



**A POLITICAL ECOLOGY APPROACH TO UNDERSTANDING
THE IMPLICATIONS FOR RURAL DEVELOPMENT IN
DROUGHT PRONE SAVANNAH: A CASE STUDY OF LAND
AND FOREST USE IN CHIVI DISTRICT, SOUTHERN
ZIMBABWE.**

MACHEKA MAVIS THOKOZILE

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**A POLITICAL ECOLOGY APPROACH TO UNDERSTANDING THE IMPLICATIONS
FOR RURAL DEVELOPMENT IN DROUGHT PRONE SAVANNAH: A CASE STUDY
OF LAND AND FOREST USE IN CHIVI DISTRICT, SOUTHERN ZIMBABWE.**

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Doctor of Philosophy (Development Studies)

By

Mavis Thokozile Macheka

Thesis Supervisor
Professor Pranitha Maharaj

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COLLEGE OF HUMANITIES

DECLARATION-PLAGIARISM

I, Mavis Thokozile Macheka declare that:

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Signed

.....
Mavis Thokozile Macheka

.....
Date

DEDICATION

This work is dedicated to my two sons Hama and Panashe. Hama, my little angel, you never enjoyed mom's time from day one because of this research. Thank you for enduring that.

Mavis Thokozile Macheke

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ABSTRACT

Given the role that natural resources play in the development of rural communities, there is an urgent need for a better understanding of the reasons why communities abuse the same resources that sustains their livelihoods. This thesis specifically analyses land and forest resource **access** and use in rural Zimbabwe through political ecology lens. Political ecology has widely been discussed globally and used even in most recent analyses of interactions between humans and the environment. The study therefore explores resource access and use in Chivi District, Southern Zimbabwe, where the communities are struggling to maintain their natural resources in a context where immediate survival needs outweigh any concerns for ecological sustainability. Deriving from this background, the main objective of the thesis is to assess through political ecology lens, the implications of land and forest access and use, for rural development in drought prone areas such as Chivi District. To achieve this objective, the study adopts Chivi District, a drought-prone area in Southern Zimbabwe as its case study. The choice is based on the fact that Chivi District is an area already overstretched in terms of natural resources, especially land and forest resources which are continuously depleting as a result of indiscriminate exploitation by local communities.

The data was gathered from the field through interviews, transect walks and focus group discussions. Data was gathered from government departments, non-governmental organisations, traditional leaders, farmers, traditional artifact sellers and other community members. Data collected from the field was analysed thematically. The presentation and analysis is in the form of detailed descriptions, using narrative vignettes and direct quotes where necessary. The study established the relationship between political ecology and livelihoods strategies. The livelihood strategies adopted by the Chivi District community are influenced by external influences. While most of the focus of literature on environment and development is on natural causes of

environmental degradation, this study focused more on the linkages between environmental conservation, local communities and possible drivers of land and forest resource extraction. The study established the existence of a politicised environment in which the relationship between state actors, traditional leaders, local community, non-governmental organisations and the physical environment is conditioned by power relations. The existence of prescribed governance system in natural resources represent attempts by the state to restrict local communities from overexploiting natural resources but despite the existence of state actors and NGOs in the management of land and forest resources, natural resources in Chivi District are severely deteriorating and degrading. There are several flaws and shortcomings in the allocation of responsibility and authority over management of these resources. It also established that the destruction of resources is due to unsustainable livelihood strategies and there is competition for survival on a declining natural resource base. The unsustainable activities are firewood selling, craft industry, farm brick moulding and selling, illegal mining, stream bank cultivation, destruction of wetlands among others. These practices heavily depend on unsustainable exploitation of the natural resources and hence contribute to the destruction of its natural resource base such as gully development, siltation, deforestation and land degradation. The study further established that widespread deforestation and degradation is attributed to a number of factors that influences Chivi District to exploit resources. This thesis presents political, legal, economic, social and environmental factors as drivers of environmental degradation in Chivi District. The factors have a bearing on sustainable rural development because the people of Chivi depend on their immediate environment for survival and development. The study, thus, concludes that resource use and power dynamics in everyday interactions go beyond the local community. Political, economic, social, environmental and legal factors interacted in complex

ways in bringing about the current state of land and forest resources in drought prone Chivi District.

Key words: political ecology, land and forest use, rural development

TABLE OF CONTENTS

DECLARATION	i
DEDICATION	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT	v
TABLE OF CONTENTS	viii
ACRONYMS	xi
CHAPTER ONE: INTRODUCTION	1
1. Introduction	1
1.1 Statement of the problem	2
1.2 Objectives of the study	3
1.3 Research Questions	4
1.4 Background of the study	4
1.5 Theoretical framework	10
1.6 Structure of the thesis	15
1.7 Summary	16
CHAPTER TWO: LITERATURE REVIEW	17
2. Introduction	17
2.1 The political ecology approach to land and forest use	17
2.1.1 Land use	19
2.1.2 Forest use	22
2.2 Political ecology and power relations	31
2.3 Legal framework in a politicised environment	40
2.4 Factors that promote environmental degradation	44
2.4.1 Population pressure and environmental degradation	44
2.4.2 Economy and environment	46
2.4.3 Poverty and environmental degradation	50
2.5 Summary	56
CHAPTER THREE: RESEARCH METHODOLOGY	59
3. Introduction	59
3.1 The area of study	59
3.1.1 State of the Environment in Chivi District	60
3.1.2 Rationale for the study area	62
3.2 Research Approach	63
3.3 Research Design	64
3.4 Study Population	66
3.5 Sampling procedure	67
3.5.1 Purposive sampling	68
3.5.2 Convenient sampling	73
3.6 Data Collection Methods	73
3.6.2 Focus group discussions	79
3.6.3 Transect walks	82
3.7 Data collection process	83
3.8 Validity, reliability and rigour	85

3.9 Ethical Considerations	88
3.10 Limitations	92
3.11 Data Analysis	93
3.12 Summary	94
CHAPTER FOUR: THE ROLE OF STATE ACTORS AND LOCAL LEADERSHIP IN NATURAL RESOURCE USE	96
4. Introduction	96
4.1 Role of State Actors	97
4.1.1 Conservation	97
4.1.2 Rehabilitation	106
4.1.3 Training	111
4.1.4 Legislation and Prosecution	113
4.1.5 Monitoring	116
4.1.6 Funding	116
4.1.7 Land allocation	119
4.2 Analysis and discussion of the role of state actors	119
4.3 Role of non-governmental organisations	128
4.3.1 Conservation	128
4.3.2 Rehabilitation	129
4.3.3 Training	136
4.4 Role of local leadership	139
4.4.1 Conservation	139
4.4.2 Monitoring and Prosecution	143
4.4.3 Land Allocation	144
4.5 Role of Environmental Monitors	145
4.5.1 Monitoring and Training	145
4.6 Analysis and discussion of the role traditional leadership and environmental monitors..	148
4.7 Summary	152
CHAPTER FIVE: NATURAL RESOURCE USE AND LIVELIHOOD STRATEGIES IN CHIVI	155
5. Introduction	155
5.1 The state of environmental resources in Chivi District	155
5.2 Land use	157
5.2.1 Gully development	158
5.2.2 Siltation	172
5.2.3 Waste management	179
5.2.4 Destruction of wetlands	181
5.3.1 Firewood selling	183
5.3.2 Craft Industry	185
5.3.3 Expansion of resettlement and arable land	188
5.3.4 Other forest resource uses	189
5.4 Livelihood benefits	189
5.4.1 Food security	189
5.4.2 Future generations	190
5.5 Summary	192
CHAPTER SIX: FACTORS INFLUENCING FOREST AND LAND RESOURCE USE	195

6. Introduction.....	195
6.1 Political and legal factors.....	195
6.2 Economic factors	198
6.2.1 Unemployment.....	199
6.2.2 Poverty	203
6.3 Social factors.....	207
6.3.1 Overpopulation	207
6.3.2 Lack of adequate knowledge	210
6.4 Environmental factors	213
6.5 Availability of natural resources	218
6.6 Summary	219
CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS	222
7. Introduction.....	222
7.1 Conclusion	223
7.2 Recommendations.....	229
7.3 Areas for future research.....	233
REFERENCES	235
APPENDIX 1	264
RESEARCH INSTRUMENT	264
APPENDIX II	268
APPENDIX III.....	269
APPENDIX IV.....	271
APPENDIX V	272

LIST OF FIGURES

Figure 3.1	State of the environment in Chivi District	60
Figure 3.2	Chivi District and its main centres	67
Figure 4.1	Magwenzi Wetland	107
Figure 4.2	Afforestation project at Muzogwi Primary	110
Figure 4.3	Awareness campaign by Chivi District EMA to Catholic gathering	112
Figure 4.4	Simbamukaka brushwood garden	117
Figure 4.5	Newly established Simbamukaka Consolidated garden	118
Figure 4.6	Reclaiming of the degraded road	131
Figure 4.7	Mafidhi gully being rehabilitated by Runde Catchment Project Ward 15	132
Figure 4.8	Chikati gully, Ward 17	133
Figure 4.9	Gumtree plantation in Ward 28	147
Figure 5.1	Zihwa Gully in Ward 17	159
Figure 5.2	Use of fuelwood and digging the land for brick moulding	162
Figure 5.3	Alluvial gold mining in ward 23	164
Figure 5.4	Chrome mining in Denge village Ward 8, Chivi	166
Figure 5.5	Sand Abstraction at Chivi Growth Point	167
Figure 5.6	Silted Nyajechei River, Ward 10	172
Figure 5.7	Chivi growth point dump site near Muzvidziwa village	180
Figure 5.8	Craft Centre at Sese Ward 20, Chivi South	186

ACRONYMS

CAMPFIRE	Communal Areas Management Programme For Indigenous Resources
CARE	Cooperative for Assistance and Relief Everywhere
CBNRM	Community Based Natural Resource Management
CSO	Central Statistics Office
EIA	Environmental Impact Assessment
EMA	Environmental Management Agency
FAO	Food and Agriculture Organisation
FFW	Food For Work
FPU	Forest Protection Unit
GMB	Grain Marketing Board
G _o Z	Government of Zimbabwe
IFAD	International Fund for Agriculture Development
IUCN	International Union for the Conservation of Nature
NAP	National Action Programme
NGO	Non-governmental Organisation
RDC	Rural District Council
SADC	Southern African Development Community
SAFIRE	Southern Alliance for Indigenous Resources
UNCCD	United Nations Convention to Combat Desertification
VIDCO	Village Development Committee
WADCO	Ward Development Committee
WCED	World Commission on Environment, Development
WOCAT	World Overview of Conservation Approaches and Technologies
WWF	World Wildlife Fund for nature
ZIRRICON	Zimbabwe Institute of Religious Research and Ecological Conservation
ZWP	Zvishavane Water Project

CHAPTER ONE: INTRODUCTION

1. Introduction

This study seeks to critically examine the symbiotic relationship between society, politics and the environment. The three variables constantly interact on a day to day basis. This relationship is sometimes beneficial and sometimes harmful but it is necessary because it plays a major role in promoting the development of a society as well as in promoting sustainable management of natural resources. The social, economic and political factors are part of the web of influences on environmental resource access and use. The interactions between society and the environment, therefore, create what could be termed a political battleground. The playing field resembles a battle of conflicting parties against the environment and at the same time, the parties will seek to protect their political and selfish interests. Conflicts concerning natural resource management often involve external influences on local resource use, where conservationists and local resource users disagree on how resources should be used. It is against this backdrop that a closer look at these interactions has to be done, using a political ecology approach.

Political ecology provides a means of analysing the context in which individuals interact with the environment to meet their livelihoods, while also analysing external influences such as economic interests on local environments. The external influences include the socio-political context, which encompasses laws, policies, institutions, and governance (Mahdi, Shivakoti, and Schmidt-Vogt, 2009), cultural factors (status of women, value of children, spiritual connection to the land), economic factors (national and global markets), and global changes affecting the local environment (desertification, flooding, sea level rise) (de Sherbinin et al., 2008). In this regard, the main focus of the study is on the socio-economic and political drivers of resource

exploitation, how they compete and sometimes collaborate for the use and benefits from the natural resources. Natural resource users may derive a variety of benefits from the immediate environment, namely livelihood dependence, cultural and historical association, economic interest, institutional mandate, value commitment and political interest, as the most important benefits (Murphree and Mazambani, 2002). Local environmental problems in any given community, therefore, need to be viewed as the product not only of local processes but also of political economy at local, national and international levels.

The study examines how these interactions relate to the development of the drought-prone rural Chivi in southern Zimbabwe mainly, because the decisions that communities sometimes make in order to carry out their livelihoods are tempered by socio-political and economic forces. The study looks at how the aforesaid relational factors contribute rural development. Menes (2005) defines rural development as the process of improving quality of life and economic well-being of people in relatively isolated and sparsely populated areas. Rural development in this context can be defined as a distinct approach to improve the economic and social lives of the poor people who seek a livelihood in the rural areas through exploitation of environmental resources. Rural development also caters for locally produced economic development strategies (Mapuva, 2015). It thus includes the livelihood strategies adopted by poor in rural areas to improve their lives.

1.1 Statement of the problem

The focus of this study is on land and forest resource access and use in rural Zimbabwe using political ecology lens. The problem is about resource utilisation in the midst of poverty because rural people in Chivi are struggling to maintain their natural resources in a context where immediate survival needs outweigh any concerns for ecological sustainability. As previous

literature in the area has tried to focus on ecology and environment, this current study adopted a political ecology approach that incorporates political aspects in the environmental debate. The political aspects include the social and economic issues that influence environmental resources access and use. It is also because of the threats to ecological systems and the possible collapse of such systems that the researcher tries to unpack the implications for rural development in drought prone Chivi area.

The Chivi District under study is experiencing diminishing ecological resources due to overexploitation since the people depend exclusively on these natural resources for their livelihoods. In view of this, a broader application of political ecology lens to explore rural development becomes indispensable, as there is a tendency by humans to misuse their dominant position in ecological communities due to the manner in which political forces manifest themselves in determining access to environmental resources.

1.2 Objectives of the study

The main objective of this study is to assess, using a political ecology approach, the implications of land and forest use for rural development in drought prone areas such as Chivi District in Zimbabwe.

The specific objectives are to:

- assess the influence of state actors and local leadership on resource allocation and use by local people in drought prone Chivi District.
- determine how local use of land and exploitation of forest resources sustains local livelihood strategies in the Chivi District.
- ascertain the factors contributing to environmental degradation in the Chivi rural District.

1.3 Research Questions

The main question of this study is:

Using a political approach, what are the implications of land and forestry use for rural development in drought prone Chivi District in Zimbabwe?

The specific questions are:

- What is the influence of state and local leadership on resource access by local people in drought prone Chivi District?
- How local use of land and exploitation of forest resources sustains local livelihood strategies in the Chivi District?
- What are the factors that influence environmental degradation in the Chivi rural district?

1.4 Background of the study

The political ecology perspective emerged in the 1970s as a response to the neglect of the political dimensions in the human-environment relationship. As Deutsch (1977:360) notes, “political processes and institutions are rarely mentioned directly and even more rarely analysed in detail, and yet, the substance of politics....is inescapably implied in almost every eco-social problem.” Most researchers prior to the 1970s were generally apolitical in their approach towards environmental issues and focused on how environmental problems are a result of human activities. Gradually a political dimension was introduced.

However, Peet and Watts (1996), claim that the term “political ecology” had already appeared in a number of studies on land use prior to the 1970s but was soon applied in a number of different contexts and far more often. Peet and Watts (1996) further explain that political ecology stems from the critique of dislocation from customary forms of resource management and self-

determination by resource users. They argue that political ecology seeks to understand the complex relations between nature and society through careful analysis of social forms of access and control over resources with implications for environment and sustainable livelihoods.

From the end of the 1980s, political ecology visibly gained popularity as a new field of research. The involvement of political and economic interests in a society affects how societies exploit resources. The most influential text of the 1980s is by Blaike and Brookfield (1987) who define political ecology as a combination of ecological concerns and political economy. Employing a regional political ecology approach, they establish that the reasons why land management can fail are extremely varied and require a thorough understanding of the natural resource base itself, the human response and broader changes in society, of which land managers are a part. Broadly, as well, they were interested in why land management so often fails to prevent soil erosion, deforestation, salination and flooding and how serious are these problems and for whom.

From the 1990s, scholars started framing environmental problems more explicitly as a manifestation of broader political and economic forces. Political ecology has been used as a new approach to human-environmental interaction in development discourse. Bryant and Bailey (1997), firmly rooted in the tradition of Blaikie and Brookfield (1987), focus on analysing the actors that hold stakes in the environment and argue that resource degradation is best understood by analysing 'the role of various actors in relation to a politicised environment'. The scholars posit that the deep-rooted complex sources of these problems need to be addressed by far-reaching changes in local, regional and global political and economic processes. The two acknowledge that environmental problems which affect all societies in the world are caused by

political and economic forces. Political ecology is, therefore, an effort to firmly incorporate a political economic perspective into the study of environmental problems.

A number of more recent studies have also focused on using the political ecology approach in addressing environmental issues. Political ecology 'arose out of dissatisfaction with the traditional version of ecology arguments, which tended to ignore the dilemmas of people whose livelihood depended on the continued exploitation of natural resources (Evans 2002). The debate at the moment is on resource scarcity, environmental degradation and global environmental change and the search for processes of development that are more sustainable. The main focus is on how this influences development in rural areas. Political ecology is employed by researchers in rural locations prompting consideration of the local, national and global political context in which decisions about the environment are made (Jones and Carswell, 2004).

It is worth noting that the physical existence of a resource does not ensure its availability for rural development because access may be difficult owing to the controls set by those in authority. In view of the above assertion, the political ecology approach is employed to understand the effect on rural development. Rural development is a strategy designed to improve the economic and social life of the rural poor, mostly peasant farmers, destitute persons and others who seek a living in the rural areas through exploitation of resources. As Goldman and Schurman (2000) argue, political ecology is the best method of understanding discourses on nature, the environment and environmental degradation, and the clash with dominant discourses imposed by the state or any other external forces. Since rural people rely on natural resources for their livelihoods, they normally contest the use of environmental resources. Hence the focus of

analysis is on the social institutions that shape the rules and rights of resource use and also deal with how societal structures and nature determine each other and shape access to natural resources. This is what Belsky (2002) refers to when the scholar explains political ecology in its broadest sense as an outgrowth of ecological and social science research that combines social and political investigation of environmental processes.

Political ecology has widely been discussed globally and used even in most recent analyses of interactions between humans and the environment. It covers socio-economic hierarchies and the role of varying geographical scale to define and explain biodiversity issues (Zimmerer and Bassett, 2003; Neumann, 2009). Using a political ecology approach, scholars have managed to document and analyse specific case studies, globally and locally. Case studies such as the one by Ilahiane (1996) describe local land use patterns in their historical and social context. Dalby (2002) notes that resource scarcity induces conflicts which are driven by political and economic factors. Political ecologists such as Brady et al. (1994) have adopted a neo-Malthusian approach which assumes that population pressure leads to resource scarcity. Le Billon's (2002) study of Cambodia indicates that the tension between different parties in the country leads to misuse of natural resources where local citizens resort to illegal logging, disorder and violence as a way of gaining access to timber resources. The government of Cambodia and its citizens fight over access to resources. Other case studies of political ecology focus on the role of NGOs (Igoe, 2000; Vayda and Walter, 1999) It is further argued that power relations are central to the political ecology approach, especially, the interest in scalar politics (this is hierarchical politics with too much bureaucracy) concerning insatiable desires for the environment resources, the

overriding need for access and control over land, space and environment (Tan Mullins, 2007; Molle, 2007; Swyngedouw, 2007).

In Africa as well, recent studies also adopted a political ecology approach as an analytic tool in addressing environmental issues. The case studies of Nigeria and Kenya by Obi (2005), and studies by Le Billon (2001), de Soysa (2002) and Ross (2004) reflect that it can also be the abundance of resources that can cause conflict and that the characteristics of natural resources are intimately connected to characteristics of conflicts. However, this may not apply to this specific study since the area under study is drought prone and has limited environmental resources. Iftikhar (2003) postulates that rural land users are victims rather than agents of land degradation. This reflects that they are victims because of the external forces that control their access to environmental resources and, therefore, local inhabitants will not benefit from their immediate environment, which in most drought-prone areas has scarce resources.

Other studies using a political ecology approach were done in sub-Saharan African countries, mainly because of high rates of poverty, soil erosion, deforestation, unemployment, inequitable distribution of resources, reliable energy deficiency, and poor governance and health issues. Case studies were done on biofuel production in Zambia and Zimbabwe by Duvenage (2013). The studies suggest that imbalances in the allocation of political and social influence, knowledge and access to resources provide a likely rationale for the lack of sustainability in biofuel developments in emerging countries. Prabhakar (2008) postulates that very few African countries have benefitted materially from their rich endowment of land and natural resources mainly because of poor governance, uneven trade policies, wealthy countries bestowing

subsidies on their farmers, and tariffs placed on finished products. Prabhakar (2008) argues that in the face of starvation, when seeking new land, people are unlikely to consider the state of natural bushland, or in the pursuit of sustenance, the rarity of an animal. The case studies reflect that most countries in sub-Saharan Africa are experiencing shrinking land resources mainly because of population increases and competing demands for land such as food cropping, livestock rearing, urban expansion, land degradation and biofuel production. In both cases, locals necessarily overexploit restricted natural resources.

In Zimbabwe, McGregor (1991) used the Shurugwi area, which is situated on the north western boundary of Chivi District, as a case study and examines the effect of deforestation on strategies of woodland use and management in Zimbabwe's communal areas. The study established that unlike state interventions, local strategies for coping with environmental change can be highly effective in resource conservation. The study further reflects that changes in resource use are a broader result of political, economic and lifestyle changes. The study has assisted the researcher in establishing the basic parameters of the present study in that, this research proceed on the analysis of the nexus between political ecology and rural development processes, but focusing specifically on how society uses land and forest resources. Land resources are essential resources for the survival and prosperity of human beings because they are a platform where human activities take place. These resources are needed for livelihoods and they include all material components needed for human activity such as agricultural land, grazing land, building land and mining land. Forest resources include trees, barks, fruits, thatch grass, insect and manure. Trees and woodlands are multipurpose resources that provide varied functions of the forests in rural livelihoods.

The study by McGregor (1991) for instance, basically examines the policies designed to address the issue of deforestation but this study seeks to understand the relationship between environment, society and external forces and their impact on a drought prone savannah region which already has a limited natural resource base. The researcher also notes that the scholars mentioned focused on some areas that are quite rich in environmental resources such as Shurugwi, Gutu and Zaka, yet there is limited focus on resource-poor areas such as the area of study of this research, the drought prone Chivi district. Previous studies have focused on resource poor areas but did not examine the influence of external forces on natural resource usage. This study specifically analyses resource allocation, as well as society and political interests, in the Chivi District, and its effects on rural development. Humans are complex beings who express conscious goals via the natural world, and therefore, there is a need to look at how these actions affect the living standards of the people in the Chivi District, which has scarce resources.

1.5 Theoretical framework

The study was guided by the sustainable livelihood framework (SLF) using the political ecology approach. The former focuses on the decisions, structures and processes through which rural communities secure their daily subsistence. Political ecology focuses more on the role of external influences on the local environment. These approaches are closely linked because livelihood decisions are influenced by external forces. Political ecology is also more relevant because natural resources are an important feature of sustainable livelihoods. SLF can link national and international pressures and processes, outlining the external pressures at the local level have to

face such as structural adjustment, government fiscal decentralisation and World Bank poverty reduction strategies (Orr and Mwale 2001, Ellis and Mdoe 2003).

Political ecology explores the actors that are involved in environmental conflict including states, multilateral institutions, government departments and non-governmental organisations to mention a few. On the other hand, the sustainable livelihood framework stems from the sustainable livelihoods approach. This approach is a holistic, asset-based framework for understanding poverty, the work of poverty reduction and the relationships between these factors. It therefore helps in understanding and analysing the livelihoods of the poor and in assessing the factors that influence land and forest resource use in the Chivi District. The framework places poor people at the centre of rural development. DFID (1999), Carney (1998), Majale (2002) and Nicol (2000) observed that it is a useful tool for analysing the impact of regulations, policies and interventions on the livelihoods of the poor. This aspect relates it to the political ecology approach that concerns various interventions in environmental use and access by the communities in the Chivi District who rely on natural resources for their livelihoods.

SLF presents the main factors that affect livelihoods and the typical relationships between them. It can be used in both planning new development activities and assessing the contribution to livelihood sustainability made by existing activities. It seeks to gain an accurate and realistic understanding of people's strengths (assets or capital endowments) and how they endeavour to convert these into positive livelihood outcomes. Research reveals that the framework was developed to understand the ways in which the marginalised could meet their livelihood needs and interests through the exploitation of resources or forms of capital which are within their

reach. The framework is thus concerned about making sure that the marginalised have access to critical resources which can sustain their livelihoods. According to DFID's livelihoods framework, the approach is founded on a belief that communities such as those in Chivi rural district require a range of core assets to achieve positive livelihood outcomes. The framework also realises and acknowledges that people like those in drought-prone areas as Chivi District operates in a context of vulnerability. Machiwana (2009) also argue that the sustainable livelihoods framework recognizes the need for men and women, communities and households to develop their livelihoods on the basis of the assets that exist within the broader socio-economic context.

Scholars such as Baumann (2000), however, call for a more politically aware SLF which considers social relations at the local level as well as the wider influences of multiple stakeholders who often operate from a distance. It should therefore be noted that political ecology was therefore explored further in this study showing the relationship between political ecology and livelihood strategies.

Political ecology has been a widely used and discussed framework in contemporary research. In this study, there is need to explore the field of political ecology, its roots and development and how it is used as a framework in this study. This research uses political ecology as an approach and focuses on the politics of environmental issues. It draws on the definition developed by Jones (2006) who conceptualises political ecology as centrally concerned with the politics of struggles over the control of, and access to, natural resources. The framework is adopted by the researcher because of its potential in understanding rural and urban development issues. Moore

(2010) supports this idea when he argues that political ecology provides a vital role to historical paths when analysing past and contemporary social-ecological relations and some cases a framework is used to trace socio-ecological transformation across centuries.

Political ecology is an approach analysing society-environment relationships (Robbins, 2004; Zimmerer, 2006; Kepe et al., 2008; Bixler, 2013). Bixler et al (2015) argue that political ecology provides a useful theoretical framework as environmental issues become increasingly prominent in local struggles, national debates, and international efforts. Simsik (2002), views political ecology as an articulation of the motivations, interests and actions of various actors vying for access to, and control over resource management. By bringing attention to more broadly defined relations of power and difference in interactions among human groups and their biophysical environments (Gezon and Paulson, 2005), political ecology provides a tool kit of concepts to look beyond the local community to explain resource use and power dynamics in everyday interactions and formal policy arenas and across multiple scales. The study therefore, uses the political ecology approach to examine the implications of the factors and actors that influence land and forest resource use. The focus is on its effects on sustainable livelihoods that promote rural development. Twyman et al. (2004) argue for the inclusion of complex ‘day-to-day’ incongruities of local operations, as well as operations at national or regional levels. Baumann (2000), however, argues that there has been little research on the dynamic relations between local and higher levels over natural resources.

Political ecology focuses more on the role of external influences on local environment. The decisions people make in order to carry out their livelihoods are tempered by external forces.

Political ecology framework for analysis centres on the idea of a ‘politicised environment’ and is used to understand the politics of environmental change. Adams and Hutton (2007) echo the same sentiment that the action to conserve natural resources is political, since natural resources and policy and management of such resources are intrinsically political. Alier (2004) also argue that political ecology as a framework tackles the detailed picture of motivation, interests and actions of the actors in manners that are impossible through local studies, but tends to obscure the complexities and contradiction associated with the actions of all actors. Political ecology, is therefore, regarded as a useful tool for analysing how regulations, policies and interventions impact on the livelihoods of the poor. Robbins (2008) explains that political ecology aims at giving primary attention to political relations in the process of social-ecological change. In that regard, this study concerns various interventions in environmental access and use by the Chivi District people, who rely on natural resources for their livelihoods.

Peet and Watts (2004), and Turner and Robbins (2008), argue that political ecology focuses on two aspects. The first aspect is the production of knowledge, power and ecological change as interlinked processes. The quartet further explains political ecology as focusing on the recognition of the interactions of humans as part of ecosystems and at different levels of interaction, ranging from local to the national and global. This study uses the political ecology approach to analyse the role played by various factors influencing land and forest resource access and use by the Chivi people. The Chivi District communities depend on a wide range of natural resources for their livelihoods. By exploiting land and forest resources, they hope to improve their livelihoods and acquire and utilise some of the core assets necessary for sustaining their livelihoods. Political ecology is important because it provides a platform for analysing the

context in which communities interact with their environment to meet their livelihood needs and at the same time analysing the external influences. Bush (2004) argues that political ecology attempts to identify a broad mix of social, political, economic and environmental factors from different spatial and temporal scales that influence social-economic system. Political ecology provides a means of analysing the context in which individuals interact with the environment to meet their livelihood needs, while also analysing influences by wider processes. Bush (2004) explains that access and entitlements to natural resources becomes a central question as farmers engage not only with their immediate environment, but also with processes of contestation over the environment and the natural resources on which their lives depend.

Ellis (2000) identifies politics as one of the reconciling processes of sustainable livelihoods, along with institutions and organisations. Political ecology is a ‘chain of causation’, linking socio-political and environmental factors into an explanation of environmental degradation. The local environments are embedded within a wider political economy of environmental degradation. This means that politics and power become more than a construct of state rules, but an asset that people use at the local level in their daily access of natural, human and social capital, therefore contributing to the rules through which they exercise their right to sustainable livelihoods (Scoones, 1998).

1.6 Structure of the thesis

Chapter 1 introduced the problem and situated it in the Chivi District, Southern Zimbabwe. The researcher described the existing situation based on experiences and other sources. Chapter 2 focused on reviewing related literature, which includes research findings, published or unpublished literature. Chapter 3 discussed how the study was carried out, that is, the tools used

in carrying out the research as well as the method used in gathering the data from the field. Chapter 4 presented and explored the role of state actors and local leadership on natural resource access and use. Chapter 5 explored how the land and forest use practices is done focusing on how the same sustain livelihood strategies of the Chivi people. Chapter 6 addressed the factors that push the Chivi District to exploit natural resources. Chapter 7 made conclusions and recommendations. The chapter concluded the whole study and it summarised the problem, method and findings of the study.

1.7 Summary

The chapter discusses the existing and prevailing problem justifying the need to research on this problem. It highlighted a brief background of the study, state of the environment in the Chivi District. A link between the background of the study and the problem was made. An introductory statement reflecting the main problem under study was given as a statement of the problem. The chapter raises the purpose of the study, research objectives, research questions, justification on why the study should be conducted and challenges to be faced in this study has been outlined. A proposed outline of the structure of the thesis is also given. The next chapter reviews related literature, focusing on political ecology as well as implications on rural development in drought prone Chivi District, Southern Zimbabwe.

CHAPTER TWO: LITERATURE REVIEW

2. Introduction

This chapter provides an overview of previous research on the political ecology implications on rural development. The main sources of information are published and unpublished literature. The key themes are political ecology approach to land and forest resources, political ecology and power relations, and the factors that promote environmental degradation.

2.1 The political ecology approach to land and forest use

Political ecology was suitably animated by an understanding of power relations as the focal factor in the development of environmental problems in developing countries. Whilst research prior to the 1970s stipulate that environmental issues could be dealt with separately from social issues, much of the current research on political ecology advocates for associating human-environmental interaction with social concerns and the need to grapple with the nettle of political and economic interests and conflicts associated with environmental concerns (Bryant, 1997).

Debates on political ecology refer to social and political situations surrounding the genesis, experiences and management of environmental problems. There are a number of scholars who engage in debates on political ecology (Blaike and Brookfield 1987; Bryant, 1992, Greenberg and Park, 1994; Zimmerer, 2000). Blaike and Brookfield (1987) explain political ecology as a process of elucidating environmental problems as the phenomenological interaction of biophysical processes, human needs and wider political systems. The second approach defines political ecology as a set of ideas and also as a social movement—ecology movement or green movement. Atkinson (1991) approaches the discipline of political ecology as “politics of ecology” in the sense of political activism in favour of Deep Green environmentalism and its

critique of modernity and capitalism. Atkinson (1991) further conceptualises political ecology as both a set of theoretical propositions and ideas on one hand, and, on the other hand, as a social movement referred to as ecology movement or green movement.

The third approach explores relations between political systems and their social and physical environment. Anderson (1994), for instance, views political ecology as the relationship between the individual, the community, the natural world and the national society. The fourth approach views political ecology as an analysis of Marxist debates about material injustice and nature in capitalist societies aiming at achieving fair distribution of rights and resources (Lipietz, 2000). The focus is on relations among people that pertain to nature or what Marxists call the “productive forces”. The fifth approach to this debate is analysing political ecology as politics of environmental problems. For example, Bryant (1992) explores political ecology as a debate that focuses on interactions between state, non-state actors and the physical environment. Environmental politics is also an examination of the environmental stances of both mainstream political parties and environmental social movements.

This study is not particularly different from the historical approaches of the political ecology debate, but the focus is on establishing socio-economic and political forces and involvement behind access and control of land and forest use and on how actions impact on rural livelihoods and sustainable development of the rural areas. Mathevet et al. (2015) argue that political ecology is an intrinsically historical approach because contemporary political ecology configurations need to be understood as constructed in, and through past processes, transformations and dynamics.

Political ecologists stress that environmental problems in the developing world are not simply an indication of policy failure as expressed by the mainstream writing of Pearce et al. (1990) and World Bank (1992) but it is rather a manifestation of broader political and economic forces related to the global spreading of capitalism. Environmental problems are blamed on elite interests, exploits by the poor due to poverty and activities that promulgate the political and economic status quo. The case study of Arizona by Greenberg and Brogden (2003) reflects that grazing and growth conflicts in Arizona demonstrates that perverse environmental problems may actually be emergent properties of complex systems, requiring new political approaches that foster sustainable management of resources and knowledge sharing between disputing stakeholders.

2.1.1 Land use

Land use practices in most communities result in land degradation. Land degradation describes how one or more of the land resources (soil, water, vegetation, rocks, air, climate, relief) has changed for the worse. Political ecology rejects the view that land degradation can be understood as a simple problem amenable to scientific and technical fixes. Though scientists argue that land degradation may occur naturally as a result of the action of wind and water over time, political ecologists argue that in most cases it is hastened by human activities and political forces.

The estimate of land degraded from the years 1945 to 2000 is roughly the size of China and India combined (Stocking, 2000). The involvement of political and economic interests in a society also affects how local people exploit resources. The land is mostly degraded because of the need to survive by individuals or groups. As long as someone is making a living out of that degradation,

it seems no one cares for the society as a whole or for future generations. For example, to a hunter or herder, the replacement of forests by savannahs with a greater capacity to carry ruminants would not be perceived as degradation nor would replacement by agricultural land be seen as degradation by a farmer (Blaike and Brookfield, 1987).

Reynolds and Stafford Smith (2001) suggest that improper land use is caused by a combination of socio-economic and biophysical factors. Land degradation, therefore, has both natural and human origins and among natural processes, climate change is extremely significant. Most political ecologists who try to define land degradation restrict it to human-induced processes. Socio-economic factors also contribute to land degradation processes sometimes even more than natural factors (Kertesz, 2009). Land degradation is one of the most severe problems globally and processes such as climate change and misuse of land exacerbate land degradation.

In some developing countries, for instance, there is overexploitation of natural resources in environmentally sensitive areas, which contributes to an increase in degradation of land. It should also be noted that the most serious environmental problems of today, such as climate change, are mainly a result of anthropogenic activities by the so-called developed world. Unsustainable land use is closely linked to soil erosion. It is argued that many parts of Africa will suffer food shortages and famines if erosion continues (Lal and Singh, 1998). Eswaran et al. (2001) also argue that land degradation is a major factor in the progressive deterioration of African livelihoods and economies.

The colonial period in Zimbabwe resulted in inequality of access to natural resources (Moyo 1991). Moyo (1991) further argues that land use practices during the colonial time had a detrimental impact on the environment. One example is the Land Apportionment Act of 1930

that apportioned good and fertile land from the black majority to the white minority. This regulation diminished access to land by the majority of Zimbabweans and it made traditional conservation impractical in the communal areas and, resultantly, land degradation set in (IUCN 1988). Mawere (2013) argues that land contestations in Zimbabwe since the colonial period have done more harm than good with regard to the management and conservation of the natural environment and to the development of Zimbabwe's agricultural sector which is the backbone of Zimbabwe's economy. At the turn of the millennium, the Zimbabwean government engaged in a politicisation of land that has resulted in widespread farm invasions and highly questionable decisions. This case study reflects that political, economic and environmental factors have interacted in complex ways to bring about the current state of land degradation in the communal areas of Zimbabwe (Whitlow, 1988 and Stocking, 1996). The manner of land use is a function of the tenure system in place because in Zimbabwe farmers have the right to use arable and grazing land but not to own the land (Communal Land Act 2002).

Zimbabwe, with its fixed area of 39 759km² has limited land resources (Central Statistical Office (CSO) 1982, 1992, 2002, 2012). A case study of one semi-arid district in the Masvingo Province was carried out by Makwara and Gamira (2012). The purpose of the study was to find out the rewards of unsustainable land use and forces related to the same. The semi-arid district is called Zaka and the research shows that subsistence farming is the main economic activity. Environmental consequences are over-utilisation of natural resources, deforestation, severe soil erosion and the environment in general (Makwara and Gamira, 2012). The study of Zaka District shows that land degradation is rampant as a result of population pressure, overstocking, cultivation of steep slopes, stream bank cultivation, overgrazing and deforestation. It was

observed that the Zaka community disregard, contravene and transgress demarcation regulations and some farmers are 'illegally' extending their fields.

Traditional and political leadership in the Zaka area is said to be turning a blind eye to the non-sustainable use of land for political expedience. Farmers in Zaka District Zimbabwe are cultivating mountain slopes, farming near to vleis as well as cultivating grazing land. In their effort to clear land, grass is burnt so are trees that occupy land earmarked for cultivation (Makwara and Gamira, 2012).

2.1.2 Forest use

In as far as forest use is concerned, political ecology is a scientific inter-discipline that tries to identify political dimensions of forest resource appropriation, contestation over forest benefits and the role of power in forest resource use (Tuk-Po et al., 2003). This approach does not suggest that environmental problems do not exist, or that ecological science cannot help, but acknowledges the greater political controversies about the nature of ecological risk, and the influence of different political actors (Forsyth, 2003). Political ecologists argue that forest loss is no longer viewed as an ecological problem requiring scientific solutions but it is an economic and political problem that needs to be addressed. Hellerman (2015) argues that for a long time, foresters paid little attention to how the broader social, cultural, and political contexts affected the success of scientific practices of forest management. Hellerman (2015) advocates for the need for a better understanding of the context and a closer engagement with key actors outside of the forest sector.

Colchester and Lohmann (1993) present small farmers and land managers not as the active agents of change but rather victims, driven through no choice of their own to destructive

activities. The scholars broadly explain that the real culprits are logging companies and trans-national interests that finance and fuel their operations, for example, consumption in North Africa drives the trade in tropical timber and the exploitation of tropical forests. The studies argue that local actors were forced to abandon their traditional land use practices and resort to logging. In line with this, Brown and Rosendo (2000) view indigenous people as heroes and timber companies and ranchers as villains. Brown and Ekoko (2001) and Brown and Lapuyade (2001) studied forest conversion processes in Cameroon. The studies expose micro-scale experiences and interactions concerning local actors and deforestation. The studies attribute forest loss to the presence of greater numbers of migrants who provides markets for local produce on a temporary basis. Field work by Brown and Ekoko (2001) reveals that villagers in central Cameroon viewed the early days of logging as boom years but the present day situation, after two decades of logging activity, means there are fewer benefits for local people, and increasing resentment. This suggests that increased marginalisation and vulnerability of the poor is an outcome of such processes. Gardner (2012), Patinkin (2013), Grajales (2011) and Borrás and Franco (2012), similarly explain that during such processes, local people may be moved from their land against their will or forced to become isolated, or engaged in poorly paid manual labour for corporate owners.

Forests are key natural resources for rural communities and hence destruction of these resources entails destroying the entire communities that are dependent on the resources that the forests provide. Trees and forests are multi-purpose resources that provide varied functions in the global society and in rural livelihoods across the developing world. For many rural people in the developing world, the forests play an important role in the livelihoods of the people. A number

of scholars identified main activities which have contributed to deforestation in the world and these are direct and indirect causes. Chakravarty et al. (2011) explain that indirect causes of deforestation are the forces that motivate the agents to clear the forests and direct causers are the slash and burn farmers, firewood collectors, infrastructure developers and others who are destroying the forests. Sands (2005) and Humphreys (2006) argue that indirect causes of deforestation are the main drivers of deforestation and these cause most disagreements.

Direct causes of deforestation are expansion of farming land, timber plantation, logging and fuel wood, overgrazing, fires, mining and tourism, among others. Expansion of farming land is done when people clear land for agricultural purposes. Chakravarty et al. (2011) define shifting agriculture as slash and burn agriculture, a situation where land is cleared for raising or growing crops until the soil is exhausted of nutrients or the site is overtaken by weeds and then farmers move on to destroy more forests. As land is degraded, farmers would be forced to explore new forests, thereby increasing deforestation. It is feared that agriculture expansion in the tropics might replace forests in the remaining natural forests (Cossalter and Pye-Smith, 2003 and Anon., 2005). Scrieciu (2003) confirms that tropical deforestation is caused by the drive for maximising profits within agricultural sector. Timber plantation is another cause that promotes deforestation and is detrimental to forest ecosystems.

In many parts of Asia and South America logging contributed to unsustainable deforestation. Putz et al. (2001) argue that logging seriously degrades forests. Logging fuels deforestation through providing access roads to follow on settlements and the log scales help finance the cost of clearing remaining trees and preparing land for pastures and planting of crops (Chomitz et al.,

2007). Pastures degraded by overgrazing are subject to soil erosion. Chakravarty et al. (2011) propound that clearing forests and overgrazing have turned large areas of Qinghai province in China into a desert. The scholars further argue that overgrazing has also caused large areas of grasslands north of Beijing and inner Mongolia and Qinghai province to turn into desert. Fires are also argued to be a major tool used in clearing the forest for shifting and permanent agriculture and for developing pastures. Carvalho et al. (2001) and Nepstad et al. (2001) also argue that deforestation due to the construction of road pavements in Brazil has led to higher incidences of forest fires.

Mining is another direct cause of deforestation. It is a profitable activity that promotes development booms but it has dire consequences for forests. Mining is very intensive and very destructive (Sands, 2005). An example was given by Staff (2010) that the deforestation rate due to mining activities in Guyana from 2000 to 2008 increased 2.77 times, according to an assessment by the World Wildlife Fund-Guianas. In the Phillipines, mining together with logging has been among the forces behind the country's loss of forest cover. Griffiths and Hirvela (2008) also explain that Nyamagari Hills in Onssa, India, are currently threatened by Vedantal Aluminium Corporations plan to start bauxite mining, which will destroy 750 hectares of reserved forests.

Eco-tourism that is adopted by national governments as an easy way of making money, sacrificing the stringent management strategies, is exploiting the forests for profit. Shukla (2010) argues that in the name of eco-tourism, infrastructure development is being done mostly by private players in these wilderness areas, which is further detrimental and causes deforestation.

Deforestation is unavoidable as a result of the current social and economic policies being carried out in the name of development. Chakravarty et al. (2011) argue that in the name of development irrational and unscrupulous logging, cash crops, cattle ranching, large dams, colonisation schemes, the dispossession of peasants and indigenous people and promotion of tourism are carried out. People also exploit rich natural resources, including forests, to earn forex for servicing debts. Wealthy countries, formerly colonial powers, have deficits in their own natural resources and are mainly exploiting resources of financially poorer countries (Chakravarty et al., 2011).

Poverty and overpopulation are also the main causes of forest loss according to FAO and intergovernmental bodies. Purnamasari (2010) argue that the population often lacks the finance necessary for investments to maintain the quality of soil or increase yields on the existing cleared land. Poverty is considered to be an important underlying cause of forest conversion by small-scale farmers and naturally forest-dense areas are frequently associated with high levels of poverty.

Absence of property rights for poor people means they are displaced by those who gain tenure over the land they occupy. Chomitz et al. (2007) argue that poorly defined tenure is generally bad for people and forests. Property resources such as forests serve as a critical buffer for low income earners during droughts and also provide a source of livelihood, so if these people are displaced it will affect their lives. Chakravarty et al. (2011) say this will lead to a tragedy of the commons where forest resources are degraded. Commons are natural resources owned and

managed collectively by the community. According to Helfrich and Bollier (2012), commons are resources that benefit a group of people, but which provides diminished benefits to everyone if each individual pursues his or her own self-interest. If the natural resource base that has common property resources is destroyed or over utilised it has dire consequences for the rural population. These resources are critical for community based development.

In the SADC region according to Sola (2001), regional and national forests are also being exploited for homestead construction and for fuel wood consumption because firewood is the major source of energy for people in rural areas. Firewood extraction from indigenous forests is causing widespread deforestation in rural areas because it is a cheap source of energy. In the rural areas of other Southern African countries, the degree of household dependency on products from woodlands reflects the type and condition of the forest, its proximity to consumers, and the access and use rights which households enjoy (Foy, 2001). Dependency on forest resources is common among the poorest households in Zimbabwe and these resources represent a major component of the country's rural economy. Murphree and Mazambani (2002) argue that in practically every household in Zimbabwe, across gradients of wealth or poverty, wood is used for construction and fuel purposes.

Forest resources are the dominant ecological system in Zimbabwe and being commercialised. Chitsike (2000), Hobane (1994), and (2000) give an example of mushrooms (some of which reach international markets), masawu fruit (largely from the Zambezi Valley), medicinal plant products and mopane worms. The sale of wild silk worms to a processing plant in Botswana largely from the Tsholotsho and Bulilimangwe Districts in Zimbabwe is another case cited by

Chitsike (2000) that indicates these instances of commercial exploitation which poses difficult issues in management and proprietorship of forest resources.

However, in some cases in Zimbabwe, commercialisation becomes a means to buffer communities against food shortages in drought years. Bond (2001) notes that in the CAMPFIRE programme, wildlife revenues as a percentage of gross agricultural production rose from 10 per cent to 21 per cent in 1991, following one of the severest droughts on record. CAMPFIRE is a Zimbabwean government's initiative that devolves the management of, and benefits from, wildlife resources to local communities in the communal areas (Murphree, 1991). Another case study of Kanyurira Ward in Zimbabwe by the same researcher tracks local allocations of wildlife revenue over five years, showing that household dividends were high in years of food shortage (up to 78%), while in good years allocations were used mainly for community projects (up to 80%). The community was "shrewdly using their wildlife revenues flexibly, in good years for collective development, in years of crop failure as food security" (Murphree, 1996: 173-4).

Other studies in Zimbabwe have noted that there was generally more forest cover in many areas before the Fast Track Land Programme of the year 2000. A case of Mafungautsi Forest Reserve in Gokwe District in Central Zimbabwe reflects that prior to 2000 the trees of the Mafungautsi Forest Reserve were generally larger and of greater biomass, and the woodlands denser than the woodlands of the surrounding communal areas. In addition, communal areas tended to have a greater variety of vegetation types (Vermeulen, 1996). However, from 2000 the forest cover in Mafungautsi has generally declined due to increased poaching because people are now living within the forest area. Fires were used to drive wild animals to some parts of the forest to make

hunting easier (cf. Mapedza, Wright and Fawcett, 2003). Since 2000, the number of forest fires in Zimbabwe has increased, for a number of reasons. Mapedza's study of Gokwe district reflects that after June 2000 there were fewer resources for fire fighting and a culture of acting with impunity was quickly developing amongst the villagers in Zimbabwe (Mapedza, 2007). The study found out that a number of households has invaded the reserved forests in Gokwe, where they use fires to open up fields for cultivation. Because of the political aspect surrounding fast track land invasions in Zimbabwe, both the Forest Protection Unit (FPU) and natural resource management committees were powerless to stop communities from opening up fields within the forest or from destroying fields. Rural populations safeguarded themselves against eviction by creating cells and branches of the ruling party. The political scenario led to the relaxation of environmental regulations and people used the name of the ruling party to make them immune from prosecution. The natural resource base is, therefore, vulnerable because one's political affiliation can give one the right to destroy the environment for personal gains. The political situation of the day determines how the environmental resources in a given community can be accessed and exploited by the local people.

In a more localised context in the Chivi District, commercialisation of forest resources also led to massive destruction of forests. In Chivi District, communities were being driven by the desire to benefit economically from the natural resources. In the early 1980s, the district experienced an unprecedented wave of destruction of trees and the environment as people sought forest timber. The drought-prone district was deforested as people crafted traditional artifacts to sell to tourists by the roadsides since the district is located along Harare-Masvingo-Beitbridge road which leads to South Africa. Soon after Zimbabwe's attainment of independence from Britain in

1980, there was an influx of tourists from South Africa to Zimbabwe who bought artifacts made from wood by local people from the Chivi area who used the roadside as the market place for traditional artifacts (Makonese, 2008). People sought the best trees from the nearby forests to make their artifacts. Chivi women who relied on making clay pots and other clay-based artifacts to sell by the roadside also required firewood in order to burn the clay products to make them strong.

In the late 1980s, the artifact market grew to be one of the biggest in Zimbabwe because people would come from urban areas and from South Africa to buy artifacts in bulk for resale in their respective areas (Makonese 2008). The market flourished, but at the same time the nearby forests disappeared. From 2000 shortage of firewood became a major problem in the area, fruit bearing trees become extinct and mushrooms have become rare species. The artifact market in Chivi District had been in existence since 1980 and the market stall holders were paying a fee to Chivi Rural District Council. However, in 2005, the market was not spared when the government of Zimbabwe launched Operation Murambatsvina in May 2005 to destroy all “illegal” residential buildings and clean up all businesses operating “illegally”. The market, however, resumed a few years later. Forest management in the District and in Zimbabwe is now faced with the increasingly complex challenge of reconciling the demands of various users: the state wants to muster the economic and employment potential of this resource while entrepreneurs who are in this case artifacts sellers endeavour to increase the profit generated from crafting, and the local people in Chivi district rely on the forest resources as a major source of fuel, construction material, food, fodder and income. Economic conditions have also caused the Chivi rural population to destroy the forests for immediate, short term monetary benefits.

2.2 Political ecology and power relations

Recent political ecology research has concentrated more on power relations surrounding highly politicised environment. The strong political focus was explained by Bryant (1998) who viewed political ecology as a focus on the political dynamics surrounding material and discursive struggles over the environment. As political ecology progresses, scholars such as Stott and Sullivan (2000), however, moved from that radical political standpoint and define the political ecology approach as interested in the narratives which maintain hegemony over people and the environment. A geographical political ecology approach was also introduced by Zimmerer and Basset (2003). The geographical political ecology is centred on nature-society interaction and geography scale. They argue that geographical political ecology focuses on social and ecological processes and their interactive effects on environmental problems and policies. From an economist's point of view, Peterson (2000:324) views political ecology 'as an approach that combines ecology and political economy to represent an ever-changing tension between ecological and human change and between diverse groups within society at scales from the local individual to the Earth as a whole.' In summing all these different perceptions, Forsyth (2003) posits that all these arguments point to social and political conditions that involve and explain causes, experiences and management of problems surrounding the 'environment'.

Bush (2004) explains that traditionally, political ecologists have placed less emphasis on ecological process and more on political control over natural resources. The likes of Bryant (1991) have argued that these natural and social scientists have rejected the focus on the political sources, conditions and ramifications of environmental change. Recent political ecology research, however, incorporates socio-political influences on local environment. Harner (2001)

also argues that power (that is social, economic and political) and access to environmental resources are key factors in creating place meaning for given locations. According to Robbins (2004) the political ecology research of environmental management explicitly explains the relationship between power and flows of capital that affect the social dynamics that produce new views about appropriate uses of the environment. The widespread and dispersed power over customary users of natural resources may work both to promote and resist the issue of natural resource conservation.

Political ecology also emphasises the critical role of the state in environmentally destructive activities. Guha (1989) and Peluso (1992) argue that the state's conduct is frequently intimately related to that of capitalist enterprise, but the role of the state is seldom reducible to that of an agent of capitalism. They argue that the state also pursues distinctive concerns relating to the question of political power and succession, national security and even personal enrichment that may not be congruent with the interests of capitalism. Radical political ecologists argue that the sources of environmental problems are complex and deep rooted and the only way these problems can be resolved is through radical changes to the local and global political economy. Simon (2007) argues that the way to reintegrate political economy into land degradation issues is to engage sustainable livelihoods approaches into the political ecology debate. Simon (2007) further argues that political ecology can provide the missing political, economic and environmental dimensions to sustainable livelihoods analysis while the latter can lend political ecology a finer texture and an enhanced socio-cultural dimension.

Political ecology acknowledges the existence of a politicised environment in which power relations play a role. The relationship between different actors-the state, local community, non-governmental organisations and the physical environment is conditioned by power relations. This will bring a highly unequal relation because different actors bring in different power capabilities in struggles over access to environmental resources. A study by Hurley (2013) highlights that the individual manager decisions are conditioned responses to political-economic processes operating at scales ranging from local to global. The scholar studied the influence of changes in economies and demographic land valuations as well as rules and norms governing land-use decision making and social processes that establish rules for administering natural resource access, use and production. Political ecologists view biophysical systems as the products of politics that “are related in various ways to social relations of production and decision-making about resource use” (Paulson and Gezon, 2005:209). Individuals or a group of people may exert control over the environmental resources such as land and forest, and can also monopolise a valued environmental resource so as to control the ensuing economic benefits that may be derived from the exploitation of that resource. The local communities would only be in need of benefits and not worried by the state of natural resources. Johnson et al. (2009) and Larsen et al. (2007), in line with this, argue that political contestations affect the meaning of sense of place, and similarly, Stewart (2008) argues that sense of place influences land-use decision-making.

This section, therefore, deals with this co-management of environmental resources as well as its implications on resource access and use by the Chivi District community. Khan (2013) argues that contemporary nature conservation practice has led to the inclusion of a range of state and non-state actors, donor organisations, non-governmental organisations, communities and

academic institutions in resource governance making human-society-nature relations more complex and dynamic. According to Fletcher (2010) the lack of government involvement in the economy and in the environment has opened space for a dynamic, complex sociocultural process that involves states, corporate, non-governmental and local actors engaging in the perpetration of, or resistance to, exploitation of natural resources and relating in unexpected ways. The participatory conservation approach is aligned better with the concept of network governance, wherein state and non-state actors, ranging from local to global, are reciprocally connected through actions and practices on the basis of a common normative framework of resource governance (Adger et al., 2001). Political ecology, therefore, examines the political dynamics surrounding material and discursive struggles over the environment. Bryant (1998) argues that particular attention should be given to the ways in which conflicts over access to natural resources is linked to systems of political and economic control. Ojeda (2012, 2013) argues that powerful interests are emboldened due to lack of regulation to mobilise for purposes of accumulating land and other valuable assets while pursuing a green agenda that is purportedly advantageous to all stakeholders. Green agenda is the process where nation states advance the processes of gaining income from the natural resources.

Environmental problems are also viewed as global issues because threats posed by environmental degradation and pollution affect all nations and it is accepted that they can be best addressed at the international level. This has led to the adoption and imposition of environmental policies by national governments. States have imposed their control over the conservation of natural resources. Although this enhanced conservation of environmental resources, it is also responsible for the decline or collapse of community based resource management institutions

(Singh, 2000). Whilst it is acknowledged that environmental problems are global in their impact, it should be understood that international rules and regulations on natural resources seem to be unable to solve these problems because environmental degradation still persists. The continual environmental degradation in the world has led to the questioning of the resource management strategies currently in use and a realisation that environmental problems are localised and specific, and therefore need local responses (Adams, 2001). It is because of this awareness that local community based environmental conservation strategies should receive renewed interest. Community based environmental conservation strategies can be defined as regulations that originate from the local communities and are enforced by the same locality to govern how the communities control and access natural resources. In addition to the legislative framework governing access to and use of natural resources, there are regional and village level regulations that govern the use of environmental resources. Environmental issues are local and are understood by local communities since they have the best information in relation to their environmental resources and how those problems affect them. The effects may be global but involvement of local community in resource conservation may lessen and mitigate the problem.

International and state intervention through controls equally negatively impact on community-based natural resource conservation strategies and this intervention normally ruins traditional resource management institutions because the state usually alienates local people from management of their resources. This engenders environmental degradation. Local community members in any rural society are the best managers of their own resources since they are the users of the environmental resources. For a community to realise sustainable rural development through the use of natural resources, participation of the locals, is therefore, a prerequisite. To

effectively fight environmental resource problems, national environmental management laws should, therefore, support local initiatives not to replace local community conservation strategies. Formal science should be combined with indigenous technical knowledge (Singh, 2000 and Adams 2001). Verchick (2003) also observes that by its very nature, community-based resource management offers the best opportunities for democratic participation. Even though local communities cannot and do not always provide the best solutions to their environmental problems, grassroots involvement, local knowledge and their experience should not be neglected. Top-down approaches to natural resource use and management explains the collapse of local level resource conservation strategies in developing nations.

A number of scholars argue that in Africa, colonialism is responsible for the demise of local level resource conservation institutions. Adams (2001), Murombedzi (1994), and Rich (1994), for example, are of the view that the experience during colonial times led to decisions on the management of local resources being made in distant bureaucratic institutions. The scholars argue that in Zimbabwe, for nearly a century the country has been struggling to identify and adopt local strategies and plans for sound conservation strategies and rural development as a result of the colonial administration which took control of all the natural resources from the land and prohibited local communities from owning or using their natural resources. Mawere (2013) argues that in Zimbabwe, conservation by the state has tended to favour and privilege Western scientific models at the expense of indigenous epistemologies. As a result, the country experienced serious land degradation due to high population growth. Hellerman (2015) who studied Forest Governance in Southern Nigeria, argues that before forest reservations arrived on the scene, the chiefs were the de facto owners of the land. She argues that like colonial discourses elsewhere in Africa and Asia, the colonial administrators promised to protect

customary rights in land and forest but reneged on these promises. The colonial administrators implement “legal conditions and structures of land control” (Hellerman, 2015:46). These changes in legal conditions of benefits were used by politicians as a source of patronage to facilitate preferential access to forest reserves for private corporations. Masaka (2011) similarly argues that the colonialisation of Zimbabwe and the rest of the African continent was predicated on a treacherous basis of trying to improve the lives of people of Africa, when in fact it spelt doom for the Africans due to resource dispossession that impoverished people that had managed to survive within their means prior to the advent of colonialism. It is further elaborated that colonialism was predicated on the myth that the locals were not able to sustainably use the natural resources that they had at their disposal.

It is further argued that both colonial and post-colonial Zimbabwe governments have failed in the conservation of natural resources such as land. The colonial administration increased pressure on natural resources through the Land Tenure Act of 1930 where land ownership was transferred to the white minority (Mawere, 2013) and this increased the strain on the environment in the rural areas, compromising the conservation capabilities of the rural communities. Chibisa (2008) argues that the colonial approach has led to threats of extinction of wildlife, cutting down of valuable forests for mining and tobacco growing purposes. Local communities were resettled on unproductive land where it was impossible to eke out a living. Resultantly, Zimbabwean communities began to ‘invade’ the prohibited national forests, plantations and wildlife parks. As a result, there was illegal cultivation, squatting, cutting of fences and burning of forests. It should be noted that this situation prevailed from the colonial period till independence. Access to land

and control of natural resources in both the colonial and post-colonial eras remains characterised by conflicts between communities and the state.

Mawere (2013) broadly explains that the government of independent Zimbabwe also failed the nation's conservation project despite having vowed to halt the mounting land degradation and promote sustainable land use practices. The government is argued to have failed mainly because it had relegated local environment knowledge to the periphery of national environment conservation projects. It has adopted modern ways of natural resource management. However, after 1980, the Department of National Parks and Wildlife Management and other stakeholders in Zimbabwe introduced a programme called Communal Areas Management Programme for Indigenous Resources (CAMPFIRE). The programme was a Zimbabwe community-based natural resources management initiative. According to Moseley and Logan (2001), CAMPFIRE was one of the new breed of conservation strategies designed to tackle environmental management at the grassroots level and help rural communities to manage their resources, especially wildlife for their local development. The main objective was to alleviate rural poverty by giving rural communities the power to manage their environmental resources. The programme was designed to redress problems of resource autonomy and to tackle effectively the political ecology of rural poverty.

However, in Zimbabwe, like in many other African countries, the involvement of the state in controlling access to, and use of, natural resources continue hindering sustainable natural resource management at the community level. Chikowore et al. (2002) explain that during the colonial period in Zimbabwe, the subordination of traditional leadership to central government

meant that the role of traditional leaders in resource conservation was reduced to tax collection and enforcement of centrally designed environmentally laws. In 1984, the government of Zimbabwe decentralised local government to allow rural communities to participate in the development process through Ward Development Committee (WADCOS) and Village Development Committee (VIDCOS). These mandates were to define local needs but, according to Murombedzi (1992), Hill (1996) and Nhira (1993), even the VIDCOs and WADCOS can be perceived as agents of the state rather than of the community 'because they have little autonomous action beyond serving as conduits for ideas emanating from the state'. VIDCOs and WADCOS are perceived as replacing the traditional authority, engendering conflict and competition, thereby reducing the effectiveness of community based natural resource management institutions, and seriously compromising sustainable local level natural resource management. Nemarundwe (2003) shares the same sentiments that in relation to issues of representation, power and its related dynamics becomes a key variable in determining whose interests are, or are not catered for by the institutions given the diversity of actors involved in community-based natural resources management.

The relationship between the state, local government structures and traditional structures is often conflict-ridden. The new structures introduced in Zimbabwe have replaced traditional leaders' authority, engendering conflict and competition. That reduced the effectiveness of community based natural resource management institutions and seriously compromised sustainable local level natural resource management. Community control of natural resources in Zimbabwe communal lands is problematic. It is subject to conflict because of the absence of complete community control over natural resources in Zimbabwe's rural areas, which continues to pose a

challenge to sustainable community-based natural resource management. Conflict situations usually present a significant challenge to achieving participatory resource management and sustainable livelihoods (Castro and Nielson, 2003). Environmental resources are experiencing severe degradation partly due to the collapse of traditional resource management institutions. The demise of community-based natural resource management practices has led to overexploitation of resources, resulting in degradation. Mawere and Kadenge (2010) argue that indigenous practices had been used successfully for centuries to conserve their natural environment and to ensure social harmony between humans and all other life in the wider environment.

The local management of natural resources seems to be the most efficient way of ensuring the return of effective control of the use of natural resources but critics such as Campbel et al. (2001) and Dore (2001) argue that these may look theoretically attractive but in some areas they have proven less successful than anticipated. The lack of success is often attributed to the ambiguities of authority and power struggles between state and local institutions, as well as the pressures of poverty that lead to unsustainable exploitation of resources for sustenance (Nemarundwe, 2004; Twine et al., 2003b).

2.3 Legal framework in a politicised environment

In Zimbabwe, environmental issues are addressed on a regulatory spectrum. Bowonder (1985) argues that Zimbabwe consistently demonstrated that environmental issues cannot be managed in a vacuum, but require an analysis of the economic, social, cultural, political and health impacts of such issues. Legal frameworks of environmental management in Zimbabwe are also used to determine who accesses and controls natural resources. The Government of Zimbabwe (GoZ)

published policies and associated acts on the protection of the environment. The legal frameworks give Rural District Councils, the Environmental Management Agency and traditional leaders power to manage the environmental and natural resources within their areas of jurisdiction. In the communities, the state still acts through the Village Development Committee (VIDCO) which is being referred to in section 17 of the Traditional Leaders Act [Chapter 29:17 Act 13 of 2002) that every village assembly shall elect members of the Village Development Committee in accordance with regulations made in terms of the Rural District Council Act (RDC Act) [Chapter 29:13]. The functions of the Village Development Committees are provided for in terms of the RDC Act. Local traditional authority structures depend largely on local legitimations for their authority, but are being drawn into agreeing with external authority interests. The provisions of their acts and policies in environmental management are a case in point. The Government of Zimbabwe has maintained legal authority over natural resources, gives the state implicit authority to act as manager, administrator, facilitator and general overseer of community resources. The parallels between traditional leadership and the state in the conservation of natural resources may impact negatively on sustainable development within their areas of jurisdiction.

The Rural District Councils (RDCs) in Zimbabwe have also been conferred with the power to make by-laws, regulations or rules for effective administration of the rural areas for which they have been established. The Act authorises and empowers RDCs as ‘appropriate authorities’ to control the utilisation and management of natural resources in communal areas. The current hierarchy in issues pertaining to the conservation of resources strips the local community of its sovereignty and control over resources. Although the structure has contributed so much to the successful conservation of natural resources in Zimbabwe in rural communities, it has taken all

the powers from the local communities in management and access to their own resources. The livelihoods of the rural communities which are dependent on the immediate environment are affected mainly because resource management is influenced by the politics of the area, since this determines resource supply and accessibility. The study by Makonese (2008) on Zimbabwe forest laws, policies and practices and its implications for access, control and ownership of forest resources by rural women exposed the legal obstacles that prevent rural women from fully realising their rights to sustain their families from forest produce and their role in preserving the forest resources.

The involvement of political leadership creates limitations for local empowerment and rural development. The impact of this approach on sustainable rural development is negative because it fails to address rural poverty in Africa. The failure of many top down rural development projects and persistent environmental degradation in many parts of the world has led to the questioning of the resource management strategies currently in use and a realization that environmental problems are localised and specific, and therefore require local responses (Richards, 1985; Agrawal and Gibson, 1999; Adams, 2001). The local communities should actively participate in the management of their resources because the best managers of resources are the users of those resources themselves. Woodhouse (2000) argues that an effective environmental management strategy is driven by local initiatives and participation provides the key to reducing rural poverty, as well as conserving the natural resource base.

If use limits are not devised and enforced, natural resources will be subject to problems of potential destruction. The use limits and laws are devised to control and not to stop the society

from using the environmental resources, because it is impossible to exclude individuals from using the resources, either through physical barriers or legal instruments. Societies all over the world manage their common property resources by means of detailed and complex rules adapted to local ecological and technological circumstances (Balland and Platteau, 1996; Ostrom, 1990). The environmental laws and policies that govern the use of natural resources in Zimbabwe and also local community strategies of governing and controlling these resources should, therefore, exist. However based on research in Zimbabwe, McGregor (1991) contends that national-level policies governing natural resources in Zimbabwe do little to ensure sustainable harvesting at the local level.

A case study done by Chipoyera (2013) focusing on the effectiveness of environmental management systems in tobacco processors in Zimbabwe and it revealed that there was great support being offered by top management in environmental management system programmes, and that a clear environmental policy was available and being implemented. Roy (2011), who also carried out a study on the effectiveness of environmental management systems highlighted that many organisations of all kinds have become increasingly concerned with achieving and demonstrating sound environmental performance by controlling the effects of their activities and taking into consideration their environmental policies and objectives in the last two decades. Schaarsmith (2005), however, regards commitment by top management as key to the implementation and maintenance of the environment and observes that effective compliance with environmental laws and regulations requires commitment by companies to address environmental concerns.

2.4 Factors that promote environmental degradation

There has been debate concerning the causes of degradation of the environmental resources of the globe. There are a number of factors that have led to degradation of the environment and these are population pressure, economic conditions, poverty, and political influence among others.

2.4.1 Population pressure and environmental degradation

There is the issue of population pressure on environmental resources. Population is increasing faster than resources. Some political ecologists have adopted a neo-Malthusian approach which assumes that population pressure on resource leads to resource scarcity. At the end of the 1980s, political ecologists approached environmental problems in a neo-Malthusian framework (Schurbert, 2005). Neo-Malthusian political ecologists argue that while natural resource levels grow at a linear rate, human population grows at a geometric rate if unchecked. Population pressure on resources leads to natural resources scarcity. The theory is based on an eco-scarcity argument originally put forward by Thomas Malthus that argues that an ecological ‘crisis’ occurs when the demands of a growing human population overtakes the capacity of an environmental system to support it. Robbins (2004) also argues that there is need to control population to address ecological degradation, separating it from the issues concerning the global distribution of power and goods. However, Tiffen et al. (1994) in their article ‘More People, Less Erosion’ refuted the assumption that high population pressure on resources will automatically lead to soil degradation.

Keeley and Scoones (2000) in their article on environmental policy-making in Ethiopia examine both the actor networks that shape the discourse about resource management and environmental

rehabilitation. They uncover a 'generalised Malthusian narrative' of accelerating resource depletion, leading to environmental decline and ultimately to poverty and starvation. Population growth has also been linked to vegetation loss in dry land areas, especially in sub-Saharan Africa. According to the United Nation (2001), the number of pastoralists and animals they depend on have both increased substantially in recent decades leading to increased migration in search of additional grazing lands and increasing competition for land with sedentary populations.

Forsyth (2007a), and Blaike and Muldavin (2004) studied Himalayan Environmental Degradation. The studies highlight the neo-Malthusian explanation of environmental degradation. The studies found that a population increase leads to land shortages, so farmers expand agriculture onto steep slopes and cut down trees for agriculture and firewood, leading to soil erosion. The case studies further reveal that population pressure in the areas has caused flooding and siltation of the Ganges and Brahmaputra plains and even extends to the delta area, causing formation of islands in the Bay Bengal.

Zaman et al. (2011) argue that developing countries have been experiencing a serious problem of rapid population, which results in accelerating environmental degradation. They further argue that the relationship between population and environment is mediated by a number of socio-economic, cultural, political and developmental variables with relative significance. These studies suggest that population is an important source of development, yet it is also a major source of environmental degradation when it exceeds the threshold limits of the support system.

2.4.2 Economy and environment

Economic and environment issues are intertwined and closely related in that economic activities either affect or are affected by natural and environmental resources. There are environmental causes for economic problems and economic causes for environment problems. Environment provides natural resources which are essential for the economic development of the economy. The stock of the natural resources can be changed by economic activities such as extraction, processing and disposal. The same activities affect the stock of natural resources available for the future and have inter-temporal effects.

A study by Liu (2009) observes that the economic situation is built on the basis of ecological sustainability. The study further explains that environmental protection cannot be ignored in economic development and argues that if environment and economy are harmonised, society develops steadily. Zhou (2005) also points to the issue of industrial pollution in China, in which wastes pollute the environment seriously and even harms society. In pursuit of economic development, especially in the industrial field, there is a need for a protected environment because it is not advisable to destroy the ecological environment in pursuit of economic benefits.

The commercialisation of natural resources in a global economic system of nation states presents formidable challenges to the sustainable use of natural resources. Greenberg and Brogden (2003) argue that the commercialisation of certain elements within natural systems subjects resources to a different sense where the decisions regarding resources are viewed from a different perception and understanding of their role within ecological system functioning. The environment will be stripped of its local meaning that may serve a necessary meditative role and becomes merely an array of commodities. Weeber (2016) also analyses green grabbing as the privatization or

appropriation of land for purposes of advancing a “green” economy while excluding local, indigenous people from natural resources. The study observes that the exclusion of local people from the natural resources is a result of globalisation where free market, neo-liberal policies have dominated the world economy (Corson, 2011, 2012; Wolford, 2010 and Cardenas, 2012). The neo-liberal view essentially renders the environment for sale because it prescribes the commoditization of nearly all aspects of natural environment. McAfee (2011) also argues that grabbing environmental resources harms people as well as the ecosystems.

Leach (2012) blames the Millennium Ecosystems Assessment of 2005 as responsible for serious commercialization of resources. The degradation of natural resources due to commercialization is therefore, blamed on poor and misdirected economic recommendations at a global level and this affects indigenous people who should benefit from their immediate environment. Weeber (2016) also explains that what followed the Millennium Ecosystems Assessments of 2005 declaration was the construction of payment schemes for various ecosystem services, from biodiversity and agrofuels to carbon storage and aesthetic and tourism values. Weeber (2016) gives the example that since 2008, nations such as China and Middle East countries have renewed interest in investing in land and resources in low-income countries. Fairhead, Leach and Scoones (2012), Borras and Franco (2012), Levien (2012) and GRAIN (2013) also propound that opportunities for infrastructure development through creation of special economic zones further fueled ecosystem sellouts. The argument resonates well with the story by Mark (2013) in which Sandra Steingraber, an environmental writer broke up with Sierra Club over the allegations that in 2007 and 2010 the nation’s oldest environmental organization had clandestinely accepted \$26

million from individuals or subsidiaries associated with Chesapeake Energy, a major gas firm that has been at the forefront of the fracking boom.

The sanctioning of commercialisation of natural resources has given rise to a phenomenon of land grabbing. Leach (2012) explains that large areas of land in the developing world are being parceled off for food and biofuels, often with very negative effects for the people who live there. The impoverished governments sell off their environment services because they are desperate for money. Weeber (2016) argues that poorer nations are eager to sign away rights to their environment in hopes of getting quick cash that may lead to economic development and prosperity. In some cases indigenous people are falsely labeled violent criminals. This attitude, according to Rocheleau (2015), shuts out people from forest areas, for example carbon schemes locked local residents out of the forests. Peluso and Lund (2011) explain that the land grabbers argue that the carbon stocks have to stay put and this precludes most human involvement from the forests.

Lechner and Boli (2011) posit that ecology and economy are becoming increasingly inter-twined into a seamless net of causes and effects. Ecologists are of the position that a massive increase in economic activities and economic growth are the core causes of environmental degradation. A case study of Brazil was done by Carvalho (2012) who established that to achieve economic growth, Brazilians abuse their land on the grounds of economic interest and they remain largely dependent on exports of natural resources to generate economic dividends. This is evidence of deforestation and erosion caused by expansion of agricultural areas in order to fulfill export needs. Pulling of raw materials from forests to fulfill exportation needs is subject to enormous

domestic and international pressure, causing overexploitation of the environmental resource base (Lechner and Boli, (2011). As poor nations desire economic growth, the available natural resources will be used more often, resulting in environmental degradation. Awan (2013) argues that it is a mammoth task for poor countries to meet increasing consumption while keeping environmental degradation at a minimum. The study by Awan (2013) further reveals that economic growth is vital but it should give more livelihood options to the poor and development models should be more environmentally sound. Carvalho (2012) also argues that in pursuit of rapid economic growth under the premises of neo-liberalism, developing countries disregard environmental concerns, nations priorities economic development goals above all conditions which leads to an increase in environmental degradation.

Contrary to the above argument, neo-liberal economists argue that environmental degradation is not a by-product of economic growth but is a phenomenon directly related to poverty. Dauvergne (2008) stresses that a world free of poverty is critical for a long-term sustainability of the planet. It is further argued that the poor exhaust all nearby environmental resources, cultivate unsuitable land to grow food and earn income. To strike a balance between economic growth and environmental degradation, it is therefore necessary to break the cycle of poverty and environmental degradation in less developed countries. Alex et al. (2010) posit that the environment is one of the natural capital aspects which need to be used sustainably and efficiently in order to secure growth in the long run with the fate of the coming generations.

However, Awan (2013) argues that poor people and poor countries depend on natural resources for survival. They depend on soil for food, the rivers for water and forests for fuel. The poor have very limited choice and without assets or income, they overuse natural resources in a bid to

survive. A good example is of Zimbabwean there is large scale degradation of land because of illegal mining. It should also be noted that the period 2000-2008 in Zimbabwe marked a significant history as it marked the height of Zimbabwe's socio-economic and political crisis. Mangena (2014) argues that the factors that lead to degradation range from people's self-seeking attitudes towards environment, the occasion of land reform and redistribution and the harsh economic hardships that led to the closure of most companies and high unemployment rate. The people of Zimbabwe ended up engaging in informal mining in order to earn a living. Mangena (2014) gives the example of Marange Diamond Fields in Manicaland and Mukaradzi in Mt Darwin, Mashonaland Central, where panners left a trail of destruction. There was massive digging of land and as a result, destruction of lives. Chimonyo et al. (2013) explains that the discovery of diamonds in Chiadzwa, Marange, worsened an already dire situation as diamond mining in Chiadzwa started as a free-for-all activity where miners and traders, middlemen and the security institutions co-existed.

2.4.3 Poverty and environmental degradation

The nexus between poverty and environmental degradation is an issue not to be ignored in the political ecology debate. In the literature of mainstream sustainable development, the natural environment is repeatedly portrayed as suffering degradation at the hands of the teeming multitude of poor (Adams, 2009). The poor communities are therefore portrayed as agents and victims of environmental degradation. Among the various factors that may increase the vulnerability of the environment to abuse, poverty is argued to be the major cause of environmental degradation. In the face of difficult economic conditions, natural resources bring substantial value to the household economy. Letsela et al. (2002) and Twine et al. (2003a) argue that these resources offer a financially inexpensive alternative to purchased goods. Natural

resources offer opportunities for poor rural households to generate income from raw and processed natural products (Shackleton, 1998). Campbell et al. (2001) also notes that many rural African households rely on a wide range of income-generating activities, some of which are socially and environmentally detrimental. This is mainly because resources such as forests are viewed as free and only require one's exploitative labour, and resultantly, they become the focal components of emerging livelihoods strategies.

Generally, communities ignore rules and regulations that govern natural resource use with regard to meeting household needs. The Brundtland Commission stipulated that 'poverty is a major cause and effect of global environmental problems' (WCED 1987). The poor are mostly dependent on natural resources for their livelihoods mainly because they lack the means to develop themselves. Farmers, for instance, are inclined to derive additional sources of income from exploitation of forest resources such as fruits for sale. The wild flora and fauna are further destroyed. This is a reflection that the drought-prone societies survive on the income generated from the use of the natural resource base. The livelihoods of the poor are directly dependent on their environment and it is difficult for drought-prone savannah communities to sustainably conserve the environment, largely because they have no other means to survive than exploiting their immediate environment for survival. In rural areas, poor populations often have no access to land tenure. Property rights to land in the form of land titles are costly so the poor are forced to settle on marginal lands for their survival and also to cultivate poor soils which could result in soil erosion (Ding, undated).

Poverty in drought-prone regions limits people's options and induces them to deplete resources. In sub-Saharan Africa, the heavy dependency on wood for fuel and building material accelerates forest and woodland destruction, which also accelerates soil erosion and eliminates wildlife. The destruction of the environmental resource base in turn threatens lifestyles of the poor and their livelihood systems. Globally, many parts of the world are caught in a vicious downwards spiral in the sense that poor people are forced to overuse environmental resources to survive from day to day. Overexploiting environmental resources makes survival of the poor populations ever more difficult and uncertain (WCED, 1987).

In as far as drought-prone areas are concerned, analysts suggest that there is a close link between drought, environmental degradation and methods of land management. The United Nations Convention to Combat Desertification (UNCCD) (2004) argues that land degradation is intricately linked to poverty and that addressing this problem requires the participation of the resource users and where possible providing them with alternative livelihood options. A good example is from Gambia which found that drought caused by poor and irregular rainfall increases stress on plants, inhibits growth and development, reduces yields and increases frequency of cultivation to compensate for declining harvests (Adams, 2009).

Duraiappa (1998) points out that poverty is a major cause of environmental degradation and policy makers should first address the poverty problem before addressing environmental issues. The poor have traditionally taken the brunt of the blame for causing society's environmental degradation. The Brundtland Commission report (1987) explicitly states that poverty is a major cause of environmental problems and amelioration of poverty is a necessary and central

condition of any effective program to deal with environmental concerns. According to Jalal (1993), the Asian Development Bank's chief of the environment department argues that, it is generally accepted that environmental degradation, rapid population growth, and stagnant production are closely linked with the fast spread of acute poverty in many countries in Asia. The World Bank (1992) also observes that poor families who have to meet short term needs, mine the natural capital by excessively cutting down trees for firewood and failing to replace soil nutrients. These studies suggest that the poor in any society in the world have no other alternative to survive except to 'benefit' from their ecological resources.

However, other schools of thought argue that the poor in developing countries tend to exploit environmental resources because the rich and the powerful in societies are either directly or indirectly forcing the poor to have no option except to exploit environmental resources as an alternative. Boyce (1994), and Kiara et al. (1997), for instance, argue that in many developing countries, exploitation by the rich has been known to force segments of the population into poverty. Greed can exacerbate poverty, which in turn causes environmental degradation. This is also consistent with the argument by Broad (1994) that the poor, because of their condition, are forced to degrade natural resources in order to survive.

In many rural areas, poverty is the bane of environmental protection because the majority of rural populations depend on the biomass for their livelihoods (Omoboye, 2011). This is because rural people rely on their immediate environment for food, health, fuel, building materials and others. Agrawal (1985) referred to the over-reliance on the environment by the poor as 'biomass- based subsistence economy'. This means that natural resources are all gathered freely from their

immediate environment and therefore production processes of agriculture, forest use and land use are the biggest sources of employment for the poor. The destruction of biomass, either by deforestation or land degradation, is also having a major impact on the lives of the rural poor. A study by Abang (1995) in Nigeria reveals that the poor lack the basics of life and the poverty gap increases thereby creating more environmental problems for the society but little is done for improvement to the environment. Resultantly, it retards the economic growth of the country. A study in the same country by Ogunsanya (1999) reveals that the quest for humans to satisfy their daily needs and to develop has led to the exploitation of all resources to their advantage because the poor rely on the natural environment for many activities to satisfy their basic needs. Their poverty leads to environmental degradation and when the same environment is degraded, the existence and the survival of humans become threatened.

The forces driving the poor to degrade the environment are the lack of alternative economic activities, ignorance and a land tenure system that is non-functional and not understood by the poor to value the present more than the future. Those in poverty view land and natural resources as the property of everyone, and it requires no particular investment from them. However, it should be understood that resources rarely cease to exist in real terms but they become 'degraded' in relation to the possible future functions they should perform. Sola (2001) cites poverty in Southern Africa as one of the root causes of environmental degradation which poses a threat to the Southern region. In the whole of Southern Africa, there are limited livelihood options and hence the population is increasing, thereby leading to increasing poverty and environmental degradation. Environmental degradation in the region includes deforestation, soil degradation, desertification, declining biodiversity and marine resources and water scarcity. The

Zimbabwean case of poverty has led the majority of rural people into gold panning, forest products harvesting, wild fruit gathering, and hardwood carvings for sale to tourists, softwood products and pottery using environmental resources (Sola, 2001). It is also argued that the poor are both victims and unwilling agents to environmental change and poverty is one of the main causes of forest and woodland degradation in Southern Africa. Poverty is both the cause and result of environmental degradation.

Omoboeye (2011) in his paper titled: 'Linkages between Poverty and Environment Degradation', points out that concern for the environment has much to do with the 'rich-poor divide' because there is a general belief that the poor people tamper more frequently with the fauna and flora of the environment. This is also supported by the contentions by Timberlake (1987), and Ardayfion (1986) that poverty often leads to unsustainable agriculture and food insecurity and deforestation through inefficient energy practices. However, it should also be noted that the rich are also even more destructive than the poor, given that they have the technology to exploit or destroy the environment. Murphree (1993) argues that in Zimbabwe, a culture of poverty exists in which the individual is pre-occupied with survival in the present and as a result, any effective concern for the future is missing. That culture of poverty is one in which the future is discounted at a very high rate and it is a recipe for accelerated degradation. In Zimbabwe, there is evidence that poor rural households use environmental resources quite extensively and rapidly degrade the environment (Cavendish, 1999).

A study carried out in Chivi District reveals that in 1998, soil erosion was high and deepening poverty led poor households to increasingly exploit common property resources to supplement their incomes (Bird and Shepherd, 2003). The overuse of common property resources increased

the scarcity of natural resources in the district and this impacted negatively on the very poor who could not afford to purchase alternatives from the market.

2.5 Summary

The literature reviewed in this chapter reflected that land deforestation and degradation are not only a result of natural occurrence but it is hastened by human activities and socio-political and economic forces. Studies in most parts of the world suggest that the poor are vulnerable and have limited livelihood options except to exploit natural resources. The direct causes of land deforestation and degradation are illegal mining, agriculture expansion by slash and burn farming, logging, firewood collectors and infrastructure development among others. The rural people are, however, presented not as active agents of environmental degradation but as victims driven by a number of factors to destroy the environment. The factors are the indirect causes of deforestation and land degradation. The sections of the chapter focused on these factors and these include power relations.

Researchers have incorporated the socio-political and economic factors in the environment debate. These are viewed as key factors in environmental resource access and use by local people. The relationship between the three variables and power relations may work either to promote or to resist the issue of sustainable natural resource conservation. This is a reflection of a politicised environment, where power relations play a major role in environmental resources use. Power relations refer to the relationship between actors in environmental issues. These actors are state, local community, non-governmental organisations and the environment that they condition. The issue of power relations goes hand in glove with factors that promote environmental degradation and these are population, economy, politics, environment and poverty

among others. Neo-Malthusian political ecologists argue that the pressure that human population puts on natural resources may lead to resource scarcity. According to this theory, population increase leads to shortages of natural resources such as land and hence people would need to expand agriculture and cut down trees for firewood and other needs. However other scholars refute that assumption and argue that population pressure does not necessarily lead to environmental degradation.

The issue of economic development has a role to play in environmental degradation. The factor is two sided, the first issue being the commercialisation of natural resources in the global economic system that leads to unsustainable use of natural resources. Ecologists blame the neo-liberal view of free market economy because it exposes the natural resources for sale. The scholars further argue that the nations' desire for economic growth will lead to exploitation of the natural resource base thereby resulting in environmental degradation. However neo-liberal economists are of the view that economic growth does not result in environmental degradation but rather give solutions to environmental problems. This viewpoint leads to another factor that is poverty, as a cause and effect of environmental degradation. Scholars argue that the poor destroy the environment in order to survive and its necessary to break the cycle of poverty to ensure sustainable management of resources.

The other section of the chapter discusses the legal framework in environmental management. The research on environmental laws in Zimbabwe reflects that the environmental policies and acts in Zimbabwe play a major role in conservation of environmental resources. The laws were devised to control and not to stop the society from using the environmental resources. However,

other studies reveal that there are legal obstacles that prevent the rural population from fully realising their rights and role in environmental management. The reviewed literature showed that environmental issues can be best addressed using a political ecology approach. In order to realise sustainable management of natural resources and promote rural development power relations, legal, social, economic and political factors that play a role in ecological issues needs to be addressed as well.

CHAPTER THREE: RESEARCH METHODOLOGY

3. Introduction

This chapter presents the research methodology used in this thesis. The methodology used is a qualitative approach in the form of interviews, transect walks and focus group discussions. The method has been chosen to determine the influence of different factors in land and forest use in the drought-prone Chivi District. The subsequent sections justify the methods used to conduct the study. The chapter also highlights the population to be used and the required sample which the researcher. The chapter discusses the relevant instruments for the study, data collection procedures, ethical considerations and the analysis plan.

3.1 The area of study

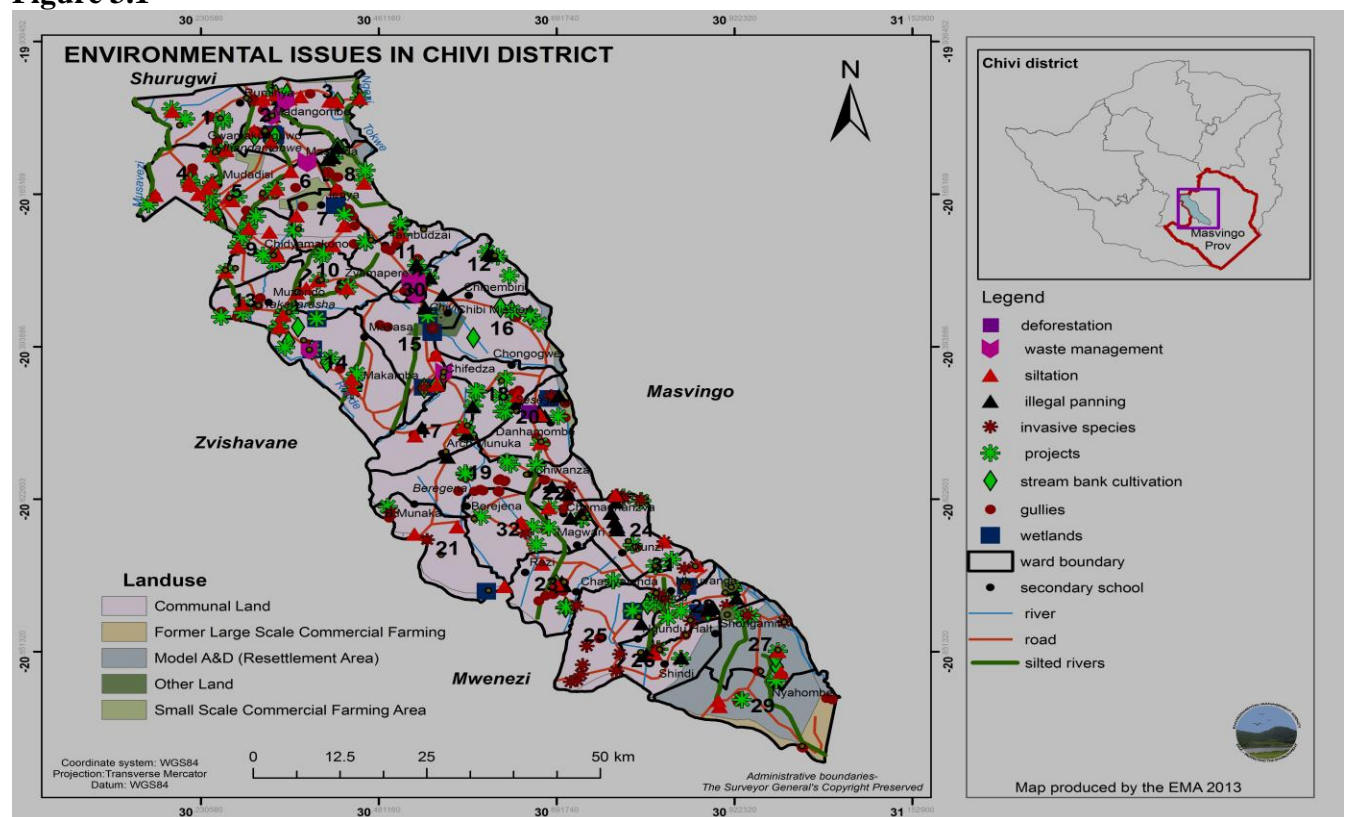
The location of the study is Chivi District, in the western part of Masvingo Province, Southern Zimbabwe. It has a total population of approximately 166 277 inhabitants comprising 36 382 households according to **CSO** (2012). The area covers a total of 3195km² and is a semi-arid which falls under Agro-ecological natural region IV and V and in the drought-prone region of the country.¹ Thirty- nine percent of the district falls under Agro-ecological natural region IV while sixty-one percent falls in Agro-ecological natural region V. Generally, the regions have low, unevenly distributed rainfall, on average, between 500 and 600mm per year. Its temperatures sometimes reach a scorching 38°C and drop to only 15°C in the coldest month.

¹In Zimbabwe Agro-ecological natural region IV, rainfall is subject to frequent seasonal droughts and severe dry spells during the rainy season and it's a semi-extensive region and Agro-ecological natural region V, there is extensive farming but the rainfall in this region is too low and erratic for the reliable production.

The environment is not uniform due to the influence of the landscape, particularly the mountains, which have a considerable climatic impact and have influenced settlement patterns in the district since time immemorial (Mazarire, 2003). Subsistence agriculture is the mainstay of the economy in the Chivi District. Agricultural production is, however, in turn, highly compromised because the district is vulnerable to climate change and the majority of the population is heavily dependent on agriculture and live under the poverty datum line. The district is divided into thirty-two administrative wards and each ward has an active Environment Monitor and an operational Environmental Sub-Committee. According to an unpublished report compiled by Environmental Management Agency (EMA) and Chivi Rural District Council, the district has a total of eight hundred and ten village heads.

3.1.1 State of the Environment in Chivi District

Figure 3.1



3.1.1.1 Land use in Chivi

The major river systems in the Chivi District are Tugwi and Runde but they only become perennial after a good rainy season due to high levels of siltation. Agriculture, on which the majority of people rely, is mainly at a subsistence level. According to an unpublished report from Environmental Management Agency (EMA) at Chivi District Office in Zimbabwe, the major subsistence land use types in most wards include livestock grazing and rain fed arable farming of subsistence crops with a limited market orientation. The livestock kept are mainly cattle, donkeys, goats, sheep, rabbits and poultry. The study carried out by EMA shows that less than 57% of farmers own livestock. While people are interested in re-stocking programmes, there is limited pasture and water to sustain the livestock. Rain fed subsistence cropping of maize, sorghum and groundnuts, and limited cash cropping of cotton and sunflower is one of the land use types. In good years surplus from maize and sorghum can be sold to the Grain Marketing Board (GMB) to raise extra household income.

3.1.1.2 Forest use in Chivi

In Chivi District, much of the indigenous vegetation has been cleared for agriculture. The hills and non-arable areas are the only undisturbed areas. Vegetation is predominantly Savannah woodland and grass. There are also trees which are classified as endangered species.

According to an unpublished report from Environmental Management Agency (EMA) at Chivi District Office in Zimbabwe, the district has two forest reserves that are located in the communal areas but are being threatened by invasions as the surrounding communities' fields are encroaching into the forests. It is further explained that the larger one is at least 784ha and it is in an area which follows Nyuni Range Hills and there is also a strip of about 400m on either side of

the crest of the hills which covers the main area containing the rare *Bilvinia jalberting* species of indigenous trees. The other reserve is made up of 137m wide strip of land on either side of the Masvingo-Beitbridge road.

3.1.2 Rationale for the study area

This study chooses to focus on the rural development of a drought-prone area because rural areas are vulnerable and marginalised. In addition, competition against environmental resources threatens both the people's way of life and their right to basic subsistence. Chivi is an area already over stretched in terms of natural resources, especially land and forest resources which are continuously depleting as a result of indiscriminate exploitation by local communities. Rural Chivi is a dry area with no capacity to recover or improve in terms of forest and land in a short space of time. For recovery to occur, the area needs decades of developing forest and land resources. It is a fact that in Zimbabwe, rural areas rely on natural resources for their livelihoods, hence sustainable use and exploitation of these is imperative. Therefore, studies with specific focus on drought-prone areas such as Chivi District are necessary. The other reason that made the researcher to choose the study site is that Chivi District is a low rainfall area which is frequently subject to seasonal droughts and thus the high incidence of droughts means that the environmental resources in the area are at risk. Bush (2010) observed that a few better off households often have family members with a more permanent job in the skilled 'formal' sector and remit wage earnings home. The wealth of the area depends on employment and remittance opportunities.

The Chivi District experiences marginal environmental conditions characterised by low and erratic rainfall, frequent droughts and generally poor soils and these are generally constraining

many forms of agriculture (Anderson et al., 1993). Mandondo (2001) confirms that subsistence farming forms the predominant livelihood activity throughout much of the District, but it is often augmented by marketing of surplus, production of cash crops and selling of woodcrafts. In light of this, the key to food security in the District is the capacity of households to earn enough cash to purchase food and to rely on their immediate environment. Bush (2010) explains that opportunities for employment are varied and they include local seasonal labour as well as temporal or permanent migration to Mwenezana Estates, the Murowa Diamond Mines or towns within Zimbabwe and South Africa. The district has widespread poverty that compels the residents to exploit environmental resources. One example is from Thonje and Ncube (2014) who say the residents are driven by poverty to engage in illegal gold panning along Runde and Tokwe Rivers as sources of income. ZWP (2009) also says the poor Chivi households also sell a local wine extracted naturally from trees such as amarula and palm trees.

The study by Gandure and Drimmie (2007) identifies problems in Chivi that include hunger, limited employment opportunities, climate variability, limited access to safe drinking water and increasing macro-economic conditions. The scholars argue that droughts in the Chivi District occur in three out of every five years and resultantly, there is high pressure on land. Assessment of the Chivi District by Gandure and Drimmie (2007) reveals that nutritional gardens are also a major part of livelihoods in Chivi District because they play a major role in improving food security as well as generating cash incomes for the poor.

3.2 Research Approach

A qualitative approach was adopted for this study. Qualitative research allowed for the study of everyday life for different groups of people and communities in their natural setting. Qualitative

research also uses any methods that rely upon primary source information, where very often the “data” is not numerical (Yates, 2004). The approach is subjective and holistic and therefore it gave the researcher flexibility to adjust and re-adjust in response to the data collected. The researcher also managed to analyse data during the process of collection. It involves an interpretive, naturalistic approach to its subject matter and attempts to make sense of, or interpret a phenomenon in terms of meaning people bring to them (Denzin and Lincoln, 2011). Qualitative research skills included the identification and exploration of mutually related variables that give insight to human behaviour in the nature and causes of certain problems. ‘Why’, ‘what’ and ‘how’ are the significant questions and in this study data was gathered using open ended questions. Qualitative research seeks to answer a set of predefined questions, collected evidence and findings that are applicable beyond the immediate boundaries of the study.

The qualitative research method is a unique approach that combines written text and takes peculiar steps in data analysis and presents data following a thematic approach. Boyce and Neale (2006) argue that one-on-one interviews with a small sample of participants allow an in-depth understanding of the views of the subject under study. In this study one-on-one interviews were conducted with selected key informants.

3.3 Research Design

This study makes use of a case study approach. The nature of the research inquiry (exploratory, descriptive or explanatory), determines one’s decision about whether to use a cross-sectional, a longitudinal, an experimental design or a case study, or a combination of these. This study is descriptive and exploratory and therefore the researcher adopted a case study.

A case study is an analysis of events, decisions, projects, policies, institutions or other systems that are studied holistically by one or more methods. Robson (2002) defines a case study as a strategy for defining research which involves empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence. The rationale for using a case study is that the phenomenon is studied in its natural setting, the researcher can ask "how" and "why" questions, so as to understand the nature and complexity of the processes taking place.

Benbasat et al. (1987) define a case study as an examination of a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a few entities (people, groups or organisations). A case study design also involves a deeper analysis of a phenomenon. In this case the phenomenon is the relationship between politics, humans and the environment in the Chivi District, Southern Zimbabwe and its implications on rural development with the aim of having in depth insight of this problem. This phenomenological research design allows the researcher to gain access to the lives of the Chivi community people and this is what Moustakas (2009) refers to as the communities' worlds of experience. The main concern for the current research is the lived experiences of the drought prone Chivi District in environmental resource use and access by the people. This research design is interactive because it allows adjustment of data collected and research questions according to what one learns from the field. This method allows the researcher to gain an understanding of the social phenomenon from the participants' perspectives in their natural setting (Conrad and Serlin, 2012). Thus, the researcher goes into the natural setting of the drought-prone Chivi District to probe how the people's use of

forest and land resources impacts on the rural development of the area using a political ecology approach.

A case study design is also ideal for the study because it unpacks how external influences affect the use of local environment in sustaining livelihoods by the Chivi District populations. The method is flexible because it allows for systematic data collection by penetrating into the realities of the situation. A case study also helped to gather deep information and perceptions through inductive, qualitative methods, that is, interviews, focus group discussion and transect walks and representing the information from the perspective of the research participants, in this case being, government departments dealing with environment issues, traditional leaders and the rural community (Groenewald, 2004).

3.4 Study Population

The primary study population consists of the residents of Chivi District, Southern Zimbabwe. The target population comprised of officers and individuals who are involved in environmental management, traditional leaders, farmers, traditional artifact sellers and other community members. Data was gathered from fifty (50) participants and the sample from each group was selected as presented in Table 3.1 below.

Table 3.1: Sample Characteristics

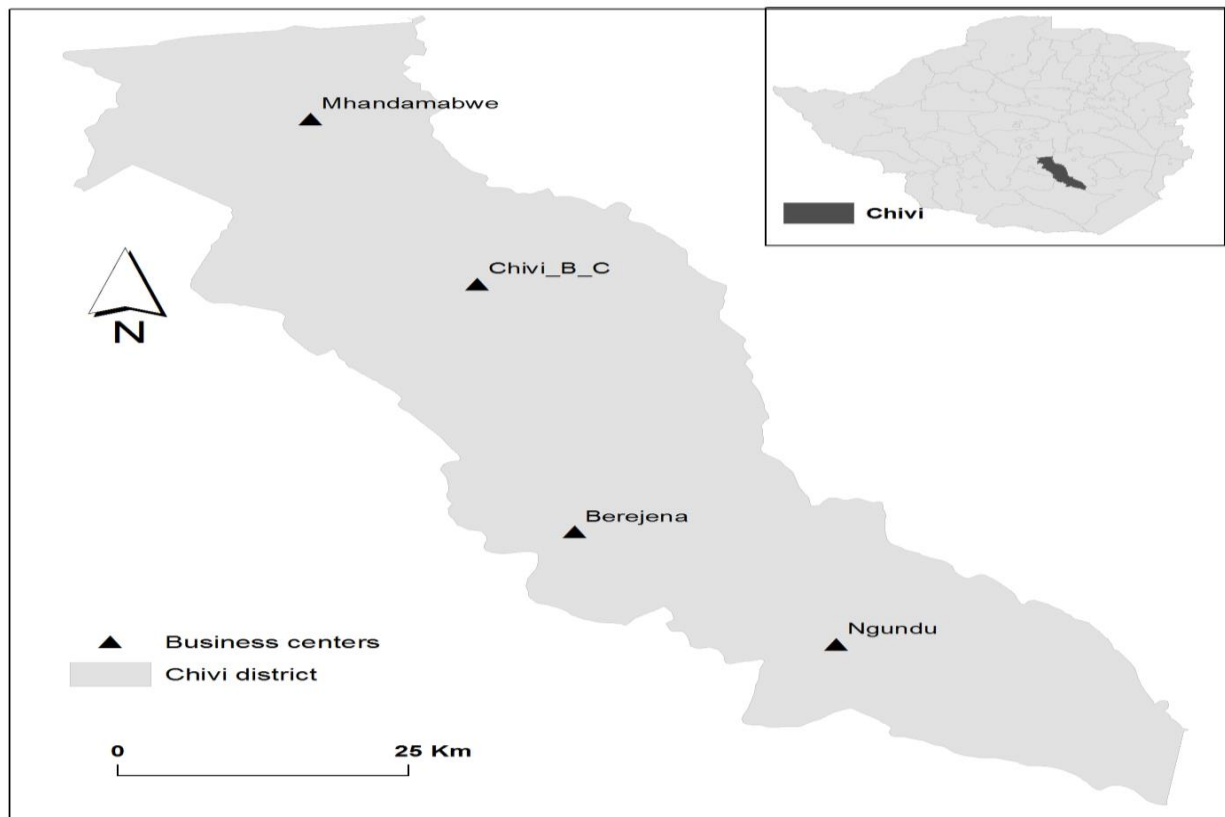
Organisation	Female	Male	Total
Environmental Management Agency Officers	1	1	2
Environmental Management Subcommittee Chairpersons	1	2	3
District Administration	0	1	1
Chivi Rural District Council	0	1	1
Environmental Monitors	0	7	7
Ministry of Agriculture Officers	0	2	2
Agritex Extension Officers	1	2	3
Conservationist	0	2	2

SAFIRE	0	1	1
Chiefs	0	3	3
Headman	0	1	4
Farmers	2	3	5
Traditional artifact sellers	2	2	2
Forestry Commission Officers	2	0	2
Other community Members	8	4	12
Marula Nut Co-operative	1	0	1
Total	18	32	50

Chivi District Map

The location of the district in Zimbabwe is shown in the insert below.

Figure 3.2 Chivi District and its main centres.



Source: Map drawn by Godfrey Mutowo (2017)

3.5 Sampling procedure

Cooper and Schindler (2003) describe sampling as the procedure by which some elements of a given population are selected as representative of the entire population. Selecting the way of collecting data and from whom the data will be obtained should be done with good judgment.

Bless and Higson-Smith (2010) define a sample as a subset of the whole population that is to be studied by the researcher. The researcher selected a manageable size of participants mainly because the sample size should not be too large, so that rich data can be extracted from the research subjects. The research sample should also not be too small because it will be difficult to achieve data saturation. Charmaz (2006) suggests that twenty-five participants are adequate for small projects and Ritchie et al. (2003) postulate that qualitative samples often lie under fifty. It is because of this background that this study considered selecting a sample of fifty informants. These people were carefully chosen and clearly defined in order to have proper parameters for ensuring directness of the population itself.

3.5.1 Purposive sampling

Purposive sampling was adopted in this study to ensure that key informants were reached. The key informants in this study were Environmental Officers, Rural District Council (Environmental Management Office), Forestry Commission Officers, Local Governance Office, Agricultural officers, Southern Alliance for Indigenous Resources (SAFIRE), Cooperative for Assistance and Relief Everywhere (CARE) International, chiefs, headman, environmental monitors, farmers and traditional artifact sellers. These members were identified as key on the basis of the knowledge connection in environmental resources access and use by the Chivi District community. This was done in line with Patton's (2002) definition of purposive sampling as a non-random method of sampling where the researcher selects 'information-rich' cases for study in depth. Bernard (2012) and Lewis and Sheppard (2006) also describe the purposive sampling technique as a type of non-probability sampling that is most effective when one needs to study a certain cultural domain with knowledgeable experts. The method was adopted to ensure that the key individuals

involved in environmental resource management and rural development in the Chivi District were not excluded.

Etikan et al. (2016) argue that purposive sampling is the deliberate choice of a participant due to the qualities the participant possesses. The researcher is the one who decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of their knowledge or experience (Bernard, 2002). The researcher considered the research questions and identified the people in the Chivi District who co-manage the land and forest resources as well as the users of the same resources. Creswell and Clark (2011) argue that in purposive sampling there is identification and selection of individuals that are proficient and well-informed about a phenomenon of interest, in this case the researcher identified individuals and departments which are key in the conservation of ecological resources in the Chivi District as well as those who are the users of the natural resources. The main objective of adopting purposive sampling for this study was, therefore, to focus on those who would be able to assist with the relevant information on resource use and extraction in the District.

In this regard, choosing a purposive sample was fundamental to the quality of the data gathered in this study, thus the reliability and competence of the informants were ensured, since the informants were selected on the basis of defined qualities. The method enabled the researcher to identify participants who are influential, important and worth to contact. Tashakkori and Teddlie (2003a) point out that purposive sampling technique involves selecting certain units or cases ‘based on a certain purpose rather than randomly’. The following participants were chosen, for the special reasons.

3.5.1.1 The Ministry of Local Governance

The Ministry was selected mainly because it co-ordinates all government departments and also approves the request to gain access to the traditional leaders and the community in the Chivi District.

3.5.1.2 Chivi Rural District Council

The Chivi District Council was selected because Rural District Councils in Zimbabwe are key in environmental issues because they are legally empowered to protect the environment and to form Environmental Management Committees at District level which are made up of councillors and non-councillors from the community. The Environmental monitors, known as non-councillors, who are part of the Rural District Council Environmental Management Committee were key targets in the study in that they monitor the environment in the whole District and report to the Chivi Rural District Council. They are also watchdogs of the environment through monitoring villagers who abuse land and forest resources. All the departments, individuals and organisations selected complement the Chivi Rural District Council efforts in managing environmental resources in the District.

3.5.1.3 The Environment Management Agency (EMA)

The Environmental Officers are key informants since they are also legally empowered to regulate and control access to, and use of, natural resources. Environment Management Subcommittee Chairpersons are part of Environment Management Agency because they chair Environment Management Subcommittees in their respective wards. Chivi District has thirty-two

wards and thirty-two Environment Management subcommittees. The subcommittee chairpersons report success stories and complaints about environmental management to EMA.

3.5.1.4 The Ministry of Agriculture, Mechanisation and Irrigation Development

The Agricultural officers who have the mandate to teach the community on how to use environmental resources as land sustainably were purposively selected as key informants in this study.

3.5.1.5 Forestry Commission

Forestry Commission officials are also key participants who were interviewed because they have the mandate to teach the community on how to use forest resources sustainably.

3.5.1.6 Non-governmental Organisations

Non-governmental organisations were also purposively sampled because they spearhead environmental projects in the Chivi District. These are CARE International Zimbabwe and SAFIRE. CARE International Zimbabwe spearheads gully reclamation project in the Chivi District. SAFIRE is a Zimbabwean development agency dedicated to the development of rural self-sufficiency through improved management of natural resources and it spearheads Environmental Monitoring and Protection of Runde Catchment Area in the Chivi District.

3.5.1.7 Traditional leadership

The researcher targeted traditional leaders such as Chiefs and headmen since they are custodians of the environment. The traditional leaders were interviewed because traditional leadership is

traditionally understood as the custodian of culture and a traditional representation of communities in Zimbabwe.

3.5.1.8 Marula Nut Co-operatives

Marula Nut Co-operative is an indigenous co-operative operated by Chivi rural women who are engaged in producing products such as jam and cooking oil from their own forest fruit called amarula. The co-operative members are target participants because they use forest resources in their business.

3.5.1.9 Farmers and traditional artifact sellers

The rest of the community members who mostly rely on the natural resources for a livelihood were purposively sampled. These are farmers and traditional artifact sellers. These people are the users and abusers of the environment. Farmers were chosen because they are the users of the land. Traditional artifact sellers also represent forest resource users, because this group uses trees and soapstone to craft traditional artifacts which they sell to tourists along the Harare-South Africa highway. The researcher ensured that among the farmers and traditional artifact sellers, women were the main targets because the key informants who were previously interviewed were dominated by men. Women are key in that they are in most cases viewed as the abusers of environment, they are the ones who access natural resources in order to feed their families in rural Chivi District.

Regardless of the advantages of purposive sampling, the risk with the purposive sampling method is that the researcher exercises his or her judgment on the informants' reliability and competency.

3.5.2 Convenient sampling

Convenient sampling was adopted to reach the rest of the community which relies on environmental resources and they are also stakeholders in the community. Convenient sampling involves drawing samples that are both easily accessible and willing to participate in a study (Teddlie and Fen Yu, 2007). These participants were conveniently selected during gatherings at different community points. The researcher selected them during their environmental community club meetings and managed to address them. Ecological data are often taken using convenient sampling, and in this case data was collected along roads and trails. However, it was not representative of the whole population. That is why the researcher decided to use this method for only a small group of at most twelve people. Though it is affordable, easy and the research subjects always readily available, it is vulnerable to hidden biases (Leiner, 2014).

3.6 Data Collection Methods

Different types of data collection instruments can be used in data gathering depending on the nature of the study and the design adopted. In this study, data were gathered from the field through in-depth interviews, focus group discussions, transect walks, and Zimbabwe government policies and acts and other official documents. Secondary sources were also used, especially in the literature review and data analysis. O'Leary (2004) remarks that collecting credible data is a tough task and it is worth remembering that one method of data collection is not inherently better

than another. The researcher, therefore, opted to use more than one method as a way of triangulating data and addressing the problem.

3.6.1 Interviews

The researcher gathered data through interviews, using a set of pre-planned core or semi-structured questions. Kvale (1996) regards interviews as an interchange of views between two or more people on a topic of mutual interest, sees the centrality of human interaction for knowledge production, and emphasises the social situation of research data. The researcher used semi-structured interviews. The method was flexible enough to allow the changing of the order of the questions depending on how the interview was taking place and that allowed for additional questions to the original interview guide. Corbetta (2003) explains that in semi-structured interviews, the order in which the various topics are dealt with and the wording of the questions are left to the researcher's discretion and one is free to conduct the conversation as she thinks fit, to ask the questions she deems appropriate in the words she considers best, to give explanation and ask for clarification if the answer is not clear. It was, thus, easy to change the direction of the questions when the interviewees become uneasy.

The researcher attempted to cover all the questions outlined, explored participants' responses and probed for views and opinions for clarification and additional information. Probing is a way for exploring new paths which were not initially considered (Gray, 2004). The scholar further states that during interviews one has the chance to attain highly personalised data. The researcher did not adhere to the detailed interview guide. However, it should be noted that having key themes and sub-questions in advance lies in giving the researcher a sense of order from which to draw

questions from unplanned encounters (David and Sutton 2004). Patton (2002) recommends exploring, probing, and asking questions that will elucidate and illuminate that particular subject and building a conversation within a particular subject area, wording questions spontaneously, and establishing a conversational style but with the focus on a particular subject that has been predetermined.

Interviews are also ideal for people who are limited in their ability to read and write. Gray (2004) argues that interviews are best for participants who are not fluent in the native language of the country, or where they have difficulties with written language. Generally, participants were more willing to answer questions verbally than write down something that can be used against them. It was very proper especially to other community members and other traditional leaders who could not write but were able to accurately answer verbal questions. According to Finn and Jacobson (2008), interviews allow participants to describe what is important to them and are useful for gathering quotes and stories. The researcher has chosen interviews as the main research tool for this study but she is aware that it has its own disadvantages. A disadvantage of interviews is that they are susceptible to interview bias and are time consuming and very expensive compared to other data collecting methods (Russ-Eft and Preskill, 2001 and Jacobson et al., 2009). In some cases, interviewees were unwilling or uncomfortable to share all the information that the researcher hoped to explore but that did not stop the progress of the study.

A total number of 38 interviews were conducted. The Ministry of Local Governance was the first office to be interviewed with the aim of identifying his role in environmental issues since he is the overall coordinator of all the projects in the District. It was important to know how he relates

with ministries, departments, traditional leadership and the Chivi community on issues relating to environmental resource usage as well as understanding his position on resource use by the community. Interviews were also conducted with traditional leaders, three chiefs, namely, Chief Shindi, Chief Chivi and Chief Nemaazhe. The traditional leaders were interviewed because traditional leadership represents the Chivi District community. Their role in local resource conservation, their views on how community members exploit resources among others, was asked during interviews. The interviews were also extended to Headman A, the headman was chosen among the fifteen headmen in the District, specifically for the reason that there is a project in his area where community members are engaged in forest harvesting for crafting wooden traditional artifacts. The headman was also ideal for the research because in his area there is a great deal of illegal mining.

Interviews were also conducted with relevant ministries and departments. These are Environmental Management Agency, Forestry Commission and Ministry of Agritex, Mechanisation and Irrigation Development. The Environmental Officer A was interviewed on what was happening in general to the rural communities concerning environmental issues and the Environmental Officer B was interviewed to find out their experiences in the Chivi District. EMA officials were very relevant and are important in meeting the key objective of environmental policies and acts and they deal with all issues to do with natural resources management. EMA is also a law enforcement agent and supervises the use and access to both land and forest resources in the whole District. Three Environmental Management Sub-Committee Chairpersons who are also the link between EMA and the Chivi rural communities

and EMA representatives in the communities were interviewed. The subcommittees Chairpersons meet the communities and teach the people on how to conserve natural resources.

In the Ministry of Agritex, Mechanisation and Irrigation Development, interviews were done with the Agricultural Officers A; the focus was on the conservation of land in the rural communities and its link to improving the livelihood of the community. Agricultural Officer B was interviewed and explained land use experiences and the state of land use in the Chivi District. The Agricultural Officer B, helped in identifying other relevant participants in the department, such as conservationists and supervisors of agricultural extension workers. The interviews were done with two conservationists in the District as well as with three agricultural extension officers who work as supervisors in the Chivi District. The supervisors were carefully chosen from the areas under the jurisdiction of three chiefs. In that regard, interviews targeting land use in the District were held since the three cover the whole District. In the area of conservation of land, interviews were extended to two conservationists from the Ministry of Agritex, Mechanisation and Irrigation Development who work in the Chivi District. The two are agricultural extension workers who have specialised in conservation strategies, specifically on land use.

An ecologist from SAFIRE was interviewed on the role the organisation plays in environmental conservation in the Chivi rural community and the purpose was to find out if the project they implemented has yielded expected results and to find its link to rural development. At Chivi Rural District Council, interviews were held with the Rural District Council Environmental Management Committee Chairperson, who is mandated by an act of Parliament of Zimbabwe to

chair all the environmental meetings at Council level in Chivi District. The participant is the one who receives feedback on the environment from environmental monitors who are community representatives. The RDC is the land authority and looks at the management of environmental resources in the District through the use of seven Environmental monitors known as non-councilors or land monitors ('majengetavhu'). These seven were engaged in one-on-one interviews. These people are part of the RDC Environmental Management Committee and work closely with the Rural District Council and provide a link between the RDC and the rural communities on issues relating to natural resource use. Their main duty is to maintain resources by monitoring how the rural society uses resources.

A total of five farmers who are the users of land were interviewed. One of them was from Zimbabwe Farmers Union Office, mainly because the office is aware of all the needs of the farmers in the District as well as how they use the land. On traditional artifacts, four people were interviewed. They use trees and soapstone for their traditional artifacts. At a local project in Chivi District, the officer from Marula Nut Co-operative was interviewed to explain how the members benefit from their forest resource (the marula fruit). There was also need to find out if the harvesting is done sustainably.

Whilst the interviews are applauded, Creswell (2008) argues that interviews generate large number of interview notes, tape recordings, jottings and other records which have to be analysed. However, where the data was disorganized, unstructured notes, personal texts and interview scripts were read to identify key themes and issues.

3.6.2 Focus group discussions

According to Wilkinson (2004), a focus group, is a research method involving more than one participant per data collection session. Focus groups are also ‘collective conversations’, which can be small or large (Kamberelis and Dimitriadis, 2008). Scholars generally argue that focus group interviews involve a group of six to eight people who come from similar social and cultural backgrounds or who have similar experiences or concerns.

The researcher engaged twelve community members who were divided into two groups. The researcher engaged these people during community gatherings at the time when the community members were having a meeting with EMA, discussing environmental issues. The researcher engaged the Environmental Officer B and liaised with her to find an opportunity to do interviews with a group of six people. The two groups met at different places and meetings to ensure that the interview involved people from the different geographical areas. The participants were more comfortable to engage in environmental debate soon after being addressed by the Environmental Officer B whom they work with every day on issues about the sustainable use of natural resources.

The primary aim of a focus group was to describe and understand meanings and interpretations of a select group of people, to gain an understanding of a specific issue from the perspective of the participants of the group (Liamputtong, 2009). Thus, the main purpose of focus group discussion in this study was to understand how the people use land and forest resources in their areas as well as how they interpret the environmental laws and policies. The method was important in permitting the participants to develop their own questions and frameworks, as well

as to seek their own needs and concerns in their own words and on their own terms. Hennink (2007) also argues that focus groups encourage a range of responses which provide a greater understanding of the attitudes, behavior, opinions or perceptions of participants on the research issues. This method also permitted the researcher to uncover aspects of understanding that often remain hidden in the more conventional in-depth interviewing method. The main advantage of this method was that the researcher gathered data at low cost and in a short time. To Kroll (2007), focus group discussions are a method which can generate results quickly. Just like semi-structured interviews, the method was flexible because the researcher elicited for more data from the prevailing themes or topic.

Conradson (2005) argues that focus groups offer possibilities for researchers to explore the gap between what people say and what they do. People easily argued during in-depth one on one interviews that they sustainably use the natural resources whilst in actual fact they misuse environmental resources. Focus group discussion was a useful approach for exploring the disparity because the researcher was more free to discuss the use and abuse of natural resources than in an in-depth interview where the main discussion occurs primarily between researcher and the participant. In a focus group setting, where the interactions occur between the participants themselves rather than with the researcher, the participants were more open about the reason why they abuse environmental resources and acknowledged that they understand the role of the land and forest resources in rural livelihoods.

A set of guidelines or ground rules were agreed upon by the researcher and participants before the focus group discussion commenced. Some of the guidelines were that only one participant

was allowed to talk at a time, confidentiality was assured, and what was shared in the group should not be disclosed to members who were not part of the group. Benard (2012) argues that it is vital for the researcher to hear all sides of an issue, both the positive and the negative. In that regard, every participant was free to share his or her ideas or opinion without being belittled, meaning that there were no wrong or right answers.

The sessions lasted one to two hours and disagreements within the groups were used to encourage the participants to elucidate their points of view, and to clarify their thoughts. The focus group discussions provoked much discussion, which helped the researcher to obtain valid information on how and why the Chivi community overexploit forest and land resources. The focus group discussions were tape recorded and the researcher also took notes. During the discussions the researcher monitored the tape recording equipment, and also kept track of the time. The focus group discussions allowed the researcher to gather ideas and perceptions of a number of people at the same time. During the focus group discussions, the researcher managed to resolve tensions, especially in cases where other participants where other participants were more vocal and prevented contributions from other participants. These participants were limiting the usefulness of focus group discussions. The researcher ensured that every participant had an opportunity to give their views. If any of the participants tried to dominate the conversation, the researcher intervened so that she would be able to get a variety of perspectives from all the participants.

The researcher probed participants to stimulate discussion and to ensure continuous attention and interest during the discussion. Probing and clarifying questions helped the researcher in that the

participants give more detailed information rather than giving one word or one sentence answers to the asked questions and they managed to elaborate their views clearly. Probing was helpful because when the researcher wanted to make a follow-up on any issue, she noted the issue down and then asked about the issue after the participant had expressed his or her thoughts. This interruption influenced how participants answered the questions.

3.6.3 Transect walks

Data was also gathered through community transect walks, a participatory method where the researcher had a series of walks through the area with local informants to learn of the range of different condition. A transect walk is a tool for describing and showing the location and distribution of resources, features, landscape, main land uses along a given transect (World Bank, 2013). The method was implemented as a follow-up of the interviews. This method was used because it acknowledges the villagers or community members as the experts on the living conditions and natural resources of the Chivi area. As the researcher and participants walked through the village, they observed the natural environment and then located and pinpointed the various physical aspects of the village land and forest. The walks provided an understanding and an opportunity for discussion of issues such as deforestation, soil erosion, soil slopes and gullies. The researcher, environmental monitors and a few members from the community environmental committees walked through the route with varied environmental and topographical features and discussed what they saw. The main focus of the walk was to determine whether the environmental resources are scarce or abundant, how these resources changed through different geographical areas, which resources had the most problems and how the local communities obtained the natural resources. The researcher observed the environment and asked for reasons and activities behind the degradation and deforestation in the area, for instance why certain rivers

were silted, why there were a number open pits, why there were few trees and soil erosion among others. The researcher then listened to participants and tried to discover problems and opportunities related to what had been observed and discussed. The information gathered from the participants relating to different issues observed was categorised into themes and analysed together with findings from interviews and focus group discussion.

3.7 Data collection process

Data collection procedures reveal the role played by the researcher during data collection. Marimba and Moyo (1995) assert that the data collection plan encompasses the sequential steps taken in collection of data. The basis of carrying out a qualitative research is setting up and carrying out of fieldwork. It involves choosing style of involving the participants, gaining access to the field as well as collecting the data. To gain entry into the Chivi District, permission was sought through gatekeepers' letters to head of various departments, the Ministry of Local Governance and traditional leadership. Before the interviews, appointments were made with key informants. The researcher personally carried out the interviews and during the interviews the researcher recorded responses on a voice recorder and written notes. Some questions emerged during the interviews as follow up questions to interview responses.

The researcher sought permission from the Ministry of Local Governance to interview chiefs. The office granted the researcher permission to carry out the study in the District. It assisted in getting permission from the chiefs and headman. The chiefs gave the researcher permission to interview people in their respective areas. These people included a group of twelve people who were engaged in focus group discussions and transect walks. Headman A also gave the researcher permission to interview traditional artifact sellers.

In engaging EMA, approval was sought from the Provincial Environmental Management Agency office that approved the researcher's request to interview EMA personnel. Then interviews were held with two Environmental Management Officers. At Chivi District Environmental Management Agency office, permission was sought to interview the Environmental Management Sub-Committee Chairpersons who worked under EMA.

In the Ministry of Agriculture, Mechanisation and Irrigation Development, permission was sought from Provincial Agricultural Office and the District Agricultural Office. The Chivi District Agricultural Office then gave the researcher permission to engage supervisors of Agriculture Extension officers and conservationists in the District.

Permission was also sought from Chivi Rural District Council to interview Chivi RDC Environmental Management Committee Office. It was through the Chairperson that the researcher was linked to seven Environmental monitors known as non-councillors or land monitors ('majengetavhu') who report to the Chivi RDC Environmental Management Committee. To interview SAFIRE and CARE International personnel, permission was sought from Project Manager SAFIRE and the Country Director of CARE International Zimbabwe.

The Zimbabwe Farmers Union Officer was also interviewed and he was requested to permit the researcher to interview other farmers in the District. At Marula Nut Cooperative permission was sought from the District, Chairperson of Marula Nut Co-operative to interview the officer who was the key person in the project.

The researcher also consulted environmental management acts and policies from EMA and from the Chivi RDC, the Chivi RDC produced the RDC Act, model by-laws as well the traditional leaders Act.

However, to interview Programme Co-ordinator CARE International, the researcher failed to get permission from the Masvingo Provincial Co-ordinator because of the organisation's regulations. The researcher was then referred to the Country Director for approval but the request was not approved due to the organisation's commitments. However, the researcher obtained some of the information on gully reclamation project initiated by CARE International from the community.

3.8 Validity, reliability and rigour

In this study an attempt was made to enhance reliability and validity. Validity and reliability are issues that any qualitative researcher should be concerned about when designing a study, analysing data as well as judging the quality of the study. The essence of research is the collection of facts or bits of information in order to prove or debunk theories. The collected information should be accurate, relevant and relate to the topic, for it to be considered valid or reliable. Validity and reliability in this study hinge on its truth value, its transferability and the consistency of the study.

3.8.1 Validity

In order for one to understand the challenges to validity in qualitative research, one must have a solid understanding of the term 'validity'. Validity refers to the trustworthiness of the inferences drawn from the data collected. Validity indicates whether the item measures or gives a description of what it is supposed to measure (Bell, 2012). It is the correctness or credibility of a description, conclusion, explanation, interpretation or other sort of account (Creswell, 2010).

In this study the researcher employed different strategies to counteract validity threats. Data that was gathered from the community and different departments through focus groups, interviews and transect walks were cross-checked and verified, using different sources of information. The interviews were audio-taped and the researcher made copious notes. This helped to eliminate the problem of inexactitude or the incompleteness of the data. According to Maxwell (2006) incompleteness or inaccuracy of the data is the main threat to a valid description of what the researcher saw or heard. This is also critical in that any other researcher evaluating this study could access the evidence to authenticate the accuracy of the accounts given. The participants' verbatim accounts were recorded. Validating the content of the interviews and focus group discussions was necessary to check whether each question was meant to answer the research questions.

The validity and rigour of this study was determined by prolonged engagement with the community in order to gain an adequate understanding of the community and to establish a relationship of trust between the researcher and the community. This was also done to enhance the credibility of the research. The prolonged engagement in the field, detailed field notes, high-quality audio-recordings, and the use of multiple data sources also improved the credibility and trustworthiness of the study. Lincoln and Guba (1985) argue that ensuring credibility is one of the most important factors in establishing trustworthiness in research. To ensure credibility, the researcher also developed an early familiarisation with the culture of departments involved in the research before data collection. The researcher made preliminary visits to the Environmental

Management Agency, Ministry of Agriculture and Forestry Commission. There was also a review of environmental acts and policies and other appropriate documents.

The researcher also triangulated methodological instruments to enhance credibility. Triangulation refers to the use of two or more data sources, methods, research findings, theoretical perspectives and approaches to analyse or study a single phenomenon. Patton (2012) advocates the use of triangulation by stating that it strengthens a study by combining different methods. Creswell and Miller (2001) define triangulation as a validity procedure where researchers search for convergence among multiple and different sources of information to form themes or categories in a study. The major goal was to circumvent the personal biases of the researcher and overcome deficiencies. Methodological triangulation was done through using interviews, focus group discussions, transect walks, policy documents and secondary sources to gather data from the field. According to Guba (1981) and Brewer and Hunter (1989), the use of different methods in concert compensates for their individual limitations and exploits their respective benefits. Engaging multiple methods also led to more valid, reliable and diverse construction of realities.

The purpose of data triangulation was also to obtain confirmation of findings through convergence of different perspectives. The researcher engaged community members in focus group discussions to ascertain the views gathered from different departments that co-manage land and forest resources in the Chivi District. In focus group discussions, the community members pointed out the experiences they had with the departments. In line with this, Alexander (2001) argues that perspectives convergence is seen to represent reality. In this study, to unearth

and verify the data gathered through interviews and focus group discussions, the researcher did transect walks as a way of viewing the environmentally affected areas which were being described and referred to by participants.

There was an also respondent validation or member check, where the researcher allowed the key informants to read through the data collected from the field, to verify the data and for comment. Some participants provided feedback on the analysis done. The process allowed the participants to challenge the researcher's assumptions. This also gave the researcher the chance to re-analyse the data. The researcher also tried to remove bias by being conscious of her personal attitudes, opinions, experiences and expectations (Cohen et al., 2011).

3.8.2 Reliability

Reliability in qualitative research can be defined as the trustworthiness of the procedures and data generated. Bryman (2001) argues that it is concerned with the extent to which the results of a study or a measure are repeatable in different circumstances, and there is need to confirm findings by revisiting data in different circumstances. Weber (1990) argues that in order to overcome any researcher bias in the interpretation of data and as an auditing measure, interview data may be sent to an independent researcher, to verify how much agreement there is about findings and analysis. Lincoln and Guba (2010) refer to dependability in qualitative research, which closely corresponds to the notion of reliability in quantitative research.

3.9 Ethical Considerations

When one is carrying out a research, there are moral values to be followed during the study in order to ensure that the study is authentic, valid and reliable. The researcher has a moral and

professional obligation to be ethical even when research subjects are unaware of, or unconcerned by ethics. These are considered as moral guidelines of research. Ethics are a conceptualisation of human conduct in terms of good or bad behaviour. Boss (1999) defines ethics as the study of human conduct. These ethics include debriefing, voluntary participation, informed consent, confidentiality and anonymity and withdrawal of participation.

Debriefing is defined by Makore-Rukuni (2001) as a situation when one has to explain to the participants the full nature of the research to be undertaken. The researcher debriefed the participants so as to allay any fears that participants might have. In the Chivi District, where the local people depends on natural resources for their livelihoods and where political and economic influences are inevitable, the researcher clearly explained her position to the participants that her research is purely for academic purposes and ensured that the research subjects understood her research in all its dimensions. In this study, the researcher explained to participants before interviews about the study. The researcher granted participants the opportunity to ask questions and made sure all their questions were answered. The participants at times asked about the benefits they would get from the study and they also wanted to know if the findings of the study would be available to them.

The research participants were not coerced into participating in the research. The researcher was guided by the principle of informed consent which views it as unethical to collect data without informing participants. Diener and Crandall (1978) define informed consent as the procedure in which individuals choose whether to participate in an investigation after being informed of the facts that would be likely to influence their decision. It is the researcher's task to ensure that

participants have a complete understanding of the purpose and methods to be used in the study, the risks involved, and the demands placed upon them as participants (Jones and Kottler, 2006). The researcher did not mislead the participants. She fully informed them about the procedures involved in the research.

Researchers are expected to provide the participants with written information about the study and give a form to be signed by the subject (Dooley, 1990). In this regard, the researcher had drafted an informed consent form where every participant signed as an indication that they had volunteered to participate in the research. Thus participants were not forced into the research. Rather, the researcher made an effort to fully inform the Chivi residents about the purpose of the study. Almost all the participants willingly participated in the research and made self-informed decisions. The researcher employed a tactic of giving every participant an opportunity to refuse to participate in the research in order to ensure that the sessions involved only those who were genuinely willing to participate in offering information. That was done through giving participants informed consent forms which had clear ethical guidelines. The researcher explained the contents of the informed consent forms to participants.

However, when the researcher is a practitioner within the area of social practices that he or she targets or if she or he stands in a position of power or influence over the researched, informed consent will be difficult to get (Abbot and Sapsford, 2006). In the case of the Chivi District, the

researcher had no influence over the society but she ensured that the environmental experts such as EMA and Chivi RDC who are key informants in this study, did not coerce the general Chivi population into participating in the study. The researcher also avoided sensitive issues that would stress a certain group of people since the local communities have their community-based property rights to natural resources yet different government structures have their own acts and policies relating to the same resources. It was imperative to note and practise what Diener and Crandall (1978) suggest, that researchers should not place people in a situation where they face social pressure to deny their convictions, or have subjects to lie or cheat in research.

Confidentiality and anonymity are also crucial and compulsory ethical issues to consider when carrying out research. Singer et al. (1995) argue that assuring confidentiality to research participants modestly improves responses when researchers ask about highly sensitive topics. The researcher assured privacy to participants and private information was to remain relatively confidential. Creswell (2003) asserts that researchers should guarantee that collected data remains confidential and sources of information should be kept anonymous, hence participant's names will remain anonymous. Dissemination of sensitive information that matched personal information with the true identity of research participants was avoided by the researcher. Participant names remained anonymous throughout the study. Nachmias and Nachmias (1996) stresses that the researcher must not identify or associate the name with the data obtained and it is not advised to record names in research. The researcher should guarantee privacy to research subjects by assuring them that, these interviews will be summarised in group statistics so that no

one will learn of your individual answers (Campbell et al., 1976). After assuring confidentiality and anonymity to research subjects, the researcher has an obligation to honour the promise and agreed commitments.

Wieger (2007) postulates that participants should understand that they have the right to withdraw from the research at any time without any repercussion. In this study, every participant in the study was informed of their right to withdraw at any given time of the study and that they could also withdraw retrospectively, that is, after they had been debriefed and they could ask for their own data and any recordings to be destroyed.

The researcher had an obligation to comply with these ethical values during the study and she strived to abide by certain societal norms and values in carrying out the research, although one cannot arrive at a universally acceptable ethical system. This makes it necessary to consider Max Weber's idea that, while all social research is motivated by values, the researcher is obliged to conduct their research in such a way as to ensure that such values do not dictate the outcome.

3.10 Limitations

The researcher encountered challenges and measures were taken to address them. The Chivi area has a large population and it was not practical to study the whole district. The researcher narrowed down the area of study and worked with a limited number of participants, but making sure that all the key informants were involved.

The other challenge was the local, social and political context. In general people are wary of strangers. Sometimes it was difficult to convince the participants to answer questions. Sometimes

they made efforts to say the ‘right thing’ to avoid victimisation since political issues and policies are very sensitive issues. The researcher was very cautious in her questioning techniques so as to avoid sensitive issues. The general populace also had a belief that they are entitled to exploit the environment, which they consider as a fundamental right, hence they did not realise the need for a study of this nature. Therefore, the researcher first got clearance from the traditional leadership for the study.

There was also a conflict of interest between traditional leadership and government departments that deals with environmental issues where both parties claim control of environmental resource access and have been mandated, through different policies and acts, to do that. The effect on the researcher was that, it was difficult at times to get to know who was actually in charge of a specific set of resources, especially the issue of traditional artifact crafters where neither traditional authority or EMA or RDC has direct control of the activities. The researcher had to make use of the monitor in that area to be able to reach out to that group of participants.

3.11 Data Analysis

Data collected from the field was analysed thematically. Thematic analysis involves grouping the data into sub-themes. Thematic analysis is a qualitative analytic method for identifying, analysing and reporting patterns (themes) within data and it minimally organises and describes the data set in detail and interprets various aspects of the research title (Braun and Clarke, 2006). The presentation and analysis is in form of detailed descriptions, using narrative vignettes and direct quotes from interviews and focus group discussions, where necessary.

In this study the data-analysis procedure entailed the capturing, coding and analysis of the gathered information into themes. The collected data was analysed, discussed and finally

interpreted as a way of adding the researchers' voice to the study. According to Boyatzis (1998), thematic analysis is a process of encoding qualitative information. A thematic approach was adopted because it makes transparent the assumptions made about the nature of data, what they represent in terms of the world reality and the important themes about data in relation to research questions.

Braun and Clarke (2006) state that thematic analysis identifies patterns of themes within data, offers an accessible theoretically flexible approach to analysing qualitative data, minimally describes and organises detailed data. Cooper and Schindler (2003) argue that when planning the presentation of qualitative data, consider that the data is subjective, interpretative descriptive, holistic and copious. In this case, the researcher based the structure of data presentation around the themes that had emerged. The sub-themes emanated as the study progressed, so the researcher familiarised herself with data gathered from the field and then coded it according to the sub-themes. Data collected was analysed thematically using the following stages: recording, transcription, coding and then organising the text into themes and sub themes, reviewing, defining and naming themes. Coding was done through words or phrases that served as labels for data sections. The themes were presented as sections and subsections. This helped to get deep into the data and appreciate the content by moving the analysis from a broad reading of data towards developing themes.

3.12 Summary

In this chapter a comprehensive presentation of the qualitative research approach and design was discussed in order to respond to the research questions. The research design used is a case study of a drought prone Chivi District, focusing on the relationship between politics, society and the

environment. The population, sample and sampling procedures used in the study being purposive sampling and convenient sample were identified. The researcher used interviews, focus group discussions and transects walks to collect data. The reasons why the researcher chose to use the interviews, focus group discussions and transect walks were given. The data collection methods helped the researcher to collect the data which was used to form the basis of the next chapters on data presentation, analysis and discussion. The data collection procedure explaining the steps taken by the researcher during data collection was presented. It was further explained that an attempt to enhance reliability, validity and rigour would be made. The researcher presents the data analysis process where themes and sub themes helped to explain the implications of political ecology approach on rural development.

CHAPTER FOUR: THE ROLE OF STATE ACTORS AND LOCAL LEADERSHIP IN NATURAL RESOURCE USE

4. Introduction

The objective of this chapter is to explore the role of state and local leadership in land and forest access and use. In order to achieve this objective, this chapter draws on interviews, focus group discussions and transect walks. The chapter interrogates the critical role of various stakeholders in land and forest management in Chivi District. The stakeholders involved are state actors, traditional leaders, non-governmental organisations and environmental monitors. The state actors referred to in this chapter include the Environmental Management Agency (EMA), Chivi Rural District Council, Ministry of Agriculture, Mechanisation and Irrigation Development and Forestry Commission. There are also non-governmental organisations that play a role in natural resources management. These are the Southern Alliance for Indigenous Resources (SAFIRE) and CARE International Zimbabwe. Local leadership in the area includes traditional leaders who are chiefs, headmen and village heads.

The roles of these stakeholders are conservation of natural resources, rehabilitation of degraded areas, land allocation, training of the local community on management of natural resources, research and extension, legislation on environmental issues and concerns, prosecution of abusers of the environment and funding of environmental programmes and projects. This chapter further demonstrates how the issue of natural resources is riddled with complexities. Basing on the findings of the study, the involvement and role of diverse stakeholders on the environment makes the process of managing and governing the land and forest resources challenging and cumbersome.

This chapter first presents and analyses the role of state actors and then moves on to the role of non-governmental organisations and lastly the role of traditional leaders and environmental monitors. It is particularly useful as it helps to establish the exact role played by different stakeholders in this study.

4.1 Role of State Actors

4.1.1 Conservation

The study established that state actors play a critical role in ensuring the proper management of natural resources to prevent their overexploitation, destruction or degradation. However, there are instances when resources are exploited through the same government actors. Interviews held with Environmental Management Agency's (EMA) two key Environmental officers who revealed that EMA plays a major role in ensuring sustainable use of land and forest resources. EMA is a statutory body which was established under the Environmental Management Act of 2003 and is responsible for proper management, preservation and protection of the environment and these include prevention of pollution and environmental degradation. As such, it prepares environmental plans for the management and protection of the same. One of the respondents mentioned,

In pursuit of sustainable use of natural resources, EMA calls for stakeholder participation in which it works with a wide spectrum of stakeholders because environmental issues need a holistic approach (Environmental office A, personal interview, 2016).

In that regard, EMA approaches the drought-prone Chivi populace through the Chivi Rural District Council which is mandated by an act of Zimbabwean Parliament, the Rural District Act (Chapter 29:13 of 2002) to protect the environment. The Chivi RDC and EMA also work with

the Forestry Commission. The Forestry Commission is a parastatal organisation guided by the Forest Act of Zimbabwe, Chapter 19:05, to legislate and control the management and exploitation of forests in Zimbabwe and other land that may be acquired by the state for forest purposes. The Forestry Commission Officer B also highlighted that,

The major role of the Forestry Commission is to ensure sustainable utilisation of forest resources in the drought-prone Chivi District and organise meetings with councillors and traditional leaders in order to come up with one position on how to manage forest resources sustainably. (Forestry Commission Officer B, personal interview, 2016)

The state also promotes environmental conservation through the Ministry of Agriculture, Mechanisation and Irrigation Development. The Ministry deploys conservationists and extension workers who implement conservation of natural resources programmes. The officers encourage soil and water conservation and conservation agriculture.

4.1.1.1 Soil and Water Conservation

Soil and water conservation activities are done at the local level to maintain and enhance the productive capacity of the land, including soil, water and vegetation in areas prone to degradation (WOCAT, 2007). In the Chivi District, farmers conserve soil and water through digging using hoes or sophisticated machines. Manually, farmers use ripper-tine ox-drawn or tractor-drawn and jab planters to dig the soil and plant seeds using dripper sticks. One conservationist, A, explained that,

This is done to avoid the use of the plough that loosens the soil. Loose soil is prone to attack by rain and suffers erosion. The prepared, dug area will be mulched, which promotes land conservation and if it rains there will be greater yields, (Conservationist A, personal interview 2016)

It was further highlighted that lack of conservation techniques has led to siltation of rivers, for example, in three wards, four rivers and six streams were silted and to address this, conservation techniques were employed.

Conservationist B, highlighted that to avoid land degradation in the area, they practice agronomic conservation. He defines agronomic conservation as a conservation technique that encourages two approaches, that is, basin making and merchandised conservation. He explains that basin making minimises soil degradation. Making basins is done as per crop spacing, and mechanised conservation is making use of ridges in a bid to conserve soil and moisture. Agronomic conservation is a farming approach that aims to reduce soil degradation and conserve soil moisture (Bolliger, 2007; Giller et al., 2009). The conservationist explained:

The Chivi area is drought-prone and the little rainfall should sink closely to the plant. The plant has the capacity to maintain moisture and nutrients and because of that practice, better yields are realised in wards 23 and 24 (Conservationist B, personal interview, 2016).

It was pointed out that planting basins was done in order to prevent soil degradation. Ngwira et al. (2013) posit that since the turn of the millennium, planting basins has been the dominating conservation agricultural strategy among small holder farmers in Zimbabwe.

To promote soil and water conservation the conservationist in Ngundu has led a project of planting vertiva grass in areas where there is excessive runoff to, prevent gullies. In Ward 25, villagers have erected gabion structures in all the villages using mash wire to prevent runoff or further development of existing gullies. Gabion structures are rock-field structures designed to withstand significant movements during high flows to protect dam walls. The gabion structures

are erected upstream, near the dam. Gabion structures are made to prevent soil erosion and reduce water velocities and to recapture river bed sediment in streams and rivers. However, the conservationist lamented that very few people maintain contour ridges and as such, NGOs intervene in training the Chivi South communities.

4.1.1.2 Conservation Agriculture

In prolonged droughts experienced in the Chivi District, farmers engage in conservation agriculture for small grains that are able to withstand the drought. Conservation agriculture tries to remove unsustainable parts (tillage, residue removal and mono cropping) from the conventional agriculture system, thereby addressing most of the issues that restrict yield increases (Marongwe et al., 2011). In Zimbabwe, conservation agriculture attempts to increase productivity by improving the management of agriculture using available resources and technologies. Conservation agriculture is,

A technique used by farmers, which has very minimal soil disturbances. The process leads to rural development because the communities in Chivi District depend on the soil for their livelihoods and conserving usable soil will boost their food production' (Conservationist A, personal interview, 2016)

The conservationist indicated that generally, Chivi community appreciates conservation techniques and 70-80% of farmers practice it. World Vision has also intervened in the Conservation Agriculture programme in Chivi District. It is a holistic programme in which Chivi District communities conserve the land and reclaim the silted area. Mango et al. (2017) argue that conservation agriculture is a win-win technology because it improves farmer's yields, while at the same time conserving the environment.

It was further highlighted that a group of more than two hundred people are practicing conservation agriculture but there is a challenge of low rainfall. However, in better years, they have been good yields, specifically of small grains. The establishment of conservation works and silt traps by Agricultural Extension Officers helps to reduce the rate of runoff and improve infiltration because once erosion is minimised, less soil is carried to silt water bodies. Contour ridges were pegged to harness the little water that the Chivi District gets because the area receives little rainfall. Contour ridges have been pegged in the catchment of Denge Dam by Agricultural Extension Officers. Derpsch (2005) argues that wherever conservation farming has been adopted, it appears to have had both agricultural and environmental benefits since it tends to promote soil health and productive capacity. The pegging of contour ridges by Agricultural Extension Officers and the introduction of storm drains by conservationists is a measure towards ensuring a sustainable livelihood activity in the Chivi District.

In conservation agriculture, the Agricultural Extension Officers train communities to use storm drains and contour ridges. Zembe et al. (2014) define storm drains as wide trenches that are constructed upslope of the arable land, with the intention of diverting overland flow from it and contour ridges as embankments constructed across the slope, within the fields, in order to capture and divert any rainwater which falls above them. The Agricultural Extension workers in the District encourage the communities to resuscitate the construction of contour ridges which were introduced in the communal areas of Zimbabwe during the colonial time. The independence of Zimbabwe brought with it the crumbling of a lot of environmental conservation structures that were put in place during the colonial era. Mukwada (2000) carried out a research study in Chivi and established that mechanical measures of soil conservation involve the use of human-made or

mechanical devices and structures. The structures are capable of controlling the flow of water within specific areas.

Conservation agriculture causes minimum disturbance of the soil and it is an integration of ecological management with modern scientific agricultural production. Minimum soil disturbance and permanent soil cover help in improving soil organic matter content, reducing water run-off due to increased infiltration (Dumanski et al., 2006). Conservation farming promotes social and economic benefits which are gained from combining production and protecting the environment (Hobbs, 2007). The main type of conservation farming practised in the Chivi District is zero tillage, known as ‘diga udye’ (dig and eat) introduced by CARE International in collaboration with agriculture extension officers. Shaxson (2006) defines conservation farming as the use of modern agricultural technologies to improve production, while concurrently protecting and enhancing the land resources on which production depends. Fowler and Rockstrom (2001) note that conservation farming is based on the fundamental principles of rebuilding the soil, optimising crop inputs and improving output and food security. Pretty (2008) also argues that conservation farming is being increasingly promoted as a set of principles and practices that can make a contribution to sustainable production intensification. With its focus on survival, conservation agriculture is one of the measures that have the potential to ensure survival and sustainable livelihood activities for the Chivi community people. This is so because Chivi is drought-prone and receives erratic rains. Conservation farming systems have been said to have a higher adaptability to climatic changes.

However, Agricultural Extension Officers do not have the authority to impose regulations and penalties on offenders so many may choose to ignore them. Government officials from the Ministry of Agriculture, Mechanisation and Irrigation Development and Forestry Commission are not empowered by the government of Zimbabwe to impose penalties on offenders. This corroborates the study by Bongo and Bourdillon (2001), who studied Biriwiri area in Zimbabwe where one government official stated that, no-one has real power because people fear each other. A lot of things are said on paper concerning environmental conservation but little happens practically. The government is good at organising and running seminars with no real follow-ups and effectual implementation of policy recommendations from these seminars. To buttress the above observation, Fanelli and Dumba (2006) note that introducing conservation farming to community members requires patience, understanding, and careful explanation to convince them to adopt an alien farming practice.

Though conservation farming is argued by experts to have a number of benefits, the people of Chivi District shun it for different reasons. The project is receiving mixed feelings. In the Chivi District, the zero tillage system is shunned because traditionally the method was perceived to be for those without draught power or the money to hire people to till the land on their behalf. During interviews, the farmers confirmed that conservation agriculture is not making sense to them since it is labour intensive and taxing. Gwenje et al. (2015) argue that the system demands more labour because soil will be very hard and dry, making it difficult to prepare planting basins. The labour challenges are major hindrances to the success of the programme. The villagers expressed that there is no need to dig and plant whilst they have cattle for draught power. The

communities derisively call it ‘diga ufe’ (dig and die) because of the amount of labour required.

A farmer had this to say,

Why should I dig on the hard land yet I have cattle to use for draught power, we have been ploughing this land since time immemorial and used to get better yields. What makes this conservation farming an exception? The Agriculture officers call it ‘diga udye’ (dig and eat) but this is not the case. This is diga ufe (dig and die) because its labour intensive and time consuming (Farmer A, personal interview, 2016).

A study carried out by Gukurume et al. (2010) in Ward 21 of the Chivi District also revealed that farmers were only engaging in conservation farming to get associated benefits such as seeds and fertilisers and after getting the benefits they reverted back to conventional farming. Their participation in it is more cosmetic than genuine because the farmers believe that the labour required is more intensive as compared to the perceived benefits, but it is an unnecessary burden. Many farmers quizzed the practicability of merely planting seeds without ploughing the land first. In line with the argument, Kassam (2010) notes that conservation farming has been difficult for many people to accept because it goes against many of the people’s traditionally cherished beliefs. The majority of rural farmers in Chivi District are used to feeding their livestock with crop residue rather than using it as mulch material.

The Chivi District communities are also encouraged to destock. Zembe et al. (2014) argue that one of the most effective biological measures of soil conservation involves the management of livestock populations. They are also encouraged to keep few livestock since the grazing land is limited in the area. However, this idea is receiving criticism from the community because

livestock is their source of wealth which they can sell during times of crises. A farmer explained that livestock is the only thing that he has and destocking therefore does not make sense,

How can I be expected to sell the cattle or goats that I have, if I sell them now, where will I get fees for my children who are supposed to go to a University next year? I am keeping my cattle so that when they increase I will be able to sell them to raise fees for my children (Farmer B, personal interview, 2016).

Given the situation, there is a need for context-specific approaches to rural development and particularities and complexities of the local communities should be considered. Mararike (1999) argues that conservation agriculture in rural development is neither feasible nor desirable. Given the social, economic and ecologically diversities across communities, there is a need for research before implementing the project in areas such as the Chivi District. Gwenje et al. (2015), in line with this assertion established that conservation agriculture proved to be more successful in areas that receive good annual rainfall in agricultural regions 1 to 3 in Zimbabwe. In agriculture regions 4 and 5, where Chivi is located, conservation agriculture proved to be a challenge because the areas are dry. They receive poor annual rainfall. This reflects that development interventions require solutions that are embedded in society's make-up. Conservation agriculture also failed to fight food insecurity in the Chivi District because the majority of the fields are unfenced, resulting in the destruction of planting basins by freely roaming livestock during the dry season (Nyamangara et al., 2013 ; Andersson et al., 2011). The blanket recommendations based on the success of the same project in different social, ecological and economic conditions resulted in the failure of conservation agriculture in the drought-prone region. This mentality by state actors has often militated against the achievement of the much-hyped food security in these

drought-prone areas. In such cases, the poor farmer with a single hoe is usually blamed for lack of commitment and resistance to change (Murungweni, 2011). It is practically impossible for the poor farmers in the Chivi District to embrace conservation agriculture and this limits the potential of the practice in fighting food insecurity.

4.1.2 Rehabilitation

The findings reflect that state actors played a significant role in rehabilitation of the degraded environment. The measures include wetland management and afforestation.

4.1.2.1 Wetland management

In Southern Africa, wetlands provide a number of ecosystem services which are crucial to the livelihoods of many poor people, the majority of whom are rural-based and depend on agriculture. Wetland livelihoods are characterised by the use of a wide range of resources. Their viability and sustainability relies upon this availability and the ability to convert these resources into livelihood outcomes (Lopez et al., 2008; Jogo et al., 2008). Wetlands are very important ecosystems and they serve as a centre of human population since ancient times (Matiza, 1994). In the Chivi District, EMA and Ministry of Agriculture, Mechanisation and Irrigation Development manage wetlands as a way of ensuring that society would not suffer because the progressive loss of wetlands has had detrimental effects on the District. Wetland loss, coupled with frequent droughts, has contributed to the general scarcity of water and associated wetland benefits in the District today.

To manage the few existing wetlands in the Chivi District, the community, with the help of the EMA and Agricultural Extension officers has relocated gardens from the prohibited thirty meters

from the water bodies as a measure to safeguard wetlands from destruction. The banks of rivers and the area within the highest flood level of a river or stream is classified under the ecologically sensitive areas. These areas need not be disturbed. Any disturbance of soil within this zone will silt the water bodies downstream.

The Environmental Officer B highlighted that EMA issued a number of orders to people farming in areas within the catchment of Bindamombe Dam in Ward 16 to relocate. The same order was extended to people in Ward 15, Dzimati area. It was further explained that the Agency also ordered seventy-nine villagers from Fuve, Madhaki, Dzinopana and Makuwa villages to relocate their gardens from Musiriveki and other streams within the area. In other areas, wetlands are being fenced as an alternative source of water for domestic use and grazing. Magwenzi Wetland in Ward 15 is one such wetland in the district which was fenced by Zvishavane Water Project and covers an area of eight hectares. The wetland rarely dries up, except under prolonged periods of very little rainfall. See figure 4.1 below,

Figure 4.1 Magwenzi wetland, Ward 15



As economic hardships and drought increase in the Chivi District, the wetlands are increasingly being used by rural people for household food production and income generation as they provide water for irrigation, livestock and domestic use. Turpie et al. (1999) and Masiyandima et al. (2004) argue that this role of wetlands in supporting the lives of rural communities in Southern Africa is increasingly known. Wetlands also provide a resource in an otherwise dry environment (Jacobs, 2006). What is critically important to underscore is the need for analysing whether the wetland management techniques are not compromising the ecosystem services derived from the wetlands. There is a need to assess if the environmental security of the local people in Chivi District is not being compromised by fencing wetlands and making them inaccessible through restrictions from traditional leadership. The existing environmental regulatory situation tends to overemphasise the ecosystem services provided by wetlands, to the detriment of livelihoods functions. Given the current shortcomings of the regulatory regimes that emphasise conservation above livelihoods of local population, state interventions in wetlands have become spectacular failures because the local community is not co-operating in managing wetlands since they want to use the land for their daily needs. When wetlands undergo changes in status or management regime, this can have major knock-on effects on the livelihoods of local communities (Emerton, 2005; Adekola, 2007). Luckily, there are efforts by government departments to correct this, for instance, where Agricultural Extension workers are relocating gardens from the prohibited thirty metres from the water bodies as a measure to safeguard wetlands from destruction and ensuring their continuous supply of water.

The loss and degradation of wetlands has severe economic consequences and limits opportunities for sustainable development (Moser et al., 1998). A case study of Mutubuki Wetland in

Chingombe Community by Chikodzi et al. (2013) established that the drying up of wetlands undermines the ability to provide vital services for local communities and ultimately leads to further and deepening poverty, especially for wetland-dependent, marginalised and vulnerable. However, the use of wetlands resources by human beings has received divergent responses, especially given the phenomena of increased human poverty, wetland degradation and persistent dry weather (Finlayson, 2006; Ndiyoi and Wood, 2008). Studies by Nhandara et al., (2001) and Botkin and Keller (2000), reveal that most wetlands already have been destroyed or severely degraded, largely due to human activities such as road construction, agriculture and land development.

4.1.2.2 Afforestation

The other major activity done in the Chivi District to curb the environmental problem is afforestation. Afforestation refers to the process of planting trees to replace those which have been cut down. The Environmental Officer explained that in Ward 18 at Muzogwi Primary School, the group, Friends of the Environment which includes Nyaradzo Funeral Group, OK Zimbabwe and others, have established a big nursery for both exotic and indigenous tree species which are sold at subsidised prices or given for free to communities and schools. See Figure below

Figure 4.2. Afforestation project at Muzogwi Primary School



The Forestry Commission Officer B explained that in Ward 26, communities are engaged in woodlots, pruning of trees to improve sunlight penetration and increase air movement through the tree. The environmental monitor A, also talked about the issue of community gardens in which people from Madamombe and Utete areas in Ward 2, used tree branches to fence their gardens in 2013-2014. These people were later trained to manage trees through afforestation. As a result, there is an improvement of trees because people no longer cut down trees. In Ward 5, Chabuda, Huruva and Dzviti villagers pruned mopane trees and replanted trees. In Ward 4, villagers also engaged in a gum tree plantation project since 1994 and the project is still viable.

A report from the Rural District Council by one Environmental Monitor presented other environmental projects done in Ward 5. There is a Tree Planting project in VIDCO F, Chipamha village. The objective of the project is to ensure that the villagers get timber and firewood. The members prune exotic and indigenous trees. In Madokugwa village, there is a gum tree

plantation project made up of one hundred members with the objective of getting timber and firewood as well. There is a homestead that engages in a biogas project in Gondo village, Ward 5. The objective of the project is to reduce cutting down of trees.

The afforestation projects are playing a major role in replacing trees that were destroyed by the community as well as ensuring that the communities engaged in the projects are benefiting from the project. From this study, it emerged that the communities had come to the realisation that forest products are important for their livelihoods. The wards, 4, 5, 18 and 26 are deriving sustainable benefits from the afforestation projects through, selling timber from the woodlots.

4.1.3 Training

The state actors in the Chivi District also engage in training the Chivi community on environmental management. EMA, for instance, works with traditional leaders, environmental subcommittees and community members, whom they train, educate and engage in awareness campaigns on sustainable management of environmental resources. EMA trains environmental monitors who monitor resource access and use in the District and the training is extended to the rural community in order to empower the rural community. EMA has made several awareness programmes on the general public on the causes, effects of, and solutions to, environmental degradation. This has been done on field days, during catchment management workshops held in the district, on environmental days commemorations which include the World Environmental Day, World Wetlands Day, World Day to Combat Desertification, National Tree Planting Day, just to mention a few. Awareness campaigns within the communities on the need to conserve the environment are very crucial as they help the general public to be conscious of how they should

handle natural resources and also learn various ways to safeguard them. Figure below shows an awareness campaign held by EMA at a Catholic gathering.

Figure 4.3: Awareness campaign held by Chivi District EMA to a Catholic Church gathering



The Chivi District receives little rainfall and in trying to conserve the little rainfall, the conservationist also trains the communities to construct storm drains which are 23cms in depth and a tunnel of 2,4mm. Storm drains and tunnels collect large amount of water. In order to conserve water, they also make use of modified contour ridges (fanya dues) in the infiltration pits and grow crops such as rice.

In the Ministry of Agriculture, Mechanisation and Irrigation Development, a number of key informants were interviewed and these are two Agricultural Officers, two conservationists and three Agriculture Extension Officers. These officials provide technical and advisory services, farmer training, food technology (including post harvesting processing and product development), dissemination of technologies and provide market oriented extension for

sustainable farming. The Agricultural Extension workers from the Ministry are also responsible for training farmers as a way of capacitating them in land use and management. There is a two-year training course for master farmers who will be trained in green crops, cash crop, farm management and livestock. The farmers will be trained locally making use of their own farms and livestock. The farmers trained will become the agents who teach other community farmers.

The Agricultural Officer A, also explained, during interviews that the day to day operations of the Agricultural Extension Officers entail general training of the farmer with all the necessary needs. Agricultural Extension Officers hold area meetings aimed at teaching farmers conservation methods to capacitate the farmers. In every ward, the officers hold field days and demonstration days which are practical training days,

During workshops, we teach theory but on field days, conservation days and demonstration days, we do practical training like taking a role in the pegging of gardens to avoid siltation and ensuring that the people maintain the 30m distance from the river in order to ensure that the grass cover hold water (Agricultural Extension Officer A, personal interview, 2016).

4.1.4 Legislation and Prosecution

EMA is a law enforcement agent in Zimbabwe that implements acts and policies to ensure sustainability of natural resources and protection of the environment. The main act is the Environmental Management Act which, was specifically crafted for environment and ecosystem protection. EMA ensures that the rural populace respect the environmental acts and sustainably use their natural resources because they generally depend on natural resources for their livelihoods and this ensures that they also help future generations.

The Rural District Council (RDC) is also empowered by the government of Zimbabwe to legislate and ensure the proper utilisation of natural resources and protection of the environment by the rural communities. The Rural District Act (Chapter 29:3) sets the RDC as a separate autonomous legal corporate institution and a legislative body in the sphere of government. The RDC also has legislative powers to enable them to enact by laws on environmental conservation and land use planning. The Chivi RDC, for instance, formulates and enacts model by-laws that provide for the preparation of land and forest use.

EMA and RDC are two major state bodies that enforce environmental management laws in the District to ensure sustainable use of natural resources in Zimbabwe. A number of examples were given by the Environmental Officer B through the reports submitted to Chivi District EMA. The use of the Environmental Management Act, Chapter 20:27 and its supporting regulations which include Statutory Instrument 7 of 2007, Forestry Act, Chapter 19:05 and the Traditional Leaders Act and enforcement by ZRP officers are also being used to enforce laws against environmental offenders involved in degradation activities. For instance, EMA orders the local authority (RDC) to stop authorising sand abstraction until a proper Environmental Management Plan is in place and adhered to. The Environmental Officer reported that,

The Chivi RDC has authorised sand abstraction sites but does not have systematic extractions. As a result, operations are conducted in a haphazard manner. The local authority was urged to adhere to their Environmental Management Plan. (Environmental Officer B, personal interview, 2016)

A number of people were also prosecuted by EMA for wetland invasion and cultivating within the prohibited thirty metre zone from the highest flood level of any given water body. The

Environmental Management Act, Chapter 20:27 Section 113, and the supporting Statutory Instrument 7 of 2007 and the Traditional Leaders' Act are used to enforce laws against those using wetlands in a non-sustainable manner.

The Environmental Management Act and Statutory Instrument 6 of 2007, as well the Public Health Act were incorporated to take legal action on those who violate the law on the proper use of water and effluent. Prosecutions through courts and orders were done by EMA to ensure that there is no pollution of the environment through improper discharge of effluent from both sewer and mining processes. A good example given was that of Chicken Express at Chibi Turnoff which was made to pay US\$1000 by the EMA for discharging raw sewerage into the environment.

The Chivi RDC also enforces the law and regulations. Reports from one Environmental Monitor revealed that in Jodias Village, Ward 2, two big Musuma trees were deliberately cut down, which are protected species. The matter was reported to the village head and later to the Headman who advised that the offender should be issued with a Rural District Council ticket. In Chibhaira village, there was a veld fire and illegal cutting down of trees. The case was reported to the Headman and the matter was handled by the court. The villager was then issued a ticket for cutting down protected species. In Tamayi village, snot apple, forest fig and sycamore fig trees were cut down. The village head and the headman were informed and a ticket was issued.

Though there is issuing out of tickets by EMA and the RDC, in some areas villagers are uncooperative and violently resist instruction such that the departments engage the Zimbabwe Republic Police to assist them. For example, in Bhebhura Village, Ward 14, the environmental

monitor issued out tickets to people who were cultivating on stream banks and illegal gardening but the culprits did not pay.

4.1. 5 Monitoring

The state actors also monitor the environment through the environmental monitors whom they train. The Chivi Rural District Council works with a system of committees and the Environmental Management Committee is one of them. The committee works with environmental subcommittees found in every ward in the District. The Rural District Council official said,

Each ward has an active environment monitor and an operational Environmental Sub-Committee. The environmental monitors are community instruments who advise and alert RDC and EMA on any environmental situation that needs attention. (RDC Environmental Management Committee Office, personal interview, 2016).

The subcommittee members are voted for by the community. There are seven environmental monitors who monitor the Chivi District environment and report to the RDC. EMA also monitors and communicates with the community through thirty-two environmental subcommittee chairpersons who report success stories and complaints to the agency. The monitors are voluntary members, who are not paid for the work they do on behalf of EMA and RDC.

4.1.6 Funding

The state also plays a role in land and forest resource use through funding environmental projects. The Environmental Officer A explained that the existence of the environmental subcommittees is dependent on funds from EMA, through a grant facility. EMA grants are accessed by the subcommittees through the Chivi Rural District Council. A good example is when the Chivi District EMA funded the fencing of Simbamukaka Garden to replace brushwood

gardens built from trees. Interviews with the District Environment Officer revealed that Simbamukaka Garden covers two hectares and is made up of brushwood and poles from indigenous trees. The brushwood and poles are prone to decay as a result of rain and being eaten by termites and therefore demand continued repairing and destruction of indigenous trees. (See the Simbamukaka Garden below).

Figure 4.4 Simbamukaka brushwood garden



EMA realised that the area had a major problem of deforestation that would lead to soil erosion and siltation because of the existing brushwood garden which needs continual renewal every season. In a bid to curb the deforestation in the area and at the same time to improve food production in the drought-prone area, the agency (EMA) donated a fence as shown on the right side of Figure 4.4. Realising that the garden was benefiting a large number of people from the southern part of the Chivi District, EMA co-opted the other four brushwood gardens within a thirty metre distance into one with Simbamukaka Garden. A report from the Environmental Officer B indicated that the gardens benefit eight hundred and ninety-seven people from all the households. Ngundu residents also benefit from this garden as they buy vegetables and other horticultural products. The brushwood garden members were co-opted into one garden which was fenced. In this project, EMA also engages other government bodies such as Chivi Rural

District Council, Ministry of Agriculture, Mechanisation and Technology Development, Forestry Commission, and non-governmental organisations (NGOs). See Simbamukaka fenced garden below

Figure 4.5 Newly established Simbamukaka Consolidated Garden



According to the state of the environment report in the office of the Environmental Officer B, most gardens in the Chivi District that used to depend on rivers and dams are no longer operational due to acute water shortages as a result of low rainfall patterns. There is, therefore, need for the establishment of a consolidated garden with sustainable water sources such as powered irrigation systems. To ensure project sustainability and to improve food security at the household level, Simbamukaka Garden in Chihamure village, Ward 25, is one example of a garden funded by EMA to control both deforestation and stream bank cultivation. Deforestation

and stream bank cultivation are controlled in order to ensure sustainable management of these resources.

4.1.7 Land allocation

The authority to allocate rural land for use and occupation is in the hands of state actors in rural Zimbabwe. The RDC is empowered by an Act of Parliament of Zimbabwe, (the RDC Act, Chapter 29:13) as the lands authority. Legislation reserves primary authority over allocation of communal land to the RDC. In light of that, there is a Land Allocation Committee in the RDC that deals with settlement issues. The RDC as the lands authority engages traditional leaders and the Ministry of Agriculture, Mechanisation and Irrigation Development during the land allocation process in rural areas. Traditional leaders would be there to confirm if the land is not a grazing area. The Councillor would be there also to confirm if there is no development project to be done on that piece of land, and the Agriculture Extension Officer would be there to confirm if the area is not a water chain.

4.2 Analysis and discussion of the role of state actors

The interaction with the communities of Chivi District reflects that environmental issues are cross cutting issues. The environmental management issues link traditionally independent state actors together. EMA has become very popular because of its role as a law-enforcement agent that controls land and forest use. It should be acknowledged that EMA plays an influential role in sustainable management of natural resources through its supervisory role and educating the Chivi District community that if they sustainably use land and forest resources, they will be able to take care of their immediate needs and those of future generations.

EMA identifies environmental problems in the area, for instance, the issue of gullies in the Chivi District which has become critical and they engage RDC and either the Forestry Commission or the Ministry of Agriculture Mechanisation and Irrigation Development, depending on the issue, and sometimes also meet the communities to educate them. The state actors are, therefore, playing a vital role in ensuring sustainable use of land and forest resources for the benefit of both the society and the environment. Environmental awareness campaigns are done on a specific group of people such as farmers, church groups, environmental monitors, village heads among others, to foster a sense of valuing natural resources and encouraging communities to conserve the land and forest resources. The Chivi District communities are being helped to understand the importance of protecting these resources.

The campaigns by EMA are meant to make people understand the consequences of their activities on land and forests, as well as identifying remedial solutions. The study confirms what Khan (2013) observes, that contemporary nature conservation practice has led to the inclusion of a range of state and non-state actors in resource governance, making human-society-nature relations more complex and dynamic. The complex nature of involving so many actors and external actors in local resource use has implications for the sustainable livelihoods of Chivi community because instead of ensuring sustainable use of land and forest resources, there is more damage to the environment. The communities in Chivi views natural resources as belonging to state and not to them. Resultantly, they exploit the land and forest resources. Political ecology, a framework that informs this study, also confirms that political control over local resource access and use has detrimental effects on the local environment and on the sustainable livelihoods of the people. The involvement of these actors is aimed at ensuring that

the common pool resources are protected from the tragedy of destruction. Common pool resources are resources that benefit a group of people but they provide diminished benefits to everyone if individuals pursue their own self-interest. Political ecologists such as Bryant and Bailey (1997), Ostrom (1990), Sullivan and Homewood (2004) argue that common-pool resources require the state or the market in order to avoid tragedy. This means that natural resources, being common pool resources, need legal protection so that they will not be recklessly exploited.

The state engages the community through awareness campaigns, funds environmental projects and plays a major role in ensuring sustainable management of land and forest resources for the betterment of the lives of Chivi District communities.

This study, though, established that despite the efforts of state actors to promote sustainable use of environmental resources, the Chivi District resources are depleting by the day and the lives of the people in Chivi District are worsening. Studies by Grimble and Laidlaw (2002), Hulme and Murphree (1999) and Rinzin (2009), have also demonstrated the failure of this approach to protect natural resources as well as promote rural development. The local actors are argued to be the best managers of their own natural resources. Roe et al. (2009), Scherr (2000), Stringer (2009) and Xu et al. (2008) offer mounting and indisputable evidence for the inherent capacity of local actors to act collectively in order to solve environmental problems. There is a need to shift environmental management responsibilities from state actors to local institutions such as traditional leadership and their people. Bixler et al. (2015) postulate that participation in conservation must be understood in the broader political economy of conservation in which local

projects unfold, and suggest that theories of participatory governance need to be less generalised and more situated within contours of place-based institutional and environmental histories. In some parts of the world, local people challenged state power and force it to yield ground. Banerjee (2001) uses the example of the tree-hugging movement in India, and the resistance movement against logging in Borneo.

After clear failures of the state to manage natural resources to meet local needs, in the early 1990s community involvement and problem-solving at the lowest feasible level of organization (the subsidiary principle) became alternatives to top-down management of natural resources (Agrawal and Gibson, 1999, 2001; Brosius et al., 1998; Ribot, 2002; Scott, 1998; Western and Wright, 1994). This trend has also led the Zimbabwe government to involve environmental monitors in natural resource management. In the Chivi District, there are thirty two ward councillors who are political leaders and report to EMA, and seven non-councillors who report to Chivi RDC. This participation, is however, very tricky because the monitors report to state actors which are EMA and RDC. Traditional leadership in the District also report to the District Administrator and Chivi RDC. This participatory development has offered a convenient way for the state to maintain existing power relations and to ensure the silence of the poor (Botes and van Rensburg, 2000).

There are several flaws and inconsistencies evident in the allocation of responsibility and authority over management of natural resources access and use, which is based on the top-down approach. There are too many players at district level who govern the management of natural resources and yet there is still continual destruction of the land and forest resources. The actors

are doing little to abate the problem of resource destruction. The role that EMA and RDC play as statutory bodies is supervision of the natural resources in Chivi. The situation places external actors in a controlling position in the management of Chivi land and forest resources. The voices and priorities of local people should be incorporated in the quest to realise sustainable rural development. Mawere (2013) suggests that environmental conservation and the pressures on biodiversity can best be addressed with close coupling of approaches for both scientific and indigenous epistemological systems.

EMA and Chivi RDC are in this case the managers of all the natural resources in the District, whereas the Forestry Commission and the Ministry of Agriculture, Mechanisation and Irrigation Development are in charge of forest and land resources management, respectively. EMA oversees the sustainable management of the land and forest resources, and the RDC is the lands authority. The endorsement of environmental laws and acts is exclusively the preserve of the Minister of Environment, Environmental Management Agency and Rural District Council. The local communities to whom the acts and policies are applied are not involved in the formation of the same. At district level, the environmental acts and policies in Zimbabwe are governed by EMA and RDC. The role of ensuring sustainable use of resources is performed in good faith but this leaves the local community without control of their own environmental resources. This has direct implications on the effectiveness of the regulations they intend to implement. The effective legal systems should be best founded on the beliefs, values and opinions of the society. The Minister, EMA and RDC are far removed from the resource use community and so are not best placed to ensure that these measures are benefiting the communities. The study also revealed that

there are no checks and balances to make sure that the departments are exercising their authority in the best interest of the Chivi community.

Though it is acknowledged that there are thirty-nine environmental monitors in the communities who govern the use of, and access to, natural resources, these individuals are also upwardly accountable to Chivi RDC and EMA rather than to the communities they serve. This is an external imposition of actors who are remotely located from the citizens by the Zimbabwe government. The departments, however, insist that their role is to ensure the development of the rural community. Coglianese (1999) argues that although laws and policies from the state may purportedly champion the cause of citizen participation, the chorus of such participation has a distinct upper class accent. The argument by Coglianese (1999) is the context in which EMA operates; it is the top-down allocation of environmental jurisdictions through the conferment of the authority to EMA to enact environmental laws and acts that are legally binding to the Chivi District. Madondo (2001) who studied by-law formulation by the Chivi RDC is in agreement that Chivi RDC and departments such as EMA are representatives of the government in the rural community. Madondo (2001) argues that parliament is the supreme law-making organ and lower level bodies such as the Rural District Councils (and municipal authorities) are subordinate bodies which enjoy delegated authority to make subsidiary regulations, rules, orders and by-laws.

The actors such as EMA, Chivi RDC, the Forestry Commission, the Ministry of Agriculture, Mechanisation and Irrigation Development and non-governmental organizations such as CARE International and SAFIRE offer forums for discussing community and sectorial development

plans but the idea that environmental issues are dominated by technocrats at the higher levels underlies the technicist content and orientation of the set of acts and policies endorsed by the Zimbabwe government. It is thus worth noting that these legal persons do not effectively represent the visions and aspirations of grassroots communities, neither are they effectively accountable to them. Several studies have argued that the so- called participatory or decentralised management systems at district level are essentially state management (Murombedzi, 1991, 1992, 1994; Murphree, 1990, 1991, 1997, Mandondo, in press). In spite of the veneer of accountability, participatory resource management systems implemented through district structures are generally practised on the terms and conditions of actors who are far removed from the resource use setting (Schroeder, 1999).

All the environmental legal frameworks, ranging from Environmental Management Act, Traditional Leaders Act, Communal Land Produce Act, to the Forest Act also give the RDC the appropriate authority status over a broad range of resources, land and forest resources included. Legal entrustments of environmental jurisdiction are transferred basically from the top to the community people, as opposed to bottom-up delegation. The environmental laws and acts enforced by state actors are prescriptive and do not embody the spirit of community participation. Because of their top-down orientation, the plans often are not in sync with the priorities and coping strategies of rural people in Chivi. The environmental acts and policies have replaced local environmental conservation but to effectively fight environmental resource problems, Singh (2000), and Adams (2001) argue that national environmental management laws should support local initiatives, not to replace local community conservation strategies. Also, formal science should be combined with indigenous technical knowledge.

EMA and RDC are authorised by the Government of Zimbabwe, through the Environmental Management Act, Chapter 20:27 and Rural District Act, Chapter 29:13, to fine and imprison those who misuse environmental resources in their areas of jurisdiction. The set-up criminalises the local use of land and forests resources. The community expressed that the fines are extraordinary, given the economic conditions in Chivi District. This perception is, however, not encouraging the over-exploitation of the natural resources in the drought-prone area, but querying how the fining issue is handled. The expectation is that the Chivi community will co-operate with the imposition of extra-ordinary fines for various violations. The fines and imprisonments are done in order to reduce the plunder of natural resources. It is a noble idea, but it is only going to work if a voluntary system of local regulation for ensuring sustainable use of environmental resources is put in place.

The fines that are being charged are not compatible with the work being done to rehabilitate the environment; the revenues are siphoned to the revenues of RDC and EMA, and not directly addressing the environmental problems for which they will have been imposed. For instance, those who practiced illegal mining in Denga were made to pay a \$200 fine and made to close the pits by EMA. The cost of exploiting the land and forest resources is close to the people yet the benefit from the charges is far removed from the Chivi District community because the income may be used for other purposes by either EMA or RDC. The best setup is that which identifies users of resources as owners and managers of the resources, so that the costs and benefits accrue directly to them. Ntuli and Muchapondwa (2015) who studied the role of institutions in community wildlife conservation in Zimbabwe, established that from a policy perspective,

external enforcement of rules and regulations does not necessarily translate into sound ecological outcomes; rather, better outcomes are attainable when punishment is endogenised by local communities

There is also the Rural District Development Committee which the District Administrator chairs. This is a forum for solving community problems and making sectorial plans. In practice, it attenuates the spirit of popular participation but it also side-lines community plans and visions because it is dominated by leadership from various local government departments. The dominance of specialists from various departments from the Chivi District partly produce the technicist content and orientation of the set of laws and regulations set by the state, which will be represented by EMA as well as the by-laws adopted and endorsed by Chivi RDC. The Committee as a body of legal persons in areas under their jurisdiction does not effectively represent the visions and aspirations of grassroots communities, neither are they effectively accountable to the community. Vaccaro et al. (2013) also affirm that many contesting voices claim that imposed conservation of natural resources results in extensive environmental injustices associated with the violation of traditional local rights to land and resources. This is evident in the District because the more environmental controls are put in place, the more the resources are degraded.

The impact of such an arrangement is, in practice, retarding rural development in Chivi District. The environmental acts and policies are punitive and not rehabilitating because there is a lack of community responsibility and sense of ownership. The government of Zimbabwe, through its legal framework and different departments, is punishing the rural Chivi District community for

not respecting rules and regulations that were put in place without their effective involvement and consent. The situation on the ground reflects that legislative pieces alone cannot protect the environment. The actors and environmental monitors in the Chivi District are playing a major role in sustainable management of the resources but environmental degradation is increasing by the day, and the lives of the communities in Chivi District are getting worse. The Environmental Management Act's objectives focus on the impact of environmental damage on the environment, yet there is also need to focus on the implications on rural development. Focus on rural development, especially in this drought prone region where the Chivi District depends on very scarce environmental resources for their livelihoods, will help the state actors to revisit the way the legislation is made. With this in mind, management and monitoring of land and forest resources will not be done only on the basis of meeting goals of sustainable environmental management but also on the basis of meeting goals of development priorities and aspirations of the local community.

4.3 Role of non-governmental organisations

4.3.1 Conservation

One of the major roles played by non-governmental organisations in Chivi District is environmental conservation programmes. SAFIRE is one of the NGOs that implements conservation programmes in the Chivi District. SAFIRE has been described in the 1990s by Grundy and Breton (1997/98) as a Zimbabwe development agency dedicated to the development of rural self-sufficiency through the improved management of natural resources in rural and resettlement areas. In its programme called Environmental Monitoring and Protection of Runde Catchment area, it seeks to increase water supply in the Lowveld industries in Zimbabwe through sustainable and productive use of natural resources. Interviews were conducted with the

ecologist from SAFIRE and he explained that the project targets all areas that supply water to sugar-producing industries in the Lowveld such as the Chivi District. He explained that the project was derived from the Government of Zimbabwe's Annual Action Plan of 2012 and then SAFIRE introduced a three-year project from November 2013 to November 2016. The project's objective was,

To increase water supply to sugarcane plantations, to address low water supply to the Lowveld of Zimbabwe and to reduce siltation of rivers, streams and dams (SAFIRE Official, personal interview, 2016)

The ecologist explained that they had hardware and software projects in the Chivi District. In the hardware project they would be supplying resources to be used in carrying out the project. In this project, SAFIRE supplied fences for nutritional gardens to avoid cutting down of trees and to convince people to move away from road side and river side gardens.

4.3.2 Rehabilitation

4.3.2.1 Gully reclamation

Chivi District is characterised by a number of gullies as a result of overexploitation of environmental resources. However, a number of positive responses have been made by government departments and NGOs to address the problem. There are gully reclamation projects by NGOs such as SAFIRE, CARE Zimbabwe International and World Vision. Nengomasha (2006) defines gully reclamation as the process of reinstating and improving land that has been disturbed by excess runoff back to its original condition and preventing further damage to it. The Runde sub-catchment area project initiated by SAFIRE and CARE involves gully reclamation. This project was meant to avoid siltation of big rivers, especially Tokwe, which feeds into Tokwe-Mkosi Dam and is expected to save the Chivi District from hunger since it will be the

largest inland dam in Zimbabwe. CARE and SAFIRE provide transport and material for the gully reclamation programme.

The research established that in many wards, the people of Chivi District are engaged in Food for Work (FFW) as they reclaim the gullies. FFW programme in Zimbabwe was initiated in October 1989, designed to operate from bottom up, with projects identified by villagers themselves and provincial technicians assessing, approving and supervising appropriate plans (Webb, 1992). In 2016, the government of Zimbabwe unveiled the FFW programmes to benefit thousands of food-insecure Zimbabweans. Poor households are eligible to register. The main project identified in the district is gully reclamation. The rural communities are given incentives for reclaiming degraded areas. The Agricultural Extension Officers' supervisor in Wards 4 to 7 highlighted that vulnerable families from each ward gathers and identify gullies and eroded areas near or on roads. They open new roads and repair degraded ones. The Department of Social Welfare provides 50kg of maize meal and US\$10 per family per month. It was explained that the FFW programme takes in at least 100 people per ward. The same exercise is done throughout the District. As the researcher travelled across the District, a number of people in many wards were repairing gullies, and the Department of Social Welfare and CARE International gave them maize meal in return. Road repaired under the FFW programme in Chikofa area See Figure below

Figure 4.6 Reclaiming of the degraded road by villagers in Chikofa area



In Ward 25, the villagers were mobilised to do voluntary work by CARE International to fill up potholes on Chirote road. The village head appreciated that but another villager was concerned that CARE International should have paid the villagers for the work since it initiated the project. The villager lamented that,

We are working on the road because we want to get payment from CARE International so that we can feed our children. We appeal to CARE to appreciate our position as we have no food at all' (Mr X, personal interview, 2016).

Some responses have also been made on gully erosion. SAFIRE worked with World Vision, CARE International Zimbabwe and governmental departments such as Mechanisation, Agritex and EMA in the land use sub-committee. The move saw the Chivi communities rehabilitating the Mafidhi gully in Ward 15. The community members managed to establish gabion structures to stop further development of the gully at a number of places where lateral erosion was expanding the width of the gully. See Figure below:

Figure 4.7: Mafidhi Gully being rehabilitated by Runde Catchment Project in ward 15



The Environmental Officer B also highlighted that The Desert Margins is another department which was involved in gully reclamation in the Chivi District and has seen a number of activities being undertaken on the ground, such as pegging and establishing of conservation works in the catchment areas of the gullies. The Desert Margins made efforts to reclaim Zihwa gully in Ward 17 and Mafidhi gully in Ward 15. The Department of Natural Resources and ZIRRICON have also assisted communities in Ward 13 to reclaim Gomana gully. However, in some areas, local people have organised themselves to reclaim gullies within their vicinity, for example, in Gumbochuma village, Ward 14, the local people have embarked on gully reclamation.

This study, however, discovered that the success of reclaiming gullies is evident in very few areas in Chivi District. The majority of the rural people in Chivi managed to reclaim small gullies, especially along the roads and main ways. During transect walks and interaction with the community, the researcher found out that the people in Chivi District are too incapacitated to reclaim gullies on their own because the gullies are so big that they can better be reclaimed by

machines. The government and NGOs only fund the purchase of maize meal, its transportation and money but do not provide the required material and machinery for the gully reclamation projects. Though it is noted that the Social Welfare department and NGOs managed to mobilise the whole District to repair and reclaim gullies, the material to reclaim such gullies is not enough for the task. The Ministry of Local Governance official also highlighted that most of the big gullies in the District cannot be reclaimed by local people without intervention by state or NGOs in providing proper machinery for the task. This exercise is not bearing the desired results of ensuring sustainable rural development through reclaiming the degraded land. Locally available materials such as vertiva grass and bamboo to rehabilitate and stabilise soils are not enough. Though research has shown that bamboo has been used successfully in many areas to rehabilitate degraded land back into productive fully functioning ecological systems, there is a need for proper and advanced machinery to reclaim gullies in the Chivi District. See figure below on gullies that are beyond repair without use of proper machinery and advanced technology

Figure 4.8 Chikati gully in Ward 17



Whilst the objective of the project is ensuring that the big rivers and dams are not silted, the situation on the ground reflects that the main reclaimed areas are roads. During transect walks,

the researcher witnessed people reclaiming gullies on the roads in almost every village. They filled in the gullies with stones, tree branches and gravel. The other villagers professed ignorance of the purpose of reclaiming degraded land. The majority believes that the purpose is to ensure that their roads are repaired so that their villages can be accessed easily by NGOs and themselves. Few big gullies were reclaimed in only three wards, that is, Wards 14, 15 and 17 in the District. The fact that the majority of the Chivi District community cannot reclaim gullies without being given incentives such as mealie meal or money reflects that the community feels that it is not their obligation to reclaim gullies. A villager's claim that it is the responsibility of CARE International to pay them to reclaim gullies is testimony that some rural people think that reclaiming the degraded land is not their responsibility. There is a knowledge gap that needs to be filled. The effects, purpose and objective of reclaiming gullies is yet to be explained clearly to the rural people of Chivi. The impact of degraded land on sustainable livelihoods and rural development, thus, needs to be explained to the people.

There is evidence that more needs to be done with regards to gully reclamation. Communities are to be made aware that gully erosion has detrimental effects on the environment, which include siltation, loss of biodiversity and inaccessibility of some areas. The soils removed during gully formation are carried down slopes and fill their rivers, dams or wetlands downstream. The researcher observed during transect walks that most of the water bodies in the Chivi District are severely silted and this has reduced their water-holding capacity. The formation of gullies has affected all livelihood activities that are dependent on water, especially garden projects that are no longer functional since the supporting dams and rivers dried up. The reclamation of gullies should, therefore, be done with this idea in mind since their formation has affected household

food security and balanced diet in many families. The researcher noted that reclamation of gullies has not received the attention it deserves. The Makonese Irrigation Scheme under Headmen Makonese in Ward 9 is one such project which was supporting quite a number of families and households and producing notable harvests per annum, but now because of the siltation of Denge Dam, only one tenth of the scheme is operational.

The gully reclamation projects should be inclusive of the whole community, state actors and NGOs, if sustainable rural development is to be realised through the use of, and access to, land resources. The fact that that vulnerable and poor families are chosen from each ward to reclaim gullies is also an anomaly. This is segregation since indirectly the state actors and NGOs imply that environmental issues are for the poor people, yet everyone, be it poor or rich, have to take care of natural resources. The conservation and protection of the environment is not the mandate of the poor and vulnerable people of the District but rather, it is the responsibility of everyone. Measures that are being implemented to address the issue of gully development are fragmented and seem to have very limited success. There is a need to revisit the approach, methods, techniques and strategies which have been implemented, with a view to blending them with the idea of promoting sustainable rural development through sustainable land use. Nengomasha (2006) affirms that, although there are many on-going efforts by the various supporting projects and the regular Zimbabwe government's land management program to rehabilitate gullies, a lot still needs to be done. Gully reclamation is a well-planned conservation programme that lacks proper funding and resources to enable it to yield the desired results and ensure that all the degraded land is rehabilitated.

4.3.3 Training

NGOs also implement a software project that focus on training the communities on their role and responsibility in management of environmental resources. The purpose is to ensure behaviour and attitudinal change of the Chivi community towards the use of natural resources. The ecologist from SAFIRE indicated that the organisation trains environmental committees on major operational areas, who will then monitor access to, and use of, environmental resources by the community members. The Environmental Committee monitors are equipped with skills by SAFIRE and then cascade information to the sub-committees regarding the community activities on environment. This enables them to track activities as well as develop the trend.

The SAFIRE official explained that through the software project, they had trained the communities who live upstream to be involved in sustainable environmental management and conservation agriculture. The aim was to capacitate the communities of Chivi District with knowledge, which would result in behaviour change. He gave the example of a community in Chivi, in Ward 4, who are constructing sand traps to avoid siltation of rivers and land degradation, and rehabilitating gullies. He further indicated that,

In Ward 2, the communities were equipped with strategies to cope without overexploiting environmental resources. The ward initiated the building of a dam and at the dam, there is a fish seed project which was initiated by the local people. After harvesting the fish profits are shared. In Ward 2, members bought forty bags of cement and rehabilitated the dam wall.
(SAFIRE Official, personal interview, 2016)

SAFIRE further highlighted that they trained the communities to formulate environmental by-laws at ward level as a way of empowering the rural communities. Resultantly, the communities

managed to formulate by-laws and submitted them to Chivi RDC. These by-laws are Chivi Rural District Environmental and Natural Resources Conservation By-Laws. The informant also explained that the organisation managed to transform traditional leadership by training them on their roles in sustainable natural resource management. In Ward 10, after training from SAFIRE, traditional leadership agreed to move people from Govaguru wetlands and also requested fencing material from EMA. Where communities cannot find resources to rehabilitate affected environmental areas, SAFIRE and EMA provide material.

The non-governmental organisations who are involved in the management of natural resources in the Chivi District complement government efforts. Chirenje et al. (2013) argue that nearly all countries recognise the need to involve communities and other actors such as non-governmental organisations as partners in sustainable natural resources management. The Environmental Monitoring and Protection of Runde Catchment Area Project was driven by Zimbabwe Government's 2012 Action Plan. This project can be viewed as a way to connect sustainable rural development with management of immediate environmental resources. Political ecologists such as Blaikie (2006) and Fabricius et al. (2004) posit that Community Based Natural Resource Management (CBNRM) programs sustained by Western non-governmental agencies and governments proliferated as a way to connect local development with conservation. The NGOs are going an extra mile from the traditional trend of NGOs known for introducing unsustainable rural projects. Conservation NGOs such as International Union for the Conservation of Nature (IUCN) and the World Wildlife Fund for Nature (WWF), also started to redefine concepts such as nature, use, or jurisdiction in order to consider nature and culture in their work (Santamarina, 2008).

The researcher learnt that NGOs offer knowledge which is transferrable from one generation to another and facilitate sustainable use of land and forest resources. SAFIRE, through its software project, has gone a long way in making the communities in Chivi District aware of the importance of maintaining their resources. In drought-prone areas such as the Chivi District, it is prudent for NGOs to provide resources and incentives to motivate community members. In some parts of the district, CARE International gives community members mealie-meal as an incentive for reclaiming gullies. Bakiika (2013) argues that NGOs have provided services that have improved livelihoods of many people because they have been involved in conservation efforts, awareness raising and sustainable development. This, though, may be viewed by some critics as destroying the community in that these people will not be able to mobilise themselves and reclaim degraded areas without incentives. A good example is the villager in Ward 25 who expressed that CARE International should pay villagers for maintaining their road. This is testimony that more has to be done, especially in bridging the knowledge gap. The way environmental management is structured in Chivi is a cause for concern because local people now think that the issue of managing natural resources is not their mandate but the responsibility of RDC, EMA and NGOs.

Some scholars, however, argue that NGOs, just like government departments, are working on environmental issues since it has become a global problem, and to gain funds from different institutions. The worrying part is whether this is done for the development of the rural community where resources are being protected. Chapin (2004), West et al. (2006), and MacDonald (2010) also express that, these financial and legitimacy transfers have often been

negotiated with complete disregard of local and indigenous peoples. In this study, there is the SAFIRE project whose main objective is to address low water supply in the Lowveld of Zimbabwe, where there are sugarcane industries which are an economic benefit to the nation.

The researcher was informed that the communities in Chivi District are benefiting indirectly and this can facilitate sustainable rural development, like what is witnessed in Ward 2, where the people initiated a dam project and avoid stream bank cultivation. The worrying aspect is that in the Government of Zimbabwe Action Plan or SAFIRE's objectives, Chivi rural people were not the intended beneficiaries; the beneficiaries were the industries in the Lowveld. The non-governmental organisations, just like other companies, can be viewed as aiming to gain green respectability at the global market. Igoe (2010) and Sullivan (2012) argue that tourism, and subsidies from governments, NGOs, or companies interested in gaining green respectability, have become a fundamental part of the managerial plans of protected areas. The introduction of environmental conservation during the global economic recession, the issue of protected nature, has become a commodity to be sold by governments, multinational organizations, or non-governmental organisations on international markets, as political or economic leverage (Igoe and Brockington, 2007; Hardin, 2011).

4.4 Role of local leadership

4.4.1 Conservation

Closer to the Chivi Rural District community are the traditional leaders who manage the conservation of environmental resources. The role of traditional leaders is significant since they are better placed to promote environmental conservation measures in their jurisdiction, as they are physically closer to the people than the government (Chigwata, 2016). Interviews were held

with chiefs in Chivi. The chiefs highlighted that their role as traditional leaders is to govern the management of natural resources and monitor the nature of the users.

The traditional leaders, however, lamented that traditional conservation methods were used to maintain resources sustainably but with the coming of modern education, they were destroyed. Chief C expressed that traditional leaders were deprived of their powers and as a result, communities do not believe in local conservation strategies but fear EMA. He indicated that during the olden days, forest resources were being managed properly through the existence of Marambakutemwa (restricted forests) and zvidhunduru/chirambadarikwa (beacons). Restricted forests (marambakutemwa) are forests set aside by traditional leadership for conservation purposes. The traditional structures put restrictions on the use of trees and ensured that deforestation did not take place. The forests were dedicated to the protection and maintenance of natural resources management through tradition. Beacons (zvidhunduru) are boundaries placed to demarcate and protects land that should not be cultivated. The Chief revealed that,

Marambakutemwa used to exist and were respected but they were destroyed during land resettlement in 2002 and no longer exist save for one area near the mountain. There used to be 'zvidhunduru' (beacons) which were removed by people during the land reform period and that led to siltation of rivers (Chief C, personal interview, 2016).

He informed the researcher that the politics of the land in the early 2000s destroyed traditional leaders' powers over land use, but the powers have been revived of late. Politics of the land referred to by Chief C is the fast track land reform programme of 2000 in Zimbabwe. The government of Zimbabwe embarked on the fast track land reform programme in a bid to address

environmental damage, reduce population pressure on communal areas as well as empower the people. The programme, however, resulted in vandalism of existing structures such as restricted forests, contour ridges, abandoning of designated areas such as wetlands and stream banks which are then converted into farming units (Chigwenya, 2000). Similarly, Zembe et al. (2014) posit that grazing land was reduced resulting in the tragedy of the commons and environmental degradation.

Chief A also raised concerns over the destruction of forests in his area of jurisdiction, as a result of resettlement. He mentioned,

There was once a restricted forest in Magwati village but it no longer exists because the place has been turned into a village. Grazing land no longer exists because of the resettlement scheme which was introduced after independence. (RDC Environmental Management Committee Office, personal interview, 2016).

He also mentioned that there used to be ‘chirambakudarikwa’, which are beacons used traditionally to inform the people that they should not go beyond those beacons when farming. The Chief also indicated that they used to have monitors known as ‘majengetavhu’, but they no longer exist in his area because their role was taken over by Agricultural Extension Workers.

The interview held with Chief A, revealed the communities are not conforming to traditional conservation methods because of poor living conditions,

Conservation methods exist and natural resources needs to be conserved sustainably but we are not putting strict measures to our people because they are poor, they had no other option nor livelihood strategy except to survive from exploitation of natural resources. What

can we do to them if there are poor and there is drought? Nothing. (Chief A, personal interview, 2016)

He further explained that traditional conservation methods ensured that forest resources such as trees are conserved and protected, to serve the community, for instance, people are not allowed to use certain trees for firewood. These include African wattle, duiker-berry, confetti tree and wild gardenia. The African wattle tree is used to appease avenging spirits, the duiker-berry tree is used to cure ill people, the confetti tree is used to cover graves and the wild gardenia is used to treat people. Protecting these trees is a way of ensuring that the present and future generations would benefit from the natural resources.

Chief B also indicated that his role as a Chief involves encouraging the proper use of environment resources but the chiefs no longer have full control over the use of natural resources. He explained,

This situation has its origins in the 1980s when traditional leaders' powers were reduced because of the introduction of Village Development Committees (VIDCO), Ward Development Committees (WADCO) and RDCs which got involved in managing and controlling environmental resources. (Chief B, personal interviews 2016)

The Chief, however, stated that the error has been realised and the Traditional Leaders Act was amended to give traditional leaders powers to control the access to, and use of, natural resources. EMA and Chivi RDC encourage and engage traditional leadership in environmental issues because Chiefs are the ones who live with the community. Traditional leaders are now expected to attend RDC Environmental Management Committee meetings every month.

The Chief indicated that he had advised people in his area to plant more trees, especially fruit trees at community homesteads. There was a gum tree project in Gwenjere area but it stopped because no one was controlling the use of trees. The gum trees were accessed by everyone, without anyone controlling their access and use and as a result they were destroyed. Only a few individual gum tree plantations exist. The Chief also explained that traditional conservation methods are respected in some areas, especially in restricted mountains called Chamanhanzva and Mugwazi,

No one is allowed to settle on Chamanhanzva or Mugwazi mountains, or to destroy trees. In Mugwazi, there are taboos associated with the mountain. It is a sacred place where traditional activities are practiced. (Chief B, personal interviews 2016)

4.4.2 Monitoring and Prosecution

The traditional leaders also monitor the environment and prosecute people in their area of jurisdiction. In controlling the use of resources, traditional leaders engage village heads who are responsible for keeping the environmental resource base. There is a committee known as ‘machinda’ (Chief’s Council) who help in monitoring the environment and advise the people on how to sustainably use the resources. The ‘machinda’ (Chief’s Council) and the village heads are also responsible for reporting the culprits to the traditional leaders on any damage done to the environment. The Chiefs council summons culprits to the Chief’s dare (Chief’s court). The chiefs highlighted that normally culprits pay fines at the Chief’s dare and if the case is serious, the culprit will be sent to EMA Officers.

However, the monitoring of the environment by traditional leaders has its own challenges. The headman interviewed highlighted that in his area of jurisdiction, there is a knowledge gap

because there is a lack of respect for traditional leadership. There is a contestation over leadership and as such, people are doing whatever they want with environmental resources. The headman complained,

Members in the community are disrespectful to the village heads and even to me. Can you imagine someone questioning the authority of the District Administrator and claim that they have rights to use natural resources the way they want? (Headman A, personal interview, 2016)

He gave an example of Ward 19, where there is rampant destruction of trees and the people in the ward threaten leadership and environmental monitors. They claim ownership of the resources and as a result do not manage natural resources sustainably. The headman pointed out that in Chikati village, there is no environmental subcommittee to look into environmental issues and in Ward 17, every village head is acting as a headman. The villagers do not involve nor respect their headman when it comes to environmental issues. People no longer respect ‘zvidhunduru’ in the area. He expressed that the people in Chivi District misinterpreted the real meaning of independence and started ignoring the issues of beacons and environmental restriction soon after independence. The communities are involving politics in environmental issues and they link sustainable management of natural resources to the colonial period and abuse. However, the headman indicated that there is existence of ‘marambakutemwa’ known as ‘Romorehoto’ and ‘Mupagamuri’ forests. People are not destroying trees in those areas because they view them as sacred places.

4.4.3 Land Allocation

Traditional leaders in most parts of Africa always play a role in the allocation and management of communal land for residential, agriculture and grazing purposes. Zimbabwe is not an

exception. Its traditional leaders are custodians of the land since the colonial time. Matondi (2010) argues that traditional leaders in Zimbabwe are generally regarded as the custodians of the land and other natural resources in their respective jurisdictions. Traditional leaders have historical and customary functions and proximity to rural communities. Traditional leaders who work in great proximity to the day to day use of rural land cannot be overlooked in the allocation and sustainable utilisation of land. The Traditional Leaders' Act sets the traditional leaders as the custodians of the land. They are responsible for distribution and conservation of land in rural areas.

However, there is a dual system of governance because both the traditional leadership and RDC have the legal basis for their role in land allocation. The Communal Lands Act stipulates that allocation of land in communal areas is done by the traditional leader but is subject to the consent of the RDC. The dual system of land governance provides a conducive breeding space for conflict between the two. The New Constitution of Zimbabwe (2013) gives authority, jurisdiction and control over land to traditional leaders but legislation prior to the constitution reserves primary authority over allocation of land to the RDC.

4.5 Role of Environmental Monitors

4.5.1 Monitoring and Training

The Chivi District has seven environmental monitors manning all the thirty-two wards. The environmental monitors are community instruments who advise and alert RDC and EMA on any environmental situation that needed attention. The interviews held with these monitors found that they call for meetings, monitor the environment and record all areas that were destroyed. They mobilise community people through councillors (who are subcommittee chairpersons and report

to EMA) to come to meetings. Their main duties entail maintaining and monitoring the natural resources such as water, land, trees, fruits and soil. They monitor how the people are using and accessing these resources. The Environmental Management subcommittee chairpersons, who are councillors, monitor and supervise each ward and write reports and submit them every month to non-councillors known as environmental monitors.

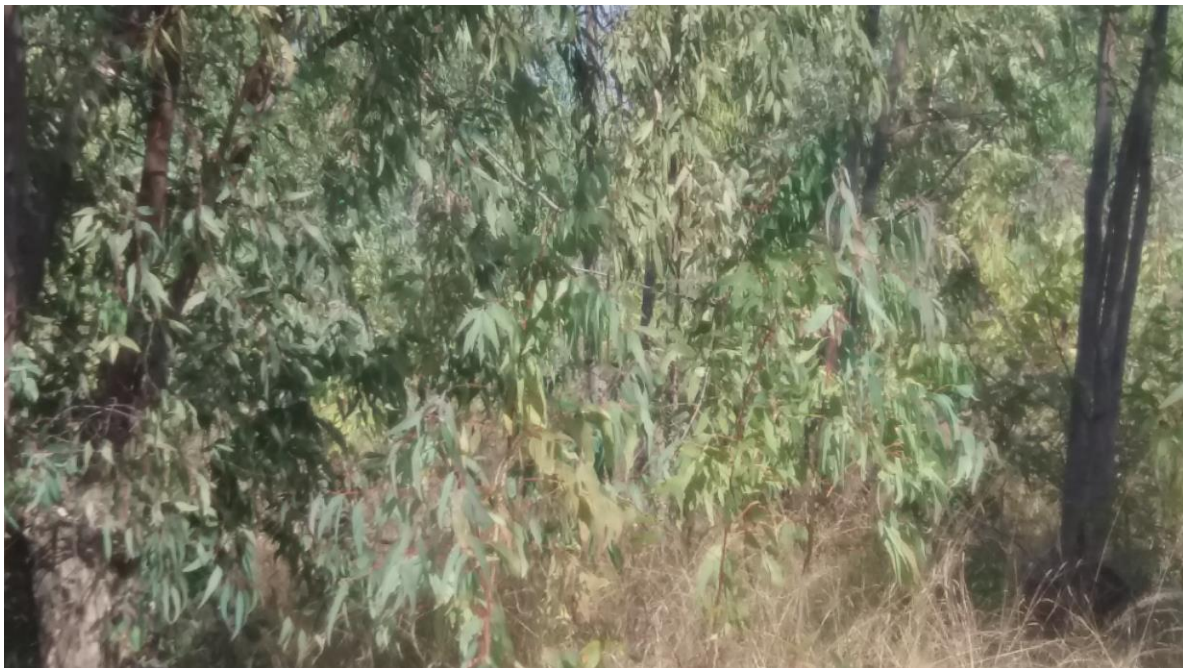
The monitors teach and advise the communities on how to use the environment. They educate those who destroy the environment on the advantages of conserving the land and forest resources. The monitors also monitor environmental resource use by visiting the areas on a weekly basis to explain environmental acts and environmental model by laws to the community members. Environmental Monitor A informed the researcher that he works with village heads to monitor resources, for example, land use practice, the use of sleighs, and destruction of trees. After visiting the village heads, he patrols twice a month along rivers, noting down all problem areas. The monitor also gets information from the VIDCO on environmental issues as well as individual reports from community members. He stated,

I patrol Runde and Tokwe River catchment areas with the purpose of ensuring preservation of water; for example, the issue of illegal gold panning that disturbs movement of water. During patrols, I discovered people engaging in illegal mining in these rivers and I reported the case to the traditional leader, Headman Madamombe and the Chief's police who then assisted me to address the problem' (Environmental monitor A, personal interview, 2016).

The monitors also train the community members. According to Environmental Monitor G, the main duties of monitors are visiting and teaching respective wards on how to conserve natural

resources. In the area under his supervision, he holds area meetings two times a month. He encourages the communities of Chivi District to reclaim destroyed areas, for example, he initiated afforestation in Ward 28 where people planted gum trees and fruit trees. It was a bare and unfertile land. Planting gum trees helped by providing poles for construction. According to the informant, the project helped the people in Ward 28 to stop destroying forests. See Figure below

Figure 4.9 Gum tree plantation in ward 28



He also explained that he played a leading role in repairing gullies through the FFW Programme. For example, CARE International Zimbabwe and Triangle Estate reclaimed gullies at Chihamure and issued food packages to people. The people of Ngundu (Chivi South) reclaimed the destroyed land. The lantana camara plant which was in the grazing land and near the streams was uprooted and burnt. Many gullies in Ward 25 were also reclaimed.

4.6 Analysis and discussion of the role traditional leadership and environmental monitors

This research revealed that traditional law enforcement has been replaced by EMA and RDC. The local traditional enforcement was based on the spiritual beliefs of the Chivi Community. People were maintaining environmental resources believing that they would not evade the spiritual guardians of the land. Mawere (2013) argues that in Zimbabwe, conservation by the state has tended to favour and privilege Western scientific models at the expense of the 'indigenous' conservation practices of the local people. With the introduction of EMA and its respective acts, the community no longer believes in the taboos. A study by Chitombe (2013), similarly established that after independence the authority of traditional leaders was emasculated by modern institutions in a bid to uphold the thrust of democratisation, thereby leading to the wax and wane of traditional authority. The interviews with chiefs and Chivi RDC Officer revealed that RDC and traditional leaders co-operate and work as a team in almost all aspects of the environment but the worrying aspect is that the Traditional Leaders Act and the RDC Act that govern them are giving them the same roles and responsibilities. For instance, the RDC is presented as the lands authority yet the traditional leaders are also responsible for allocating land. The policy framework gives supreme authority to the chiefs and RDC to allocate and manage land use. This is a dual system of natural resources management. The management of land resources becomes disorderly. Mawere et al. (2014) argue that it is worth noting that the new institutions ran parallel to the traditional institutions already in existence, thereby creating the possibility for competing jurisdictions in the rural areas. The environmental legal framework shows the duplication of roles and interests of traditional leaders and RDC, there is no clear division of responsibilities with regards to environmental matters.

There is evidence that modern institutions introduced by the local council to deal with people who disobey conservation rules affect sustainable natural resource use. The disempowerment of chiefs in the post-colonial period in many African countries, in particular Zimbabwe, left a power vacuum in the sustainable natural resources management in rural areas where despite being community leaders, traditional institutions are not legitimised in natural resources management (Mawere et al., 2014). This environmental management structure is the root of conflicts and is creating fissures that weaken the enforcement of sustainable resource use strategies. The expectation and the purpose of the policies and structures was to ensure that traditional leadership and state actors work together and play a decisive role in enhancing the effectiveness of sustainable management of resources, but in practice, especially in land allocation, it is not working properly. Similarly, a study by Akpalu and Martinsson (2011) reveal that communities benefit when institutions are endogenised by the community compared to the case when rules and regulations are externally enforced by the government. In this case, the land and forest resource management in Chivi relies to a great extent on state authorities to monitor and enforce rules and regulations but the continual destruction of these resources reflects that the setup is not working. Chigwata (2016) advocates a clearer delineation of competency between rural local authorities and traditional leaders with respect to environmental conservation. He further argues that this should be informed by the need to respect the institutions of traditional leadership, whilst promoting democracy through elected rural local governments.

The traditional leaders who were interviewed also confirmed that the Chivi RDC and EMA determine fines and put in place environmental monitors to apprehend offenders. This is contrary to the process of empowerment of the local communities as espoused in participatory approaches

in sustainable utilisation resources (Chitsike, 2000; Elliot, 1996; Murombedzi, 1993). The modern arrangement upsets the local leadership and effective practice whereby the traditional leaders imposed fines against perpetrators or referred the cases to the chief if they were serious. In the current arrangement, the Chiefs rarely charge fines for violations. In most cases, fines are imposed by EMA. The RDC Act has indirectly disempowered and distanced local traditional leaders from conservation practices.

The environmental monitors who are representatives of the community are viewed as controversial figures. Local communities are expected to cooperate with environmental monitors who impose fines for various violations, with the revenue accruing to the RDC and EMA. There are several occasions when monitors are threatened with violence by the community, for instance, in areas near Mhandamabwe Business Centre, a monitor cannot visit farm brick moulders without the Zimbabwe Republic Police because he or she may be attacked. The fear of violence inhibits monitors from apprehending suspects. In the Chikofa area, traditional leadership also laments the violent nature of illegal gold panners at Zialand Mine and the fear to approach the gold panners. In Mandondo's (2001) study of the Chivi District, one of the monitors was extricated from a brawl in which he was about to be axed by a suspected environmental violator. As explained by Vaccaro et al. (2013), external imposition of legislative pieces of environment often lead to local opposition and attacks against outsider governance, and even against the natural assets themselves.

The monitors are the voice of the community regarding the management of natural resources but they are viewed by communities as alien agents. The environmental monitors are largely seen as

enforcing externally imposed regulations, and this impinges on the effectiveness of enforcement of the environmental laws and policies. The ward councillors, as monitors, are also political figures and the communities view them as representatives of the state. There is an urgent need to depoliticise environmental issues. Though environmental monitors are referred to as local actors on natural resource management, they have been made to conform to bureaucratic environmental acts and policies developed by the state, in such a manner that the regulations still represent the decisions of external actors rather than local people.

The monitors are co-opted in state decisions; they have very limited decision-making power because state actors have more powerful influence. This fits into Hobley's framework, which views this arrangement as more like functional participation (Buchy and Race 2001; Jones 2006). In the case of the Chivi District, environmental monitors are co-opted into the Environmental Management Committee because the RDC Act compels them to be there, but interviews with monitors revealed that the final decisions lie in the hands of the RDC, as the land authority. Many scholars, such as Berkes and Folke (1998), Cash et al. (2003), Ostrom (1990) and Raymond et al. (2010) and this study, have called for greater inclusion of local knowledge in resource management and development planning.

The environmental violators do own up and agree to pay fines, though under protest, as they perceive the fines to be punitive and unfair. This study, and the study done by Mandondo (2001) in Chivi established that the levels of the fines are arbitrarily pegged by the RDC and EMA and not indexed to levels of community outrage to various forms of breach, or to community perceptions of the legitimacy of such fines. Though these people are locals, they may not always

represent the interests of the local people. This is what Nelson (2010) and Ribot et al. (2006) refer to when they argue that in many instances, governments have been reluctant to devolve power to bodies that are accountable to, and representative of local people. In other cases they have recentralised power through other means. Traditional institutions retain the confidence of the local people and continue to perform functions such as distribution of land for cropping and hence the introduction of Traditional Leaders Act (Chapter 29:17) in 2000.

4.7 Summary

In Zimbabwe, environmental management fail mainly because the environmentalists ignore the political ecology of the country. It is important to assess important issues in the political ecology of resource management in a country and look at certain historical and political factors surrounding resource ownership of the community. The political ecology approach used helps in examining the political dynamics surrounding struggles over the environment and this chapter observed a politicised environment where power relations play a major role in environmental resources. The relationship between state, local leadership, Chivi community, non-governmental organisations and the environment is complex and dynamic. The main roles of different actors in the environment are conservation, legislation and prosecution, monitoring, training, land allocation, rehabilitation and funding. There is dual allocation of roles by state actors and local leadership and hence that poses threats to the environment they intend to protect. This scenario in the management of land and forest resources in Chivi District carries with it retrogressive effects on sustainable rural development because there are highly unequal relations because different actors bring in different power capabilities in struggles over control of and access to environmental resources .

Political ecology emphasises the critical role of the state in environmentally destructive activities. In this case, local people of Chivi District are alienated and divorced from the management of their land and forest resources. The Chivi community depends on their immediate scarce environmental resources and they are exploiting the same environment mainly because they do not have a sense of attachment to natural resources. A number of them have the perception that the natural resources belong to the state actors and do not understand the associated benefits of preserving the land and forest resources.

The state actors receive hostile reaction from the communities and there is lack of commitment due to the fact that local communities are treated only as users and abusers of natural resources, rather than as resource managers in their own right. The structure of environmental conservation has conflicting roles that weaken the enforcement of sustainable resource use strategies. The Chivi communities would benefit if rules and regulations are internally enforced by the local community and its leadership. In this case, land and forest resource management in Chivi relies to a great extent on state authorities to monitor and enforce rules and regulations but the continual destruction of these resources reflects that the setup is not working. Communities and traditional leaders are mainly invited at the implementation stages of environmental management programmes organised by EMA, RDC or non-governmental organisations.

Chirenje et al. (2013) posit that while governments have accepted the need to either cede or devolve control and management of natural resources to the local communities, the communities are not part and parcel of the planning and budgeting which are crucial in decision making. The political ecology approach used provides a way of analysing the context in which the Chivi

community interacts with the environment while also analysing external influences such as the role of state actors and NGOs in local environments. Conflicts concerning natural resource management involve external influences on local resource use, where conservationists and local resource users disagree on how resources should be used.

CHAPTER FIVE: NATURAL RESOURCE USE AND LIVELIHOOD STRATEGIES IN CHIVI

5. Introduction

This chapter addresses the objective that assesses how the Chivi community accesses and uses land and forest resources to sustain local livelihood strategies. Deforestation and land degradation as some of the most pressing current global problems would be viewed from a political ecology perspective. Though scientists argue that deforestation and land degradation may occur naturally as a result of the action of wind and water over time, political ecologists argue that in most cases it is hastened by human activities and political forces. The chapter, therefore, focuses on the activities by the Chivi community that result in environmental degradation. The chapter first assesses the state of land and forest resources in the district as well as the use of these resources. It is particularly useful as it would help to establish the extent of the impact of land and forest usage in terms of the changes that have occurred.

5.1 The state of environmental resources in Chivi District

Soon after Zimbabwe's attainment of independence from Britain in 1980, a number of conservation policies of the colonial era were revived, for example, restrictions on stream bank and wetland cultivation, as well as destruction of trees. In the late 1980s the restrictions were no longer being enforced and in the late 1990s the enforcement of legislative pieces ceased. In, Environmental Monitor B explained that in Chitowa area, there were a lot of trees in the 1970s, but in the 1980s the resources, especially forest resources dwindled. From the 1990s, there was more destruction mainly because there were no awareness campaigns around environmental issues, unlike during the colonial time. In the period 1980s and 1990s, the area witnessed an increase in gullies in the area because of lack of monitoring of the environment.

The interviews conducted in the district indicated massive changes in the natural environment of the Chivi community. The land and forest resources in the district are very few. It is in a sorry state. One informant indicated that the drought-prone Chivi District is likely to become a desert soon. The environmental monitors explained the state of the environmental resources since the 1970s. Environmental Monitor D highlighted that,

From 1978, the Chivi area had great forests, a lot of rainfall and few gullies but as from 1984, the resources in the area began to decrease because soon after independence of Zimbabwe in 1980, people were allowed to stay anywhere without restrictions; there were no reserved areas.(Environmental Monitor D, personal interviews, 2016)

He further mentioned that Chivi District was also not spared when Zimbabwe was hit by the drought of 1991-1992. As a result of drought, the land and forest resources began to decrease. The community had no option except to destroy environmental resources for survival and that resulted in increased deforestation.

The resource situation worsened after the year 2000, due to a number of factors. Sithole et al. (2002) explain that in the post-2000 period, there has been negligible impact of resettlements on population densities in Chivi District. In Chikofa area, Environmental Monitor C explained that,

*In the 1990s the environmental resources were being used sustainably but from 2000 onwards, because of unemployment in the district, young adults began misusing the environment for survival, for example, through firewood selling and farm brick moulding. There were a number of trees such as *Berlinia eminii* (wild mango), mopane and large white*

bauhinia but they were destroyed as community uses them as firewood. (Environmental Monitor C, personal interview 2016)

The environmental degradation status of the resources in Chivi District is a result of strong historical influence. Currently the resources are very few. There is a rapid change and destruction of resources, due to a number of reasons that will be discussed later in this thesis.

The study established that there have been marked changes in land cover in Chivi District in recent years, mostly involving the conversion of woodland and wooded grasslands to cultivated land and rampant cutting down of trees. Chivi District has a fragile ecosystem and natural resource base due to how the communities in Chivi exploit the natural resources. The chief source of livelihoods in the district is communal farming but rain fed agriculture is highly vulnerable to the vagaries of climate change. In light of that, land and forest resources as part of the commons are prone to destruction. The communities in Chivi are expected to rely on limited environmental resources for their livelihoods, yet the natural resource base is the only option they have. The accelerating environmental degradation is eroding the natural resource base of poor rural communities in Chivi because they are directly dependent on natural resources for their livelihoods. Relatively scarce resources are being overwhelmed by unsustainable practices. Thus, it is not possible that the sustainable use of natural resources and the protection of vital ecosystems would make it much easier to create or preserve livelihoods (Matthew and Zaidi, 2002).

5.2 Land use

The major drivers of land and forest degradation in Chivi District are farm brick moulding, illegal mining and crafting and these often lead to gully development, siltation and deforestation

among others. Various departments, organisations and legislative pieces for the environment have been developed and implemented in the district but the communities in Chivi are still engaging in unsustainable livelihood decisions mainly because of their vulnerability.

5.2.1 Gully development

One of the major factors that affect land use in different ways in Chivi District is gully development, which is being caused by a number of activities carried out by the people in the area. The report on the state of environmental resources at Chivi District EMA Office revealed that there are 141 gullies that were inspected by EMA. According to the report, the major drivers of gully formation are bare vegetation, steep slopes, trampling of animals, pulling of sleighs and poor soils (loose sands and sodic soils).

Generally, gullies have become part of Chivi's landscape and the land which is supposed to be used for cultivation, settlement or grazing is being eaten up by gullies and left unusable. Gullies are not an attractive part of the environment as they leave the affected areas lifeless. During a transect walk, the researcher identified the Zihwa gully in Ward 17 as an eyesore in the environment (See below Figure below)

Figure 5.1 Zihwa gully in Ward 17



There are also gullies in other wards such as the Tende gully in Ward 13, which is also a good example of gullies which have totally destroyed extensive pieces of land around them to such an extent that no economic activity can be viable in the affected areas. The reasons for gully formation in the district are varied and these include the following:

5.2.1.1 Type of soil in the district

Most parts of Chivi District have sandy and sodic soils which are very fragile and require proper handling. There is also the problem of sodic soils which is eroded chemically.

5.2.1.2 Farm brick moulding

The other major activity is farm brick moulding. The Chivi District EMA Officer explained that all the wards surrounding Chivi Growth Point, Mhandamamabwe and Ngundu have a high number of gullies because of brick moulding. She highlighted that the dollarisation era has seen the economy of Zimbabwe slightly recovering from the economic decline which has hit the nation hard. This has resulted in a lot of infrastructural development which has seen many shops,

houses and offices being constructed using farm bricks. The affected wards are 6, 8, 12, 15, 26 and 30.

Interviews and transect walks showed that farm brick moulding has led to the destruction of the environment. Brick moulders leave the land with gullies and are destroying the amarula tree which is a protected species, and use it to heat the bricks. The Forestry Commission Officer B raised concerns that,

The destruction of the amarula tree is a threat to the livelihoods of the people. It is a fruit tree and a number of people in the District rely on it for food. The communities are also getting an income from the same tree, for example, the Marula Zimbabwe Co-operation project in wards 16, 18 and 26 in which female farmers in the district process jam and oil from the marula nut and sell the products for survival. (Forestry Commission Officer B, personal interviews 2016)

The Chivi RDC Environmental Management Office informed the researcher that the Ministry of Local Government had approved the use of farm bricks in house construction at rural business centres and growth points in 1986. He further indicated that in 2013, Chivi RDC, EMA and the Forestry Commission inspected the place where farm brick moulding was supposed to take place and consultation was done with local leadership. The RDC gave brick moulders permits in groups in 2013 but after realising that the people were abusing the environment and doing that for commercial purposes, the RDC withdrew the permits in 2014. Chivi RDC informed village heads to make sure that there should be no brick moulding for commercial purposes.

The Chivi RDC Environmental Management Office indicated that the Ministry had approved farm brick use to quicken development at growth points and help rural communities but it has had a negative impact on the environment. The wards near business centres witnessed massive destruction of trees and the development of gullies. Agricultural Officer A highlighted that the areas around Chivi Growth Point need protection because of the problem of farm brick moulding which is causing gullies. He viewed farm brick moulding as an agent and catalyst to gully formation. In Mhandamabwe area as well, the environmental monitor explained that farm brick moulding has reached alarming levels because people mould bricks and sell them at business centres and to land developers.

He further explained that within a short period of time, ten tickets were issued to illegal farm brick moulders who were moulding bricks near Mhandamabwe. He said moulders had become a threat because environmental monitors can be attacked by brick moulders,

You cannot just approach the brick moulders alone, they will attack you, if I want to approach them, I invite the police and Headman because the boys are dangerous
(Environmental Monitor A, personal interview 2016)

He indicated that there is competition in moulding bricks because the moulders seek buyers for the bricks and do not tolerate any disturbances. Below is a picture of brick moulding in process in the area visited by the researcher during transect walks (See below)

Figure 5.2 Use of fuel wood and digging the land for brick moulding and heating- Ward 12



5.2.1.3 Illegal mining

The mineral mined resources in Chivi District are mainly chrome, sand and gold. Gold panning is especially done in Gororo area, Ward 28, as well as Chasiyatende area, Ward 23. The gold boom in these wards has seen several community members embarking on illegal mining. There has been prosecution of the illegal miners. Mining activities in these areas disturb the environment because people carelessly destroy trees. They prioritise the mineral over other resources. One informant indicated that mining activities in Gororo takes place at Dare. Some traditional leaders were also involved in illegal mining. He said,

One of the traditional leaders was bribed by illegal panners to remain silent about the matter yet illegal gold panners disturb the environment by polluting the water. They mine on arable land, thereby disturbing farming land. The land is no longer suitable for farming. The panners mine without licences. They even mine on other people's land, which leads to conflicts. (Farmer X, personal interviews, 2017)

The Environmental Officer B also highlighted that these mining activities are a threat to both to the community of Chivi as well livestock and she cited the death of 35 cattle from Charamba village in Gororo area in 2010 because gold panners who had poisoned the water for livestock with cyanide.

According to one informant there was destruction of a shop at Chasiyatende Business Centre in Ward 23, after gold was discovered.

It was reported that there was firing of a gun as illegal panners destroyed the shop to try and access the gold. The existence of gold in the drought prone district has become a threat to infrastructural development and to the lives of the people. (Headman A, personal interview 2016)

Reports from the environmental subcommittee monitor in Ward 23 revealed that there is also alluvial gold mining where illegal panners steal ore from Chiramba 2 Mine and process it in the river bed. The reports further showed that Tende River is being affected by piles of soil which are right on the bed of the river. This is causing serious siltation from that point downstream. (See Figure below)

Figure 5.3 Alluvial gold mining in Ward 23



In Chikofa area, there is Zialand Mine, whose owners do not have a mining permit. According to the headman who resides in the area, Zialand Mine does not have a mining claim, and local people are being used to exploit their local resources. There is no proper employment at that gold mine. He revealed,

I am afraid of going to the gold panners they are dangerous, the mine has no claim but they are using a local person Mr N, who has a claim but do not have resources to mine. They are just thieves who do not care about local community of Chivi because their employees come from Mberengwa District except Mr G only who is from Chikofa (Headman A, personal interview, 2016)

The mining activity leaves gullies in the river. Also cyanide from mineral processing is polluting Gwehove River. The headman raised concerns and lamented that,

The mine is in the middle of the river and they are leaving gullies and the cyanide affects the river which supports people from Chikofa down to Nemaushe, they do not care where the water goes and no Environmental Impact Assessment (EIA) was done before the project was implemented' (Headman A, personal interview, 2016)

There are also claims that the mining authorities bribed a village head, who claimed to be a chief. The existing traditional leadership claimed that they are being threatened and therefore did not take any action to stop Zialand illegal mining. Environmental Monitor C also mentioned extraction of gold in wards 17, 19 and part of 20 where there is an abundance of gold. The streams in the area have a number of gullies, because of reckless mining of the gold. The illegal panners in these wards are reported to be a dangerous group. Reports were made to Council but these people explained that they need money to take care of their families. They are engaging in illegal means because it benefits them immediately. The monitor further explained that the communities are more concerned about immediate individual benefits rather than what benefits the society as a whole. The monitor explained that there is no time for doing EIA in all the areas where illegal mining activities are taking place. The same issue of illegal panning also applies to areas close to Tokwe, Runde and Chivake rivers where local community members are engaged in illegal alluvial gold mining. Environmental Monitor A explained that in Bwanya, Ward 3, there is a village head who approved illegal panning near Tokwe River. The activity was stopped after the monitor engaged EMA. Legal implications were explained to the community.

There is also chrome mining in Denga village, Ward 8, where large pits with an average length of 25m and a width of 3m were left by the mine owners. The areas were observed during a transect walk with the environmental monitor in the area. The offender was taken to court by EMA and was made to pay \$200 and ordered to fill all the pits at the affected site. (See Figure below)

Figure 5.4 Chrome mining in Denge village, Ward 8, Chivi



It should also be noted that there are mines in the drought-prone Chivi District which were approved by Chivi RDC and EMA and issued with an EIA certificate. The Environmental Officer B explained that Sunray Gold Mine is one of the miners with a valid EIA certificate but the operations done there are not in accordance with the agreed plan. The owner of Sunray Gold Mine was taken to court and paid \$700 for discharging mine effluents into the environment.

Besides mineral panning in the drought-prone Chivi District, there is also mining of clay, sand and gravel for construction purposes. This is mainly in areas around Chivi, Mhandamabwe, Sese, Ngundu, Maringire and other rural service centres. The Environmental Officer B explained that the increase in construction of houses and shops in the mentioned areas has also increased the demand for clay, pit and river sand. She highlighted that,

Uncontrolled extraction of these resources has resulted in massive land degradation. The affected areas are left rehabilitated, with deep pits which are a threat to roaming animals and people. Lack of rehabilitation of the affected areas has also paved way for the development of gullies, for example, the gravel extracted for Chivi Grain Marketing Board

construction in Ward 15, Rungano village, near a homestead. (Environmental Monitor B, personal interview, 2016)

The Environmental Management Officer also explained that one of the registered sites for pit sand extraction by Chivi RDC is showing massive signs of degradation due to non-adherence to the Environmental Management Plan. The report of the state of environmental resources in Chivi at EMA revealed that excavation pits of more than 1,5m in depth are at the site, despite the stipulation in the Environmental Management Plan of the need to adhere to a depth of 1m or less, for easy back filling and rehabilitation. See Figure below

Figure 5.5 Sand Abstraction at Chivi growth point



A number of rivers and streams near areas where a lot of construction is going on were heavily silted and these are; Chivake river near Ngundu, Musavezi river near Mandamabwe, Magwati and Muchenami dams as well as Taru stream near Chivi Growth Point, have become targets for river sand poaching. Patches covered in pit sand around these construction areas are equally affected due to increased demand for the resource.

The area under Headman A is also said to be heavily affected by clay soil mining. The headman informed the researcher that traditional artifact sellers are selling clay products on the Harare–Beitbridge main road. There are four Craft Centres which include those at Danhamomombe Turn off at Sese, Ngundu and Lundi Business centres and at Gwitima Turn off where the sale of pottery is taking place. The informant also stated that,

Women are digging clay soils from different areas in the village, especially in grazing areas, near Chikofa shops, and also on stream banks to make pottery. This has affected the soil and the place is now degraded. In Chikofa, Wadawareva and Zvavatonga villages, villagers have dug pits near public roads, which is a threat to the lives of the people (Headman A, personal interview, 2016)

The people doing that are known neither to traditional leadership nor to monitors because of corruption by village heads. It was reported that after every two weeks, women sell clay pots to the nearest Growth Point, Chivi, and also to the Apostolic Church in Gweru in Midlands Province.

While state actors and traditional leadership viewed these activities as causing environmental degradation, the people engaging in farm brick moulding and illegal mining viewed these activities as a boon. The majority of individuals in Chivi District are involved in multiple livelihood activities such as illegal mining, farm brick moulding and crafting. Resultant repercussions of these activities are massive gullies, siltation, excessive runoff, erosion and loss of land productivity. Obiri et al (2012) posit that rural livelihoods are designed based on their natural resources. Increased droughts and episodes of erratic rainfall have reduced incomes and threatened livelihood security. Communities in Chivi are very vulnerable owing to their

overdependence on rain-fed agriculture and limited livelihood options. The community claims that it is a matter of survival and as long as the government of Zimbabwe cannot provide employment opportunities, they would not stop mining illegally or moulding bricks. One respondent in Ward 12, during a transect walk, explained that the illegal brick moulding business is their only means of livelihood

I am a father with a family to take care of and I am expected to bring food home, to provide clothing for my children, to pay their fees as the term begins. I had to do something to help sustain our livelihoods. It is better for me to survive on something that is environmentally unfriendly rather than being involved in criminal activities. Who cares about the environment when there is no food for the family (Mr X, personal interview, 2016).

Brick moulding is a lucrative business. The proximity of the markets entices members of the community to mould bricks for money. The raw materials are found naturally in the environment but extraction of these raw materials needs to be environmentally sustainable. The approval of the use of farm bricks for construction purposes in Zimbabwe has created a conducive environment for the proliferation of brick moulding that has a serious impact on the environment. The brick moulders flout environmental policies as this strategy helps them generate income, yet the excessive use of soil and wood causes deforestation and soil degradation. Hashemi et al (2015) explain that burned bricks are environmentally harmful because of the use of soil and local wood in brick kilns that contribute to deforestation and land degradation. The moulders do not rehabilitate the land; they leave gullies to natural recovery, which in most cases, would never have happen.

The responses of community members in Chivi District to their vulnerable situation highlight a major threat to the sustainability of the environment. The rate of environmental degradation raises serious concerns. Mensah et al (2015), in their study of illegal mining in Ghana, also established that illegal small-scale mining deplete environmental resources such as water, soil, the landscape, vegetation and the ecosystem among others. Their study of Prestea in Ghana found that the major rivers in the region have been heavily polluted and land in areas surrounding mines has been rendered bare and susceptible to increased erosion and loss of viability for agricultural purposes. Similarly, in this study, the pollution of Gwehove River by cyanide from Zialand Mine, the pollution of Denge Dam and its neighbouring rivers, the mining of farm land in Dare, render Chivi District unproductive and has resulted in long term food insecurity in most parts of the district. The mining activities have destroyed the main source of livelihood, which is farming. The result is the pollution of major water bodies and the death of livestock, for instance, in Gororo where thirty-two heads of cattle were reported dead after drinking water polluted with cyanide from a mine. The exploitation of mineral resources also leads to extensive soil degradation through destruction of vegetation, resulting in low soil fertility and productivity that is experienced in Dare, where a number of farm lands were invaded by illegal miners. Abdus-Saleque (2008) argues that mining is a short term activity with long term effects, as was also found out in this study.

The livelihoods of the Chivi community are derived from natural resources, so degradation of the environment affects livelihood activities. Fuyane et al. (2013) argue that the environment stands as a refuge to social insecurities such as poverty, hunger and unemployment, which makes its protection more important. The communities in Chivi need proceeds from minerals to satisfy

their basic needs but their continual exploitation of the mineral resources destroys the livelihoods and the environment. According to Jones (2010), mining is a major cause of deforestation and land degradation. However it should be noted that illegal mining has become a major source of economic activity among the rural population (Kessey and Arko, 2013). The two studied Denkyira in Ghana, where small scale mining employs a number of people from the community. The youth in Chivi are also involved in these activities as a form of employment in their desperate quest to survive. Another illegal miner in Chikofa pointed out that,

This is our only livelihood option; we mine so that we get money. If I do not engage in illegal mining, how will my children survive, do you want me to steal to fend for my family. EMA and RDC should leave us alone because their government did not employ us' (Mr Y, personal interview, 2016)

Individuals in the community are involved in these activities without any considerations for the environment. They are doing so as a means of survival since farming is no longer productive because of erratic rains and degraded arable land. The miners are not giving the environment the attention it deserves and their activities are unsustainable. Future generations who will depend on the environment will suffer if the current abuse of the environment is not checked. Instead of blaming the local community, focus should be on the issues that affect the communities in Chivi. The public environmental regulatory bodies such as EMA, RDC and traditional leaders have failed to carry out their statutory functions at Zialand Mine in Chikofa. Although several environmental awareness campaigns, laws and policies are in place, their implementation has not been able to address the illegal mining issue in Chikofa area. The actors charged with the responsibility of regulating environmental laws are ineffective in this particular case as well as in

the craft industry, hence there is need for alternative approaches. Legal measures sometimes proved totally inappropriate because people converge in an area as a group and are prepared to use force in defense of their interests.

5.2.2 Siltation

The EMA report indicated that severe water shortages have become the order of the day in the drought-prone Chivi District. Major rivers and dams are filled with sand. These include Makonese Dam, Taru Dam, Tokwe River, Runde River and Tende River. The other affected rivers include Nyamakwe, Mupepete, Musirereki, Mushambigwe and Nyarutedzi. Siltation of dams and rivers has left the Chivi area with water problems because community members are not able to harness the little rainfall that they receive. Interviews done with different informants further revealed that drivers of siltation include poor vegetation cover, lack of conservation within the catchments, illegal settlements and stream bank cultivation. See figure below silted river

Figure 5.6 Nyajecheni River, Ward 10 silted as a result of farming upstream



5.2.2.1 Poor vegetation cover

It was observed that the rampant cutting down of trees destroys the land. Random cutting down of trees within dam and river catchment areas has led to deforestation. Tree roots help to bind the soil together and once the trees are removed, erosion occurs and water bodies down slope are silted. The EMA informant asserted,

Rampant cutting down of trees causes erosion, which eventually leads to siltation of water bodies. Silted dams and rivers decrease in water holding capacity and this also affect the projects depending on them, a number of projects in Chivi District are facing threats of closure due to severe siltation of rivers like Runde, Tokwe, Nyagate, and Nyarushangwe' (Environmental Officer B, personal interview, 2016).

The Agricultural Officer A explained that leaving the ground bare facilitates degradation of land,

At no time should rain fall on bare ground because it destroys the land and the cutting of trees and burning of grass leaves the ground bare and the impact of rain drops affect the land' (Provincial Agriculture Officer, personal interview 2016).

He further explained that the soil needs to be covered by trees. A good example of how the Chivi community members are cutting down trees unnecessarily was given by a conservationist who indicated that some individuals in the area cut four hundred tree logs to complete one goat kraal. Heifer International and EMA intervened after realising that there is lack of knowledge about natural resources.

Artifact sellers in Chivi South craft centres use soapstone from the mountains to make their artifacts. The way they extract the soapstone is not proper. According to the headman in that area, they are destroying mountains and leave gullies which have the potential to remove soil.

This has affected dams in the Chikofa area. Three dams, namely Chirogwe, Berejena and Vundembe no longer exist because of siltation. The activity of using water ways as roads leads to soil degradation. The transect walk done by the researcher also revealed that this is a common feature in many wards in the district. Instead of filling in the small gullies left by running water, community members use the same as roads for their scotch carts and cars. The community members also use tyres to move ploughs, disturbing the soil and increasing runoff. The running water will be unchecked over the bare ground, carrying with it all the loose soil to the nearby dams, streams and rivers, thereby causing siltation.

Poor rainfall totals, together with infertile sandy soils in many areas of Chivi District, have also resulted in lack of ground cover. The carrying capacity has been exceeded in the few remaining pastureland due to continued sub-division of land among growing families. Overgrazing, together with deforestation, has left the ground bare and prone to agents of erosion. The bareness of land results in very little infiltration and high runoff, which has resulted in washing away of top soil, leaving deep cuts which eventually become big gullies. The washed away soil causes siltation of rivers.

5.2.2.2 Lack of conservation

According to Conservationist B, the Chivi rural people depend on the soil for their survival since the main economic activity is agriculture. In light of that, for sustainable rural development to take place there is a need to conserve the usable soil in the district. He highlighted that during the early 1980s people were using sleighs on their farms and putting ploughs on top of old tyres that loosened the soil, in such a way that it was easily washed away. The same practice still exists in some parts of the drought prone Chivi District. The environmental monitor explained that the

sleighing practice is also common in Ward 20, because people in that ward are not aware of the effects of sleighing. He, however, reported,

Sleighing has decreased in Ward 17 because of penalties. Thirty to forty people were charged and this led to a dramatic decline in use of sleighs (Environmental Monitor C, personal interview 2016)

In Ward 29 as well, the Agricultural Extension Officer's Supervisor C informed the researcher that community members were pulling ploughs and sleighs along the roads, causing rivers in the area to silt. Agricultural Extension Officers were deployed in that ward and consultation was made with traditional leadership. They held monthly ward meetings and managed to stop the use of sleighs.

The Agricultural Officer A mentioned that the Chivi community members are ploughing on unconserved land but should not plough against more than 5% slope. A good example was given by Environmental Monitor B. He cited Banga River as one of the rivers which were silted because of unsustainable agricultural practices. The community nearer Banga river were cultivating slopes.

It was further highlighted that the main challenge is that communities in Chivi are failing to practice conservation agriculture. For instance, they do not want to rehabilitate contour ridges. Conservationist A explained that there is poor maintenance of contour ridges which were dug during the colonial time. He highlighted that 90% of the contour ridges in the district were pegged and dug during the colonial time. Agricultural Extension Officer's Supervisor A explained that,

Communities do not accept contour ridges because of the way the contour ridges were introduced during the colonial time. In the area where I supervise, there are no new contour ridges since independence of Zimbabwe in 1980 (Agriculture Extension Officer's Supervisor A, personal interview, 2016).

Lack of rehabilitation of contour ridges is causing loosening of soil, low yields, erosion and siltation of rivers.

Agricultural Extension Officer's Supervisor A further explained that another major cause of siltation is failure to rehabilitate catchment area of dams by putting sand traps. He explained that during the period 1998-2002, dams in the area were constructed after rehabilitation of the catchment area and because of that, those dams are still not silted. However, it was noted, with concern, that at least five dams which were introduced by politicians during political campaign periods were built without the consultation of conservation experts. As a result, those dams are now silted. EIA was not done before the construction of the dams. The objective was just to gain votes and support from the people.

5.2.2.3 Illegal settlements

Most of the wards in Chivi District are seriously overpopulated and as the families become bigger and bigger, the small pieces of land are continually sub-divided among family members. The area left for cultivation and settlement is very limited and there is no area designated for grazing in many of the wards. This has resulted in random settlements. In Ward 21, the informant mentioned rampant destruction of trees in the grazing area for illegal settlement. Village heads are allocating land along streams. A good example was that in Chief B area, where only one small area is left for grazing. It is argued that village heads are being bribed by new

settlers. There is a new village which has been established near Tugwi River, towards the Tokwe-Mukosi Dam.

In Chikofa area, the headmen also complained about illegal resettlement in the area where people no longer respect pegs and village heads are accepting bribes to allow people to cultivate even wetlands. One informant who requested anonymity highlighted that,

in Masaite village, the village head is settling people near rivers and on grazing areas. There is resettlement in unsuitable land, such as grazing land which is a threat to livestock. The same is happening in Mhike and Paringara villages where people were given one hectare to settle and farm on grazing land. (Anonymous, personal interview 2017)

It was further disclosed that the major challenge is that village heads are allocating land in an unregulated manner. Also, the government of Zimbabwe does not allow destruction of such structures for political mileage. The informants further stated that,

As a result of this, pools in rivers no longer exist and siltation has threatened aquatic animals such as crocodiles. People who settle in undesignated areas cultivate water chains and there are cases of people settling near roads, causing siltation of rivers. (Anonymous, personal interview 2017)

5.2.2.4 Stream bank cultivation

The research established that stream bank cultivation is a problem in Chivi District along both smaller and major rivers such as Tokwe, Runde, Nyarushange, Nyagate and Tende. Environmental reports show that a total stretch of gardens, of 22.8km along rivers, is affected by stream bank cultivation because farmers have shifted their gardens too close to the rivers, to the extent that some farmers' gardens cross from one end of the bank to another. The gardens were

established within the prohibited 30m from these streams. This is worsening siltation in the affected water bodies, mainly because the District is dry and farmers continue to get close to wetter areas such as river banks and even river beds.

Agricultural Extension Officers also explained that stream bank cultivation loosens soils and that the district has a number of consolidated gardens along rivers and streams. To avoid siltation, gardens should be pegged thirty metres away from the water source to allow thirty metre grass cover to hold water. Because of the shortage of rainfall, communities cultivate near rivers, and this has resulted in siltation of water sources. An Environmental monitor reported,

As a result of stream bank cultivation in this ward, there is increase in siltation and nine rivers were silted and pools covered, causing water shortage, especially in the gardens. A number of gardens are no longer working and that caused food shortages to the rural community (Environmental Monitor C, personal interview, 2016).

In the northern part of the district there are many individual gardens along big rivers and streams, for example, Musavezi River. In wards 1-6, there are many gardens. Each ward has three gardens. In Ward 5, Mudadisi and Chitowa dams were silted because of stream bank cultivation. In Ward 2, Vuranda Dam was silted as well. The EMA informant also informed the researcher that Chebvute, Bindamombe and Chipande dams were silted because of cultivating upstream. A report from EMA shows that Dzimati Stream in Dzimati village, Ward 15, is the most affected by stream bank cultivation, with an estimated stretch of gardens being 3 500m. The least affected is Gombi River in Ward 16, where the estimated stretch of gardens is 10 metres.

5.2.3 Waste management

Zimbabwe has experienced a decade of economic crisis and the whole country was affected by an economic decline. However, in 2009, the economy started to show signs of recovery which has seen a number of retail outlets re-opening and expanding. According to Chivi RDC Environmental Management Committee Office, the introduction of the US dollar in 2009 has seen a number of shops stocking a variety of food stuffs and other items packed in various packages of different materials, ranging from plastics, cans and bottles. This has increased littering due to non-recycling containers imported from neighbouring South Africa,

All food stuffs and other materials like sanitary pads, disposable nappies and braids and weaves for hair styling are now available on the market everywhere, even at all business centres in the District as Dimbiti, Mazhaugwe, Chomuruvati, Takavarasha, Chamatutu and Mashenjere Townships to mention a few of Chivi's hidden corners (RDC Environmental Management Committee Office, personal interview, 2016).

The increase in the number of general dealers and retail shops has resulted in the generation of lots of waste which the responsible authority, Chivi RDC, has found very difficult to manage.

Interviews held with rural informants during focus group discussion at Chinembiri Secondary School, Chivi Central, also revealed that waste management has not only affected urbanised corners of Chivi Growth Point but also some remote areas like Muzvidziwa village. Chief A, also highlighted that the waste from Chivi Growth Point is affecting the rural areas which is becoming a threat to livestock and human health because it causes diseases and affects the land.

See Figure below

Figure 5.7 Chivi Growth Point Dump site near Muzvidziwa village



The District EMA Officer indicated that the Chivi RDC is amongst other local authorities in Zimbabwe which have manifested failure to manage their waste. A number of tickets, orders and prosecutions through courts were issued by EMA but the problem of waste management has not changed much. It is reported that the two dump sites at Chivi Growth Point and at Ngundu Business Centre are not lined or fenced despite a penalty being charged every quarter of the year. The local authority has not been able to handle the waste situation in their area of jurisdiction. Akkucuk (2015) argues that in less economically developed countries, most households do not recycle waste. It simply finds its way to the dumpsite. The Chivi RDC has failed to adequately manage waste because of financial constraints. Mohee and Simelane (2015) also established that many cities and towns in developing countries are not adequately meeting their refuse collection obligations due to financial constraints. The rate of litter collection is being surpassed by the rate of dumping and this has seen lots of empty cans, disposable nappies, food containers and other various types of waste accumulating.

The informant also explained that public transporters are not complying with the regulation which stipulates that all public transporters should ensure that a litter bin be placed in any public transport. As a result, the passengers end up throwing their litter out of windows and littering busy highways, as seen at Mandamabwe and Chibi turn off. Mutetwa et al. (2016) argue that though there is a comprehensive legal framework that guides waste management in both urban and rural areas in Zimbabwe, it does not have an overall waste act that provides the essential legal basis for a consolidated waste management strategy.

Municipal solid waste management has emerged as one of the greatest challenges facing environmental protection agencies in developing countries (Ogwueleka, 2009). Waste management is one of the greatest challenges facing Zimbabwe. This is mainly because the volume of waste generated continues to increase at a faster rate than the ability of the council authorities to improve on the financial and technical resources needed. Similarly, Mutetwa et al. (2016) posit that in Zimbabwe, disposal has been a controversial issue in the environment as litter has become a common occurrence along highways. There is no environmental control system in place and that results in indiscriminate illegal dumping. Tsiko and Togarepi (2012) established that at least 70% of collected waste is crudely tipped at open dumpsites, 90% of which do not meet basic environmental standards. This results in leachate from the dumpsites polluting underground and surface water. Loose papers and plastics are blown away by wind resulting in aesthetic intrusion of the surrounding environment.

5.2.4 Destruction of wetlands

The research revealed that the rapid increase in population in most of Chivi District wards is affecting land use. Land under cultivation has seriously encroached into wetlands in the area.

The pressure on land for agriculture and the ever-growing population cause people to farm and settle in ecologically sensitive areas such as wetlands. In most parts of Chivi District wetlands have been invaded through cultivation, without farmers fully realising the impact of doing so. Farming is undertaken without due consideration to sustainable land use practices, with tracts of land being cleared for farming at the expense of valuable wildlife habitat. In Chivi District, one of the root causes of much wetland degradation is poverty and high population growth rate. The case of Magwenzi wetland reflected that as the population of Ward 15 increases, the demand for ecological resources increases. Population density increases, leading to changes in wetland ecosystems.

Out of the thirteen wetlands inspected by EMA, only three are properly fenced, that is, Magwenzi in Ward 15, Masinire in Ward 14 and Charamba Wetland in Ward 28. Magwenzi wetland was fenced through funding from the Zvishavane Water Project and technical experts from Land Use Subcommittee, which includes EMA, Forestry Commission and Agritex. Land Use Subcommittee also facilitated the fencing of Masinire wetland in Ward 14, through funding from World Vision. The fencing was done to protect wetlands. Smith (2013) argues that the loss of wetlands poses dangers to wildlife as well as human populations, both in terms of protection of terrain and in a broader economic sense. However, some wetlands have dried up. Madyangove and Danha villages are two among many areas where some wetlands have totally dried up. The major contributing factor to this is consecutive seasons of little or no rainfall as well as the extension of cultivation areas into wetlands. In Ngundu area, the Deketa people are cultivating wetland which is fenced by brushwood. Cherry (2012) also mentions that some of the human

activities behind wetland degradation include macrophyte, exploitation, brick making, medicinal plant harvesting, crop production and fishing.

A study of Chivi District by Hove and Chapungu (2013) established that wetlands have suffered deterioration due to human activities such as cultivation, grazing and water abstraction among others. Their study of Magwenzi wetland in Ward 15 identified three main activities that resulted in alteration of ecosystem functions and interactions. These are wetland cultivation, water abstraction and cattle grazing. The study observed that the communities in Chivi are contributing to ecosystem degradation as their activities negatively affect wetland ecosystems. Despite the importance of wetlands to humanity, they have been largely degraded and rather treated as wastelands. However, it has been observed that wetlands in the district were destroyed largely because policies of wetlands have been designed not based on perceptions of the people residing around the wetlands (Hove and Chapungu, 2013).

5.3 Forest use

Deforestation in Chivi District mainly results from using forest resources for commercial purposes as well as for domestic use. The main activities in the district leading to deforestation are firewood selling, farm brick burning, crafting, expansion of resettlements onto arable land, and gold panning.

5.3.1 Firewood selling

There is increased demand for firewood for domestic use as well as for commercial use in Chivi District. The frequent power outages which have hit Zimbabwe hard have not spared the district. Communities living in the major rural service centres and Chivi Growth Point cut trees and sell

fresh firewood to residents in the nearby peri-urban centres where electricity has become a scarce resource. Discussions during transect walks and interviews revealed that the most affected woodlands are around wards 6, 7 and 8 which are close to Mhandamabwe Rural Service Centre, wards 11, 12, 15 and 30 which are close to Chivi Growth Point then wards 25 and 26 where people sell firewood at Ngundu Rural Service Centre. The overexploitation of firewood is also increasing due to electric power cuts. A good example was given by Environmental Monitor C of Ward 20 at Sese Growth Point where shortage of electricity has led to destroying and burning of big trees to produce firewood. Environmental Monitor C, stated that there is reckless cutting down of trees for instance, cutting down a big tree when one needs just one branch. At Sese Business Centre, the Environmental Monitor charged seven people in one month because they cut down trees recklessly.

Firewood selling in Zimbabwe has become rampant partly because of widespread unemployment. The Zimbabwe Vulnerability Assessment Committee (2010) established that poor households in Zimbabwe obtain most of their income from casual labour, sale of wild foraged foods, beer brewing, handicrafts and firewood sales leading to deforestation. A study of a firewood business by Chazovachii et al. (2013) reveal that rural and urban people in Zimbabwe try to reduce poverty through the fuelwood business but it has caused untold environmental degradation in Masvingo. It is further argued that although fuelwood harvesting affects ecology, it has created sound opportunities for poor people. Chazovachii et al. (2013) argue that the firewood business is a way of making a living, which provides a moderate degree of security of income and employment.

The persistent electricity black-outs in Chivi has forced Chivi residents to adopt firewood as an alternative source of energy, hence firewood selling becomes a viable enterprise that can generate income, employment and rural livelihood diversity. The increased demand for firewood has forced the unemployed and school going age groups (during weekends) to diversify their livelihood options through selling of firewood. However, although this livelihood activity proved to be viable and allowed them to generate an income, the sustainability of the affected forests needs to be looked at. A study of Bulawayo by Dube et al. (2014) similarly claimed that it is difficult to stop residents from selling firewood. They argue that the economic quagmire, in which Zimbabwe has found itself in, with its concomitant high rates of unemployment and very low incomes, has and will continue to encourage the sale of firewood in Zimbabwe. The main concern by environmentalist is that in Chivi District, the effect of deforestation is not being felt by the users. The impact affects Chivi rural, where the trees are being cut down and the users are the people who live in the peri-urban places of Chivi District. It is an economic activity but it impacts negatively on the environment and may lead to tree species extinction, especially in cases where the rural Chivi communities are involved in cutting whole trees or uprooting live ones.

5.3.2 Craft Industry

The craft industry in Chivi District also worsens deforestation in the areas near craft centres. The district has four Craft Centres, Danhamomombe Turn off at Sese, Ngundu and Lundi Business centres and at Gwitima Turn off. The craftsmen at these centres use a number of tree varieties which include endangered and protected species such as mahogany and amarula trees. Environmental Monitor C explained that in wards 17 and 20, there are many traditional artifact sellers but community members have to follow proper channels for cutting trees in selected areas

which still exist such as Mindamikova Forest. In Ward 17, a Mahogany tree was cut down by craftsmen who came from Sese and Gwitima for making artifacts to sell to tourists along the highway. There was also destruction of Chivumbwi Forest between Chikofa and Zihwa areas where a number of people cut down trees for traditional artifacts to sell. These craftsmen do not have harvesting permits and harvest trees in an unsustainable manner. Very big trees are cut for crafting and no replacement is done. (See Figure below, artifacts crafted from big trees).

Figure 5.8 Craft Centre at Sese, Ward 20, Chivi South



In the northern part of the district, community members also destroy fruit trees and other trees for crafting ox yokes, skeys, traditional drums and stirring sticks and sell to other community members and to the nearby town, Zvishavane. Environmental Monitor B explained that community members should not cut down more than three wheelbarrows of wood as a way of ensuring sustainable use of the forest resources but despite that regulation, people continue recklessly cutting down the trees.

The resources being used for crafting are abstracted from the commons, they are free, and have low transaction cost at production level. Matondi (2011) concurs with this study that the curio marketing provides income earning by creating marketing opportunities for curios in Zimbabwe. The crafting industry in Chivi South is a major livelihood activity for women and men. Though it is a source of income and livelihood for the families, it is practised to the detriment of the environment. A study by Mutinda (2014) also observes that there has been a complete disappearance of some indigenous trees. He explains that most carvers are blind to environmental concerns and motivated by monetary gain. The findings of this study suggest a need for woodcarvers to carry out their trade in a sustainable way.

Globally, curio business trade is deemed as the only sector with very low entry barriers hence many Zimbabweans are into this kind of business (Nyahunzvi, 2015). Similarly, in Chivi District, there are no proper regulations that bind wood carvers on harvesting of natural resources, hence its growth causes great damage to the environment. EMA is not regulating the operations of the craft industry, assuming that the Forestry Commission is taking care of the issue, but the Forestry Commission professed ignorance of the matter and referred the researcher to Chivi RDC. The RDC is also not monitoring the operations of the craft industry and referred the researcher to the headman who then indicated that the craft industry is not being monitored. In that regard, to ensure sustainability, there is a need for the state actors and traditional leadership to establish how to put control measures on the industry. This issue of lack of legislation to control the activity is common in Zimbabwe. Zhou (2017) who studied the craft

industry in Victoria Falls, Zimbabwe, established that there is high harvesting of natural resources to produce craft products due to the unregulated business environment.

In Chivi, traders earn an income to sustain their livelihoods because formal employment has become elusive in Zimbabwe. Trading provides much-needed employment and income that can sustain many households in Zimbabwe (Zhou, 2017). He mentions a number of factors that push the poor households into this business, such as limited employment opportunities, retrenchments, perennially poor yields from fields and very limited agricultural opportunities. Many people in Chivi District are left with no other option, with the economic meltdown in Zimbabwe so trading provides the much needed employment and income. Walonzi (2014), Ngunjiri (2014) and Nyahunzvi (2015) also posit that the curio sector is promoted to reduce unemployment and it has become a means of livelihood to many disadvantaged communities. However, this industry is not sustainable because the increase of craft production damages the environment.

5.3.3 Expansion of resettlement and arable land

The other contributing activity to deforestation in Chivi District is the expansion of arable land for farming. The EMA Officer indicated that in wards 27 and 28 under Nyahombe Resettlement Scheme, people are clearing land which was once reserved for grazing area. Other informants in the area, however, claimed that the cutting down of trees at Nyahombe is caused by corruption by some government officials so people end up disrespecting traditional leadership in the area. The few remaining woodlands in many wards of Chivi District are now being cleared for resettlement purposes as population keeps on growing and demand for the establishment of new homesteads also increases. The other cause is illegal settlement especially in Ward 21 where illegal settlers destroyed trees in the mountain for settlement. Other informants during focus

group discussion at Dare, Chivi South claimed that sometimes people are given permission to settle in unregulated places by traditional leaders.

5.3.4 Other forest resource uses

The communities in Chivi north sell fruits from the lemon bush tree to Zvishavane residents but the forest produce should not be used for commercial purposes. The communities in Chivi are also destroying fruit trees such as amarula, thereby threatening food security for the same community. A number of women also use the amarula fruit to brew traditional beer and sell it to other community members. In Chitowa area, the community steals Common Coral tree for timber processes and sell it to nearby towns, destroying forests and carrying timber in lorries.

The Agricultural Extension Officer's Supervisor B mentioned that trees are also destroyed by community members who use tree branches for fencing their consolidated gardens. In wards 7, 9, 10, 13 and 14, trees are destroyed and used for fencing. They also produce coal from firewood which is sold to nearby Zvishavane town. Even though communities are discouraged from abusing forest resources, one cannot override political influence despite the existence of environment policies.

5.4 Livelihood benefits

5.4.1 Food security

The major reason for maintaining natural resources, according to key informants, is improving food security through conserving land and forest resources. The Environmental Officer argued that destroying the environment backfires on the rural population. They are more concerned about immediate benefits without realising the need for a properly managed environment. The

maintaining of land and forest resources increases the probability of rainfall and promotes food security in the district. It was further stated that if the environment is poor, yields will be poor as well. Environmental Monitor C explained that the presence of trees increases moisture and evapo-transpiration, which improves the chances of rainfall and, resultantly, boosts agricultural production in the district.

Conservationist B explained that controlling soil erosion will assist in farming as well as recreation. Maintaining water in the stream by avoiding activities that silt rivers is also an advantage to the farmer. Water and food will be readily available. Reclaiming the wetlands will also ensure that more water is readily available for the community which helps in projects such as gardening and irrigation that promote food security. Environmental Monitor C also informed the researcher that there are no pools in rivers and viable wetlands in the district and that leads to drought.

5.4.2 Future generations

The natural resources also help communities in the Chivi District in their day to day lives. The farmers highlighted that they gain forest produce such as fruits for food as well as for selling to look after their families. The trees, if maintained, also help them get firewood. At the moment, villagers under Chief B are getting firewood from faraway places, especially from farms in Masvingo District because the nearby forests were destroyed. The Chivi women also get thatching grass for their homes as well as for sale from Masvingo District. The women mostly use the natural resources as livelihood sources as they sell the resources to get income. Women also extract the resources so that they will be able to look after their families.

The major reason for maintaining resources is for future generation in order to ensure rural sustainable development. Therefore, trees and land should be managed in a manner that ensures longevity so that the generations to come will also benefit from the same. The Agricultural Extension Officer highlighted that natural resources are the basic need in the daily lives of the people. Destroying the natural resources is a threat to livelihoods in Chivi District since they are heavily dependent on natural resources. It is argued that the absence of natural resources causes a lot of criminal activities. Environmental Monitor C also explained that the natural resources help in getting capital for the community, for example, if proper mining activities are practiced, this will help the community in the creation of employment and attraction of tourists. He further stated that environmental resources are a heritage that should be passed onto future generations.

It emerged, from the study that the Chivi District community benefit from the natural resources in their day to day lives. The informants in the district highlighted that natural resources were conserved in a bid to improve food security so the destruction of land and forest resources backfires on the rural communities. The officer complained,

We sue people and they say, is it your soil, is it you labour etc, they sell bricks to develop construction at business centres, they illegal mine and sell to mineral buyers who are in most cases non-residents of Chivi but by the end of it all, the effects of deforestation and degradation would affect the Chivi rural people who abuse the resources (Environmental Officer B, personal interview 2016)

The researcher found out that some people from the Chivi community are more concerned about getting immediate benefits, which are in most cases monetary, but not realising the need for a

properly managed environment. The destruction of forest resources as well as the mismanagement of land, coupled with siltation of rivers, dams and destruction of wetlands, has compromised food security in Chivi District. The shortage of water threatens nutritional garden projects as well as irrigation schemes in the area which should ensure food security.

Livelihood strategies in Chivi District include foraging for fruits for sale from woodlots, the sale of agricultural surplus, gold panning and pottery production. Silver terminalia woodlots and gumtree projects are commercialised and some of the Chivi community members are benefiting. The project members claimed that they get money from selling timber and marula nut products, which helps them in securing food. The sale of environmental resources brings with it monetary benefits in Chivi. Muzambani (2002) argues that commercialisation of common property resources can act as a catalyst for local collective action and provide a training ground for the acquisition of skills in communal accounting and negotiation with external actors. This is reflected in the study which found that Chivi communities are able to sell timber and extract jam, cooking oil and vaseline from the amarula nut and sunflower. The natural resources act as mechanism to buffer communities against food insecurity. A study of a Marula project by Tayisepe (2012) established that the marula tree and its products are of significant cultural and spiritual value. The destruction of that tree will have detrimental effects on the whole community. In Zimbabwe, commercialisation of natural resources was once officially sanctioned through the CAMPFIRE programme in which wildlife was to be sold to benefit the local people.

5.5 Summary

Political ecology focuses on the relationship between politics, society and environment. This chapter specifically focused on the relationship between the environment and human society.

Whilst the previous chapter and next chapter focus on the indirect causes of environmental degradation, this chapter focused on direct causes of environmental degradation. In political ecology indirect causes are the forces that motivate the society to clear forests and degrade the land. Direct causes of deforestation and land degradation are profitable activities that promote development booms but have dire consequences for the environment.

This chapter revealed major changes in the natural environment of Chivi District. There is destruction of natural resources due to unsustainable livelihood strategies. The Chivi District community engages in activities that affect land and forest use, and these are firewood selling, craft industry, farm brick moulding and selling, illegal mining, stream bank cultivation, destruction of wetlands among others. These practices cause unsustainable exploitation of the natural resources and hence contribute to the destruction of the natural resource base such as gully development, siltation, deforestation and land degradation.

Communities in Chivi District are competing for survival on a declining resource base. The exploitation of land and forest resources is caused by a number of factors including the fact that the majority of the Chivi rural population is poor, unemployed and have limited livelihood opportunities. It was established that though communities in the Chivi District derive monetary benefits from the sale of natural resources, the commercialisation of land and forest resources carries with it certain dangers because it fuels overharvesting and unsustainability.

This study also established that the Chivi District community is not benefiting sustainably from the destructive activities they are engaging in. The benefits are short-term, but the community

continue destroying their environment at an alarming rate. The Chivi District communities are being driven by the desire to benefit economically from the natural resources but it is not sustainable because of the manner in which they destroy the land and forest resources. Those who buy firewood, bricks, gold, and curios among others from Chivi are the main beneficiaries of natural resources rather than the local producers who are the rightful owners of the resources.

CHAPTER SIX: FACTORS INFLUENCING FOREST AND LAND RESOURCE USE

6. Introduction

The objective of this chapter is to explore the forces that influence the rural people in Chivi District to degrade their environment. The study unearthed a number of factors that have interacted in complex ways to bring about the current state of environmental degradation in Chivi District. The factors are political, economic, social and environmental. Mawere (2013) posits that balancing conservation of natural resources with the needs for development has always been problematic in southern Africa, particularly in Zimbabwe. This is due to the compounding effect of different factors, such as the unfair distribution of resources, an obsession with scientism, disregard of indigenous epistemologies, population increase, low education levels, and abject poverty. The drivers of land and forest degradation are frequently associated with negative environmental and social consequences such as political and economic marginalisation of rural communities. This chapter is, therefore, an exploration of the complex political, economic and ecological processes that underlies access to and use of land and forest resources in Chivi District.

6.1 Political and legal factors

Politics is affecting the access to, and use of, land and forest resources in Chivi District. It was highlighted that during the land reform era in 2002, people were given freedom to settle anywhere and anyhow and that led to uncontrollable behaviour. There was also another example of five silted dams in Chivi North. The construction of dams was facilitated by politicians without proper consultation with environmental experts so the dams are fully silted.

The other detrimental factor is that the government of Zimbabwe, through the Ministry of Local Government approved the use of farm bricks in house construction at rural business centres in 1986. The approval of the use of farm bricks in the construction of structures at rural centres has caused the problem of deforestation as the bricks need baking using large quantities of firewood. The idea was to enhance construction of rural business centres but it has damaging effects on the environment. This study established that the approval of farm bricks has helped facilitate housing construction at business centres, which in most cases is done by outsiders who are not from Chivi District. The move has resulted in rampant destruction of amarula trees for farm brick baking and a number of gullies resulted, as presented in chapter five.

Farm brick policy has led to the depletion of natural resources in Chivi and retards rural development. The dire situation would not end as long as other legislation are approving the use of farm brick moulding and baking which involves the use of land and forest resources. The policies by the government of Zimbabwe are encouraging destruction of natural resources and environmental managers cannot address the problem on their own. There is, therefore, a need to revisit this policy as the resource base for many districts, Chivi inclusive, cannot stand the demand for firewood to be used in brick heating. The approval of farm bricks was viewed by one informant as a destructive policy by the government,

The government of Zimbabwe is implementing and promoting retrogressive policies and strategies that affect the environment, they need to impress people by introducing the use of farm bricks yet they don't consider how it will affect the land and forest. They allow people

to settle anyhow and anywhere for political mileage yet that degrade the land. (Anonymous, 2017)'

The other problem which is also causing a threat to the environment is the relaunch of the craft industry at Danhamomombe Turn off at Sese, Ngundu and Lundi Business centres and at Gwitima Turn off. There are no stipulated regulations that guide its operations. The Chivi RDC and EMA, which should permit the crafters to dig clay soil and license them to sell the artifacts, highlighted that they did not permit the operations of traditional artifacts sellers. The assumption was that the issue was in the authority of the traditional leadership, Headman A. The headmen of the area, however, professed ignorance about the permits and licenses for the operations. This reflects the gaps in environmental management structures in the district. The continual destruction of trees for crafting is exacerbated by lack of regulation governing their operations. The lack of enforcement on environmental legislation that governs the crafters use of tree resources makes it very difficult to see how the resources can be managed on a sustainable basis. The traditional leader also clearly highlighted that local traditional rules governing resource use by the commons are also not respected.

Studies by Braedt and Standa-Gunda (2000), and Sauer et al. (2000) reveal that the woodcraft industry along the Masvingo-Beitbridge road in Chivi has largely contributed to deforestation in the district. Sauer et al. (2000) argue that given the extraction rates, standing volumes, and the tree diameter frequencies found in Chivi District area, the resource base along the Masvingo-Beitbridge road will not sustain the woodcraft industry much longer. The observations made during transect walk in the study area revealed that indigenous forests (such as the Chivumbwi forest) were destroyed because of the harvesting rate.

The study, therefore, observes that the issue of regulation gaps coupled with economic hardships is impacting negatively on the existence of forest resources and, eventually, impinges on rural development. Matose's (2006) study of the woodcraft industry along the Bulawayo-Victoria Falls road revealed that in Zimbabwe, enforcement of curio trading is very lax and sporadic outside the gazetted forest areas, partly due to lack of capacity and partly due to the fact that it is recognised that the curio industry is playing a pivotal role in alleviating poverty or providing safety nets to otherwise impoverished rural households. In this study, a number of forests which were destroyed were identified by the key informants. The artifact sellers stated that if they stopped crafting, it would be a major blow to their only source of livelihood. Sauer et al. (2000) confirm that in Zimbabwe, despite possible adverse consequences on the resource base, government organisations and policy makers have hesitated to take action in controlling the use of indigenous trees for the woodcraft industry.

The political scenario in the country led to the relaxation of environmental regulations and some people used the name of the ruling party to make them immune from prosecution. The natural resource base in Chivi District is vulnerable because one's political affiliation can give one the right to destroy the environment for personal gains. The political situation of the day determines how the environmental resources in a given community can be accessed and exploited by the local people.

6.2 Economic factors

This research also revealed that the resistance of community members to measures against the use of natural resources is because of economic conditions. In the face of difficult economic

conditions, natural resources bring substantial value to the household economy. There is uncontrollable exploitation of natural resources because it is an economic measure. The livelihoods of the communities in Chivi depend on the environment. The economy of Chivi District is agro-based, and given harsh economic environment people are left with no option but to exploit natural resources. Zimbabwe is currently suffering from a myriad of environmental conservation problems, in addition to destabilising economic and political entanglements. As a result, environmental sustainability has become difficult to implement in the country (Mawere, 2013). The Chivi situation was worsened by the fact that the district is drought-prone. Chivi District, as presented in the previous chapter, has witnessed uncontrolled exploitation of land and forest resources. The natural resources are an important source of livelihood for the district, yet the resources are very few. The economy of the district is basically agriculture-based. As a result of excessive droughts in the district, exploitation of land and forest resources is the main economic activity. Muhwati (2004) confirms that the Zimbabwe economy has performed poorly since the inception of the World Bank initiated Economic Structural Adjustment Programme in the 1990s, which resulted in industry failing to absorb surplus labour and in some cases, scaling down operations. The major economic factors are unemployment and poverty.

6.2.1 Unemployment

Many people in Chivi District are agrarians and because of unemployment, they lack alternative livelihood options. As a result of harsh economic conditions, there is a great deal of unemployment so they tend to over utilise resources to get an income for survival. The harsh economic conditions which have hit Zimbabwe hard did not spare the district and, as such, the unemployed people in Chivi District sell natural resources to get money. The other issue that drives unemployed people in the area to extract resources is availability of a market. The

availability of both illegal and legal market especially for the mined resources is also one other factor exacerbating illegal mining in drought-prone Chivi District. Both registered and unregistered gold buyers have developed illegal markets for gold, thereby promoting the illegal extraction of the resource. The same applies to sand extraction, where there is a ready market by the property developers at various rural service centres and business centres in Chivi District.

The unemployed people of Chivi District engage in farm brick moulding so that they get money from selling the bricks to those engaging in construction work near business centres such as Mandamhabwe, Chivi, Sese and Ngundu. The activity is benefiting a number of people but it causes deforestation and leaves gullies. These resources are a major component of the rural economy. The families claimed that they are earning a living through farm brick selling. The desire to make money by the poor households supersedes everything else. A study by Maponga and Muzirambi (2007), of Musana Communal area in Zimbabwe, also reveals that the advent of commercialisation of the African loquat threatens the forests with degradation by fruit harvesters who would be influenced by the desire to make quick money. In order to address and stop farm brick moulding there is a need to address the economic conditions in Chivi District first. The issue of farm brick moulding for commercial purposes will stop if the general populace is empowered economically.

A study of Chivi District by Mapfungautsi and Munhande (2013) reveals that employment opportunities are a central concern for smallholder farmers in Chivi because most households have to engage in off-farm activities to boost their agriculture income generating activities. They argue that given that the economy of Zimbabwe is based on agricultural production, it is clear that the destruction caused by climate variability will trigger imbalances in the whole economy.

The scenario has affected agriculture in the district which offers employment to a remarkable number of people and hence their livelihoods are at risk of economic shocks. The standards of living among the general populace in Chivi District have progressively declined and as long as there are no jobs to provide income, the communities will not stop exploiting the immediate environmental resources.

Analysed data show that the high rate of unemployment in Zimbabwe has led the communities in Chivi to seek income by engaging in informal crafting and trading of curios, for instance, in Chivi South. One monitor highlighted that the high unemployment rate has forced the movement to the informal industry. Financial constraints drive people to overexploit resources. Makonese (2008) posits that soon after the independence of Zimbabwe in 1980, there was an influx of tourists from South Africa to Zimbabwe who frequently buy artifacts made from wood by local people from the Chivi area. The rural population uses the roadside as the market places for traditional artifacts (Makonese, 2008). The findings by Makonese (2008), and from interviews with RDC, reflect that the craft industry market has been in existence since 1980. The market stall holders were paying a fee to Chivi RDC up to 2005 when it was, however, not spared when the government of Zimbabwe launched Operation Murambatsvina in May 2005 to destroy all “illegal” residential buildings and clean up all businesses operating “illegally”. Braedt and Standa-Gunda (2000) also confirm that the woodcraft industry in Zimbabwe has increased steadily since the late 1980s. The factors driving the upsurge in the woodcraft industry are the increased demand by tourists and the need by rural households to make an income. Matose’s (2006) study also reveals that woodcarving was viewed as providing a more secure source of

income than employment in the present economic situation, where retrenchment could occur at any time.

Research shows that unemployment is one of the drivers of illegal mining and sand poaching in Chivi District. The gold boom in Gororo and Chasiyatende areas has seen several communities in Chivi District embarking on illegal mining. Gold panning has been the worst enemy of the environment for a long time in Zimbabwe and now it has been worsened by the persistent droughts that cause a lot of people to go into panning as a form of employment (Geological Survey, 2000). Agricultural production is compromised and fails to provide a living to the unemployed majority. Illegal mining is one of the few remaining options. Many household heads, together with their family members, engage in illegal and unsafe mineral panning in an endeavour to earn a living.

A number of unemployed people are also engaged in woodlot projects in the district, such as Silver terminalia tree project in Ward 16 which helps the ward in raising money from timber. In wards 16, 18, 26 and 28 there is also Marula Nut Co-operative where women process a number of products from the amarula and sell to the market. The villagers in Ward 1 in Chivi rural also take advantage of the marula tree which is found in abundance. The villagers disclosed during focus group discussions that they crack the amarula nut in order to get the seed because the nut can be a good source of income. With the high rate of unemployment, villagers in Chivi District have found crashing the nut, extracting the seed and selling it at nearby business centres a worthwhile economic activity. A woman in the Marula nut project, Ms Lee confirmed that,

We take advantage of the vast amarula tree in the area and come up with a small business which is helping us to survive as we get some money to buy mealie-meal (Marula Nut Co-operative official, personal interview 2017)

Poor households in Chivi also sell a local wine extracted naturally from plants such as amarula and palm trees (ZWP, 2009).

Much of the environmental degradation can be attributed to structures in the wage labour market that make no provisions for post-employment livelihoods. Reduction in the wage labour market can drive persons in the economically active age-group to resort to overexploitation of natural resources in their rural areas. The state of the Zimbabwean economy since the 1990s has been bleak and from that period onwards, the quantity of natural resources began to decline rapidly. This has increased pressure on the natural resources. Zimbabwean communities are struggling to maintain their natural resources in a context where immediate survival needs outweigh any concerns for ecological sustainability. It is so glaring that even if environmental policies and acts in Zimbabwe regulate and control the use of natural resources, sustainable use of the natural resources will be frustrated at local levels by poor national economic performance.

6.2.2 Poverty

Among various factors that drive the communities in Chivi District to abuse natural resources such as land and forest resources and to make the environment vulnerable to abuse, poverty was presented as the major cause of environmental degradation. The poor in Chivi often endure the degraded environment with scarce resources, and contribute to further degradation of the land and forest resources. Poverty is a result of many factors that make it multidimensional. The environmental degradation in Chivi District should not only be understood from social, political

and institutional factors as generally defined or in environmental dynamics alone, but in interactions among these processes. In the same vein, Roe and Elliot (2004) posit that there are calls for new approaches to protected areas, and alternatives to protected areas.

The Agricultural Officer A explained that Chivi District is poor in resources and there are few coping strategies. He further explained resourcefulness is a key issue for environment and because of poverty, communities in Chivi District turn to natural resources but it is a vicious cycle because their poverty leads to environmental degradation, and in turn, the environmental degradation also led to poverty. The Agricultural Extension Officers' Supervisor B argued that,

Some people abuse resources because they want to send their children to school. Teachers in the area also encourage students to find ways of raising school fees, such as selling firewood so that they will be able to go school (Agricultural Extension Officers' Supervisor B, personal interview, 2016)

She also raised the concern that during school holidays a number of pupils sell firewood and fruit in order to raise school fees, which is the only alternative they have. Though this claim was never confirmed by teachers or school children since they were not part of the participants, the scenario showed that the majority of the Chivi community is poor. They rely on land and forest resources as the only option.

The Ministry of Local Governance official also expressed that natural resources are being exploited in Chivi for a noble cause because natural resources are the only source of livelihood. He also pointed out that it is impossible to stop using firewood because the communities cannot afford gas and solar power as alternatives.

He confessed,

The communities in Chivi are not exploiting the resources for selfish reasons, but they do not have any other alternative to survive. The financial aspect is the missing link, for instance one cannot afford to buy the fence and as a result one would use tree branches for fencing gardens among other. They are poor. (District Administration Official, personal interview, 2016)

The Forestry Commission also gives options such as biogas to avoid the excessive destruction of trees for firewood but the situation of the poor proves that it is not practical. During focus group discussions at Chinembiri Secondary School in Chivi Central, participants indicated that they do not have resources to use, for example, they explained that biogas is not manageable in their areas. They expressed that they can only use firewood from trees because they do not need to pay to access natural resources. Poor as they are, it is not possible for them to afford biogas and firewood is an option because they do not need to pay to access trees. Letsela et al. (2002) and Twine et al. (2003a) argue that these resources offer a financially inexpensive alternative to purchased goods. This issue goes back to the issue of vulnerability and lack of resources as drivers of resource exploitation. Livelihoods in Chivi District are dependent on natural resources and it is impossible to sustainably manage the environment since they have no other means to survive. Traedal and Vedeld (2017) posit that forest and land degradation is often linked to poor rural households and their unsustainable practices, such as the expansion of agriculture activities into forest areas.

Rural participants indicated that they use ploughs on roads and water ways, causing soil erosion, mainly because they do not have scotch carts to carry the ploughs to and from the field.

Participants also claimed that they do not have food for their families but they have trees they can cut and sell. A farmer from Mangwana village in the district also highlighted that they sell land or allocate land in undesignated areas so that they get money to buy food for the family. They also explained that the major reason for illegal gardens near the stream bank is hunger. They need to be close to water sources, without thinking of the environment.

In the northern part of the district, participants at Dare in Chivi South expressed during focus group discussions that gardens are benefiting them because they sell the vegetables at Ngundu and the money they get is helping them to get food. The discussion revealed that poverty leads to abuse of the environment. People destroy resources in order to survive and look after their families. Though environmental officers and other government departments highlighted that there are other livelihood options such as ranching and chicken rearing, the rural people, however, informed the researcher that they do not have capital to start the projects. Some villagers at Chinembiri Secondary School indicated that they just refrain from destroying environmental resources because of fear of the law and environmental acts but sometimes they have no option because they are living in abject poverty.

Discussions with communities in Chivi revealed that environmental degradation activities ranging from farm brick moulding, clay pot moulding, illegal crafting, illegal mining, stream bank cultivation, to mention a few, are a result of poverty. Deforestation and land degradation could only be curtailed through addressing the issue of poverty in Chivi District. The land and forest resources are the only source of livelihood because other livelihood options such as chicken rearing need money, which is not available. This is consistent with the argument with

Watts (2000). Watts (2000) argues that political ecology has the great merit of focusing on the social relations that shape practice and sympathises with the poor and exploited. It addresses the plight of the vulnerable, both their abilities and their constraints.

Political ecology as the approach for this research focuses on the social relations that shape resource management and poverty. There are scholars who argue that the poor just degrade the environment because they cannot think of other options. That was also indirectly suggested by Thomas Malthus, that the poor are more likely to engage in environmentally deleterious behaviour because they are incapable of thinking beyond the next meal (Moseley and Gray 2005). Whilst this may be true to a certain extent as evidenced by confessions from the community members who were interviewed that they destroy trees and degrade the land in various ways because they need quick money to bring food on the table, the issue still remains unsolved, especially for those who live in drought prone areas as Chivi. The communities in Chivi do not have other options. The only available option is resorting to the natural resources base. This study established that the Malthusian theory or sentiment is not applicable to all societies. A drought-prone area should be analysed from a different perspective. Kepe et al. (2004) also argue that the linkages between conservation and poverty are dynamic and context-specific, reflecting social and political factors and issues of geography and scale.

6.3 Social factors

6.3.1 Overpopulation

Farmers highlighted that overcrowding is the major factor that exacerbates land and forest misuse by the communities in Chivi. The available natural resources are not sufficient for the population in Chivi District. The Agricultural Officer A confirmed that Chivi District was once

bushy and less crowded. However, currently the resources are being overexploited because there is population pressure on the limited resources. The Agricultural Extension Officer's Supervisor A also highlighted that 'as families grow big, people start extending their fields and settle on illegal places'. She argued that land does not expand but the Chivi population increases and, as such, some traditional leaders allocate land to people near rivers and streams. The destruction of land and forest resources is, therefore, caused by competition for few resources. The families in Chivi settle in mountains and near rivers because they have nowhere to settle their children.

This approach of looking at environmental questions has its base in a neo-Malthusian framework. Schubert (2005) posits that political ecology studies reflecting this research tradition are often coined as 'neo-Malthusian'. The study revealed that Chivi District families are growing over time but land for settlement and agriculture is not expanding. Population pressure has had a major impact on Chivi's farming landscape. The proportion of cultivated land at the study site increased from 20% in 1984 to 33% in 1999, while available woodland declined from 36% to 22% and wooded grassland dropped from 11% to 8% (Campbell et al., 2002). The remaining woodlots and grazing areas are cleared for settlement purposes as population keeps on growing. Chigwenya (2000) argues that environmental damage in communal areas is a result of existing structures such as paddocks, contour ridges, abandoning of designated areas such as wetlands and stream banks which are then converted into farming units.

According to the Malthus theory, while food production levels grow at a linear rate, human population grows at a geometric rate if unchecked and Malthus predicted a decrease in available food per capita, with ensuing famines and the eventual extinction of the human race. As

population increases in Chivi District, the demand for the establishment of new homes, food and farming land increases. In a study of Zaka District in the same province by Makwara and Gamira (2012), it emerged that people continue to compound the problem of natural resources scarcity and exploitation by settling and extending farmlands on steep slopes, stream banks, grazing land and dambos/veils. The same population puts pressure on the environment since there is increased reliance on the natural resources for survival. The population pressure on the land and forest resources lead to resource scarcity.

The conflicts that arose in Chivi District with regards to use of natural resources such as village heads allocating land on water chains and in mountains, for bribes, are a result of resource scarcity. One of the best-known neo-Malthusian scholars who link resource scarcity to conflict is Homer-Dixon (1994; 1996; 1998). In his writings, he holds the hypothesis that there are resource scarcity induced conflicts that are driven by political and economic factors (Dalby, 2002a, 126). Homer-Dixon (1999) further explains that many violent conflicts must be explained by considering resource scarcity as a decisive factor. In Chivi District, there is conflict over gold in Zialand, Gororo and Chasiyatende. In Mhandamabwe brick moulders fight over moulding areas; the fights are a result of very scarce resources. However, this neo-Malthusian mindset has methodological shortcomings and the simplicity of the models employed cannot conclusively explain the reasons for environmental degradation, resource scarcity and population pressure. Scholars such as Homer-Dixon became some of the most-criticised scholars in the field of environmental conflict research and subsequently, in political ecology (Tiffen et al., 1994; Barnett, 2000; Wisborg, 2002; Leach et al., 1999; Hagmann, 2005).

Tiffen et al. (1994) in their article titled 'More People, Less Erosion' refute the assumption that high population pressure on resources will automatically lead to soil degradation and/or conflict. Scholars such as le Billon (2001), de Soysa (2002) and Ross (2004a) have a resource-centred political economy approach and argue that it is the abundance of resources, rather than their scarcity, that causes conflict, and that the characteristics of natural resources are intimately connected to characteristics of conflicts. Scarce resources against high population growth in Chivi District cannot be the reason for contests nor environmental depletion but its contested use. Hagmann (2005) also states that the social institutions that shape the rules and rights of resource use should be the focus of analysis. In the case of Chivi District, the researcher established that there is a need to relook at actors involved in land and forest use management as well as the factors that drive the local people to exploit resources. Population pressure is another factor that contributes to natural resource abuse but it will be inadequate to blame it for deforestation and land degradation in the drought-prone district. The focus should be on the social structures and constructions that shape access to, and control over, natural resources.

6.3.2 Lack of adequate knowledge

The other factor that leads to degradation of the environment is lack of knowledge. Many people who use and abuse the environment in Zimbabwe's rural communities lack information on the causes and effects of environmental degradation. The Environmental Officer B related this to the complexity and invisibility of relationships among ground water, surface water and wetland vegetation, hence the failure to understand the consequences of land use, water management, pollution and infrastructure on wetlands, to mention a few. She gave an example of wetland destruction in the district. EMA inspected thirteen wetlands and of the thirteen, ten have garden projects and nine are also used as pastureland. The local people placed their gardens in the

wetlands with the main purpose of being near water sources and they use the area as grazing land mainly because the grass there is greener.

The Environmental Officer B noted that most of the rural communities were not aware that food security at household level is greatly influenced by the way wetlands are utilised and that wetlands play a vital role in the water cycle. They supply moisture into the atmosphere to facilitate cloud formation and rainfall. The disturbance of wetlands in the district has negatively affected the rainfall totals received and, as a result, agricultural production, and hence leads to food insecurity at the household level. The reports from different environmental monitors further suggest that in many wards of Chivi District, farmers have been greatly affected by the closure of garden projects as a result of water shortage. Unknowingly, these farmers have resorted to the cultivation of ecologically sensitive areas like wetlands and waterways. In Ward 31, farmers have moved from the areas with drying up rivers and established their gardens in Dange wetland where there is still some moisture. The invaded wetlands have also been over cultivated and are becoming dry.

Tikka et al. (2000) also found out in their study that failure to overcome environmental problems or failure to preserve a healthy environment is a result of overemphasis on technical factors and inadequate attention given to the non- economic value of the environment. The knowledge gap was also realised in waste management by the Chivi RDC. There is lack of recycling technology since there are no recycling companies or groups in Chivi District. This contributes to the accumulation of waste in undesignated places as well as the ever-growing piles of illegal dumps at a rate which is too fast for the local authority Chivi RDC to cope with. The

dumping of waste in the district poses a challenge to the Chivi RDC because the council is failing to manage it. The unfenced and unlined two dumpsites at Chivi Growth Point and at Ngundu are threatening human health and livestock. Despite the quarterly penalty from EMA, the Chivi District Council was not able to handle the situation.

The knowledge gap is a driver of land and forest use degradation in the district. Studies by Chukwuma (1998) and Ramsey and Rickson (1976) have shown that the most significant factor affecting the environment is not the official government policy but public awareness or public concern for the environment and the readiness to bear the cost of minimising the adverse impact of their activities. A number of people who abuse the environment resources in the district lack knowledge about the effects of environmental degradation. It is recognised that environmental education helps create awareness and recognition of the consequences of people's actions and thus there is need for adopting environmentally responsible behaviour (Salequzzman and Stocker 2001; Bradley et al. 1999, Fien, 1997). Farmers unknowingly resort to destroying ecological resources for short-term economic values and not considering the effect to the future generations. Osbahr et al. (2001) argue that a major knowledge gap will remain, about how rates of erosion are accommodated and appraised within very variable social and economic conditions.

The knowledge gap is also realised in public transport operators who are, through ignorance, failing to comply with the environmental regulations that all public transporters should ensure that a litter bin is placed in public transport for disposal of waste. The public transport operators are not aware of the implications of passengers throwing litter through the window as evidenced

by littering on the busy highways in the district, especially at Mhandamabwe and Chibi Turn Off. Studies by scholars such as Schultz and Oskamp, (1996) Mansaray and Abijoye, (1998) have demonstrated that the quality of the environment depends critically on the level of knowledge of the community. Whilst it is acknowledged that the state actors such as EMA, Chivi RDC, Forestry Commission, Ministry of Agriculture, Mechanisation and Irrigation Development as well as NGOs are engaged in awareness campaigns in the district, there is a lot that needs to be done. The idea that the awareness campaigns are done from the top and by people with authority may be a challenge. There is a need for environmental education from the grassroots level. As aptly pointed out by Hudson (2001), environmental education must stay relevant to the needs and interests of the community and yet constantly adapt to the rapidly changing social and technological landscape.

6.4 Environmental factors

The study established that Chivi District receives erratic and unreliable rainfall and the area falls in Zimbabwe's agro ecological regions 4 and 5. The regions are characterised by low rainfall totals and recurring periods of drought that have resulted in food insecurity amongst many households in the district. Agricultural production in both crop and livestock farming is very low so the desperate farmers end up cultivating stream banks and sometimes right on river beds, to maximise production.

The informants highlighted that major rivers in Chivi District are severely affected by stream bank cultivation and they have been silted. The silted water bodies are no longer able to supply the much-needed water vapour and this has negatively affected the water cycle. Runde, Tokwe, Musavezi, Tende and Mutirikwe rivers are such big water bodies which used to help in the

supply of water vapour in the atmosphere, leading to formation of clouds and hence rainfall. Now that these rivers are severely silted, there is less moisture to enhance rainfall chances and this is contributing much to climate change. The rural people of Chivi, therefore, want to get close to wetter areas such as rivers, dams and wetlands. The report from Chivi District EMA reveals that a number of rivers are affected by stream bank cultivation because farmers have shifted their gardens too close to the water sources.

The pressure for agricultural land in the district has also led to encroachment into wetlands and farmers do not realise the impact of doing so. The wetlands are the only sources of survival for the communities in terms of water supply. The major contributing factor to farming closer to wetlands is consecutive seasons of little or no rainfall as well as extension of cultivation areas into wetlands. Climate change is proving to be a big challenge contributing to the depletion of wetlands in Chivi District. Madyangove and Danha areas are two among many areas, mentioned by the Environmental Officer B, where some wetlands have totally dried up. Wetlands become viable if they are continually recharged by rain water.

Chivi District is also growing into a desert because of erratic rains which lead to frequent droughts. The district experiences high temperatures and ever-changing weather conditions, hence it becomes prone to droughts. Communities are left with no alternative other than utilising natural resources which are at their disposal. The poor rainfall pattern in the area is threatening the livelihoods of the people and food security in the district, so natural resources are the only source of livelihood. According to the Environmental Officer B, community members are

destroying the environment through building houses, mainly because Chivi's major livelihood activity, which is agriculture, is failing because of climatic change.

Chivi District is wholly communal and the main activity is agriculture but because of erratic rains people exploit natural resources, for example, escalation of mining activities and destruction of trees. Hellmuth et al. (2007) argue that climate change presents risks to lives and livelihoods at the individual level and to the economy, as well as infrastructure at the regional and national levels. Climate change has an effect on rural development because it changes how communities access and use natural resources. Zimbabwe is particularly vulnerable due to its heavy dependence on rain-fed agriculture and climate-sensitive resources (Chagutah, 2010). The reliance on rain-fed agriculture leads to the vulnerability of the economy and livelihoods of the poor in Zimbabwe. Chivi District has not been spared from climate change. It has experienced droughts in which almost every season has been characterised by dry spells. The increasing variations in rainfall patterns over time, coupled with frequent seasonal droughts, are testimony of climate change in Chivi District. Droughts characterise Southern Africa and farmers in Zimbabwe have been experiencing drought once every two to three years (Mazvimavi et al., 2007). Interviews revealed that the occurrence of droughts has negatively affected agricultural production. Both crop and livestock farming have declined and desperate Chivi farmers end up cultivating on streams, wetlands and sometimes right on river beds.

Climate change has played a role in environmental degradation and that has negatively affected attainment of sustainable rural development, especially for areas such as Chivi District. Brown et al. (2012) posit that rising temperatures and increasing rainfall variability, notably drought, are

also expected to exacerbate declining agricultural outputs, further compromising economic growth and stability, employment levels, food security, demand for goods, and poverty reduction. The erratic rains and ever changing weather has made the district drought-prone and communities are left with no option except to utilise the available natural resources. A study of Chivi district by Mapfungautsi and Munhande (2013) revealed that the occurrence of climate variability has been evidenced by drought that has been characteristic of almost each and every season since 2006. This has resulted in household food insecurity in Chivi District, 98% of male and female-headed households were food insecure after the 2010/11 season.

The issue of climate change in the district has implications for the livelihoods of the rural populations. Scholars such as Brown et al. (2012) argue that in Zimbabwe climate change is addressed by the Environmental Management Act of 2002, (Chapter 20:27) that focuses on protection of the environment but it is widely recognised that such policies are insufficient in light of the projected impact of climate change. The issue of climate change, in terms of policy, is not receiving adequate emphasis yet it has strong links to natural resource access and use. This is a true reflection of the Chivi District experience, in which the data collected reveals that climate change has a more damaging effect on the environment than any other factor. It resulted in the siltation of almost all the big and small rivers, streams and dams. This threatens livelihoods of the current and future generations who would have no water sources.

The approach that informs this study, political ecology, is central to understanding how climate changes affect people and places. In political ecology, the environment is seen not only as a force influencing material and political outcomes, but also as a major site of social and political

struggle. The control of climate change should encompass, firstly, the politics of how the facts of climate change and the policy agenda of response are created. Watson and Srinivasan (2011) argue that climate change has been shown to be a social and political site of contestation as much as a material one. In this regard, the policies must be social, political and institutional, as well as technological.

Climate change has become politicised and part of the global agenda. Liverman (2015) posits that climate change connects political ecology back to its origins, where there is need to understand hazard vulnerability and intersections between poverty and environmental degradation, and highly politicised debates about the future of the development. This study established that a number of key informants do not associate environmental problems to climate change which has struck the world, and Chivi. The data gathered from EMA and Chivi RDC did not address policy challenges with regards to climate change politics but rather blamed the rural population for the damage. A report produced by EMA reveals that the major causes of degradation in Chivi District are activities of local people, for instance, siltation of water bodies which are no longer able to supply the much needed atmospheric moisture and this has negatively affected the water cycle. This is suggestive of the fact that the activities such as stream bank cultivation and wetland farming contribute much to climate change but the researcher suggests looking at the climate change issue on a larger scale. There is a need to address the origins of the matter rather than attack the victims, which are in this case the rural people in Chivi. Though it is acknowledged that a number of researches, global, regional and national leaders have implemented measures to address climate change, there is much that needs to be done, especially with regards to the vulnerability of rural communities to climate change.

In the area of development studies, if rural development is to be realised in countries such as Zimbabwe, there is a need to analyse various factors that have an impact on natural resource use, since areas such as Chivi rely on environmental resources for their livelihoods. Studies by Castree (2008) and Liverman and Vilas (2006) argue that political ecology perspectives on changing human–environment relations as a result of neo-liberalism and globalization have influenced work on climate change. For instance, Eakin (2006) has explained climate vulnerability in Mexico in terms of the neoliberal processes of free trade, structural adjustment, and changes in land tenure, showing how they have affected peasant farmers in central Mexican communities. Leichenko and O’Brien (2008) captured the intersecting risks of global environmental change and economic globalization with their influential concept of ‘double exposure’. Others have drawn on Sen’s theory of entitlement to goods and services to see vulnerability as a lack or failure of entitlements to, for example, food, land or disaster relief (Ribot, 2014). In the Chivi District context, climate change has had a severe impact because the area depends on rain-fed agriculture. The scale and scope of vulnerability increased because of limited livelihood options. The issue of climate change, coupled with social, political and economic problems in the area exposes the natural environment to destruction, thereby impacting negatively on the sustainable rural livelihoods of the local community.

6.5 Availability of natural resources

The other driver for natural resources extraction is the availability of resources, especially minerals, which are being discovered in the district. Poor as the people are, they will be eager to generate money. The availability of the resources within the affected areas has led to both illegal

mineral panning and uncontrolled sand poaching. As soon as the people of Chivi discover the availability of minerals or sand deposits in their areas it is very difficult to control the illegal extraction of that mineral. A good example discussed earlier is the gold boom in Ward 28, Gororo and at Chasiyatende Township in Ward 23 which have seen several community members embarking on illegal mining as well as prosecution of the illegal miners. This also applies to areas close to Tokwe River and Runde River, where nearby community members are engaging in illegal alluvial gold mining.

Construction activities have also increased and these have increased demand for natural resources and resultantly, heavily silted rivers and streams are near areas where a lot of construction is going on.

6.6 Summary

The chapter analysed the factors that drive communities in Chivi district to overexploit the land and forest resources. Environmental degradation in the district is a result of a number of factors combined with poor policies that promotes deforestation and land degradation. The political ecology approach helps in establishing that natural resources management and use is political. Politicising the natural resources has further damaged the scarce environmental resources in the district. This agrees well with the assertion by Neumann (2005) that political ecology argues that social and political factors, not technical or managerial issues, lie at the core of ecological problems. The district has adequate expertise capable of maintaining the land and forest resources, but the issue of detrimental policies such as Zimbabwe's land reform policy of 2002 that allows illegal settlement in ecological sensitive areas, and the Farm Brick Policy of 1986 that allows use of farm brick in construction, has pushed the Chivi community to degrade their

environment. The existing environmental regulations are fragmented and difficult to enforce, mainly because of some provisions that allow people to degrade the environment. The lack of crafting regulations in a country where craft industry has become a source of employment is also a cause for concern. Politics has affected sustainable management of land and forest resources. Political ecologist Bryant (1998), rightly expresses that politics and environment are everywhere thoroughly interconnected. In this case, politics takes place within policy formulation and implementation.

The chapter further revealed that the rampant destruction of environmental resources is viewed as source of income because of the harsh economic conditions in the district as well as in Zimbabwe. The commercialisation of environmental resources becomes a means to buffer the Chivi district communities against poverty and unemployment. The district is experiencing an unprecedented wave of destruction of trees and land degradation as people sought income. Dependency on natural resources is common in Chivi district and these resources represent a major component of the country's rural economy. Fletcher's observation (2010) resonates with this argument that, the lack of government's involvement in the economy and in the environment has opened a space for a dynamic, complex sociocultural process that involves states, corporate, non-governmental and local actors engaging in the perpetration of or resistance to exploitation of natural resources and relating in unexpected ways.

Social factors such as population pressure against resources and lack of knowledge also plays a role in environmental degradation in Chivi District. The study reflects the interactive effects of social and ecological processes on environmental resources access and use. The environmental

resource base in the district has very limited resources and yet a number of people depend on the same environment for their livelihoods. There are very limited livelihood options, which exacerbate land and forest resource abuse. There is also an issue of knowledge gap in which communities have to be educated on the importance of the natural resources to the development of their own lives. Many people in Chivi District use and abuse the environment because of lack of knowledge on the effects it has on their livelihood strategies.

Chivi District relies on rain-fed agriculture and it was not spared from climate change and excessive droughts that exposes environments resources in the district to further destruction. This has resulted in food insecurity in Chivi District and triggered environmental degradation, as people extract natural resources as a means of bringing food on the table.

With regard to the above, the political ecology approach does not suggest that environmental problems do not exist, or that ecological science cannot help, but acknowledges the greater political controversies about the nature of ecological risk, and the influence of different political actors (Forsyth, 2003). Political ecologists argue that forest loss and land degradation is no longer viewed as an ecological problem requiring scientific solutions but it is an economic and political problem that needs to be addressed. Hellerman (2015) argues that for a long time, foresters paid little attention to how the broader social, cultural, and political contexts affected the success of scientific practices of forest management. This study proposes the need for a better understanding of the context and a closer engagement with key actors and factors outside of the scientific environment sector.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7. Introduction

The study explored the implications of land and forest use for rural development in drought-prone Chivi District in Southern Zimbabwe, using the political ecology approach. The study contends that the political ecology approach is an essential approach within which to better understand its influence on natural resource access and use. The thesis drew extensively on political ecology and addressed three major objectives. The objectives are: assessing the influence of state actors and local leadership on resource allocation and use, investigating how local use of land and exploitation of forest resources sustains local livelihood strategies and addressing the factors that influence environmental degradation in the district. In seeking to address the objectives of the study, extensive fieldwork was done using mixed data collection methods that includes interviews, focus group discussions and transects walks. The methods enabled the researcher to explore the linkages between environmental conservation, local communities and possible drivers of land and forest resource extraction.

While most of the focus of literature on environment and development is on natural causes of environmental degradation, this study further focused more on the role of external influences on local environment. The decisions people make in order to carry out their livelihoods are tempered by external forces. This study reveals that the symbiotic relationship between society, politics and the environment is sometimes beneficial and sometimes harmful to both parties but it is very necessary because it plays a major role in promoting sustainable management of natural resources. Environmental resource access and use patterns at the local level have been shown to be influenced by both proximate and distant factors. The political ecology lens provides an insight into the realities that natural resource management often involve external influences on

local resource use, where conservationists and local resource users disagree on how resources should be used. Functions of political, economic and social aspects may cause society and individuals to exploit land and forest resources because society's existence is based upon the immediate environment which provides resources to sustain livelihoods.

7.1 Conclusion

There have been a number of approaches to understanding rural development and environment but political ecology was chosen in this study as the natural candidate for further analysis of environmental issues. The political ecology approach used brought awareness to more broadly defined relations of power and difference in interactions among Chivi District community and their immediate environment. The approach explains that resource use and power dynamics in everyday interactions goes beyond the local community.

One finding of this thesis is concerned with the management of natural resources. There is the existence of prescribed governance system in natural resource management and that devolve power in distinct ways. The study indicates that the politics of governance of natural resources represent attempts by the state to restrict local communities from overexploiting natural resources. It presents complex interactions between different forces that shape natural resource management and use across different levels. Political ecology acknowledges the existence of a politicised environment in which power relations plays a role. In this case the relationship between state actors, traditional leaders, local community, non-governmental organisations and the physical environment is conditioned by power relations.

The study established that despite the existence of state actors and NGOs in the management of land and forest resources, natural resources in Chivi District are severely deteriorating and degrading. In light of this, there is a need for an integrated approach that has to be designed in addressing the challenges as the state actors and traditional strict enforcement are failing to address environmental problems in the District. The environmental management departments such as EMA, RDC, Forestry Commission, Ministry of Agriculture, Mechanisation and Irrigation Development as well as NGOs as SAFIRE and CARE, who are involved in the management and allocation of land and forest resources in the drought prone areas are not adequately assisting the locals. There are several flaws and shortcomings in the allocation of responsibility and authority over management of these resources. The state actors play a major role in ensuring that environmental rules and regulations are maintained as well as ensuring existence of land and forest resources but the problem of resource destruction is not changing. There is a top-down approach system but natural resources can be managed sustainably if the territorial approach (bottom-up approach) is used. The management of land and forest resources should start at the community level going upwards to state actors.

The idea that natural resources can be catalysts and forerunners in enhancing broad-based socio-economic growth for the benefit and development of its local people will only be realised if Chivi communities are actively involved in the management of land and forest resources. Their involvement should not only be as recipients of the rules and laws that govern the management of natural resources but as managers of their own environment. The role played by different actors in the management of land and forest resources is good but it excludes the local community. The current approach tends to centralise decision making and is often linked to

development from the state to the local community. Pioneers of the political ecology approach such as Blaike (1997) argue that the modern top-down approach takes the position that local resources use and knowledge should be replaced by official expert led knowledge which induces local people to adopt official sponsored innovation. The participation of local communities especially leadership was portrayed as the key driver to sustainable rural development through the use of land and forest resources.

The results from the field also reflect that sustainable rural development through the use of forest and land resources cannot be achieved fully if only government actors and developments agents are the ones who are so much involved in management of resources through the use of rules and regulations that govern natural resources. The study has revealed that the local communities have been excluded in environmental law formation and enforcement. Despite the fact that there are environmental monitors who are community members and are actively involved in the monitoring of natural resources, the locals still view and treat these people as aliens and not local community representatives. The Chivi community perceive the presence of environmental monitors as not helping much since monitors represents the needs of state actors. The state actors mystify their work as a professional scientific endeavour but this attitude side-lines the Chivi District community. Lack of communal participation at policy formulation and management level is detrimental to sustainable rural development of Chivi District community. It is reasonable for one to safely conclude that listening and giving the locals an upper hand in the management of land and forest resources would be a good starting point in ensuring that the local communities realise sustainable rural development.

Although the study reflects that natural resources can never be managed sustainably without involvement of local communities in full management of resources, it should be noted that in some cases it is a challenge to involve local communities in areas where professionals and experts are needed. Despite the issue of local community involvement, the study suggests that if land and forest resources are governed as the state actors propose; the natural resources generally have the potential to uplift the standards of life of the people in Chivi and rescue them from the effects of poverty.

The other finding of this study concerns how the Chivi District community exploit land and forest resources to sustain their livelihoods strategies. The study unearthed the destruction of resources due to unsustainable livelihood strategies. There is competition for survival on a declining natural resource base. The communities are engaging in unsustainable exploitation of land and forest resources. The activities are firewood selling, craft industry, farm brick moulding and selling, illegal mining, stream bank cultivation, destruction of wetlands among others. These practises heavily depend on unsustainable exploitation of the natural resources and hence contribute to the destruction of its natural resource base such as gully development, siltation, deforestation and land degradation. The political ecology approach used provides an understanding that deforestation and land degradation are not simple problems linked to scientific and technical solutions but are hastened by human activities and other forces. The land and forest resources are degraded as the Chivi community is trying to make a living out of degradation. The study suggests what most political ecologists refer to when they restrict deforestation and land degradation to human induced processes. Deforestation and land degradation has both natural and human origins. The rate at which the Chivi community degrade

land and exploit forest resources reflect that deforestation and land degradation are ecological problems not only requiring scientific solutions but are socio-economic and political problems that needs to be addressed.

To better understand the context, the study further explored the factors that force the Chivi community to exploit natural resources in such a manner. There are political, economic, social and environmental among other factors that influence exploitation of natural resources by the Chivi District community. This adversely affects sustainable livelihood strategies and rural development. The study, thus, concludes that political, social, economic and environmental factors have interacted in complex ways in bringing about the current state of land and forest resources in drought prone Chivi District. This study has shown that widespread deforestation and land degradation in the district are primarily attributed to these factors. These factors influence access to, and use of, land and forest resources by Chivi community and therefore can hinder or promote development of the lives of rural people.

The political ecology approach, used in this study proves to be greatly applicable because it was realised that rural sustainable development through access to and use of natural resources could not be achieved fully, if various factors affecting their use are not taken into consideration. It was also observed that political moves facilitate rampant destruction of resources through implementation of policies that are detrimental to environment for instance farm brick policy that has led to the dual destruction of land and forest resources. The government policies and practices have created a ready market for natural resources and this has an upper hand in natural resource destruction. The study has also established the issue of regulation gaps which impact

negatively on the existence of land and forest resources. The study is advocating for closing the regulation gap in order to ensure sustainable use of land and forest resources. This move will reduce pressure on access to and use of natural resources.

The results from the field reflect that the prevailing economic conditions in Zimbabwe have not favoured employment opportunities for the Chivi District community. In order to address natural resource degradation in the Chivi District, there is a need to first address the economic conditions of the Chivi District and Zimbabwe nation at large. The drought-prone area already has limited environmental resources and the general populace in the Chivi District is not empowered economically. The economic status of these rural people is forcing the Chivi District community to exploit the limited land and forest resources for commercial purposes. They are exploiting natural resources in a bid to boost their income. The Zimbabwe economic meltdown has a detrimental effect on local environmental resources especially in drought-prone areas that rely on resources for their livelihoods.

The study established that poverty mainly has, and will continue to precipitate enormous destruction of forest and land resources in Chivi District. The Chivi communities are struggling to conserve their natural resources in a situation where survival needs outweigh concerns for environmental sustainability. Chivi District is agro-based and poverty-stricken, the only source of livelihoods are natural resources. The government of Zimbabwe's failure to provide for the needs of the rural people has boosted the exploitation of land and forest resources. In the face of such difficulties, the land and forest resources are vulnerable to exploitation when community

wants to meet their livelihoods needs. Generally the Chivi District community lacks livelihood options and the only option is destroying natural resources.

These political, economic and social factors have been compounded by prolonged droughts in the district. The study established that the Chivi District receives erratic and unreliable rainfall. Low rainfall totals and recurring periods of drought have resulted in food insecurity amongst many households in the district. The district experiences high temperatures and ever-changing weather conditions and hence it becomes prone to droughts. Communities are left with no alternative other than utilising natural resources which are at their disposal. The issue of climate change coupled with political, economic and social factors in the area expose the Chivi environment to further destruction by local people.

7.2 Recommendations

This study calls for involvement of the local communities in the management of their resources. The research is advocating that the local people in Chivi District are crucial in the management of resources and the potential of the natural resources in rural development will be realised. In order to guarantee sustainability of the land and forest resources in Chivi District, it is crucial to have a participative community in the management of its natural resources. Local community involvement provides a platform for negotiations where both state actors such as EMA, RDC and local communities will come up with solutions that will benefit the community of Chivi District.

The study recommends a situation where the traditional leadership and local community are given a chance to come up with solutions and rules that govern how the local people use the forest and land resources. It is not proposing reviving the traditional conservation methods per

se because the current status of the regulations does not make it feasible to revive traditional conservation methods of taboos. The community have moved so much from traditional beliefs in such a way that they will resist the issue of taboos. This study also advocated the empowering of traditional leaders in such a manner that the powers which are given by the government of Zimbabwe to EMA and RDC be also be awarded to Chiefs and headman. The village heads should also monitor access and use of land and forest resources if management and enforcements starts at that level, the locals will use resources sustainably.

Conservation problems in Chivi District will be resolved if the environmental debate is reframed by putting the local community at the forefront. In as much as state actors are perceived to have failed to solve the issue of environmental degradation in the district, traditional leadership and local community are also bound to fail if they do not co-opt each other. The state actors, local leadership and community should not work in isolation of each other but there is a need to engage local people, hear them out, listen to forces that affect them and then together they will discover ways to promote sustainable conservation and rural development.

The set of environmental rules and regulations that bind the community should come from the local people in Chivi. Environmental laws and acts from the state will be there to support set of rules and regulations that are community initiatives. The local community should be tasked to come up with rules and regulations that govern natural resources that are in their areas and to make sure that the resources are used to benefit current and future generations. In regulation formulation, the researcher has realised that there is imposition of alien models to Zimbabwean societies. Policy should consider the option of granting full autonomy to local communities so

that local communities can monitor and control environmental resource use. Internalising the enforcement of rules and regulations should be adopted. There is a need to totally divorce from the situation in which communities are only seen at the implementators of natural resources management programmes and projects but are not part of planning of the same.

The environmental systems in place promote a situation where environment custodians such as government departments, NGOs, traditional leadership and environmental monitors are coming up with rules and regulations of environmental use. This study proposes a model of a sustainable environment protection with rural development of a society in mind. There is a need to do away with one size fits all policies where rules and regulations are imposed similarly despite the fact that societies are different. In this case there is need to have a model which is suitable to drought prone areas such as Chivi district because the area has very scarce resources yet the community depend directly on the environment for their livelihood. It will be a bottom up approach where environmental rules and regulations start from the community itself. That way, the community would not be viewed as culprits but be part and parcel of environmental issues. The sense of ownership of the environment will help local community realise the need to sustainably use the environment for the betterment of rural lives.

This study suggests context specific approaches to environmental conservation and in this case they should be drought-prone based. The government of Zimbabwe should equip the state actors that are involved in environmental issues with resources to fund environmental projects. The projects such as deforestation and gully reclamation improve the availability of natural resources in drought-prone areas as the Chivi district. At the same time, when environmental resources are

being boosted, the communities should be funded in other livelihoods activities that generate income for the community so that their attention should be drawn away from natural resources. In such areas, environmental acts should not in any way permit or sanction the selling of natural resources. For instance Statutory Instrument 12 that permits the selling of forest products should not be applicable to drought-prone districts. This and other acts that permit and license selling of environmental resources such as Farm Brick Policy of 1986 and licensing of crafting are neither feasible nor desirable in Chivi District.

With that in mind, there is a need for policy reform with regards to environmental laws and acts that govern natural resources access and use in drought prone areas. The researcher suggests the enforcement of the Green Policy where those who sustainably conserve the natural resources are eligible for funding. Since the major push for destroying environmental resources is lack of income, funding from the government will ease pressure from the environment. To ensure proper enforcement there is a need for routine audits and surveillance of the environment especially in resource poor areas as the Chivi District. On issues of routine audits, the traditional leaders and environmental monitors were also proposing provision of resources such as bicycles and incentives so that they can easily move from one place to another monitoring the environment.

Before embarking on the process, there is a need for proper awareness on the importance of natural resources to the people's livelihoods among communities, before implementing the rules. Currently the state actors are teaching the local communities the importance of conservation but not addressing the root causes of environmental degradation. The status of forest and land resources in Chivi District demands for survival coping strategies that should be made available

to the citizens. It is clear, as revealed in this study, that the prevailing political, economic, social and environmental issues marginalise the communities, forcing them into exploiting resources for survival. The situation makes environmental considerations secondary to the basic needs of the community. There is an urgent need for the government of Zimbabwe to address the employment crisis in the district since the majority of the people who abuse land and forest resources are doing it to get an income. Most of the respondents were proposing the involvement of government to address poverty and unemployment in order to reduce environmental degradation. The solution to the environmental problem in the district is to first address the economy and then environmental resources would not be at risk of destruction.

7.3 Areas for future research

The political ecology approach used in the thesis makes it possible for further research that could be developed. There is a need to build on the theoretical framework used and to apply drought-prone based approaches and test them in detail. There is a need to develop and modify area specific environmental theory so as to address the shortcomings that have been identified. The political ecology approach that was used has developed an insight into a diverse range of complex issues in natural resource access and use in a drought prone area and how it affects the development of a rural community. There is, therefore, need to develop an approach for management of natural resources in resource poor areas. There is a need for interdisciplinary research from development practitioners and ecologists that could develop powerful and more robust theoretical paradigm for environmental management issues. This thesis demonstrates that researchers have an obligation to respond to the complexity of resource access and use, for instance context-based approaches could play a role in helping the communities to survive in an environment with limited resources.

Policy making for environmental issues would therefore benefit from research because it helps the decision-makers to understand the implications of one size fits all policies on rural development. It would further help them to apply new approaches in order to improve sustainable livelihoods of the people in drought-prone areas. The road to sustainable rural development could be attained through this understanding.

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APPENDIX 1

RESEARCH INSTRUMENT

INTERVIEW GUIDE QUESTIONS

General Population

- How do you pursue sustainable livelihoods from the immediate environment?
- How would you describe the status of natural resources here?
- What has happened to land and forest resources over time? If there have been changes: why?
- How do resources from the forest and land help to improve your day to day lives?
- How do you cope with environmental resource scarcity in your area?
- Who uses local resources most?
- How do you benefit from the forest resources in your area?
- How do you benefit from the land resources in your area?
- Is there competition over local resource use? If yes, who do you engage with competing interests?
- What is the relationship between poverty and local resource use?
- What is the major factor that causes the society to exploit natural resources?
- What are the other sources of sustainable livelihoods?
- How do you take stock of your environment resources?
- How are you responding to changing environmental conditions?
- What role do leaders or political interests have in determining resource access?
- Who has more power between traditional leadership and EMA when it comes to environmental resource access and regulation?
- Are the laws and regulations from the Chiefs and EMA similar?
- How do Ministry of Agriculture and CARE assist in environmental conservation?
- How do environmental management acts help you develop as a community?
- Why traditional leaders and EMA are discouraging you from over exploiting the resources?

Questions to EMA

- What is the main objective of environmental policies and acts?
- How does this help or improve the livelihoods of rural populations?
- How do you approach the rural communities?
- How does community leadership respond to that-are there no clashes/conflicts between EMA and traditional leadership?
- How do the communities respond to that?
- As of today, how does compiling the environmental policies and acts help the Chivi District to improve their livelihoods?
- What do you think is the major reason for the community to overexploit resources?
- How does the poverty in the area influence the way they use land and forest uses?
- How does the Chivi community exploit forest resources? And at what rate?
- Why is it important for Chivi community to maintain the scarce resources they have?
-

Questions to Traditional Leaders

- What is the relationship between traditional leaders and local resource use?
- How do locals pursue sustainable livelihoods from their immediate environment?

- How would you describe the status of natural resources here?
- What has happened to land and forest resources over time? If there have been changes: why?
- Do you believe that resources may be over-used? If so why and how did you deal with those who overexploit natural resources?
- How do locals cope with environmental resource scarcity in your area?
- Who uses local resources most?
- Is there competition over local resource use? If yes, how do you resolve competing interests?
- What is the relationship between poverty and local resource use?
- What is the major factor that causes the society to exploit natural resources?
- How do you take stock of your environmental resources?
- How are you responding to changing environmental conditions?
- How do you discourage the communities from over exploiting the resources?
- What is the main objective of local conservation strategies on environmental resources?
- Do the community have other sustainable livelihood options except surviving on environmental resources? If yes, state them.
- What is the difference between local conservation strategies and environmental management laws and policies in Zimbabwe?
- Are the laws and regulations from the Chiefs and EMA similar?
- How do Ministry of Agriculture and CARE assist in environmental conservation?
- How do environmental management acts help you develop as a community?

Questions to Forestry Commission

- What is the main objective of forest policies and acts?
- How does this help or improve the livelihoods of rural populations?
- How do you approach the rural communities?
- How does community leadership respond to that-Are there no clashes/conflicts between your department and traditional leadership?
- How do the general communities respond to that?
- How do communities usual exploit forest resources?
- What do you think is the major reason for the community to overexploit forest resources?
- As of today, how does compiling to the forest policies and acts help the Chivi District to improve their livelihoods?
- How does the poverty in the Chivi District influence the way they use forest resources?
- Why is it important for Chivi community to maintain the scarce resources they have?
- How does the Chivi community exploit forest resources? And at what rate?

Questions to Agriculture, Mechanisation and Irrigation Development

- What is the main objective of land use policies and acts?
- How does this help or improve the livelihoods of rural populations?
- As a department which is mandated by the government to teach communities how to use land sustainably-How do you approach the rural communities?
- How does community leadership respond to that-Are there no clashes/conflicts between your department and traditional leadership?
- How do the general communities respond to that?

- How do communities usual exploit land resources or misuse land?
- How do you assist the communities to use land sustainably and conserve land resources?
- What do you think is the major reason for the community to misuse land and overexploit land resources?
- As of today, how does compiling to the land policies and acts help the Chivi District to improve their livelihoods?
- How does the poverty in the Chivi area influence the way they use land?
- Why is it important for Chivi community to maintain the scarce resources they have?

Questions to CARE International and SAFIRE

- How does CARE International/SAFIRE assist in environmental conservation in rural communities?
- Do you have any environmental projects which you implement from your organisation?
- If any, what is the main objective of the organisation in implementing such projects?
- How do you identify the environmental problems in the rural community?
- As of today, how did the implementation of the projects improve the livelihoods of rural communities?
- How do you link this to rural development?
- How do the general communities respond to that?
- What do you think is the major reason for the Chivi community to misuse land?

Questions to Ministry of Local Governance

- As a Ministry of Local Governance, what is your role in environmental issues?
- How do you relate with EMA, Forestry Commission, Agritex, RDCs, CARE in issues relating to the environment?
- How do the above relate?
- What environmental related challenges do you face?
- What could be the source of such problems?
- What has so far been done in your area to ensure sustainable management of natural resources?
- What statutory instruments are in place to regulate exploitation of land and forest resources?
- Do you have any documentation in your office in relation to forest and land use in the district?
- What other comments can you give apart from what you said?

Questions to Rural District Council

- What is the role of the RDCs in management of environmental resources in the District?
- How do you relate with EMA, Forestry Commission, Agritex, CARE and community in issues relating to the environment?
- What legislative pieces are in place to guide you manage environmental resources?
- How does the community benefit from sustainable management of environmental resources?
- What activities are carried by the RDC to promote proper usage of environmental resources?

- How does your role differ with Local Governance office?
- Any reports of abuse from communities? If yes how have you addressed this?

APPENDIX II

DECLARATION OF CONSENT

PROJECT TITLE: A political ecology approach to understanding the implications for rural development in drought prone savannah: a case study of land and forestry use in the Chivi district, southern Zimbabwe

RESEARCHER

Full Name: **MACHEKA MAVIS THOKOZILE**

School: **BUILT ENVIRONMENT&DEV STUDIES**

College: **HUMANITIES**

Campus: **HOWARD**

Proposed Qualification: **DPHIL DEVELOPMENT STUDIES**

Contact: **+263774333922**

Email: **mavythoko@gmail.com**

SUPERVISOR

Full Name of Supervisor: **Pranitha Maharaj**

School: **BUILT ENVIRONMENT&DEVELOPMENT STUDIES**

College: **HUMANITIES**

Campus: **HOWARD**

Contact details

Email: **Maharajp7@ukzn.ac.za**

HSSREC RESEARCH OFFICE

Full Name: Prem Mohun

HSS Research Office

Govan Bheki Building

Westville Campus

Contact: 0312604557

Email: mohunp@ukzn.ac.za

I MACHEKA MAVIS THOKOZILE, Student no. 215080480 am a PhD student, at the School of Built Environment and Development Studies, at the University of Kwazulu Natal. You are invited to participate in a research project entitled: **A political ecology approach to understanding the implications for rural development in drought prone savannah: a case study of land and forest use in the Chivi district, southern Zimbabwe**". The main focus will be on the socio-economic and political drivers of resource extraction and the links to sustainable rural development.

Through your participation, I hope to understand the complex interactions between society, politics and the environment. I guarantee that your responses will not be identified with you personally. Your participation is voluntary and there is no penalty if you do not participate in the study. Please sign on the dotted line to show that you have read and understood the contents of this letter. Your views in this interview will be presented anonymously. Neither your name nor identity will be disclosed in any form in the study. The interview will take about approximately 15 minutes.

If you agree to participate please sign the declaration attached to this statement

I.....(Full Name) hereby confirm that I have read and understand the contents of this letter and the nature of the research project has been clearly defined prior to participating in this research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

Participants Signature.....

Date.....

APPENDIX III

INFORMED CONSENT LETTER

Built Environment and Development Studies,
College of Humanities,
University of KwaZulu-Natal,
Howard Campus,

Dear Participant

INFORMED CONSENT LETTER

My name is MACHEKA MAVIS THOKOZILE I am a Development Studies PhD candidate studying at the University of KwaZulu-Natal, Howard campus, South Africa. The title of my research is: **“A political ecology approach to understanding the implications for rural development in drought prone savannah: a case study of land and forest use in the Chivi district, southern Zimbabwe”**. The main focus will be on the socio-economic and political drivers of resource extraction and the links to sustainable rural development. I am interested in interviewing you so as to share your experiences and observations on the subject matter. Your community is my case studies. To gather the information, I am interested in asking you some questions.

Please note that:

- Your confidentiality is guaranteed as your inputs will not be attributed to you in person, but reported only as a population member opinion.
- The interview may last for about 1 hour and may be split depending on your preference.
- Any information given by you cannot be used against you, and the collected data will be used for purposes of this research only.
- Data will be stored in secure storage and destroyed after 5 years.
- You have a choice to participate, not participate or stop participating in the research. You will not be penalized for taking such an action.
- The research aims at knowing the challenges of your community relating to resource scarcity, peoples' movement, and effects on peace.
- Your involvement is purely for academic purposes only, and there are no financial benefits involved.
- If you are willing to be interviewed, please indicate (by ticking as applicable) whether or not you are willing to allow the interview to be recorded by the following equipment:

	willing	Not willing
Audio equipment		
Photographic equipment		
Video equipment		

I can be contacted at:

Email: mavythoko@gmail.com

Cell: +263774333922 or +263733243054.

My supervisor is Prof. Pranitha Maharaj who is located at the School of Built Environment & Development Studies, Howard Campus of the University of KwaZulu-Natal.

Contact details: email: Maharajp7@ukzn.ac.za

You may also contact the Research Office through:

P. Mohun

HSSREC Research Office,
Tel: 031 260 4557 E-mail: mohunp@ukzn.ac.za
Thank you for your contribution to this research.

DECLARATION

I.....(full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

SIGNATURE OF PARTICIPANT

DATE

.....

.....

APPENDIX IV

ETHICAL CLEARANCE



5 February 2016

Ms Mavis Thokozile Macheka 215080480
School of Built Environment and Development Studies
Howard College Campus

Dear Ms Macheka

Protocol reference number: HSS/0074/016D

Project title: A political ecology approach to understanding the implications for rural development in drought prone savannah: A case study of land and forestry use in the Chivi district, Southern Zimbabwe

Full Approval – Expedited Application

In response to your application received 21 January 2016, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yc [Redacted Signature]

Dr Shenuka Singh (Chair)
Humanities & Social Sciences Research Ethics Committee

/pm

Cc Supervisor: Dr Harald Witt
cc.Academic Leader Research: Dr Cathy Sutherland
School Administrator: Ms Lindile Danisa

Humanities & Social Sciences Research Ethics Committee

Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: ymbap@ukzn.ac.za / snymam@ukzn.ac.za / mohup@ukzn.ac.za

Website: www.ukzn.ac.za



Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville



UNIVERSITY OF
KWAZULU-NATAL
INYUNYISI
YAKWAZULU-NATALI

13 October 2015

To whom it may concern

MACHEKA MAVIS THOKOZILE, a PhD student in the School of Built Environment and Development Studies formally requests permission to interview staff in your department and use the data collected from department. She would like to use this data for her PhD dissertation entitled: "A political ecology approach to understanding the implications for rural development in drought prone savannah: a case study of land and forestry use in the Chivi district, Southern Zimbabwe". The dissertation will acknowledge the Forestry Commission Zimbabwe and the data will be shared with the School of Built Environment and Development Studies, University of KwaZulu Natal if requested.

Thank you and Kind regards

DR HARALD WITT

Supervisor

School of Built Environment and Development Studies

Email: witt@harald2@gmail.com

Tel number:

Permission to use: date: Granted by:

Name: MO M. MAFANDA

Signature: _____

Date: 21 October 2015



NAME OF DEPARTMENT: CONSERVATION AND EXTENSION - CHIVI DISTRICT

NAME OF INSTITUTION: FORESTRY COMMISSION



UNIVERSITY OF
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI

13 October 2015

To whom it may concern

MACHEKA MAVIS THOKOZILE, a Phd student in the School of Built Environment and Development Studies formally requests permission to interview staff in your department and use the data collected from departments. She would like to use this data for her PhD dissertation entitled: *"A political ecology approach to understanding the implications for rural development in drought prone savannah: a case study of land and forestry use in the Chivi district, Southern Zimbabwe"*. The dissertation will acknowledge the **Environment Management Authority Zimbabwe** and the data will be shared with the School of Built Environment and Development Studies, University of KwaZulu Natal if requested.

Thank you and Kind regards

DR HARALD WITT

Supervisor.

School of Built Environment and Development Studies

Email: wittharald2@gmail.com

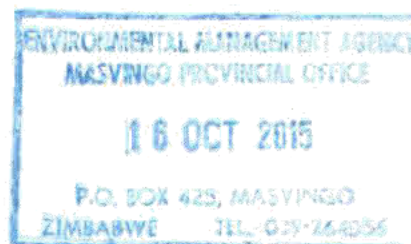
Tel number:

Permission to use data Granted by:

Name: MILTON MUSAHA

Signature: [Redacted]

Date: 15/10/15



NAME OF DEPARTMENT

NAME OF INSTITUTION

ENVIRONMENTAL MANAGEMENT
AGENCY - MASVINGO PROVINCE



13 October 2015

To whom it may concern

MACHEKA MAVIS THOKOZILE, a **Phd** student in the School of Built Environment and Development Studies formally requests permission to interview staff in your department and use the data collected from departments. She would like to use this data for her PhD dissertation entitled: *"A political ecology approach to understanding the implications for rural development in drought prone savannah: a case study of land and forestry use in the Chivi district, Southern Zimbabwe"*. The dissertation will acknowledge the **Environment Management Authority Zimbabwe** and the data will be shared with the School of Built Environment and Development Studies, University of KwaZulu Natal if requested.

Thank you and Kind regards

DR HARALD WITT

Supervisor.

School of Built Environment and Development Studies

Email: wittharald2@gmail.com

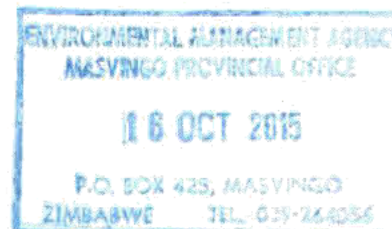
Tel number:

Permission to use data Granted by:

Name: MILTON MUSHA

Signature: [REDACTED]

Date: 15/10/15



NAME OF DEPARTMENT

NAME OF INSTITUTION

ENVIRONMENTAL MANAGEMENT
AGENCY - MASVINGO PROVINCE