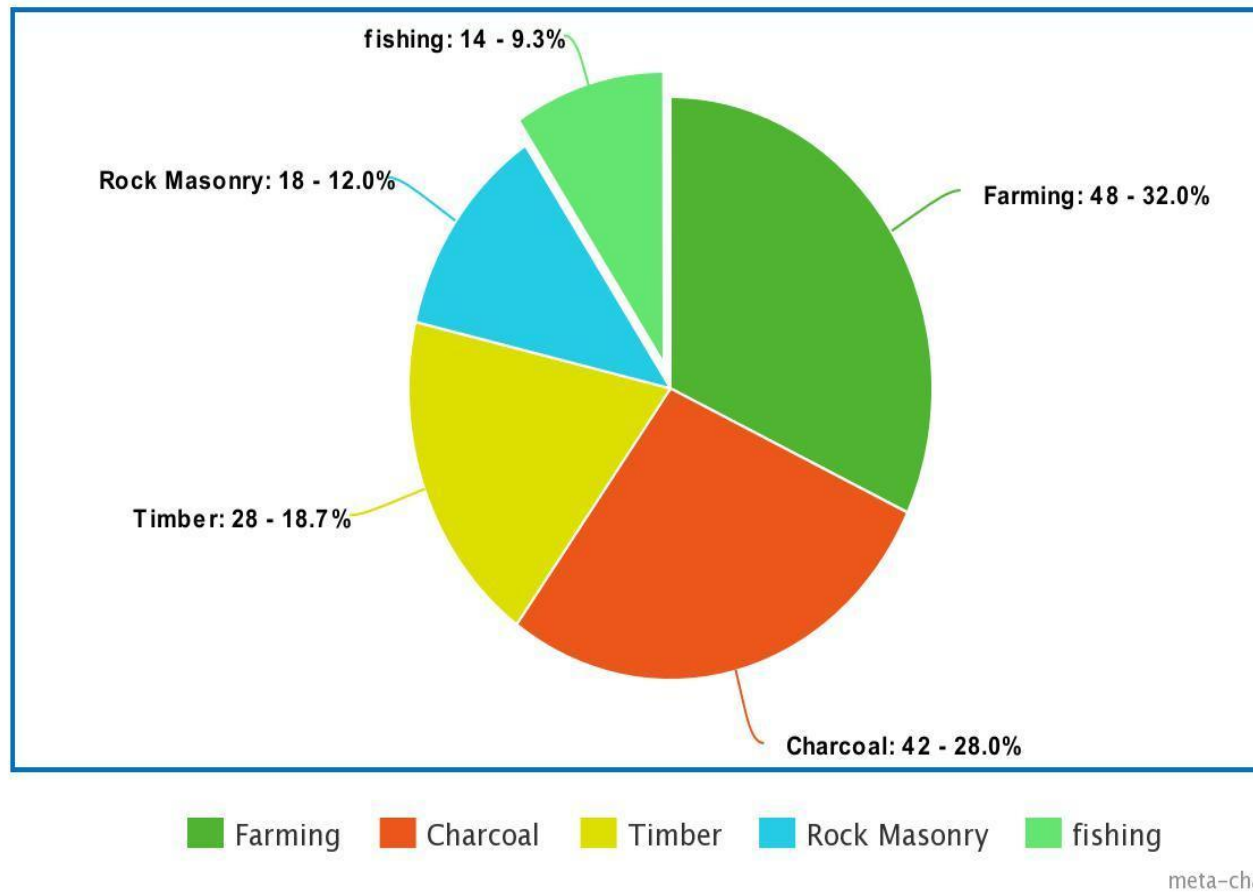
Respondents were asked to indicate see problems faced by the community due to the negative impacts of rural livelihood activities in the community .Also personal field observation of the researcher was used in these metrics.

Figure C PROBLEMS RESULTING FROM DEGRADATION OF



TISSOH

Tissoh Livelihood Activities
Researchers Data



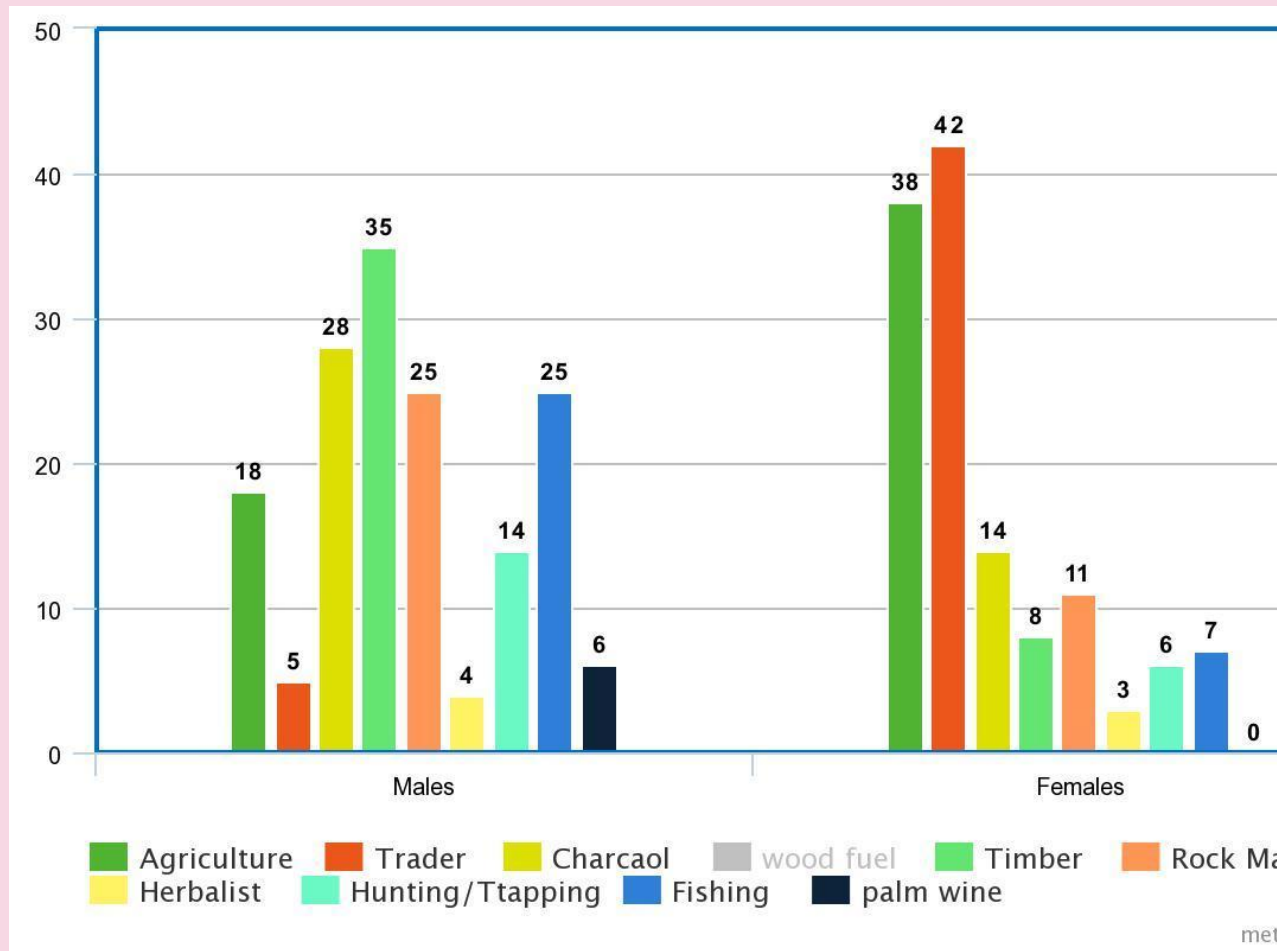


Figure D :Livliehood Activities By Sex

4.4

NEGATIVE IMPACTS RURAL LIVELIHOODS ON TISSOH'S WELLBEING AND RURAL LIVLIHOODS

Findings

Base on research data it was evident that Less fertile agricultural land has been left behind were slash and burn agriculture has persistently occurred.

There is widespread high cost of agricultural produce due to decreasing farm output which in turn is due to decrease in total agricultural labour: during the study it was found that most able bodied men have left Tissoh Community in search for motorcycle, wage labour jobs in the nearby Kenema City. And few people especially women and elderly engage in subsistent farming and market gardening in Tissoh.

Malaria is rampant which may be as a result of the open pits that are now pools of stagnant water: the perfect mosquito breeding site

Extensive gully erosion and topsoil cover damage was observed by the researcher especially where rock mining, charcoal burning and lumbering are prevalent.

Scarcity of once readily available raw material such as sticks for constructions and medicinal herbs is evident during the course of the study.

Picture 1.:Researcher At Quarry Site Tisoh Community,Kenema District



Researcher at Tissoh Community Court Barry



CHAPTER 5

SUMMARY CONCLUSION RECOMMENDATION

5.1 SUMMARY

During the course of this study local, diverse respondents were interviewed and their unique perception of Protected areas and rural livelihoods interlinkages were taken into account, complemented by the author's first hand observation and investigation.

It was evident throughout the study of the negative impact that rural livelihoods has directly on the environment and natural resource base. More especially Rock Mining, deforestation,

5.2 CONCLUSIONS

Unless drastic action is taken by local stakeholders, NGOs and the Government to boost agricultural productivity eg through subsidies and cash incentives to these rural farmers the overall food security will remain fragile.

The study reconfirms that major charcoal and woodfuel producers communities lie along Kenema-Kono Highway along the KHFR. This is to be expected as the highways act as strategic locations from which to sell

and transport charcoal to buyers from Kono, Kenema, Bo and other urban centres around the country. The cost and effort involved in transporting charcoal from more remote sites would likely be prohibitive.

Furthermore, unlike with boards where chainsaw operators will venture deeper into the forest or to remote villages to seek out specific valuable tree species, charcoal makers tend to be more flexible in terms of what tree species they use and therefore mainly operate close to villages and major highways. In terms of the forest cover impacts of charcoal production the Kenema-Kono highway, the map is inconclusive.

As mentioned before, this is an area of high activity (urbanisation, agriculture, other wood-based production) and it is difficult to pinpoint which, if any, one activity has the greatest impact on forest loss. Once again, as with board producing sites, there is no evidence of higher concentrations of forest loss around

The landscape of the area surrounding KHNFR has been highly dynamic over the past decade, with myriad patches of gain and loss in the various vegetation categories. The forest reserve itself appears to have remained reasonably intact with only a thin line of forest reduction along its (mainly eastern) fringes, while the entire area surrounding the reserve as a whole appears to have experienced a modest overall increase in forest, or at least dense vegetative, cover.

This contrasts strongly with usual environmental narratives in Sierra Leone, which present the country's forest cover as being in a state of constant and/or rapid decline.

The analysis has shown that there is a specific geography of forest and other vegetation change in the area, which has largely been a product of urban expansion on the edges of Kenema and in towns along the Kenema-Kono Highway.

Overall the bulk of forest lost has occurred to the east and south of the KHNFR. Overall, it appears that the main factors affecting forest cover in the KHNFR area have been the related processes of population displacement/migration and urbanisation, while "bush" gain and loss patterns (as well as the overall ecological patchiness of the landscape) seem to be largely associated with the dynamics of the fallow agricultural system.

Charcoal producing villages along the Kenema-Kono highway. Interestingly, however, the medium-scale charcoal producing villages along the Bo-Kenema highway, which are located near areas indicated to be experiencing forest gain, suggesting that charcoal production in these villages, at least at the current scale, have had no major negative impact on their surrounding forest cover.

5.3

RECOMMENDATIONS

- Decisions concerning forest land management at the farm level are important for the present and future status of land resources.
- Sustainable land management (SLM) requires the ability to monitor changes in agroecosystems health: these should be given due priority in policy. Therefore agriculture extension service that will educate, train rural farmers in the latest scientific sustainable agriculture and agro forestry best practices

- The extensive gully erosion and mass wasting situation in Tissoh Community , intensive fertiliser recommendation system is unfit to help Tissoh farmers in their fertilising practice. The aim of the preferred system has been to apply the lowest possible NPK rates required to achieve safe and high yields as well ...
- Some scholars have analyzed the diversification of rural livelihoods, which focused on the selection of ... a series of policy instruments that not only consider rural livelihood strategies in the short term economic growth projections. Therefore in this light Social financial services such as short tem loans and micro credit services and agricultural subsidy and incentives should be provided by the GOSL and development partners.
- Communal land should be designed, allocated and implemented so that it can greatly contribute to their livelihoods ... equity and . Gender is an integral a inseparable Part of rural livelihood because, and women have different ... Therefore Tissoh's women folks should be empowered and allow to own and access larger communal land as their own private plots. In order to ensure they grow permanent cash crops.
- Further research should be done on As a comparative study amongst the communities adjacent to KHFR .
- More research should be done on " Communal Rural Lands versus Sustainable Development.

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Jimmy Mariama Finda 2012 Protected Areas Case study Tiwai Island

APPENDIX

SEMI-STRUCTURED QUESTIONNAIRE

Google Form API - an online data analytics suite ,was used both as a front-end and backend for storage of collected data.

1000

☐ Over 30 years☐ Other...

Long-answer text

Long-answer text

☐ Other...

2

The screenshot shows a Google Forms interface. At the top, there's a header with 'Untitled form', a star icon, and navigation icons. Below the header, there are tabs for 'Questions', 'Responses', and 'Settings'. The main form area has a title 'Protected Areas And Rural Livelihoods Interlinkages' and a subtitle 'Case Study : Tisoh Community'. The first section is for email collection, with a label 'Email *', a placeholder 'Valid email address:', and a note 'This form is collecting email addresses. [Change settings](#)'. The second section is 'What is your name?' with a label 'Short-answer text:'. The third section is 'What is your address ? *' with a label 'Short-answer text:'. The fourth section is 'State your sex *' with four radio button options: 'Male', 'Female', 'Prefer not to say', and 'Other...'. The fifth section is 'Marital status *' with six radio button options: 'Single', 'Married', 'Divorced', 'Seperated', 'Widowed', and 'Consensual union'. A sidebar on the right contains icons for adding questions, saving, sharing, and other form management tools.

Untitled form ★

Questions Responses Settings

Protected Areas And Rural Livelihoods Interlinkages

Case Study : Tisoh Community

Email *

Valid email address:

This form is collecting email addresses. [Change settings](#)

What is your name? *

Short-answer text:

What is your address ? *

Short-answer text:

State your sex *

☐ Male

☐ Female

☐ Prefer not to say

☐ Other...

Marital status *

☐ Single

☐ Married

☐ Divorced

☐ Seperated

☐ Widowed

☐ Consensual union

☐ Single
☐ Married
☐ Divorced
☐ Separated
☐ Widowed
☐ Consensual union
☐ Other:

☐ 1 to 5

☐ 6 to 10

☐ 11 to 15

☐ 16 and Above

☐ No Formal
☐ Incomplete Primary
☐ Complete Primary
☐ Junior secondary
☐ Senior Secondary school
☐ Tertiary
☐ Arabic
☐ Other...

☐ Below 10,000

☐ 10,000 to 15,000

☐ 16,000 to 20,000


Untitled form
★
👤
👁
↶
↷
Send
⋮


QuestionsResponsesSettings

+

📄

🔍

📷

📺

☰

What is your daily Income Range? *

☐ Below 10,000

☐ 10,000 to 15,000

☐ 16,000 to 20,000

☐ 21,000 to 25,000

After section 1 Continue to next section

Section 2 of 3

Rural social relation and Role(s)

Description (optional)

What is your community/ social role? *

☐ Chief

☐ Chairman

☐ Speaker

☐ Elder

☐ Tribal Authority

☐ Youth

☐ Other...

After section 2 Continue to next section

Section 3 of 3

Public Awareness and Perception of the Impacts of Forest Degradation?

Description (optional)

How long have you lived in this community? *

☐ Less than 10 years

?

Section 3 of 3

Public Awareness and Perception of the Impacts of Forest Degradation?

Description (optional)

How long have you lived in this community? *

- ☐ Less than 10 years
- ☐ 10 - 20 years
- ☐ 21 - 30 years
- ☐ Over 30 years

Is the Forest the same to you as before? *

- ☐ Yes
- ☐ No
- ☐ N/A
- ☐ Other...

Give reasons for the above mentioned answer *

Long-answer text

List the Rural Livelihoods activities that you know of that destroys the environment. *

Long-answer text

Is the Forest your main source of livelihoods? *

- ☐ Yes
- ☐ No

APPENDIX