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PhD thesis

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**From fortresses to sustainable development: the changing face of  
environmental conservation in Africa, the case of Zambia.**

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**Thesis Submitted for the Degree of Doctor of Philosophy (PhD)**

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## **Abstract**

Environmental conservation in many parts of Africa has for a long time been a centralized matter in which resource management was dominated by the application of the fortress conservation model which posits a sharp divide between people's livelihoods and conservation. This highly centralised approach confined environmental decision making to bureaucratic circles and excluded local actors who live within or around conservation areas from participating in the resource governance process. In addition, environmental conservation was concentrated in areas designated as protected areas while human dominated landscapes were assumed to be of marginal ecological value. Over the past three decades, however, the rise of sustainable development as a new construct for environment and resource management has seen the emergence of new conservation strategies that challenge the dominance of the fortress conservation model. In Zambia, in contrast to the exclusionary discourse associated with fortress conservation, the embracing of policies derived from the sustainable development discourse has resulted in the adoption of new conservation strategies that emphasise local actors' participation in resource management and extend conservation policy and practice to agricultural environments.

In this regard, this thesis examines the changing nature of environmental conservation in Africa, using the case of Zambia. In particular, the research questions the way in which the new strategies are being contextualized and translated into practice at the local level. It examines the extent to which the new strategies represent the realities and interests of local actors who interact with environmental resources on a day-to-day basis. Drawing on political ecology and livelihoods' perspectives, the research uses two local level studies from Chongwe district of Zambia to examine this shift in the direction of natural resource policy and practice. By combining insights from political ecology and livelihoods thinking, it links a critical review of conservation discourse and policy with field level studies and thus provides an enhanced understanding of processes of society-environment interactions. While the findings show a definitive shift in policy rhetoric from fortress conservation to sustainable development, the translation of sustainable development initiatives into practice is fraught with both conceptual and practical difficulties, such that the initiatives are far from representing the realities and interests of local actors.

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## List of abbreviations/acronyms

ADC	Area Development Committee
BSA	British South Africa Company
CBD	The Convention on Biological Diversity
CBNRM	Community Bases Natural Resources Management
CCDD	United Nations Convention to Combat Desertification and Droughts.
CA	Conservation Agriculture
CDC	Chongwe District Council
CDDCC	Chongwe District Development Coordinating Committee
CDPU	Chongwe District Planning Unit
CDM	Clean Development Mechanism
CFU	Conservation Farming
CFU	Conservation Farming Unit
CIFOR	Centre For International Forestry Research
COMACO	Community Markets for Conservation
CPR	Common Property Regime
CRA	Centre for Resource Analysis
DANIDA	Danish International Development Agency
DENR	District Environment and Natural Resources Committee
DFO	District Forestry Officer
DPU	District Planning Unit
EAZ	Economic Association of Zambia
ECZ	Environmental Council of Zambia
EU	European Union
FAO	Food and Agricultural Organisation of the United Nations
FD	Forestry Department
GART	Golden Valley Agriculture Research Trust
GEF	Global Environmental Facility
GRZ	The Government of the Republic of Zambia
IPCC	Inter-governmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
JFM	Joint Forest Management
MA	Millenium Ecosystems Assesment
MEA	Multilateral Environmental Agreements
MMD	Movement for Multi-party Democracy
MTNR	Ministry of Tourism, Environment and Natural Resources
NEAP	National Environnemental Action Plan
NEP	National Environnemental Policy
NGO	Non-Governmental Organisation
NORAD	Norwegian Agency for Development Co-operation
NRC	National Registration Card
NRG	Northern Rhodesia Government
OECD	Organisation for Economic Co-operation and Development
PE	Political Ecology
PES	Payments for Ecosystem (or Environmental) Services
PELUM	Participatory Ecological Land Use Management
REDD	Reducing Emissions from Deforestation and Forest Degradation

SADC	Southern African Development Community
SAFIRE	Southern Alliance for Indigenous Resources
SAP	Structural Adjustment Programme
SD	Sustainable Development
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
UNIP	United National Independent Party
WAC	World Agro-forestry Centre
WRI	World Resources Institute
WCED	World Commission on Environment and Development
WWF	World Wide Fund for Nature
ZCBNRMF	Zambia Community Based Natural Resources Forum
ZFD	Zambia Forestry Department
ZNA	Zambia National Archives
ZOS	Zambia Ornithological Society
ZACF	Zambia Agriculture Consultative Forum

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## **DECLARATION**

I declare that, except where explicit reference is made to the contribution of others, this thesis is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

.....

**Orleans Mfuné**

**Glasgow, November 2011**



## Chapter One

### Introduction

#### 1.1 Setting the context: shifting conservation paradigms

The management and protection of environmental resources continues to be one of the most pressing concerns in both academic and policy debates. While at a theoretical level, academics grapple with the diverse relations between humans and the environment, policy makers are confronted with the practical challenges of how to deal with the livelihoods of people living in and around areas allocated for environmental conservation, as well as meeting the demands of the conservation agenda (Buscher and Whande 2007; Brown, 2003). In addition, both academics and conservation practitioners grapple with the question of who should be included in the decision-making process surrounding the use and management of these resources (and how this should be done). These issues have attracted different responses over the course of the history. For much of the 20<sup>th</sup> century, the traditional view has been that conservation and human welfare were simply incompatible. Conservation theorists (e.g. Rolston, 1996) argued that biological resources were either to be protected or exploited; resources inside parks or reserves were protected from human use, while those outside were available for any type of human exploitation (Primak, 1993; Siurua, 2008; Batary et al, 2011). The goals of conservation were narrowly focused on the protection of ‘wild species’ and environments that may be classified as ‘pristine’. Consequently, conservation ignored human-dominated environments which were often portrayed as ecologically impoverished areas or, as Batary et al (2011) put it, ‘biological deserts’ (see also Scherr and McNeely, 2008). This view promoted a model of natural resource management that is variously referred to as ‘fortress conservation’, ‘fences and fines’, ‘protected area model’ or indeed ‘coercive’ conservation (Siurua, 2008; Campbell, 2000; Adams and Hulme, 2001b; Brown, 2002).

The hegemony of the fortress conservation model in natural resource management has been sustained by narratives from ecological scientists and conservationists who have often positioned it as the most efficient and effective way of conserving natural resources. The dominant ecological theory in the first half of the 20<sup>th</sup> century, commonly referred to as ‘equilibrium theory’ or what others now term as the old ecology (e.g. Forsyth et al, 1998; 2003), provided the main scientific justification for the fortress conservation model.

In this theory, certain parts of the globe were framed as ‘pristine environments’ and having a ‘balance of nature’ that can easily be disrupted by human activities. Thus, in line with this thinking, the goal of conservation was constructed as the maintenance or restoration of these ‘pristine values’. Conversely, human activities were viewed as incompatible with this nature preservationist goal (Siurua, 2006; Forsyth et al, 1998; 2003).

Among the human activities that were represented as enemies of this conservation agenda were agricultural cultivation, pastoral activities and human settlement (Blaikie, 2008; Scherr and McNeely, 2008). Agriculture, in particular, was viewed as the single most important threat to conservation because of its demand for land and its association with the pollution of natural ecosystems resulting from use of external inputs (Mattison and Norris, 2005; Milestad et al, 2011). Often, agricultural spaces had to be sacrificed for nature conservation programmes without any compensation to local actors who depended on these spaces. Moreover, in many parts of the world, common pool resources were appropriated from local actors and designated as protected areas from which human activities were excluded (Sullivan and Homewood, 2004; Hulme and Murphree, 1999; Campbell, 2000). Zambia was no exception to this trend. Starting from the early 1930s, the colonial government began a process of appropriating lands for the purpose of setting up protected areas. This process continued well into the post-independence period until the early 1990s. The mark of the fortress conservation model on the natural resource terrain of the country is highly visible. All across the 72 districts of Zambia, protected areas of varying sizes were established covering nearly a fifth of the country’s geographical space (9.6 % for forests reserves and 8.5% for national Parks). In total, there are 490 protected forests and 19 national parks (GRZ/FAO, 2010).

In addition, under the fortress conservation model, resource management was presented as a technical matter, one that required ecological experts and/or the application of ecological knowledge. In this regard, environmental decision making was confined to state bureaucratic departments staffed by mostly scientists (forestry and wildlife biologists), and excluded local actors living in and around these reserves from participating in the management process (Adisu and Croll, 1994; Siurua, 2008). In the 1960s, this state-centric approach was bolstered by narratives that represented local actors’ common pool resources systems as ‘tragic’.

This view gained ascendancy in conservation discourse with the publication of Hardin's (1968) *'Tragedy of the commons'* in which common pool resources were framed as being characterised by inefficient institutional arrangements where free-riding inevitably leads to resource over-exploitation and hence degradation. Although many authors have noted that Hardin's theory was highly flawed in the sense that what he was describing was a tragedy of 'open access resources', and not 'a tragedy of the commons', this paper was nonetheless influential in legitimising the view that common pool resources required an external agent's (i.e. the state or the market) protection in order to avoid the tragic consequences of local actors' unregulated resource exploitation (see Hess and Ostrom, 2007; Ostrom, 1990; Sullivan and Homewood, 2004; Bryant and Bailey, 1997; Ruddle, 1992). Many developing countries' governments bought into this argument and implemented reforms that sought to replace local actors' institutional arrangements by guiding common pool resources management with statutory regulations. In Zambia, through such reforms, the state became the sole proprietor, regulator and manager of forests and wildlife resources at the expense of local actors' interests.

However, over the past three decades, the fortress conservation model, and the narratives that have served to justify and sustain it, have been challenged by new thinking in human-environmental relationships, leading to the emergence of new conservation narratives and practice. In ecological science, for example, new thinking now casts doubt on the validity of the nature discourse and shows that generalised notions of 'equilibrium' or 'balance of nature' are at variance with new empirical research which demonstrate that ecosystems hardly tend towards equilibrium (see Zimmerer, 1994; Stott, 1999; Forsyth et al, 1998). Secondly, alongside these developments in ecological theory, common property theorists, such as Ostrom (1990), published well-documented cases of successful common pool resource management systems that challenged the 'tragedy of the commons' narratives and demonstrated that local actors were capable of collectively organising to solve environmental problems (see also Siurua, 2006; Sullivan and Homewood, 2004; Ruddle et al, 1992; Singleton and Taylor, 1992; Agrawal, 2001; Hess and Ostrom, 2007). This literature rejects the over-generalised view that cooperation among local actors is impossible and that the state or the market are the only actors capable of solving environmental problems. Agrawal (2001:1649), for example, argues that resource users often "create institutional arrangements that help them to allocate benefits equitably over long time periods with only limited efficient losses". The

fortress conservation model has also been criticised for failing adequately to protect natural resources or arrest environmental degradation. In Zambia, for example, despite the existence of 484 protected forests, GRZ/FAO (2010) reports that 250,000 hectares of forests are lost every year, including from protected areas. These factors all demonstrate the need to re-examine the protected area model and to develop new models for managing natural resources.

The theoretical shift in ecological theory and rejection of Hardin's ideas by common property theorists has inevitably created room for a new conservation discourse to guide the management of natural resources. This new discourse has emerged in the form of sustainable development (SD) which over the past three decades has gained ascendancy as the guiding principle for conservation (Campbell, 2000; Zimmerer, 2006). According to Zimmerer (2006), the shift to sustainable development is one of the most defining goals of conservation worldwide, and SD has been credited with the reframing of the relationship between livelihoods and conservation, with the two no longer being viewed as conflictual, but as goals that can be pursued simultaneously in both conservation and development. Proponents of sustainable development argue that it is possible and preferable to balance conservation and the needs of local actors living in proximity to biological resources; to extend conservation to areas outside protected areas; and to allow local actors' participation in the decision making process concerning biological resources (UN, 1992; Buscher and Whande, 2007; Adams and Hulme, 2001a; 2001b; Scherr and McNeely, 2008; Barker and Stockdale, 2008).

## **1.2 Sustainable development as a new construct for natural resources management**

Sustainable development was brought into the international political agenda by the Brundtland Commission, through the publication of 'Our Common Future' in 1987, which framed it as a paradigm for merging the environment and development in order to achieve win-win solutions for environment-livelihoods problems. The publication of this report was preceded by the Stockholm Conference (also known as the United Nations Conference on the Human Environment) in 1972, which was the first ever 'global' conference on the environment, and one that signalled the ascendancy of the 'environment' as a subject of international law and policy.

Although the term sustainable development was first used by the IUCN in 1980 (Carvalho, 2001; Holden, 2007) and then defined by the Brundtland Commission in 1987, it is at Stockholm that the links between development and the environment were first tabled as an important agenda. Since then, several other global and regional conferences have taken place and nearly two hundred multilateral environmental agreements (MEAs) have been signed by the international community in order to address various environmental challenges facing the world. The defining moment in the development of the SD discourse was the Rio conference held in 1992. The conference had several important outcomes with a bearing on natural resource conservation today, including the signing of the United Nations Framework Convention on Climate Change (UNFCCC), aimed at addressing greenhouse gas emissions and the United Nations Convention on Biological Diversity (CBD), constructed to halt the loss of biodiversity world-wide. In addition, Agenda 21 was unveiled as the global plan of action for sustainable development. Later in 1994, the Convention to Combat Drought and Desertification and Drought (CCDD) was added to this list of MEAs. Arguably, these products now shape the nature of environmental policy at the international and national levels, and act as guides and sources of national and local environmental policy and law.

While the concept of sustainable development is often subject to conflicting interpretations, the reality is that sustainable development simply seeks to link human conservation and human welfare. Adams and Hulme (2001a) note that since the publication of 'Our Common Future', the goal of sustainable development has been about a search for conservation paradigms that link conservation with development (i.e. posit a win-win scenario). In addition, it has also been about developing conservation strategies that meet the global goals outlined in the MEAs discussed in the preceding section. This search for win-win solutions has seen the rise of a new language in conservation, encompassing 'participation and devolution' and, more recently, the notion of 'ecosystem services'. These represent the two most important conceptual shifts in the new conservationism. While the notion of 'participation and devolution' emphasises the inclusion of local actors in the management of natural resources management as a way of allowing them to capture livelihood benefits from conservation, the notion of ecosystem services extends conservation to livelihood production spaces. Both of these concepts attempt to link conservation with human welfare, particularly in terms of marrying environmental management with rural development.

### **(a) Participation and devolution in natural resources conservation**

The discourse of participation, rather than viewing local actors as villains of conservation, views them as partners in conservation and as legitimate resource users (Adams and Hulme, 2001a; Campbell, 2000). A strong position that is taken in this thinking is that natural resources of any type (be they water resources, forests, wildlife or pasturelands) provide some form of livelihood benefits to local actors living in proximity to these resources and society as a whole. In this regard, conservation theorists advancing the discourse of participation propose that the only way for various stakeholders to capture these benefits is through participatory (good) resource governance in the form of transparent and accountable institutions (Mery et al, 2005). These variables (transparency, accountability, and efficiency, equitable distribution of resources and empowerment of marginalised actors) are seen as the central tenets of participatory resources management (Barry et al, 2010; Child and Lyman, 2005; Hopley, 1996; Gibbs, 2000; Larson and Ribot, 2002; Ribot, 2002). This thinking, in the context of Zambia, has filtered through into both wildlife and forestry policies. However, the discussion of participatory resource governance in this research is mostly viewed through the lens of forest resources' governance.

### **(b) The concept of ecosystem services in natural resources conservation**

Arguably, by emphasising the merging of conservation and livelihoods in both conservation and development, sustainable development marks the end to an exclusive reliance on the protected area model for environmental protection. It shows that most conservation theorists and practitioners no longer believe in a single solution to the problem of natural resource degradation. Indeed, writing in 1993, soon after the Rio Conference, Primak remarked that the “danger of relying on parks and reserves to protect environmental resources is that it creates a ‘siege mentality’ in which species inside the parks are to be rigorously protected while species outside can be rapidly exploited” (p370). He notes that the crucial element in conservation strategies must be the protection of biodiversity outside, as well as inside protected areas.

Another statement that reflects this disappointment with the protected area conservation model among conservation theorists is presented by Van Tighem who notes that reserves and parks:

“Have not drawn us into a more thoughtful relationship with our habitat; they have not taught us that land is to be used frugally, and with good sense. They have encouraged us to believe that conservation is merely a system of trading environmental write-offs against large protected areas. They have more than failed, in fact, they have become a symptom of the problem” (cited by Primak, 1993:370).

These views render support for a new conservationism that goes beyond protected areas to encompass various types of socio-ecological systems, including agricultural environments, where lands can be used for multiple purposes (see also Scherr and McNeely, 2008 ; Mery et al, 2005). This thinking received further support when the notion of ecosystem services, as a concept for linking conservation with production of ecosystem services in various landscapes, entered the lexicon of sustainable development and reconfigured the way in which we view conservation. As a critique of the traditional way of managing resources, the focus on ecosystem services broadens the conservation agenda in two ways. First, it shifts the attention of conservation from a narrow managerial pre-occupation with pristine environments and the protection of material resources to a broad range of ecosystem services, and hence emphasises new conservation values. The Millennium Ecosystem Assessment (2005), for example, lists about 24 ecosystem services of importance that need attention in order to improve human welfare and arrest environmental degradation. Secondly, this notion holds that it is not just the traditional spaces of conservation that are important for conservation, but also environments previously neglected by the protected area model. It views both protected areas and production spaces (such as agricultural environments) as important arenas of biodiversity conservation, carbon sequestration, water conservation and maintenance of other ecosystem services. In this research, in particular, attention is given to the emergence of agri-environmental management strategies as a way of putting ecosystem services thinking into operation.

### **1.3 The aim of the research**

In many countries, SD is already changing the content and style of conservation policy and practices. In Zambia, for example, the embracing of sustainable development as the new construct for natural resource management has resulted in (a) adoption of participatory and devolution policies; (b) a broadening in conservation objectives from a narrow 'nature' protection agenda to encompass new goals of enhancing livelihoods and ecosystems services; and, subsequently, (c) the extension of the conservation agenda to agricultural environments. In examining the changing nature of natural resource management strategies, these three features of sustainable development are the centre of focus in this research.

However, the changing nature of conservation discourse, policies and practice raises a number of questions about the way in which these ideas are particularised and translated into operational practice at sites of implementation. In many countries (such as Zambia), these new strategies are still in their infancy, and the knowledge of how they are translated into practice, what form they take, and how they change the actual practice of resource management in different contexts are still poorly understood (World Bank, 2008; Schedina, 2008; Forsyth, 2005). As Hale and Mauzerall (2004) note, sustainable development tends to have broad goals, which reflect the interests of various actors operating at various scales and these are very unspecific about what should be translated into local action. In this vein, it is important for environmental scholarship to understand how this discourse is contextualised for use at the local level. In response to this research gap, this research examines the shift in conservation discourse, with the aim of gaining an improved understanding of the extent to which policy derivatives of sustainable development (in practice) constitute a definitive departure from the fortress conservation strategy. In particular, it is concerned with how this new thinking is being particularised and translated into practice in local terrains characterised by pre-existing resource management strategies, and the extent to which sustainable development strategies articulate local actors, realities and experiences surrounding livelihoods and natural resources.



## 1.4 Research questions

The central argument in this thesis is that natural resource management policies, including those derived from the discourse of sustainable development, cannot be successfully translated into practice without articulating the knowledge, experiences and realities of local actors who interact with these resources on a day-to-day basis. Central to the research is the analysis of local level studies that provide insights into the operations of both the protected area model and the new initiatives derived from the sustainable development discourse. The first case study examines the management of natural resources in government protected areas. By starting with the examination of the protected area model, the research uses empirical data to shed light on the operations and limitations of the fortress conservation model and highlights factors (including localised ones) that justify the replacement of this model with new natural resource management strategies. The research also recognises that new natural resource management strategies are not bound to affect resource management in protected areas only, but also areas outside protected areas where resource management is governed by customary norms and practices. In these customary areas, it is important to understand the extent to which this shift in conservation strategies corrects the past distortions in natural resource management, where local actors' creative agency and institutional arrangements were completely ignored. As Benjamin (2004) points out, sustainable development strategies seek to remedy some of the negative consequences of centralised systems by accommodating local community-based practices. However, Larson et al (2010) note that natural resource reforms do not automatically confer rights on local actors. To understand the meaning of new rights, it is necessary to know what rights people held previously or still hold in parallel to new ones, particularly *de facto* or customary rights, since reforms may place new restrictions on local actors (Larson et al, 2010). In this regard, the second case study examines the management of natural resources in customary areas and helps to focus attention on the creative agency of local actors, and how this is accommodated in new natural resource management strategies.

Together, the protected area model and customary natural resource model provide the background on which SD strategies are being introduced. Four main research questions will guide the investigation of this research. These are:

1. How have environmental conservation models based on the ‘nature’ and fortress conservation narratives been translated into practice, and what factors account for their limitations and justify the adoption of new conservation strategies.
2. Outside protected areas, how are resources in customary areas managed by local actors? In particular, what type of governance structures, institutional mechanisms and practices guide natural resource management, and how are they likely to be affected by the change in the direction of conservation policy favouring sustainable development strategies?
3. How are the new policy derivatives of sustainable development (i.e. participatory forest resources governance and agri-environmental initiatives) particularised and translated into operational practice, and what factors influence their application? What form do they take, and do they represent a change in the way in which resources have traditionally been managed?
4. To what extent do policy derivatives of sustainable development fit with local actors’ experiences and knowledge surrounding livelihoods and the environment? In particular, are the strategies in harmony with (a) the organisation of local livelihoods; (b) existing institutional and natural resource governance arrangements of local actors; and (c) do they accommodate local actors’ knowledge and interests surrounding natural resources management?

### **1.5 The research approach: political ecology and the livelihood perspective**

The research uses a political ecological framework and livelihood perspective to examine this change in the direction of environmental policy and practice. Political ecology (PE) has gained ground in geographical research as a mode of analysing society-environment relationships (Evans, 2002; Zimmerer, 2006; Kepe et al, 2008; Robbins, 2004; Muldavin, 2008).

As an analytical approach that draws attention to the historical influence of various ecological policies and the discursive frames that underpin such policies, political ecology is well suited to the analysis of processes of change in conservation policy and practice. Such an approach enables this research to focus on environmental histories and conservation experiences, interrogation of orthodox explanations of environmental change and the role of power and social relations in determining the right to access and management of natural resources (Brown, 2003; Berkes, 2004). According to Smisk (2002), political ecology articulates the motivations, interests and actions of various actors vying for access to and control of resource management. A political ecological analysis is complemented by a livelihoods perspective which overlaps with political ecology in several ways. A livelihood perspective allows the research to focus attention on the local realities and the actual livelihood practices of local actors living in environments where conservation initiatives are being introduced. This allows the research to interrogate the extent to which the conservation initiatives are in harmony with the diverse livelihood practices of the people, the institutional arrangements that underpin these livelihood practices, and the importance of environmental resources to the livelihoods of local actors. By combining insights from political ecology and livelihoods thinking, the research links a critical review of conservation discourse and policy with field level studies, and thus provides an enhanced understanding of processes of society-environment interactions.

## **1.6 Organisation of the thesis**

This thesis is organised in ten chapters. Chapter One has set out the foundations on which the rest of the work is developed. The chapter has situated the discussion of natural resources management in the context of changing conservation discourse and practice. It highlights the importance of the emergence of sustainable development as a new construct for environmental conservation that challenges the dominance of the fortress conservation discourse. Chapter Two discusses the theoretical thrust of the research, bringing together several strands of literature that underpin the discussion of livelihoods-conservation interactions. The first part of the chapter examines political ecology and livelihood thinking as the frameworks guiding the analysis of conservation discourses, the policy rhetoric and conservation practice in this research. The second part discusses the theoretical arguments surrounding the management of natural resources in developing countries, starting with theoretical arguments for and against

the fortress conservation model, and concluding with a discussion of sustainable development strategies.

The third chapter of the research sets out the methodology of the research. It discusses the selection of local level study sites and choice of methods of data collection and analysis utilised in the research. This chapter is followed by an overview of the development of natural resource policy in Zambia and sets out the genesis of the protected area model, its ideological basis and the national and international level factors that account for its decline in its influence. Chapter Four also provides an overview of new sustainable development initiatives that have now entered Zambia's natural resource policies and are set to change the face of Zambia's conservation approach.

Chapter Five provides an account of the important characteristics of Chongwe as the study area, examining the environment and livelihood characteristics of the district, tenurial arrangements that guide access to land and forest resources and the nature of human-environmental interactions in the area. Chapter Six goes on to provide the first local level case study which examines the operations of the protected area model as the dominant natural resource management strategy employed by the state in the area since the 1980s. It examines the relationship between the state and local actors in the governance of protected areas, and the conditions that give rise to the need for new natural resource management strategies. As a point of departure from most studies that simply look at the process of change in protected areas, Chapter Seven focuses attention on resource management in customary areas as recognition of the fact that new strategies do not just affect protected areas, but also affect locally-crafted natural resource management regimes that stand outside state regulatory frameworks. It highlights the creative agency of local actors and argues that locally-crafted natural resource management strategies have the potential to contribute to the sustainable management of natural resources.

The last two empirical chapters (Eight and Nine) examine the translation of sustainable development derivatives into practice. Chapter Eight focuses on the notion of devolution and participation that seeks to devolve resource management to local actors while Chapter Nine focuses on agro-ecosystem initiatives which attempt to extend conservation to agricultural environments, and to link farming households with environmental decision making. Again,

this chapter breaks away from the tradition of simply focusing on participation and devolution in traditional forest areas, taking the natural resource debate further by extending the analysis of conservation to socio-ecological systems, and hence demonstrating the far-reaching consequences of the sustainable development discourse. Lastly, in Chapter Ten there is a discussion of the research's main conclusions, followed by reflections on some of the most pressing conceptual concerns arising from the study.

## 1.7 Definition of key terms used in the study

The major terms used in this study are presented in Box 1.1 below.

### Box 1.1 Definition of key terms used in the study

**Biodiversity** – a contraction of the term 'biological diversity' and refers to the variety of life on earth. It encompasses a wide variety of ecosystems and living organisms, including plants, animals, their genetic constituencies and their genes.

**Environmental Conservation** – the wise use of and management of natural resources for their intrinsic value and for the benefit of human society.

**Preservation**- in contrast to conservation, it refers to the protection of nature from human use in order to prevent environmental harm

**Environmental Protection** – prevention of harm to the environment through tangible intervention and active management. The term is often used interchangeably with preservation

**Ecosystem** – a complex of living communities of organisms and their non-living environment interacting as a self sustaining entity on its own (see GRZ-MTNR, 2009)

**Joint Forest Management (JFM)** – a forest resources management system that involves the active participation of local communities in the use and management of forest resources.

**Sustainable Development**- defined as development that meets the needs of the present generation without compromising the ability of future generations to meet theirs (WCED, 1987). It is used here to refer to the idea of merging conservation and developmental goals in resource management strategies.

**Vulnerability** – the term is used here to refer to the probability of being exposed to a risk

**Adaptation** – refers to how individuals make long- term shifts in their livelihoods in the face of social and environmental change.

**Climate Change** – anthropogenically induced long-term changes (often decades) in the world's climate likely to impact upon the world's ecosystems and human welfare

**Agri-environmental Initiatives**: environmentally sensitive agricultural land management strategies

**Ecosystem Services and Goods** – benefits that human beings derive from ecosystems.

**Political Ecology**: an approach to the study of human-environmental interactions that is concerned with the social and political conditions that surround the causes, experiences and management of environmental problems (after Forsyth, 2003)

## **Chapter Two**

### **Political Ecology, Livelihoods and Conservation**

#### **2.1 Introduction**

Understanding environment-society relationships has emerged as one of the major preoccupations of environmental scholarship today. In particular, scholars in geography and other social sciences have been engaged in a search for theoretical frameworks aimed at providing a coherent analysis of this complex relationship, taking into consideration socio-economic, political and environmental factors. The result has been a protracted environmental debate in which scholars have drawn on varying perspectives to explain the nature of the relationship and to inform practical environmental and natural resource management. Many of these perspectives, however, have only produced partial understandings of environmental change due to their disciplinary restraints, thus creating a gap in our understanding of society-environment relationships. It is now argued that such an analysis can only be achieved by using hybrid research in which a range of intellectual genealogies play a role in providing an enhanced and nuanced understanding of human environmental interactions (Batterbury et al, 2008; Simon, 2004). In this vein, this chapter introduces the theoretical perspectives that underpin this work, namely, political ecology and a livelihood perspective. The second part of the chapter draws attention to key environmental debates that have framed our understandings of livelihood-environment linkages over the past century and examines the policy outcomes of these debates. The last part of the chapter examines conservation approaches derived from the sustainable development discourse as the newest concept in the debate.

#### **2.2 Political Ecology**

Political ecology (PE) emerged in the 1970s as an outgrowth of earlier approaches aimed at understanding human-environment relationships, both in the social and natural sciences. Judkins et al (2004) note that a number of historic moments in the evolution of thought on human environment relationships since the 1800s can be recognized, starting with the early deterministic tradition (1890 -1920) and followed by cultural possibilism (1920-1960), an early form of cultural ecology (Robbins, 2004).

The efforts of scholars in these traditions, however, produced little more than overly deterministic and reductive explanations of environmental change where the environment held sway over humanity, accounting for differences in racial and cultural practices (Judkins et al, 2004; Robbins, 2004; Akama et al, 2006; Buer, 2007). The deterministic tradition was followed by new cultural ecology from the 1960s to the present. Scholars in new cultural ecology largely derived their concepts from ecological science, which were then extended to human society. Together with ecological science, cultural ecology is viewed as the immediate disciplinary precursor of political ecology (Robbins, 2004; Judkins et al, 2008; Stonic, 2001; Walker, 2005; Greenberg and Park, 1994). Although this new cultural ecology played an important role in providing an understanding of the importance of local ecological knowledge and the relationship between human cultural practices and natural resource management, it was seen as being obsessed with notions of homeostasis, adaptation and localism (Evans, 2004; Hayward, 1995; Robbins, 2004; Horowitz, 2008), while the weakness in ecological science lay in its positivist approach, a focus on equilibrium and lack of placeness (Evans, 2004; Judkins et al, 2004; Batterbury et al, 1997). In addition, critics argue that neither cultural ecology nor ecological science explicitly engaged with issues of power and politics in explanations of environmental change (Robbins, 2004; Judkins et al, 2004). In view of these deficiencies, political ecology sought to depart from these earlier approaches by providing an analytical framework that took into consideration political understandings of environmental conditions. This was achieved by marrying new insights from ecological analysis with a broad theoretical political economy framework (McLaughlin; 2008, Horowitz, 2008; Nunez-Mchiri, 2009; Greenberg and Parker, 1994; Forsyth, 2008; Peet and Watts, 1996).

### **2.2.1 Defining Political Ecology (PE)**

Since the popularisation of the term 'political ecology' by Wolf's 1972 work (Robbins, 2004; Walker, 2005), PE has been defined differently by different scholars. According to Forsyth (2003), political ecology should be understood as a field that is concerned with the social and political conditions that surround the causes, experiences and management of environmental problems. This is a very broad definition that embraces the many works that come under the label of political ecology and tries to point to the common concerns of these works. It draws on Bryant's (1992) view that political ecology should be seen as an attempt to understand the political sources, conditions and ramifications of environmental change.

The classical definition, 15 years after Wolf (1972), was offered by Blaikie and Brookfield (1987:17) in their landmark book, *'Land Degradation and Society'* as:

‘The phrase ‘political ecology’ combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land based resources and also within classes and groups within society itself’.

This early definition reflects PE’s foundation, rooted in Marxian political economy and ecological science, and it focused on land-based resources (soils, forestry and wildlife) in third world countries (see also Watts and McCarthy, 1997). For this reason, this early political ecology was referred to as *'Third World Political Ecology'*. Foundational work in political ecology generally favoured structuralist explanations of environmental change and is more identified with the work that emerged in the 1980s (Blaikie, 1985; Blaikie and Brookfield, 1987; Bryant and Bailey, 1997; Bryant, 1992). This type of research attempted to link micro-processes with broader structural and ideological processes associated with the global capitalist political economy (Scoones, 1998; Forsyth, 2003; Walker, 2005). A heavy focus was placed on ways in which the environmental actions of land managers (herders and farmers) are shaped by political, economic and ecological marginalisation that could only be understood through ‘chains of explanations’ (Blaikie and Brookfield, 1987; Franklin, 2002; Rocheleau, 2008; Watts and McCarthy, 1997). The role of unequal power relations, class conflict and marginalisation characterised these explanations of environmental degradation through reference to capitalism and oppressive state policies and impacts on local people and biophysical resources (Forsyth, 2003; Walker, 2005). Consequently, environmental problems were viewed as less problems of management, over-population or ignorance, than of social action and political economic constraints (Watts and McCarthy, 1997).

The structuralist approach, however, was criticised as essentialist and obsessed with political economy (Forsyth, 2003; Robbins, 2004) that apportioned blame for all local environmental problems on structural forces of capitalism and presenting local people as passive victims rather than active agents. Local actors, in this approach, were viewed as having no ability to affect the direction of their lives, but as highly constrained by social determinants (Jones, 2006).



In contrast, Jones (2006) notes that the current thinking in political ecology attempts to afford greater agency to local actors, for example, by examining the politics of local resistance. In addition, Robbins and Bishop (2008) argue that the degree to which this form of political ecology embraced the far-reaching consequences of knowledge and power was also limited. Thus, as the field developed, the 1990s saw many scholars departing from the structuralist approach, while still retaining the role of political power and processes of marginalisation (McLaughlin and Dietz, 2008).

The departure from the structural approach followed a broad epistemological shift in the social sciences that brought with it a tide of post-structuralism (Forsyth, 2003; Blaikie, 2008), moving away from 'conceptual' structures of neo-Marxist analysis (McLaughlin and Dietz, 2008), focusing less on biophysical resources and more on an emphasis on the role of language in the construction of reality (Escobar, 1996; Forsyth, 2005). With this post-structuralist shift, political ecologists have become concerned with the production of different environmental truths or with the social constructions of nature (Watts and McCarthy, 1997; Escobar, 1996; 1998). According to Forsyth (2005), political ecologists are increasingly examining the political authority of knowledge claims about the environment (and nature) and why people have come to assume certain environmental problems to be problematic. They acknowledge the political controversies that surround the nature of ecological risks and the influences of various actors upon what is viewed as authoritative ecological knowledge (Forsyth, 2005). Most of the explanations of environmental change or environmental problems are now referred to as narratives or orthodox explanations of environmental change (Simon, 2004; Forsyth, 2005; Adams and Hulme, 2001a; Leach and Mearns, 1996). They are called narratives because they are commonly-repeated explanations of how nature or the environment works, or how it may be degraded (Forsyth, 2005). Although they are often seen as facts, they are based on a social discourse that has accumulated over the years (Forsyth, 2005; Robbins, 2004; Jones, 2006; Escobar, 1996; 2008).

Some scholars, however, point out that caution must be exercised when using a constructivist approach in environmental research (Robbins, 2004; Baur et al, 2007; Forsyth, 2005). In particular, they caution against a brand of constructivism which Robbins (2004), calls 'radical constructivism'. According to Robbins (2004), this brand of constructivism denies reality altogether and sees environmental problems as inventions of our own imagination.

Indeed, Batterbury et al (1997) note that constructivists may be counter-productive if there is denial of the existence of real environmental problems. The same sentiments are expressed by Buer et al (2007:8) who point out that ‘overemphasis on political discourse risks neglecting the ecological-material conditions and processes that are constituted as the objects of those politics’ (see also Vyda and Walters, 1999). Forsyth (2003) adds that there is a need to have a balance between realism and constructivism and argues for a ‘critical realist’ approach that recognises the constructions of science, but goes further to reconstruct new and more effective science for the environment without expressing an anti-science (denial of facts) position.

Besides the constructivism approach, political ecology has broadened into a range of new critiques and modes of investigation (Simon, 2004; Blaikie, 2008; Kepe et al, 2008). As a result, not surprisingly, Blaikie himself, who bequeathed the field with the classical definition of political ecology, no longer sees the need for a unified definition, arguing that the field, as it is today, is a creation of a wide range of disciplines and that its conceptualisation remains expansive, eclectic and inclusive, and therefore agreements over definitions are unlikely to be found in PE (Blaikie, 2008). However, this expansiveness and diffuseness of theory means that political ecology has become a highly contested concept, with critics arguing that it lacks a coherent theory to bind it together as a major field. In defence of the criticisms levelled against the theoretical heterogeneity that political ecology has embraced, key scholars argue that this should not be seen as a weakness but strength. Blaikie (2008), for example, argues that political ecology’s eclecticism and diffuseness of theory should be seen as high adaptability of political ecological analysis to different subject matter and an attempt to occupy the most exciting and rapidly-expanding frontiers of knowledge that frequently lie between established fields and entrenched epistemologies. Kepe et al (2008) also argue that a lack of theoretical coherence gives political ecology vibrancy and fluidity, and that its popularity therefore lies in exploiting the productive intersections of various forms of knowledge. For Walker (2006), this ‘theoretical richness’ is the backbone of political ecology’s analytical strength.

Rather than become enmeshed in the debate surrounding the definition and disciplinary identity of political ecology, this thesis seeks to articulate the main elements that bind political ecology together and which are directly or indirectly applicable to this work. In particular, it argues that political ecology will encompass (a) an examination of apolitical explanations of environmental change; (b) a historical perspective in understanding a politicised environment; (c) an actor-oriented approach; and (d) a focus on power relations. These key elements are important for socio-ecological research and serve an important purpose of delineating political ecology from other approaches. As many authors have argued, all political ecological work, regardless of the theme under consideration, will bear a family resemblance which is more important to think about than a unified definition (Greenberg and Parker, 1994; Robbins, 2004; Walker, 2006). These elements are discussed in the following section.

### **2.2.3 Main elements of a political ecological perspective**

According to Robbins (2004), all PE is a challenge to apolitical explanations of environmental change such as the 'balance of nature', the 'eco-scarcity' concept, 'limits to growth', and other Malthusian narratives (see also Akama et al, 2006; Le Billion, 2001; Forsyth, 2003). Unlike these ideas, PE recognises that the environment and society mutually shape each other (Walker, 1995). In this regard, political ecology critically examines these narratives or orthodoxies, and the effects of policies and practices derived from these narratives on rural livelihoods and environments. For example, it examines how narratives of harmonious nature and Hardin's (1968) *Tragedy of the Commons* ideas have been extensively used to deny local actors access to resources in protected areas. These narratives are created through a co-production of knowledge involving a combination of science and socially mediated interests (Simon, 2004). Indeed, it is here that a constructivist approach has become indispensable to the mode of analysis employed by political ecology. The constructivist approach contests the claims of scientists to speak socially unmediated truths and draws attention to the social, political and cultural dimensions of science knowledge production (Jiusto, 2010). The basic premise here is that all knowledge is socially constructed, and is shaped by the values, interests and prejudices of human beings involved in the production of knowledge (Jiusto, 2010; Shi, 2004; Forsyth, 2003). This approach allows political ecologists to draw on discourse analysis as a methodological approach for interrogating environment and development policy, in which policies are viewed as being constructed on a field of power

struggles between different interests (e.g. Adjer et al, 2002; Herman and Hutchinson, 2005; Escobar, 1996).

Political ecological research also employs a historical perspective in understanding the concept of a politicised environment (Bryant and Bailey, 1997). A historical analysis acknowledges that activities and concepts that characterise environment and natural resources management are not without historical precedents (Escobar, 1995; 2008; Jones, 2006). According to Jones (2006), current approaches to the management of environmental resources in developing regions such as Africa are best contextualised through the lens of history. Further, Jones (2006) notes that conservation approaches have been shaped historically through views of nature or ways of seeing the environment by powerful actors in society. Within this historical perspective, political ecologists historicise the influences of public agencies and state policies on natural resources and rural livelihoods (Vaccaro and Beltran, 2010; Bryant and Bailey, 1997). A PE analysis recognises that scientific organisations and state departments, such as forestry agencies, have historically influenced the creation of narratives for the purpose of gaining access to, and control over, natural resources at the expense of local actors (Forsyth, 2005).

The various state departments, scientists and local communities involved in the various contestations over natural resources are often viewed through the lens of an actor-oriented approach. It is important to note, however, that the term 'actor' is subject to different interpretations in the literature. According to Chileshe (2007), an actor refers to anyone with identifiable interests in a resource. Taken this way, an 'actor' means the same thing as a 'stakeholder'. Brown (1998) also notes that the term 'stakeholder' refers to individuals and institutions that have a specific interest in a particular issue. The interest may be a direct economic stake or it may be peripheral, involving intermediaries who may have no direct interests themselves. Although often used interchangeably, the two terms have been aligned with two different traditions. The use of the term stakeholder is often associated with development agencies in the context of development projects (Brown, 1998). However, in political ecology, particularly in the context of an actor-oriented approach, the term is used as an analytical tool within an explanatory context that focuses on the interests, characteristics and actions of different types of social groups in understanding society-environmental conflicts (Bryant and Bailey, 1997; Brown, 1998; Bury, 2008; Smisk, 2002).

The term 'actor' has gained ascendancy in the academic literature with the need to examine issues of structure and agency (Brown, 1998). It assigns agency to various interest groups and draws attention to the experiences and knowledge of different actors surrounding livelihoods-environmental interactions (Bury, 2008; Brown, 1998). Consequently, an actor-oriented approach acknowledges the complexity of interactions that occur between different interests. It allows the analysis of the various political interests and actions that participate in political-ecological conflicts in rural areas (Bryant and Bailey, 1997; Brenner and Job, 2011). The key basis of an actor oriented approach is that actors who operate at broader political-economic structures (non-place-based actors such as donor agencies, NGOs etc.) and those at the micro-level (local actors at the site of the resource) play an important role in shaping livelihood-environment relations in developing countries.

In discussing the varied interests of multiple actors, a political ecological framework recognises that it is not just the interests that are important, but the way the interests are negotiated and distributed within a society or group. It focuses on how some of the interests are marginalised and how others are facilitated by the state and other powerful actors (Barrow et al, 2002; Jones, 2006). With such a focus on issues of marginalisation and inequalities, it is argued that all PE is committed to contributing towards the goal of environmental and social justice (Forsyth, 2003; 2008; Walker, 2007; Kepe et al, 2008; Muldavin, 2008; Blaikie, 2008). Political ecologists are often driven by a strong political imperative and desire to correct environmental injustices. This is achieved by drawing attention to the means through which conservation and development experts and policy makers claim rights (e.g. through 'crisis narratives') to stewardship of resources they do not own at the expense of local people's access to these resources (Forsyth, 2008). Political ecology contests the actions of these experts and seeks the empowerment of these land-owners in the management of natural resources.

In this thesis, these elements of political ecology are viewed as crucial to the understanding of society-environmental relationships. They serve to show that political ecologists share a common assumption that politics and power are at the heart of conservation and resource degradation and that politics should be given great attention in any political ecological

analysis (Franklin, 2002; Robbins, 2004; Simsik, 2002; Stonic, 2001; Mun'gongo, 2009; Escobar, 2008; Forsyth, 2003). As Vacarro and Beltran (2010) point out, political ecological research has proven that natural resources conservation should be understood as a social process with significant political ramifications (see also Escobar, 2008). As will be seen in the next section, conservation requires a reconceptualisation of space and natural resources, which, in turn, implies a change to the jurisdiction and ownership of common pool resources and protected areas (Zimmerer, 2006; Viccaro and Beltran, 2010). In this sense, Vacarro and Beltran (2010:29) rightly argue that policies designed to manage natural resources embody a specific form of governmentality (after Agrawal, 2005) "in which the state intervenes and assumes high levels of control over a specific territory: control that may result in the interdiction of local management, production systems, or practices".

In this research, a political ecological framework is deployed to aid the interrogation of natural resources policies and practice in Zambia and the ideological perspectives that underpin them. In particular, attention is focused on (a) the extent to which current natural resources policies, institutional frameworks and practice are largely a product of history and reflect the interests of various actors with varying agendas; (b) how the new discourse of sustainable development has gained ascendancy in environmental policy and is reconfiguring the relationship between the environment and livelihoods; and (c) the extent to which policy derivatives of this discourse represent local realities and interests surrounding livelihoods and conservation. The questions that arise through this framework include who the actors involved in natural resource policy processes and management are; what the power they hold is; and how they shape local access to natural resources. This power includes the power to create or modify rules and regulations; the power to make decisions about how a particular natural resource should be used; the power to implement the policies, rules and regulations and ensure compliance; and the power to adjudicate disputes that arise in the implementation and enforcement of rules (see Barr et al, 2009).

However, it is important to note that, although political ecology has excelled in providing an understanding of broad-scale factors that shape access to natural resources, it is limited in providing a critical reflection of how local livelihoods are constructed on a day-to-day basis. It is argued that in addition to these external factors, individual agency and local factors are

important in shaping access to natural resources (Batterbury, 2008). A perspective that best represents local agency is the sustainable livelihoods perspective (Rigg, 2007; de Haan and Zoomers, 2003; Bury, 2008). This perspective overlaps political ecology in several ways. Like political ecology, a livelihood perspective is highly interdisciplinary and not bound by the intellectual restraints of narrower disciplines (Batterbury, 2008). The perspective is also committed to analysis of complex factors shaping access to natural resource management at the local level.

There are three major reasons for drawing on a livelihood perspective in addition to insights from political ecology in this work: (a) a livelihood perspective provides a more critical reflection of local livelihoods that can enhance our understanding of rural livelihoods and how natural resources such as forests constitute an important part of diversified rural livelihood strategies; (b) a livelihood perspective has a more developed body of concepts that this thesis can easily draw on (i.e. it provides organising concepts for local level studies); and (c) livelihoods is an important entry point in any discussion of socio-ecological problems (Aggarwal, 2009). This is because adequate and secure livelihoods are central to people's concerns about well-being in developing countries, and, as such, society's relationship to the environment in these countries must be seen in the context of broader capacities and strategies for livelihoods construction (Narayan et al, 2000; Benjamin, 2004). In this regard, a livelihood perspective allows this research to focus on the extent to which natural resource policies and strategies are in harmony with the organisation of local livelihoods in study sites.

Complementing a political ecological perspective with a livelihood perspective is premised on the understanding that each perspective has the capacity to contribute to a better understanding of rural livelihoods, environmental change and the institutional responses to these changes (Batterbury, 2008; Simon, 2004). In addition, by adopting a livelihoods perspective, the research responds to calls for political ecologists to engage more with a livelihoods perspective (Simon, 2008; Batterbury, 2008; Bury, 2008). According to Batterbury (2008), a livelihood framework allows political ecologists, who were struggling with the issues of structure and agency, to work to show how livelihoods and knowledge actually work. He argues that the perspective has presented a rather deeper and more critical reflection of local realities which is indispensable to socio-ecological research.

### **2.3 The sustainable livelihoods perspective**

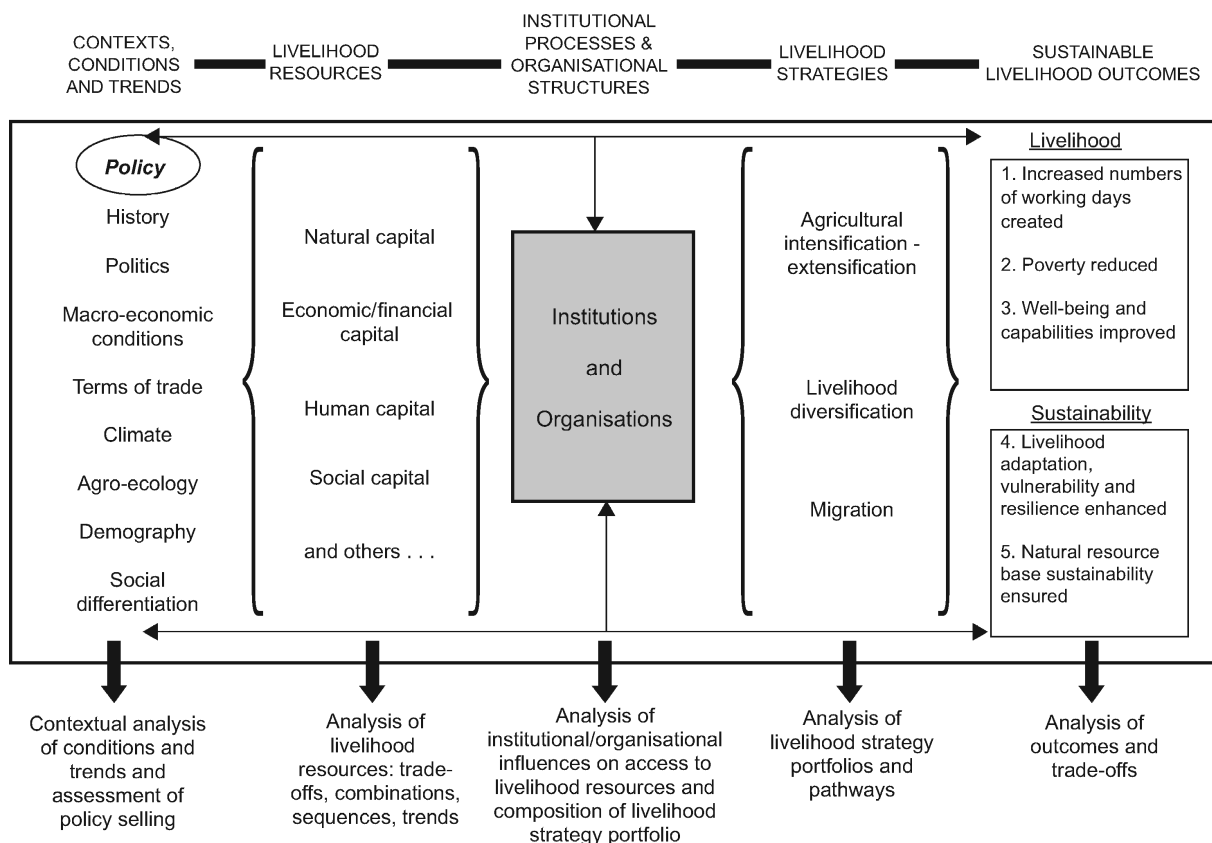
The concept of ‘sustainable livelihoods’ has its beginnings in the Brundtland report that sought to merge the notion of sustainable development with that of livelihoods. The report referred to the idea of ‘securing the livelihoods of the poor’ (p 130) and ‘providing sustainable livelihoods for resource-poor farmers’ (p138), but never clarified what was meant by ‘sustainable livelihoods’. While it also emerged as a central concept in Agenda 21, it was Chambers and Conway (1992) and other scholars such as Scoones (1998) from the Institute of Development Studies who have been credited with shaping the ideas that form what is today termed, the ‘sustainable livelihoods framework’. Chambers and Conway (1992:7) offered the following definition of ‘livelihoods’ and what constitutes a ‘sustainable livelihood’:

“A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets while not undermining the natural resource base”

In the development and environment literature, this definition of sustainable livelihoods has become the dominant definition accepted by many scholars (Scoones, 1998; 2009; Kirby, 2001; Rigg, 2007; Assan et al, 2009; Niehof, 2004; Forsyth, 2006). The definition is seen as very useful for this thesis as it captures the central components of a livelihood perspective. In this definition, people draw on different types of resources (for example, natural and economic resources) which are combined in the pursuit of different livelihood strategies (for example, agricultural intensification or extensification, migration and livelihood diversification) to cope with vulnerability and achieve sustainable livelihoods (Scoones, 1998; Kirby et al, 2001; Ellis, 2000). The components of the livelihood framework are captured in Figure 2.1.



**Figure 2.1: The sustainable livelihood framework**



Source: Scoones (1999; 2009).

From Figure 2.1, the various types of resources that people draw on are understood as assets or capitals, which are not just used in constructing livelihoods, but give people the capability to engage more fruitfully and meaningfully with the world (Bebbington, 1999). In addition to drawing on these resources for survival, adaptation and poverty alleviation, the assets “are also the basis of the agent’s power to act and to reproduce, challenge or change the rules that govern the control, use and transformation of resources” (Bebbington, 1999: 2022). The assets are perhaps the most popular and important components of the livelihood perspective and are presented in Table 2.1. However, it is important to note that, while traditionally the livelihood framework has always been presented as having five assets, a sixth asset (political capital) has been added to Table 2.1. According to Baumann (2000), this has been the missing asset in the framework and has often been the source of criticism when the framework is applied to socio-ecological research (see also Simon, 2008). This point further developed in the later sections of this chapter.

**Table 2 1: Livelihood assets**

Livelihood Asset	Characteristics of the Asset
Social Capital	Relations among people, which are shaped by histories of interactions (i.e. networks, social claims, social relations, affiliations , associations, leadership, )
Human Capital	Skills, Knowledge, ability to labour, good health and physical capability
Economic Capital	This includes wages, savings, access to credit, remittances and pensions
Natural Capital	Natural resource stocks (soil, water, air, genetic resources) and environmental services (hydrological cycle, pollution sinks etc) from which resource flows and services useful for livelihoods are derived
Physical Capital	Buildings, roads, and tools that provide security and mobility which allows people to produce, transform, exchange and consume goods
Political Capital	Rights and claims over natural resource access and assets, political ability to negotiate rights over resources.

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Sources: Scoones (1998; 2009), Bebbington (1999), Rigg (2007), Simon (2004)

Figure 2.1 shows that the livelihoods perspective also gives attention to institutional and organisational processes which influence the capability to access livelihood resources and achieve sustainable livelihoods outcomes. These institutional processes are embedded in a matrix of both formal and informal institutional organisations (Scoones, 1998; 2009). Institutions are the rules that govern access to resource management and their enforcement characteristics (Vatn, 2005). According to Brown (2003), they are made up of formal constraints (state rules, laws, constitutions) and informal constraints (norms, behaviours, codes of conduct), and are usually referred to as rules-in-use. Further, Brown notes that in the

context of natural resources management, the institutional characteristics of conservation initiatives range from the designation and constitution of protected areas, legal and organisation frameworks, formal and informal property rights that govern resource management, and the norms and traditions of different actors (see also Banda, 2002; Kangende, 2001). In most cases, however, Batterbury and Fernando (2006) point out that informal rules governing access to resources at the local level are different from legal prescriptions enshrined in statutory laws and policies. In this regard, analyses of institutional influences on access to natural resources and livelihoods are critical for resource management studies (Hess and Ostrom, 2007; Batterbury and Fernando, 2006; Hobley, 1996). By focusing attention on institutional arrangements, the framework allows the research to focus on customary institutions, protected area regulations and joint forest resources management as important elements that impact on resource management and livelihoods.

Central to understanding local realities are the concepts of livelihood adaptation, vulnerability and resilience. From Figure 2.1, local actors construct their livelihoods based on a combination of various assets, taking into consideration the vulnerability context. The antithesis of vulnerability in this framework is 'resilience'. According to Scoones (1998:6), resilience of a livelihood, which is key to both livelihood adaptation and coping, is expressed as "ability to cope with and recover from stresses and shocks". On the other hand, stress refers to "a small, predictable and, often, continuous and cumulative pressure", while a shock is "a sudden, unpredictable and traumatic event which leads to a marked decline in well-being" (Rigg, 2003: 33). People who are unable to cope (i.e. make temporary adjustment in the face of change) or adapt (make long-term shifts in livelihood strategies) are inevitably vulnerable and least likely to achieve sustainable livelihoods outcomes (Scoones, 1998). Understanding these issues is crucial for any research project aimed at gaining insight into local actors' livelihoods' vulnerability (the probability of being exposed to risk) to environmental change. According to Assan et al (2009), understanding policies aimed at improving the environment and sustaining livelihoods is particularly of urgent necessity in developing regions such as Africa, where policies dealing with environmental variability and interventions aimed at enhancing the resilience of both human and natural systems have been difficult to develop and are often based on educated guesses.

### **2.3.1 Importance of the livelihoods perspective in geographical and socio-ecological research**

In Geography as a field of study, the sustainable livelihoods perspective is increasingly being adopted by development geographers concerned with rural development and socio-ecological problems (de Haan and Zoomers, 2003; Power, 2003; Rigg, 2004). According to Rigg (2007), this growing interest in a livelihoods perspective should be seen in the context of the ongoing debate on structure and agency in human geography and how to reconcile them. As opposed to the 1970s and 1980s, structural functionalists and *dependencia* approaches in the people-land tradition that tended to treat people and communities as victims of structural constraints and focused on material aspects of life, the livelihoods perspective emphasises that people's behaviour is not driven unconsciously by structures (Rigg, 2007; de Haans and Zoomers, 2003, see also discussion on structuralist political ecology). Leach et al (1997:11) point out that people "actively monitor, interpret and shape the world around them". Thus, a livelihoods perspective stresses their degree of agency in exploring social, economic and environmental opportunities and coping with change. According to Kirby et al (2001:201), it emphasises "potential, competence and strengths, rather than weakness and need, relates the physical environment directly to opportunities and constraints for survival and self-organised development: a focus on agency". In this way, a livelihoods approach looks at responses to change in ways that are potentially useful and instructive (Power, 2003).

The sustainable livelihoods perspective is seen in this thesis as a more appropriate way of looking at issues of rural poverty than the use of income statistics. It takes into consideration the multidimensional nature of poverty and recognises the fact that in a developing country context, the types of poverty that rural people face are diverse and can best be captured by considering their assets, capabilities and flows. Babulo et al (2009) note that measurements of rural household income only capture income from conventional sources, such as crop production and livestock, and do not incorporate income from environmental resources. Moreover, even when income from conventional sources of income agriculture is considered, much of the subsistence production is rarely registered (Briggs, 2004). Non-agricultural income, on the other hand, is especially problematic where resources such as grasses and forests are communally owned and not explicitly cultivated. This situation creates a gap in

understanding the way in which rural economies function and the extent of rural poverty and inequalities (Babulo et al, 2009).

As Kirby et al (2001) point out, the livelihoods perspective provides an escape from the previously misleading conceptions of categorising rural people as simply ‘herdsman’ or ‘farmer’, when in reality, most households rely on many sources of support for their livelihoods (see also Bebbington, 1999). Indeed, many scholars draw attention to the fact that most rural households tend to diversify their livelihoods such that, often, individuals within households are involved in more than one livelihood activity (See Bryceson, 1999; 2002; Ellis, 2000; Rigg, 2007). The diverse ways in which rural households construct their livelihoods include engaging in non-agricultural livelihood activities such as off-farm wage employment, small scale trading, crafts making and migration. Further, according to Bryceson (2002), in most parts of developing countries, particularly in Africa, there is a growing tendency for households to move away from agriculture towards non-agricultural work, from unpaid work towards paid work. The pattern of diversification, however, is dependent on many factors such as history, agro-ecology and geography at both local and national levels. By embracing the notion of livelihoods diversification, this perspective allows socio-ecological researchers to develop an insight into how the varied constitution of rural livelihoods has significant implications for environmental change and people’s resilience to this change (Bebbington, 1999; Benjamin, 2004). It reveals the extent of people’s dependence on environmental resources and the functions, patterns and the ramifications of this dependence. As Bebbington (1999) points out, an understanding of the way in which people construct their livelihoods is crucial, as many policy and project interventions are based on poor understandings of people’s livelihoods. In many cases, interventions aimed at solving socio-ecological problems promote activities that are not consistent with the basic organising principles of local people’s livelihoods and institutional arrangements (Benjamin, 2004). In short, there is often a gap between policies and people’s realities.

The sustainable livelihoods approach, however, has been criticised for lacking a focus on politics and power and how these influence local livelihoods and resource management system (Scoones, 2009; Simon, 2008; Forsyth, 2006). According to Scoones (2009), such a focus would allow us to address basic issues of political economy and history: the nature of the state, the influence of decentralisation policies and neo-liberal agendas and other structural forces

that influence livelihoods and environmental change at the local level. These factors are conditioned by the histories of people and places and their wider interactions with colonialism, state-making and now globalization (Scoones, 2009). This lack of focus on politics and power has often called into question the use of a sustainable livelihoods perspective in political ecological work, as others see this as a methodological contradiction. Political ecology has been criticised as overtly political, the sustainable livelihoods framework as apolitical (Simon, 2008). While this could be true of the older version of the sustainable livelihoods framework, recent trends have seen the politicisation of the framework with an explicit focus on power and politics (Baumann, 2000; Simon, 2004; Scoones, 2009). For example, Ellis (2000) considers politics as one of the processes mediating local livelihoods, together with institutions and organisations. In this work, however, a sixth asset, political capital, has been introduced to respond to these criticisms (see Table 2.1). Indeed, some scholars have argued for the inclusion of political capital as the sixth asset in addition to the existing five (Baumann, 2000; Angelsen and Wunder, 2003; Simon, 2004). According to Baumann (2000), political capital is one of the assets on which people draw to build their livelihoods but it is also one of the main constraining factors on sustainable livelihoods and local resource access. It also explains where the local people are in terms of balance of power and in relation to other groups. Like Bauman (2000), this thesis considers politics as one of the assets that people draw on in their claims over natural resource access.

## **2.4 Exclusionary conservation and crisis narratives**

Having introduced political ecology and the livelihood frameworks, this chapter now examines the major theoretical arguments that have informed environment and natural resource conservation. In particular, the section is concerned with the way the relationship between livelihoods and conservation is viewed in these theoretical debates, and discusses the theoretical basis of exclusionary conservation models that have dominated the management of biological resources for much of the last century.

According to Siurua (2006), until recently, the paradigm which dominated natural resource conservation discourse, policy and practice was the establishment of national parks, forests reserves, heritage sites, and other formal protected areas. A dominant feature of this paradigm was that areas selected for conservation were often left untouched or restricted to land-uses

that were viewed as compatible with conservation values (Rinzin, 2009). Conservation, in this paradigm, was constructed as the protection of wild species or stocks of biodiversity in special areas (protected areas), away from human society's interference. Siurua (2006) notes that this strategy was pioneered in the United States strictly for the preservation of scenic wilderness areas and exported to Asia and Africa by European colonialists and, later, by conservation experts. Inherent in this paradigm is the idea that human beings are a threat to the conservation of wild species, hence the need for sanctuaries (or fortresses) where such species can receive physical protection (Jones, 2006; Buckingham and Turner, 2008; Horning, 2005). As a result, this approach to resource management is also known as the fortress conservation paradigm (Campbell, 2000; Adams and Hulme, 2001b; Siurua, 2006; Berkes, 2004). In addition, other writers refer to it as a 'fences and fines' conservation approach (Siurua, 2006; Jones, 2006; Adams and Hulme, 2001b). This is because where human activities were allowed restrictions were imposed through the issuance of licences and a breach of regulations guiding access to protected areas attracted a fine (or a jail term). In other cases, these untouched areas were fenced to create a distinction between the reserves and human-dominated systems (Rinzin, 2009). A second feature of this conservation paradigm was its highly centralised approach to resource governance. Areas designated as protected areas were brought under the management of state bureaucracies staffed by biologists, forestry ecologists and wildlife scientists (Campbell, 2000; Adisu and Croll, 1994). In this regard, local actors living in and around these areas were excluded from participating in the decision-making processes regarding these resources. Conservation, in this conception, was seen as a technical matter requiring application of expert knowledge acquired through scientific training (Adisu and Croll, 1994). Consequently, natural resources conservation relied on a unitary source of knowledge (to the detriment of other forms of knowledge such as local knowledge).

The importance of the fortress conservation model lies in the fact that it has dominated natural resources conservation for over a century. Although in the past three decades, as will be seen later, an important conceptual shift has occurred in conservation, the model is still dominant in many parts of the world, including Zambia. As an exclusionary conservation paradigm, its effects on human welfare are well-acknowledged in the literature (Siurua, 2006; Barnajee, 2003; Jones, 2006). Many authors point out that in many developing countries, this command and control approach brought a lot of hardships to rural actors through land alienation and

restrictions on their livelihood activities (Barnajee, 2003; Hulme and Murphree, 1999; Grimble and Laidlaw, 2002; Campbell, 2000; Slater, 2002).

Despite its association with local actors' hardships, a number of factors account for the hegemony of the fortress conservation model in conservation discourse and practice. As a model that gained popularity among conservationists and governments, its power lies in powerful scientific narratives about human-environment relationships that gained ground in academic scholarship over most of the past century. These narratives explain why local actors' livelihood systems have often been viewed as a threat to conservation and why the state has often been positioned as the best actor to manage natural resources. In particular, equilibrium thinking in ecology and Hardin's ideas of the *Tragedy of the Commons* have played an important role in this.

#### **2.4.1 Equilibrium thinking and human-environmental interactions**

The idea that ecosystems such as forests, wildlife habitats and wetlands are threatened by people's livelihood activities has been supported by scientific explanations of human-environmental relations. In particular, the balance of nature model (equilibrium model), developed by ecologists, has been instrumental in shaping this perception. The model assumes that nature has a balance that could be disrupted by human activities (Forsyth et al, 1998). Early ecological thought regarded ecological communities such as forests as organismic entities in their own right. In order to account for the evolution, growth and ontology of such organisms, ecologists developed a theory of succession which was synthesised in the work of Frederick E Clements and Arthur George Tansley in the early parts of the 20<sup>th</sup> century (Stott, 1999). In this theory, the development of an ecological community, such as vegetation, is initiated on an area not previously occupied by a plant community (primary succession) or where vegetation was removed (secondary succession) and develops to a stable state called the 'climax'. The process is also referred to as 'climax formation', with Clements and Tansley defining the climax as "adult organisms, of which all initial and medial stages are but stages of development" (cited in Stott, 1999: 19). Thus in this conceptualisation, vegetation, regardless of where it is initiated (bare soil surface or rock), was viewed as following a natural succession towards an adult stage, 'the climax', which would eventually be in equilibrium, or in balance with the prevailing ecological determinant. This type of ecological thinking regards



environments or ecosystems at various scales as tending towards equilibrium and homeostasis (Hurley et al, 2002; Gilson, 2004; Lankford and Beale, 2007). Stable equilibrium refers to an environmental condition or combination of an ecosystem state that persists, and to which the system returns following a disturbance (Suding et al, 2004). It is argued that climaxes exhibit this high degree of stability when reckoned over thousands or millions of years (Stott, 1999).

The succession theory and its concepts of climax formation, stability and equilibrium have been applied extensively in ecology. According to Zedler (2000), these ideas were viewed as central to understandings of degradation as well as restoration of degraded ecological systems. They were accepted as an accurate description of nature, with 'climax communities', such as tropical rain forests, described as 'natural', 'pristine' or 'untouched systems' (Stott, 1999; Wood, 1995; Ugglä, 2010). Ecosystems were viewed as fragile or as having a delicate balance that would fall apart if they experience any change from their natural (stable) conditions. It was argued that even small departures from 'natural' conditions could lead to disastrous and irreversible consequences (i.e. move an ecosystem to another stability domain). Fragility, in this case, refers to the ease with which an ecosystem changes from one type of biological community to another (Marten, 2001). In this regard, livelihood activities such as pastoralism and other agricultural practices were assumed to be a threat to this stability.

This thinking has been central in constructing a dualistic view of nature as distinct from society. Since nature was so different, it was better left alone to retain its climax features. Yet, despite this widely-accepted view, the concept of 'nature' or what can be termed as 'natural' remains difficult to define (Warren, 1996; Wood, 1996). Drawing on ideas of climax formation, 'nature' has been defined as "the proven antiquity of an ecosystem; and the absence of signs of disturbance" (Warren 1996:15). However, as will be seen in the next section, it is argued that there is no part of the earth that really fits this description, as so many bio-physical factors (e.g. climate) conspire to make this impossible (Ugglä, 2010). Still, in many cases, land for conservation was acquired and left alone or untouched (Hurley et al, 2002; Robbins, 2004; Leach et al 1997) so that threatened plants and wildlife population could receive protection without being subject to human competition and exploitation. It was assumed that allowing livelihoods activities in such areas would compromise the diversity of species or create instability. This would in turn negatively affect these 'fragile areas' and compromise their

‘pristine’ quality. Indeed, some proponents of this natural resource management model, such as Rolston (1996), argue that where human needs come into conflict with the protection of nature values, the latter have to be given priority for the purpose of saving pristine environments and endangered wild species (see also Siurua, 2006). Such thinking advocates the removal of local actors’ rights of access over biological resources, alienation of local actors’ spaces of livelihood practice, and the placing of such ‘threatened’ sites under the exclusive control of state bureaucracies and conservation experts (see also Hurley et al, 2002; Gilson, 2004; Lankford and Beale, 2002; Forsyth, 2003; Jones, 2006).

While the notion of harmonious nature was used to establish the protected area model, human-dominated landscapes, such as agricultural areas, were reconstructed as ‘biological deserts’ or ‘ecologically impoverished’ areas (Scherr and MacNeely, 2008; Batary et al, 2011). Agricultural areas, in particular, were seen as artefacts and purely production spaces with no place in the conservation agenda (Vaccaro and Beltran, 2010; Karieva et al, 2007; Batary et al, 2011). In addition, agricultural livelihoods were also loathed by natural resource experts for competing with conservation for land, and for being associated with polluting substances (such as pesticides, herbicides and fertilisers) detrimental to both terrestrial and aquatic ecosystems ( Scherr and McNeely, 2008; Milestad et al, 2011). While this thinking held sway for much of the last century, the past three decades have seen a growing dissatisfaction with the distinction between agriculture and conservation areas (Vandermeer and Perfecto, 2005; Fay and Muchon, 2005; Reeves, 2011; Defries and Roelzweig, 2010; Altieri and Nicholls, 2005). Many scholars now argue that this view was based on a narrow understanding of the environment and biodiversity, and has been unhelpful to the conservation of natural resources in socio-ecological systems (Vandermeer and Perfecto, 2002; Reeves, 2011; Primak, 1993). This argument is developed further in the latter sections of this chapter.

Another key concept that has its roots in equilibrium ecology is the concept of carrying capacity. The concept has consistently been used to argue that ecosystems have limits or thresholds that can be determined by calculations. As Zimmerer (1994:112) pointed out, “the postulate of generalised carrying capacity holds that a given biophysical environment exists in equilibrium with a certain population of organisms”. Zimmerer further notes that the concept of carrying capacity has its origins in laboratory experiments in the 19<sup>th</sup> century, when cultured micro-organisms were subjected to an experiment. When applied to human

populations, the concept of carrying capacity holds that rapid changes in human society (e.g. increase in population or agricultural production) in 'fragile areas' can easily lead to a crossing of ecosystem thresholds and can trigger environmental collapse. These ideas are prevalent in neo-Malthusian works such as *'Limits to Growth'* by the Club of Rome (Meadows et al, 1972), Gareth Hardin's (1968) *'Tragedy of the Commons'*, and Jared Diamond's (2005) *'Collapse'*, which all draw on this concept to highlight an eco-crisis resulting from over-population or over-exploitation of natural resources. Based on these ideas, for example, pastoral livelihoods systems that appear to maintain higher concentrations of cattle across a landscape than suggested by ecological calculations of thresholds are viewed as destructive to the environment.

The biologist Gareth Hardin, in particular, took this concept of carrying capacity further to create what Hess and Ostrom (2007:10) call "a memorable metaphor of over-population", where pastoralists sharing a common pool resource, act in self-interest and put as many cattle as possible out to graze, resulting in degradation of the commons. Although the paper uses the pastoral case as an illustrative device, and is not based on careful field research, it has nonetheless been influential in legitimising the view that the state is the best agent to manage natural resources in rural areas. Hardin's ideas seem to show that local actors were incapable of cooperating to create effective institutional arrangements and stem natural resource degradation (i.e. that local actors are unable to solve natural resource problems collectively) and thus served to justify state authoritarian policies. Moreover, many governments accepted Hardin's analysis and implemented reforms aimed at bringing natural resources under the control of the state and the market (Ruddle et al, 1992; Hess and Ostrom, 2007). Further, the reforms encouraged the subversion or marginalisation of local actors' institutional arrangements and resource governance structures assumed to be inefficient or destructive (Armitage, 2004; Agrawal, 2001; Ruddle et al, 1992; Ostrom, 1990).

There is a simplistic assumption in the *'Tragedy of the commons'* line of thought, that the poor are the main source of environmental degradation due to their poor livestock operations, poor agricultural cultivation methods (e.g. slash and burn agriculture) and inefficient property systems that allow free-riding and resource over-exploitation. These are widely believed to be the main factors contributing significantly to soil erosion, biodiversity loss, deforestation and desertification in most developing countries (Kirby et al, 2001; Hermann and Hutchinson,

2005; Xu et al, 2008; Armitage, 2004; Rinzin, 2009; Fairhead and Leach, 1996). Institutional frameworks based on common property rights are said to inhibit innovation and lead to environmental degradation, as they provide no incentives for communities to care for resources (Assan and Kummer, 2009; Bryant and Bailey, 1997; Mistry et al, 2009). Consequently, following this line of thought, the relationship between people's livelihoods and ecosystems has most consistently been framed in terms of the 'vicious downwards spiral of needs' (Forsyth et al, 1998), also referred to as the 'downward spiral of poverty and degradation' (Scherr, 2000; Stringer, 2009). In this view, the poor, who are highly dependent on an impoverishing resource base for their livelihoods, are compelled to overuse their resources for short-term survival. In turn, the depletion of natural resources further enhances their poverty, making their survival even more difficult (Iftikhar, 2003; Scherr, 2000; Forsyth et al, 1998).

From a political ecological perspective, such views are what are referred to as 'crisis narratives', in which the livelihood practices of the rural poor have been linked to extensive degradation of the resource base. They paint a fatalistic picture of the poor, in which the poor are both agents and victims of resource degradation (Iftikhar, 2003; Fairhead and Leach, 1996). Rural communities are represented as 'short-term maximisers' and 'free-riders', with no capacity to plan in the long-term or to solve the problems with which they are confronted (Assan and Kummer, 2009; Armitage, 2004; Mistry et al, 2009).

#### **2.4.2 Contesting the 'crisis narratives'**

While these 'crisis narratives' have continued to guide natural resource management, many of these explanations and their prescribed solutions are now hotly contested. A large body of literature has emerged that rejects the simplistic linear relationship between rural populations and the environment. This literature argues that 'crisis narratives' are often based on flawed assumptions which cannot be substantiated by empirical studies at the local level and should be taken as an exception and not a rule (Bryant and Bailey, 1997; Forsyth et al, 1998, Forsyth 2001; Herman and Hutchinson, 2005; Ecologist, 1995; Scherr, 2000; Stringer, 2009; Iftikhar, 2003; Leach and Mearns, 1996). According to Herman and Hutchinson (2005), as most of these explanations contradict empirical research, they should actually be taken as 'myths' and not factual explanations. The rejection of these simplistic explanations is based on new thinking in ecology and common property theory which reveals major gaps in crisis narratives. While new

ecology sheds more light on the way natural ecosystems function, common property theory allows us to gain new understandings on the way local actors interact with their environments.

Although explanations of environmental change based on equilibrium thinking have been accepted as 'received truths', new ecological thinking, commonly referred to as 'non-equilibrium ecology', now contests the validity of ideas such as 'climax formation'. Non-equilibrium ecology refers to an ecological approach that puts emphasis on the variable (often chaotic) nature of change within ecosystems, at a series of spatial-temporal scales (Forsyth, 2003). It is now argued that most natural ecosystems experience disturbances at rates that prevent the attainment of the 'climax state'. Instead, most systems are in a state of flux (and not a 'stable' state). For example, in tropical rain forests or savannas, production, disturbance and re-growth may cycle repeatedly, implying that even where there is no influence from people, the current conditions in the forest ecosystem may reflect a transitional state rather than a stable one (Robbins, 2004; Lankford and Beale, 2007). This variability implies that common assumptions of stability, gradual change (or evolution) or a 'balance of nature' are now seen as inaccurate descriptions of how ecosystems function (Forsyth, 2003; Stott, 1999; Uggla, 2010).

These new insights into ecological systems have also brought into question the credibility of arguments describing particular parts of the biosphere (e.g. tropical rain forests) as 'natural' and 'fragile' (Forsyth, 2003; Stott, 1999; Wood, 1995). Many of the sites that have been classified 'natural' are in fact sites that have been modified by people over many years. For example, Wood (1995) points out that much of what has been considered as 'natural' in places such as the Amazon is in fact a reflection of a landscape modified by the Amerindian population. What has been termed as 'closed crown forest' is now being considered by other scholars as not the natural structure of tropical forest, but 'patchwork' forest (Wood, 1995). Stott (1999) argues that the very notion of a 'tropical rain forest' should be considered a myth, a social construction based on Darwinian ideas of nature's permanence of form (see also Forsyth, 2003). While terms such as 'virgin', 'pristine' and 'untouched nature' have been used to justify the protection of the 'wilderness', there is no forest in the tropics (e.g. in central Africa) that can be classified as such, or as 'natural', 'primary' or a mature forest (Wood, 1995). As Uggla (2010:80) notes:

“The notion of nature and the natural, as distinct from culture and society and untouched by humans can be questioned since we cannot find any site on earth that fits that description”.

Thus, it is now argued that the various stages that have been used to classify vegetation or forests actually reflect succession stages created by people and not natural systems (Woods, 1995), i.e. they are cultural artefacts. This view assigns agency to human society in the creation and maintenance of ecosystems, and challenges the dualistic view of separating ‘nature’ from human society. It shows that it is extremely difficult to assign environmental impacts to humans in any simple way (Robbins, 2004; Stott, 1999; Woods, 1995). In fact, Forsyth (2003) argues that some shifting cultivators manipulate forest growth to maximise the production of valuable species. In this regard, people’s livelihoods must be seen as an integral part of the functioning of ecosystems (Gilson, 2004). In addition, many researchers have called for the re-examination of conservation to consider socio-ecological systems such as agricultural spaces as arenas of conservation (Scherr and McNeely, 2008; Reeves, 2011), and hence signaling an important shift from the pristine nature focus.

The new thinking in ecology also allows us to re-evaluate the usefulness of carrying capacity which has been used extensively in exclusionary conservation to impose restrictions on people’s livelihoods assumed to cross certain ecological thresholds. According to Forsyth et al (1998:11), the over-generalised view that population and environmental degradation are mutually reinforcing is based on a flawed assumption that there is “an aggregate ‘population’ or ‘community’ that interacts with an aggregate ‘environment’”, and therefore growth in this population will naturally outstrip the carrying capacity of the environment. However, human-environment interactions are much more complex than assumed in this concept (Zimmerer, 1994; Forsyth et al, 1998; Stringer, 2009). The *Ecologist*, for example, notes that the concept of carrying capacity is far from being a neutral or objective measure, as the number of people who can live on a piece of land depends on their culture, which depends, in turn, on their needs. As a result, the nature and success of their livelihoods or farming systems cannot be easily predicted in advance based on the model of an outsider’s culture (*Ecologist*, 1995; Simon, 1989). What is also not taken into consideration here is that the transformation of any area is also influenced by other factors outside of that particular locality. As Armitage (2004), in his study of upland communities in Indonesia points out, although policies implicate

population growth as the cause of degradation, a multitude of social, political, religious and market factors influence the transformation of the upland environment, beyond the simple population growth-environment causal explanations (see also Fairhead and Leach, 1996). These factors are never captured by models such as that of carrying capacity.

In addition, while non-equilibrium ecologists have provided new ecological insights that discredit the 'balance of nature' thinking, research from common property theorists reject Hardin's analysis of common property systems and ideas that represent local actors as incapable of cooperating to halt resource degradation (Ostrom, 1990; Ruddle et al, 1992; Agrawal, 2001; Hess and Ostrom, 2007). Ostrom (1990), in particular, was instrumental in demonstrating the flaws in Hardin's analysis. Using a variety of well-documented cases from various natural resource sectors (forestry, irrigation, fisheries etc), she demonstrated how local actors interact with their environment to develop diverse institutional arrangements for sustainable natural resources management. In addition, several other authors have argued that although the poor have limited resources, some have demonstrated considerable capacity to mitigate degradation effects or reorganise and rehabilitate their livelihoods in the face of environmental disturbances (Scherr, 2000; Xu et al, 2008; Forsyth et al, 1998; Osbar et al, 2008; Kangalawe, 2009; Argawal, 2001; Stringer, 2009).

Moreover, Hess and Ostrom (2007) point out that Hardin's analysis was based on an extremely sparse view of the commons in that what Hardin was discussing was not a tragedy of the commons, but the tragedy of 'open access'. According to Bryant and Bailey (1997), as opposed to this simplistic representation of common pool resources as being open to everyone, common property resources represent the private property of a group of co-owners, and other external actors are often excluded from accessing them. Similarly, Meinzen-Dick and Mwangi (2009) note that ownership of the commons should not be viewed in a narrow Western sense as the right to the complete and exclusive control of a resource. Instead, common property rights should be seen as an overlapping bundle of rights where different individuals in a community are brought together to manage the resources with overlapping user rights (see also Larson et al, 2010; Chileshe, 2005; Daniel and Cornea, 1989). For example, a family may have the right to cultivate a piece of land and another may have the right to access water or extract fruits in the same field (see also Briggs and Sharp, 2004). This system is well-regulated and adjusts to respond to social and environmental changes. However, while conservationists

and economists argue for the formalisation of these property rights, based on statutory legal systems, this could negatively affect the livelihoods of some groups, such as women and children, whose security of tenure is usually linked to the family or clan.

The various contentions in these crisis narratives demonstrate the need for new thinking or new narratives to guide natural resources management. The argument for this new thinking has been reinforced by further evidence that this centralised system of natural resource management was largely ineffectual due to several factors, such as the state's lack of technical capacity, inadequate resources to enforce laws and regulations governing resource management, and lack of support from local communities who often felt antagonised by these state policies (Rinzin, 2009; Massuanganhe, 2005; Mery et al, 2005; Siurua, 2006). Consequently, in the closing decades of the past century, environmental scholarship saw the emergency of a new conservation discourse in the form of 'sustainable development'.

## **2.5 Sustainable development (SD) and new conservation paradigms**

The preceding section highlighted the role of crisis narratives in the conservation policy and practice in many developing countries. In particular, it discussed the emergence of 'fortress conservation' as the dominant approach to the management of natural resources. As already noted, this approach is justified by narratives advanced by scientists and conservation experts and has now "gained sufficient political backing to hold influence" (Stringer, 2009:157). Despite the contentions in these narratives, they have often been seen as unquestionable and of such authority that they have acquired the status of 'received truths' (Forsyth et al, 1998; Leach and Mearns, 1996). According to Campbell (2000:170), scientists and conservationists "have a direct stake in maintaining traditional narratives and perpetuating views about the 'destructive role of local inhabitants' in order to maintain control over natural resources and support continued intervention". Similarly, Briggs (2005) argues that scientists rely on crisis narratives to sustain the hegemony of Western science. Although empirical evidence counteracts these narratives, Campbell (2000) argues that this is not sufficient to replace them. In his view, in order to replace such narratives, there is need to create a plausible counter-narrative (see also Adams and Hulme, 2001a). Such a narrative must be entirely new or an alteration of the existing narrative. It must be "parsimonious, plausible and as comprehensible as the original" and must appeal to various interest groups (Campbell, 2000:169). The



narrative that has since emerged to challenge this ‘fortress conservation’ is that of ‘sustainable development’ (Hulme and Murphree, 1999; Campbell, 2000; Slater, 2002; Barnerjee 2003; Mery et al, 2005) which should be seen as a credible challenge to the ‘fortress conservation’ approach, as it seeks to reformulate the relationship between livelihoods and environmental conservation.

One of the key characteristics of sustainable development is that there is no accepted strictly fixed definition (Berger, 2001). However, discussions of sustainable development revolve around the popular definition by the Brundtland Commission. The Commission (WCED, 1987:43), in its report, ‘Our Common Future’, define sustainable development as:

“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

The report continues to point out that sustainable development implies ‘limits’ (although not absolute limits) imposed by the present state of technology and social organisation on environmental resources and by the ability of the biosphere to absorb the effects of human activities. This definition incorporates two important notions, ‘needs’ and ‘limits’, which give sustainable development its character and mark an important departure from the traditional narratives discussed in the proceeding sections (Carvalio, 2001, Nebrato, 2008; Kates et al, 2005; Hopewood et al, 2005). The goal of sustainable development is to meet the basic ‘human needs’ while respecting ‘ecological limits’. In this definition, the Brundtland Commission clearly sought to bridge the gap between the concerns of environmentalists (i.e. the ecosystem limits camp) and those concerned with human welfare. Devkota (2005) also notes that, despite diverse opinions on sustainable development, many definitions meet here – ‘betterment of human society’ and ‘well-being of the habitat of non-human-species’ (see also Kate et al, 2005). In this regard, SD extends the debates dealt with in the previous sections by proposing to marry conservation and human development, and thus repositioning the relationship between nature and society.

Sustainable development is premised on the assumption that conservation policies and programmes are only sustainable when they have the dual purpose of protecting and improving rural livelihoods, as well as ecological conditions (Slater, 2002). This desire to

reconcile livelihoods enhancement or rural development with conservation is expressed explicitly in Chapter 3 of Agenda 21 that deals extensively with sustainable livelihoods and poverty eradication. Agenda 21 has this to say:

“The long-term objective of enabling all people to achieve sustainable livelihoods should provide an integrating factor that allows policies to address issues of development, sustainable resource management and poverty eradication simultaneously (Agenda 21, Cap 3.4)

In this discourse, two separate policy areas are seen as having the potential to support each other mutually. Development policy that has traditionally focused on poverty eradication and livelihoods improvement (in the context of rural areas) should be broadened to include environmental conservation. Similarly, policies aimed primarily at environmental conservation must be broadened to take into account people’s livelihoods. These ideas are consolidated in the following statement of Agenda 21:

“While managing resources sustainably, an environmental policy that focuses mainly on the conservation and protection of resources must take due account of those who depend on the resources for their livelihoods. Otherwise it could have an adverse impact both on poverty and on chances for long-term success in resource and environmental conservation. Equally, a development policy that focuses mainly on increasing the production of goods without addressing the sustainability of the resources on which production is based will sooner or later run into declining productivity, which could also have an adverse impact on poverty” (UN Agenda, 21 Cap 3.2).

These arguments are based on two main assumptions. Firstly, that improved environmental conditions can enhance livelihoods and help to reduce poverty (World Bank, 2008; Sachedina, 2008). The environment provides ecosystem goods and services, which, if conserved and used sustainably, will underpin livelihoods and provide long-term security and resilience (Walpole and Wilder, 2008; Dailey and Matson, 2008). This position is further supported by Millennium Development Goal 7 in which reversing the loss of environmental resources is seen as a requirement for achieving poverty reduction. Secondly, it is thought that poverty reduction

leads to conservation (Walpole and Wilder, 2008). In this regard, reducing poverty relieves pressure on the environment by reducing the need for unsustainable resource use, providing alternatives for sustainable livelihoods, and placing people or communities in a situation where they can choose to conserve natural resources (Walpole and Wilder, 2008). However, there is little empirical evidence to support these claims. The World Bank (2008) points out that there are still lingering questions about the extent to which sustainable development strategies address the problems of the poor.

In an attempt to link conservation with human welfare and in order to achieve sustainable development, conservation discourse has seen two important conceptual shifts. The first is the emergence of narratives of participation and devolution seeking to include local actors in the decision-making process surrounding natural resources management (Adams and Hulme, 2001a; Sullivan and Homewood, 2004; Barker and Stockdale, 2008; Enters et al, 2000; Anderson and Ostrom, 2007; Edmund and Wollenberg, 2003; Brown, 2003; WCED, 1987; Roe et al, 2009; Jones, 2006; Buchy and Race, 2001; Ribot et al, 2010). Secondly, we have witnessed the ascendancy of the concept of ecosystem services which broadens the focus of conservation from simply focusing on conservation of 'bio-physical resources', such as plant and wildlife species, to a focus on a broad range of ecosystem services (MA, 2005; Dailey and Matson, 2008; Reeves, 2001; Costanza et al, 1997; Reeves, 2011; Fisher et al, 2009). In addition, the concept extends environmental management to agricultural areas and links farming households with environmental decision-making (Gorman et al, 2001; Scherr and McNeely, 2008; Batary et al, 2010). These two allow conservation to develop win-win solutions that deliver both conservation and livelihood benefits. Their implications are now discussed in detail in the following sections.

## **2.6 Devolution and participatory natural resources management**

In an apparent departure from centralised systems, Agenda 21 (UN, 1992) called for the re-organisation of decision-making structures to ensure a collaborative approach to the management of natural resources. In particular, Agenda 21 calls for participation of a range of other stakeholders in resource management, such as local communities and their constituents (women, youths etc), local governments, NGOs and the private sector. This participation is envisioned in the form of decentralised resource management. Although decentralisation is a

word that is very familiar and often used without question, there are multiple conceptions of what it really implies. Many authors, however, make a distinction between two major forms of decentralisation, namely, 'de-concentration' and 'devolution' (Barr et al, 2006; Larson et al, 2010; Edmund and Wollenberg, 2003). De-concentration, often referred to as administrative decentralisation, describes the transfer of administrative responsibilities from central government to lower-level agencies or departments of the state (Barr et al, 2006; Larson and Ribot, 2004). For example, in a hierarchical state structure, administrative responsibilities may be transferred to provincial or district governments. However, this form of decentralisation still has the tendency of concentrating authority and power in the hands of central authorities to which these lower units remain accountable (Barr et al, 2006; Larson et al, 2010). According to Barr et al (2006), if decentralisation is taken as de-concentration, then there is nothing new about it. In the past three decades, states all over the world have been engaged in policy reforms that have carried the label of 'decentralisation' without transferring any real power to locally accountable bodies (Barr et al, 2006). According to Barry et al (2010), what is new about the current trends in decentralisation is 'democratic decentralisation' or 'devolution' through the creation of autonomous local governments or other locally accountable bodies, as well as a discourse promoting participation in decision making, participatory democracy, pluralism and rights (see also Edge and McAllister, 2009; Ribot et al, 2010).

Barry et al (2010:33) define devolution or democratic decentralisation as "the transfer of power and resources from central government to authorities representative of and accountable to local populations". In this conceptualisation, decentralisation is aimed at expanding the arena of public participation in the process of governance in order to meet local needs and aspirations (Barr et al, 2006). This is premised on the assumption that decisions closer to local people should be more equitable, efficient, participatory and accountable and environmentally sustainable (Barry et al, 2010; Ribot et al, 2010). These are viewed as the central tenets of participatory or decentralised governance (Child and Lyman, 2005; Hobley, 1996; Gibbs, 2000; Batterbury and Fernando, 2006).

The notion of decentralisation as a political process was extended to environment and natural resources, as global discourses on rural development and conservation began to emphasise decentralisation and local empowerment. In particular, the discourse of sustainable

development subscribes to the principles of fairness and equity, participation and empowerment of local communities (Gibbs, 2000; WCED, 1987; UN, 1992). In addition, as already pointed out in the preceding section, an array of studies documenting sustainable forms of collective natural resource management systems based on traditional norms and rules have played a significant role in transforming many conservationists' thinking about common property rights and institutions (Roe et al, 2009; Ostrom, 1990; Ruddle, 1992; Daniel and Cornea, 1989). Within this discourse, older models of natural resource governance, where decision-making was dominated by the state and adopted in a top down approach, were no longer viewed as acceptable (Mery et al, 2005; Berkes, 2004).

According to Edmunds and Wollengburg (2003:17), in terms of natural resources management, devolution can be thought of as a “process that shifts the decision-making space related to natural resources from centralised government to local communities or local governments”. The decision-making space is thought of as multi-dimensional and encompasses the ability to control decisions about the extent and quality of forest resources, livelihoods and income, and political processes related to forest management (Edmunds and Wollenberg, 2003). The devolved models of natural resource management are known broadly as community-based natural resources management (CBNRM). The variety of names embraced by the concept of CBNRM includes community-based conservation, community-centred conservation, community-based forestry, sustainable forest development and joint forest resources management (JFM) (Hobley, 1996; Buchy and Race, 2001; Adams and Hulme, 2001a; Berkes, 2004). Although different names are used in different circumstances and places, conceptually, these CBNRM models can be identified by the following major characteristics: (a) reduced state involvement and transfer of some degree of authority to local actors (local authority, communities etc) (b) a holistic approach to natural resource management that recognises complexity, interrelatedness and connections among ecological processes and components, multiple uses and jurisdictions (Berkes, 2004); (c) a participatory approach where a range of actors with varying political and economic interests participate in resource management (Shackelton and Campbell, 2000); and (d) a focus on conservation, poverty reduction and democratization (Child and Lyman, 2005). In the context of Zambia, forest policies have embraced joint forest resources management (JFM), in which the state seeks to devolve some of its natural resources responsibilities to local actors (Aongola et al, 2009).

In all instances, CBNRM involves some degree of co-management between central authorities, local government and local communities which share rights and responsibilities through diverse institutional arrangements (Roe et al, 2009; Edmunds and Wollenberg, 2003). Theoretically, the state retains the role of coordinator and catalyst and mediates conflicts, steering people towards the achievement of CBNRM goals (Mery et al, 2005; Campbell et al, 2004). Perhaps, a major distinguishing mark of CBNRM is that it is not just a conservation paradigm, but also a rural development paradigm, as well as a strategy for promoting democratisation (i.e. a win-win solution for both the environment and development). In short, it is a multi-pronged paradigm that fits well with the SD thinking of internalising social, economic and environmental externalities in order to increase equity in the management of natural resources. According to Child and Lyman (2005), CBNRM works at the nexus of conservation, governance, institutional development and justice. Many CBNRM practitioners and scholars believe that sound conservation outcomes are but one component of a process that uses the value of natural resources to empower land-owners fiscally, and to build effective governance structures (Child and Lyman, 2005). For these scholars, CBNRM represents a democratic assertion of people's rights and an institutional expression of these rights (Hobley, 1996; Barr et al, 2006). In this regard, it is argued that to make an impact, decentralisation needs to allow local resource users and their representatives to exercise these rights, which include the rights to retain benefits, the rights to allocate and dispose of resources to the best advantage, and the authority to manage the resources (Child and Lyman, 2005). In this regard, decentralised natural resource management is simply viewed as a means of enhancing local democracy, increasing equity and empowering disenfranchised segments of the society (Fidelman, 2006; Mery et al, 2005; Hobley, 1996; Barr et al, 2006).

Equity and democratisation are assumed to be achieved through the participation of local communities and other stakeholders in the decision-making process. However, participation, as one of the panoply of terms spawned by the natural resource and development discourse, requires careful examination as it may mean different things to different users of the term (Hobley, 1996; Buchy and Race, 2001; Brown, 2003; Sullivan and Homewood, 2004; Jones, 2006; Ribot et al, 2010). According to Hobley (1996), what is termed as participation is highly context-specific and its effects range from manipulation to full local control ( see also Buchy and Race, 2001; Cooke and Kothari, 2001). To exemplify how participation may be

interpreted and implemented differently in different contexts, Hobley's (1996) typology regarding how local actors participate in participatory natural resources governance is presented in Table 2.2

**Table 2.2 Typologies of participation: how people participate in 'community-based conservation.**

<b>Typology</b>	<b>Characteristics of each type</b>
Manipulative Participation	Participation is a pretence (people's representatives on official boards but unelected and have no power).
Passive Participation	People participate by being told what has been decided or what has happened
Participation by Consultation	People participate by being consulted or by answering questions
Participation For Material Incentives	People participate by contributing material resources (e.g. contribute labour )
Functional Participation	Participation seen by external agents as a means to achieve programme goals. In this case, people are only co-opted to serve external objectives while all major decisions have already been made by external actors
Interactive Participation	People participate in joint analysis, development of action plans, formation or strengthening of local institutions. Groups take control over local decisions and determine use of available resources
Self – Mobilisation	People take initiatives independently of external institutions to change systems and develop contacts with external institutions for resources and technical advice.

Source: Hobley (1996).

A poor conceptualising of 'participation' may result in approaches that wear the tag of CBNRM, but do not confer authority or responsibility over natural resources to local communities. For example, based on what is meant by participation, Roe et al (2009) note that CBNRM has been conceptualised differently by donors, governments and NGOs. In much of Western and Central Africa, it has been interpreted as benefit sharing or outreach between

protected areas and adjacent communities. According to Hulme and Murphree (1999), such a view simply sees communities as 'good neighbours' of the conservation estate rather than proprietors of the estate. In this regard, communities are not really empowered as authorised natural resource users, but are involved as passive recipients of benefits controlled elsewhere (Roe et al, 2009). In other circumstances, CBNRM has been conceptualized as a totally community-centred approach to conservation with emphasis on the transfer of property rights over natural resources to communities at the local level. In this approach, communities participate fully and have control over resources. However, Buchy and Race (2001) argue that examples of community control over participatory processes remain rare. They note that people's capacity to be involved in participative governance processes is often predetermined by the type of process itself. Further, they argue that the actor who initiates the process often controls the process. These views suggest that it is important for research to pay attention to the way in which participatory natural resources management strategies are initiated, how they are conceptualised in specific contexts and how local actors participate in the process. As Buchy and Race (2001) point out, writing that participation may be interpreted differently by different actors sounds obvious and uninformative. However, in practice, ignoring this conceptual imprecision may create problems and derail participatory natural resources management.

Ideally, effective participation of various groups is achieved through individual representatives of these groups, often selected through election or nominations by their respective groups. This representation is viewed as a core democratic principle associated with procedural legitimacy which indicates whether all relevant ideas and interests are included in the collective choice (Fidelman, 2010; Ribot et al, 2010). However, even when this democratic principle is fulfilled, it is argued that it is often difficult for CBNRM to avoid 'participation' being skewed in favour of elite groups in the community who may have little accountability to communities they purport to represent. The problem of 'elite capture' is arguably one of the most important challenges of CBNRM (Batterbury and Fernando, 2006; Campbell et al, 2004). This is because in all societies, elites exist, and in rural Africa, for example, the creation of new organisations such as CBNRM bodies will have communities inevitably turning to those members that can write and are assumed to have the necessary exposure to interact with outsiders (NGOs, donors and state officials). Sometimes, these elites may align themselves more with these outside groups and undermine the process of democratisation



rather than advance it. The influence of these local elites and outside actors maybe so strong that community representation may be severely diluted (Campbell et al, 2004).

Another 'term' that poses challenges in CBNRM is the term 'community'. The question of 'who is the community?' in CBNRM is a daunting one. According to Murphree (1999), although this term is one of the most enduring concepts in social sciences, defining it is also one of the most enduring tasks. Often, the notion of community is simplified with most of the approaches assuming that a community is a homogeneous entity. According to Barrow et al (2002: 25), a "community is usually defined as a social entity, bound by a common cultural identity, living within defined spatial boundaries and having a common economic interest in the resources of an area". This serves well to describe small social aggregations where the household and village level are the basis of organisation of much of the rural areas. Essentially, it typifies 'communities of place' where rural farmers are sedentary and reliant on arable land (Barrow et al, 2002). However, in practice, communities seldom exist in a simplistic way and are characterised by much fluidity (Sayers and Elliot, 2005; Fabricius et al, 2005; Siurua, 2006). Everywhere, communities are continually being reworked in the face of resettlements, migrations, livelihood practices and other factors (Barrow et al, 2002). Communities are highly complex and heterogeneous. They are differentiated in terms of social variation (e.g. gender), stratification (wealth and power), common interests, ethnicity and resource use (Hobley, 1996; Barrow et al, 2002; Barr et al, 2006; Cooke and Kothari, 2001). In this vein, although it is quite futile to seek a common, polyvalent definition of the term, as Murphree (1999) notes, any notion of 'community' must take into consideration this fluidity and heterogeneity that characterises a 'community'. Devolution programmes that do not recognise this heterogeneity and uncritically engage with stakeholders may ignore individuals or groups within a community that have the agency to influence positively CBNRM outcomes and those that may subvert the process. They may also ignore the interests of other actors that may be negatively affected by the CBNRM outcomes. As Edmund and Wollenberg (2003) point out, devolution initiatives are often characterised by a mis-identification, misrepresentation and exclusion of other groups of interests (see also Cooke and Kothari, 2001). For example, in forestry, CBNRM may exclude participation of women in CBNRM committees, yet these women may be the most affected by CBNRM outcomes (i.e. as the main collectors of forest products such as firewood, wild vegetables).

One of the major positive outcomes that most writers agree on is that CBNRM has resulted in fundamental shifts in the way rural people are viewed. Instead of ‘poachers’, ‘squatters’, ‘criminals’ and ‘encroachers’, rural people are now viewed as legitimate resource users and managers (Campbell et al, 2004, Sullivan and Homewood, 2004; Adam and Hulme, 2001b). In addition, rural communities are made more visible to NGOs, donors and service providers who take more notice of them and provide technical assistance in community capacity building, and small enterprise development. In this way, devolution opens more channels for rural people to communicate their priorities to government decision-makers and others (Campbell et al, 2004).

Much has been written in support of CBNRM as a radical and effective tool for managing natural resources (Roe et al, 2009; Child and Layman, 2005; Hobley, 1996; Campbell et al, 2004; Fidelman, 2006; Benjamin, 2004; Edmunds and Wollenberg, 2003). However, literature focused on investigating the process of designing and implementing CBNRM shows that CBNRM is far from being a panacea for natural resource governance. In terms of improvement in the resource base and material benefits, multiple outcomes have been reported (Berkes, 200; Ribot et al, 2010). Campbell et al (2004) report a turnaround in the resource base, from a degraded and overused woodland to a regenerating woodland in CBNRM programmes established in Tanzania, while CIFOR (2006) shows that in Cameroon, this has not produced the positive outcomes anticipated, although communities were given greater authority in the management of forest resources. Instead, CIFOR (2006) notes that decentralisation helped in the creation of a new social elite, increased the level of degradation and increased tensions between CBNRM institutions and other local level institutions. Overall, CIFOR notes that the whole process in Cameroon has been a failure and has resulted in ‘institutional schism’. In other places, devolution has been hampered by lack of resources and training, corruption at many levels and a scenario where central authorities continue to drive CBNRM despite the rhetoric of decentralisation (Mery et al, 2005; Campbell et al, 2004). Indeed, the ability of central authorities to devolve power willingly to local actors and to support such initiatives financially appears to be problematic in natural resources devolution policies (Barker and Stockdale, 2008; Barrow et al, 2002). Such problems, according to Murphree (1999), have resulted in the emergence of counter narratives which view CBNRM as an elite manipulation of rural aspirations and an over-generalised approach to the complexities of local governance and rural development. To others, CBNRM has great

promise but unfulfilled expectation, resulting from either political cynicism or inadequate implementation (Murphree, 1999; Berkes, 2004; Jones, 2006; Cooke and Kothari, 2001).

CBNRM models also struggle with issues of legitimacy. A collective organisation requires legitimacy for its process and leadership (Barrow et al, 2003; Larson et al, 2010; Massuanganhe, 2008). However, scholars are divided on the issue of what constitutes legitimate participative governance structures and institutions. For some scholars, democratically elected structures and other formal entities are seen as the legitimate bodies to represent the collective (Ribot, 2002; Ribot et al, 2010; Edge and McAllister, 2009; Massuanganhe, 2008; Cleaver, 2001). These new arrangements are often sponsored by the state, local governments, NGOs, donors and the private sector and often ignore customary institutions and governance arrangements (Barrow et al, 2002; Hess and Trench, 2000; Berkes, 2004; Benjamin, 2004). According to Barrow et al (2002), this has led to the creation of local institutions that are high in external legitimacy but very low in internal legitimacy. This is because the new bodies, rules and regulations externally imposed may be at odds with local institutions (e.g. customary institutions) which are often high in internal legitimacy. Local institutions are seen as high in internal legitimacy because they primarily embody local practice and collective action with their legitimacy rooted in tradition rather than legal statutes (Benjamin, 2004; Cotula and Cisse, 2006). Further, Barrow et al (2002) argue that legitimacy can be conferred by an external authority, but this, on its own, may not be sufficient. A more important aspect for CBNRM is actually internal legitimacy. The adherence and persistence of this externally-imposed system can fail to command legitimacy and create tension and conflicts if it does not accommodate local patterns of self-organisation and natural resource management (Barrow et al, 2002).

## **2.7 Ecosystem services and agri-environmental management**

As earlier pointed out, the fortress conservation approach supported by crisis narratives lacked a focus on human welfare and was confined to the management of landscapes which were assumed to be 'natural' or 'pristine'. One of the key concepts to have emerged as a way of linking ecosystems to human welfare in the past decade is that of 'ecosystem services and goods' (CRA, 2006; Dailey and Matson, 2008; MA, 2005; Fisher and Turner, 2008). The emergence of the concept was driven by the need to make the services provided by the

environment more visible to the market and policy makers. According to Fisher et al (2009), the notion of ecosystem services was first hinted at when Westman (1977), in a paper '*How much are nature's services worth?*'

, suggested the enumeration of the social value of the benefits provided by ecosystems so that society can make more informed policy and management decisions. Westman referred to these social benefits as 'nature's service'. It is these nature's services that are now called 'ecosystem services' (and also referred to as 'environmental services'), a term first used by Ehrlich and Ehrlich (1981) (cited by Fisher et al, 2009).

The concept of ecosystem services was popularised by the publication of a paper on global ecosystem valuation by Costanza et al (1997) and then by the Millennium Ecosystems Assessment (MA) report (2005). Costanza et al (1997) and the MA reports have provided definitions of ecosystem services that are among the most widely cited in the ecosystem services literature. Costanza et al (1997:253) define ecosystem services as "ecosystem goods (such as food) and services (such as waste assimilation) which represent the benefits that human populations derive, directly or indirectly, from ecosystem functions". For the MA, ecosystem services are simply the benefits that people obtain from ecosystems. These two definitions capture the general notion of ecosystems benefiting human populations. However, it is important to note that although the MA definition has now become the official UN definition of ecosystem services, it hides the tensions that characterise most debates in terms of whether ecosystems structures, processes and functions can also be classified as ecosystem services or as producers of ecosystem services. As a general definition, it is also not particularly helpful in drawing explicit attention to ecosystem 'services' as distinct from material benefits (goods). In this regard, Costanza's definition provides a fairly accurate description of what constitutes ecosystem services. While it is not entirely uncommon in most of the ecosystem services literature to see the term 'ecosystem functions' used interchangeably with the term 'ecosystem services' (Ego et al, 2007; Fisher et al, 2009), in this paper, ecosystem structure and functions are considered differently from ecosystem services, and, like Costanza et al (1997), ecosystem services are considered to be the product of ecosystem processes and functions. The MA grouped these ecosystem services into four broad categories which serve an important purpose of distinguishing ecosystem services (Table 2.2

**Table 2.3 Ecosystem services categories**

<b>Ecosystem Services Category</b>	<b>Examples of services</b>
Provisioning Services	Food, water, pharmaceuticals and energy.
Regulating Services	Carbon sequestration and climate regulation; waste decomposition and detoxification; water and air purification; Crop pollination, pest control and disease control
Supporting Services	Nutrient dispersal, seed dispersal and primary production
Cultural Services	Cultural, intellectual and spiritual inspiration; recreational experiences, including eco-tourism; and scientific discovery

Source MA (2005)

It is important to note that by the time of the publication of this report, some of the ecosystem services identified in Table 2.2 were already the subject of multilateral environmental agreements (MEAs) signed under the auspices of the United Nations. For example, issues surrounding climate change are covered by the United Nations Conventions on Climate Change (UNFCCC), while biodiversity is the subject of the Convention on Biological Diversity (CBD). Similarly, water and soil conservation are covered by the Convention on Combating Droughts and Desertification (CCDD). These MEAs, together with Agenda 21, should be understood as some of the most defining instruments of sustainable development. The MA report, however, takes the ecosystem services debate further by identifying other ecosystem services of importance besides those covered by these MEAs. In total, it identifies 24 ecosystem services of importance. In contrast to the traditional conservation paradigm, where material stock (forests, trees and wildlife) was the primary target of conservation, the concept of ecosystem services broadens the goals of conservation to capture these services.

Further, the MA (2005) points out that more than 50% of the ecosystem services worldwide are in a state of degradation. The report argues that in order to avoid the devastating impacts of this degradation on human welfare, substantial changes have to be made in the way in which society values and deals with natural resources. In other words, it calls for new ways of thinking about natural resources and the maintenance of ecosystem services. Over the past two

decades, the question that both academics and conservation practitioners have been grappling with is: how, and in what type of environments, can ecosystem services be enhanced and maintained? In response to this, some scholars, such as Scherr and McNeely (2008), have argued for an extended thinking about environmental conservation that goes beyond protected areas to encompass socio-ecological systems, in order to conserve and sustain ecosystem services (see also Reeves, 2011; Batary et al, 2011; Kareiva, et al, 2007; Vaccarro and Beltran, 2001; Vandarmeer and Perfecto, 2005; Zwaan, 2010). These scholars assert that conservation of natural resources cannot rely on protected areas alone, as maintenance of ecosystem services requires new strategies for managing entire landscapes, including lands reserved for production (Batary et al, 2011). Agricultural environments, in particular, have emerged as the most important focus of this new conservation debate. Batary et al (2011:p1894), for example, draw attention to the fact that “more than half of the earth’s surface is molded by agriculture, so the contribution of agriculture is critical for successful long-term conservation” (see Amdur et al, 2011). According to Cunder (2007), forestry and agriculture are the two most important land-land uses that affect the quality of the rural environments. Consequently, it is argued that combining conservation in forest reserves with that on farmland is a well-balanced way of doing conservation (Batary et al, 2011). Another factor that justifies the emergency of agri-environmental initiatives is that consumers in Western countries are increasingly questioning the benefits of modern agriculture. Kleijn and Sutherland (2003) point out that there is a clear and public mistrust about some aspects of modern agriculture, particularly in terms of its environmental impacts. This shift towards agri-environmental management implies that agriculture areas must be viewed as multi-functional landscapes which do not only produce food and fibres, but also various ecosystem services being demanded by society (Milestad et al, 2011; Melania and Sayid, 2011; Gorman et al, 2001; Pretty et al, 2003). Agri-environmental management initiatives are now being implemented in many developed countries (and a few developing countries), and Andur et al (2011) note that it is probable that they will even be introduced into an ever-growing number of countries. In OECD countries alone, Bartolini et al (2004) note that 400 different policy measures concerning environmental issues in agricultural areas have been implemented. Table 2.4 presents some of the agri-environmental measures that are being adopted in conservation and agricultural policies.

**Table 2.4 Type of agri-environmental management measures**

Categories of agri-environmental measures	Agri-environmental approach	Detailed description of measures
Measures on cropland	Conservation agriculture	Low impact agriculture, minimum tillage, reduced inputs, planting of multi-purpose trees and shrubs, crop-rotation, improved fallow systems  Has positive impact on soil fertility, water conservation, biodiversity and carbon storage
	Agro-forestry	Takes various forms – trees and shrubs on home gardens, dry-land farms etc.  Has positive effect on water catchments, soil fertility, carbon sequestration, biodiversity.
	Organic agriculture	Low impact agriculture involving no inputs, crop rotation.  Has positive impact on soils, biodiversity and water systems
On pasturelands	Silvi-pastoral systems	Planting high density trees and shrubs in pastures to provide diet and shed supplements and prevent erosion  Using fast-growing trees for fencing rangelands  They are considered to have positive effects on water, biodiversity, carbon sequestration and watershed protection
Non-productive land measures	Set-asides, preservation of care of woods, hedges, conversion of arable land to grasslands	Non –productive land measures for the preservation of the rural environments and enhancement of biodiversity.  Also provide water-shed protection, carbon-sequestration, soil protection, pollination services and aesthetic services

Source: (World Bank, 2008; Baudron et al, 2007; Borsotto et al, 2008; EU, 2005; Dumanski et al, 2006; EU, 2005; Goman et al, 2001)

The idea of extending conservation to agricultural environments heralds a new era of environmentalism and should be seen as a radical shift from the protected area thinking which viewed agro-landscapes as “biological deserts or a hostile matrix of isolated habitat fragments” (Batory et al, 2011:1894). In this wave of environmentalism, agricultural environments and related landscapes are seen to be worthy of conservation because they assert, rather than deny, the value of socially induced change on the environment (Barker and Stockdale, 2008). Indeed, Dailey and Matson (2008:9445) note that with the notion of ecosystem services, there is a growing renaissance in the conservation community, such that:

“Conservation efforts now are expanding into realms well beyond reserves, beyond charity, and beyond biodiversity – and into the mainstream”

From Table 2.4, it is clear that there are various types of measures that can be adopted in agri-environmental initiatives. However, one element defines them: that is that they have at least two objectives, reducing environmental risks associated with modern agriculture and preserving nature or delivering a range of ecosystem services, while at the same time improving the livelihoods of farmers (EU, 2005; Gorman et al, 2001; Scherr and McNeely, 2008; Dumanski, 2006; Cunders, 2007; Kleijn and Sutherland, 2003). Reducing environmental risks associated with farming may imply reducing inputs, such as fertilisers and pesticides, preventing land abandonment, preventing soil erosion and biodiversity loss (EU, 2005; Cunders, 2007; Latacz-Lohmann and Hodge, 2003). Conservation agriculture, for example, is one of the agri-environmental measures that is aimed at reducing environmental risks (i.e. through minimum tillage, reduced farming inputs and agro-forestry practices), while at the same time improving the productivity of farm plots (Dumanski et al, 2006; Prospero et al, 2011; WAC, 2010; Pretty et al, 2003; Altieri and Nicholls, 2005). This type of measure is common in parts of South America and the USA (WAC, 2010) but is now being deployed to other parts of the world such as Africa (WAC, 2010; Baudron et al, 2007).

The idea of addressing environmental risks on farmland has also drawn considerable attention to the rehabilitation or restoration of degraded lands (Dailey et al, 1997; Morse, 2007; Dailey and Matson, 2008), something seen as vital for enhancing both livelihoods and ecosystems in order to achieve the goals of sustainable development. It improves the availability of ecosystem goods such as food, timber, fibres, and biomass energy that are critical for rural livelihoods (Dailey, 1997), and at the same time allows land users to avoid deforestation and other land-uses with deleterious effects on ecosystem services (Dailey et al, 1997). In the EU, however, agri-environmental measures also take the form of non-productive land measures such as the conversion of arable land to grassland, set-asides and care of woods and hedges (Kleijn and Sutherland, 2003; Scherr and McNeely, 2008; Borsotto et al, 2008), aimed at preserving the rural landscape and enhancing biodiversity. Farmers who engage with non-productive land management practices derive livelihood benefits from such initiatives through payments for ecosystem services.



While agri-environmental measures have indeed gained considerable ground in the past two decades, there are a number of issues that remain unresolved in these initiatives which will continue to dominate future debates on the discussion of the paradigm. The first issue concerns the place or role of local actors' experience and knowledge in the decision-making process surrounding the implementation of agri-environmental measures. In other words, who gets to decide what has to be done on the farm plot and whose knowledge is important in the process (Amdur et al, 2011; Lenihan and Braser, 2009; Doody et al, 2009). In the EU, for example, agri-environmental initiatives are being implemented as part of the EU directives. Lessons generated from these studies so far show that the implementation of agri-environmental initiatives is largely characterised by a top-down approach to policy development and implementation in which experts make the interpretations of the environmental issues to be addressed by farmers (Amdur et al, 2011; Lenihan and Braser, 2009; Doody et al, 2009; Herzele et al, 2011). According to Doody et al (2009), this poses many challenges for the effective implementation of agri-environmental measures as it is seen as imposing solutions, and local actors (farmers) are often opposed to many of the regulations and recommendations developed by central actors. Similarly, Lenihan and Braser (2009) note that as centrally defined approaches, agri-environmental measures fail to account for local actors' knowledge and their diverse agro-ecological practices that may be important in the implementation of these initiatives.

In Doody's view, agri-environmental policy and practice rely heavily on a top-down process because their development is based on first order research and development (R&D) which relies on the objectivity of scientific research to develop objective data through experiments and monitoring. However, although such a process can be seen as 'good science' and objective, Doody et al (2009) note that it fails to account for the human factors that will impact on the implementation of proposed measures, and the differences in perception of how the problem should be solved. Indeed, what most of these studies show is the need for alternative means of developing agri-environmental measures in which local actors play an important role in interpreting the environmental measures to be implemented. The importance of local ecological knowledge in sustainable natural resources management has been highlighted by other authors (e.g. Brown, 2003; Fisher, 2000; Briggs, 2005; Briggs and Sharp, 2004; Scherr, 2000). As Berkes (2004) notes, putting humans back into the ecosystem requires using all

possible sources of ecological knowledge as may be available. It is argued that the knowledge of local actors, in particular, can help build a more complete information base than reliance on science alone (Berkes, 2004; Brown, 2003). As agri-environmental initiatives are now gaining a foothold in developing countries, it is important to examine whether or not agri-environmental initiatives in developing countries are accommodative of local actors' knowledge and experiences.

Finally, another important issue concerns the question of how to motivate farmers to adopt agri-environmental measures in order to produce environmental goods and services that benefit society as a whole (Guy, 2006). This has been partially resolved in developed countries through payments for agri-environmental measures, in which farmers receive payment for modifying landscapes in favour of environmental services. Over the past two decades, a market-based mechanism that provides incentives to land-owners, farmers and communities to conserve and sustain ecosystem services has gained popularity with international conservation organisations such as IUCN, UNEP, FAO and WWF. This paradigm is referred to as 'Payments for Ecosystem Services' (PES) or 'Payments for Environmental Services' (for an exhaustive discussion on PES, see Wunder, 2005; CIFOR, 2005; Ferraro and Simpson, 2005; Morse, 2007; FAO, 2005; WRI, 2005). PES is hailed as a direct conservation approach that cuts out the state bureaucracy by addressing the protection and enhancement of ecosystem services through the market. Economists often argue that the degradation of ecosystem services is mainly a result of inadequate adoption and implementation of efficient, modern economic techniques of management, exploitation and conservation (Robbins, 2004; Ferraro and Simpson, 2005). Primarily, this stems from a lack of markets for most ecosystem services that have often been regarded as 'free goods', thus, leaving land-owners and communities with no incentives to protect these services (Coull and Valatin, 2008). PES promises to tackle the problem of insufficient incentives for land-owners by providing a framework for financing and paying for these services. One of its major assumptions is that land-owners will devote their holdings to whatever activity that provides them with the greatest benefits (Ferraro and Simpson, 2005; Wunder, 2005; CIFOR, 2005). For example, farmers may dedicate their land to agriculture or pastureland instead of forestry because these land-uses give them the best livelihood benefits. However, if conservationists and other actors want land-owners to dedicate their land to environmental measures, then they must compensate the land-owners for opportunity costs. The thinking is simply to pay individuals and communities to undertake

actions that increase levels of desired ecosystem services rather than create rules and regulations (Libanda and Blignaut, 2008). This emphasises a reciprocal exchange, whereby if land-owners take actions that demonstrably result in protection of ecosystem services, they will receive something they value (i.e. compensation is paid in exchange for conservation performance) (Ferraro and Simpson, 2005; Coull and Valatin, 2008).

While in theory, PES emphasise the role of markets, in practice, many agri-environmental schemes in developed countries are funded by public funds (Vatn, 2011). According to Ferraro and Simpson (2005), in Europe, fourteen countries spent over \$11 billion between 1993 – 1997 to convert well over 20 million hectares of agricultural land into woodlands contracts and ‘set asides’ lands. Similarly, the United States spends about \$1.5 billion annually to contract for 12 – 15 million hectares for conservation (Ferraro and Simpson, 2005). In the United States’ programme, contracted farmers and land-owners undertake land and resource management initiatives to improve the quality of land, control soil erosion and enhance habitats for waterfowl and wildlife (Ferraro and Simpson, 2005). On the other hand, in developing countries, PES programmes are generally in their infancy and mainly driven by climate change programmes under CDM and the REDD initiatives. Moreover, examples of PES initiatives for agri-environmental management initiatives in developing regions such as Africa are virtually non-existent and it is questionable whether poor governments can use public funds for the development of agri-environmental initiatives. Indeed, when examining these issues, it is important to note here that many of the studies on agri-environmental studies are primarily focused on developed countries. This arises from the fact that agri-environmental initiatives are relatively advanced in these regions, but are still in their infancy in developing regions such as Africa. Consequently, quite a gap exists in understanding how they are being designed, translated into action and the outcomes they produce. As Dailey and Matson (2007) point out, one of the major challenges of the ecosystem services discourse is how to implement such initiatives in different biophysical and socio-cultural contexts.

## **2.8 Conclusion**

This chapter has reviewed several strands of literature that have framed our understanding of livelihood environmental relationships. In the first section, the chapter has drawn attention to political ecology as an important theoretical framework underpinning this work. The framework offers this thesis an important opportunity to understand human-environmental interactions in the study area in a holistic way beyond the restraints of disciplinary boundaries. Livelihood and environmental outcomes are framed within the wider processes that help to shape them, such as political economy and historically-produced narratives. The chapter has also dealt with the rise of the sustainable livelihoods perspective and its importance to socio-ecological research. In this project, it is envisaged that a livelihood perspective will complement political ecology's critical tools by providing organising concepts for site-specific studies and by showing how natural resources management strategies sit with local level realities. The chapter has also examined the changing nature of conservation discourse. It has demonstrated that natural resources management discourse and practice is changing direction, from an emphasis on fortress conservation to new sustainable development strategies. While SD has indeed repositioned the relationship between livelihoods and conservation and has led to the emergency of new conservation models, we still have little empirical insights into how these models are particularised for use in different socio-cultural contexts, how they are operationalized and the extent to which they are accommodative of local people's knowledge and experiences surrounding the environment and livelihoods. These issues are addressed in the next chapters.

## **Chapter Three**

### **Research Methodology**

#### **3.1 Introduction**

To achieve its aims, this thesis draws on a range of methods in the collection, organisation and analysis of data. In particular, the methods used in this research are significantly influenced by the livelihoods framework and political ecology. As interdisciplinary approaches, both perspectives favour the use of 'mixed' or eclectic methods in studying socio-ecological issues. This chapter will discuss the methodology used in the study, including the selection of the study sites, research participants and the process followed in the collection and analysis of data.

#### **3.2 Research methodology in this thesis**

While this research is heavily influenced by political ecology and the livelihoods perspective, the fieldwork context and the nature of the research questions also played an important role in determining the methodological orientation of this study. As some scholars have pointed out, besides the theoretical orientation of the research, the fieldwork context and the type of research questions should also play an important role in guiding the choice of the research methods in a research project (Gillepsie, 2007; Langdrige, 2004; Bryman, 2008). In this regard, this research uses both qualitative and quantitative methods of collecting and analysing data in order to address the research problem and questions. The qualitative methods used include in-depth interviews, discourse analysis, focus group discussions and other participatory tools such as transects, use of seasonal calendars and timelines. These qualitative methods are complemented by quantitative surveys aimed at capturing people's livelihood practices and the distribution of livelihood assets among them. Although used in a limited sense, because of the type of research questions and the fieldwork context, the quantitative methods form part of a mixed methodological approach.

Qualitative and quantitative research have often been presented as two distinct research strategies that articulate different philosophical assumptions such that researchers often try to align themselves with either of the positions (Kitchen and Tate, 2000; Bryman, 2008; Langdrige, 2004; Lindsay, 1997). This, in turn, has created a misconception that the two

methodological approaches are polar opposites. However, many scholars also note that the distinction is not a hard-and-fast one: studies that have the broad characteristics of one research strategy may also have characteristics of the other (Bryman, 2008). Indeed there are many research problems which require that qualitative and quantitative methods are used in a complementary sense in order to provide an enhanced understanding of the issues at hand. Such a research strategy is now referred to as a mixed methods approach or eclectic methodological approach (Gillepsie, 2007; Chileshe, 2005; Evans, 2002). In socio-ecological research, this is important, as, increasingly there is a recognition that environmental concerns bleed inescapably through dualistic modes of analysis that distinguish nature from society, and across geography's corresponding categories of economic, cultural and physical concerns (Evans, 2002; Demerit, 2009). Moreover, it has been argued that to capture both biophysical realities as well as the socio-political dimensions of the environment, it is important to utilise hybrid research in which a variety of perspectives play a role in dealing with the research problem (Batterbury, 2008; Simon, 2004). This is perhaps the context that has seen the rise of political ecology as a style of analysis in geographical research concerning socio-ecological systems. Use of eclectic methods is one of the cornerstones of political ecology, and founding scholars such as Blaikie who have popularised the use of mixed methods in socio-ecological research are said to have broken up barriers to thought in order to open up new avenues for scholarship (Muldavin, 2008). This has enabled political ecological works to be inspirational across theoretical, empirical and disciplinary boundaries. Collins (2008) also adds that by fostering the integration of a variety of research tools and theoretical approaches, political ecology has ascended to a prominent position in geographical scholarship.

Today, socio-ecological works that employ a mixed methods approach abound (Stringer, 2009; Evans, 2004; Simon, 2004; Benjamin, 2004; Chileshe, 2005; Cardieux, 2008; Collins, 2008). Stringer (2009) notes that use of multiple methods is paramount in investigating mutually embedded social and environmental contexts and can result in better understandings of existing human-environment interactions. In addition, a mixed method approach, as used in this study, provides an opportunity to triangulate and cross-check the results, thus giving credibility to the research process (Stringer, 2009; Nigel, 1996; Bryman, 2008). Triangulation refers to the practice of using an intersecting set of different research methods in a single research project (McDonald and Tipton, 1996). It may also imply that data have to be collected at a variety of times, in different locations and from a range of persons (McDonald

and Tipton, 2008). This notion of triangulation has now become a salient feature of research methodology in socio-ecological research.

### **3.3 Selection of study sites and actors to participate in the research**

The fieldwork and data collection process involved the selection of study sites, actors to participate in the research process, fieldwork preparatory activities and the actual execution of the research.

#### **(a) Study sites**

This research was conducted in Chongwe district of Zambia (for a detailed description of the district see Chapter Five), at two geographical sites where local level studies were carried out. All the areas are predominantly rural and reflect multiple production systems. Chongwe was selected for this study because it is one of the districts where the national decentralisation policy is being piloted. It is also a district where conservation agriculture initiatives have been piloted and are now being up-scaled to all parts of the district. In this regard, Chongwe has potential to provide insights into how policies derived from the discourse of sustainable development are being translated into practice. However, the district's proximity to Lusaka means that there may be a significant urban influence on the area with important implications for the study. For example, the boom in charcoal trade and the in-migration in the district are all linked to the area's proximity to Lusaka. In this regard, Chongwe may not be very typical of remote rural areas, but provides important lessons on the challenges of addressing rural environmental problems that partly arise from urban influence.

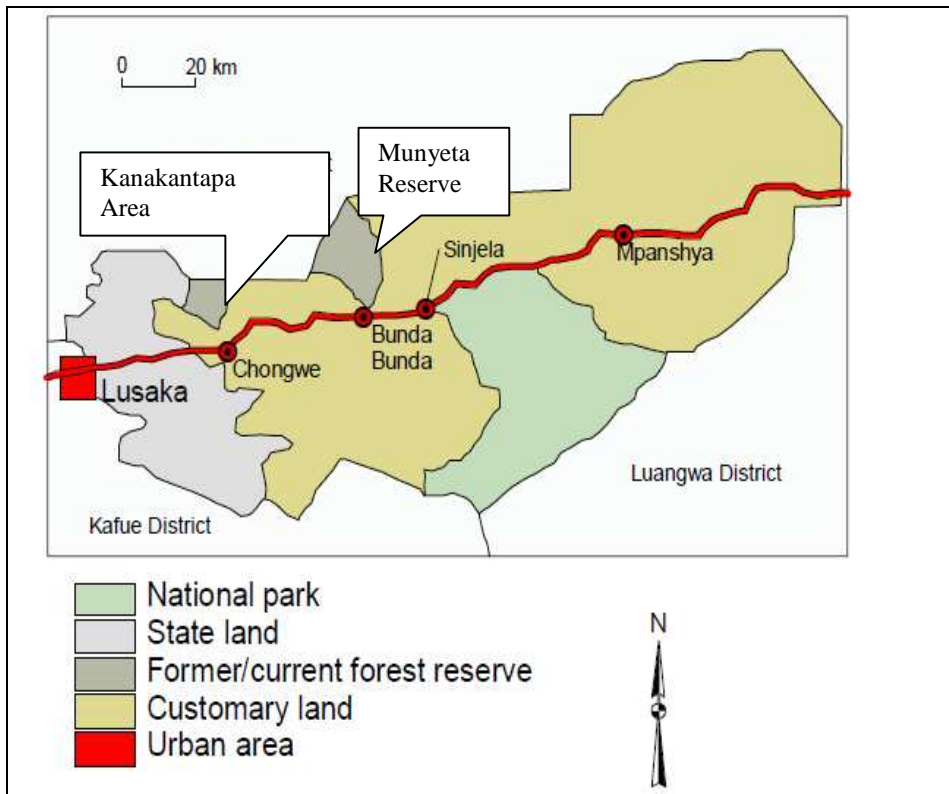
From the start of the fieldwork, the intention was to identify two sites for fieldwork studies: one site where access and use of natural resources was governed by customary institutions and rules; and one site where the management of natural resources was governed by state rules and regulations. Customary natural resource management and state-led management approaches (protected areas) are the two dominant categories of natural resource management systems in Zambia. An additional criterion was to look for sites targeted by new conservation strategies driven by the discourse of sustainable development.

In forestry policies, both customary areas and protected areas are targets of new natural resources policies promoting devolution of natural resources and protection of ecosystem services. In this regard, the sites selected presented an opportunity to investigate the prospects and challenges of deploying these strategies to such sites. Data collection from these sites also provided an empirical basis for interrogating dominant narratives surrounding common pool resources. The narratives include Hardin's (1968) *Tragedy of the Commons* and the state's position on customary natural resource systems and what are commonly referred to as 'open access systems' (GRZ-MTNR, 1999; 2007; GRZ-MTNR/FAO, 2010). The selection of the sites followed preliminary interviews conducted with district officials and other local leaders in the district. For each of these sites, data collection was also conducted in neighbouring villages for the purpose of generating comparisons.

The first site, adjacent to the Kanakantapa resettlement scheme (Figure 3.1), is located 7 km west of Chongwe administrative centre in Nkomesha Kingdom. The primary village of concern in this area is Shisholeka village. The distinctive mark of this village is its common-pool resource management system that has been hailed as a model by the district forestry office. The village woodland is managed by customary authorities without any external intervention and offers useful insights into how customary resource governance systems operate in comparison to state-managed systems. It also represents an ideal case for understanding how customary resource management systems have survived over years of exclusive emphasis on state conservation and how these systems are being modified in the face of environmental change and social and economic pressures. For this area, data collection was also conducted in the neighbouring village of Mtanuka for the purpose of generating comparisons.



**Figure 3.1 Map of study area**



Source: Chidumayo et al, 2001

The second site is called Munyeta area and is located about 40 km north-east of Chongwe administrative town. This area is located in Bunda-Bunda Kingdom of the Soli people. In Munyeta, data collection focused on households in and around the Munyeta forest reserve. According to the district staff, Munyeta represents one of the most important ecological sites in the district. It is a water catchment area which has an important ring of hills and natural woodland that is managed by the state. However, Munyeta has also become an important source of conflicts as various actors (the state, local communities, traders etc) claim their rights to access and management of land and woodland resources in the area. This allowed the study to gain insight into the various physical manifestations of natural resource conflicts in protected areas and to examine how natural resource policies were being translated into action.

An important characteristic of the reserve is the presence of a large population of ‘squatters’ who were also targeted for data collection and treated as local-level actors. With the changes in natural resource policies, the forest department has begun the process of seeking collaborative natural resource management with these local-level actors.

One village, Mayaya, was selected inside the reserve for the study. This was based on the fact that this is the oldest village in the reserve and the village head has kept records of households in the village. While it is argued that there are six villages in the reserve, it was found that many of the residents could not easily tell in which village they were exactly located. Moreover, the organisation of what could be considered ‘villages’ was rather messy and the boundaries were quite blurred. In addition, the village heads did not have any records on the households in their areas. As a result, the study maintained a focus on Mayaya, but interviews were also conducted with key informants from other villages as well. Outside the reserve, the studies focused on Mufweshu as a secondary study village in the site. This was also selected on the basis of being the oldest village close to the forest reserve. It was important for generating comparison and understanding the historical importance of the forest reserve to the communities surrounding it.

#### **(b) Selection of actors to participate in the research**

As already noted in the introductory chapter, the study focuses attention on the interests, ideologies and actions of various actors in driving this change in environment and natural resources policies and mediating access to natural resources at the local level. An important task in this research was to identify these actors and to map their interests and claims to land and forest resources in the study sites. According to Little (2006), this is one of the most important tasks of political ecology. It allows us to understand each group’s claims to natural resources and to identify alliances and polarisation of stances and their respective share of formal or informal power. To achieve this, a range of actors representing various interest groups and interacting at various levels were selected to participate in the study. It included actors that operate at the international and national scales, but with significant influence in driving the natural resource agenda at the local level such as donor agencies and international NGOs. It also included national NGOs, state departments, local government and civic leaders in the district. These were selected to participate in the study in several ways. First, a number

of actors were identified in the preparatory stages of the fieldwork through the various policy documents and other literature that identified the organisations or departments as key actors in natural resource policies or implementing programmes with a bearing on the local sites.

Secondly, some of the organisations were already represented in the study sites by local officers who live or work in the sites. Thirdly, several organisations were identified as important actors with significant influence on local livelihoods and natural resources by members of the community. The study also focused explicitly on 'local level' actors (chiefs, forest resource users, farmers etc). The local level, in this study, is treated as the site of implementation of environment and natural resources policies derived from various discourses including sustainable development. It is also understood as the arena where various natural resource and livelihoods conflicts manifest themselves.

### **3.4 Fieldwork preparation and collection of documentary data**

The field work in the research project was carried out over a period of 11 months between October 2009 and September 2010. Fieldwork began with a five week exploratory phase during which preliminary meetings were held with various actors in natural resource management such as national and district officers of the forest department, NGO representatives and customary leaders. This phase was important for establishing contacts, acquainting the research with key actors in natural resources and identifying suitable sites. During this time, there was a focus on various policies (e.g. forestry policy, national environmental policy and land policy and agriculture policy), planning and legal documents (e.g. Acts of Parliaments, colonial ordinances), archival information (e.g. district notebooks) and NGO writings related to natural resources and livelihoods. Time was also spent in the national archives and the documentation units of some of these organisations (e.g. CIFOR and Environmental Council of Zambia). This allowed the study to build a broad picture of the status of natural resource management in Zambia and also to grasp the popular environmental discourse circulating in official circles. These documents were taken as texts that expressed the intents and interests of various actors such as the state over time.

According to McDonald and Tipton (1996), such documents are social products that are intended to be read as objective statements of fact. However, these documents are often socially produced, implying that they are produced on the basis of certain ideas, theories and

commonly accepted, taken-for-granted principles. These ideas, implicit and explicit, provided the foundation for building themes that were incorporated in the design of local-level research instruments. Moreover, this preliminary phase allowed the research to delimit the scope of the study and to develop questions that were pre-tested in the study sites. The documentary material examined during this phase became an important part of the analysis of natural resource policies. The preparatory stage for local-level studies also benefited from a sustainable livelihood framework which provided the organising concepts and already set the most important factors affecting local livelihoods and environment. Like many other socio-ecological works (e.g. Stringer, 2009; Benjamin, 2004; Simon, 2004; Collins, 2008), the livelihood framework provided an important checklist of issues to be investigated through non-scheduled interviews, participatory methods and surveys. As a basis of analysis, it ensured that different issues and situations that rural populations have to manage are sufficiently addressed. These include livelihood assets and strategies, local institutional arrangements and issues of vulnerability and resilience.

#### **3.4.1 In-depth interviews with community participants**

The main qualitative method used in this study is the in-depth interview technique. The technique was used to collect data from both site actors and non-site actors. A total of 94 individual interviews were conducted with members of communities in the two sites in this study. Several factors were taken into consideration in the selection of participants in the study for the interviews. Statistical representation was not considered important in the selection of participants for interviews as the focus was on intensity and depth of information rather than breadth. An attempt, however, was made to capture diverse views from various local actors, such as charcoal producers and traders, farmers, herders and representatives of women's groups. The selection of participants in the community was purposive rather than random. Contact in the field was first made with village leaders who then identified other participants who could participate in the research as key informants. The key participants identified this way were often what the village leadership considered 'community experts' in matters of natural resources, culture, livelihoods, local history and other issues. Their participation provided an invaluable contribution to the understanding of local livelihoods and customary institutions governing natural resources and rural lives in general. By building on interviews with key informants, the study progressed by identifying other participants with varying

experiences and ideologies in the community. Often, participating individuals would suggest other people who would offer a similar or different perspective on the whole subject. Other participants, however, were encountered in sites of resource extraction or production, such as farm plots, charcoal kiln and firewood collection zones. According to Cadieux (2008), although selection of participants in this manner allows the research to capture a wide range of themes, it has its drawbacks - some groups in the community may be under-represented while others may be over-represented. To guard against this limitation, Cadieux suggests that one should continue with interviews until clear clusters of themes have emerged and no new themes emerge. The strategy proved useful in this research and interviews only stopped when it was felt that this saturation point was reached. Table 3.1 presents the number of interviews conducted with residents in each of the two sites.

**Table 3.1 In-depth interviews conducted in the study**

Study Site	Name of Village/Area	Number of Households	Number of Participants
Site A	Mtanuka	110	28
	Shisholeka	120	30
Site B	Munyeta (inside the Reserve)	98 households	20
	Munyeta (outside the reserve)	62 households	16
	Total	390	94

The interviews served the purpose of eliciting rich and detailed materials encompassing descriptions of concerns, livelihood practices and discourses of various actors in the study sites. Questions that participants addressed included issues surrounding their livelihoods assets and strategies; access to and use of forest resources; involvement in the forest and woodland resources decision-making process; their experiences with state conservation, agro-ecological initiatives and land tenure policies; their responses to changes in livelihoods and natural resources. As a flexible research method, in-depth interviews allowed the study to explore

diverse issues outside the restraints of a 'fixed question and response' process. It also allowed the unveiling of issues not previously anticipated by the research.

The time spent on each interview varied. While some interviews were as short as 35 minutes, others were longer than two hours. These interviews took place in a variety of settings, from people's homes, farms or forest. This implies that while some interviews were conducted in a relaxed atmosphere, some were conducted at sites where people were collecting forest products or herding livestock. Interviews conducted in sites where people were working provided an appreciation of the spaces where livelihood activities took place, hence aiding the understanding of livelihoods-environmental interactions. However, this sometimes had an influence on the depth of information that was collected from some interviews, particularly where participants had only a limited time to be involved in discussions. Where possible, efforts were made to have repeat interviews. This was particularly important for participants who were considered key informants, such as long-term residents or community leaders, and those with 'expert' knowledge on a particular issue (e.g. knowledge on local trees and plants, local institutions and cultural practices etc).

Depending on circumstances, a voice recorder was used to tape the interviews. It was realised that, in many cases, the use of the recorder only served to unnerve the participants. This was particularly important when conducting interviews in the forest reserve where suspicions about the implications of the research were rife. While many respondents in the first site (customary area) had no objection to the interviews being taped, many participants in Munyeta (government forest reserve) did not want the interviews to be audio-recorded. In this case, notes of the interviews were taken. Participants in Munyeta were often concerned about being quoted particularly when research questions directly touched their legal status in the reserve. This was one of the main challenges to be faced when working in Munyeta. The research work was at first treated with suspicion because of the harassment that the community has often experienced from forest officials. The suspicions were dealt with through a lengthy interaction with community leaders and members of the community in order to gain their trust. Still, some of the responses to the interviews in this area were treated with caution and repeat interviews were held with some members of the community. Moreover, the use of complementary methods (focus groups and mini-surveys) became more important for cross-checking results.

On three occasions, the research benefited from invitations by the male members of the local community to a social forum called '*Mphala*'. This is a traditional gathering of the men (outside work hours) of the community where various social issues are discussed and debated in a relaxed atmosphere. On these three occasions, however, the discussions revolved around the themes in the research project, such that these '*Mphala*' sessions could be considered as informal group interviews or indeed focus group discussions. Unlike in the formal arrangement, here, the participants debated the issues, corrected one another and provided historical accounts of issues surrounding local livelihoods and natural resources based on their own rules of discussion. The discussions were helpful, providing insights into local knowledge systems, local history and resource conflicts. At the same time, the research recognises that the views from these '*Mphala*' sessions largely reflected the men's point of view and may not be representative of other groups, especially women and youths.

#### **3.4.2 Complementing interview data with transects and direct observations**

The use of interviews generally worked well with other qualitative methods such as direct observation and transects walks. Some interviewers preferred to give emphasis to their responses by allowing the researcher to accompany them to the forest or farm plot. For example, herbalists took a keen interest in showing the researcher the type of trees used for medicinal purposes. In another case, forest users who specialised in supplying building poles or craft making also took some time to show the researcher the tree species used in their trade. As a result, while transect walks and direct observations could be viewed as distinct research methods in their own rights, they worked as a complementary approach to interviews, often taking place at the same time. Data collection with these methods was used in such a way that there was great flexibility rather than adherence to a strict process. Often, the context and availability of an opportunity would play a role in the data collection process. This flexibility and adaptability is not uncommon with qualitative methods of data collection. Lindsay (1997) notes that unlike quantitative research, strict adherence to well-defined procedures is quite rare and sometimes even unwelcome in qualitative research.

In three cases, however, transects walks were deliberately carried out for the purpose of identifying the different components (natural assets) of the environment used by households, and also to examine the livelihood practices in the study sites. In each site, at least a whole day was dedicated to this exercise. The transect walks involved visits to the local forests and other sites of importance with a community guide and two key informants (long-time residents of the areas) with detailed knowledge of the local ecology. This proved important for understanding the local ecology, livelihood practices, land-use and other physical details of the sites. The transects were also important for understanding local indicators of woodland conditions, resource harvesting techniques and other physical details of the area.

### **3.4.3 Interviews with representatives of organisations and institutions**

As earlier noted, apart from conducting interviews with local communities, interviews were also conducted with representatives of various organisations regarded as important actors who exert influence on local livelihoods-environmental interactions in the study sites (Table 3.2). 34 interviews were conducted with these actors. Although the study targeted particular office bearers who were thought to be the most appropriate persons for the interviews, it was not uncommon to be referred to another person in the department because of organisation ethos or procedures (e.g. being referred to a public relations officer). This, in some cases, was not very helpful to the research as some of the officers were poorly informed on the subject and would instead draw attention to some leaflets or newsletter that were supposed to provide the organisation's perspective on the matter. This does not appear to be unique to this study. A similar problem was encountered by Gillespie (2007) in his "*Sustainable Rural Tourism*" in Scotland. He notes that some officials answered some of the questions by asking him to consult some company documents which hindered the effectiveness of interview sessions.

In some cases, organisation ethos prevented the respondents from discussing certain topics that were considered 'sensitive'. For example, participants from state departments would not easily discuss certain elements of the national decentralisation policy or forestry policy. As one participant noted "...*that is a sensitive issue, I would rather not discuss it*".



In one case, the participant willingly discussed the controversial aspects but noted “.....*don't quote me, the matter is before cabinet*’. The silence surrounding the subject demonstrated the sensitivity and political nature of natural resource policy. In addition, this also showed how research is an ethical issue. In this regard, all respondents were assured anonymity except where some participants had no objection to being quoted.

These actors were asked either specific questions relating to study sites or general questions relating to the process of change in natural resources policies, including the design and implementation of SD policies (e.g. design and implementation of natural resources devolution programmes and agri-environmental initiatives). Organisations, such as the district council, agriculture and forest department, were asked questions relating to the implementation of these policies, their interest and input in the process and perceptions of local realities. The interviews allowed the research to examine how the various agendas and interests of these organisations influence local livelihoods and access to natural resources. The interviews also allowed the study to link findings at the local sites with district and national trends. As a result, the interviews were conducted in such a way that the researcher was going back and forth between participants in the community and these organisations. The organisations which participated in this research are presented in Table 3.2.

**Table 3.2 Interviews with representatives of various organisations**

<b>Type of organization</b>	<b>Name of organization</b>	<b>Key issues discussed with organization</b>
State departments	Forestry department	Changes in forest policies, relationship with local communities, implementation of SD policies, JFM and local participation, status of PES systems etc
	Agriculture department	Departments' perspective of local livelihoods, integration of environment in agriculture programmes, changes in livelihoods in the area, shocks and stresses affecting livelihoods, agro-forestry and conservation agriculture
	Community development and social welfare	Local participation in development, environment and development conflicts, involvement in environmental policies
	Department of environment and natural resources	Environmental Policy making process, adoption and implementation of sustainable initiatives, relationship with local communities, local environmental knowledge
Intergovernmental organizations	FAO	FAO role in agriculture and forestry policies, prospects and challenges of conservation agriculture, international perspectives on forest resources and agriculture, interests in local natural resources and livelihoods
International development NGOs	World Vision International Child Fund International Norwegian Embassy	Involvement with local livelihoods, development practices, local participation, integration of environment in development projects, conservation agriculture initiatives.
Southern Africa regional environmental NGOs	PELUM SAFIRE	Conservation agriculture, Challenges and Prospects of JFM in Zambia and SADC region, interest in local natural resource issues
Local government	Chongwe district Council National decentralisation Secretariat Ministry of local government headquarters	Development planning and the environment, prospects and challenges of decentralization, involvement in natural resource management, institutional conflicts, relationship with central government
International Environmental NGOs	World Wide Fund for Nature (WWF) Center for International Forestry Research (CIFOR)	Role of international NGOs in deployment of SD policies – e.g. community based natural resource policies and PES, Perception of local resource management systems, indigenous knowledge
National environmental NGOs	Community Based Natural Resources Forum (ZCBNRMF) Ornithological Society of Zambia (ZOS) Conservation Farming Unit (CFU)	Engagement with local populations in natural resource management, state of CBNRM in the country, prospects of CBNRM and PES Relationship with international institutions, Drivers of change in natural resource management
Political and traditional Leaders	Area Councillor MP and Ex- Minister of Environment Senior Chiefs	Political views on protected areas, decentralization and JFM, land and forest resource conflicts institutional and legal frameworks, engagement with communities

#### **3.4.4 Participatory exercises**

Participatory approaches are used in this study under the assumption that they provide tools that enable and empower people to present, share and enhance their knowledge of livelihoods and environmental conditions. Participatory research is now becoming an important component in geographical research (Crang and Cook, 2007; Demeritt, 2009; Hoggart et al, 2001; Kesby et al, 2005). Demeritt (2009) notes that across a variety of fields dealing with the environment and conservation, there is a growing recognition of the potential epistemic contributions to be made by drawing on the knowledge and experiences of lay people as an input into research. This explicitly recognises that scientific experts and researchers are not the only people with knowledge and much can be learnt from ‘ordinary’ persons (Kesby et al, 2005; Demeritt, 2009).

Three whole day participatory workshops were conducted in the study sites. Initially, participants, comprising representatives from various resource user groups and key informants, were recruited through the traditional leadership. In the first participatory workshop, it was noted that some of the people invited never turned up. However, as the meetings were held in a public venue, other members of the community who were not invited decided to attend the participatory meetings. It turned out that some of the contributions from these ‘uninvited’ participants were very good, such that in the subsequent workshops, the meetings were equally open to members of the community who were not formally invited. The main tool of data collection in these workshops was the focus group discussion method. According to Crang and Cook (2007:1), the use of focus group discussions is important for understanding the world as experienced and understood in the everyday lives of people ‘who live them out’. They allow groups of people to meet and discuss their experiences and thoughts about specific topics, not only with the researcher but with each other. The focus group discussions in this research revolved around the themes presented in Box 3.1.

### Box 3.1 Focus group themes

- Issues of resource access – which group of people have access to certain types of resources and why? What factors (e.g. institutions, actors) hinder/mediate access to resources by certain groups? Which components of the village rangeland/forest are highly contested? Who owns which component of the village rangeland/forest?
- Local resources management – which resources and services are held as very important for the community and why? What natural resources management regimes are applied to the village rangeland/forest? What conflicts arise as a result of these regimes? What is their notion of degradation and why? What practices on the farm plots, home-gardens or homesteads have environmental benefits? Why are some farming practices adopted and others not?
- Knowledge and power – what forms of knowledge do they think are important for policy making and conservation? Do members of the community have the ability to negotiate rights and entitlements and fulfill responsibility over resource governance? Is there motivation to claim rights over resource? Who is involved in decision making concerning participatory initiatives and conservation agriculture? What types of power resources are used by the community to challenge the decisions of powerful actors?

At each workshop, participants were divided into four groups (size between 5-7 members): men, women, male and female youths (see plate 3.1 and plate 3.2). This division took into consideration the fact that in a community, various sub-groups are likely to have different perspectives on an issue (Cadieux, 2008; Chileshe, 2005). In addition, the research took into consideration cultural factors that could hinder the discussion of many issues. Men and women were placed in separate groups, as men often dominate discussions in some African settings such as Zambia. In addition, in some Zambian societies, young people are equally expected not to speak much in the presence of elderly men and women. In this regard, separating these groups ensured that the views of women and the youth are adequately captured.



Source: Field photo

Plate 3.1 Shisholeka women participate in focus group discussions (plenary session)



Source: Field photo

Plates 3.2 Male youths in Munyeta participate in focus group discussions.

These focus group discussions were complemented by a range of other tools such as activity and seasonal calendars. Using the same groups, activity calendars (daily and monthly) and historical timelines were drawn for the purpose of gaining insights into people's daily

livelihood practices and events experienced by the community, such as environmental stresses and shocks, or change of political or economic regimes and how they affect people's livelihoods. This participatory process allowed this research to understand rural people's realities as they expressed them and not as the researcher thinks they should be. It also allowed participants to take part in a complex analysis of issues surrounding natural resources and livelihoods. More importantly, for marginalised communities, such as the 'squatters' in Munyeta, this process provided an opportunity to hear their 'collective' voice surrounding their circumstances in the forest reserve.

### **3.4.5 Mini-surveys**

The previous sections have described the various qualitative methods that were employed in the study. In addition to these methods, two mini-surveys were used to complement the qualitative methods as part of a multi-method approach. While a broad range of issues was examined through use of qualitative methods, the surveys were used to collect data on a narrow set of issues such as livelihood assets and land management practices.

#### ***On-farm surveys***

Two types of surveys were carried out in the study. The first survey was aimed at capturing variables relating to on-farm practices, such as the adoption of conservation agriculture practices and the application of indigenous farming techniques (see Appendix 1). A survey sheet that acted as a checklist was used to record on-farm practices in the two study sites. This list was generated from interview data and prior field visits and checked as observed (or not) using yes or no responses. The results obtained provided an empirical basis for comparing what farmers do in practice with various land management prescriptions from organisations working in the study sites. This approach was particularly useful for examining themes such as conservation agriculture; a 'sustainable land management' approach aimed delivering a range of ecosystem services (e.g. carbon sequestration and water conservation) in addition to enhancement of livelihoods. This survey was administered between November 2009 and April 2010. A total of 100 on-farm surveys were conducted in the study. The sampling procedure followed in the selection of farm plots was what might be considered as convenience sampling. Convenience sampling, according to Bryman (2008), is used when chance presents

itself to collect data from a convenience sample and it represents too good an opportunity to miss. At the start of the fieldwork, there were no plans to carry out on-farm surveys. However, during interviews, some participants preferred taking the researcher to their farm plots to stress some of the points in the discussion. After visiting a number of the farm plots, it was seen as useful to generate a checklist of some of the issues that participants raised and what was observed on the farm plots for the purpose of comparisons and understanding the distribution of on-farm practices among participants. There was no attempt to create a sampling frame as the approach relied on the willingness of the farmers to take the researcher to the farming plot. In addition, the survey was used when talking to farmers who were found working on farm plots during the field visits and agreed to have conservation. The mini-survey simply complemented the interviews. Although the on-farm survey data do not allow the research to carry out statistical tests because of the type of sampling used, it allows connections to be made with findings from non-scheduled interviews and provides important indicators of on-farm environmental conditions and the type of practices that farmers adopt on their farm plots (e.g. frequencies on conservation agriculture practices adopted by farmers).

The second survey involved administering a questionnaire with a fixed set of questions and standard responses (Appendix 2). Again, as in the use of the on-farm survey, the questionnaire merely captured elements that were identified in the interviews for the purpose of obtaining frequencies and general data. Rather than focus on the generation of data for statistical analyses, generalisations and prediction, the surveys used in the study were used to understand patterns of resource use and the distribution of livelihood assets among households, and provided a basis for comparison between sites. As a starting point, the number of households in the two villages of the first site were taken as a sampling framework. Unlike urban communities, where the demographic characteristics of an area are well-recorded, such statistics are rare in most rural communities of Zambia. Often, the sources of such statistics are census records published every ten years. These statistics, however, only go down to ward level, and not village level. As such, the study had to rely on village registers kept by the headpersons of the villages in order to get the number of households in the villages. The sample sizes for each of the study sites are presented in Table 3.3.

**Table 3.3 Livelihood assets survey conducted in study sites**

		Number of Households	Sample Size	Percentage (%)
Site 1	Mtanuka	110	34	30
	Shisholeka	120	36	30
Site 2	Munyeta ( Inside the Reserve)	98 households	28	29
	Outside the reserve	62 households	22	34
Total		390	120	30

Simple random sampling where numerical codes were attached to all the households and then selected through a table of random numbers was employed. A sample of more than 25% of all households in the study area was assumed to be sufficient for the study. Although this was an attempt to reduce bias in the selection of respondents, the limitations were numerous. In Munyeta, although the village head kept a register of households, it was realised that some households were either not captured in the register or were absent from the village for a long time. Other researchers have got round this problem by taking a village household census (e.g. Sachedina, 2008; Chileshe, 2005). A physical count was embarked on with the help of the village headperson and local cooperative leaders. During the process it was realised that the community in the reserve was characterised by a higher fluidity than in the other sites. This is because some of the residents were only semi-permanent or seasonal residents of the area. For example, there were some residents who only came to live in the area during the rainy season to grow and harvest crops and then retreated to areas outside the reserves, while others came into the area during the dry seasonal for charcoal production and retreated during the rainy season. Consequently, the character of the community was always changing. Others periodically stayed in the community to act as middle persons for charcoal producers. For such a community, there can be no reliable sampling frame. This is an important factor that limited the reliability of these data. In addition, there were challenges faced in answering some questions, especially the ones that required respondents to attach a value. For example, questions relating to quantities, such as yields and farm sizes, were difficult for most respondents. Many households simply had no idea about the exact acreage of their plots as the plots are not measured in metric units during the land allocation process. In many cases, physical features, such as a rock, a tree or a stream, would be used to mark where one field ends and another starts. In Munyeta, some of the respondents did not even know the boundaries of their land due to the disorganised nature of the land allocation process



In terms of farm yields, it was realised that respondents actually looked at yields in terms of local conventions such as the number of filled ox-carts or number of 'Khokwes' (granaries used as storage facilities) filled. Such measures did not easily render themselves to metric units as there are no standard sizes of *Khokwes* or ox-carts. Moreover, some respondents noted that they start harvesting some fresh products early on before the crop was properly ready to be harvested (i.e. as a coping mechanism). In this regard, by the time the crop is harvested for storage or sale, they had lost count of the cumulative amount of crop produced. Further, it was realised that many respondents thought of yields in terms of the 'main crop' (e.g. maize) and did not report on what they consider 'minor crops' (e.g. pumpkins and sweet reeds), especially where mixed cropping is practiced. This was not helpful for the survey, but it does cast doubt on the statistics of crop yields often reported in official publications and literature. For this exercise, this question was dropped from the survey sheet after the pilot testing stage.

In addition, cultural belief also inhibited the collection of quantitative data. For example, in terms of livestock numbers, many households would only give figures for cattle and goats, but not for chickens, arguing that culturally, they do not count chickens. These factors have limited the use of the results of the questionnaire survey in the analyses in this thesis, thus allowing the research to rely more on data from the qualitative methods than the surveys.

### **3.5 Data analysis**

The analysis started with the organisation of data from audio-recorded interviews, fieldwork notes from transects, interviews, focus group discussions and documents from public agencies, donor agencies and the national archives. Following Brymans' (2008) approach to qualitative data analysis, the text produced from this material was subjected to data coding which involved a systematic examination of the text in order to identify certain ideas, phrases, sentences and passages that represented certain phenomena and showed what was happening in the data ( see also Kitchen and Tate, 2002; Langdrige, 2004). The passages and phrases identified were then highlighted and a descriptive label was generated for each phenomena expressed. The codes generated in this way included people's practices, relationships, important events, local sayings and meanings, custom and tradition, mediating factors, elements of bureaucratic influence/power, tribal claims, experiences with state conservation,

values attached to resources, prejudices, local contestations, contrast situations, involvement in resource management, identified changes in resources etc. In addition, important categories and sub-categories were generated from the codes by examining similarities and interconnections between them. The Interpretation of results was done by relating these categories to research questions and theoretical ideas underpinning the research. This resulted in the identification of various actors' practices, interests, concerns and view-points on a range of themes surrounding livelihoods and conservation. Matrices and illustrations were also generated from these data to reflect trends, comparisons and contrasts. The viewpoints generated from local-level studies were considered as elements of local discourse reflecting the values and interests of local actors who participated in the study. This local discourse was analysed by comparing and contrasting it with the popular discourse prevalent in policy documents and texts generated from interview sessions with other actors.

The data obtained from the two mini-surveys were coded and analysed with the aid of SPSS. However, no statistical tests were carried out for the purpose of hypothesis testing and predictions. Instead, the data were analysed to show distributions and trends in selected variables to support qualitative findings. As already pointed out in the preceding section, there are many factors that limited the use of the mini-surveys, such that the use of inferential statistics was seen as not necessary. Moreover, the research aims and questions in this study do not require such an approach. In this regard, the results from these surveys are presented as percentages and frequency tables.

### **3.6 Positionality**

This research, conducted in rural Zambia, illustrates the importance of taking the researcher's position into consideration in any research project. As a young man from urban Zambia aligned with a Scottish University, the researcher was, in a way, different from the research participants in the two study sites. This was an important factor in the execution of the research as it had a bearing on the researcher's relationship with the research participants. For example, the research has pointed out how the researcher's position in Munyeta forest reserve was treated with suspicion, such that much more effort in this area was required to develop relationships and build trust with the community. Indeed, this process was also helpful in understanding cultural issues and matters that could raise ethical problems in the research such

as the type of questions to ask and as a male researcher, how to relate to female research participants in view of the customary norms of the area.

In Shisholeka, although our research team was not treated with the same suspicion as in Munyeta, we were still viewed as outside actors with capacity to influence policy or certain programmes. In the first week, for example, the village headperson invited us to a village committee meeting with the view of introducing us to the community leaders. However, the leaders used this as an opportunity to present the various problems that the community was facing. These expectations meant that we had to approach our work cautiously. In this regard, more time was spent in helping the leaders and members of the community understand what we were doing in their community. This process was helped by the fact that the researcher understands and speaks the language widely used in the area. This helped us to build alliances with some members of the community and to bridge gaps between the research team and the research participants.

### 3.7 Conclusion

This Chapter has presented the methodology employed in the collection, organisation and analysis of data in this research. It has argued that the type of research questions, the aims of the study and the fieldwork context are important in guiding the choice of the research strategy and methods. A large part of this work relies on qualitative methods of gathering, organising and analysing data. However, some variables, such as distribution of livelihood assets, on-farm practices, adoption of new conservation agriculture technologies and cropping patterns, were captured by two mini-surveys. Consequently, the study situates its methodology in a 'mixed methods' approach. The advantages of this approach in addressing socio-ecological issues have also been highlighted in the discussion. In particular, a mixed methods approach plays an important role of allowing for triangulation of findings. This helped in assuring the reliability of the data as the response patterns were compared across methods and from a diverse range of participants in the study.

This chapter has also highlighted some of the challenges faced in the collection of data. These include the impact of a bureaucratic culture and organisation ethos that sometimes acted as a hindrance to effective interview sessions. Besides these issues, there were also challenges concerning the physical accessibility of these study sites because of lack of all-weather roads

and bridges. Munyeta, for example, because of its forest reserve status, is characterised by low investment in infrastructure, such that many areas are only accessible by footpaths. In the rainy season, most streams in the area were usually flooded, closing off some of the study sites and creating delays in undertaking some of the fieldwork activities at these sites. Indeed, the fieldwork became an even more dangerous undertaking when it was learnt that crocodiles were sighted in some of the crossing points used during the research. Furthermore, during transects, the research team could not visit certain points in the forest reserve because of the fear of landmines as the reserve was once used as a base by Zimbabwe freedom fighters in the 1970s.

## **Chapter Four**

### **Natural resource policy development in Zambia: a historical perspective**

#### **4.1 Introduction**

This chapter situates natural resources management in Zambia in its historical context. In particular, it examines the evolution of environmental and natural resource policy as it relates to land and woodland resources. The chapter argues that natural resource policy and legislation in Zambia has not developed in isolation, but in concert with social, political and economic factors that continue to shape access, control and use of natural resources. A historical review of these factors provides an important basis for contextualising contemporary human-environment interactions at the local level where these policies are implemented. The chapter is divided into three main parts. The first section examines early institutional developments in natural resource management in the pre-colonial and colonial periods, and how these have influenced contemporary natural resource perspectives. The second section turns to a discussion of resource management in the first phase of post-independence Zambia (first and second republic) which was characterised by extensive state dominance in resource management. The last part draws attention to the new resource management perspective, primarily driven by the discourse of sustainable development.

#### **4.2 Pre-colonial Zambia: resource governance through ‘custom and tradition’**

According to Pretezsck (2005), information on pre-colonial natural resource use, practices and their institutional frameworks is scarce and was mainly lost in the colonial and post-colonial era when priority was given to scientific resource management approaches originating from Europe. In the available literature, natural resource use and management in Zambia (as well as many other parts of Africa) are often characterised by strong traditional values and practices which ensured a high degree of social responsibility and equitable sharing of resources within a natural equilibrium (Banda et al, 1997; GRZ-MTNR, 2007; Kowero, 2004; Banda, 2002). In this arrangement, land, wildlife, forests and other natural resources were viewed as collectively owned with access regulated through customary institutions and conventions. In addition, it is argued that low population density, low technological levels and local knowledge about the environment explains the limited degradation of natural resources at the time (Kowero, 2004). These communal resources, apart from providing for the subsistence

needs of the people, formed the basis of trade between different chiefdoms and kingdoms (Banda, 2002). Many of the pre-colonial communities were ruled by chiefs, kings, clan elders and priests who often ascended to their office through hereditary succession. These rulers, commonly referred to as 'traditional authorities' in the Zambian context, implemented customary rules and laws governing natural resources and arbitrated over any conflicts. Their legitimacy was often derived from the fact they were community founders or 'allies' of local spirits (Banda, 2002).

While it is generally accepted that pre-colonial resource governance in Africa was characterised by an equitable sharing of resources and limited degradation, it is important to note that in a few instances this was not always the case. In some places in Zambia (such as Barotseland in the Western province), chiefs, military leaders and other elites had their own hunting grounds and forests that contained valuable natural resources which were not accessible to the ordinary members of the community (Mubita, 1984). This is true for many societies elsewhere in Africa where social hierarchy and clientelism resulted in inequitable power distribution, and therefore presented significant challenges to equitable resource distribution (Benjamin, 2004). Moreover, it is not all societies where people's engagement with natural resources was always within a natural equilibrium. According to Benjamin (2004), in some parts of Africa (particularly the Sahel), pre-colonial communities were characterised by periods of environmental collapse and periods of recovery. Kowero (2004) notes that there is evidence to show that growing land scarcity in some areas necessitated movement to other parts to open up new land for agriculture. These examples demonstrate how, in reality, the natural resource situation in pre-colonial Africa was sometimes much more complex than acknowledged in much of the literature.

The dominance of customary natural resource systems as the only route to rights and obligations over natural resource was broken by the advent of colonialism. During this period, it is well-known that these systems faced suppression and restructuring through subordination to the colonial state and later the post-colonial state (Wiley, 2001; Banda et al, 1997; Banda, 2002). Since then, customary systems appear to have been in a steady decline as a notion of how resources may be managed (Wiley, 2001). Colonial rule in Zambia began in 1885, when through military conquest and negotiations, different kingdoms and chiefdoms were brought together to form one British colony called Northern Rhodesia. From 1885 to 1924, the new

territory of Northern Rhodesia was administered indirectly by the colonial office through the British South African Company (BSA) headed by John Cecil Rhodes. At this time, the territory was divided into two parts – North-Western Rhodesia and North-Eastern Rhodesia until 1911, when it was amalgamated into one territory and renamed Northern Rhodesia. In 1924, the British colonial office took over the administration of the colony.

#### **4.3 Colonial interest in natural resources: the beginning of the ‘state domain’ of resource management (1925 – 1963)**

Two issues are critical when looking at the colonial government’s engagement with natural resources in Zambia. Firstly, access to natural resources of occupied territories was a major driver of colonialism itself. The territory’s natural resources were seen as a vital source of raw materials for the industrialisation process that was taking place in the western world. In this regard, land, forests and minerals were subjected to patterns of exploitation and management that deviated from those of the indigenous people. Often, resources were expropriated for the benefit of western metropolitan economies at the expense of local economies (see Rihoy et al, 1999; Melekano, 2009). Secondly, the colonial era significantly changed the political landscape of the colonised territory. A new territorial structure was imposed on the new colony, and with it came new legal and administrative systems governing resource management (see Chileshe, 2005; Benjamin, 2004; Benda et al, 1997). The cultural and political organisation of the indigenous people was either ignored or subverted in favour of these new systems. These two issues significantly altered society-environmental relationships. As Benjamin (2004) notes, the colonial experience laid the foundation for the African state and established the principles and precedents that continue to shape the legal system, administration of natural resources and other society-state dynamics today. The influence of these colonial systems in Zambia is best exemplified in the governance of land and forest resources.

##### **4.3.1 Colonial land policy: motives of land alienation**

The colonial administration’s interest in land was reflected in the alienation of communal land for European settlement and export oriented-agricultural production. Between 1928 and 1964, large tracts of highly productive land were set aside and designated as crown lands for the exclusive use of the European population. The rest of the territory’s lands were classified as

native reserves for the benefit of the indigenous population (Chileshe, 2005; Adams, 2003). The land policy adopted by the colonial government was strongly driven by what has been termed 'the white settlers' dream' (Banda et al, 1997; Chileshe, 2005; Adams, 2003). In this dream, the colonial administration anticipated an influx of European settlers into Northern Rhodesia and set aside more land for European settlement than was required. Banda et al (1997) note that the 'white settlers' dream' was well expressed in the following words of Cecil Rhodes, the head of the BSA Company:

“My cherished idea is a solution to the social problem, that is, in order to save 40 million inhabitants of the United Kingdom, we colonial statesmen must provide new lands to settle the surplus population to provide new markets for the goods produced in the factories and the mines” (p36).

This view was reinforced by the Duke of Fife who was reported to have predicted in 1893 that:

“before many years are over, thousands of our countrymen who are overcrowded here (Britain) will take advantage of the enormous space, healthy climate, and immense resources which the territory (Northern Rhodesia) offers to those who will go in and possess the land” (Banda et al, 1997:36).

In these statements, it is clear that the settlers' dream was seen as a solution to a myriad of social problems facing Britain at that time. By drawing on the militant biblical words '*go in and possess the land*', it was clear that British interest would come first in the colonialists' engagement with land and other resources in the occupied territories, and like Moses in the Bible, the 'colonial statesmen' viewed themselves as the would-be saviours of 40 million Britons. The influx of Europeans never occurred, but huge tracts of land had already been alienated. European settlers who were already in the territory acquired disproportionately large pieces of land. Still, vast swathes of crown land remained vacant and came to be known as the 'silent lands' (Chileshe, 2005). On the other hand, indigenous people were overcrowded in native reserves (Phiri, 1980). As will be seen later, this became a major source of African resistance against colonial policies.



Most of the crown land was concentrated in and near the urban areas, in the mining areas of the Copperbelt and along the line of rail between Livingstone and the Congo border. On crown land, the settlers had easy access to economic infrastructure and other social amenities such as rail, roads and markets. By the end of the colonisation period, Zambia was not only characterised by a dichotomous agricultural sector, with large European commercial estates on crown land and small scale indigenous farmers in native reserves, but also with large socio-economic inequalities between the 'line of rail region' and the rural regions of Zambia (EAZ, 2007). While Crown land was vested in and administered by the Governor of the colony under English property law, the native reserves were administered by customary authorities. Under English law, land was held either as free-hold or leasehold by the European settlers (Mululwa, 2002; Misana et al, 1996).

While individuals holding land under leasehold or freehold were allowed to register their land with the crown, Africans holding land in customary areas were not allowed to do so. The decision not to register land for Africans was based on the understanding that under customary tenure, Africans do not own land (Muluwa, 2002). This system was seen as being 'sensitive' to people's customs and traditions. At the same time, it had effectively established a dual land tenure system, a 'superior system' governed by statutory law and a 'traditional (inferior) system' governed by customary law (Brown, 2010). Moreover, the system was designed to keep white settlers and Africans apart. As Brown (2010) notes, in most of British Africa, colonial authorities drew political and tenorial distinction between white settled areas and 'tribal areas'. The colonial state was thus bifurcated, not only spatially but politically. On the one hand, African subjects in rural Africa were governed by chiefs and customs, and lived on spatially distinct communal lands. On the other hand, 'citizens' (Europeans) were governed by modern civil law or rented private property (Brown, 2010). These native reserves also served the purpose of controlling native populations and ensuring that people paid hut tax to the colonial administration. According to Phiri (1980), the setting up of native reserves was a colonial and administrative strategy through which concerted African resistance to land alienation could be controlled and also through which hut taxes could be easily collected.

### **4.3.2 Land alienation and customary institutions**

Under British colonialism, customary institutions were not only disempowered, they were also modified significantly. Through administrative impositions, the colonial administration introduced a number of doctrines that were alien to customary land tenure in Africa (Chileshe, 2005). For example, the colonial administration assumed that under customary tenure, all land in the chiefdom was owned by the chief. In this regard, chiefs were granted considerable power over all land in the native reserves (Brown, 2010; Mululwa, 2002; EAZ, 2007). This, of course, was based on a western-centric view of landownership in the colonial period, in which the ruling elite had ownership and control over land (Okoth-Ogendo, 1999; Youee, 1978; see also Fay and Muchon, 2005, on the landlord-peasant dichotomy). This perception has persisted as current land policies still assume that chiefs have exclusive authority over land matters in customary areas. This has created a situation where the chiefs' legitimacy is exclusively tied to land ownership, rather than their role as representatives of the people in their chiefdom. Contrary to these assumptions, it is argued that in many of the rural areas in Zambia, land was not owned by the chief but by a community headed by the chief (Banda et al, 1997), and in other circumstances by individual families or lineages (Chileshe, 2005). Moreover, chiefdoms were composed of villages that had direct control over the land that they owned (Banda et al, 1997). Villages were based around closely linked families or clans headed by a clan leader or headman. The role of these headmen and sub-clan leaders was de-emphasised (and continues to be so) by the colonial administration through a system of gazetting chiefs, but not headmen and clan elders.

The institution of chieftaincy has also undergone significant changes since its encounter with the colonial administration. Although chiefs retained some form of 'independence' in the administration of native reserves, they became instruments of the colonial government, reporting to the district commissioners who were often the high-ranking officials of the colonial government in the district (ZNA District Note Books, 1925 -1963). Through the process of 'indirect rule', they became an extended arm of the colonial administration and collected taxes, recruited labour on behalf of the crown and ensured colonial policies were followed in native reserves (Phiri, 1980). The colonial influence over the chieftaincy institution was so great that, in many cases, the administration abolished, merged or replaced certain chieftaincies in order to have chieftaincies that facilitated their objectives. Apart from

controlling chiefs, colonial authorities ensured that the customary law that governed the people in customary areas was applied in a highly restrictive way. Banda (2002:98) notes that customary law was applied in customary areas to cases only as long as it was not repugnant to 'justice and morality'. Justice and morality were defined in terms of western views of morality and justice, and local decisions could be repealed by the native authority or common English law courts. Over time, the colonial authorities gained control over the chieftaincy and local institutions. In today's Zambia, the practice of undermining this institution has continued, despite the fact that more than 60% of Zambians continue to be governed through it. Banda (2002) also notes that in a bid to consolidate power, post-independence governments have often denigrated and interfered with the powers of customary authorities and maintain a general contempt for the principles and norms underpinning customary institutions. While the chieftaincy institution persists (albeit with modifications), the system of gazetted chiefs (but not headmen/headwomen) has continued. Under this system, chiefs are recognised and paid by the state and this often creates conflicts between their role as 'agents of the modern state' and as 'guardians of tradition'. Chiefs have been caught up in web of split loyalties, between being accountable to the people they govern under custom and tradition, and the modern state that gazettes and pays them. The identity and nature of authority of the modern day chieftaincy in Zambia are quite unclear. As will be seen in Chapter Eight, with the shift in natural resource policy towards participative governance, there is need for the role of chiefs and other customary leaders to be clearly articulated in natural resource policy.

### **4.3.3 Livelihoods and environmental conditions in the native reserves**

The land policy instituted at the advent of the colonial period is not only viewed as the genesis of inequitable land distribution in Zambia, but also as the beginning of massive degradation of soils and other natural resources in many parts of the country where African populations were often over-crowded in reserves (Phiri, 1980; Chilehe, 2005). The conditions in the native reserves could not adequately support and sustain people's livelihoods as arable land was in short supply. This is well acknowledged in literature (Adams, 2003; Chileshe, 2005; Phiri, 1980; Mululwa, 2002; Banda et al, 2002), as well as the official correspondence between colonial administrators (ZNA District Notebooks, 1925-1963). It is argued that in these areas, land clearance for farming and the harvesting of wood resources increased because of large populations, leading to environmental degradation.

Rather than implicate the new land and resettlement policies as sources of environmental degradation in the reserves, colonial administrators saw local people's over-production as the problem and sought to deal with environmental degradation in the reserves by restricting people's livelihoods through the reduction of cultivated acreages. The idea of keeping farming systems within the 'ecological carrying capacity' of the land was used to support decisions aimed at disrupting livelihoods in the reserves. This gives us a classical example of biological concepts being used for political and economic expediency. As African productivity grew, a decision was made to reduce acreage in the reserves. One district commissioner noted that:

“Over-production is a serious matter in view of the shortage of arable land in the reserves and as soon as the danger of from locusts is ended, acreage should be reduced” (Fort Jameson District commissioner, in Phiri, 1980:164).

Views such as these confirm many political ecologists' arguments that the use of orthodox models, such as 'carrying capacity', sometimes only served to undermine rural people's livelihoods (Stringer, 2009; Forsyth et al, 1998; 2003; Ecologist, 1995). In reality, measures to reduce acreages rose out of concerns that the growth of African agriculture was creating stiff competition for markets with the European settler farmers. This growth appears to have been taking place both on crown lands (where many natives were squatting) and in native reserves. These concerns were also raised by the Commissioner of Lusaka district, who notes that:

“Complaints have been made to me by Europeans of the nuisance that is being caused by the enormous increase in the business of what is called 'native farming'. It has become a custom among many land owners to sub-let their land to natives who pay monthly rent or a rent in grain. Cases have been brought to my notice where rent charged is 2/6 per month and in other cases 12/6 per year or alternatively three bags of grain. The squatters are a nuisance to neighbouring farmers who are continually troubled by petty larceny and larceny of growing crops” (ZNA District Note books, 1925-1963)

The struggle over land became the most important political issue between the colonial administration and the African population. Many indigenous people resisted forced

resettlements and opted to stay on crown land, creating a new category of land holding known as 'squatting'. Some squatters refused to be controlled by either the colonial administration or the customary authorities in the reserves. In some cases, those who had been resettled withdrew from the reserves to rent farm land from European settlers. It is evident from the official correspondence (ZNA District Notebooks, 1925-1963) that the task of controlling indigenous people was made even more difficult by some European settlers who collaborated with Africans by renting out their land or even giving it out freely. African resistance grew so much that in 1947, the colonial administration responded to these land pressures by creating a third category of land called native trusts for the common benefit of both Europeans and indigenous people (Banda et al, 1997; Chileshe, 2005). These lands were created from unutilised crown land and Africans were allowed to apply for land in these areas. According to Banda et al (1997), although theoretically this policy change appears to have given Africans access to crown land, the terms of sale and lease which were stipulated virtually eliminated African applicants. In the wake of calls for independence, land became an important symbol of the struggle.

#### **4.4 Forests in the colonial era: introduction of the 'fortress conservation' paradigm**

Having constructed the three land categories, colonial interest turned to the conservation of wildlife and forest resources on both crown and customary land, and forest policies were developed alongside wildlife policies. The interest of the government in conservation of forest resources was driven by two main factors. First, like land, forests were tied to the economic objectives of the colonial administration (Kajoba, 1999). They were viewed as an important source of timber for the growing export market and for local industries, particularly the copper mining industry on the Copperbelt. The importance of forest resources to the Copperbelt was evident when between 1946 and 1956, over 7 million tonnes of fuel wood were supplied to the mines to keep up production when coal was in short supply (ZFD, 1974).

Secondly, the conservation strategy was driven by the growing interests in the conservation of fauna and flora in Britain and other western countries in the early 1930s (Alste, 1999; Adams, 1996). According to Alste (1999), British conservationists piled pressure on the colonial government to begin conducting natural resource surveys in Northern Rhodesia with a view to creating conservation areas. As the principle of government responsibility over conservation was firmly established in Britain, the 'fortress conservation' approach was adopted by the

colonial administration for the management of wildlife and forest resources, an approach recommended by British conservationists (Alste, 1999). The principles, objectives and legal systems guiding this conservation approach were imported from the British environment to the new territory of Northern Rhodesia, with little regard to the differences in people-environment relationships between the two countries. In 1941, ordinances in wildlife and forests aimed at establishing protected areas were passed. With these ordinances, the ‘fortress conservation’ system was born and would continue to guide resource management in Zambia for the next 60 years.

#### **4.4.1 The Forest Ordinance of 1941**

The Forest Ordinance gave power to the administration to set aside pieces of land for the conservation of forest resources and declare them in the government gazette as protected areas (or gazetted forests). The objectives of these gazetted forests were (a) to protect land against erosion, desiccation and to maintain river flows; (b) to supply timber at an economic rate to industries and maintain a stable export rate; and (c) to promote the practice of sound forestry and appreciation of the value (e.g. scenic value) of forests and their resources (fauna and flora) among the local people. It appears that these were the main objectives of British colonial forest policy throughout Africa (Kajoba, 1999).

In line with these forest objectives, the colonial government set up two types of protected areas called ‘forest reserves’ and ‘protected forest areas’. The two played different functions and had different levels of restrictions. The ‘forest reserves’ were principally established for the preservation of forest resources and protection of water catchment areas, while the ‘protected forest areas’ were set up to fulfil both environmental protection and productive functions (e.g. timber production). In these gazetted forests, persons were prohibited from settling or carrying out any livelihood activities without a licence. The ordinance clearly stipulated that prohibitions included “felling, cutting, taking, working, burning or removing any forest product” (NRG, 1946:1241). It was also forbidden to graze livestock in the reserve, to break up land for cultivation or even to enter a reserve with a cutting tool without a licence. While declarations of forest reserves were restricted to crown land, protected forest areas could be established on both crown lands and customary land without consultations with the people in proximity to these resources.

Perhaps an important provision that must be noted about this ordinance was its inclusion of chiefs and local councils in the management of these resources. Although the approach effectively placed resource management in the government's control and did not legally recognise existing customary management systems, Section 10 of the ordinance allowed the native authorities (at the discretion of the governor) to issue licences and to collect fees and royalties in respect of forest products from their areas, and these could be paid into the treasury of such an authority (NRG, 1946). In this regard, customary authorities and local councils were not totally sidelined by the colonial administration.

#### **4.4.2 Fortress conservation and customary forest management**

The failure of this approach to protect both natural resources and people's livelihoods has been discussed in the literature (Mery et al, 2005; Siurua, 2006; Hulme and Murphree, 1999; Bryant and Bailey, 1997; Campbell, 2000; Primak, 1993; Renzin, 2009). Although these critical views largely emerged in the 1990s, in Zambia, the fundamental difficulties of transplanting this western-styled approach to a southern environment were immediately noticed and acknowledged by colonial authorities. According to Alste (1999), the potential conflicts between people's livelihoods and conservation approaches suggested by British conservationists were already of concern to some of the officials. As early as 1933, in response to the government's establishment of wildlife protected areas, the Secretary of Native Affairs urged the government to exercise caution in the implementation of these approaches and remarked that:

“The preservation of game has recently been very strongly urged by the government, but in my view the interest and welfare of the native community must be the first consideration and I would deprecate any immediate action. I suggest conditional sanctuaries pending fuller reports to be submitted after the effects have been observed on the native inhabitants and upon game in general” (Alste, 199:31)

Inherent in the new approach was the separation between environmental and societal processes. Nature had to be preserved to maintain its naturalness and, in this regard, the penalty for disturbing the integrity of ecological systems would include ‘restoration of forests to their natural state’ (NR Government, 1946). This was purely a preservationist paradigm which attempted to maintain ecological systems in their untouched natural state. This pre-

occupation with 'the natural' was rooted in western and scientific views of nature based on equilibrium thinking (discussed extensively in the literature review). It is these views and values that were being imposed on local inhabitants in the colonies. As such, one of the goals of the new forest ordinance was to 'promote an appreciation of the value of forests among the local people' (Kajoba, 2000). Implicit in this objective was an attempt to change people's norms and values and to re-align them to 'modern' values. Undoubtedly, a new ecological order, as pointed out by Bryant and Bailey (1997) had been established, overriding local interests and people's interaction with nature. New modes of resource use and access were now established, 'criminalising' certain types of livelihoods and re-labelling people's occupation of certain areas as 'encroachment'. At the same time, like many parts in Africa, the creation of the state domain of conservation set the stage for the dichotomisation of state and local (customary) natural resources management systems (Benjamin, 2004). It also set the stage for the separation of agricultural areas from conservation areas (Fay and Muchon, 2005). These dichotomies have been carried forward up to today and are proving hard to break even under new natural resource management strategies (see Chapters Eight and Nine).

These ordinances in both wildlife and forestry only served to weaken customary management systems and undermined local decision-making structures. The state had firmly exerted its influence over the country's natural resources and removed incentives for people to manage their commons (Temm and Melekom, 2001). There were no attempts at this time to recognise local resource management systems or to adapt them to the new protected area system. Through this centralised approach, resource management was now confined to bureaucratic and technical circles that aligned their strategies to centrist state control (Adisu and Croll, 1994). The bureaucrats and technical experts ignored both people's skills and perspectives in resource management, and advanced their own ideals of what they considered as desirable, but were nonetheless impractical in terms of economic and political imperatives. Adisu and Croll (1994) further argue that these modes of resource management ignored the fact that these same people had the potential to marginalise resource policy in their micro-environment and to reverse the process. True to Adisu and Croll's (1994) observation, Banda (2002) notes that indigenous communities did not appreciate the new prescriptions that came with western conservation approaches and began to ignore them. Kajoba (1999) also argues that the reserves were not well-received and local resistance was reflected in communities' illegal



harvests of forest resources. By 1961, Kajoba (1999) reports that 919 forest offences were reported and a total of 874 convictions were made.

#### **4.5 Post-colonial administration: resource management in the first and second republic (1964 -1990)**

The post-colonial period in Zambia can be divided into three periods. The first period is referred to as the First Republic (1964-1972). During this period, the country's political system was characterised by multi-party politics of which the ruling United National Independence Party (UNIP), headed by Kenneth Kaunda, was the largest party. In 1972, multi-party politics were banned and UNIP was established as the sole political party. This period ushered in the second republic and was to last until 1990 when multi-party politics were re-introduced. This new multi-party phase (contemporary period) is what is generally referred to as the third republic. For the purpose of this thesis, the period between 1964 and 1990 (UNIP era) is discussed as one major period as state policies remained relatively unchanged. The third republic, on the other hand, was marked by policies which deviated from the UNIP era significantly.

##### **4.5.1 Economy in the first and second republic**

In 1964, when independence was gained, Northern Rhodesia was renamed Zambia. A new political and economic era had begun. While Zambia's economic outlook was bright and the per capita income was one of the highest in Africa (because of the blossoming copper economy), the post-independence government had inherited a country marked by deep regional inequalities. There were marked differences in terms of socio-economic development between the areas along the line of rail (where crown land was dominant) and the rural regions of the country. The rural areas lacked schools, hospitals, roads and were largely characterised by a traditional economy based on agriculture. Within the agricultural sector, inequalities were reflected in a highly dualistic agricultural structure. In this structure, European farmers dominated most marketed crops, and there was little development of small scale, semi-commercialised African agriculture (Kean and Wood, 1992; Malekano, 2009). Thus, at independence, there was an immediate focus on reducing these inequalities by investing in both the physical and social infrastructure in these rural areas. The emphasis was on modernising the rural economy through the establishment of schools, industries and mechanised agricultural production systems. Clearly, the development paradigm adopted at

this time was that of modernisation and industrialisation. The focus was on creating an economic base to stimulate industrialisation and economic growth (EAZ, 2007).

#### **4.5.2 Agriculture policies in the first and second republic**

During this period, agriculture was seen as having great potential for boosting economic growth and improving the quality of rural life. Investment in agricultural technology and extension became the dominant rural development approach. The economic system adopted was also guided by the political ideology of Kenneth Kaunda, who developed a philosophy of 'humanism' which included strong socialist perspectives of social and economic equity and the need to control capitalist tendencies (Kean and Wood, 1992). In this regard, modernisation and industrialisation had to be achieved within the equity oriented approach of the humanistic philosophy. To achieve these pro-socialist goals, the government adopted an interventionist strategy and became the main investor in all sectors of the economy (EAZ, 2007).

The government sought to increase market oriented agriculture and to mechanise the agricultural system through the expansion of agriculture extension services, the creation of a network of agriculture marketing depots, the introduction of subsidised tractor ploughing services and increased subsidies on fertilisers (Kean and Wood, 1992; EAZ, 2007). Rural agricultural landscapes were viewed as purely production spaces, with no emphasis on agri-environmental care. In addition, the state retained the colonial policy of emphasising maize production (particularly to benefit the urban population). Moreover, the state encouraged the development and production of high yielding maize hybrid varieties at the expense of local varieties. Hybrid maize varieties fetched a high market value and were well supported by subsidies. The implications of these agricultural reforms on local livelihoods are discussed in Chapter Nine of this thesis.

The vulnerability of these reforms was exposed when in the 1970s, copper prices fell drastically and the economy took a downturn. The government was forced to borrow to support these plants and maintain public expenditure, including the subsidisation of maize production (GRZ-MTNR, 1998). By the mid 1980s, as hopes of recovery began to fade, it was realised that the provision of subsidies was no longer sustainable. Real GDP fell significantly (by over 50%), inflation was escalating and by 1992, Zambia became one of the most heavily indebted poor countries in the world (GRZ-MTNR, 1998). The country was characterised by rising poverty levels as urban employment shrank and at the same time agricultural production

declined. The modernisation project had yielded very little return. Many of the projects (fertiliser plants, textile industries, motor-vehicle plants) spread throughout the country had become 'white elephants' and were running on government subsidies. This decline in the country's economy was to have significant implications on both livelihoods and natural resources. These are discussed in the later sections of this chapter.

#### **4.5.3 Land reforms in the first and second republic: 'no value' land policy**

Despite the desire to reduce inequalities and boost rural productivity, the land reforms undertaken by the new government did not have the redistributive effects expected of Kaunda's humanistic ideologies. Although some scholars describe the changes that occurred as 'radical' due to their socialist character (Chileshe, 2005; Mululwa, 2002), the changes (in as far as responding to pressures in native reserves was concerned) were merely cosmetic. While all land was now vested in the presidency, and crown land was renamed state land, the distinction between state land, trust land and native reserves was retained. Moreover, the new government maintained some aspects of the colonial administration's indirect rule, and recognised the role of chiefs in allocating land trust and native reserves, while the state took over control of state land (Brown, 2010).

Like the colonial administration, land remained a tool through which the state continued to exert its influence over the population and the 'colonial orders' that guided the management of customary land remained in place (Mululwa, 2002). In 1975, freehold was abolished through the Conversion of Titles Act and converted to leasehold. This meant that land was no longer owned by anybody except the state. Instead, individuals could obtain a 99-year lease (Brown, 2010). At the same time, land was deemed to be of no inherent economic value in itself other than the property on it. The key thinking here (in line with the humanist philosophy) was that land was for all the people (i.e. it was a 'gift from God') and did not require to be individualised or sold (Mululwa, 2002). This idea drew parallels with customary tenure systems where land is not sold and assumed to be the property of the community. On the other hand, this act was not accompanied by a physical transfer of land from state land to customary land to redress the land appropriations that occurred during the colonial era. Instead, some of the private farms on state land were taken over by the state (in line with socialist policies) and became an arena of mechanised agricultural production run by parastatal companies. While the government maintained the status quo for customary areas, where environmental

conditions were very poor, it also removed incentives for leaseholders to develop their land by declaring land 'valueless'. This may have compromised land stewardship in leaseholds and created conditions for environmental degradation on state land as well.

#### **4.5.4 Forest policy: consolidating state control in natural resources**

The forest sector was not exempt from the modernisation project. The government focused on the development of both indigenous and plantation forests as an important revenue base. In addition, plantations were viewed as important undertakings to boost the wood industry and to generate timber-dependent employment. In line with nationalist policies, a parastatal company was set up to run these plantations. The belief that industrial forestry could provide an important base for economic growth was further supported by the international development agencies. In 1968, the government was given a loan by the International Bank for Development and Reconstruction for its industrial plantations, the first of its kind for forest resources (GRZ- FD, 1974). According to Pretezh (2005), these international organisations argued that massive short-term liquidation of forest resources, capital investments in timber industries and later re-investment in plantations would permit the necessary growth of the forest sector. The poor, it was assumed, would benefit from a trickledown effect of the growth. Riding on these views, Zambia increased its protected areas from seven at the time of independence to 484 protected areas covering 9.6% of the country's land mass (Mbindo, 2003), while 50,000 hectares of plantations (of pine and eucalyptus species) were established. This was an era of valuing natural resources for their role more in the national production agenda than local livelihoods. Forestry conservationists were so narrowly focused in this era that they also ignored areas that could have complemented mainstream forest activities such as the restoration of degraded areas, the development of indigenous rangelands and agriculture land use systems with a bearing on forest development and the environment in general.

During this period, the Forestry Department became the most formidable estate manager in the country. Instead of relaxing the protected area approach, the state strengthened it and gave the Forestry Department exclusive powers to manage the country's forest estate. Many provisions of the 1941 forest ordinance were retained, and some modified to give the state more authority over the country's forest resources. The Forestry Department operated as a police department and its power to protect forest resources was extended to searching rural people's premises without warrant.

The basic categories of forests were retained with changes only in name. Forest reserves were renamed national forests, while protected forest areas were reclassified as local forests. The state also retained the power to declare any area a protected forest without getting the consent of communities or other stakeholders, except where the area was under the jurisdiction of the local authority. The right of leaseholders, free-holders and customary authorities to manage trees, woodlands and forests in their areas was completely taken away and all tree ownership was now vested in the presidency. Thus, forest management became even more centralised and undemocratic than in any other period in the history of Zambia.

Customary forest management simply ceased as a category of resource ownership and management in the 1965 forest policy and 1973 legislation. Forested areas in customary areas were simply classified as ‘open forests’ or ‘open areas’, an implication that there is ‘no known management system’ in these places and resource extraction could be undertaken by anyone without any form of restrictions. In this regard, policy documents (GRZ-MTNR, 1994; 1999; 2007; GRZ-MTNR/FAO, 2010) classify woodlands and forests in Zambia into three basic categories of national forests, local forests and open forest areas. This categorisation of customary forests as open forests areas, served an important purpose for the state. Since trees, woodlands and forests in open areas did not belong to any known communities and lacked protection, the state could declare any area a government reserve without consulting the people. For example, the Zambia Forest Action Plan (ZFAP) notes that “forests are vulnerable in these areas since they do not receive any physical protection and the chiefs decide on land use according to the villagers’ requests” (GRZ-MTNR, 1998:31). Such a view is no doubt rooted in orthodoxies that have always misrepresented common property systems as inhibitive to sustainable resource management (Bryant and Bailey, 1999; Robbins, 2004; Armitage, 2004; Campbell, 2000). This provided the justification for claiming large parts of customary areas for conservation in this period. Moreover, all revenue generated from the commercial harvest of trees in these open forest areas only accrued to the national Treasury. This continues to create a lot of tension between the state and communities in proximity to these resources.

One member of the House of Chiefs (ZACF, 2010) notes that:

“In the past we had a little say in the management of these resources but now we have been turned into spectators and we watch while foreigners harvest the timber and the foresters stamp it. Both the timber and the revenue are gone! Out of our community and nothing remains for our people”

The classification of customary forests as open areas appears to be in conflict with land policies that placed the management of customary land under customary authorities. In this arrangement, customary land is governed by customary conventions and norms but not the resource on it. The results of this study show that the classification is quite misleading as many of these forests, in reality, fall under various types of customary management systems. As will be seen in Chapter Seven, despite decades of marginalisation of customary resource management systems in Zambia, many of these systems have persisted and continue to offer viable solutions to the problem of resource degradation in Zambia. Moreover, it is now quite clear that this reliance on exclusionary measures and a physical policing of forests has not stopped degradation. Kajoba (1999) reports that, in some cases, encroachment in reserves started as soon as a place was declared a reserve. This was in apparent defiance of the approach and in the communities’ defence of their livelihood interests. The strategy also failed due to a lack of technical skills, weak institutional structures and corruption in the state bureaucracy. By the 1990s, it was evident that industrial forests could not deliver the stream of economic benefits with which it was associated. Between 1989 and 1993, the forest sector’s contribution to GDP was lower than any other sector (GRZ- MTNR, 1998).

#### **4.6 Third Republic (1991 to present): economic reforms and natural resources**

The declining economic standards and increasing poverty levels in the country acted as a strong catalyst for political and economic change in Zambia. Riding on the wave of democratization that was sweeping across southern Africa, the Movement for Multiparty Democracy (MMD) came into power in 1991 after defeating the government of Kenneth Kaunda in the first multi-party elections since 1972. In an attempt to stabilize the collapsing economy, the new government wholly embraced neo-liberal economic policies and structural adjustment programmes aimed at curbing inflation and stabilising the economy. This was a

complete reversal of the socialist type of policies pursued by the Kaunda government. The reforms were to have significant effects on both land and forest resources management.

#### **4.6.1 Changes in land policy: market based reforms**

The drive towards-market based land reforms in Zambia was supported by the World Bank and encouraged as a tool for attracting direct foreign investment and reducing poverty. It was assumed by many supporters of these policies that private tenure would improve security of tenure, reduce uncertainties and lead to long-term investments with significant environmental benefits such as planting of trees and soil improvement (EAZ, 2007; GRZ-MTNR, 1998; 2007). Moreover, land with a 'market value' would allow poor farmers to get mortgages of much needed loans to reinvest in agriculture and other enterprises. In other words, one of the fundamental ways of dealing with the problem of poverty (and even environmental degradation) in rural areas was to institute land reforms that would reflect the 'true' value of land. These reforms were envisaged in the form of converting customary land into private land holding. Customary land holding is represented in most of these views as inefficient, wasteful and unproductive. The Economic Association of Zambia (EAZ) (2007:54) notes that "Customary tenure is characterised by inefficient and wasteful utilisation because most of the land is under communal activities such as grazing".

In contrast, private land tenure was viewed by the new government as key to releasing an entrepreneurial spirit and curbing this inefficiency that characterised customary systems. In this regard, the ruling MMD (1991:7) argued that new land policies would "attach economic value to undeveloped land, encourage real estate agency business, promote the regular issuance of title deeds to land owners in both rural and urban areas". As already noted in Chapter Two, these views represent an oversimplification of how customary systems operate in reality. Customary systems are actually complex in practice and are not always characterised by inefficiencies as generalised here (Bryant and Bailey, 1997; Meizen-Dick and Mwangi, 2009). Chapters Five and Seven of this thesis present empirical evidence that demonstrate the complexity of customary land holding systems. However, these orthodoxies provided the basis for the 1995 land reforms, primarily aimed at ensuring land is released for private investments to support a neo-liberal economic agenda.

The move towards a market-based economy was also a political promise by the ruling MMD (Metcalf, 2005; Brown 2010). The MMD, in its 1991 Manifesto, promised to reverse the land policies of the Kaunda government by institutionalising ‘a modern, coherent, simplified and relevant land law code intended to ensure the fundamental right to private property and ownership of land’ ( p7). This was obviously a major departure from the ‘no value’ land policies of the Kaunda government, but, in a way, parallels the policies of the colonial administration. By representing private property as ‘modern’ and ‘relevant’, we are once more confronted with another orthodoxy view that sees private land holding as the accepted norm while other forms of property holding are situated as pre-historic, with no relevance to the modern age.

The desire to abolish customary tenure becomes more visible in the Land Act adopted in 1995. This was crafted in such a way that, over time, conversions from customary land to leaseholds would diminish the former as a category of landholding. Although the Act retained customary tenure as a category of land holding (after protests from customary authorities, civil society and other groups), it allows conversion of customary land to leasehold by both customary and non-customary actors. Under this act, chiefs can grant both customary and non-customary actors permission to convert customary land to leaseholds, provided the use of the land will also benefit the local population (e.g. in terms of job opportunities). On the other hand, land originally converted from customary land can never revert back to customary tenure once its intended use ceases (see GRZ, 2005). This is because the Land Act does not provide for leaseholds to be reconverted into customary land. In this regard, customary land will continue to diminish while private land holding will continue to increase (ZACF, 2010). The Land Act abolished the two categories of native reserves and trust lands and merged them into one category called ‘customary land’. In addition, customary land in the Land Act of 1995 retained its inferior status and cannot be used as collateral for loans or for purposes of insuring developments on the land (see also Mululwa, 2002). According to Brown (2010), following the passing of the 1995 Land Act, the Ministry of Lands was handling an average of 2000 conversions annually from customary tenure to leaseholds.

According to Metcalfe (2005), through this land act, traditional rulers have not only become land authorities, but have also become a gateway to investment. Their approval and recommendation on external investment is the first important step in securing a lease on



customary land. While this is obviously in line with the state's quest for attracting direct foreign investment, it has also created an opportunity for rent-seeking behaviour (Mercialfe, 2005). In addition, it has increased conflicts between traditional authorities, who still want to retain land for their subjects, and state authorities who are pressing them to release the land for developments. These conflicts are well exemplified in the following statement by Chieftainess Nkomesha of the Soli people in Chongwe:

“The government and most people, especially foreigners are telling me that I am a very difficult chief and that I am stubborn to foreigners. Yes, I am because it pains me when I see people being displaced from their original land just because of the love for money. I need to protect people from unnecessary displacement” (Kachali, 2007).

Again, like the 1975 reforms, this act did not have any redistributive objectives to correct past distortions in land redistribution. Unlike other countries in the region, such as South Africa and Namibia, where redistributive objectives characterise land reforms (Wiley, 2001), these distortions may become a permanent feature of the Zambian land situation. It is now generally agreed that the decline in customary land will increase pressure on agricultural land and constrain access to land for the poor (ZACF, 2010; Chapota, 2009). This is the land that since colonial times has been most accessible to the 1.5 million small holder farming families that make up 60% of Zambia's population (Chapota, 2009). At the moment, 40% of these farmers subsist on a hectare or less (Chapota, 2009). These land constraints may seem like a paradox for a country that is believed to be a 'land abundant' territory.

While it is true that Zambia is a land abundant country, it is important to note that much of the customary land is dominated by hostile physical conditions (scarps, swamps, mountains and poor soils) and lacks public investments such as roads, schools, health centres and many other amenities (ZAFRC, 2010). Moreover, 75% of all fertile land (alienated in the colonial period) is on state land where large private estates operate. To date, what continues to be alienated for farming blocks and private investments constitute the best land. In this regard, what is often termed as 'unutilised land' is land whose economic potential is very low.

The ZACF (2010) notes that:

“after accounting for state lands, commercial farms, wetlands, game management areas, national parks and proposed new farm block schemes, it becomes clear that the potential for expansion of customary farmland is not as commonly perceived”(p3).

From these arguments, it is clear that land constraints in a ‘land abundant country’ are not a paradox; economically viable arable land requires access to basic services, water, schools, and roads and markets (Chapota, 2009). This underscores the importance of making a distinction between the total stock of unutilised land in a region and the stock of land that can be productively utilised, given the available socio-economic infrastructure and its physical conditions. This situation in Zambia shows that we must approach the argument that private tenure will lead to poverty reduction in developing countries with caution. Quite plainly, the reforms are rife with confusion, contestations, corruption and inhibitive bureaucratic procedures (in converting to title) that disfavour the poor (see also Brown, 2010). Perhaps what will be helpful at the moment is to create a tenure regime that allows customary land holders to hold ‘certificates of occupancy’ which allow them to enjoy the same rights (such as using the land as collateral) as those with title, without alienating the land to state landholding. Such reforms are currently going on in Uganda, Mozambique and Ghana (Wiley, 2001) and have been hinted at in the current constitutional making process in Zambia.

#### **4.6.2 Changes in woodland and forest policies: towards restitution and inclusion?**

In the Third Republic, changes in forest policies were driven by a combination of three main factors: (a) economic reforms; (b) the political discourse of good governance; and (c) international discourse of sustainable development.

##### **(a) Economic Reforms**

Economic reforms affected forests in two ways. First, it is argued that the withdrawal of state intervention in agriculture significantly affected crop and livestock production and created food deficits in rural areas. In turn, this increased the pressure on natural resources as households turned to non-farm forest products for survival, while others began to expand into virgin forest in a bid to acquire fertile virgin lands to replace fertiliser-starved soils (Kajoba and Chidumayo, 1999; Kajoba, 1999; Mbindo, 2003). In addition, the loss of jobs through privatisation and public sector reforms triggered an urban-to-rural migration which added

further pressure on forested lands, as some of these migrants began to settle on forested lands. Indeed, some studies report an increase in encroachment into protected forests during this period as shrinking urban employment opportunities forced many to take on farming (Kajoba, 1998; Mbindo, 2003; Chidumayo, 2001; GRZ-MTNR, 1998). With these migrants settling in such areas, the encroachment of the cash economy in remote areas where forest reserves are located was inevitable. The urban-rural migrants, dependant on a cash economy, were instrumental in driving land use changes in forest reserves through charcoal production for sale or conversion of forested lands into agriculture for cash crops production. In some areas, the settlement of migrants into forest reserves was encouraged by traditional rulers with an interest in the degazettement of forest reserves or seeking to bring such lands under their control (see Kajoba, 1999; also Chapter Six). According to Mbindo (2003), forest cover in Zambia, which was at 39,755,000 hectares in 1999, had reduced to 31,346,000 hectares by 2000. This situation forced the state to re-examine its approach to the management of woodlands and forests.

Secondly, the Forestry Department itself, as part of the public sector, was significantly weakened by retrenchments and reduced budgetary allocations which were part of structural adjustment measures aimed at dealing with a bloated public labour force and increasing efficiency. As forest degradation continued and the capacity of the Forestry Department to regulate and manage natural resource weakened further, there was a realisation that a fresh approach to the management of resources was required. Moreover, the approach had not delivered the stream of economic benefits that it was associated with in the 1960s and 1970s. The wisdom of exclusive state resource management was tested and it was clear that solutions lay outside the state domain of conservation.

#### **(b) Good governance and decentralisation**

The embracing of democratic ideals, such as participation and devolution promoted by the discourse of good governance, provided a further impetus for changes in natural resource policy in Zambia. Exclusionary policies are viewed as undemocratic and incompatible with the goals of participatory democracy, accountability, transparency and efficiency that are promoted by the discourse of good governance (GRZ, 2004). In 1991, the Local Government Association successfully campaigned for the autonomy of local councils and since then the country has embarked on major local government reforms aimed at devolving a wide range of

responsibilities in various sectors, such as education, agriculture, health and forest, to local councils (GRZ, 2004). In 2004, a national decentralisation policy to guide these reforms was launched. The importance of this policy is that it renders political support to efforts aimed at increasing people's participation in forest management and places the management of local forests under local governments as community representatives. While this represents an important milestone in the history of resource management in Zambia, there are a few areas where the policy appears to be in conflict with new forest policies. These are discussed extensively in Chapter 8 which deals with decentralisation and forest management in detail.

**(c) Internationalisation of the environmental agenda**

Parallel to the political and economic development in the country, the growing internationalization of the environmental agenda provided an even more important opportunity for reforms in natural resources management. While the prevailing economic constraints were instrumental in forcing the state to re-examine its conservation strategies, it was the increased international attention given to the environment that would finally create a change in Zambia's environmental and natural resource policies. During this period, the international discourse of sustainable development provided a new perspective of looking at environmental and natural resource issues. It represented a major paradigm shift for resource management in Zambia, as it reconceptualised the relationship between conservation and development. It tied the conservation of resources to issues of poverty reduction, livelihood enhancement and ecosystem services. In this conception, bureaucratic systems were no longer viewed as the most appropriate approaches to delivering effective resource management. The new emphasis was on participatory approaches that would be beneficial to both the environment and people's livelihoods. This discourse provided a set of alternative policies that, arguably, seem to have revitalized the nation's faltering environmental agenda.

**Table 4.1 Policy derivatives of sustainable development in Zambia’s new conservation instruments**

<b>Key Elements</b>	<b>Zambia (national) Sustainable Development Framework</b>	<b>International Sustainable Development Framework/ Concept</b>
Decentralised environment and resource management (JFM approaches and CBNRM approaches)	Decentralisation Policy Forest Policy (1997), Forestry Act, 1999, Wildlife Act (1998), Local Government Act of 1991	Agenda 21 Chapter 28 ( Role of Major groups and Local Agenda 21)  Rio–Declaration (Subsidiarity Principle)  Forestry Principles
Benefit Sharing (JFM and CBRNM)	Forest Act and Wildlife Act	Agenda 21 Chapter 3
Conservation Agriculture, Agro-forestry etc	Agriculture Policy, National Environmental Policy (NEP)	Agenda 21 on Sustainable Agriculture  UNFCC
Forestry Farming	Forest Policy	UNFCC
Multiple conservation objectives	Forest policy Wildlife Act NEP	Convention on Biological Diversity, Agenda 21

#### **4.6.3 Role of development agencies in delivering sustainable development (SD) policies**

Changes in natural resource policies owe much to the influence of international organizations that have played a crucial role in the delivery of sustainable development policies in Zambia. As sustainable development became a universally acceptable development and natural resource paradigm, international aid agencies became the emissaries of this discourse. National policy and planners were implored to address the links between the environment and socio-economic issues. This implied making drastic changes to policies and legal frameworks guiding conservation.

Aid agencies appear to have repackaged their aid to include issues of sustainable development in the so called ‘greening of aid’. While organizations such as the World Bank made the ‘*reconciling of the environment and development*’ a conditionality for obtaining financial assistance, others were at hand to provide technical assistance (e.g. UNDP, WWF, Norwegian Embassy) for the formulation of sustainable development policies and the domestication of international environmental conventions, such as the convention on biological biodiversity (CBD), the UN Framework Convention on Climate Change (UNFCCC), the Convention on Combating Drought and Desertification. These SD frameworks have provided important guidelines for Zambia’s environment policy. This period also coincided with the development of World Bank supported poverty reduction strategies for highly indebted poor countries (HIPC). In Zambia’s poverty reduction strategy paper (PRSP), poverty goals were linked to

the sustainable management of natural resources (McConnell, 2008). Similarly, the Fifth National Development Plan (2006 -2010) that succeeded the PRSP acknowledged the links between poverty reduction and the environment. Unfortunately, apart from mere recognition, these plans have not provided any strategies for addressing environment and development simultaneously.

In 1987, the IUCN successfully led the formulation of Zambia's conservation strategy presenting the nation with the first national document that linked the notions of development and conservation. The national conservation strategy dealt with a broad range of issues and brought up the importance of looking at the links between conservation and livelihoods. In 1989, Zambia agreed upon 'a debt for nature swap', with WWF involving US\$2. 27million. According to Drijver and Zuiderwijk (1991), under this agreement, WWF agreed to pay part of Zambia's foreign debts to an international bank, while the Zambian government allocates a corresponding amount of money in her currency to conservation and development. Through this arrangement, WWF convinced the Zambian government to go beyond the state bureaucracy in finding stakeholders that can help in the conservation of natural resources. In short, they could use local people and other actors in the management of natural resources.

Following the development of the National Conservation Strategy in 1987, Zambia enacted a set of important legislations that included the Environmental Protection Act of 1990 that addresses the impact of development activities on the environment. This act also provided for the establishment of the Environmental Council of Zambia (ECZ) as a top environmental protection agency for the country. In 1992, the government established the Ministry of Environment and Natural Resources as an apex institution in the management of the environment. In 1994, the World Bank asked Zambia to develop the National Environmental Action Plan (NEAP) to implement the national conservation strategy. The NEAP laid the basis for development of the new forest policy in 1997, wildlife policy in 1999 and the National Environmental Policy (NEP) in 2009.

The NEP was unveiled in 2009 as the overarching framework in environment matters. It endorses the concept of sustainable development as the main basis of environmental policy making in Zambia. As a departure from past policies that separated livelihoods and environmental conservation, the NEP seeks to provide "incentives that will promote the

effective contribution of Zambia's forest resources and on-farm trees to the alleviation of poverty, sustainable economic development and environmental protection" (GRZ-MTNR, 2009:41). This effectively endorses the idea of forests for poverty reduction and rural development as a new paradigm. In addition, here, we see the entry of on-farm trees in Zambia's conservation policies (see also GRZ-MTNR, 1998), signalling an acceptance of agro-ecosystem initiatives in state policies.

It is quite clear that by embracing the discourse of sustainable development, national environment policy is no longer in the hands of national governments alone. International NGOs and aid agencies have clearly claimed a stake in policy development. Consequently, the new policies reflect a broad range of international interests. A key danger here is that this leaves little room for a country to articulate its own vision of the future and raises the question of ownership of the policies and initiatives planned. This has always been a tricky situation for many developing countries. Externally-driven policies have fared rather badly (e.g. SAPs) in Zambia. Some of these policies fail due to lack of political will, low technical and financial capacity and weak institutional arrangements. In addition, these policy prescriptions are not always in harmony with local realities.

In addition, Kowero (2004) notes that many of these organizations have different approaches to forestry and natural resource management as a whole. This precipitates a situation whereby natural resource departments are caught in a loop of continuous planning to suit the demands of these organizations without delivering any positive outcomes. Moreover, with various aid agencies supporting different policies and pieces of legislation, it is not unusual to have conceptual clashes or conflicting policies. For example, NORAD supported the formulation of the Zambia Forest Action Plan and the forest policy of 1999, in which collaborative resource management is the hallmark of the new forest management system, and thereby relaxing the protected area system. In contrast, the World Bank through the Global Environmental Facility (GEF) is supporting the 'Protected Area Re-classification Project' which appears to strengthen the protected areas approach by recommending the creation of new categories of protected areas besides existing ones (GRZ/GEF/UNDP, 2010).

#### **4.7 Key elements of the sustainable development discourse in Zambia's environmental policies**

In summary, the new policies adopted between 1990 and 2009 can be broadly categorised as having three major characteristics. These are: (1) a broadening of conservation objectives; (2) a departure from confining conservation only to protected areas; and (3) devolution and participation.

##### **(i) Broadening of conservation goals**

The new discourse of sustainable development has brought to the forefront the need to manage natural resources for multiple resource uses. In this regard, the Minister of Environment, Catherine Namugala (2010) noted that the “concept of sustainable development implies Zambia must move towards conserving her resources for multiple uses rather than the narrow focus on timber supply”. This implies moving towards protecting environmental resources for other ecosystem goods required by communities and provision of ecosystem services (such as carbon sequestration, waste sinks and water conservation), as well as payment for environmental services such as carbon trading. As Mery et al (2005) note, the old perception of forests as a source of timber has been substituted by a wider conception of sustainable forest development, in which forests and trees now have to meet a myriad of ecological and socio-ecological needs (see also Campbell et al, 2004).

Concepts that have sprung up, such as biodiversity conservation, livelihood and well-being and ecosystem goods and services, have now become part of the lexicon of Zambia's environmental policy documents. The notion of multiple uses also implies that natural resources must be conserved to meet local-level goals (livelihood needs and micro-ecological benefits), national goals (e.g. timber and water protection) and global aspirations (e.g. carbon sinks, biodiversity, bio-prospecting and pharmaceutical). This idea has made conservation an act of balancing multi-level goals and interests. When it comes to actual implementation, this presents significant challenges in how to work the trade-offs between these multi-level goals and how to make synergies between them. Not all uses may be compatible and the key to success may lie in prioritizing the goals. Given that these goals reflect the interests of different actors with different resource capacities (e.g. international organizations, state departments



and communities), the challenge that arises is how to protect the interests of weak actors such as communities.

**(ii) A departure from confining natural resource conservation to protected areas**

As earlier noted, state led conservation in Zambia, particularly in the forest sector has had a heavy focus on protected areas (national forest and local forests) to the neglect of trees, woodland and forest resources outside these protected areas. New conservation policies now seek to extend state conservation to forested areas in customary land and agricultural environments. A key framework proposed for achieving this is the joint forest resource management approach (JFM) where forested areas in chiefdoms could be declared a JFM. Apart from this, it is also evident that protecting the environment by simply focusing on patches of forests is no longer a viable option. Many pressures that affect protected forests occur outside these forested areas. For example, agriculture, which is critically dependent on environmental resources such as land, influences the management of woodlands and forests. It is now evident that for many countries in Africa, sustainable forest management cannot succeed without linking it to improvements in agricultural productivity (or land availability) and other activities with the potential to harm woodland and forests (Campbell et al, 2004). Conservation now has a focus on activities outside forest areas. In particular, agricultural environments are now receiving great attention in forest policies (see GRZ, 1998; 2009). In this regard, new approaches aimed at stabilising the forest-farm boundary, while providing other ecosystem services and goods such as wood energy, carbon storage and carbon sequestration, have found expression in the both the NEP and forest policy of 1997. The NEP promises to deal with the forest-farm interface by promoting ‘the integration of forests and trees into farming systems, soil conservation activities and land-use systems’ (GRZ-MTNR, 2009:42)’. It is also hoped that these new forms of land management will promote the rehabilitation of marginal land and also create environmental stewardship among farmers. In these approaches, farmers are now viewed as producers of not only food and fibres, but also of ecosystem services (see Gorman et al, 2001). Among the range of technologies that have found representation in policies include conservation farming, conservation agriculture and agro-forestry. These approaches provide good examples of how conservation and livelihoods are rapidly being viewed as mutually supportive in Zambia’s policies. Moreover, the discourse of climate change is providing further impetus for their adoption as they are seen as

indispensable components of climate change adaptation strategies. Other areas which are now covered by the new environmental policy include ‘private plantations’ and ‘homestead’ forests. These were never a focus of previous conservation policies.

### **(iii) Participation and devolution**

According to UNEP (2007), the publication of ‘Our Common Future’ and the Rio-products strengthened the interaction between governments, NGOs and scientists, and changed attitudes towards the governance of the environment and natural resources. In Zambia, this change is well-reflected in the move towards the involvement of a broad range of stakeholders in the conservation agenda (NGOs, private sector, local councils and communities). This is clearly in keeping with the goals of the Agenda 21 that call for the participation of a broad range of stakeholders in resource management. This marks a major departure from exclusionary policies previously followed by the government and is explicitly acknowledged by the Forestry Department in the following statement:

“In the past, forestry development was adversely affected by the lack of collaboration between forest department, local communities, and other parties with the forest department. The new forest acts now provides for the active involvement of local communities, the private sector, and other stakeholders in sustainable forest management” ( Zambia Forest Department, 2005 pi)

New conservation policies do not just seek to involve many stakeholders in the management of resources; they also have the ultimate aim of devolving resource management to appropriate local institutions within the framework of community based natural resources management (CBNRM). This is seen as a way of restoring the rights of local actors to manage, and benefit from, natural resources in their proximity. The desire to devolve resource management to local communities and to restore their rights of access to natural resources is explicitly stated in the following statement by the Forestry Department (ZFD, 2005:1):

“There is need to increase the rights of local communities when it comes to managing and getting benefits from forests and the areas around them. The government wants

local communities to be involved in managing and using the forests in a way that means the forests will remain there for the future”.

In order to devolve natural resource management to local institutions, the NEP notes that “implementation strategies will focus more on establishing an enabling environment to promote community based natural resource management and less on traditional government managed development projects” (GRZ-MTNR, 2007:24). In this statement, it appears that the state is now repositioning itself to use collaborative resource management to legitimize its relationship with other stakeholders. Rather than see local communities as the problem, the new perspectives actually view the historical exclusion of local communities as a reason for the continued degradation of the natural resources in Zambia.

While this notion of participation and devolution appears appealing, it raises a number of questions that are important to the success of these approaches. For example, what institutions can be considered as ‘appropriate’ local institutions for the devolution of natural resource management? In my view, these natural resource policies introduce new institutional arrangements that may be in conflict with existing local-level institutions that have guided local resource management over time. For example, the JFM committees, council area development committees and new rules guiding resource management may lead to the marginalisation of village committees and customary rules, and create further conflicts rather than resolve them. It appears that the goal is to create registered (formal) local-level bodies that are guided by statutory law rather than customary law. In the words of one policy-maker, these policies are heading towards ‘restitution and inclusion’, yet clearly, this conception of CBNRM does not seek the restitution of local institutions; it seeks substitution, and may create the same conflicts as the old approach. The policies appear to have been crafted under the assumption that there are no existing local institutional frameworks or that the informal institutions existing are completely irrelevant and require replacement. Tied to this is the question of what form of participation is implied by ‘participation’? This is critical, as lessons in the wildlife sector, where these initiatives are at a more advanced stage than in forestry, show that, often, ordinary members of the community rarely participate in the decision-making process. Instead, it is those who are at the level of executive committee members who are privileged to attend workshops and associate themselves with government officers that participate at this level. Consequently, the benefits of community-based resource management

are often skewed in favour of these members. In this regard, devolution risks creating new elitist groups and heightening social tensions (CIFOR, 2006). Another key question is whether this devolution of resource management can successfully occur without dealing with thorny issues surrounding resource ownership and tenure in both customary areas and gazetted forests. For example, local forests and trees will continue to be owned by the Forestry Department with only usufruct rights transferred to the community. This does not firmly secure community rights to the management of forest resources, and raises the question of how far the state is prepared to cede ownership and control of natural resources to communities.

#### **4.8 Conclusion**

This chapter has demonstrated that resource management policy and practice in Zambia has undergone a range of changes since the colonial period. It also shows that policy and institutional development in environment and natural resources is never a neat process. At any one point, it is characterised by contestations in which the interests of stakeholders are continuously negotiated. In this regard, Zambia's natural resource policies and institutional frameworks should be regarded as products of these contestations and negotiations between different interests. From this discussion, institutional and policy developments in Zambia appear to have undergone four main historical stages; (a) the pre-colonial period when land and other resources were governed solely by customary systems; (b) the initiation of the 'modern state' domain of resource management by the colonial administration when western-style conservation approaches gained ascendancy over customary systems through national policies and laws aimed at controlling the use and management of natural resources; (c) a period of consolidation of the state domain of natural resource management and total disempowerment (or exclusion) of customary systems (for resources such as forests and wildlife) when the state gained exclusive control over ownership and management of wildlife, forest and forest resources; and (d) a period of 'restitution and inclusion' in which the state attempts to take resource management back to the people. This is also the period when conservation is being extended to socio-ecological systems such as agriculture environments.

These stages reflect periods when successive governments have attempted to fit natural resources into their various production and economic agendas with varying outcomes. A recurring theme throughout the chapter has been the persistence of customary systems, despite

periods of denigration and restructuring. These customary systems continue to exist, rather uneasily, alongside the state system. Although for over 70 years, their importance has not been emphasised in Zambia's conservation policies and legal frameworks, in practice, many more resources are governed by customary systems than by state-led systems. In forestry, over 60% of Zambia's forests are governed by customary systems and a similar percentage of agricultural land lies in customary areas (Banda et al, 1997). In some of these areas, chiefs and other traditional rulers continue to play an important role in the management of forest resources. Although not legally empowered to do so, some customary authorities have been instrumental in leading the process of crafting local natural resource institutional arrangements aimed at controlling natural resources degradation (see Chapter Seven). However, the neglect of customary systems over the years has inhibited local institutional development, accelerated the loss of local indigenous ecological knowledge and contributed to resource degradation.

The focus on sustainable development now seeks to revisit these systems and open a new chapter in people-conservation relations. Changes in natural resource policies based around this discourse are also taking place throughout Southern Africa (Malawi, Botswana, Zimbabwe and Namibia). In these countries, managing natural resources for both conservation and poverty reduction, particularly in the framework of community based natural resources management appears to be a real option (McConnell, 2008; Temm and Mulekom, 2001; Temm and Johnson, 2000). On the other hand, it is important to note that SD has made conservation a much more complex project than before. It has created new multi-stakeholder conservation approaches and seeks to extend conservation beyond the traditional spaces of protected areas to new spaces, such as homesteads and farms, with varying institutional arrangements. By looking at the volume of new policy documents and plans (covering biodiversity conservation, climate change, desertification etc) developed by the Zambian government, in which forests and trees play a central role, it is doubtful whether some of the suggested initiatives will ever get implemented. They risk being mere paper creations, but may have served the purpose of appeasing financiers and fulfilling international obligations. As a result, this thesis will be restricted to core sustainable development ideas that are already being deployed to local areas.

## **Chapter Five**

### **Chongwe district: land tenure, environment and livelihoods**

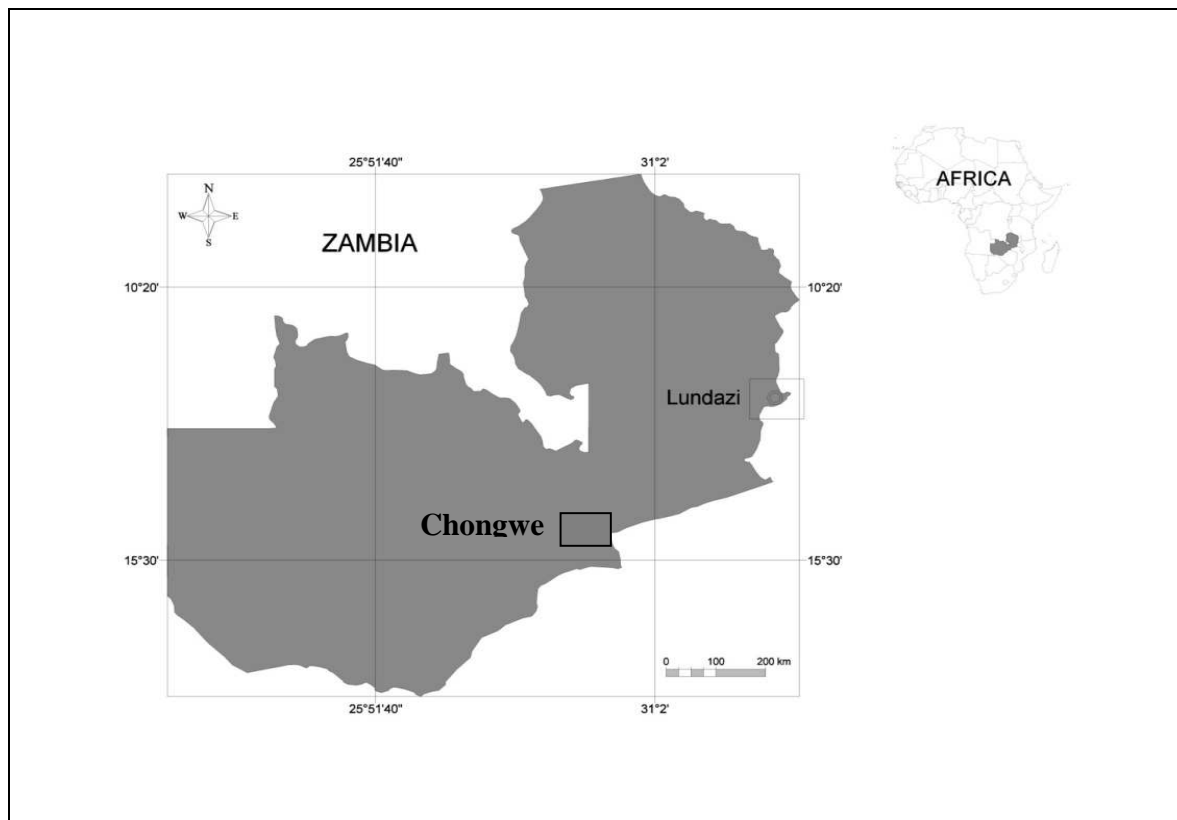
#### **5.1 Introduction**

This chapter will present the major socio-economic and physical characteristics of Chongwe, the field study site. In particular, it describes the political and social organisation of the district, the livelihood characteristics of the district and its land tenure characteristics. These characteristics have an important bearing on the implementation of natural resource policy.

#### **5.2 Socio-demographic characteristics and administrative arrangements**

Chongwe is the second-largest district in the country. Located in Lusaka Province, central Zambia (Figure 5.1), the district covers a total surface area of approximately 10,500 km<sup>2</sup> (CDC, 2006). However, with a population of only 137, 000, it is also one of the most sparsely-populated districts in the country (CDPU, 2008). In addition, despite its proximity to the capital of the country, the district is largely rural, with only 4% of its population based in its small municipality (CDDCC, 2005). Until 1995, when it was declared a district, Chongwe was administered as part of Lusaka district and was known as Lusaka Rural. As a region that was only conferred a district status in the 1990s, when the country was experiencing the most difficult economic times in its history, the district has seen very little investment in terms infrastructure development. Consequently, Chongwe is also one of the least developed districts in the country. The district is predominantly inhabited by the Soli group of people who, have been in Chongwe for over 500 years (ZNA, 2010). However, over the past 50 years, Chongwe has experienced an influx of other groups of people, such as the Chewa, Ngoni and Tonga, due to the district's proximity to Lusaka (see Table 5.1). The main languages spoken in this area are Chisoli and Chinyanja. While Chisoli is the native language, Chinyanja is the most widely spoken language in the district and recognised as the regional language of Lusaka Province.

**Figure 5.1: Location of Chongwe district in Zambia**



Source: Sanchez, 2007.

**Table 5.1 Ethnicity of the Respondents in the study area**

		Ethnicity of Respondents (n=120)					Total
		Soli	Lenje	Chewa/Ngoni	Tonga	Other	
<b>Village Name</b>	<b>Shisholeka</b>	61.1%	16.7%	11.1%	2.8%	8.3%	100.0%
	<b>Mtanuka</b>	58.8%	14.7%	14.7%	5.9%	5.9%	100.0%
	<b>Outside Munyeta</b>	63.6%	13.6%	9.1%	4.5%	9.1%	100.0%
	<b>inside Munyeta</b>	39.3%	7.1%	14.3%	32.1%	7.1%	100.0%
<b>Total</b>		55.8%	13.3%	12.5%	10.8%	7.5%	100.0%

Source: Field Data

The district is divided into two constituencies, which are further subdivided into 19 wards. Each constituency elects a representative (Member of Parliament) to the National Assembly and at ward-level an area councillor is elected to the District Council. In this regard, the District Council comprises 19 councillors, the two members of Parliament and two

representatives of traditional leaders (CDC, 2005). The council is the main policy and decision-making body at the district level. It is led by a non-executive chairperson (referred to as Mayor in City and Municipal Councils), while the day-to-day operations are managed by a council administrative team under the leadership of a Council Secretary (referred to as Town Clerk in Municipal and City Councils). The council, as a local government body, occupies an important place in the policy debates surrounding natural resource management. As already noted in Chapter Four, for much of the post-independence period, local governments were excluded from participating in the management of natural resources, such as forests and wildlife. However, the re-introduction of multiparty democracy in 1990 was followed by local government reforms and the adoption of a national decentralisation policy that seeks to devolve natural resources responsibilities to district councils (GRZ, 2004). This has brought a new focus on local governments as important actors in natural resources management. Chapter Eight deals extensively with the new powers and responsibilities transferred to local governments under devolution policies.

In addition to the council, the state, by a cabinet circular issued in 1995, asked each district to establish a district development coordinating committee (DDCC), which brings together all heads of government departments and representatives of parastatal companies in the district to form an advisory body to the council and a forum for coordinating all development projects in the district (CDC, 2005). Although the council provides the secretariat for this body, the DDCC is chaired by a state-appointed District Commissioner who coordinates line ministries at the district level. The DDCC is also divided into several sub-committees which include the district environment and natural resources management committee. This committee is composed of environment and natural resource experts from state departments and other organisations that are involved in natural resources management in the district. In this regard, it is the main technical advisory committee on the environment and natural resources for the DDCC. According to the District Forestry Officer (DFO), the district environmental committee has the role of providing a link between the DDCC and local communities involved in natural resources management. Consequently, it is charged, together with the district planning unit (DPU) of the council, with the responsibility of facilitating district and local environment and natural resources plans.



However, according to one of the officers in the council, the ability of the district environment and natural resources management committee to act as a viable natural resources management technical committee is limited by the fact that its parent committee, the DDCC, was set up by a cabinet circular rather than by statutory regulations. In this regard, the officer notes that the decisions or resolutions of the DDCC are not legally binding, unless endorsed by the council. According to the national decentralisation secretariat, this is one of the most important factors that weaken the DDCC structure (and its committees) as a viable district-level decision-making body. The officer notes that because the establishment of the DDCC was not followed by a change in legislation to legitimise its decisions, there is no law that compels either the council, or any other actor, to act on the recommendations of the committee. This situation suggests that the environment and natural resources committee has no real powers to act as a legally-constituted natural resource governance body at the district-level. However, it is important to note that natural resource devolution guidelines issued by the Forestry Department identify the district environment and natural resources committee as the district level body to oversee the implementation of participatory natural resources management (ZFD, 2005, GRZ/UNDP, 2010). The implications of these arrangements are discussed in detail in Chapter Eight.

Besides the District Council and the Office of the District Commissioner, the district has traditional (customary) governance structures which operate outside the official political and administrative structures. Under the customary administrative arrangements, the district is divided into four chiefdoms - Nkomesha, Bunda-Bunda, Shikabeta and Mpaisha (CDC, 2006). Each of the chiefdoms is ruled by a hereditary traditional leader, referred to as Mambo (Chief), or Mukamambo (Chieftainess). The most senior traditional ruler in the district is the Mukamambo Nkomesha II (Chieftainess Nkomesha) who leads the Nkomesha Chiefdom (Chidumayo, 2001). The village is the lowest administrative level in the chiefdom. According to the National Registration Act (GRZ, 1995), a collection of households is recognised as a village if ten or more adults in the area have national registration cards (NRC). An NRC is the basic form of identification which every Zambian citizen is required to obtain upon attaining the age of 16. However, according to one of the village head-persons who participated in this research, in the Soli tradition, a village consists of several households brought together through ties of kinships. Most often, villages are founded by families related to the ruling chief of the land. In each village, the founding family provides the village head-person who is

known as the Induna. The villages of concern in this study are located in Chief Nkomesha (Shisholeka and Mtanuka) and Chief Bunda-Bunda (Munyeta area).

The linkages between the District Council, the District Commissioners' Office and the customary governance structures are somewhat unclear. While previously (before the advent of multiparty democracy), the chiefs reported to the district councils, their role in the district in the new regulatory instruments is not well-defined. Except for the Lands Act (GRZ, 1995; Mululwa, 2002), which recognises chiefs as custodians of customary land, other statutory regulations and policy frameworks, such as the Local Government Act and national decentralisation policy, are vague on the role of traditional rulers in district administration. Moreover, according to the Chongwe council administrative officer, although the chiefs are represented on the council, their influence on council matters is rather negligible as they do not represent any ward or constituency (i.e. the political administrative levels recognised by the council). These unclear linkages in the district administrative arrangements raise challenges for the management of natural resources, as they are often the source of tensions between state actors and the traditional leaders. For example, while statutory regulations place natural resources under state or local government control, the traditional leaders are the actors who are often located at the site of the resource of interest. Chapters Six and Eight will show the tensions that arise as a result of ignoring customary governance structures in natural resources management.

### **5.3 Livelihood characteristics of local actors in Chongwe**

From the interviews with the local elders in the study sites, it appears that over the past century, the livelihood characteristics of the Soli have changed significantly. While there is very little information on the nature of their livelihoods before the advent of colonialism, the traditional names by which groups of Soli were identified shed some light on their main livelihoods before the advent of colonialism. According to the ZNA (2010) district note books, the Soli exist in three groups: (a) the Soli-Wamanyika, oriented to the Lenje tradition; (b) Soli-futwa (food growers and fighters); and (c) Soli Shamifwi (hunters with bow and arrow). These names show that crop cultivation and hunting were the dominant livelihood activities pursued by the Soli. For example, Shisholeka village, according to the local elders, started as a hunting camp for Soli hunters before they decided to settle in the place. Similarly, in Munyeta, local

elders noted that, despite the fact that the area was tsetse-infested, settlers were attracted to the area because of the abundant game and forests in the area which played a crucial role in their local livelihood system. These local narratives show a long history of local actors' dependence on natural resources.

According to the local elders, before the advent of the colonial period, the Soli cultivated mainly sorghum and millet, which formed part of their staple diet. Maize, which today is the staple food of the Soli, occupied a rather peripheral position in this agronomic system of the Soli and only gained ground as an important food crop in the 1940s when the colonial administrators began to emphasise it. According to Trapnell and Clothier (1999), the traditional agricultural system of the Soli centred on bush and village gardens. Bush gardens were created by cutting tree branches, piling them around trunks and stumps and then burning them. This was similar to the Chitemene system practiced in the Northern Province and described in detail by Allan (1965). On these patches of land, intercropping and mixed-cropping were practiced, in which sorghum or millet (as main crops), with small proportions of maize, were intercropped with pumpkins and other cucurbits. According to Chidumayo (2001), these bush gardens were abandoned after two to four years to be reclaimed by natural vegetation. The village gardens, on the other hand, were cultivated on a continuous basis by women who grew maize, pumpkins, sweet-potatoes and sorghum (Chidumayo, 2001; Trapnell and Clothier, 1999).

From Trapnell and Clothier's (1999) description of Soli agronomic practices, it is clear that the Soli agricultural system was characterised by a diversified cropping pattern rather than mono-cropping. In addition, there was a distinction between village gardens (where cultivation was continuous) and bush-gardens (where long fallow periods were observed). However, according to Chidumayo (2001), with the increase in population in the area, appropriation of Soli lands by the colonial administration and state agricultural policies (both in the colonial and post-colonial periods), the bush-gardens began to be replaced by more permanent fields and the distinction between village gardens and bush-gardens tended to disappear, as both were cultivated on a more-or-less continuous basis. Moreover, with post-independence agricultural policies that encouraged maize-growing and mechanised farming, the Soli adopted the plough for cultivation and maize became the dominant crop. The dominance of maize in crop cultivation was also noted in this research, as nearly all farm plots visited in all the study

sites (except for river-line gardens) had portions of maize on them. However, it was also observed that mixed cropping, has continued in the area as all farm plots had at least two or more crops on the same plot. Besides maize, households cultivate groundnuts, sweet potatoes, pumpkins, beans and a variety of vegetables that provide both cash income and subsistence benefits to households.

In addition, it was also observed that while shifting cultivation of bush gardens was no longer practiced, it was rare to find a farm plot that was wholly under cultivation. In the livelihood asset survey, for example, fewer than 5% of all research participants indicated that they had cultivated their entire fields in the past five years; in most cases, farmers still allow portions of their land to lie in fallow (see Plate 5.1). In addition, in Mtanuka, the study found at least four families who have completely withdrawn parts of their agricultural land from cultivation for the past 10-15 years for the purpose of allowing natural vegetation to regenerate. According to these farmers, this allows them to increase access to livestock fodder, thatch grass and sometimes even firewood. These agronomic practices should be understood as important agro-ecosystem practices that farmers adopt in order to improve the productivity of their land and their livelihood asset base (see also Fairhead and Leach, 1996).



Source: Field Photo

Plate 5.1 Fallow land in Shisholeka

Today, however, the livelihoods of Chongwe inhabitants are much more diversified. While crop cultivation is still one of the major sources of livelihoods (with over 90% of respondents in the two study areas of Shisholeka and Munyeta involved in crop production), households rely on a range of other livelihoods assets and strategies for their subsistence. These include livestock production, small-scale trading, wage employment and crafts production and remittances. In terms of livestock, the most common are cattle, goats and poultry. However, from the focus group discussions, it was evident that there are important differences between men and women in livestock rearing. For example, cattle are highly valued by men and it is assumed that it is men's responsibility to herd cattle. They are valued as an important source of draft power, cash income from milk sales and as a source of prestige. In the local understandings of wealth, households with cattle are also seen as the wealthiest households in the village (44% in Shisholeka and 56% of households in Munyeta who participated in the livelihood survey have cattle). On the other hand, small livestock, such as goats, chicken and ducks, are largely kept by women.

Small livestock are not only an important source of household nutrition, but also provide cash income among women and are used in barter trading (e.g. with maize or beans) during periods of stress. Nearly 30% of the households who participated in the survey were also involved in some form of petty trading (e.g. running a grocery shop, selling vegetables, fruits, charcoal, tool handles, brooms etc), while 17% indicated that remittances played a crucial role in their livelihoods (see Table 5.2). In addition, the research finds that a wide range of forest products play a crucial role in the livelihoods of the people. The importance of forest products, however, is discussed separately in the chapters dealing with the management of forest resources in the two sites.

**Table 5.2 Main sources of livelihoods in the study area**

Sources of livelihood	Frequency (n=120)	Percentage
Crop production	116	96.6%
Poultry	81	67.5
Livestock keeping (cattle)	59	49.2%
Small scale trading	35	29.2%
Crafts making	35	29.2%
Remittances	20	16.7%
Farm wage employment	13	10.8%
Wage employment outside agriculture	5	4.2%
Beer making	5	4.2%

**Source: Field data**

There are important variations in livelihood activities and distribution of assets between Shisholeka area and Munyeta area. For example, while at least 5 households (2 in Mtanuka and 3 in Shisholeka) indicated that they were involved in wage employment outside agriculture, none of the respondents in Munyeta area were engaged in wage employment. The low penetration of state departments, NGOs and private organisations in Munyeta (as the remoter of the two study sites) seems to account for the non-availability of wage employment opportunities in Munyeta. In addition, it was also observed that while in Munyeta, some households were also involved in charcoal production; this was not the case with Shisholeka and Mtanuka. This variation owes much to the fact that in Shisholeka, charcoal production is not allowed, while Munyeta has become a haven of charcoal production (see also CDC, 2006; Chidumayo et al, 2001). There are also important variations between the two areas in terms of access to various physical assets (Table 5.1)

**Table 5.3 The state of physical capital and social services in Munyeta and Shisholeka area.**

Services and Infrastructure	Detailed Description	
	Munyeta	Shisholeka area
Number of schools	Only one school basic school, No secondary school	One basic school One secondary school is 4 km way
All weather road	About 12 km to the nearest tarred road	High-way connect Chongwe and Lusaka passes close to Shisholeka
Health centre/clinic	No health centre, households travel 12 km to nearest health centre	One health centre
Availability of grocery shops	Small shops for groceries, largely operational during the dry season	Small shops for groceries, largely operational during the dry season
Proximity to town	Nearest urban area is 42 km away	Near to Chongwe township
Transport easily accessible	Once a week, on a Thursday a bus comes to the area	Easily accessible transport to town
Local market infrastructure	None, the door to door marketing is the norm	Local market shed although door to door marketing also the norm
Access to clean water	Water from running streams and open wells	Water from running streams, open wells and borehole
Forest extension services	No forest extension services	No forest extension services
Veterinary extension services	No Vet infrastructure and extension services	No veterinary extension infrastructure services
Agriculture extension services	Agriculture extension officers rarely visit the area	Agriculture extension officers visit the area although not frequently
Social welfare services	No social welfare services in the area	No social welfare services in the area
Environmental NGOs operating in the area	No environmental NGOs operating in the area	Christian Fund Zambia working in the area. Also Conservation Farming Unit (CFU)
Development NGOs	No development NGO operating in the area	Christian Child Fund Zambia
Farmer association	Farmer cooperative formed only recently (2 years ago)	Has had a farmer cooperative for nearly a decade

Source: Field data.

From Table 5.1, it is evident that Munyeta is characterised by a much weaker physical asset base than Shisholeka. As will be seen in Chapter Six, this has implications for natural resources conservation, as it exacerbates dependence on natural resources. The lack of physical infrastructure in remote forested environments is not unique to Munyeta. Edmunds and Wallenberg (2003) note that forest inhabitants often lack basic infrastructure facilities, and typically have limited access to financial assets, inputs and technologies. These factors often deprive these communities of opportunities to utilise the available natural assets fully and impede their agency to improve their livelihood security (see also Ros-Tonen and Wiersum,

2005). The lack of these assets generally increases the vulnerability of forest dwellers to famine, diseases and other stresses (Edmunds and Wallenberg, 2003; Ros-Tonen and Wiersum, 2005). Apart from this lack of physical assets, it is evident that Munyeta also scores low in its social and political assets. For example, as a community that is highly fluid, has weak kinship ties and is only beginning to organise itself around the traditional leadership, Munyeta lacks the strong social cohesion and community identity that characterise other communities such as Shisholeka.

#### **5. 4. Factors affecting local livelihoods**

The livelihood strategies and activities identified in the preceding section are influenced by a number of factors. These include environmental variability and seasonality, availability of farm and off-farm wage employment, market factors, health factors and extra-local socio-economic factors. Seasonality, in particular, is a major driver of livelihoods in the study area. A distinctive characteristic of seasonality in the area is a single-four month rainy season (between November and April) that plays a central role in determining opportunities for production and livelihood enhancement in the area. The mean annual rainfall ranges from 800 to 880mm (Chidumayo et al, 2001). As most of the respondents in this area identify themselves as farmers, this is seen as the most important period of the year. During this season, households generally spend more time on crop cultivation than they do on other activities such as small scale trading, beer brewing or extractive activities. In fact, the results from focus group discussions show that some households temporarily put some livelihood activities such as small-scale trading and crafts-making on hold and re-invest some savings or income earned from these activities into farming (i.e. for the purchase of farming inputs or payment of labour). Some households, however, still have to divide their time between other livelihood activities and farming. Table 5.2 shows the relationship between seasonality and livelihoods.



**Table 5.4 Seasonality, livelihood activities and household food availability.**

Season	Month	Activity	Resource Availability
Wet Hot Season	November	Land preparation for maize and groundnuts, Early planting	Food-deficient periods and dependence on natural resources increases
	December	Planting of maize and groundnuts, beginning of weeding  Herding of cattle and goats	Food deficiency in households, Mushrooms and caterpillars available in the village forest  Mango fruits, wild vegetables available such as Amaranthus.
	January	Application of fertiliser, weeding, land preparation for sweet potatoes, river-line gardening of vegetables Herding of cattle and goats	Food insufficiency, Maize from gardens and early-maturing varieties ready for consumption as green maize e.g. Kapyawangu
	February	Gardening, selling of fresh farm produce such as groundnuts Herding of cattle and goats	Kapyawangu maize variety is ready for consumption
	March	Gardening, selling of fresh farm products such as sweet potatoes , groundnuts and maize Heading of cattle and goats	Many households have plenty of food as well as income from farm product sales
	April	Beginning of maize-harvesting period, gardening	
	May	Harvesting of maize, gardening	
Cold Dry Season	June	River-line gardening, maize marketing, Animals let loose	
	July	River-line gardening, maize marketing	
	August	River-line gardening	
	Sept	River-line side gardening	
Dry Hot Season	Oct	Land preparation, gardening	Some households experience food shortages and dependence on natural resource products increases

Source: Field data, focus group discussions (seasonal calendar sessions)

From Table 5.2, it can be seen that the rainy season also overlaps with the period when most households experience food shortages in the area (i.e. between October and January). Indeed, the study finds that more than 40% of households experience food shortages between these months. From the interviews with respondents at both sites, the most important factors that account for food shortages among households include poor access to productive assets (e.g. lack of fertilisers, seeds and farming implements such as ploughs, inadequate farm labour and poor health) and human capital constraints (e.g. lack of adequate family labour and poor human health). Poor health, in particular, is emerging as an important challenge to local livelihoods in the study area due to high prevalence of HIV/AIDs in the community. Although this study does not have access to the HIV/AIDS prevalence rates, during the interviews with respondents at least thirteen respondents interviewed in all sites indicated that they were either nursing a patient or had lost a member of the family due to the disease. In Zambia, the high HIV/AIDS prevalence rate, affecting 16% of the population, is now recognised as one of the most important challenges affecting household food security in many parts of the country (Boudron et al, 2007; CDP, 2008). These factors have also been exacerbated by the withdrawal of state intervention in agriculture since the 1990s, when the country embarked on new economic reforms (see Chapter Four). This seems to have decreased households' access to financial assets (e.g. micro-credit, subsidies) and physical assets such as veterinary infrastructure and services, market facilities and farm implements (e.g. ploughs) ( see also Chileshe, 2005; Boudron et al, 2007; CDC, 2005).

Associated with seasonality are climatic stresses and shocks such as droughts and frequent dry spells, livestock diseases and pest attacks, which all add to the vulnerability context of the people in the area and contribute to food shortages. Table 5.3 presents some of the climatic stresses that have had an effect on local livelihoods over the past four decades in Chongwe.

**Table 5.5: Major climatic events recorded in the study area since the 1970s**

<b>Year</b>	<b>Event</b>	<b>Effects</b>
1972/73	Drought leading to most serious reduction in ground water – it was worst drought in 50 years	Decline in crop yields, decline in availability of fodder for animals
1978	Extreme heavy rains	Damage to crops and houses
1979	Drought leading to reduction in crop yields by 25-40%	Reduction in maize production by 25 -40%
1980	Dry spell	Decline in yields
1982/83	Dry spells	Decline in yields
1983/84	Drought	Water stress, decline in crop yields
1989	Heavy rains causing extensive water logging -60% of total rainfall in one season	Crops rotting, damaged and decline in yields
1990	Dry spells	Water stress and crop wilting, poor crop harvest
1991	Dry spell	Water stress and crop wilting, poor crop harvest
1992	Severe drought , Area declared disaster area	Water stress, decline in yield, severe famine, livestock deaths etc
1993/94	Continued drought and water scarcity	Decline in yields, severe famine, livestock deaths
2006/7	Excessive rainfall	Decline in yields

Source: Field Data and DMU (2010).

The climatic trends in Table 5.3 suggest that Chongwe is an area that is highly prone to environmental stresses. This is important, as natural resource management strategies deployed in such areas need to take this vulnerability context into consideration, in order to avoid eroding the resilience of local livelihoods. Households react in a variety of ways when faced with the challenges resulting from these uncertainties in their local environments. For example, when faced with food shortages, the research finds that some households turn to remittances, short-term employment (particularly in Shisholeka and Mtanuka where such opportunities are available) and even migration. From both the focus group discussions and interviews, it was evident that during this period, affected households also rely on kinships or family networks (as an important component of their social capital) for food and remittances. In addition, small livestock are often exchanged for maize. Apart from this, it was also evident in both the focus group discussions and interviews that households also take advantage of the various opportunities offered by the ecological diversity of their area to diversify their livelihoods. Ecological spaces in the area, such as wetlands, river-line areas and woodlands, have provided an important basis for livelihood improvement and management of environmental risks. For example, outside the rainy season, crop cultivation shifts mainly to

river line areas where most households manage small irrigated gardens called *dimba*. The crops grown in these gardens are mainly vegetables such as cabbage, rape, tomatoes, onions and cucumbers. During farm-visits, it was also observed that households have reacted to these challenges by reducing the acreage cultivated (in order to concentrate inputs on small plots), using indigenous agronomic practices such as crop-rotation, use of animal manure and use of stress-tolerant maize varieties such as *kapyawangu* and *gankhata*. These results suggest that the organisation of local livelihoods is oriented towards building livelihood resilience, a factor that is important when examining the fit between natural resources policies and local realities. In addition, over the past seven years, the state and international organisations have introduced conservation agriculture as a response to these challenges, as well as a strategy for implementing agri-environmental measures in agricultural areas. This point is further discussed in Chapter Nine of this study.

## **5.5 Land tenure in Chongwe**

Like other parts of the country, land in Chongwe is either categorised as state-land (where lease-hold is possible) or customary land (administered by customary authorities). The two sites where local-level studies were carried out in this research reflect this division. In Munyeta, the community inside the reserve is located on government-owned land, while the one outside the reserve is located on customary land. In this regard, the community inside the reserve is officially classified as a squatter community and have no properly-defined rights to the reserve land or the resources in it (CDC, 2005). On the other hand, Shisholeka area is predominantly a customary area, although at least two households have title deeds to their farm and residential land.

Although the popular view is that customary land and resources on it are uniformly managed (EAZ, 1997), in reality the study finds that these different components of the commons are perceived as differently owned, and therefore differently managed. For example, interviews held with the Induna and local elders in both Shisholeka and Mtanuka area show that while some components of the common, such as residential and cropland are viewed as the private property of a family, some ecological zones and their respective resources are viewed as community goods of the village. These zones include sacred areas, community forests and grazing sites and any unallocated spaces in the villages. These are managed collectively under

customary governance and institutional arrangements (see Chapter Seven). Similarly, the distinction between family managed resources and community goods can be seen in the way trees resources on various ecological spaces are regarded. Trees on the homestead or uncultivated portions of the farmland are fondly referred to as *shantini yanga* (my woodland/bushland) and they are distinguished from *shantini yamunzi* (the village woodland/bushland).

Individual families gain access to cropland and residential land through inheritance, allocations by the village committee or through inter-family arrangements (i.e. where an individual borrows land for a specified period). For example, in Shisholeka, 67% of the households gained access to their land through inheritance, while 30% were allocated the land on which they are living and cultivating by the village committee. In Munyeta, inside the reserve, the situation is slightly different. Here, nearly 60% noted that they were allocated the land they were using by the village Induna. This shows that most of the residents in the reserves are new settlers.

According to the village elders in Shisholeka, once land has been allocated to a family for settlement or agriculture, it ceases to be under the control of the village leadership and is transferred to a family that continues to exercise ownership and direct control over it until such time when the family or their descendants no longer require its use. This differs significantly from a situation in which land is owned by the clan or lineage (see Chileshe, 2005). In addition, the secretary of the village committee in Shisholeka notes that a family's land holding rights are in this situation, protected by custom and tradition. A family is regarded as holding the land in perpetuity (i.e. like in free-hold) and has the right to transfer the land to a friend or next of kin with the knowledge of the headperson (but not necessarily with their consent) as long as it remains customary land (i.e. it is not being converted into leasehold). While the right-holder of residential land has the right to exclude any actor from accessing any resource on his/her homestead such as fruits or even medicinal plants at any time during the year, rights of access to agriculture land reflect a high degree of flexibility, depending on the season and resource of interest. During the rainy season, right holders may exclude any other actor from the land except for few circumstances where other people may be allowed to access water or use a path through the farm plot (see also Larson et al, 2010; Meizen-Dick and Mwangi, 2009). In the dry season, however, the land is opened up to all

members of the community for livestock grazing, foraging, mice digging, collection of wild vegetables and other livelihood activities. In this regard, the local tenurial arrangements reflect flexibility and fit with organisation of local livelihoods.

## **5.6 Forest resources and natural resources conservation in the study area**

Chongwe district has a rich forest resources base and its distribution of forest resources is largely determined by other physical characteristics of the district such as topography and soils. About 92% of the district is a plateau area punctuated with hilly stretches and covered in sandy loam soils which make it possible for these areas to grow maize and groundnuts (CDC, 2005). The plateau area is largely covered by the dry miombo woodland comprising mainly of *Brachystegia*, *Jubernardia* and *Isoberlinia* species. In the valley areas of the district, characterised mainly by alkaline soils, mopane forests are the main type of vegetation. According to the district forest office, these forests play an important role in protecting the district's water catchment areas. The district is drained by the Chongwe, Chalimbana, Lusenfwa, Luangwa, Mwapula, Munyeta and other rivers.

As with the rest of the country, forest and tree conservation has been confined to protected forests in the form of fortress conservation. According to the district forest office, the district originally had four forest reserves (Munyeta, Chalimbana, Soli and Kanakantapa). However, due to heavy encroachment and degradation, Kanakantapa forest and Soli forest reserve were degazetted to pave the way for agricultural settlement schemes. Although there are now two protected forests within the geographical boundaries of Chongwe, only one forest, Munyeta, is under the management of Chongwe district council. Chalimbana, because of its proximity to Lusaka district, is under the management of Lusaka district.

Munyeta forest reserve covers an area extent of 12, 200 hectares and has a surface boundary of 42 km and a water boundary of approximately 5 km. The area is part of the Miombo eco-region and is dominated by tree species belonging to the *Brachystegia*, *Jubernardia* and *Isoberlina* genera. A small part of the reserve is also covered by wetland scrub and grass. Munyeta's topography is characterised by a spectacular range of hills in the northern part of the reserve. The area is drained by two perennial rivers, Munyeta and Mwapula. The name of the reserve is derived from Munyeta River which has its origins in the forest reserve. The

range of hills and hydrological characteristics of the Munyeta make it an area of outstanding scenery. Munyeta forest was declared a protected area in June 1980, and became Zambia's 399<sup>th</sup> protected forest. The main characteristics of the reserve are presented in Table 5.4.

**Table 5.6 Description of Munyeta Forest Reserve**

Size of the reserve	12, 200 hectares (est.)
Land Surface boundary	42.7 km
Water Surface boundary	5.6 km
Human population in and around the Reserve	More than 1500 households (rough estimate) Area surrounded by more than 10 Soli villages
Type of Forest	Local Protected Forest
Purpose of Reserve	To protect the 'fragile' environment To protect water catchment area
Managed by	Chongwe District Forest Office
Other land-uses in the reserve	Cultivation, livestock rearing, charcoal production, settlement

Source: Field Data.

Besides Munyeta forest reserve, the district forest office points out that over 60% of the district's forest resources are located in open areas (customary areas). Although these are officially deemed to be resources under no known management by the state (see Chapter 4), in reality, most of these are under customary management systems. For example, Shisholeka local actors recognise the village woodland as the property of the village. This is discussed extensively in Chapter Seven. However, with the change in direction of resource policy in Chongwe, both protected and customary areas have been targeted by new participatory natural resources initiatives. For example, although Munyeta is still designated as a protected area, the district has started the process of transforming the reserve into a joint forest resources management area. In addition, conservation in the district is now extending to agricultural environments through donor-sponsored programmes. These issues largely form the basis of the next four chapters' discussion.

## **5.7 Conclusion**

This chapter has highlighted the major characteristics of Chongwe as the study district. In particular, it has examined the social and political organisation of the district, the nature of local actors' livelihoods and other ecological characteristics of the district. The chapter shows that the governance of the district reflects a paradoxical three-tier administrative arrangement that may, in the future, impact on the process of decentralisation. In addition, the chapter shows that local actors' livelihoods systems reflect a highly diversified livelihood pattern. However, crop and livestock production are the dominant livelihood activities pursued in the district. The study has also pointed to the major environmental risks that these livelihoods face and how local actors respond to them. Consequently, it will be interesting to examine the extent to which new natural resource management strategies take these risks into consideration.



## Chapter Six

### Fortress based resource management in Chongwe

#### 6.1 Introduction

Over the past 70 years, the fortress conservation paradigm has dominated the management of forest and woodland resources in Zambia. The popularity of the approach has largely been derived from ‘crisis narratives’ that have often positioned its exclusionary measures as the most effective way of protecting ‘pristine’ environments from negative anthropogenic effects. The first part of this chapter uses the case of Munyeta forest reserve to examine how this model has been translated into practice in rural Zambia. It provides an illustrative example of how narratives of ‘nature’ circulating in popular conservation discourse have over the past decades been localised and used to provide justification for advancing a state-centric conservation approach that posits a sharp divide between conservation and rural people’s livelihoods. In the second part of the chapter, the study examines the effectiveness of this conservation paradigm and highlights important factors that accounts for its limitation and justifies the need for new conservation strategies in Chongwe. It provides insights into the various local realities with which the new conservation paradigms, derived from the discourse of sustainable development, will have to grapple with in their deployment to in such local sites.

#### 6.2 Establishment of Munyeta Forest Reserve: a historical background.

Although very little is known about Munyeta before 1980, the area now called Munyeta forest reserve (or Forest Reserve No.399) used to be part of the Soli native reserve called Luano Lala Native Reserve in the colonial times (CDDC, 2005). It was administered by the Bunda-Bunda Chieftaincy under the so-called ‘colonial orders’ which guided the administration of land in the customary areas. This was part of the Soli lands that were not alienated for European settlement or agriculture in the colonial times. Consequently, Munyeta was recognised as a ‘tribal commons’ for the Soli people, a recognition it retained in the post-colonial era until it was set aside for the establishment of the reserve in 1980. The reserve is part of a stretch of woodland that straddles the boundary between Chongwe and Chibombo district in the north. However, the other part of the woodland is managed separately as Mwapula forest reserve by

the Central Province Forestry Department. Like Munyeta, Mwapula was formerly a customary area under Chief Chamuka. This suggests that this tract of woodland may have been a shared resource between the two chiefdoms until it was split into two by the creation of separate provinces.

### **6.2.1 How conservation gained ascendancy over local interests in Munyeta**

According to Wood (1996), the selection of sites for the conservation of biological resources seldom takes place in a vacuum. Often, conservationists select sites based on some defined scientific criteria. In most cases, these criteria relate to the values that scientists attach to a particular site and its biological resources. For example, Wood (1996) notes that ‘naturalness’ often figures prominently in the criteria for site selection. Indeed, in Munyeta, naturalness as a criterion played a significant role in its selection as a forest reserve. In particular, the area’s biophysical characteristics were reconstructed as a ‘fragile natural ecosystem’ that required ‘protection’ (see ZFD, 2007). Furthermore, the categorisation of the forest resource tenure in the area as open access (see also Chapter 4) provided further justification for conservation in the area. From a political ecological point of view, these criteria constitute a set of discourses or narratives that justify the state’s intervention in these sites (Forsyth, 2003; Stott, 1999). The next section of the chapter discusses in detail how these were translated into action by the state.

#### **(a) The virgin and fragile ecosystem narrative**

The first was the framing of Munyeta as an uninhabited territory principally occupied by virgin forest (FD, 2007). This description of Munyeta was reinforced by maps that depicted the area as ‘unsettled’ by human population. In fact, some reports described it as tsetse-infested and inhospitable to human population (RRC, 1979). This view of Munyeta as uninhabited and ‘virgin’ before the creation of the reserve was reiterated by the district forest officer who notes that ‘the area’s vegetation was intact, it was all virgin forest until people started encroaching in the reserve.’ In addition, the area’s range of hills and hydrological characteristics, which give Munyeta an exceptional scenic beauty, were re-interpreted as key elements of a fragile environment (see CDDC, 2005). This idea of environmental fragility provided the justification

for the Forestry Department (FD) to bring the area under its protection. This is also explicitly expressed by the FD:

“The purpose for degezzetting this Forest was to protect the fragile environment and maintain the catchment area of the two strategic rivers of Munyeta and Mwapula as perennial rivers. Following this action it meant that a person is not allowed to do any acts as stipulated under the Forest Act Cap 199 of the Laws of Zambia such as to settle, cultivate, harvest, rear livestock, construct etc.” (FD Report, 2007).

Moreover, the representation of this area as fragile necessarily required the reconstruction of communities living in proximity to this reserve as a threat to that fragile environment (see also Buckingham and Turner, 2008; Horning, 2005). Indeed, this is implied in the second part of the statement of the Forest Department’s report. The objectives outlined for the establishment of the reserve are purely ecological which preclude use of the area for any productive purpose. The prioritisation of a narrow set of conservation objectives in the establishment of the forest reserve should be of no surprise: this is consistent with a conservation paradigm that privileges pristine nature and allows conservationists to advance the idea that protected forests and woodlands should be socially and economically exclusive (see also Adams and Hutton, 2007). Chapter Two of this thesis has already shown how a new generation of conservation theorists have challenged the dominance of pristine nature in conservation thinking (Forsyth et al, 1998; Escobar, 1996; Ugglá, 2010; Zimmerer, 1994; 2000; Robbins, 2004; Stott, 1999). Scott (1999), in particular, considers this discourse as an element of hegemonic myth-making that perpetuates the protection of western constructs in African environmentalism. It universalises the preservationist value system of a northern minority while excluding the values and voices of local actors directly affected by proposed conservation measures (Siurua, 2006).

Indeed, this study also sought to identify the extent to which this discourse of nature was still dominant in the thinking of conservationists in Zambia in view of these criticisms and shift in natural resources policies. Quite surprisingly, all state-employed foresters interviewed held a view that forest conservation needs to concentrate more on either preserving virgin forests or restoring degraded forests to their original (or natural conditions) than any other undertaking.

This shows that the power of nature has not died out and still dominates the thinking of some of Zambia's conservationists. It also suggests that although the concept of pristine nature is fraught with contested definitions, and is a subject of criticism from many political ecologists (Forsyth, 2005; Zimmerer, 1994; Ugglá, 2010; Escobar, 1996), it is still an extremely powerful concept in African environmentalism.

Similarly, although many scholars have pointed out that just like the concept of pristine nature seems to have lost credibility, the fortress conservation model also appears to have lost ground to narratives of participation and community-based natural resource management (Hulme and Murphree, 1999; Adams and Hulme, 2001a; Mery et al, 2005; Pretezh, 2005), this study finds that among state foresters this model continues to be endorsed at all levels of the forest bureaucracy (district, provincial and national) as the most preferred conservation paradigm. These views, of course, are contrary to the rhetoric contained in the forest policy of 1998 and the new national environmental policy (NEP) that promises to relax the fortress conservation approach and broaden conservation objectives (see Chapter Four).

Perhaps another example that shows that this romanticised view of nature and the trust in the fortress conservation model is far from waning in Zambian environmentalism is a new GEF project which the state, with the support of UNDP, is implementing country wide. The GEF project is aimed at strengthening the protected area approach by developing new categories of natural resource protection such as natural resources sanctuaries with even more stringent exclusionary measures than those applied in Munyeta. This is explicitly stated in one of recent publications of the Project (GRZ-MTNR /GEF/UNDP, 2010)

“ The proposed category of natural resource sanctuary is a protected area **managed for wilderness** and catchment conservation .....it is a gazetted area protected and managed in order to preserve its **natural condition**, to retain its **natural character** and influence. Natural resource sanctuaries can be established in any existing national forests or local forests where the existing national forest area is a large **unmodified** or slightly modified land [emphasis added]”.

It would seem that this project promises to take the protected area approach further than has already been applied in Munyeta or any other protected forest in the country. Arguably, this appears to be an attempt to renew conservation's commitment towards pristine nature through a process of socially defining new categories of rural environments and seeking to build a scientific basis for legitimising the new constructions. In this vein, it is possible that in future, we may see more spaces of local livelihood practice alienated for the so-called natural resource sanctuaries. This is quite perplexing. On one hand, the state acknowledges that exclusionary measures have been detrimental to conservation efforts, and has therefore adopted new policy measures (that depart from fortresses), and on the other, new look 'fortresses' are being planned.

There are several possible explanations why this paradigm still retains a place in conservation thinking in Zambia. First, the discourse of nature and its policy prescriptions have been the major source of authority and power for foresters in Zambia. For over 70 years, this discourse has allowed the Forestry Department to build one of the most formidable estates in Zambia's conservation history, running over 400 protected forests and covering a total land area of 7.2 million hectares (CDCC, 2005). This has allowed the Forestry Department to control over 9.6 % of the country's land area. In this regard, it is still in the department's interests to hold on to this narrative. In addition, most of the foresters have an educational background that is rooted in forestry science at Mwekera Forestry College and Copperbelt University. A key tenet of this training is the emphasis on the fortress conservation paradigm. At the time of this research, the study found that WWF had just employed two consultants to help develop alternative programmes at both institutions that take in the new thinking of community based natural resources management. According to CIFOR and the Zambia Community Based Natural Resources forum, the curriculum of these institutions has not changed much over the past few decades. This is an important factor that may impact on the implementation of sustainable development policies. As Aongola et al (2009) point out, the Forestry Department is currently struggling to translate participatory natural resources management systems into practice. This is partly due to lack of human resources capacity in the establishment of participatory governance. Indeed, it is possible that this discourse has become so hegemonic after so many years of emphasis such that it is very difficult for many of these actors simply to shed it off or accept new alternatives. As Marples (2003:231) aptly puts it:

“This is how discourses work: they naturalise what we talk, what we think and how we behave and, when they are particularly powerful, they make it very difficult to imagine alternatives or counter discourses”.

From this study, it is clear that the first challenge that conservation approaches derived from the discourse of sustainable development face is how to dislodge this age-old thinking among conservationists in Zambia. As will be seen in Chapter Eight, this thinking is one of the factors that have slowed the pace of implementing new SD policies in the forestry sector.

**(b) The open access narrative**

The second narrative that allowed state conservation to gain ascendancy in Munyeta was the framing of this local commons as open access woodland. Indeed, according to the district forest office, the area was gazetted because it was an open area and the Forests Act of 1973 mandates the FD to alienate forested lands in these areas if they are seen as threatened by people’s livelihood activities (ZFD, 1974). In fact, the study finds that the areas in the Luano Lala that have not been designated as protected areas are still viewed as threatened environments. The forestry section in the Chongwe district situation analysis, which is the first volume of the district development plan, has already constructed the threats to these open areas and notes that:

“Large portions of land are under the traditional set up of Luano Lala and Soli Wamanyika native reserve. ....activities include among others, shifting cultivation charcoal production, cutting of trees for commercial purposes, grazing..... These open areas are being exploited for their resources.....” (CDDC, 2005:53).

As noted in Chapter Four, although the Land Act recognises customary land as a common pool resource, the FD has no corresponding category for forests on customary land. Rather, such forests are simply classified as open forests. Such representations of common pool resources have roots in crisis narratives that often failed to differentiate between common pool resources and open access regimes, and hence created ambiguity in the understanding of rural property systems (e.g. Hardin, 1968). In the case of Munyeta, the state profited from this ambiguity and advanced a discourse that positioned Munyeta as unprotected from the

opportunistic behaviour of the local population adjacent to this virgin forest. The idea of open access also builds an image of disorder in which anarchy prevails in the extraction of natural resources and justifies authoritarian state action as a means of bringing order. In this conception, Munyeta was positioned as being characterised by an institutional vacuum and/or by a lack of any knowledge of natural resource management. This obliterates any notion of the existence of local controls, such as Soli traditional institutions that governed resource management before the establishment of the reserve. Such narratives allow the state unilaterally to frame solutions aimed at preventing the so called '*tragedy of the commons*' problem that emerges from open access situations. These solutions, however, are designed in ways in which the state manages resources for its own interests.

### **6.2.1 Local contestations of narratives of 'nature' and 'open access'**

The framing of Munyeta area as uninhabited and an open access system, before the declaration of the reserve is contested by local actors who have been resident in the area for a long time. Some long-term residents interviewed in the study note that the Soli people in the area already had a history of deriving various livelihood benefits from the reserve. While they agree that some of the sections of the forest were uncultivated or unsettled, they argue that this reserve was part of the Soli commons which was used as a hunting area, a source of building poles and other forest products for the Soli communities both outside and inside the reserve. In this sense, the reserve was very much central to the livelihoods of Soli local communities and access to resources was governed by customary norms and conventions. During one group interview session, the local elders drew attention to Mayaya village which was established in the area prior to the creation of the reserve. They pointed out that as they were not part of the consultations that led to the creation of the reserve, they were surprised to learn that the village was now part of a government forest. According to this local narrative, this new information was immediately contested by the villagers who brought the case before the Chief. When they requested to know the boundaries of the reserve, they were shown a map of the new reserve which showed that the area was not settled by anyone. These local elders argue that the map was a distortion of the realities on the ground as the new boundaries split Mayaya village into two, with one part of the village inside the reserve and the other outside the reserve.

In addition, the locals note that some of the areas of the reserve were inhabited by Zimbabwean freedom fighters in the 1970s who used the densely forested parts of the area as a base. According to one of the key informants, the Zimbabwean freedom fighters interacted with many of residents in the area and even distributed medicines to the sick members of the community, as well as foodstuffs in times of hunger. In addition, some of the households in the reserve showed the researcher some of the war memorabilia in form of communal pots (mostly turned into water storage facilities) and old camp beds purported to have been left to them by the fighters.

Some interviewees recounted some of the bombings that took place in the area, including the destruction of a bridge that connected them to communities outside the reserve. For a long time, these long-term residents noted that vehicles could not gain access to the area due to the destruction of the bridge which was only rebuilt a few years ago. They point out that after the fight, many areas were left with land mines which explain why some the reserve's areas were not cultivated, settled or used for any productive purpose. Indeed, this account of local history was confirmed by a former forest extension officer who spent nearly 10 years working around Munyeta forest reserve. The forest officer notes that:

“ ...in some areas, the boundaries of the reserve are up to today not clear because some areas had land mines resulting from the presence of Zimbabwe freedom fighters in the area ”

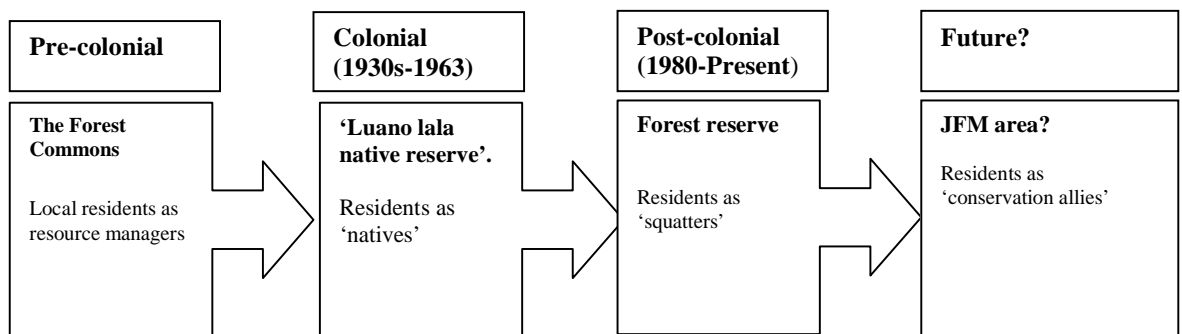
The same officer also happens to be the only forester who acknowledges that the forest in question was already a traditionally managed piece of land before it was degazetted a government forest reserve. This study also sought to confirm this oral history by examining aerial photos of the area before 1980. Unfortunately, despite pressing an order for the aerial photos with the national survey office, the study failed to get access to these aerial photos due to administrative difficulties. However, the collaborating evidence from various actors disproves the assertions that the area was uninhabited. What is clear, however, is that the narratives of uninhabited and unprotected fragile environment prevailed over people's claims to the reserve. Unfortunately, the local population did not have the power to depict their case through maps or draw on legal statutes to claim and enforce the rights. As Edmund and Wallenberg (2003:150) note:



“Because public officials have greater financial resources, media access, and other sources of power, they have the capacity to act on their constructs and interests at the expense of poor forest users”.

The Munyeta situation reflects a scenario where spaces of community livelihood practice are continuously defined and reworked towards a socially legitimised form of environment by actors with the power to create rules and regulations (see Vaccaro and Beltran (2010) on conservation as reconceptualization of space). Often, these spaces are reconstructed into visions that are hardly in harmony with the realities and interests of those who live and work in these environments. From the colonial period to the present, the area has passed from simply being Soli land to a native reserve and then a forest reserve. With the process of natural resource devolution that has been initiated in the reserve, the future holds that it may be reconstructed into a joint forest resources management area (JFM) (Figure 6.1).

**Figure 6.1: Munyeta over the decades**



Source: Author, 2011.

### **6.3. Forest governance in under fortress conservation: the rise of the *Kapenda Maula***

The creation of the reserve marked a change in land-use from a multi-use area where forests co-existed with cultivation, settlements and other livelihood activities to a forest conservation area primarily emphasising the protection of biophysical resources. It also marked the replacement of the traditional resource manager with the modern forester. Indeed, to denote this change in the management of natural resources, the local communities call the forester, the *Kapenda Maula*. The literal translation of this term is ‘the one who counts trees or wood’. This serves to describe the different style of forest resource management brought by the modern forester, where trees were subject to physical protection and inventories and licences were issued for type and number of products to be harvested, hence *Kapenda Maula*.

Forest governance in Munyeta has, for three decades, been characterised by an over-centralised system that places complete ownership and control of the reserve and its resources in the hands of the Forest Department. The full rights and responsibilities of the Forestry Department (and other actors) under the centralised mode of governance in Munyeta are indicated in Table 6.1. For a period of 14 years from 1980 to 1994 the forest was governed entirely from Lusaka district, about 80 km away from this site. As a rural council area, there was no forestry office established in Chongwe district itself. After the establishment of Chongwe as a new district, all responsibilities for Munyeta forest reserve were transferred to Chongwe district. However, like the Lusaka office, the district failed to establish a presence at the site level. Moreover, it also failed to build strong relationships with other local actors with interests in the reserve such as the district council, traditional rulers and communities within and around the reserve.

**Table 6. 1 Actor rights, responsibilities, returns and relationships in the reserve under the protected area regime.**

<b>Actor</b>	<b>Rights</b>	<b>Responsibilities</b>	<b>Returns</b>	<b>Relationships with other resource actors</b>
District Forest Office	<p>Right to decide location and size of the reserve</p> <p>Rights to issue licences, Rights to collect revenue</p> <p>Right to create rules and impose sanctions</p> <p>Right to arrest illegal resource users</p> <p>Right to search without permit</p> <p>Right to plan, implement and monitor forest activities</p>	<p>To develop and implement management plans</p> <p>To protect and manage the reserve</p>	<p>Revenue from timber and charcoal producers</p> <p>Meeting of forest management objectives</p>	Weak relationship with community, council and traditional authority
Local Inhabitants outside the reserve	<p>Right to access regulated by forest act</p> <p>No right to settle in the reserve</p> <p>No right to cultivate in the reserve</p> <p><i>De facto</i> customary rights exercised</p>	None	<p>Livelihood benefits – poles, medicines obtained legally or illegally</p> <p>Incomes from charcoal produced legally or illegally</p>	<p>Weak relationship with the FD</p> <p>Strong relationship with reserve residents</p>
Local inhabitants inside the reserve	<p>No right to settle in the reserve</p> <p>No right to cultivate in the reserve</p> <p><i>De facto</i> rights exercised</p>	None	<p>Livelihood benefits- poles, agriculture, medicines, settlements etc. (illegally obtained)</p> <p>Incomes from charcoal obtained through licences or illegally</p>	Very weak relationship with the FD
Charcoal traders and other non-local actors	Right to licences for extraction of products	None	<p>Income from charcoal through licences</p> <p>Income from forest products obtained illegally</p>	Have business relationship with FD. Maintain relationship with some local level actors –e.g. charcoal producers
District Council	<p>Right to be consulted</p> <p>Right to create bye-laws</p>	None	Levies from charcoal	Weak relationship with FD
Traditional leaders	<p>No rights to allocate land in the reserve</p> <p>No right to extend customary rule in the reserve</p> <p>No right to revenue generated from the reserve</p>	<p>None</p> <p>De facto management exercised</p>	Land for subjects, 'illegally allocated	Weak relationship with FD

Source: Field Data

### **6.3.1 Management at the site level: the myth of scientific forestry in Munyeta**

In theory, the forest reserve was supposed to be managed in accordance with statutory regulations formulated by the state. There are three broad categories of forest activities that were supposed to be carried out in Munyeta. These are forest management activities, forest protection and revenue collection (GRZ, 1998). Forest management refers to the development and implementation of management plans for the reserve, carrying out of forest inventories, woodland maintenance and restoration and monitoring of production activities. Forest protection, on the other hand, includes all activities related to the physical protection of the reserve and enforcement of forest regulations to ensure compliance. These activities include patrolling of the forest reserve by forest guards in order to prevent illegal harvest of resources and human encroachment of the forest reserve (ZFD, 2005). Forest protection also includes clearing of the forest perimeter or boundary in order to maintain a distinction between land belonging to the community and the government forest. The forest boundary also acts as a firebreak.

These activities are supposed to ensure forest resource management is based on a sound and scientific practice of forestry (ZFD, 1974). However, in practice, the study finds that in Munyeta, forest management has been far from what can be described as sound. The records at the FD district and provincial offices show that from the time the area was declared a reserve, the FD has never developed a forest management plan to guide operations in the reserve. Instead, it appears that management activities in the reserve have been guided by a set of broad guidelines and principles outlined in the forestry policy and acts that are being applied to this local site without taking into consideration its local specificities. These management activities are presented in Table 6.2.

**Table 6.2: Forest management in Munyeta- performance indicators**

Site Management Activity	Frequency of Activity Carried Out
Resource inventories and socio-economic surveys	No inventories conducted in the past 30 years
Development of management plans	The reserve has no management plan
Habitant & boundary maintenance	There are no maintenance activities being carried out
Fire management	No firebreak maintained or fires being monitored
Restoration of degraded areas	No forest restoration activities have been carried out
Patrolling of the reserve	Patrols stopped in the 1990s after guard was retrenched
Licensing and revenue collection	This is done on a daily basis
Monitoring visits	District office makes quarterly visits to the reserve
Awareness programmes	District office infrequently conducts awareness campaigns

Source: Field Data (based on records at the both Chongwe district and provincial Forestry Offices)

From Table 6.2, it can be seen that no forest inventories have ever been carried out by the Forestry Department since the establishment of the reserve. Hence, key characteristics of the forest, such as the composition and distribution of plant species and vegetation health conditions, are virtually unknown. This more or less suggests that what has been termed as sound scientific management of forests in Munyeta is, at best, mere guess work, as there was never a time in the 30-year history of the reserve when scientific forestry was ever a reality. In addition, the reserve boundary's perimeter has not been cleared since the 1990s. This means that it is impossible for other actors to distinguish the forest reserve from customary areas, thus fostering natural resource conflicts between the state and other actors. Indeed, the study found that all local respondents interviewed in the study did not know where the exact surface boundaries of the forest were located, except for points where the reserve borders some surface water bodies. During transects, it was observed that some people living outside the reserve cultivate and graze their livestock inside the reserve without worrying about boundaries. The results in Table 6.2 also shows that the only forest activity which the district office has consistently carried out is the issuance of licences and the collection of revenue from users of forest products. Thus, while management activities were rarely carried out, the state's economic interest in the reserve's resources remained strong.

From the transects carried out in the reserve, it was observed that the forest reserve is highly fragmented as large sections of the area are being opened up for agriculture, new settlements and charcoal production. Indeed, both the Forest Department and the long-term residents of the area agree that the reserve has undergone extensive land cover changes since its establishment. The CDDC (2005:52) notes that:

“With the current encroachment levels exceeding 50% and with permanent structures built, including a school, the forest has been severely tampered with. Activities which include illegal charcoal manufacturing and farming are now common in the reserve”.

Put simply, the forest is now a zone of competing land-uses as varying land-uses with significant ecological implications were observed in the reserve (see Plate 6.1, Plate 6.2 and Table 6.3).



Source: Field photo

Plate 6.1 Youths clearing land for a bus stop in the forest reserve



Source: Field Photo

Plate 6.2 Land cleared to pave way for agriculture in the reserve

Furthermore, besides the original inhabitants of the area, new villages have mushroomed. The exact number of families residing in the reserve is not known, although a fact-finding mission in 2008 put the number of households at 1500, but this may be an underestimation of the number of settlers in the reserve.

**Table 6.3 Observed land uses with implications on forest cover**

Ecological Zone	Land use and implications
River line areas	<p>Most river line areas cleared for rain- fed agriculture and off rainy season gardening</p> <p>Implications –include river siltation and loss of ecosystem services, extensive damage to vegetation at source of Munyeta, although <i>phoenix and papyrus</i> species still standing, also reported crop damaged due to flooding</p>
Hilly areas	<p>There is cultivation on a few hill slopes, in the northern parts of the reserve, the hills still have a lot of forest cover</p> <p>Implications include extensive soil erosion and loss of ecosystem services, gullies observed in the area</p>
Dambo areas	<p>Most dambo areas used only for grazing and have not experienced a lot of vegetation clearance</p>
Plateau areas	<p>Large areas cleared for settlement and agriculture</p> <p>Also a school built with 6 permanent structures</p> <p>Some farms are more than 10 hectares in size, also a lot of vegetation clearance for charcoal. Implications include extensive loss of vegetation cover and erosion reported on fields</p>

Source: Field Data

From Tables 6.2 and 6.3, it can be seen that, although the state sought to establish a strong protectionist resource management regime in Munyeta, this has not materialised into any environmental dividends. In other words, it shows that the protected area model has failed to provide an effective means of managing natural resources in Munyeta. The case of Munyeta only serves to add to the existing literature that shows the inadequacy of the protected area model in natural resources conservation and to justify the need for a new way of managing natural resources (e.g. Primak, 1993; Siurua, 2006; Adams and Hulme, 2001a; Campbell, 2000).

#### **6.4 Factors accounting for the limitations of the protected area model**

From this research, several factors seem to account for the poor performance of the fortress conservation policy in Munyeta. The first problem is rooted in an over-centralised governance approach (see Table 6.2), where all management activities were centrally directed for much of the reserve's history. According to the District Forestry Officer, these centrally located authorities were assisted at the site level by only one forest guard who had the responsibility of providing physical protection for the woodland. As the guard lived in Chongwe Township (42 km away from the reserve) and not in Munyeta, it seems that the guard was also an occasional visitor to the reserve. The futility of effectively managing the reserve based mainly on a policing strategy from such a distance was put to an even tougher test in the 1990s when budgetary allocations to the Forestry Department were drastically reduced as part of the country's economic reforms (see Chapter Four). This weakened the department's financial and human resource capacity. On a dwindling budgetary allocation, officers could only afford occasional visits to the reserve. In addition, the forest guard was retrenched as part of the SAP process, leaving the reserve without physical protection. To the present day, Munyeta forest reserve has no staff located in proximity to the reserve.

Perhaps an even stronger factor that limits the fortress conservation is the conflict between local actors (inside and outside the reserve) and state conservation in the area. While the Forest Department acknowledges the existence of conflicts in the reserve and its own failure to protect the forest reserve, it does not see the roots of the problem as lying in a dysfunctional resource management system that has failed to provide an effective alternative to the customary system which it replaced. Instead, it insists that it lies in people's disregard for law



and lack of interest in conservation (see FD report, 2007). More importantly, the embodiment of this problem is the large squatter community in the reserve. Indeed, it is important to remember that the application of the fortress conservation model thrives on the idea that the area designated as a reserve is either uninhabited by human population, or measures have already been undertaken to identify and eliminate human threats (e.g. settlements, agriculture cultivation, pastoral activities) from such areas (see Blaikie, 2008; Robbins, 2004; Ecologist, 1990). In this regard, because the official history of the area does not acknowledge the presence of people in the reserve before 1980, the genesis of the present squatter problem in the reserve is officially traced to the 1980s, soon after the area was declared a forest reserve. In addition, the state attributes the problem to migrants from a former government reserve adjacent to Munyeta. An FD report on the situation in Munyeta notes:

“The illegal settlements in Munyeta Protected Area date way back to the 1980s and this were influenced by the conversion of Kanakantapa Local Forest into a resettlement Scheme. Some of those who were not resettled in the Kanakantapa Resettlement Scheme migrated to Munyeta Forest Reserve (ZFD, 2007).

Although the dating of the genesis of the squatter problem to a period after the declaration of the reserve contradicts evidence that shows that at least one village predates the creation of the reserve, this official position seems to serve a variety of purposes. First, it appears to be part of an attempt to keep the original narrative of virgin territory alive, and to reconstruct the present state of the reserve as an ecological crisis, stemming from human behaviour, that is incompatible with conservation. Indeed, the official depiction of Munyeta as pristine before 1980 strongly contrasts with the new official description of the reserve as a hotspot for degradation:

“Most of the area of Munyeta Forest Reserve has lost the original vegetation due to opening up of agricultural land. The removal of vegetation is also caused by charcoal burning in the pretext of opening up agricultural fields. The slopes of hills are bare and depleted” (ZFD, 2007).

More importantly, this official position allows the state to reconstruct the community in the reserve as an illegal community that has knowingly settled on land legally designated for

conservation. In addition, the FD claims to have traced the origin of these squatters to the former Kanakantapa forest reserve, now a resettlement scheme. The study finds that this narrative appears to be circulating at all levels of the forest administration hierarchy and is important for one reason: Kanakantapa forest reserve was primarily a production forest where local residents were allowed to produce charcoal. However, with time, the reserve became highly encroached and was later degazetted to pave way for a resettlement scheme, a move that was not well supported by the FD (see Chapter Five). In this regard, the characterisation of the squatters as former Kanakantapa residents allows the state to fit the residents of Munyeta into one monolithic community with a distinctive behaviour pattern, that of a trouble seeker or repeat offender who has relocated to Munyeta in order to sabotage conservation. Charcoal is particularly seen as damaging because charcoal producers rely on the use of inefficient technology, such that a lot of woody material (and hence extensive clearance of forests) is required for the *Chibili* (charcoal kiln). Because of this, the practice has been named '*Afghanistan*' by the locals, a term which in the local understanding implies 'a war on the environment' and which draws parallels with the destructive nature of the war in Afghanistan. This narrative positions the residents as an intrusion and a nuisance to conservation efforts in the area. As Campbell (2000:68) notes, one of the most important elements associated with narratives is the use of labels such as 'squatter' or 'encroachers' which should be viewed as "an exercise in valuation and value judgement involving prejudices and stereotypes" (see also Fairhead and Leach, 1996 on the label of the savanna people). Box 6.2 presents some of these stereotyped views encountered during the study.

**Box 6.1: Squatters as a 'nuisance'- views of conservation officials**

**Former Deputy Minister of Environment and Member of Parliament:**  
*" Those squatters....they do not deserve anything.....you cannot tell me that they want land, there is no one who has no land in Soli land. These people are breaking the law and they are supposed to be evicted"*

**National Forestry Office:**  
*"We did not achieve anything by degazeting Kanakantapa, now the same people have encroached Munyeta. They pretend to be farming, but come the dry season you will see that all they want is charcoal....."*

**District Forestry Office:**  
*"All those are squatters, we know them, and these people have moved from Kanakantapa reserve to this place, they are just there for charcoal. They want this place to be degazetted like Kanakantapa"*

The simple explanation devised to explain the encroachment in the reserve appears to obscure the real issues surrounding natural resource conflicts in the reserve. During the period of fieldwork, the researcher only met one family out of the 28 households who participated in the livelihood asset survey in the reserve with roots in Kanakantapa. Moreover, the study finds that although the area has become a charcoal haven, charcoal production in the reserve has many dimensions that are ignored in this narrative. The livelihood asset survey, for example, shows that among the settlers, only 17.9 % of the respondents in the reserve were involved in charcoal production. Among these households, charcoal sales appear to provide easy cash income which is translated into other livelihood assets such as farming implements and inputs.

While it might be said that the statistics of local actors involved in charcoal production have to be approached with caution (as some respondents may have been insincere because charcoal production is illegal), it was also evident during focus group discussions that some settlers do not want to be involved or associated with charcoal production because it is seen as an activity which they believe can jeopardise their continued stay in the reserve. In addition, the study finds that the main actors in the charcoal business lie outside the reserve. Mostly, these are urban traders who often contract seasonal forest dwellers for the activity.



Source: Field photo

Plate 6.3 Charcoal from Munyeta being transported to Lusaka city

For example, during fieldwork, on at least four occasions, the research met non-reserve based actors at charcoal production sites who noted that they were contracted by some Lusaka traders. Moreover, these actors noted that the urban traders are only able to transport the charcoal to Lusaka because they are issued licenses by the FD (see Plate 6.3). Charcoal production and trade in the reserve started in the 1990s after the degazetion of Kanankantapa forest reserve which was primarily set aside for charcoal production. With the reconstruction of the damaged bridge on the Mwapula River which has allowed motorised transport to gain access to the area, Munyeta has become one of the most important charcoal production sites in Chongwe. In order to understand the squatter problem, the research used data derived from interviews, focus group discussions and the livelihood asset survey to develop a typology of settlers in the reserve (Table 6.4).

**Table 6.4: Typology of settlers in the reserve**

<b>Type of Settler</b>	<b>Interests</b>
Migrants from urban areas	Seeking livelihood alternatives after retrenchment, retirement, joblessness
Cultivators and livestock keepers from Southern Region	Mostly from Southern province (Tonga farmers) - they have moved to the area seeking new land due to the changing environment in the southern part of the country
Young families and small scale farmers from the fringes of the reserve	Couples that have just married, seeking a start away from their parents and land for cultivation and settlement, small scale farmers in search of new land
Original inhabitants (present before the reserve)	Have lived and worked in the reserve all their lives
Soli traditionalists and traditional leaders	Traditional leaders, are the 'eyes' of the chief and govern according to Soli customs. Soli traditionalist seeks Soli control of the reserve.

Source: Field Data

#### **6.4.1 Settlers and Soli resistance as an impediment to fortress conservation**

As seen in Table 6.4, the settlers in the reserve have varying characteristics and interests in the reserve and its resources. The Table shows that among them are young families (averaging between 18 years and 30 years) from the fringes of the reserve and other parts of the Chongwe. Most of these have moved to the reserve as a result of inadequate land for their new

families in their places of origin. Others argue that they simply moved out of the reserve in order to start a family of their own, away from their parents. The other category of settlers comprises farmers and herders who are escaping environmental changes in their regions. This category includes the Tonga people who predominantly come from southern region of the country. This group is the largest non-Soli group of people in the reserve and perhaps the second most powerful group after the Soli. The livelihood system of the Tonga is predominantly based on agriculture and livestock keeping (Kajoba, 1999). In the past two decades, their livelihood system has been threatened by changing environmental conditions (i.e. frequent drought episodes) in the southern province. Consequently, the Tonga people have been moving northwards in search of agricultural land, water and pasture land (see also Kajoba, 1999). For the Tonga people interviewed in this study, the reserve offers them the space they need to carry out their livelihood activities. The third category of local actors that claim rights to this land have their roots in the urban areas of Copperbelt and Lusaka. Some of the settlers are seeking a new lease of life and alternative livelihoods in the face of declining job opportunities in the urban areas. As most of these settlers arrived in the area mostly in the 1990s, this suggests that they are part of a wave of urban-rural migrations that hit the country following massive job losses during the implementation of the structural adjustment programme as the country took a dip in its economic fortunes.

From Table 6.4, it is evident that the characteristics and interests of these actors vary, but mostly revolve around the issue of land as an important livelihood asset. In addition, it is important to note that rural people do not just settle anywhere; land for settlement and pursuit of livelihoods must also be well-watered, be in good rainfall areas and provide other avenues of livelihoods outside farming. Munyeta, with its perennial streams and forests, appears to provide just that. Although almost 96 % of the respondents in the livelihood asset survey indicated that their livelihoods are largely dependent on agriculture, many of them are unable to meet their annual subsistence wholly from agriculture alone. In this regard, many of households in the reserve (and also outside the reserve) derive substantial livelihood benefits from the reserve's forest resources (Table 6.5). Indeed, some settlers admitted that the availability of forest resources also played an important role in their decision to relocate to the area.

**Table 6.5: Forest and woodland resources in the livelihoods of the people**

<b>Livelihood Product</b>	<b>Description</b>
Wood for energy	Firewood collected by women and children ( 100% of homes rely on firewood for energy)  Charcoal providing cash income for some families (17.9% of respondents involved)- activity conducted by men
Crafts wood and reeds	Most important for tool handles, mortars, baskets, activity dominated by men (more than 38% in livelihood survey involved in this activity)  For basket making and mats –both men and women involved
Plants for food	Leafy vegetables, mushrooms, tubers mostly collected by women and crucial during times of famine (over 60% in livelihood survey indicated they were involved in this) Fruits collected by all, including children
Medicinal plants	Extremely vital in this area because of lack of clinics, more than 70% households have used medicinal plants in livelihood asset  Common medicinal plants collected by all, but some only harvested by ‘traditional doctors’.
Animal fodder	Important for households with livestock – mostly cattle and goats (57% of settlers in the livelihood asset have livestock)
Construction material	100% of respondents rely on thatch grass for roofing, building poles and fibre

Source: Field Data.

The dependence on forest resources in the reserve is exacerbated by a weak physical and economic capital base that has limited the ability of many settlers to secure livelihoods outside farming (see Chapter Five). Unlike Shisholeka, Munyeta is characterised by a lack of infrastructure such as roads, markets and other facilities (see Chapter Five). This has prevented the residents of the area from taking advantage of a rich natural asset base. For example, despite the abundance of surface water resources, most residents involved in off-season irrigated gardening have been unable to turn it into a viable cash income activity due to the lack of transport to the urban markets where demand for fresh vegetables is high. Another important factor that plays a role in limiting the livelihoods of the people in the reserve is the continued interpretation of the settlements in the reserve as illegal. This has deprived the residents of their political power to negotiate for improvements in their livelihood situation.

For example, other actors, such as the Department of Agriculture, local government and community development organisations, do not recognise Munyeta as one of their areas of operation. Hence, their plea for assistance is often ignored. In addition, this illegal status also gives the settlers in the reserve insecure tenure and prevents many from making long term investments that are vital to their livelihoods.

The presence of these settlers in the reserve and their dependence on forest resources has created a major challenge for the application of the fortress conservation. As the area can no longer be termed a virgin area or an unmodified landscape, it is clear that new natural resource management strategies that assert, rather than deny, the presence of human beings in natural ecosystems are required (see Barker and Stockdale, 2008). As others have also noted, many protected areas across the developing world are heavily encroached by people (Matose, 1997; Bryant and Bailey, 1997), a fact that can no longer be ignored in natural resources conservation. Moreover, in Munyeta, the situation is compounded by the fact that there is a growing Soli resistance to state conservation. For example, the study finds that not all actors in the reserve frame their interests in the reserve as a pursuit of alternative livelihoods or an issue of inadequate land.

Interestingly, from the interviews, the research found at least three respondents in the reserve who openly framed their interest in the reserve as part of a Soli tribal resistance against the state's action to alienate land which they consider to be their ancestral territory. Similarly, during a group interview session with the Soli elders, some of them noted that they are in the reserve, not because they lack land, but because they want to defend Soli interests in the reserve. The role of these actors in the reserve appears to be part of a Soli strategy to re-establish control over the land and to facilitate a return to customary natural resource governance. As opposed to the official identification of squatter, these actors identify themselves not as squatters, but as owners of the land. At the same time, they position all other actors, including the Forestry Department, as outsiders who have disempowered the Soli of their land. These Soli traditionalists believe that deliberately moving into the reserve is the only way their views can achieve recognition. For example, one of the elders who identified himself as a former councillor of the rural council when the reserve was established notes:

“ I knew that it is a government reserve when I was coming here, but this whole area is Soli land, it was our native reserve when I was a councillor..... no one wanted this to be area a reserve, they bypassed us.....they didn’t consult us, and we learnt that it was the late chief who signed. That is why I have settled here. I know this is our land we have to claim it back”

Another elder remarked:

“.....I am a son of this land, it is all Bunda-Bunda, I needed a lot of land after coming from the mines.....so when the chief asked me if I could come here. I said yes, it’s our land after all and I think it is right that we take it.....”

This view is not limited to Solis in the reserve. Outside the reserve, among those who have lived in the area for long time, there is even a denial of the very existence of the forest reserve. One elderly man outside the reserve remarked:

“Where do you say the government forest reserve is, where? .....ha....there never was a government forest; it’s all Soli land....”

These views suggest that some of the Solis still consider conservation initiatives in this area as an illegitimate imposition on their environment. This is important as it may serve to limit the new sustainable development initiatives being introduced in the reserve. Perhaps even more importantly, these views are well supported by non-traditional leaders, such as the area councillor who argued that the Soli people have a legitimate claim to the land. Moreover, she pointed out that the FD can no longer lay claim to the land as they have failed to exclude non-local actors from invading and settling in the reserve.

The Soli traditionalists have power on their side. This power is derived from their relationship with the Soli chieftaincy. Often, the headpersons tend to be members of the Soli ruling clan (the Nyangu clan). This has allowed the Indunas to get allies for their cause within other groups, as well as to circulate a similar discourse of resistance against state conservation in the reserve. For example, nearly a quarter of the interviewees in the reserve argue that they were not aware that the area was a government reserve before settling there, because they were told



by some of the traditional leaders that the area was no longer a forest reserve, but now belonged to the Soli. In fact, frequently, when respondents were asked the question: “in your view, who owns this land?” the response was “*ni yabafumu*” (the land belongs to the chief). With such a discourse of resistance being circulated, there appears to be hardly any support for conservation among the settlers.

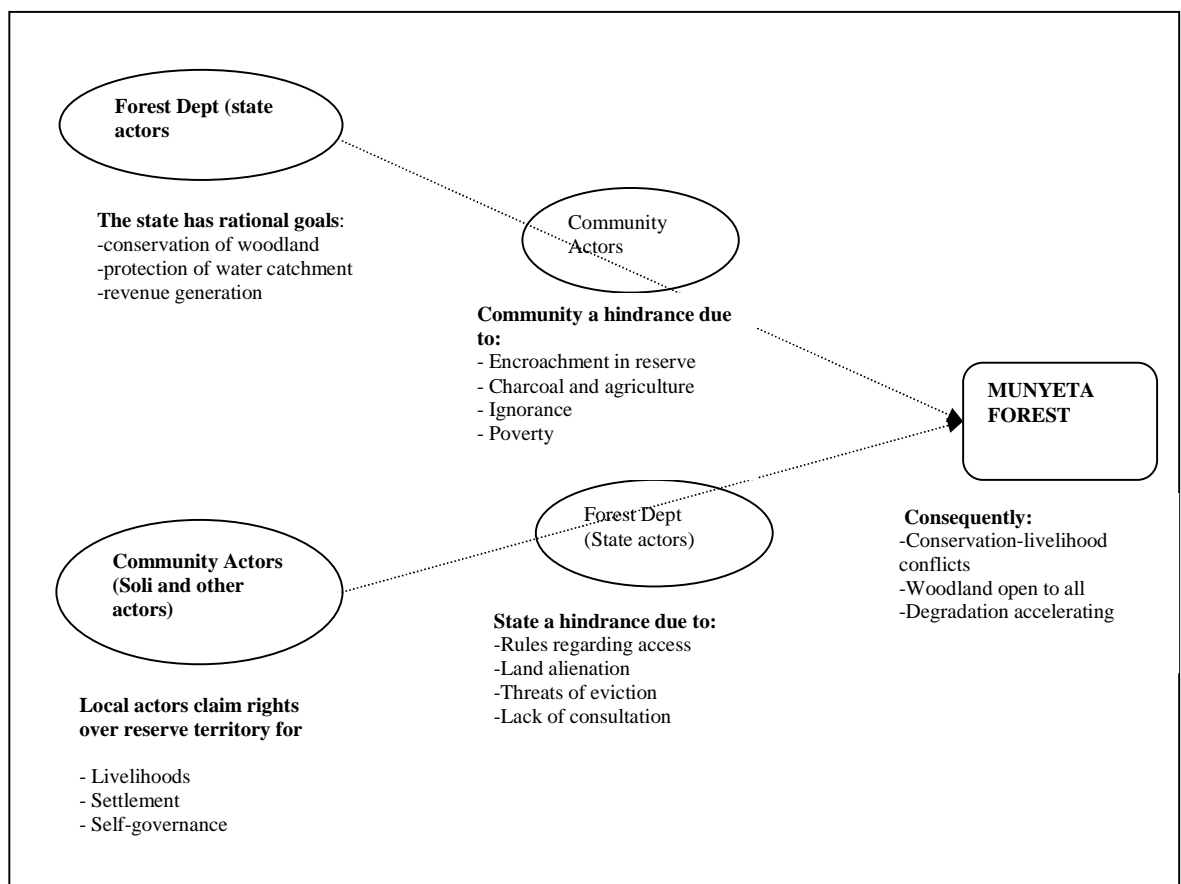
There is also evidence that the Chieftaincy has acted to reinforce Soli presence in the reserve by sending some of the Indunas to settle in strategic locations of the reserve such as areas which border Central Province. More importantly, the area has been re-zoned and incorporated into the traditional governance structure. While outsiders know the area in terms of a forest reserve, the local Solis know it in terms of Soli traditional zones and villages under Chief Bunda-Bunda. Quite clearly, community re-organisation is gradually forming around Soli headpersons who are being recognised as the village heads and the ‘eyes’ of the senior chief of the land. Indeed, to act as a stamp of authority, all new settlements are taking the name of the Soli Induna in charge. According to one of the key informants, by extending customary governance to the reserve, the traditional leaders are seeking to consolidate their hold on the land in the wake of changing boundaries, increased threats from outside groups and the fear of losing the land to people settling in the area. This is also confirmed by the Forestry Department, which sent a fact finding mission to the area which is noted in one of the FD reports:

“It is further alleged that the demarcation and creation of Lusaka Province from Central Province created boundary disputes between Chief Chamuka and Chief Bunda-Bunda which led to settlements of people by the latter in the area to safeguard the land from being taken away by the former” (ZFD, 2008)

The process of chiefs granting residential rights to individuals and seeking greater control over forested lands they believe were wrongfully taken away from their people is quite widespread in Zambia. For example, Kajoba (1999) notes that in Muyama forest in Central Province, families settled in the reserve with the permission of the reserve. Similar incidents have been reported in the Eastern Province of the country (see FASAZ, 2003). The extension of traditional authority to forest reserves has significant effects on natural resource governance as it creates friction between traditional institutions and state institutional arrangements. For

example, in Munyeta, the re-introduction of customary institutional arrangements appears directly to discredit state regulations. While customary authorities have allowed agricultural activities, settlements and other land use practices in the reserve, the state views them as illegal under the Forestry Act. These institutional conflicts reflect a clash of two different visions of this local space – the state’s vision of a space for biophysical resources worth protecting from those who do not value it in these terms, and a local vision of a place to live in and make a livelihood. These differing perceptions between these actors are reflected in Figure 6.2.

**Figure 6.2: Differing community–state perceptions of the reserve**



Source: Field data (adapted from Horning, 2005).

Clearly, what we see in Munyeta are different actors appealing to different legal systems that support their claims. In this regard, the situation in Munyeta is one which Onibon et al (1999) refer to as ‘sterile dualism’, whereby the state imposes laws and regulations that are simply impractical and incompatible with the practice, needs and values of the people. Consequently,

the rules are simply ignored, while the local people appeal to the traditional system as a frame of reference (see also Adisu and Croll, 1994; Horning, 2005). Indeed, as Belshaw (2003) argues, given the size of protected areas and all the alternative possible uses of the land (agriculture, hunting, settlement etc.) and the ambiguous relations with the locale, it is impossible for state conservation not to meet conflicts.

## **6.6 Management alternatives in the reserve: towards decentralisation**

The livelihood-conservation conflicts in the reserve and the Soli resistance are the two most important factors that limit the application of fortress conservation in Munyeta. While the research has already discussed the broad-scale factors that have limited fortress conservation in Zambia (see Chapter Four), these constitute what might be termed as the ‘below factors’ that account for the failure of the protected area approach and justify the need for new natural resource management approaches in the area. In the past, such conflicts have been dealt with by either forced evictions or degazetting the reserve and paving the way for resettlement schemes. According to the district forestry officer, while eviction notices have been issued to local actors before, stiff resistance from the, the area chief and local politicians has meant that this is no longer a viable alternative. On the other hand, despite the conflicts that characterise natural resource management in Munyeta forest reserve, the Forest Department is far from giving up control of the reserve. For Chongwe District Forest office, this is the only forest reserve under the control of the district. In the past, the district has lost two reserves to resettlement schemes as a result of the squatter problems (see Chapter 5). To lose this reserve to squatters would amount to nothing but a *coup d’état*, and the FD are not prepared to do that.

The provincial forest office notes that “there is no way we can give up Munyeta; it is a very sensitive area”. In this regard, it has become apparent that the only way for the district to retain control of the reserve is to adopt a new management strategy. This strategy is now available in form of a joint forest resources management approach (JFM). Consequently, in 2005, the state started the process of establishing JFM as a collaborative natural resource management strategy which allows local actors to get involved in resource management. In addition, the district forest office has embraced the idea of conservation agriculture as a way of bridging the gap between conservation and local livelihoods. However, an important issue here surrounds the question of how the new strategies sit with the local realities highlighted in

this chapter. JFM seems to be introduced in an arena that is already rife with conflicts. An important test for the strategy is the fact that these institutional changes are taking place at the same time as customary authorities are strengthening their own institutional arrangements. Moreover, while the state bureaucracy has been slow, the local institutional machinery appears to be moving at a faster pace. These issues are extensively discussed in Chapter 8 which will examine the process of decentralisation and devolution in the area.

## **6.7 Conclusion**

This chapter has discussed how exclusionary policies based on nature and fortress conservation narratives have been translated into action in remote areas of Africa. In particular, using empirical evidence, the chapter has shown how the western vision of nature in Munyeta gained ascendancy over local livelihood interests and led to the establishment of a natural resource management regime that was not in harmony with local realities. Moreover, the chapter argues that this vision of untouched nature in the case of Munyeta was in fact based on a distortion of local facts and amounts to little more than mere manipulation of the rural population, a vision which perhaps reflects the hegemony of western values in African environmentalism.

In addition, the study has also highlighted the flaws in the assumptions underpinning conservation in the area. The state authorities assumed that conservation could only be achieved through the replacement of customary institutions with a strong protectionist system reliant on the application of statutory laws and regulations, and the enforcement of these laws through various means including forceful suppression of non-compliance. However, the results suggest that, although the state has control over the development of natural resource policies and law, the power to put the policies into operational practice is often limited by the state's own financial and human resource capacity. In addition, the power to implement policies is also weakened by the actions of grassroots actors who also seek to protect their own interests. As Munyeta is now in a transition, shifting towards participative natural resources governance, it will be interesting to see how these deficiencies are corrected and the extent to which the interests and realities of local actors in and outside the reserve are given priority in the new initiatives.

## **Chapter Seven**

### **Customary based resource management in Chongwe**

#### **7.1 Introduction**

The management of woodland resources in customary areas remain one of the most contentious issues in Zambian environmentalism. Natural resource policies and state conservation agencies have often characterised these customary areas by an absence of institutional controls and lack of collective action to protect natural resources and prevent environmental degradation. As already noted in the previous chapters, these ideas do not exist in isolation; they are situated within a general fabric of crisis narratives which assume that local actors lack the creative agency to provide solutions to natural resource problems in their areas. Using the case of Shisholeka village, the purpose of this chapter is to show how resources outside protected areas have traditionally been managed using locally-crafted institutional arrangements. It argues that the change in the direction of conservation policies (from fortresses to sustainable development) is likely to have significant implications for locally-crafted natural resource management regimes.

In addition, the chapter provides a counter-perspective to the crisis narratives by demonstrating that customary spaces are not always characterized by a 'free-for-all resources' scenario as widely assumed in policies derived from these narratives. It re-situates customary natural resource management regimes in the on-going conservation debate and shows the ability of local actors to organize themselves collectively and construct autonomous natural resource regimes that best represent their interests and local circumstances. The chapter is organized in three parts. The first part discusses the value of woodland resources to people in customary areas and shows how this has provided an impetus for the local protection of natural resources. The second part examines the actual governance of natural resources in Shisholeka, focusing on the local governance structure and rules guiding access and use of natural resources. The third part of the chapter discusses the implications of these results for new conservation policies derived from the discourse of sustainable development.

## **7.2 The value of tree and woodland resources as a major driver of local natural resource management systems**

In order to understand why local actors (just like state actors) seek control over forest and woodland resources, it is important to understand the value of these resources to their livelihoods and general welfare. These values drive the agenda of local actors in the way they interact with environmental resources and other actors interested in the same resources. Arguably, they are the main factors why local actors consider it important to participate in collective action regarding resources management. Indeed, a key feature of narratives underpinning natural resource policy is that the importance of natural resources to local communities is often ignored, as these values are often seen as discordant with the ‘nature’ discourse that mostly guides the conservation agenda of state actors in protected areas such as Munyeta forest reserve (see also Forsyth et al, 1998; *Ecologist*, 1995; Ugglá, 2010; Grimble and Laidlaw, 2002).

Like the so-called protected areas, ecological sites located in customary areas contain valuable natural resource products that are vital to the livelihoods of rural populations. As already noted in Chapter Five, the livelihoods of most households in Shisholeka and Mtanuka are constructed from diverse portfolios in which forest resources play a pivotal role. Although mostly noted for their gap-filler role during times of household food shortages (Chileshe, 2005; Sullivan and Homewood, 2004), in reality, woodlands and trees deliver a range of goods and services throughout the year that are crucial to the general welfare of rural people. Like in Munyeta, most households in Shisholeka area rely on woodland resources for energy, construction materials, livestock grazing and other extractive livelihood activities. From the livelihood survey, fuel wood for household energy and construction materials are the most widely used products in the area (Table 7.1).

**Table 7.1: Most used forest products in the area**

Type of forest products	Percent of households reporting use of product
Fuel wood	97.2%
Construction poles for dwelling house	80%
Thatch grass for dwelling house	72%
Fruits	69.4%
Medicinal products	61%
Leafy vegetables	52%
Livestock grazing	44%
Edible tubers	25%

Source: Field data (livelihood asset survey)

A key factor that determines local use of woodland resources for energy is the low access of the community to alternative energy sources such as electricity, solar cookers, geysers and petroleum products. Although households in Shisholeka are not as remotely located as those in Munyeta, and therefore possibilities of connecting to the electricity grid exist, only two (1.6%) of the 120 households in Shisholeka are connected. Similarly, in the neighbouring village of Mtanuka, only one household (representing 0.9% of all households) has access to electricity. Most households interviewed felt it was impossible for them to access electricity because of the highly prohibitive installation costs and monthly charges. In addition, almost all households interviewed were hardly aware of grid electricity substitutes such as stand-alone solar cookers and heaters. This over-dependence on wood energy is not unique to the study area. The Energy Regulation Board (ERB) (2006) notes that only two percent of Zambia's rural population has access to electricity. Similarly, Malabo and Syampungani (2002) note that wood-fuel accounts for a higher national energy budget in the country because of relatively high costs of electricity and petroleum based fuels, allied to high poverty levels (see also Mfunne and Boon, 2008).

It is important to mention here that rural energy poverty is one of the most ignored forms of poverty in both economic and environmental policies. Most governments and even scholars (e.g. Mbindo, 2003; Kajoba, 1999; GRZ, 1998) make a good case of blaming rural communities' energy consumption habits for natural resource depletion, but rarely consider the improvement of the rural energy situation as an important aspect of both rural development

and natural resource policies. For example, since independence, Zambia had no energy policy to address people's energy needs until the 1990s, when the Ministry of Energy was established. Still, even in this energy policy, rural energy remains overshadowed by the focus on meeting the rising industrial energy demand (ERB, 2006). Indeed, an improvement in rural energy provision would have substantial benefits for the environment, human health (through reduction of respiratory diseases) and would improve the situation of rural women who spend a lot of time collecting firewood. In Mtanuka village, for example, women walk an average of 6 km to fetch firewood. Plate 7.1 show the use of fuel-wood in Munyeta.



Source: Field photo

Plate 7.1 A woman prepares some food using fuel-wood as energy source (note the smoke from the fire place).

Other products that are widely used by households, as indicated in Table 7.1, are construction poles and thatch grass. Most households have grass thatched housing structures that rely on forest products such as grass, poles and bark fibre for annual maintenance. Although 15 households in Shisholeka have iron-roofed houses (main dwelling house), the study finds that even these households still draw on woodland resources for the construction and maintenance of other structures on their homestead. It was evident in Shisholeka and Mtanuka that the homestead of a single family often comprises several structures, apart from the dwelling



house. One homestead may comprise up to seven types of structures. For example, a family's compound may have a dwelling house(s), crop storage sheds for maize and groundnuts and other structures (Table 7.2). The study finds that there is hardly any family in the area that does not rely on forest products for the construction of various structures that are central to their welfare.

**Table 7.2: Household structures dependent on forest products in Shisholeka and Mtanuka**

Type of structure	Description
Dwelling house	Thatch grass for roof, construction poles for ceiling and pillars, preferred poles are durable and not easily vulnerable to termites, poles changed every five years and thatch replaced every two years
Stand alone kitchen	Often a small round shaped kitchen- main forest products used are construction poles, thatch grass and bark rope
Bath shed	A mostly grass made shed – forest products used are mainly grass and a few poles and bamboos – preferred tree species for poles are ones that sprout.
Toilet	Special poles used for base, often strong and not easily susceptible to termites and rotting, thatch grass for roof and bark rope used
Crop storage shed	Mostly groundnuts and maize storage shed – ground nut shed specially made with pole or bamboo material and then covered with mud. Maize shed uses grass and poles
Poultry houses	Mainly for chickens and ducks – forest products used are grass, bamboos and grass
Cattle kraal	Mainly poles inter-spaced with barbed wires

Source: Field data

### 7.2.1 Non- instrumental values of woodland resources in the area

Apart from recognizing the utility value of forest products, the study also finds that some respondents in the area also believe that trees and woodlands have ecological and aesthetic benefits for their micro-environment. For example, when respondents were asked to explain the non-instrumental benefits of trees and woodlands, many of them associated trees with plenty of rainfall, erosion prevention, clean air and even disease prevention. Some of the views are well expressed in Box 7.3.

**Table 7.3 Ecological services provided by trees and woodlands: respondents' views**

Respondent	Respondent's view on non –instrumental value of forests and woodland
Sh04	<i>“.....trees assist with rains, if you have thick forests, rains fall properly. Trees also protect our roofs from being blown by strong winds.”</i>
Sh13	<i>“.....apart from the fruits I have mentioned, they (trees) are also good for fresh air and for shade”</i>
Sh25	<i>“ .....we are farmers, if we do not protect trees then we disturb rains”</i>
Sh08	<i>“our soils are protected from running water and wind because of the trees, if the area is bare then you get a lot of gullies on the land”</i>
Sh27	<i>“Trees help in breaking blowing winds, if the area is open, blowing winds bring a lot of infections, like for eyes...”</i>
Sh09	<i>“....without trees a place does not look nice....it just looks bare....”</i>

Source: Field data

In addition, the study finds that more than 70% of households that participated in the livelihood asset survey have either planted or preserved trees in their home gardens, uncultivated farm plots, around farm-sites and homesteads for various reasons, including aesthetic purposes, wind shields and for shade (see Plate 7.2). Moreover, according to one of the elders, trees such as Munga (*Acacia*) species are associated with good soil fertility, while trees such as the Mkhuyu (*Ficus Sycomorous*) are viewed as important for water. These trees are often not cut by the local population. Although the participants in this study do not describe these benefits as ecological services, in reality, they are all important ecosystem services that are normally recognized by environmentalists. The fact that local communities also attach ecological values to natural resources is also acknowledged by other writers such as Gareau (2007). This suggests that the old notion that only scientists recognize the ecological and aesthetic value of plants is quite flawed. Perhaps, what is clear here is that there is a gap between technocratic views of what constitutes ecological values and local understandings of these values (Gareau, 2007). In addition, the maintenance of various agro-ecosystem spaces by local actors also questions the generalised view that individual landholders on communal land have no interest in either planting trees or protecting trees on

their home sites because of insecure tenure (see Assan and Kummer, 2009; Armitage, 2004). These views, in the context of Zambia, are prevalent in publications by the Economic Association of Zambia (EAZ, 2007) and the MMD (1992).



Source: Field Photo

Plate 7.2 A variety of trees on a homestead in Shisholeka.

### **7.2.2 Differentiation in resource use in the area**

Another key feature of people's use of natural resources in Shisholeka is that harvesting and use of these resources is highly differentiated by gender and age. It was evident that the responsibility for collecting firewood and thatch grass rests with women and young children. On the other hand, men are involved in the collection of construction poles, livestock herding and making of various tool handles (e.g. for axes and hoes). This difference was also seen in the focus group discussions held with the community. In all the study sites, women identified firewood and thatch grass as their priority woodland resources. In Shisholeka, in particular, the availability of fuel wood resources was also identified as the most important reason why the women considered it important to participate in collective action aimed at protecting the village woodland. In contrast, men identified construction poles and livestock fodder as priority resources. Indeed, this interest in firewood as an important resource among women was well-reflected in their knowledge of the characteristics of various firewood species which

are graded according to quality. For example, the most preferred firewood tree species are Kamponi (*Jubernadia globiflora*), and Mtondo (*Jubernadia paniculata*), while least preferred are Munga (*Acacia*) and Mango (*Mangifera indica*) species. According to these women, they only switch to other species if the preferred species become scarce. For example, in Mtanuka where fuel-wood has become very scarce, most women noted that Mango trees, which are abundant in the area (on homesteads and farm sites), have now become supplementary sources of firewood in the village. According to some of the local elders interviewed in the study, the responsibility for collecting products such as firewood and thatch grass is left to women because it is 'light' work. This view, however, was contested by the women interviewed in the study, and one noted that men have a privileged place in the community and decide what activities best suit them. In addition, they argued that the so-called 'woman chores' are also the most time-consuming tasks in a household. One woman noted:

“.....some tasks may be light, but they are also the most time consuming tasks and when these resources get scarce, we are the ones who suffer. The men are lucky and determine everything because our culture allows it...”

In addition, there are also resources that are more highly valued by poorer than wealthier households. These resources include mushrooms, leafy vegetables, edible tubers and fruits. While poorer households are more likely to collect these resources, wealthier households are more likely to purchase them from the same poorer households. This was evident in Shisholeka, where those households considered most wealthy in the community (e.g. the two households with access to electricity and those in wage employment) noted that they never collect leafy vegetables or mushrooms from the Shantini, but frequently buy these products from the local market. In addition, even within these poorer households, it is the women who often collect these products. This differentiation has important policy implications. For example, although community-based natural resource policies tend to emphasise the empowerment of local actors, they tend to assume that local resource users have uniform interests in natural resources (Cassidy, 2001). In particular, the value of natural resources to the poor or women groups is often marginalized in favour of those resources that are valued by male and wealthier actors who usually capture decision making-positions in community based natural resources bodies (Flintan, 2001; Cassidy, 2001). For example, there may be an intense

focus on timber trees or wood plants (valued by men) at the expense non-woody forest resources such as thatch grass.

Apart from this difference in gender, the study finds that there are also resources that are specifically used by skilled or specialist groups of people in the area. These include products that are used by makers of various crafts, traditional healers, porters, tool makers and producers of traditional foods and drinks. For these groups, the use of forest resources is highly species specific, as use is determined by the requirements of their trade. In the study, it was evident that these groups were highly interested in the continued availability of plant species pertaining to their trade, not just in terms of quantity, but also in terms of quality. For example, one user involved in construction of storage facilities and supply of building poles notes:

“When I am looking for poles, I look for species that are durable and cannot easily rot or be eaten by termites... they also have to be straight and y-forked at the end if they are to be used for housing construction”

From a natural resource management perspective, these user groups play an important role in community resource conservation. According to a biogeography expert at the University of Zambia, some resource user groups, such as traditional healers, have served as pioneers of natural resource conservation in their communities. This is because it is those resources which were identified as crucial for the survival of the people that often received the greatest protection from customary law. For example, herbalists identify important medicinal plants which are then subject to protection by tradition and custom. Moreover, these groups are highly knowledgeable, not only of the use of these resources, but also the ecological conditions under which these species thrive (or do not) and their means of propagation. For example, a local elder with specialist knowledge in traditional medicine took about 2 hours explaining to the researcher the use of more than 25 plant medicinal species planted on his homestead and how these species are propagated. These species are used for various ailments such as malaria, snake bites, diarrhea diseases, coughs and burns. During this discussion, it was also clear that a plant could also have different uses for different people and circumstances. For example, parts of Mphundu (*Parinari curatellifolia*) tree may be used as medicines, firewood and building poles. At the same time, it produces fruits that are eaten as a

snack or processed into porridge and cooking oil. In this way, a resource may be valued differently at different times and by different users.

### 7.2.3 Other factors mediating the value of woodland resources

The value and use of natural resources in the area is also strongly influenced by several factors which include environmental variability, availability of markets for forest products, poverty and natural resource policies. For example, thatch grass, a product that is crucial for construction, is only ready for harvest after the rainy season. In addition, a range of forest products are only available during rainy season, such as mushrooms, leafy vegetables, mango fruits and caterpillars. These products are mostly collected by women and sold off to motorists along the highway or exported to the urban markets of Chongwe and Lusaka. A visit to the community market (along the highway) during this period found a range of forest products on sale (Table 7.4) This situation differs significantly with Munyeta where these products only have a subsistence value due to distance to the main highway and the market.

**Table 7.4: Natural resource products sold by women at the local market**

Product	Unit of measurement	Price (in Zambian Kwacha)	Source
Mushrooms	Plate	K3,000.(£0.42)	Village forest
Coconut Fruit	Per fruit	K1,000 (£0.14)	Homesteads, farms and village forest
Edible caterpillars	Per plate	K5,000 (£0.71)	Village forest And from Kapirimposhi
Mangoes	Per dish	K5000 (£0.71)	Homesteads, farms and Village forest
Guavas	Per dish	K5,000 (£0.71)	Homestead, farms
Munkhoyo	Per bundle	K3, 000 (£0.42)	From outside Mtanuaka and Chisholeka
Medicines	Roots, leaves, barks etc	Varying prices	Village forest
Amaranthus leaves	Per bundle	K1000 (£0.14)	Village forest, farm plots

Source: Field data

Government policies can also influence the value and use of natural resources to communities in several ways. For example, high value forest products such as timber are rarely exploited by local actors for cash income. In Shisholeka, less than 2% of the respondents in the livelihood asset survey have ever been involved in pit-sawing or any timber dependent activity such as carpentry. Although the potential of utilising woodland resources for pit-sawing and other

timber-dependent trades exists in Shisholeka (and even Munyeta), timber production and processing is an activity that is highly regulated by the state, even in customary areas. Although local residents are not prohibited from participation, some respondents noted that the price of harvesting just one tree is way beyond the capacity of most residents. For example, according to the forestry office, the price of felling a Mulombe (*Pterocarpus angolensis*) tree is K135, 000 (£16) per cubic metre. This scenario is not limited to this study area. In many parts of Zambia, communities that live in proximity to forests rarely benefit from timber resources. For example, Jumbe et al (2008) note that in Luapula province, despite the abundance of forests containing timber species, only 4% of households living in proximity to forest reserves are engaged in timber-dependent trades (such as carpentry and pit-sawing). Largely the timber trade is skewed in favour of concession companies. In addition, concession fees rarely trickle through to such communities, as they are retained by the state (see Chapter Four). This disproportionate distribution of cost and benefits is often seen as one of the main reasons why state-led natural resource conservation does not receive community support (ECZ, 2000; Hopley, 1996).

#### **7.2.4 Sources of natural resource products in the village**

The value of woodland and forest resources to local livelihoods is perhaps the most important factor that drives local resource management in Shisholeka village. According to Clarke et al (1996), given the importance of woodland resources to rural livelihoods, it is not surprising to find management practices and forms of social control endemic to rural populations. However, these natural resource products and services are not derived from a single ecological site in the area. Although the bulk of natural resource products come from the village forest which the local community call '*Shantini ya munzi*' (the village woodland), products and services are also derived from other ecological spaces in the community. For example, many women interviewed noted that they collected firewood and thatch grass from diverse ecological spots in their village, such as the village *Chinyika* (a wetland area reserved for grazing), and uncultivated plots on farms and homesteads. In this way, natural resource extraction is not just concentrated in one place, but is spread across a variety of spaces as part of a resource diversification and risk management strategy. Some of the spaces from which these resources come from are presented in Table 7.5. These should be understood as important socio-ecological spaces that local actors maintain in order to meet their livelihoods.

**Table 7.5: Exploitation of tree and forest resources from various ecological spaces**

<b>Ecological Spaces</b>	<b>Resource Collected</b>	<b>Main Collectors</b>
Forest/Bush land	Firewood collection, mushrooms, leafy vegetables, thatch grass and fruits Medicinal plants	Women and children
	Construction poles Livestock fodder and browse Animal trappings, Medicinal plants	Men
River line areas	Extraction of reed material for basket making and other crafts	Men and women
Uncultivated farm plots	Thatch grass, firewood, leafy vegetables	Women and children
	Livestock foraging, Mice digging,	Men and boys
Homestead	Trees with medicinal value and firewood	Women and men
Wetland ( Chinyika)	Sweet potato propagation, thatch grass, fruits	Women
	Grazing , fruits  Also playing area	Men and boys

Source: Field data

### **7.3 Local administrative arrangements and natural resource governance**

This spatial heterogeneity in the local ecology of Shisholeka is an important factor in understanding how local actors manage their commons. As already pointed out in Chapter Five, the various ecological spaces that contain vegetation resources serve different purposes and are therefore managed differently. While uncultivated farm plots in Shisholeka are the primary responsibility of individual families, sites such as the Chinyika and the village Shantini are considered as community goods or village commons, available to all members of the village and therefore managed collectively.

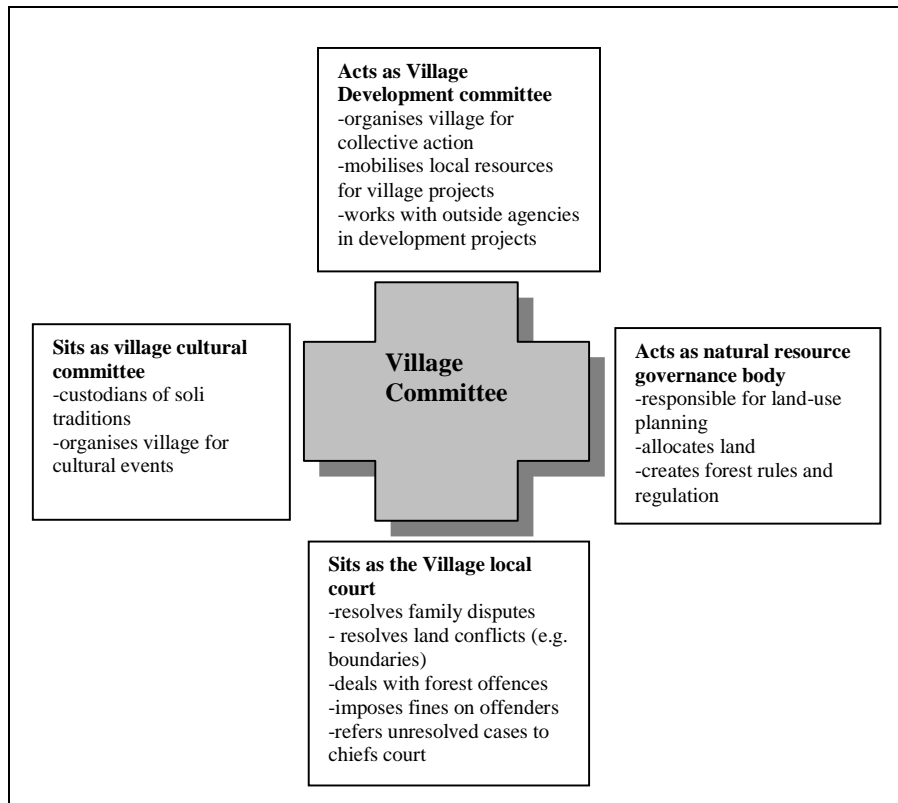
One of the most important features of collective natural resource management is the local governance structure that guides the people's interaction with these commons. In Shisholeka (just like the neighbouring villages), the village committee headed by the Induna serves as the administrative body that provides leadership in the management of the village commons. The committee comprises 12 members, of whom only 4 are female. While the village Induna's



position is hereditary, all the other members of the committee are directly elected from the community. According to the local elders, in the past, members of the committee used to be handpicked by the Induna. In addition, the committee used to comprise only people of Soli ethnicity. Over the years, this has changed as positions (except the Induna) have become electable and even non-Soli people participate in the governance of the village. For example, of the 12 committee members in Shisholeka, three belong to other ethnic groups. According to the Induna, the composition and structure of the committee is in line with the guidelines issued by the chieftaincy. According to these guidelines, at least 30% of the positions on the committee are for women.

Although the village committees are not statutorily recognised by the state as legal entities in their own right, they are crucial to the day-to-day administration of rural communities in Zambia. Arguably, the village committees provide the most important governance structure by which community relations and stability are maintained in rural Zambia. Indeed, modern institutions, such as the police, statutory courts and the district council, have barely penetrated most remote parts of the country (see also Banda, 2002). The village committee acts as a multi-purpose body which assumes different responsibilities at different times (Figure 7.1). It sits as a law-making body to create rules and regulations for maintaining order in the village, as a court to arbitrate over local disputes according to custom and tradition, and it also acts as a development committee that facilitates village infrastructure development. According to Kabimba (2001), the village committee should also be recognised as a *de facto* decentralised natural resources management body.

**Figure 7.1: The village committee as multipurpose body**



Source: Field data.

The village committee provides the institutional foundation for people's participation in natural resource governance in Shisholeka and other villages in the area. According to the village secretary, the committee meets once a week to discuss various matters that concern the village (including natural resources issues). Any contentious issues or plans are referred to a general village meeting during which suggestions are solicited, discussed or debated, and consensus reached. In this regard, unlike in the state-centric resource governance approach, where bureaucratic delays are the norm, this local set-up allows for a quick decision-making process and facilitates the flow of information among local actors. However, this local institutional arrangement is not without conflicts. Like any political arena, local opposition to the work of the committee exists in the village. For example, one of the leaders noted that the committee often has to contend with the actions of some of the local elites in the area. She pointed out that:

“.....the rich people think they have the power to do anything, its difficulty to control them.....sometimes they do things just to irk us. Sometimes they just refuse to participate in village programmes or to follow rules....”

Indeed, according to the village secretary, at least two of these families have in the past sought to expand their fields into the village forest and their case had to be handled by the Chief's court after the village's resolution efforts were exhausted. However, one of these two households who participated in the study noted that the committee should not expect to work without being challenged, as some of their demands are often unreasonable. This was well expressed in the following statement:

“.....the committee sometimes imposes unreasonable a demand on the community and this is the reason we challenge them or keep away from certain things.....they should also know that they will not always have their way.....”

Apart from this opposition from local elites, two other respondents in the study also expressed disapproval of the local committee, alleging some corrupt practices by the village committee surrounding land allocation and the selling of trees to people in neighbouring villages. In general, however, the study finds that the committee retains a favourable acceptance by most members of the community as evidenced by the large number of respondents (more than two-thirds) who felt comfortable being led by the committee. This fact alone is important, as it confers, despite its *de facto* status, a high internal legitimacy on the village committee.

The village committee plays a firsthand role in the management of three important ecological sites with tree resources. These are the Chinyika, Manda (grave forest) and village Shantini. These three sites shed light on the operations of customary natural resource management and are highly illustrative of local people's agency and capacity to craft a natural resource regime that reflects their collective vision and realities. In addition, the management of these sites seems to validate theoretical positions that emphasise the potential and competence of local actors in responding to local challenges in their environment (see Kirby, 2001; Rigg, 2007; de Haans and Zoomers, 2003; Leach et al, 1997; Ostrom, 1990).

#### 7.4 Management of wetland vegetation (Chinyika)

The 'Chinyika' is a stretch of wetland in the middle of the village that splits Shisholeka into two separate parts and is primarily covered by grasses interspaced by Munkhuyu (*Ficus Sycomorous*) and Musekese (*Piliostigma thonningi*) tree species. The area is called Chinyika by the local population, a word that means an ever-wet place. In this area, settlement, extensive clearing of vegetation for agriculture and the cutting of trees are prohibited. The primary objective of restricting other livelihood activities in the Chinyika is to conserve the wetland for the purpose of providing all year pasture and water for livestock in the area. According to the elders, in the past ten years, there have been a lot of pressures on the village to convert this area into cropland. For example, JICA had at one time advised the village to convert the whole area into rice fields in order to boost food production in the village. However, the proposal was rejected by the community on the grounds that the area was a vital asset for livestock-based livelihoods. In the dry season, in particular, it provides a refuge for local livestock when other ecological areas are dry or when fodder is destroyed by fires, which are quite frequent in the area.

In addition, the Chinyika is an important space for indigenous agro-biodiversity conservation. According to the local farmers, the ever-wet environment of the Chinyika provides an opportunity for the preservation of parent material for vegetatively propagated crops. For example, sweet-potatoes (*Ipomoea batatas*) depend on this method of propagation. At the end of the farming season, when the farm sites are getting dry, the farmers cut sweet potato vines from the field and plant them in a portion of the Chinyika. This allows the vines to grow roots and survive throughout the dry season until the rainy season when they are transplanted in the main fields. Moreover, during the period of preservation, the leaves are harvested by women as a vegetable called *Kalembula* or *Kholowa*, both for subsistence and as a source of household cash income. According to one of the women, *Kalembula* is one of the most sought-after traditional vegetables by urban dwellers.

The use of the village Chinyika for the preservation of crop material appears to be part of a broad local effort to preserve indigenous crop varieties that play a crucial role in their livelihoods. In the past decades, this area has seen the disappearance of many indigenous crop varieties (e.g. indigenous maize varieties, sorghum and millet) due to increased emphasis on

hybrid maize technology promoted by agriculture policies. As noted in Chapter Five, in the face of environmental uncertainties, there is a bid by local actors to retain these local varieties. The Chinyika is an illustration of how local controls can act to protect natural ecosystems such as wetlands. By choosing to restrict land use to a limited set of livelihood activities, the community is contributing to the protection of important ecosystem services such as biodiversity conservation, preservation of plant genetic material, carbon removal and storage, erosion protection and water filtration which do not only benefit the local community, but non-local actors as well. Like the agro-forestry spaces (on home gardens, homesteads, uncultivated farm plots etc) managed by individual families (see Chapter Five), these should also be understood as important elements of indigenous agro-environmental management systems that can play a significant role in sustainable development initiatives.

### **7.5 Management of grave forests**

Sacred graves and groves are the best acknowledged local institutions governing customary natural resource management in most parts of Africa (Banda, 2002; Kangende, 2001; Banda et al, 1997). Indeed, the practice of preserving woodland resources around grave sites is perhaps one of the most persistent customs in Zambia (see also Banda et al, 1997). In this study, this was evident in all the study sites. Apart from clearings at the entrance to the grave site and on the actual tomb sites, indigenous vegetation is retained around the whole area designated as the village grave yard. Extractive activities of any kind (e.g. digging, cutting of trees, picking of fruit) or unexplained visits (i.e. visits when there is no burial or memorial service taking place) to these sites are prohibited in all the villages in the two chiefdoms studied.

According to the local elders, the grave yard is one of the most sacred places in the village as it is a resting place of the ancestors. Consequently, extracting resources on the grave yard is assumed to be a 'taboo' and an offence, not only against the members of the village, but against ancestral spirits as well. Although community-determined sanctions exist for non-compliance of these rules, it is the fear of the supposed 'misfortunes' that befall an individual who infringes on these spirits that is most important in the preservation of grave forests. In all the study sites, almost all respondents noted that they would never think of going to cut trees or dig up something at the village grave sites. In fact, some noted that one had to be insane to do so, while others pointed out that only witches are in the habit of extracting things from

grave sites. Indeed, some respondents who were asked to comment on why they did not touch trees on areas designated as grave sites gave the following responses in Box 7.2

### **Box 7.1 Local views on grave forests in Shisholeka**

*Sh03: "it's where we rest our dead, you cannot start playing around that area, its taboo and misfortune can befall you....that is the reason we ensure the whole area is always covered by trees..."*

*Sh08: ".....even if I starve I cannot pick a fruit there (grave forest), people would think I am a witch..."*

*Sh12: "...the grave is a place to respect; it's a taboo to start cutting trees there or cultivating there..."*

*Sh21: "vibanda (spirits or demons) live there, you have to have no fear or be a witch yourself to collect even some soil from there..."*

*Sh23.... "Respecting the whole area around grave sites is a custom that every community has, our ancestors deserve respect...you can't just go and start cutting trees there unless you are insane..."*

Source: Field data

It is evident from Box 7.2 that, apart from the fear of 'misfortunes', grave forests are also associated with witchcraft. Local people believe that the grave site is also home to some form of dark supernatural power or spirits called *Vibanda* or *Vipuku* (demons or ghosts) with whom the witches associate during their rituals. In addition, it is argued that it is from the grave sites that witches launch attacks on other members of the community. Consequently, most local people would not take anything from the grave forests for fear of being labelled a witch or being contaminated with bewitched material. According to a local community-based natural resource management (CBNRM) expert interviewed in this study, although these beliefs may be viewed as mere superstitions to the outsider, they are the main reason why in most rural areas of Zambia, the area surrounding grave sites tend to be the most forested site of the village. Indeed, Banda et al (1997) also note that when traditional leaders allocate land, they are mindful of protecting certain communal sites such as grave sites and other areas of spiritual importance.

From interviews with local community-based natural resource management (CBNRM) experts and traditional leaders, it is evident that there are many forms of sacred forests in Zambia. One of the traditional leaders gave an example of the Chipupilo system in Serenje district. In this area, forested portions of customary land were designated as special or sacred forests by the elders of the village. Access to, and use of, resources in these forests, was regulated through special natural resource managers called Chipupilos. The Chipupilos were specifically assigned to regulate and monitor the use of various resources of the local commons such as water points, land and forests. In the context of the sacred forests, they determined when, how and where resources in the forest had to be harvested. These forests were sacred because the chiefs of the land kept their charms and instruments of chieftaincy in these areas. Therefore, it is considered taboo for a person to cut trees or harm any life form in the area unless the Chipupulo had blessed the forest to ensure that no harm came upon the resource user. This blessing was conducted in the form of a ritual and took place at the time when the resources of interest in the forest were ready for harvest (e.g. the caterpillar harvesting period in the rainy season). Although the Chipupilo system still exists, the traditional leaders noted that it is increasingly becoming weaker in the face of new state conservation initiatives which are incompatible with this system.

## **7.6 Management of the village Shantini**

The village Shantini is perhaps the most interesting element of customary natural resource management in Shisholeka. The village woodland which contains a variety of tree species (Table 7.6) is held as a model of sustainable common pool resource management by the district forest office. Indeed, the head of the District Forestry Office acknowledges that Shisholeka has one of the most unique forest management systems. Natural resource management of the Shantini, which is approximately 600 hectares in size (according to the village secretary), is oriented towards the provision of multiple goods and services for the local community (i.e. it is a multi-functional woodland area). Although much smaller than most government forests (e.g. Munyeta), the Shantini can be thought of as a community conservation area or community woodland. The woodland is located just adjacent to the former Kanakantapa forest reserve, an indication that it is simply a remnant of a large woodland area, part of which was alienated in the 1970s for state forest management.

**Table 7.6: Some tree species in the village shantini and their uses**

Tree species	Uses
Mphundu ( <i>Parinari curatellifolia</i> )	Fruits, porridge, medicines
Mulombe ( <i>Pterocarpus angolensis</i> )	Timber, firewood
Mubanga ( <i>Pericopsis angolensis</i> )	Construction poles, firewood, timber
Bamboos ( <i>Oxytenanthera</i> )	For construction of storage facilities, baskets
Matete ( <i>Phragmites mauritianus</i> )	For making mats, chicken house and coffins
Msase ( <i>Albizia antumesiana</i> )	For making mortars
Kalama ( <i>Combretum molle</i> )	leaf paste: treatment of wounds and sores
Mucenja ( <i>Diopspyros mespiliformis</i> )	Fruit, crushoot used as treatment of wounds and sores
Mutowa ( <i>Dyplorhynchus condylocarpon</i> )	Headache relief, roofing poles
Mupapa ( <i>Azafia quanzensis</i> )	Toothache relief
Mango ( <i>Mangifera indica</i> )	Stomach pain relief, fruit, firewood
Musekese ( <i>Piliostigma thonningi</i> )	Cough relief, stomach ailments
Kamponi ( <i>Jubernadia globiflora</i> )	fibres, axe and hoe handles, firewood
Mtondo ( <i>Jubernadia paniculata</i> )	Also axe and hoe handles

Source: Field data, scientific names from biology department, University of Zambia.

From the results of this study, it is clear that the village has been quite successful in managing the woodland to meet its local needs. Indeed, both the interviews and the livelihood asset survey show that the local community is largely self-sufficient in meeting their energy needs, construction poles and grazing needs, as compared to other villages in the area such as Mtanuka. However, a resource that the village has not been able to protect fully is thatch grass. According to the women, they have to walk about 3-4 kilometres away from the village in order to fetch thatch grass. Most of the women noted that this scarcity of thatch grass is often caused by frequent fires started by young men in the village who burn bushes to facilitate the capture of small animals. It would seem that village resource management has concentrated largely on tree protection (perhaps because men have a direct stake in tree conservation) and pays little attention to the protection of thatch grass and other non-tree products often used by women.

According to the village elders, the role of the village forest committee is to ensure equitable access to forest resources through the creation and modification of rules of access and resource harvest (Table 7.7). In addition, the village committee has the role of resolving intra-village natural resource conflicts and imposing sanctions on community members or non-community members who do not comply with local rules and regulations. Only members of Shisholeka community are allowed to access resources in this forest. There is no charge involved in use of



forest resources in the Shantini. According to the Induna, outside actors (including neighbouring villages) are only allowed to harvest a resource in the village forest with the permission of the village committee which assesses their needs on a case by case basis.

Adherence to this natural resource pattern of exploitation and rules governing access is enforced through what can be termed as an '*everyone a guard*' approach. According to the research participants, it is the responsibility of each member of the village to question the presence of an outsider in the village Shantini and to see that members of the village are not cutting trees to sell to outsiders or for charcoal production. Indeed, when the researcher asked one of the women to explain how women participate in the protection of trees and the woodland in their area she noted that:

“.....if we see anything suspicious such as a stranger in the woodland ...or hear the sound of an axe, we report the matter to the vigilante. Everyone here is alert because we have some people from Mtanuka who steal trees...”

The village also has a group of young men who form what the village calls the vigilante unit, and this group is charged with the responsibility of protecting the village from thefts. The unit operates under the direction of the village committee. According to the leader of the vigilante unit, intruders in the village Shantini are only confronted if they have cutting tools or if they are caught in the act of cutting a tree. The vigilante unit confiscates the cutting tools and refers the offender to the village committee which sets the date for a local court hearing where it sits as the *nkhuta* (local court). Justice is swift and the offending individual is made to apologise and pay a fine in form of cash or other items such as chickens or a goat. The continued availability of forest resources and the health of the woodland are not only dependent on the exclusion of others from the forest, they are also dependent on the rules of harvest that the members of Shisholeka have to follow in the extraction of forest resources (Table 7.7). For example, while collection of dead tree products, such as twigs, is unrestricted, cutting of trees is a highly restricted matter. In order to obtain a pole from a live tree, lopping and some form of pollarding is practiced (see Plate 7.4 on harvesting of harvesting tree product). However, if a household requires cutting a whole tree in the village forest, then permission must be granted by the village committee.

**Table 7.7: Local rules guiding natural resource access and use in Shisholeka**

Access rules	Description of rules
<b>Access Rules</b>	Access to the Shantini restricted to members of the village Non-local actors are denied access Actors from neighbouring villages allowed access if require firewood for funeral gathering Non local actors found in the forest confronted only if found with cutting tools or cutting a tree
<b>Harvesting rules</b>	Collection of non-wood products unrestricted, however cutting of tree requires permission Pollarding rather than felling encouraged Harvesting of tree for charcoal production not allowed Cutting of certain trees such as Mphundu ( <i>Parinari curatellifolia</i> ) noted allowed

Source: Field data

This system seems to take into consideration the fact that resources in the village commons are consumption-variant or subtractable (i.e. consumption of one unit of these resources leaves less for others) (see Singleton and Taylor, 1992).



Source: Field data.

Plate 7.3 Part of tree cut for domestic use in Shantini.

This appears to be a cautious approach to natural resources management, rather an unregulated system as represented in crisis narratives. In this vein, the study notes two levels of natural resources regulation of the village Shantini: (a) regulation of access to the village woodland; and (b) regulation of type of resources exploited, amount of harvest and mode of harvesting. This is a self-regulating system that is tailored towards resource sustainability and mirrors Ostrom’s design principles (or features) of a sustainable common property resource system (CPR) (Ostrom, 1990, see also Singleton and Taylor, 1992; Hobley, 1996; Hesse and Ostrom, 2007). Table 7.8 compares these principles with the natural resource management regime in Shisholeka.

**Table 7.8: Ostrom’s principles of sustainable CPR systems and Shisholeka system**

Ostrom’s Principles	Shisholeka CPRM
Boundaries of user group and the resource clearly defined	Right of access and resource use restricted to Shisholeka residents
Use rules are appropriate to local conditions	Exploitation of resources in the village forest is governed by rules that are locally determined
Most users can participate in modifying operations	Members are aware of the local rules and avenues of participation in local natural resource management.
Monitoring is done by users themselves or by monitors accountable to them	Every villager is a monitor and the village has a local vigilante unit
Users have easy access to local arenas for resolve conflicts among users and officials	Conflicts among users resolved locally through the village committee
The users have the right to organise their own solutions unchallenged by external government authority.	So far community has not encountered any challenge from government authority, although the committee is not statutorily recognised

Source: Ostrom (1990) and field data.

An important element of these rules is that they have received high acceptance among the local population who refer to these customary rules as *Lamulo* (the law), the same way as one would refer to statutory regulations. This *Lamulo* is one the most important elements that is missing in areas such as Munyeta, where state regulations have failed to control natural resource degradation. Some of the views of Shisholeka residents on these rules are indicated in Box 7.2.

### **Box 7.2: Views of some Shisholeka residents on their natural resource rules**

**Respondent Sh03**

*“It is ‘Lamulo (law), we have to follow it otherwise our trees will disappear like in Mtanuka...”*

**Respondent Sh07**

*“I am glad that our village leadership recognised the problem of charcoal and quickly put Lamulo (a law)....*

**Respondent Sh09**

*...this is a village and if the committee says let’s do this, we have to, but I must say that this committee has made every effort to explain why we have Malamulo (laws) for the Shantini*

**Respondent Sh19:**

*“...yes Malamulo (the laws) have helped in protecting our forest. This is the only village with a lot of trees...you can see how open Mtanuka it, only the grave site has trees...”*

According to some of the older residents of the village, Shisholeka has used local rules to regulate access and use of forest resources for over seven decades now. These rules have also changed several times over this period, reflecting flexibility and capacity to adapt to change. This is well-highlighted by a member of the village committee who notes:

“...these rules have been there, the village founders instituted them and we have only strengthened them.... what disturbed us in the past was charcoal.....it was a new thing for the village and it took us some time to realise that our trees can go so new rules were passed to ban charcoal....”

Indeed, this rule shows that at one point, charcoal production had threatened the sustainability of the forest resource base in Shisholeka which forced the village leadership to create new rules to deal with the problem. Charcoal production was introduced in this area by Tanzanians and Angolans. It started when Kanakantapa forest reserve (adjacent to Shisholeka) was opened up for charcoal production in order to meet the energy demand in the peri-urban areas of Lusaka. Shisholeka village was among the first to recognise the negative impact of charcoal on their environment, showing the capacity of local actors to respond to the environmental challenges that often confront them. Moreover, although many scholars attempt to characterise customary natural resource management systems as archaic, primitive and informal, some elements of this natural resource management system appear to defy these generalised descriptions (see also Horning, 2005; Armitage, 2004). For example, the study finds that forest

rules are no longer unwritten or informal; the village committee has a secretary who records all new rules which are then disseminated through village meetings. In addition, at the time of the fieldwork, the local community was also in the process of seeking assistance to have the village territory clearly mapped in order to facilitate local decisions and to avoid boundary conflicts with neighbouring villages. This serves to show that these institutions are never static and rural communities can no longer be thought of as the closed primitive societies of the past. It is also evident here that the presence of diverse groups living in the area, and the alliances among them, has enabled an exchange of skills and knowledge that now appear to be assets in natural resource management and livelihood enhancement. Although, in many cases, community heterogeneity can be problematic in local organisation (as in Munyeta), this is not the case with Shisholeka. Community organisation as an important social asset is also reflected in the number of physical structures that they have worked together to construct such as the local market shed, the multi-purpose community hall and veterinary infrastructure such as dip-tanks. Indeed, this natural resource regime demonstrates the resilience and adaptability of local institutions despite decades of marginalisation.

### **7.7 Customary spaces and the shift towards sustainable development**

These results reveal that not all common property resources systems should be classed in the general label of open access systems, as currently is the case with Zambia's forest policies (GRZ/FAO, 2010; GRZ-MTNR, 1998; ZFD, 1974). As other common property theorists have argued, common property systems are characterised by structured ownership arrangements within which management rules are developed, group size is known and enforced, and incentives exist for co-owners to follow the accepted institutional arrangement and ensure compliance (Daniel and Cornea, 1989; Ostrom, 1990; Meinze-Dick and Mwangi, 2009; Ostrom, 1990). While there are certainly communities that are struggling to institute local controls, there are also cases of successful CPR systems in Zambia. Apart from Shisholeka, other examples here include the Chipupilo system that has already been discussed in the earlier sections of the chapter. Another well-known case of local natural resource management exists among the Lozi people of western province. According to Mubita (1984), although the colonial government is widely seen as the first to initiate 'organised forest management' in Zambia (ZFD, 1974), the Lozi people have long had places set aside as forest reserves to meet local cultural and material needs even before the advent of colonialism. These forests, known

as *Umushiti Wamulena* (the King's forest), were excluded from settlements, agriculture and any other activity that could seriously impair the ecosystem. In 1903, one Lozi king pronounced some of the forested spaces as protected areas and these were even the subject of an agreement between the Litunga (the King) and BSA Company (i.e. that the BSA company would not undertake mineral explorations in these areas). To date, the Lozi people continue to manage these forested areas as customary natural resources systems.

However, it was also evident during this study that much work still needs to be done to reveal the hidden potential of customary natural resource systems in Zambia. From interviews with the Zambia community-based natural resource forum (ZCBNRF), it is clear that diverse customary institutions of one kind or another exist throughout Zambia (among the 72 ethnic groups), covering diverse natural resources such as water, fisheries, land, wildlife and trees. What is lacking at the moment, however, are detailed studies of how these institutions operate and the opportunities they offer for sustainable natural resource management. Most studies on local-level management of natural resources management in Zambia have concentrated on either protected areas or the implementation of externally funded community-based initiatives (mostly in the wildlife sector) (e.g. Nkhata and Breen, 2010; Kajoba and Chidumayo, 1999). This, however, has only served to obscure the place of locally-crafted natural resource management regimes.

As already noted in Chapters One and Five, both customary areas and protected areas counterparts are now the targets of new decentralization and devolution policies that claim to devolve some of the state's decision-making powers to local actors living within or in proximity to forests (ZFD, 2005; GRZ-MTNR, 2009). This is an important shift in natural resource policy as under the fortress conservation model, investment in environmental protection was confined to protected areas, while natural resources in customary areas were neglected. Moreover, the fortress conservation model was characterized by a distorted view of common pool resources (i.e. as lacking institutional controls). However, this chapter's demonstration of local actors' creative agency justifies the need for new natural resources strategies that correct this distortion and acknowledge the role of local actors in resource management. As these locally-crafted institutions and governance arrangements have operated without statutory legitimacy (i.e. as *de facto* systems), this discourse of participation represents an opportunity for legitimizing such systems.

As Lindsay (2002) notes, common pool resource management systems, however robust or sustainable they might be, still require legal protection from the state (see also Barrow et al, 2005; Lindsay, 2002). This is simply because there are many things that local actors cannot do under the current forest tenure system in Zambia. For example, local actors, on their own, cannot define the rules by which they interact with all outside actors. They need a legal recognition that other actors can recognise and interact with (e.g. legal protection from trespass by other actors), so that they can continue to manage and benefit from such resources while being legally able to resist external exploitative influence (Barrow et al, 2002). Indeed, although up to now the local community in Shisholeka has been successful at excluding other actors from accessing resources in their local woodland, the reality is that they are doing it outside the law. Lindsay (2000) notes that local rules alone cannot limit the power of the state and legal protection is important for determining the extent to which the state should respect the autonomy of such local institutional arrangements. However, the important question here is, will decentralisation initiatives meet these expectations? Will these initiatives uphold these customary governance structures, institutional mechanisms and increase local actors' decision-making space in resource management. Are they an opportunity or a threat to customary natural resources management systems? As Batterbury and Fernando (2006) point out, legal prescriptions governing resource management are often in contradiction with locally-crafted rules and governance structures (see also Berkes, 2004; Cooke and Kothari, 2001). To answer these questions, it is important to see how the decentralised initiatives are framed and translated into practice in both customary areas and protected areas. In this regard, Chapter Eight will examine these issues in detail.

Apart from the shift towards natural resources participation, another important feature of sustainable development is the extension of conservation to agricultural environments. Like other parts of Chongwe, both the Shisholeka area and Munyeta have been targeted for agri-environmental initiatives. A number of organisations are implementing conservation agriculture which promotes the growing of wild tree species on cropland. This is the first time that such initiatives have been implemented in the area. Again, this chapter has pointed out how local actors, as a demonstration of their knowledge and experience surrounding their environment, manage some of the ecological spaces in their area as agro-forestry or agro-ecological systems that do not only deliver livelihood benefits, but also important ecosystem

services for society. The important question to ask is whether or not the implementation of these agri-environmental initiatives recognises the role of local actors' experience and knowledge surrounding their environment as demonstrated in this chapter.

## **7.8 Conclusion**

This chapter uses empirical data from the Shisholeka to situate customary natural resource management regimes in Zambia's conservation agenda. In this regard, it makes an important contribution to the current debate surrounding the management of common pool resources by examining how customary natural resource management systems operate in practice. The chapter reframes local actors as agents of sustainable natural resource management as opposed to the villains that crisis narratives often posit. From a political ecological perspective, this is crucial, as natural resources policies have often been constructed on a poor understanding of local actors' creative agency and circumstances (see also Bryant and Bailey, 1997; Jones, 2006; Assan et al, 2009). As noted in both the case of Munyeta and Shisholeka, customary areas have frequently been misrepresented as open access regimes characterized by lack of structured ownership and management. This chapter presents a counter-perspective to these narratives and demonstrates that customary actors attach great importance to the role of forest resources in their livelihoods and general welfare. The value attached to these resources acts as a strong driver of local people's agency in natural resources protection. Consequently, despite the restrictive legal environment in which customary regimes operate, some customary actors and their institutions have continued to provide viable local level solutions to natural resource problems being faced by the country. Shisholeka's strength seems to lie in a strong social capital that is manifest in a well-organised and committed village committee, high internal legitimacy of the natural resource administrative organ, and strong community identity and cohesion. These three factors have allowed Shisholeka to craft an effective natural resource management system that has created self-sufficiency in the supply of forest resources vital to their livelihoods. However, the important question, as far as this research is concerned, is to what extent these customary natural resources regimes and practices can be accommodated in the new sustainable development initiatives being implemented in the area. These issues are discussed in the next two chapters.



## Chapter Eight

### **Sustainable development: participation and devolution in natural resources management**

#### **8.1 Introduction**

It is now over a decade since Zambia embraced the new discourse of participation and devolution in resource management and important questions surrounding the translation of these policies into practice are now beginning to emerge. These questions include how policy makers and implementers contextualise and translate these policies into practice; the implications of this implementation process for natural resources management and people's livelihoods in both customary areas and protected forest area and whether this process is having the desired effect (i.e. has it changed the way resources are managed?). This chapter uses the case of Chongwe to examine these issues in detail. In the first part of this chapter, the study examines how the euphoria surrounding the notion of participation and decentralisation has created a situation where different actors in the implementation process appeal to divergent constructions of participation and devolution with significant implications for natural resources management. In the second and third parts of the chapter, the study discusses the role of local government and the Forestry Department in translating devolution policies into practice. The chapter argues that the process of translating these policies into practice is fraught with major difficulties, such that participation and devolution policies have not yielded the dividends that devolution theorists often support. Instead, the process has resulted in a struggle for power between differing actors at various levels, resulting in a failure to implement key elements of these policies. The study highlights the limits of the new natural resource management regime designed to provide an alternative to the natural resources models discussed in the previous two chapters.

#### **8.2 Decentralisation, local government and forestry reforms.**

The process of devolving natural resource management to local actors appears to have branched along two different paths. First, devolution of natural resources is part of the local government reforms that started in the early 1990s, in which the state seeks to devolve a range of functions and responsibilities to local governments in order to ensure broad-based participation in governance (GRZ, 2004). The state outlined 63 functions that autonomous district councils are supposed to perform under a decentralised local government system.

These functions include the management of local forests, woodlands and grazing areas. This is explicitly acknowledged in the Local Government Act, Chapter 281, Section 61 (see sub-section 6 and 8) of the country's laws (GRZ, 1995). However, the Act does not empower local governments to manage protected forests designated as national forests (see Chapter Four on the distinction between local and national forests). The responsibility of managing this category of forests continues to be vested in the central government. The role of the local governments in environment and natural resources protection is further re-affirmed by the national decentralisation policy approved by the state in 2002 and launched in 2004. It notes that:

“The council will raise part of their own revenue and receive grants from the central treasury to perform such functions as “.....management, conservation of natural and wildlife resources” (GRZ, 2004: 21).

Secondly, devolution of forest resource management is a forestry sector-driven agenda and represents a shift in the forestry department's own natural resource management approach, from a state-centric strategy to a collaborative or community-based strategy (ZFD, 2005). This shift follows the state's adoption of a new forest policy in 1998 which replaced the 1965 policy (see Chapter Four). In addition, this conception of natural resources devolution provides for the participation of a broad range of other actors in natural resources management, such as non-governmental organisations and the private sector (GRZ-MTNR, 2007; ZFD, 2005).

The challenge with the new policy initiatives in the two sectors (local government and Forestry Department) is that the two are poorly linked and are characterised by overlaps and conflicting mandates. This discrepancy was acknowledged by a legal officer in the national decentralisation secretariat who notes that:

“.....these are conflicting policies, under the legislative reforms; we are supposed to change all the laws not in line with the decentralisation policy. However, we have not even commenced the process of coming up with draft bills; but ideally, the decentralisation policy should supersede all sector policies”.

In addition, he notes that this has been a contentious issue since the decentralisation policy was approved and the difficulties of reconciling these policies emanate from the fact that “there are too many stakeholders involved and the whole process is besieged by bureaucracies”. Consequently, district level actors who implement these policies are confronted with two reconciled frames of reference: the forestry policy (1998) and the national decentralisation policy (2002) (backed by the local government act). This leaves the scenario open to what Edmund and Wollenberg (2003) call “politics of contradictory interpretation”, and this creates uncertainty and confusion over the domains of power that each actor holds in this process. Since this research is confronted with the two forms of decentralisation taking place at the same time, the study examines the process of translating both into operational practice in Chongwe, with a focus on the implications of the process on the two natural resource regimes discussed in the preceding two chapters.

### **8.3 Devolution of forest resources under local government reforms**

Under the local government reforms, the Local Government Act of 1991 gives District Councils planning, taxation and legislative powers to perform the 63 devolved functions, which include district councils being empowered to create bye-laws that regulate or prohibit unplanned natural resource exploitation in order to facilitate the protection and maintenance of forest resources in the district (except for protected areas designated as national forests). According to one of the legal officers at the national decentralisation secretariat, the Councils also have the right to benefit from the exploitation of environmental resources in their districts. Consequently, the District Council can, for the purpose of generating revenue, impose local taxes on actors exploiting these resources, as long as the taxes are not in conflict with state laws. Indeed, a research participant from the Ministry of Local Government notes that the past twenty years have witnessed the creation of local levies by District Councils targeting a wide variety of environmental resources such as forest products (charcoal levy), fisheries, agriculture products (e.g. grain levy), mining and even sand excavation. In addition, the study finds that councils have also been empowered to establish standing order committees for the purpose of performing these functions. Table 8.1 indicates the powers of Chongwe District Council and how it is utilising these powers.

**Table 8.1 Rights and responsibilities of the District Council over natural resources management**

Domain of powers	Detailed description and how the district council is using these rights
<b>Legislative powers</b>	<p>Council can create bye-laws to regulate unplanned natural resource exploitation</p> <p>Bye-laws are subject to approval by the state</p> <p>District council has not used this right to regulate forest or grazing resources in the district</p>
<b>Planning Powers</b>	<p>The council has the right to develop land-use/integrated development plans, local environmental actions plans to guide exploitation of resources in the district and protect sensitive environmental sites.</p> <p>So far the council has developed district development plan, but no district environmental plans or local environmental action plans developed</p> <p>Council has had difficulties in developing land-use plans for customary areas because of conflicting legislations</p> <p>Councils can also request for degazettement of forests reserves in line with land-use plans</p>
<b>Local taxation and revenue collection</b>	<p>Council has the right to benefit from natural resource exploitation in the district</p> <p>The council can create local taxes- chongwe council has charcoal levy, sandy levy and other taxes.</p> <p>Local levies have to be approved by the state and can be suspended by the state, if they are in conflict with state-laws</p>
<b>Creation of community level governance bodies</b>	<p>Council can create local level governance bodies to act as local people's representatives and for the good governance of the district called Area Development Committees (ADCs).</p> <p>ADCs can participate in natural resource governance at the community level</p> <p>Chongwe has created ADCs in locations such as Shisholeka as multi-purpose decision making bodies.</p> <p>However, ADCs seem to be dysfunctional, lack funding and training and have not influenced local resource management at the community level</p>
<b>Law enforcement powers</b>	<p>Councils can maintain own law enforcement unit</p> <p>Chongwe district council has own council police unit.</p> <p>Council officers mount check points in the district for collection of levies from natural resource products</p>
<b>Local budgeting powers</b>	<p>Councils have right to make local budget for purpose of performing devolved functions - local budget is subject to approval by the state.</p> <p>So far, natural resources are not budgeted for, although recognised as a revenue source to fund council operations</p> <p>Local budget underfunded by the state</p>

Source: Field data – interviews, policy and legal documents.

As can be seen from Table 8.1, the Council has a range of powers that extend to natural resource management in the district. However, the Table shows that, so far, the District Council has only used its mandate in a limited way. Of all the six outlined areas where the council has rights over natural resource management, the council has only been able to create local taxes for natural resource products and establish check points for the collection of the same taxes. The limited nature of the council's use of devolved powers in terms of natural resources management suggests that there are challenges that the council is facing in acting as a vehicle of participatory natural resource management in the district. These are discussed in detail in the following sections.

### **8.3.1 The district council and natural resource management in protected forests**

While both the Local Government Act and national decentralisation policy transfer control of state forests classified as local forests to the council, the study finds that, so far, the District Council has had no direct role in the management of Munyeta local forest, which is the only state protected forest in the district (see Chapter Six). The forest is still under the control of the Forestry Department. In addition, interviews held with a local government practitioner in the Ministry of Local Government show that throughout the country, no District Council has so far gained control of state managed local forests in their areas of jurisdiction since the Local Government Act was passed two decades ago. The officer notes that the most important reason given by the state for not ceding control of local forests to councils is that most district councils lack the capacity (in terms of human, technical and financial resources) to manage these forests. Similar sentiments were expressed by the legal officer from the national decentralisation secretariat who notes that:

“...most departments argue that councils, especially the small rural councils, lack capacity to perform certain devolved functions and this is the reason they are reluctant to relinquish control to the Council”

Similarly, when a senior officer in the Ministry of Environment was asked to explain why his ministry has never ceded control of local forests in line with the Local Government Act and national decentralisation policy, he noted that:

“.. The retention of control over local forests was merely an interim measure which was intended to last only for a short while to enable central government build the capacity of Councils. But since then the situation in councils has been worsening, I don't think it will be a wise thing to transfer control of forests to Councils....”

In addition, a Forestry Department workshop report on natural resources devolution notes that the FD was uncomfortable with the idea of transferring forest functions to District Councils, considering that they were in a weak state (GRZ-MTNR, 2002). Indeed, the weak state of district councils in Zambia is acknowledged by Hampwaye (2008), who notes that district and city councils in Zambia experience financial difficulties, lack competent technical human resources and are characterised by weak institutional capacity to deliver services to the people. However, while the state maintains the argument that District Councils have no capacity to manage protected forests, local government practitioners who participated in this study have different views on the devolution process. These views question the state's position on this matter and are presented in Box 8.1. They seem to suggest two important things. First, they suggest that the state departments are hesitant to transfer devolved responsibilities to the Councils because of the fear that they will lose control over devolved functions and responsibilities (and possibly economic benefits derived from performing the functions). Indeed, the local government practitioners argue that the issue of capacity is being used as a cover-up to justify the state's reluctance to cede control. According to the legal officer from the national decentralisation secretariat, this fear of loss of control is partly one of the main reasons why there has been resistance by bureaucrats in government ministries to re-align sectoral policies to the Local Government Act and the national decentralisation policy.

### **Box 8.1: Views of local government practitioners on devolution of functions**

#### **Council officer- district planning unit**

*“...they (the state), have been talking about capacity, whose capacity have they been building? This is almost the twentieth year since the act was passed and they are still talking about building capacity. The decentralisation policy was also approved seven years ago and it is still about capacity. The truth is that there is no political will to do the right thing.....”*

#### **Council officer- administration**

*“ .. Talk about building capacity, but they have been doing the opposite, they have been taking away revenue from us, using discretionary powers to interfere in Council operations and then arguing that we have no capacity...”*

#### **Ministry of local government officer**

*‘.....there is just resistance, line departments such as forestry do not want to lose control and the issue of capacity is being used as an excuse.’*

#### **Decentralisation secretariat legal officer**

*“...before 1991 there was no problem, Councils used to receive enough grants from the state, they had enough sources of revenues but all this changed when the state sold council houses and took away a lot of sources of revenue such as motor vehicle licences , fire arm licences.... Now most Council are in shambles, they cannot pay their workers and they cannot deliver on services...in a way this lack of capacity has been created by the state...”*

*“...the Local Government Act is law and by this law, the councils are mandated to play an important role in the management of forest resources in their areas of jurisdiction but following the passing of the local government act, most state departments resisted the transfer of some of the devolved functions to district councils..”*

This failure to harmonise legal and policy frameworks, resulting in a situation where natural resource devolution is characterised by overlapping and conflicting mandates, is now recognised as one of the most important factors limiting the introduction of a new natural resource management regime in the forestry sector in Zambia (see McConnell, 2008; Temm and Johnson, 2001). Indeed, other scholars (Enters et al, 2000; Edmund and Wollenberg, 2003; Bazaar, 2003) have observed similar situations in other countries (Nepal, Philippines and Uganda respectively) where the national decentralisation codes or policies hand over

control of forests to local governments, but the state retains control of the same forests using sector-based policies with diverging conceptions of devolution.

Secondly, the views also seem to suggest that the state is deliberately weakening the District Councils in order to keep the narrative of the Councils' weakness running. According to these respondents, this is evidenced by the state's centralising of local taxes, the failure to provide sufficient grants for the council to fulfil its mandate and the frequent suspension of local taxes by the state. For example, one of the chief officers of Chongwe District Council notes that the grain levy, which was suspended in 2009 by the state, created annual revenue losses of about 1.4 billion kwacha (approximately US\$ 300,000) which has not been compensated for by the state, despite promising to do so. In addition, this revenue accounted for 37% of the Council's budget. The state argued that the suspension of the tax was aimed at providing incentives for farmers in order to boost agricultural productivity. However, the officer argues that this decision was unfair:

“Chongwe has over 20 rich commercial farmers. These have big farming businesses and their properties are worth millions of dollars, yet they do not pay property taxes, while poor people in the township do so. Grainy levy is the only tax we were getting from these farmers who have already received plenty of incentives. It is this revenue that is supposed to be ploughed back into the rural communities.”

The role of the state in weakening local governments is also acknowledged by Hampwaye (2008), who argues that in the last two decades, the state has undertaken several actions that have severely eroded the financial positions of the Councils. For example, he singles out a systematic reduction in government transfer of grants to Councils, sales of council houses at below market value through a presidential directive, exemption of some properties from tax and a government directive for local governments to disinvest in commercial ventures. For Chongwe, specifically, the idea that the state is weakening the Council by interfering in its operations and systematically starving it of financial resources for local service delivery and resource development is explicitly expressed in its district situation analysis, in which the Council gives four main reasons for its current weak position (CDDCC, 2005: 78). These are outlined as (a) the state's removal of some of the revenue of the Council following the restructuring process that began in the early 1990s; (b) reduced levies due to the economic



downturn; (c) political decisions and interference by the state, such as sale of Council properties; and (d) the government's grants in lieu of rates is inadequate and comes far too late. According to one of the council administrators, due to this financial weakness, Chongwe District Council has been unable to recruit staff to handle environmental matters specifically, as this would stretch its financial capacity, as over 60% of its annual budget was already being spent on personal emoluments, leaving very little for service delivery. Further, he notes that environmental and natural resources issues are handled by the District Planning Unit which is also in charge of facilitating the planning and implementation of district development projects.

Overall, all these views point to a general lack of political will by the state to commit seriously to the process of devolution. Indeed, it is doubtful whether any meaningful decentralisation can be achieved in a state where the decentralising authority lacks the will to cede power and control over devolved functions and responsibilities (see also Barker and Stockdale, 2008). The state of District Councils, and the messy way in which the decentralisation process is being handled (after two decades of reforms), has prompted other actors to conclude that in Zambia, democratic decentralisation is, in reality, a failed project. For example, the Parliamentary Committee on local governance has called on the state to revisit this policy and notes that:

“...despite decentralisation being an initiative of the government, there is not enough political will to implement it. Your committee are of the view that if government has difficulties implementing the national decentralisation policy, they should provide another policy direction instead of leaving the local government system in its current state...” (Zambia National Assembly, 2008:2).

It seems that although the state seeks to devolve natural resources management and responsibilities to the council, it has not provided Councils with the means to fulfil their mandate. According to Anderson and Ostrom (2007), to act as an agent of local participation and to mobilise local actors towards collective goals, local governments must have the human, financial and technical resources required to carry out their mandate (see also Enters et al, 2000; Bazaara, 2003). In view of the District Council's weaknesses, it seems that even if protected areas are turned over to the council, managing these sites will be more of a burden

for Chongwe District Council than an opportunity. Indeed, one local government officer noted that the initial euphoria surrounding decentralisation has now been replaced by frustration (on the part of local government practitioners), such that in terms of protection of local forests, most councils have counter-reacted in a manner that is contrary to the state's conservation objectives by using their mandate to force the degazetting of local protected forests in their district. He cited examples of Chipata, Livingstone and Lusaka districts, where Councils have pressurised the government to degazette protected areas. Similarly, Chongwe has had two of its protected forests degazetted (see Chapter Five). Moreover, the district forest office also believes that the Council has constructed a permanent structure in Munyeta forest with a view to having it degazetted.

### **8.3.2 The district council and management of common pool resources**

Under the Local Government Act and the national decentralisation policy, local governments are not only mandated to play a leading role in the management of protected local forests, but they are also empowered to maintain and protect forest resources (and even grazing areas) in customary areas (GRZ, 1995; 2004). Indeed, one of the research participants from the Department of Environment and Natural Resources notes that:

‘...if councils are prevented from taking charge of protected areas in their districts because of jurisdictional conflicts with the Forestry Department, there is nothing that prevents them from taking a lead in the protection of natural resources in open areas (customary areas), they are free to develop and enforce bye-laws ...’.

This focus on customary spaces represents a shift in natural resource policy from simply focusing on forested sites designated as ‘protected areas’ towards an approach that extends conservation to spaces of community livelihood practices such as grazing areas. District Councils are empowered to protect and maintain grazing areas (which are often forested environments) for the benefit of local livelihoods. In a sense, this should be seen as an important step in acknowledging the value of natural resources to local livelihoods and the need for working at the nexus of conservation and livelihoods. However, this is also one of the most contentious policy shifts, as it introduces a new natural resource actor in a terrain where endogenously crafted natural resource models such as Shisholeka exist (albeit operating as *de facto* systems). Grazing areas in customary areas, as common pool resources, have historically

been managed by communities themselves without the involvement of the state or local governments. In this regard, this study was interested in finding out how the Council was translating this mandate into practice in the district and how this relates to the existing customary natural resource governance structure. In particular, it sought to understand the type of strategies or initiatives adopted by the council and how they relate to customary initiatives. This section discusses this issue in relation to Shisholeka, where the council has established a presence.

According to one of the planners in the District Planning Unit (DPU), the Council has no specific model or strategy tailored to the management of forest resources or grazing sites in customary areas or municipal areas. She notes that the unit interprets this mandate as a process of integrating environment and natural resources in planning and development programmes implemented by the DPU. In her view, ideally, the DPU is supposed to work with the District Environment and Natural Resources Committee (DENRC) to develop a district environmental action plan covering the entire district. At the community level, she notes that the Council is supposed to work with the Area Development Committees (ADCs) to develop community environmental action plans. The ADCs are democratically elected local governance structures that allow villagers in each ward to participate in the development and management of their own resources and development process (GRZ/UNDP, 2010; GRZ, 2004). The planning officer pointed out that the idea is to establish ADCs in all the 15 wards of the district. So far, the council has established an ADC in the ward covering Mtanuka, Shisholeka and surrounding villages, but not in Munyeta forest reserve, which is still legally designated a protected area. The ADC in Shisholeka draws its membership from 17 villages in the area. Each village is represented by at least one person. The ward councillor, as a member of the council, sits as an ex-officio member on the ADC. The DPU, on the other hand, is the coordinating office of all ADCs. Previously, the council had no governance structures at this level. The ADCs stem out of assumptions that these local sites are characterised by inappropriate customary governance structures that are not in harmony with modern democratic ideals (see also Temm and Johnson, 2001). This is explicitly expressed in the national decentralisation policy which acknowledges the pre-existence of customary governance structures at the village level, but does not consider them as appropriate institutions for local representation (GRZ, 2004). It noted that there was a lack of forum at the local level for community participation in the decision-making of their own development

affairs. In this regard, the policy called for the establishment and statutory recognition of ADCs as the appropriate body to represent the collective at the lowest council administrative level of a ward. Similarly, the head of the Works Department of the Council notes that:

“.....we are aware that villages have their own traditional leaders, but in our system we only work with members of parliament, councillors and ADCs. These are all elected by the people.....”

The new rhetoric of devolution reformulates local participation in such a way that customary governance structures are (at least in theory) replaced by new democratic bodies linked to democratically elected councils. Indeed, the representation of local communities, as characterised by a ‘lack of forum’ and the subsequent ascendancy of ADCs, explicitly ignores customary bodies as agents of local people’s participation in the development and natural resource management and perpetuates the practice of placing customary governance structures outside mainstream state policies and legislation. Thus, while the policy does not dissolve customary structures, it simply ignores their role and establishes a parallel structure as its preferred administrative level. Consequently, it does not assign village committees any role in this devolved system of governance (or spell out their relationship with ADCs). On the other hand, this also creates confusion, as chiefs are legally gazetted by the state (although Indunas and their village committees are not). In addition, other policies, such as the land policy, recognise the role of traditional leaders in administering customary land. The introduction of ADCs is no doubt a recipe for conflicts with pre-existing structures. In the Shisholeka area, it seems that customary leaders initially saw the ADCs as a threat, such that some of them vied for leadership on the ADCs. For example, one of the members of the Shisholeka village committee is also the chairperson of the ADC. However, as will be seen later, the ADC is currently dormant, such that the village committee continues to be the sole local-level governance body that represents the collective in natural resources management and hence there were no identifiable conflicts between the two local governance structures in this instance.

Although in theory the ADCs are now officially the focal points of local collective action for the improvement of the environment and livelihoods in customary areas, the study finds that, so far, this has been mere rhetoric and there is little action to suggest that they have moved

into this role in Shisholeka or any other part of Chongwe. The ADC leaders in Shisholeka note that, since the establishment of the ADC, no environmental action plans have ever been developed. Similarly, interviews with both the DPU and the chairperson of the District Environmental and Natural Resources Committee show that no ADC across the district has so far developed these action plans, or is actively involved in the management of forest resources in the district. Besides, at the district level, the Council and DENRC have never developed a district-level environmental action plan. Although the Council has developed what is termed an integrated development plan (CDC, 2006), it is more of a multi-sectoral plan (in which the programmes and activities of each line department are outlined separately) than an integrated development plan. Moreover, in this plan, the Council seems to maintain its pre-decentralisation position of being concerned solely with urban service delivery and infrastructure development. For example, a section of the district plan that highlights the planned programmes of the Council over a five year period (2006 -2011) does not outline any objective or activity that covers the environment and natural resources, except for issues of sanitation and water provision. This may indicate either a lack of interest in the environment and natural resources, or simply a failure to integrate environmental matters in the Council's strategic planning process.

According to a research participant from the WWF country office, this problem is not unique to Chongwe, as across the country, most Councils have failed to develop both district and local environmental and natural resources management plans, or actively to act as vehicles of natural resource management in customary areas. He notes that in areas where communities have been successful at developing community environmental action plans or implementing an environmental programme, they have done so with the assistance of NGOs. For example, WWF has been assisting councils and communities in customary areas to develop action plans and zone sites for natural resources management in some districts where the organisation is operating. Similarly, DANIDA has been assisting Itezhi-tezhi district council to support community based natural resource management initiatives through ADCs and other community groups

The fact that Councils and ADCs are only able to play a role in the management of customary resources with external assistance revisits the issue of local governments' capacity to act as focal points of participatory resource governance (see also Edge and McAllister, 2009). As

seen in the previous section, Chongwe District Council’s internal capacity is far from being sound and the ADC in Shisholeka area appears to be moribund. In the words of one of the chief officers of the council: “ADCs in the district are almost dysfunctional, they lack training and resources”. This is basically because the Council has been unable, on its limited resource base, to fund ADCs and to build them into influential local governance bodies. Indeed, focus group discussions held in Shisholeka show that the ADC in the area is far from being an influence, either in the development process or in the management of customary forests. When the focus group discussion participants were asked to assess the influence of various actors in natural resource management and development in the area, the study finds the ADC was represented as rather peripheral to resource management and development in the area (Table 8.2).

**Table 8.2 Influence of various actors on natural resources and development activities in the area**

Name of organisation	Actor’s influence in community based activity				Total Influence Score (out of 12 total scores)
	Forest resources management	Mobilisation of community for development activities	Day-to-day village administration	Agricultural land management	
Village Committee	3	2	3	2	10
Ministry of Agriculture	0	2	0	2	4
Christian Children’s Fund	0	2	0	2	4
Conservation Farming Unit	0	1	0	2	3
Council (ADC)	0	1	0	0	1
Neighbourhood Health Committee	0	0	0	0	0
FD	0	0	0	0	0
Community score: very active-3, Moderately active -2, Active -1, Not active-0					
Note: The maximum possible influence score for each activity is 3 and for all 4 activities is 12. The total influence score is obtained by adding all the scores in the row and graded against the possible maximum of 12 scores.					

Source: Focus group discussions plenary session-Shisholeka

Table 8.2 shows that in terms of forest resources management, research participants in Shisholeka gave the ADC a 0/3 score, an indication that it has no influence in forest resources management. Overall, as a governance body to represent the collective, the ADC has a total influence score of 1/12. In addition, Table 8.2 shows that for the community, the village

committee, despite having no statutory recognition, is positioned as the most important local-level actor with the highest influence in natural resources management and day-to-day administration of the area (see also Chapter Seven). Moreover, the ADC seems not to be viewed as a political administrative unit that provides a forum for local people's participation in governance as assumed in the devolution policies. Instead, the results of the focus group discussions show that the residents seem to equate the ADC with other committees established by government departments, such as the neighbourhood health committee (established by the Ministry of Health) and agriculture cooperative society (under the Ministry of Agriculture). All these committees exist in this area for the purpose of promoting specific sectoral initiatives and are not viewed as holding any political or administrative power.

According to the head of the DPU, the District Council's involvement in customary areas is also limited by land tenure policies which complicate both the council's and ADC's direct participation in the governance of customary resources. For example, although the Local Government Act gives the Council the mandate to plan for customary areas and to lead in the management of forests and grazing lands, the Lands Act places the administration of these lands under customary authorities. Like any other actor, the council has to comply with national regulation regarding property rights, and this limits the extent to which the council can play a substantial role in natural resource management in customary areas. In this regard, the Council is again faced with jurisdictional problems, as its relationship with customary authorities is also not clear in either land or devolution policies. The DPU notes that this also prevents the creation of land use and zoning plans to identify natural resource sites that require conservation or restoration in these areas. In addition, ADCs also face a scenario where their authority is easily undermined by customary authorities whose control over land gives them the leverage over local-level matters.

The assumption that local governments can act as the most important local-level actor or institution for collective action in natural resource management is reflected in the discourse of sustainable development (WCED, 1987; UN, 1992; Edge and McAllister, 2008). The Brundtland Commission notes that sustainable development requires a political system that secures effective participation in decision-making and strengthening of local democracy (WCED, 1987). In Agenda 21, local governments are identified as the most appropriate local level institution to represent the collective in sustainable development (UN, 1992). This is

premised on the understanding that local governments better understand local conditions and make decisions that reflect local needs and result in equitable, efficient, accountable and participatory governance which gives marginalised groups greater access to power and resources (Ribot, 2002; Ribot et al, 2010; CIFOR, 2006; Anderson et al, 2004; Anderson and Ostrom, 2007; Barrow et al, 2003; Larson et al, 2010). While the theoretical benefits of devolving power to local governments are compelling, decentralisation in Chongwe seems to have yielded very few dividends and has barely challenged the way natural resources are managed. The District Council is struggling to take up its mandate and is far from being a vehicle of equitable natural resource distribution, as envisaged in devolution theories. Indeed, it seems in this study that the ability of District Councils to take up this mandate is dependent on many factors, such as the willingness of the decentralising authority to cede control (including providing fiscal and technical resources), the internal organisational capacity of District Councils and their interest in taking up devolved functions.

It seems from these results that another important determinant of success is the local context in which devolution takes place. In the case of Chongwe, the process favours the extension of council governance structures into local arenas where indigenous governance structures already exist, yet there is no attempt by policy makers to provide a framework in which the two can work together to provide local-level solutions. Instead, the creation of new governance structures is premised on the idea of replacing existing governance structures and hence perpetuating the process of marginalising local actors' institutional arrangements. It is now 20 years since the reforms started and the results of this chapter (as well as the preceding two chapters) show that no state governance system has so far provided a reliable means of managing forests in customary areas. For these areas, it is those endogenously crafted natural resource governance systems, such as the Shisholeka, Chipupilo and Lozi systems, that continue to provide the means of local-level natural resource protection. Unfortunately, these systems still remain outside state policies and legislation under these reforms. Consequently, this study contends that policies and their legal frameworks ought to be flexible enough to accommodate local institutional arrangements if sustainable natural resource management is ever going to be a reality. Indeed, scholars such as Berkes (2004) come to a similar conclusion that participative natural resource policies may have better success if they pay more attention to indigenous management systems that local forest communities have developed, rather than



ignore them (see also Benjamin, 2004; Edmund and Wollenberg, 2003; Enters et al, 2000). This is discussed further in the later sections of this chapter.

#### **8.4 Devolution of natural resources and the Forestry Department: Joint Forest Resource Management (JFM).**

Parallel to the local government reforms, the Forestry Department has continued to promote its own sector-based devolution initiatives. Participation and devolution of natural resources management, as constructed by the Forestry Department, diverges from the notion of devolution being promoted through local government reforms in terms of which actor is identified as the direct recipient of devolved powers and the strategy employed in the process. Unlike the District Council, the Forestry Department (FD) has a clearly defined strategy of how to include local actors in the management of natural resources. The strategy is in the form of Joint Forest Resources Management commonly referred to as JFM. JFM is one of the community-based natural resources (CBNRM) models that have gained ascendancy in environmental discourse with the rise of sustainable development as a construct for natural resources management (see Hopley, 1996; Barker and Stockdale, 2008; Mery et al, 2005; Enters et al, 2000). In the Zambian policy context (GRZ, 2007:1), JFM is framed as “a management system that involves the active participation of local communities in the protection, management and utilisation of forest resources”. In this regard, devolution of natural resources management is specifically construed as sharing decision-making powers and responsibilities between the Forestry Department, and forest users in proximity to forests. Similarly, Hopley (1996:18) defines JFM as “the sharing of products, responsibilities, control, and decision-making authority over forest lands between forest departments and local user groups”. Although the strategy allows for the participation of the District Council, NGOs and businesses, the emphasis is on the relationship between the Forest Department and the community. Through JFM, it is argued that the state and the community can get together to manage forest resources (ZFD, 2005). This idea is illustrated in Figure 8.1 which captures the FD’s own imagination and essence of JFM. The figure has been captured from the FD’s JFM guidelines and seems to project the idea that JFM is about a shared vision, agreement and cooperation between the department and the community. According to the FD, this is seen as being of mutual benefit to both actors, in that while the FD benefits in terms of protection of forests, biodiversity, ecosystem services and revenue generation, the community benefits in terms of revenue sharing and sustained utilisation of forest products (see also ZFD, 2005).

JFM appears, therefore, to be a tool for rectifying the past exclusionary policies that saw people's livelihoods as enemies of conservation. In addition, the strategy takes the form of a rural development in which forests play an important role in poverty reduction (GRZ-MTNR, 2002; 2007). This posits a win-win scenario for both conservation and livelihoods as advocated for by proponents of participatory natural resources management (Adams and Hulme, 2001a; Barker and Stockdale, 2008; Campbell, 2000).

**Figure 8.1 Participation and devolution as imagined by the FD**



Source: ZFD, 2005.

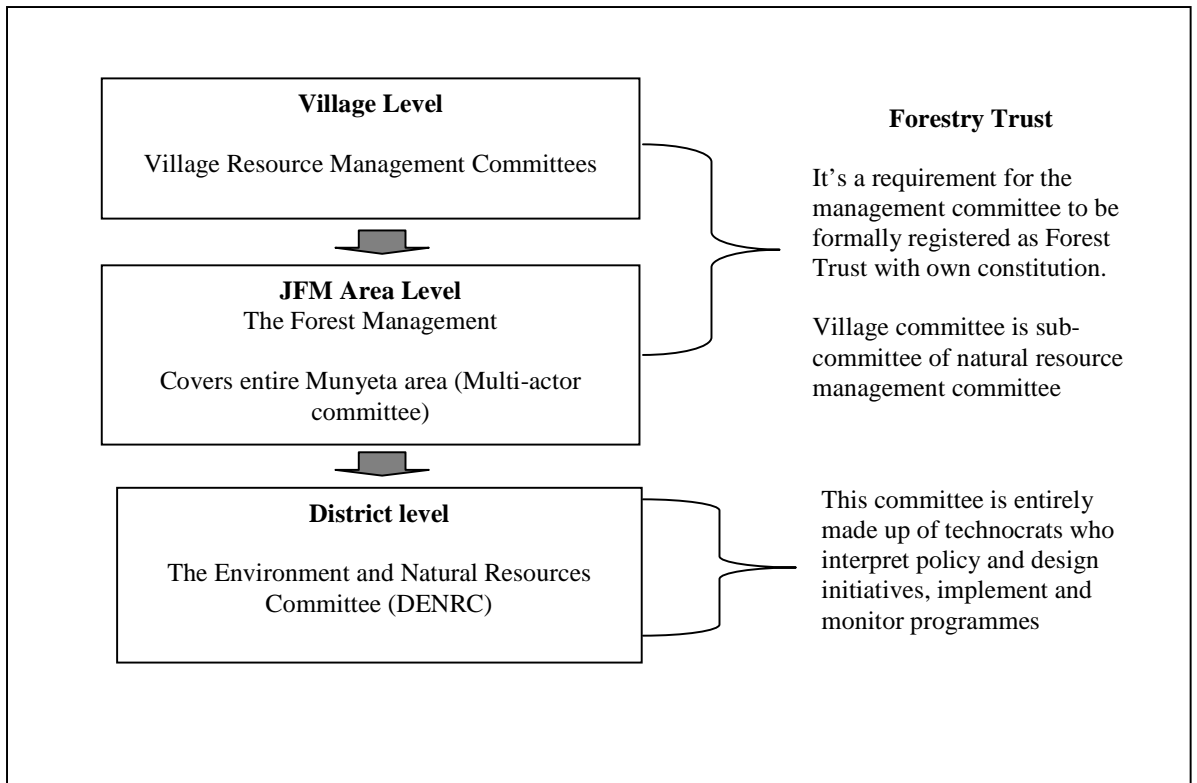
According to a forester at the Forestry Department's headquarters, it was initially envisaged that councils would buy into this model and play a leading role in setting up JFM forests, particularly in customary areas. However, it seems that over the years JFM has simply evolved into a Forestry Department's strategy because of unreconciled policy and legislative frameworks that underpin the operations of both local governments and the FD. Indeed, the guidelines being used in the design of JFM programmes are basically prescribed by the FD and give the District Council a rather peripheral position in the JFM arrangement. The JFM guidelines issued note that the JFM process can be started by the FD, communities or a non-governmental organisation, but there is no indication that district councils can equally initiate JFM. Since the adoption of JFM as a new natural resource management model, seven protected local forests have so far been declared JFM areas by the Minister of Environment (Aongola et al, 2009; GRZ/UNDP, 2010). In Chongwe, the process of translating this model into operational practice is best exemplified in Munyeta forest reserve where the state has also initiated the process of developing the model. In the next section, the study examines the

process of translating this process into operational practice and the challenges that the process is facing.

#### **8.4.1 Initiating JFM in Munyeta**

According to the head of the Forestry Department in the district, the idea of establishing JFM in Munyeta came against the backdrop of pressure to degazette the area for settlement and agricultural purposes. This pressure was mainly from the council, local politicians and ‘squatters’ in the reserve. For these actors, degazetting the reserve was seen as the solution to the people-conservation conflicts that characterize the reserve (see Chapter Six). However, for the Forestry Department, JFM was seen as the most pragmatic approach for resolving these tensions (see CDDC, 2005). The process of establishing JFM in the area started in 2005. To make JFM operational, the FD introduced natural management committees at three levels as focal centres of natural resource governance (rather than use democratically elected councils or ADCs). At the district level, the department works with the DENRC as a platform for bringing in other district level actors. In Chongwe, this committee is chaired by the head of the Forestry Department and comprises representatives of the Wildlife Authority, Agriculture Department, Water Affairs and the Council. For the JFM area, the department has introduced a multi-actor body called the forest resources management committee which comprises officers from the Forestry Department, the Department of Agriculture, the Council and three community members. The rest of the members of the community are supposed to participate at the level of village resource management committees which bring together the various users in the reserve to implement site-level actions, such as clearance of forest boundaries, physical protection of forests through community guards, planting of trees and other activities (see Table 8.3 on JFM rules). The new natural resource management structure is presented in Figure 8.2.

**Figure 8.2: JFM management structure**



Source: Field data

As can be seen from Figure 8.2, the DENRC is the district level committee in charge of interpreting policy and leading the design of JFM initiatives. This committee is exclusively composed of technocrats drawn from various state departments and ensures that what is done at the site level conforms to district plans (GRZ, 2005). This raises the question of what is the appropriate level at which communities can participate in the governance of natural resources. This structure seems to leave technocrats to determine the content of local level JFM plans. On the other hand, local actors have no control over what happens in the District Environment and Natural Resources Committee, as they are not represented. Their participation in the process is restricted to forest management committees at the site-level. The process of establishing JFM has also culminated in the creation of new rules to guide natural resources in the area. The rules cover issues such as protection of the water catchment area, vegetation conservation and settlements and agriculture. Table 8.3 presents a summary of these rules.

**Table 8.3: JFM rules created to guide natural resources management in Munyeta**

<b>JFM activity (Component)</b>	<b>Rules</b>
<b>Conservation management</b>	Charcoal production prohibited Community and FD to establish tree nurseries Late burning prohibited Community establish and maintain firebreaks
<b>Settlements and agriculture</b>	No more settlements in the reserve Cultivation to be kept at a minimum distance of 100m from river-line areas Reduction in livestock ( household maintain maximum of 50 animals) Settlers should practice conservation agriculture
<b>Protection of Water catchment area</b>	No settlement allowed along river-line areas or source of river Tree cutting not allowed along river line areas Cattle not allowed to drink along streams and rivers No digging of wells at source of streams No cultivation along hill slopes

Source: Fieldwork and FD

According to the District Forestry Officer, the creation of JFM committees and the establishment of rules to guide the management of the area are the most important steps taken towards reversing the fortress conservation model and acknowledging the population in the reserve as partners in conservation. However, the FD and the community also need to enter a formal agreement through a memorandum of understanding in order for the Minister of Environment formally to declare the reserve a JFM area. Since 2005, this has not been done, such that the process is still at the early stages of development. According to Fabricius and Collins (2007), this early stage is the most critical stage in the process of establishing community-based natural resources management programmes, and it is at this stage that most initiatives fail. This is primarily because this is the stage when implementers of community-based natural resources programmes are required to invest in the community's social and political capital in order to buffer against early shocks and surprises (Fabricius and Collins,

2007). In Munyeta, the JFM programme appears to be facing many challenges progressing beyond this early stage. From the results of this study, there are four main interlinked issues that have proved quite a big challenge for the programme. These are (a) acceptability and awareness of JFM; (b) agriculture-forestry conflicts; (c) the existence of varying actors with varying interests; and (d) organizational capacity and bureaucratic conflicts within the forest department. These are now discussed in detail in the next sections.

#### **(a) Community awareness and acceptability of JFM**

There is no doubt that JFM and the rules outlined in Table 8.1 relax the command and control approach that has been applied in the area for some time. Unlike the fortress conservation paradigm, the new model grants the community in the reserve some rights and responsibilities (cf Chapter Six, Table 6.1) over forest resources. However, the process of creating committees and disseminating these rules appear to have been characterised by a lack of awareness of the whole process (on the part of some local actors) and a top-down approach to rule creation and programme design, where the FD seems to prescribe the rules and responsibilities of local actors rather than negotiate with them. In terms of awareness, of all respondents interviewed in the reserve, nearly a third (6 out of 20 respondents) noted that they were not aware of what JFM was about, although they indicated that they heard about it. Perhaps an important factor surrounding the issue of awareness is that although awareness meetings were held (as acknowledged by respondents who were aware of the initiative), the fluid nature of the community has made it difficult for the department to engage effectively with the population. As already noted in Chapter Three, the reserve is characterised by a rapidly expanding population, seasonal settlers and blurred village boundaries. In this atmosphere, it is not surprising to find actors who are not aware of what has been going on in the reserve. Outside the reserve (the village adjacent to the reserve that participated in the research), only four (which includes the village headperson) of the sixteen individuals interviewed were aware of the JFM initiative introduced in the reserve. This seems to suggest that JFM has generally focused on the settlers inside the reserve and ignored local actors outside it, who equally have interest in the affairs of the area (see also Chapter Six). Indeed, one of the forest extension officers who played a leading role in this process notes that:

“...Communities on the fringes of the reserve were somehow overlooked because we urgently wanted to resolve the problem of encroachment in the reserve by specifically focusing on squatters in the reserve’.

However, the exclusion of other actors from the process and the general lack of awareness is one of the most important recipes for failure of community based initiatives (see also Edmund and Wollenberg, 2003). It is essential that JFM initiatives in the reserve include villagers outside the reserve who equally derive livelihood benefits from the area, and, for a long time, have borne the brunt of the exclusionary conservation model applied in the area since the early 1980s. Although they have not been brought into the programme, they either stand to gain or lose from such an initiative. This is an important factor, as Edmund and Wollenberg (2003) also note that devolution initiatives are often characterised by a misidentification, misrepresentation and exclusion of other groups’ interests. This has the potential to undermine the whole process of devolution (see also Cooke and Kothari, 2001; Jones, 2006).

The study also sought to find out the acceptability of JFM and its rules among those who were aware of the programme. Although all the 14 interviewees who indicated that they were aware of this initiative were not supportive of the area remaining a protected area (under the fortress paradigm), only a few (3) of these research participants welcomed JFM as a change of heart on the part of the department. One of these three is himself a representative of the community on the forest resources committee and notes that:

“...if they just allow us to retain our fields, we will gladly work with them, we are also interested in trees...”

However, the same respondent also wondered whether the FD was really serious about the programme in view of the time the programme was taking to be fully implemented. The rest, however, noted that they did not want the area to continue being a reserve or be converted to a JFM area. They argued that the JFM rules are too strict for them to adhere to and claimed that they were not given the chance to contribute to the creation of JFM rules. Instead, they pointed out that they would prefer to see the reserve converted into a settlement and farming area. Box 8.2 provides examples of these views.

## **Box 8.2: Local actors' view on JFM**

### **Respondent Mn03**

“ ..there was very little to discuss about the rules, we simply had to agree with what they were saying, it's better than being evicted...but the rules are too strict, they said we have to have our gardens at least 100m from the streams, but we don't have irrigation pumps....carrying water from that distance to our gardens is tough...”.

### **Respondent Mn09**

“...we came to this area because we wanted a lot of land for agriculture, but to be told that we no longer have to expand our field is not right...”

### **Respondent Mn13**

“...unless boreholes are sunk for us, how can we stop taking our animals to the stream?”

From the views of these settlers, it appears that one of the most contentious issues in the JFM approach are the rules restricting cultivation and livestock keeping which seem to be interpreted as a threat to the settlers' livelihoods. In addition, the respondents' views suggest that the rules are impractical in view of the people's limitations in terms of livelihood assets such as lack of irrigation equipment (see Plate 8.1 and 8.2), boreholes or livestock drinking facilities. This scenario brings to the fore the importance of taking into consideration the livelihood assets base of the people in the design of CBNRM programmes. As already noted in Chapter Six, this is an area that is generally poor in physical and financial assets (i.e. the population lacks boreholes, irrigation facilities and access to credit for farmers to invest in these facilities). Consequently, it appears that CBNRM will have a better chance if restrictions take into consideration people's livelihood assets, or if the programme is accompanied by initiatives aimed at increasing the livelihood asset base of the people. Indeed, this perception that JFM rules are very 'strict', and therefore a threat to people's livelihoods, is perhaps one of the most important issues that JFM must resolve if the initiative is to be a reality.





Source: Field photo

Plate 8.1 A woman carries water from Munyeta stream on her head for irrigation



Source: Field photo

Plate 8.2 The same woman irrigates her crop along Munyeta stream

### **(b) Working the forestry-agriculture divide**

The issues raised by the research participants surrounding JFM rules also raise the question of the relationship between agricultural livelihoods and forest protection in the area. As can be seen from Table 8.3, the rules introduced in Munyeta, although restrictive to some extent, do not exclude the practice of agricultural livelihoods in the reserve. Instead, they introduce

conservation agriculture as a complementary tool for working at the nexus of agriculture and forestry. However, according to one of the extension officers, the rules in Table 8.3 are in fact a modification of the original JFM rules that the FD sought to deploy to this area. In their unmodified form, JFM rules do not allow both settlement and agriculture to be practiced in a JFM forest. Similarly, the JFM guidelines note that in order for JFM to be established, “the people must be interested in keeping this area as a forest, and not for agriculture” (p4). In this vein, although JFM broadens the goals of conservation to include the enhancement of livelihoods, it is important to note here that the conception of livelihoods is in this case narrowed to imply forest-based livelihoods and excludes agriculture (cultivation and livestock grazing). However, forest-based livelihoods are only one side of the coin and hardly in line with the basic organisation of rural livelihoods which are constructed from diverse portfolios, of which agriculture is often one of the most important elements (See also Hesse and Trench, 2002; Fay and Michon, 2005). Indeed, the hard reality of Munyeta is that 96% of the people identify themselves as farmers (see Chapter Six); while more than 56% in the research noted that they are also livestock keepers.

According to the forest extension officer, the idea of excluding agriculture and settlements from the initiative was rejected by the Chief and the Council. In addition, the community itself protested against these ideas. He notes that:

“The challenge with JFM is that it is really full forest protection. People are not supposed to live and practice agriculture in the reserve. When we told the people that under JFM, they will not be allowed to live and practice agriculture in the area, the people protested. They said to us...you said we will work together but now you are coming back to say we cannot live and cultivate here.....”

Although the district team working on JFM took the initiative of accommodating agriculture in the JFM arrangements, the extension officer notes that other officers in the department’s hierarchy have not in any way been supportive of the idea of implementing JFM in the area, while settlers (who they view as ‘squatters’) continue with their agricultural activities. In fact, some of the foresters believe that some of the people are merely using agriculture as a pretext for settling in the reserve (see Chapter Six). The resistance within the department over the idea of including agriculture in the reserve is hardly surprising. This study has already noted how

most foresters still hold on to the idea that an exclusionary approach (as in fortress conservation) is still the best way to protect forest resources, and it is evident that these ideas are filtering through into JFM. For other research participants from organisations such as Zambia Community Based Natural Resources Forum (ZBNRMF), Southern Alliance for Indigenous Resources (SAFIRE), and Zambia Ornithological Society (ZOS), this continued support for fortress conservation ideas also explains why the implementation of community-based initiatives in forestry across the country has been very slow (see also Aongola et al, 2009). This rigid emphasis on forests as exclusively tree-based ecosystems, where agriculture is precluded, is reiterated in the following definition of forests offered by the FD (GRZ, 1998:28):

“Forests are defined as ecosystems with a minimum crown of trees of 10%, generally associated with wild flora, fauna and natural soil conditions, **and not subject to agriculture**” (emphasis added).

According to Fay and Michon (2005:196), although this is perceived as ecologically correct, “the historical origins of the divisions between forests and agriculture has nothing to do with ecology or nature; but with symbolic social relations of power, and specifically, to privilege and exclusion”. They argue that in western society, forests were instituted and demarcated as particular domains within a landscape for the hunting pleasure of the ruling class. This land domain was referred to as the *‘foresta’*, a legal category of forest management from which peasants and agriculture were excluded, and which represents the source of the historical division between the legal domain of forests and agriculture. Fay and Michon (2005) further argue that this divide was logical from the point of view of the landed elites, who regarded usufruct rights granted to peasants as a burden and who desired exclusive control of the forest domain for power, pleasure and rent. At the dawn of industrialisation and colonialism, the development of scientific forestry displaced the crux of this peasant/landlord tension with a forester/farmer axis and brought renewed legitimacy for the eviction of farmers as justification for the forestry-agriculture divide switched to those of ecology (Fay and Michon, 2005; see also discussion of equilibrium ecology in Chapter Two).

Indeed, Edmund and Wallenberg (2003) note that the embracing of the sustainability discourse implies that many protected areas now include cultivated or human modified landscapes (see

also Barker and Stockdale, 2008; Scherr and McNeely, 2008). Similarly, Primark (1993) notes the need for flexibility when dealing with cultivation in conservation areas. He argues that while farming, which is commercial in nature and controlled by outside interests, can be harmful to conservation and must be eliminated if possible, where it is done by local people in order to meet their needs, stopping them becomes counter-productive. In view of the complications that conservationists face in working the forest–agriculture divide, the inclusion of conservation agriculture as a complementary approach to the JFM initiative in the reserve is interesting. Conservation agriculture represents one of the newest natural resources management paradigms driven by the sustainable development discourse. It is an ecosystem services management approach that allows farmers to deliver ecosystem services and goods, such as carbon storage, biodiversity conservation and water purification, while allowing them to increase their agricultural productivity on their land. According to Mery et al (2005), the rise of sustainable development has shown that forest resources management requires multi-sector integration as the economic and social demands on forests continue to rise. They argue that the “key is integrating agriculture and forest use (p17)” (see also Sayer and Elliot, 2005). In Munyeta, the District Forestry Department is hoping that this approach will help farmers improve land use efficiency and reduce farm expansion into forested areas. Because of its ability to deliver multiple benefits, it is quickly becoming a popular land management approach in the district. This point is picked up in Chapter Nine, when the study examines what conservation agriculture has to offer to tree resources protection and people’s livelihoods.

### **(c) Different actors with different interests**

The agriculture–livelihood conflicts in the reserve also point to the fact that the interests of the community in the reserve and the FD are quite different, an issue which has been discussed in Chapter Six (see Figure 6.3 in Chapter Six). Table 8.4 presents the interests of the various actors in matters surrounding Munyeta forest reserve and the JFM initiative.

**Table 8.4: Interests of various actors in the reserve**

Actor	Interests
Forest department	Conservation interests- seek to establish JFM in order to protect water catchment, forests and re-vegetation of the area
Local politicians	Political interests- seek to gain political support from the squatters, notes that the FD has already failed to protect the area
District Council	Interested in de-gazetting the reserve, consider it as idle land as indicated in DSA (2005), seek to have the area as resettlement land, interested in delivering infrastructure services as evidenced in construction of school in the area
Local community inside the reserve	Varying interests, Tonga farmers interested mostly in land and cultivation (see Chapter Six) Traditionalist seek control of land (Chapter Six) and claim historical rights to the reserve
Local community outside the reserve	Continued interest in the forest products as source of livelihood in the reserve Solis claim historical rights to the reserve ownership
Area chief	Claim the right to govern the area despite JFM initiated in the area  Seek to extend customary control to the reserve as evidenced by creation of zones and deployment of indunas to the area (see Chapter Six).

Source: Field data

These different interests are an important factor in the establishment of JFM in the area. For example, an extension officer from the FD notes that the ‘big farmers’ in the reserve have been working against conservation efforts by calling for the area to be turned into a resettlement scheme. So far, they have successfully lobbied for the construction of a school in the reserve, an action which the Forestry Department believes is aimed at having the settlements in the reserve legalised. In addition, the extension officer singled out local politicians, the Council and the Chief of the area as other actors who are working in opposition to the production of a new natural resource regime in the area. The extension officer notes that:

“The politicians have promised the residents in the reserve that they will campaign for the degazetting of the reserve and this makes it difficult to get support from the local population who are expecting the area to be de-gazetted”.

Furthermore, although the chief of the area had initially agreed to support the JFM initiative, he has continued to endorse the development of new settlements in the area by installing headmen and recognising the settlements as villages under his chiefdom (see Chapter Six). Indeed, it was evident during interviews with the Chief of the area and the councillor that both felt that the area should be left for settlement and agriculture rather than for JFM initiatives.

Table 8.4 shows that the JFM programme also has to contend with the interests of Soli people who are claiming the right to ownership over the forest reserve land which they assume was wrongly taken by the state. Indeed, we have seen in Chapter Six how Soli traditionalists are employing ‘squatting’ in the reserve as a weapon of resistance against state-centric control of the area. This squatting should be understood as part of what other conservation writers call power resources or weapons of the poor, which grassroots actors often employ against the interests of powerful actors such as the state (Sachedina, 2008; Bryant and Bailey, 1997). However, while the Soli are seeking restoration of tribal rights, JFM does not address these historical claims as it does not grant the local people long-term tenurial security over land and resources in the reserve. The FD notes that “even if an area becomes a JFM area, the land status of the area (forest reserve land or customary land) will not change and the area will revert to its original status once it has ceased to be a JFM area” (ZFD p1). This, unfortunately, leaves communities with nothing but temporary security. Indeed, this does seem to be a risky and unpredictable affair for the local population, as it creates uncertainties for the settlers in Munyeta whose tenure over land is only assured if they remain in a JFM arrangement. For the Soli traditionalists, it provides an impetus for their continued resistance to conservation initiatives.

According to the provincial forestry office, the FD cannot guarantee the length of time that a JFM arrangement may continue to exist, as the Minister of Environment reserves the right to dissolve JFM arrangements if she/he sees fit. Consequently, JFM appears to be a transient arrangement rather than a long-term solution to the state-people conflicts in the area. It seems

that we are confronted with a natural resource management paradigm where local people's rights are dependent on buying into the objectives and aspirations of the state (see also Enters et al, 2000). It is therefore difficult to see how genuine empowerment of the local community can occur in the reserve. Without critically engaging with these competing interests, it is doubtful whether this initiative can progress beyond the teething stage. Nygren (2005) also notes that, although many decentralisation theorists champion the role of communities in bringing about decentralisation, participation and collective action, they give little attention to the heterogeneity of actors involved in the process (also Jones, 2006; Barrow et al, 2002; Hopley, 1996; Brown, 2003).

#### **(d) The FD's internal capacity and bureaucratic conflicts**

According to the District Forestry Officer, little progress has so far been achieved because of lack of financial support for the initiative. He notes that as a district, they have played their role in initiating JFM, but they have received only limited funds to support the budget for this programme. In particular, he pointed out that the district is faced with logistical and transportation problems and lacks adequate human resources to carry out the programmes effectively. In a similar vein, an FD report on Munyeta notes that:

“The constructive management of Munyeta forest reserve in a way has been affected by erratic funding to the Forest Department. For example the Joint Forest Management initiative where the forest committees emanated from has never been funded. This has made the committees look ineffective” (ZFD, 2008).

As a result, the district forest office has been unable to train the committees and develop a JFM management plan for the area. Although the annual budget for JFM activities in the area is only about £ 1400 (Table 8.5), this seems to have proved difficult to fund.

**Table 8.5 JFM budget over a five year period as reflected in district development plan**

Year	Budget for JFM activities (ZK)
2006	49,000,000 (£7,000)
2007	10,000,000 (£1,400)
2008	10,000,000 (£1,400)
2009	10,000,000 (£1,400)
2010	10,000,000 (£1,400)
2011	10,000,000 (£1,400)
1 GB£ = approximately ZK 7,000.	

Source: CDC (2006)

As already noted, the FD is, in general, short of financial resources, and according to a CBNRM forum expert who participated in the study, it also lacks staff trained in community-based natural resources management. This has meant that the department is in a weak state to establish JFM programmes effectively. Similarly, Aongola et al (2009:8) note that:

“Presently the forest department is neither a strong, nor a notably progressive institution. For example, it is only very slowly permitting participatory (joint) forest management (in pilot areas), although the principle has been in existence since the late 1990s. Although the approach on which the model is based requires no special legislation (as it is a simple contract between two legal entities).....”

This statement is extremely important, as the principal author of this book (Aongola) is in fact the Director of Planning and Information in the Ministry of Environment where the Forestry Department is housed. Aongola et al (2009) are right to point out that the process of implementing JFM is taking longer than expected and is indicative of the department’s weakening capacity. However, the writers in this statement also seem to play down the fact that establishing what they term as a ‘simple’ contract is, in practice, not as simple as they claim. The reality is that JFM requires substantial investment in building social capital (e.g. trust or cooperation between various actors) and political capital ( e.g. local actors’ ability to negotiate terms of agreement and organise viable governance structures) for it be a meaningful process. Indeed, it is argued that to gain people’s consent to some form of regulated access to



and use of natural resources, resources have to be invested into cooperation, negotiation and institutional building (Enters et al, 2000; Ostrom, 1990).

Apart from the weakness in the Forestry Department's capacity, there is also one unresolved issue in the department that holds up this progress and slows the flow of resources to JFM activities. According to the thematic leader on community access and benefit sharing in the Ministry of Environment, although JFM is now firmly established as the Forestry Department's preferred model for devolving forest resources management to communities, the policy on which it is based cannot be implemented in full. This is basically because the state has not issued a commencement order for the Act that legislates the 1998 forest policy, such that JFM is actually being implemented through statutory instruments issued by the Minister of Environment. For example, all agreements have been signed on the basis of statutory instrument no 52 of 1999. This is because the same Act seeks to transform the Forestry Department into an autonomous institution called the Forestry Commission which appears to be a highly contentious issue in the ministry bureaucracy. Although Aongola et al (2009) are right to note that this does not stop JFM, in reality it does inhibit the flow of political and financial support for JFM. In addition, it limits what can be done under JFM as the implementation of certain elements is contingent on the activation of the Act. For example, without activating the act, the community can only derive livelihood benefits in terms of household forest products and not in terms of sharing of revenues from commercial exploitation of resources in this area. This is also explicitly acknowledged by the state in the following statement:

“...under JFM, communities can be ceded temporary management rights for a forestry area, but the monetary benefits cannot be legally shared ....” (GRZ/UNDP, 2010:44)

In this regard, in Munyeta, the community and the Forestry Department have not discussed anything concerning revenue sharing because of this complication. It is important to note that this has been one of the most contentious issues in state conservation in Zambia; historically, communities have been excluded from deriving financial benefits from forest reserves. With the non-activation of the Forestry Act of 1999, a decade after parliament passed it as law, financial benefit sharing will continue to be the most problematic area in the implementation of forestry conservation initiatives.

## 8.5 The JFM model and customary institutions

Joint forest management seems to be an attempt to provide a more acceptable management alternative from the fortress conservation model that has been applied in Munyeta since the 1980s. In the words of one natural resource expert from the Zambia Community Based Natural Resources Forum:

“by incorporating the notion of community participation in natural resource decision making, JFM is an attempt to strike a compromise (**bridge the gap**) between informal institutional arrangements (**customary natural resource model**) which have no legal backing (**in statutory laws**) and the conventional state model (**protected areas model**) (emphasis added)”

Indeed, while in theory JFM does seem to create space for local decision-making in the reserve, the results of this study have shown that the extent to which this model embraces local people’s perspectives and customary institutional arrangements seems to be rather limited. One of the forest extension officers notes that the process of incorporating local knowledge and institutions was limited by the fact that the officers facilitating the process had to follow JFM guidelines issued by the department which are quite vague on how to accommodate local institutional arrangements. As research participants from the reserve have also noted in the preceding sections of this chapter, JFM rules were prescribed to local actors instead of being created from negotiations with the community. In addition, the nature, structure and composition of the committees were equally predetermined with little input from the communities involved in the process as a result of the reliance on uniformly deployed guidelines. In addition, the forest extension officer admits that:

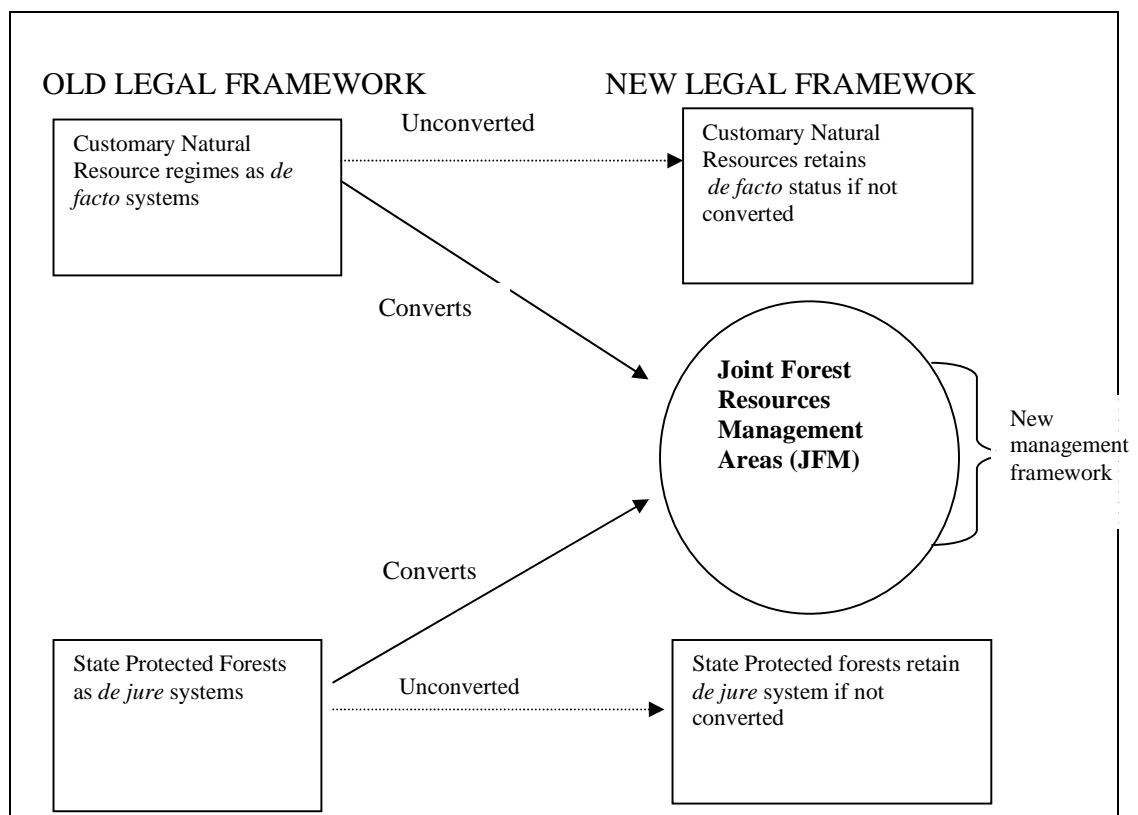
“..Some traditional institutions can be helpful, for example, the chief has taken a keen interest in one of the areas. Part of the area is still intact because the chief has instituted bans against charcoal production but the guidelines are not clear on whether we can accommodate such rules..”

It appears that JFM rules are being understood as Forestry Department's constructed rules and the new governance structures are taken as Forestry Department initiated committees, registered as trusts under the registrar of society (see Figure 8.2). This arrangement by-passes the traditional governance structure of the Soli in the area. In this vein, JFM seems to reflect the department's vision of achieving state-centric objectives and departs from the 'shared vision' image portrayed in Figure 8.1. Indeed, Larson et al (2010) also note that one of the ills of decentralisation is that where natural resources rights are granted to communities, new institutions are often formed to represent the collective which may not sit well with the local arrangements (see also Batterbury and Fernando, 2006; Benjamin, 2004; Berkes, 2004; Barrow et al, 2002; Enters et al, 2000; Cleaver, 2001). According to Enters et al (2000), this tendency to focus on formal institutional structures makes sense for bureaucracies, because it is procedurally simple and a clear legal basis exists for their establishment. However, Enters et al (2000) also note that when these formal systems coincide with local institutional arrangements, they tend to be adversarial whereas participatory resource management requires consensus. As a result, it is not surprising that the Soli traditionalists and the chieftaincy seem simply to ignore the fact that JFM is being established in the area by seeking to establish their own customary governance structure. It seems sensible and quite pragmatic to be more flexible and accommodative of Soli institutions rather than simply to by-pass them. This is important, as it is difficult to see how JFM can be established without the support of the Soli who claim that they have tribal historical rights to the area.

The limited ability of JFM to incorporate local people's perspectives also raises the question of whether the model can be easily extended to customary areas where resource management is entirely governed by custom and tradition. Indeed, this is important as, apart from local forests (such as Munyeta), JFM is poised to be deployed to customary areas such as Shisholeka. As the district forest officer notes, "the goal of the district forest office is to extend the approach to 'open areas' with potential..." (See also ZFD, 2005; GRZ-MTNR, 2009). The open areas with potential refer to customary areas with healthy forests and woodlands. This is also reiterated in the district development plan where the FD identifies extension of JFM initiatives to open areas as one of the major activities in which the department will engage between 2006 -2011 (CDDCC, 2005). Although to date the Forestry Department has failed to extend JFM beyond Munyeta due to financial difficulties, the district forest office notes that they have already started discussions with customary authorities and communities in the

district to do so. Indeed, according to a member of the CBNRM forum, since the new natural resource policies and legislations do not legitimise existing customary governance arrangements as community based natural resource regimes in their own right, converting to JFM may be the only way for autonomous natural resource regimes to gain statutory legitimacy and derive revenue from commercial exploitation of forest resources in these areas. Figure 8.3 illustrates how both customary and protected area regime will change under the JFM model.

**Figure 8.3: How the customary and state models change under the JFM policy**



Source: Author, 2011

As seen in Figure 8.3, the introduction of JFM in customary areas would entail the conversion or replacement of autonomous natural resource management regimes with JFM natural resource governance structures which are subject to the dictates of the district environment and natural resources management committee. Using Shisholeka as an illustrative device, this may create a scenario where local resource management is forced to conform to the ideals of

technocrats at the district level who determine the content of natural resource management plans. As seen in the case of Munyeta, the JFM model seems to construct participation in such a manner that it limits the opportunity of local actors to articulate their preferences and share their local experience and knowledge in natural resource management (see also Anderson and Ostrom, 2007; Cooke and Kothari, 2001). For a customary area such as Shisholeka, where the natural resource management regime is tailored towards meeting local needs and aspirations, this may be seen as a threat rather than as an opportunity. The differences between the JFM model, as seen in Munyeta, and customary systems, using Shisholeka, are presented in Table 8.6.

**Table 8.6 Differences between customary based natural resource governance (Shisholeka) and JFM**

<b>Natural resource management elements</b>	<b>Characteristics of customary</b>	<b>Characteristics of JFM</b>
Creation of rules and regulations	Locally determined rules and regulations	Rules centrally determined and issued as community (JFM) guidelines
Enforcement of regulations	Community have 'everyone a guard approach'	Honorary forest guards recruited from community
Natural resource management objectives	Livelihoods, sacred and spiritual purposes (e.g. sacred graves)	Conservation driven objectives
Local participation	Local participation through village committee	Participation through JFM committees
Lead actor	Community main actor in resource management	FD is lead actor
Source of legitimacy	Legitimacy derived from community ( and custom)	JFM body exogenously sanctioned by FD
Role of custom and tradition	Custom and tradition prevails	The place of tradition and custom vague
Place of Indigenous knowledge	Indigenous knowledge important	The place of indigenous knowledge is vague

Source: Field data

As can be seen in Table 8.6, the Shisholeka system relies on locally sanctioned rules which have been accepted by the local population and places a high premium on custom and tradition. On the other hand, the JFM model is guided by centrally defined rules, relies on external legitimacy and obscures the place of custom and tradition. Hence, it seems rather unfair simply to deploy the new natural resource model to such terrain without fundamental adjustments to the ways in which it takes into consideration local people's institutional capacity. Similarly, Temm and Mulekom (2001) observe that Zambia's participatory natural

resource policies do not recognize the historically dominant role of traditional governance systems in the management of natural resources. Like the protected areas approach, the new initiatives are equally rigid and emphasise a narrow resource management thinking that assumes the absence of effective local institutions in customary environments. On the other hand, Hesse and Trench (2000) point out that locally determined institutional arrangements are important in any participatory natural resource management initiatives, as they are often oriented towards the provision of flexible and reciprocal arrangements which are constantly re-negotiated in order to cope with the ever-changing nature of the natural resource base (see also Agrawal, 2001; Ruddle, 1992; Benjamin, 2004). Consequently, it seems that rather than deploy a uniform approach, it may be important to adopt a differentiated approach where initiatives take into consideration the local specificities prevailing in the area. Hobley (1996) equally notes that it is important to adopt a minimalist approach where if the policy is good, leave it alone. The need for a flexible approach to participatory policies is best expressed in the words of Sayer and Elliot (2005:40) who note that that rather than promote a single best way approach, policy makers must learn that:

“there are multiple ways of managing forested lands, and that what is desirable at one location at a point in time may well be different in time at another place or different time”.

This suggestion may require changes to participatory natural resources legislative frameworks in order to create a flexible institutional environment that is accommodative of various local circumstances. Indeed, Hesse and Trench (2000) also point out that, although central government cannot legislate for every eventuality, it is much more useful to provide an overall framework under which locally defined rules for forest resources management can be established (or upheld), while ensuring that they operate in an equitable and sustainable manner. It is important to point out here that this issue continues to be contentious in the literature. As Larson et al (2010) note, theoretical debates are now shifting towards addressing the question of whether there should be a sharing of legitimacy between statutory systems and customary systems, or whether policy should allow the integration of these systems. Moreover, most scholars now recognise customary based systems as organically constructed community based natural resource management systems with an important role to play in sustainable natural resources management (Hobley, 1996; Hesse and Trench, 2000; Larson et

al, 2010; Ostrom, 1990; Edmund and Wollenberg, 2003; Barrow et al, 2002; Temm and Johnson, 2001).

## **8.6 Conclusion**

As noted in Chapter Two, in the past three decades, sustainable development has emerged as the most important construct for the management of natural resources both in developed and developing countries (Slater, 2002; Barker and Stockdale, 2008; Hulme and Murphree, 1999). For many scholars, sustainable development has been seen as an opportunity to correct the historical distortions created by exclusionary conservation models by refocusing the attention of natural resources management on human welfare and local actors' participation in the governance of resources (see Mery et al, 2005; Campbell, 2000; Hulme and Murphree, 1999; Barnerjee, 2003). This discourse also assumes that natural resource models based on this discourse will recognise local people's creative agency by accommodating their experiences, knowledge and institutional arrangements in conservation initiatives in order to achieve the goal of sustainable development (Temm and Johnson, 2001; UN, 1992; Enters et al, 2000; Hesse and Trench, 2000; Sayer and Elliot, 2005).

Against this decentralisation euphoria, this chapter shows that in the case of forest resources management in Zambia, there is a huge gap between the rhetoric in devolution policies and the practice on the ground. Here, the reality is that implementers are struggling to translate these policies into operational practice. Moreover, the policy implementation is characterised by confusion and ambiguity, as the state appears to be faced with the challenge of deciding the appropriate authority and institution to receive the formal rights to represent the local collective. Enters et al (2000) observe a similar situation in Nepal, where, on one the hand, the Forestry Act devolves forest management responsibilities to user groups, and on the other, the decentralisation policy gives local government units control over all natural resources in their jurisdiction, leading to confusion and conflict at the local level regarding rights to benefits, access and responsibilities.

Secondly, the results also show that the decentralisation process is characterised by a lack of political will to cede control on the part of the decentralising authority and by power struggles between various actors, such that devolution policies have barely influenced natural resource

management. In the case of local government reforms, the chapter shows that the district council, which is poised to be the main actor in the implementation of devolution policies under the local government reforms, has no real strategy of how to translate this new mandate into practice and is in fact in a moribund state to act as a viable entity for achieving sustainable natural resources management. On the other hand, while JFM has been initiated in Munyeta, the study notes that this process is equally crippled by the challenges of reconciling various competing interests in the reserve and resolving the agriculture-forestry divide. Moreover, the process is also affected by a lack of funding and bureaucratic conflicts over the future of the department, such that progress in the implementation of the initiatives, both in Chongwe and across the country, is generally slow. Indeed Aongola et al (2009) and GRZ (2010) equally note that in the other sites across the country, where JFM areas have been established, the initiatives have barely progressed beyond the teething stage. This study agrees with Nygren (2005) that the involvement of local institutions and resource users in forest management through devolution initiatives is a much more complicated process than is usually represented by proponents of decentralization and community based natural resources management. In addition, the study agrees with Baumann and Farrington's (2003) argument that, in some countries, decentralization has not significantly challenged the basic distribution of rights and access to natural resources established in the colonial period and reinforced in the immediate post-independence period. Despite 20 years of trying to promote these ideas, the status quo in terms of how forest resources are managed remains, as the state struggles to produce a new forest resources management regime.



## **Chapter Nine: Sustainable Development**

### **Ecosystem services, agri-environments and natural resources Management**

#### **9.1 Introduction**

This chapter continues with the examination of the process of translating conservation policies derived from the sustainable development discourse into practice. As noted in Chapter Four, sustainable development as a construct for natural resources management is not only credited with the advancement of narratives of participation and devolution in natural resources management; it is also characterized by the extension of environmental conservation to human dominated systems such as agricultural environments. In particular, the rise of the notion of ecosystem services (in sustainable development discourse) as a legitimate focus of conservation has provided a conceptual basis for linking farming households with environmental decision-making. There is now a common agreement in the literature that this is a growing trend across the world, posing a strong challenge to the dominance of the protected area model as the main natural resource management strategy (Scherr and McNeely, 2008; Karieva et al, 2007; Reeves, 2001; Gorman et al, 2001; Defries and Rosenzweig, 2010; Mattison and Norris, 2005).

This chapter shows how agri-environmental initiatives, particularly conservation agriculture, have gained ascendancy in natural resource rhetoric and practice as part of sustainable development's win-win solutions to environment-livelihoods challenges. Using the case of Chongwe, the chapter examines how this notion of agri-environmental management has been particularized and translated into practice in Zambia. It examines the extent to which these initiatives offer a pathway to the improvement of both the environment and livelihoods in the area. It also analyses the major bottlenecks that limit the contribution of these agri-environmental initiatives to both livelihoods and environmental conservation. The chapter is divided into three main sections. The first section looks at the emergence of conservation agriculture in Chongwe and identifies the major actors involved in the framing and deployment of agri-environmental initiatives and their main interests in the initiatives. The second part of the chapter looks at what farmers adopt in practice and their implications for livelihoods and the environment. In the last section, the chapter examines the major limitations of CA as implemented in the study area and the factors that account for these limitations.

## **9.2. Conservation agriculture: an emerging agri-environmental management approach in Chongwe**

There are many types of agri-environmental approaches that have gained currency in the sustainable development discourse in the past two decades (see typology of agri-environmental approaches in Chapter Two). The common factor in all these approaches is that they seek simultaneously to address agriculture livelihoods and conservation concerns (see Scherr and McNeely, 2008). In Zambia, agri-environmental strategies that have gained ascendancy in both conservation and development discourse take mainly two forms: agro-forestry and conservation agriculture (WAC, 2010; Baudron et al, 2007). In Chongwe, in particular, conservation agriculture (CA) has emerged as the dominant technique for merging livelihoods and conservation in agricultural environments. In Chapter Eight, the study has shown how the Chongwe district forestry office has singled out conservation agriculture as a complementary approach to JFM in Munyeta. It was noted that the interest of the district forest office in conservation agriculture lies in its capacity to deliver a range of conservation benefits, such as the production of ecosystem services and provision of tree products such as firewood and timber to supplement forest products. This focus on agri-environments in the country has come with a broadening in conservation objectives and a quest to address agricultural-forestry conflicts (see Chapter 4; GRZ-MTNR, 2007; GRZ-MTNR, 1998). Hence, sustainable agricultural land management strategies have become part of the new natural resources management policies adopted by the state (GRZ/FAO, 2010; GRZ-MTNR, 1998; 2007).

The importance of conservation agriculture was summed up in the following words of one of the senior natural resources officers who participated in this research:

“... policies are changing quickly, sustainable resource management means a lot..., we are no longer talking only about parks and reserves, we want trees in agricultural lands, on homesteads and gardens, you can see this in our NEP...., on the ground, we are pushing both CBNRM and conservation agriculture....”

Similarly, on the launch of the 2010 tree planting programme, the Minister of Environment and Natural Resources, Catherine Namugala, called attention to international trends in the management of natural resources, arguing that natural resources management is quickly moving away from a singular focus on forest conservation for material products, to managing the environment for conservation of ecosystem services such as carbon sequestration, biodiversity conservation and ecosystem services payments. She called upon both conservation actors and agriculturalists to embrace agro-forestry techniques as a way of delivering sustainable development. These views suggest that participatory forest resources management and agro-ecosystem approaches are the two instruments that have been endorsed to deliver sustainable development in Zambia (as far as the management of land resources is concerned).

Conservation agriculture also appears to have been endorsed by several other conservation organisations in Zambia who see it as a way of bridging the gap between livelihoods and conservation, and of bringing environmental decision-making closer to rural households. Table 9.1 presents examples of conservation NGOs that have adopted conservation agriculture as a complementary approach to community-based resources management or mainstream environmental management strategies in the country. Conservation agriculture seems to have gained popularity among conservation organizations because of its potential to arrest the expansion of agricultural lands into forests or wildlife zones, while creating an opportunity for biodiversity conservation outside these zones (see Table 9.1). This differs from the fortress conservation logic of directly halting forest conversion by establishing protected areas, while completely ignoring agriculture livelihoods (see Angelson, 2010; Defries and Roseinzwieg, 2010). Indeed, Scherr and McNeely (2008) note that under the protected area model, agricultural lands were viewed as ecological sacrifice areas and therefore positing a win-lose scenario between conservation and agricultural livelihoods. However, in the case of Chongwe, it is not just conservation organizations that have expressed an interest in conservation agriculture; some donor agencies, development NGOs and agricultural organisations are also actively involved in the promotion of conservation agriculture. In Chongwe, this has allowed conservation agriculture to spread to all four chiefdoms of the district (Bunda-Bunda, Nkomesha, Shikabeta and Mpaisha).

**Table 9.1: Conservation NGOs using conservation agriculture as a sustainable land management strategy in Zambia**

<b>Organization</b>	<b>Detailed description of context within which CA is employed</b>
WWF	Used in the Miombo eco-region project to support farming households' transition to sustainable agriculture, address conservation agricultural conflicts and promote biodiversity conservation.
CLUSA Zambia	As early pioneers of JFM in forestry, conservation agriculture was utilized as a complementary approach to participatory forestry in eastern province to address forestry –agriculture livelihoods conflicts and create environmental stewardship
Wildlife Conservation Society (WCS)	WCS uses conservation agriculture in Eastern Province to improve the livelihoods of local actors living in game management areas as part of community based wildlife resources management
CONASA	Uses conservation agriculture as a sustainable land management strategy that improves availability of natural products to farmers, helps in sparing forest lands from agriculture and provides alternative livelihoods to actors that historically, have been dependent on wildlife and forest products.
American Peace Corps	Peace corps volunteers work with the forestry department around protected forestry areas. Conservation agriculture is used as sustainable land management tool that halts farmers' expansion into protected forests.
PELUM Zambia	Promotes Conservation Agriculture as one of the sustainable land use management strategies

Source: Field Data

In Nkomesha Chiefdom (where Shisholeka and Mtanuka are located), conservation agriculture initiatives are funded by the Norwegian government, the EU and some Australian Christian organisations. In Bunda-Bunda (where Munyeta is located), the initiatives are funded by the EU and the Norwegian government. However, at the site level, conservation agriculture initiatives are being implemented by the Ministry of Agriculture, the Conservation Farming Unit (CFU) and Christian Fund Zambia. According to one of the senior agricultural officers, conservation agriculture has been on pilot state in Chongwe for more than six years now, and

in the past two years, the participating partners have moved to introduce it in all parts of the district. Chongwe is only one of the 12 districts where conservation agriculture is being implemented on a full scale in all communities. The main reasons given by these actors for their participation in CA initiatives are summarized in Table 9.2.

**Table 9.2: Reasons given by various actors for their involvement in CA**

<b>Actor Involved</b>	<b>Reasons for Involvement</b>
<b>The Food Agriculture Organization (FAO) (Lusaka Office)</b>	Promotion of farmer productivity, farmer resilience to climate change Promote farmer environmental stewardship CA's capacity to address deforestation and restore degraded lands.
<b>Conservation Farming Unit (CFU)</b>	Increase farmer productivity, Soil conservation, adaptation to climate change and tree conservation,
<b>Christian Child Fund Zambia (CCF)</b>	To increase the livelihood assets of rural households
<b>GRZ (department of agriculture)</b>	Interest in food security and agricultural growth, resources for extension services, funding for agricultural development
<b>Ministry of Environment (FD)</b>	Avoided deforestation Restoration of degraded lands Biodiversity conservation, ecosystem services protection
<b>Norwegian Embassy and EU</b>	Poverty reduction through increased farmer productivity and food security Helping country achieve MDGs Sustainable development commitments Adaptation to climate change

Source: Field data (interviews with organisations participating in CA)

The involvement of such a diverse range of actors in the deployment of conservation agriculture shows the high interest that agri-environmental approaches are generating among development practitioners and conservation agencies alike. This, perhaps, is one of the major contributions of the sustainable development discourse: that it has created a situation where

environmental protection has shifted from being a primary responsibility of traditional conservation actors (such as forestry agencies or wildlife agencies) to include other actors such as agriculture and development agencies.

The results presented in Table 9.2 suggest that the popularity of CA lies in its capacity to address the diverse interests of the various actors involved. Apart from the conservationist interests discussed in the preceding section, CA also appeals to the interests of agriculturalists in terms of addressing household food security and climate change adaptation. According to the senior agricultural officer who participated in this research, there are three main issues of concern for the department. These are declining yields due to poor soils, unpredictable rainfall patterns linked to climate variability and change, and farmers' declining access to farming assets such as fertilizer, seeds and farm implements. The decline in access to farming assets is linked strongly to the removal of subsidies that characterized the state's agricultural policies in the period between 1964 and 1990 (see Chapter 4). Conservation agriculture, with its emphasis on nutrient restoration and soil improvement, water conservation and low levels of agriculture inputs, is viewed as one of the tools for resolving these challenges.

As can be seen in Table 9.2, climate change appears to be a concern that is shared by other organisations participating in the process of CA, such as FAO and the donor agencies. According to the FAO agronomist who participated in this research, the current climate change discourse drives the conservation agriculture agenda considerably, as CA has the potential to build resilience in farming systems through locally adaptable technologies. Moreover, the current thinking in this discourse is that the effects of climate change will hit the poor in developing countries particularly hard in terms of water shortages, declining crop yields, and other natural stresses and shocks (IPCC, 2007; Ringler, et al, 2011). The IPCC (2007), for example, represents Africa's agriculture as the most vulnerable sector to climate change, sparking a drive for agricultural approaches that address the challenges of climate change. In addition, the senior agricultural officer notes that the association of conservation agriculture with climate change adaptation is also an important opportunity for the agricultural sector to attract funding towards the development of agriculture in the country. He points out that:

“.....this is good for us, because it is bringing in money for agricultural extension at a time when the sector is suffering a decline in state expenditure on agriculture ... our officers can visit farmers and give them support because the transport is there and the money is there...”

Similarly, the CFU coordinator in Chongwe district notes that CA programmes are supporting the agricultural sector at a time when the state’s capacity to address the various agricultural challenges facing the country is weak. This fact, perhaps, may also explain why the state has been quite keen in supporting CA initiatives in the country.

### **9.3 Characteristics of conservation agriculture in Chongwe**

The organizations presented in Table 9.2 constitute the main actors that direct and shape the nature of conservation agriculture practice in Chongwe. While this has meant that conservation agriculture, unlike JFM, is not short of funds and emissaries, the involvement of various actors in the process has created challenges of its own for the implementation process. In Shisholeka, for example, the study found that both the Ministry of Agriculture and Christian Child Fund Zambia had recruited the same farmers for conservation agriculture. This seems not only a duplication of efforts, but these actors had also managed to pass own conflicting messages on the practice of conservation farming. For example, during interviews in Shisholeka, at least four farmers noted that they were quite unsure about whether conservation agriculture required fertilizer application or not. While one agency presented CA as an agricultural practice that does not require use of fertilizers, the other presented it as exactly the opposite. Similarly, the FAO agronomist who participated in this study notes that with so many actors involved in the process, the question of service delivery has also become an important factor. He notes that “there are organizations that have no experience in delivering CA, such that we are already thinking about having a quality assurance body for CA”. These situations are compounded by the fact that these organisations seem to be in competition, rather than complementing each other’s work. The challenge surrounding service delivery is discussed extensively in the latter parts of this chapter.

Although Chapter Two has already introduced the concept of conservation agriculture, with so many actors promoting conservation agriculture, it is important to clarify what exactly

constitutes conservation agriculture in the context of Zambia. Boudron et al (2007) point out that CA has been defined differently by different authors. However, a generic definition provided by the FAO presents CA as a concept for resource-saving agriculture that strives to achieve high and sustained agricultural production, while concurrently conserving the environment (Boudron et al, 2007; FAO, 2007). According to Boudron et al (2007), CA is based on enhancing natural biological processes above and below the ground, and involves interventions such as reductions in mechanical soil tillage and the application of external inputs (such as agrochemicals), in such a way that does not interfere with, or disrupt the biological processes in this system (see also Dumanski, et al, 2006). This definition explicitly ties CA to agricultural production and environmental conservation, merging the two, in line with the sustainable development discourse. Following this definition, Boudron et al (2007) note that CA can be done in a variety of ways depending on the context. According to the Ministry of Agriculture, in the context of Zambia, the trend is to follow the Conservation Farming Unit's (CFU) definition of what constitutes conservation agriculture. The CFU is viewed as the pioneer of CA in Zambia, having started piloting it more than 10 years ago (funded by the Norwegian government for the whole of this period). The CFU is also linked to a research unit called Golden Valley Agricultural Research Trust (GART). Together, the CFU and the GART have become the leading source of knowledge and best practice about CA. The CFU defines conservation agriculture as having two components; 'conservation farming' and 'establishment of trees' on agricultural lands (Box 9.1) (CFU, 2010).

**Box 9.1: Conservation agriculture in the Zambian Context**

<p><b>Conservation Agriculture (CA)</b></p> <p><b>What it is</b></p> <p>Conservation farming (CF) + the establishment and survival of a minimum of 50 <i>Faidherbia albida</i> trees per hectare.</p> <p><b>What it is not?</b></p> <p>Pit farming, manuring, composting, fallow cropping and agro-forestry applied individually or collectively cannot qualify as CF/CA if MT (minimum tillage) is not observed.</p>
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Source: Conservation Farming Unit (2010)



Conservation farming (CF), as the first component of conservation agriculture, refers to a package of farming practices which includes the application of conservation tillage (minimum or zero tillage) through the creation of permanent crop planting basins, use of leguminous crops, crop rotation and retention of crop residues on the farm (see Table 9.3).



Plate 9.1 Minimum tillage –on CFU demonstration site (CFU, 2010)



Source: Field Photo

Plate 9.2 Conventional tillage using hand hoe in Shisholeka

The use of minimum tillage is said to improve the soil's biophysical properties and reduce soil disturbance to around 12% percent of the field (WAC, 2010; Dumanski, 2006). Similarly, the FAO (2008) notes that conservation tillage increases soil productivity and avoids further environmental damage from the use of inversion tillage systems which threaten water quality, erode soil and reduce soil biodiversity. Some of the farmers who have practised minimum tillage for the past 3-6 years also indicated a number of benefits of utilising minimum tillage as opposed to conventional tillage. These include early planting, improved moisture retention (in the planting basins) and reduction in fertilizer requirements for the crop. These benefits are expressed in Box 9.2.

**Box 9.2 Farmers' views on benefits of minimum tillage**

Respondent 1 (Mtanuka)

*This is the third time I am doing this, before adopting gamphani (minimum tillage), I normally delayed in planting because we would wait for our neighbours to help us plough the fields but now we do it early and our maize holds properly*

Respondent 2 (Mufwasha, outside Munyeta reserve)

*We have noticed that if we dig basins even when there is a dry spell, our maize still holds....*

Respondent 3 (Munyeta)

*"This is the second time I am doing gamphani, and for me, I have been able to reduce the amount of fertilizer we use in the field..."*

Respondent 4 (Shisholeka)

*We no longer have to hire cattle to plough our field before planting, we do it ourselves and we have seen that the side were we did gamphani we had a better harvest*

Conservation tillage is practiced in two ways. In the first method, farmers create small permanent planting basins with hand hoes and plant seeds in these holes each year (see Table 9.3). This is the only method utilized by CA farmers who participated in this research. The second method involves the use of ox-drawn or tractor drawn rippers to create thin trenches into which the seeds are sown (WAC, 2010). Although ripping technology is now available in the country, more than 90% of the research participants expressed ignorance about its availability (perhaps an indication that local actors lack information on new developments in conservation agriculture).

**Table 9.3 Differences between CA and conventional farming in the study area**

<b>Agricultural practices</b>	<b>Conventional farming</b>	<b>Conservation agriculture</b>
Land preparation	Field often ploughed by tractor or ox-drawn or tillage practiced by hand hoes – for example 60 % use ploughs, including adopters on land which is not under CA. In addition, land preparation carried out in the rain season	Minimum tillage emphasized, farmers use hand hoes to create permanent planting basins. This can also be practiced by using ox-drawn rippers to create rip -lines In the study, however, none of the research participants had access to ripper; the price of a ripper is about US\$ 200. Dry season land preparation emphasized in CA
Use of crop residues	Crop residues burnt in some places in Zambia However, in both study sites, crop residues left <i>in situ</i> for livestock foraging	Crop-residues viewed as part of organic cover – however, farmers note that there are a lot of problems in permanently retaining crop residues in the farm sites due to conflicts with livestock
Rotation and diversification of cropping systems	Mono-cropping often emphasized in conventional agriculture previously promoted by the state, but study shows that mixed cropping is the norm among small scale farmers in the study area	Crop rotation of maize with leguminous plants emphasized. Leguminous plants improve the nutrient content of the soil. Also improved fallow with green manure such as sun hemp, velvet beans and cow- peas emphasized in CA-study only found 3% have used green manure before.
Integration of trees	Emphasis on agricultural mechanisation promoted removal of wild tree species However, in the study areas study found that 70% of farmers still retain trees on farm sites.	Msangu trees intercropped with maize Other shrubs emphasized such as Tephrosia vogeli, Sesbania sesban –but study did not find any farmer practicing this.
Application of Fertilizers, Herbicides and Pesticides	Conventional agriculture is overly focused on use of fertilizers.	Minimum emphasis on fertilizers and pesticides although not entirely excluded as in organic farming. Emphasis on use of leguminous plants instead (at least 30% of field should have leguminous plants) – this is good as it may emphasize plants grown by women).

Source: Field Data

The use of minimum tillage, as seen in Table 9.3, is perhaps one of the major elements that distinguish conservation agriculture from conventional agriculture. The emphasis on minimum tillage and minimum farm inputs is a major departure from agricultural modernization policies adopted at independence which emphasized the mechanization of the agricultural sector and the extensive use of fertilizers and pesticides. According to one of the FAO agronomists, who participated in this study:

“CA goes against the conventional wisdom in agriculture as it represents a departure from technological approaches that were once held as the solution to food security in Zambia. For example, ploughing, use of fertilizers and pesticides has been promoted in Zambia for the past 40 years...”

Similarly, a respondent from the CFU office notes that CA in Zambia should be viewed as a reform process in agriculture, from policies that promoted the mechanization of agriculture, agriculture mono-cultures and extensive application of fertilizers and pesticides to a new approach that emphasizes agriculture diversification, environmental care and reduced farming inputs. He notes that:

“... The state promoted large scale clearance of land through provision of subsidised tractors, ox-drawn ploughs and sometimes even bull dozers as in the case of Kanakantapa. This led to large scale clearance of forests, misuse of fertilizers and pesticides, all with devastating effects on our environment”

This is also reiterated by Dumanski et al ( 2006), who note that CA is not a business-as-usual scenario, based on maximizing yields while exploiting the soil and agro-ecosystem resources; rather, it is based on optimizing yields and profits to achieve a balance of agriculture, economic and environmental benefits. However, it is not just the new emphasis on low inputs that is important in this shift in agriculture; the idea that agri-environments are also ecologically valuable spaces contrasts sharply with the spatial logic of capitalist agricultural systems that view agriculture environments as intensive production spaces. Indeed, Milestad et al (2011) note that within the conventional techno-agricultural approach, there is no room for ecosystem services protection, as matters of conservation are seen as being outside the concerns of agriculture (see also Altieri and Nicholls, 2005). Conservation agriculture, in this

regard, represents a new paradigm in agriculture, one which the World Agro-Forestry Center hails as creating an evergreen agriculture for food security and environmental resilience (WAC, 2010 cover page).

The environmental benefits of conservation agriculture are reinforced by the second major component of CA (Table 9.1 and Table 9.3), in which the establishment of multipurpose trees are supposed to be intercropped with cultivated crops. However, CA as framed here, limits tree growing on the farm sites to specific tree species called the Msangu (*Falderbia albida*). In addition, it goes further to specify the minimum number of trees that have to be planted in order to fulfill the requirements of CA. The way CA is presented here is not just important for what it includes, but it is also important for what it excludes. In Table 9.3, CA is limited to a set of practices prescribed by CFU as the leading actor in the deployment of conservation agriculture and ignores a range of other agro-forestry practices, some of which are already being practiced by local actors (see Chapter Seven on the Shisholeka Chinyika agro-ecosystem management system). During on-farm visits in the study sites, it was observed that farmers retain wild plant species on farm sites as wind breaks, farm boundaries, fruit trees and medicinal plants. As indicated in Table 9.3, this was the case with at least 70% of the farm plots visited in the study area. Banda et al (1997) also find a similar situation in most of the rural parts of Zambia.

While the pre-occupation with the Msangu is understandable (in view of its special properties discussed in the preceding section), there is a danger that this over-emphasis may serve to de-emphasise the importance of those tree species which already play an important role in farmer's livelihoods. Moreover, there is also a danger of creating tree mono-cultures at the expense of tree diversity. The importance of paying attention to trees that farmers plant on their farm plots is also emphasized in the Zambia Forestry Action Plan which notes that:

“Local knowledge and technology is ignored by extension. In some areas, people plant trees on their farms, using methods that should be noted. Using local knowledge on use of different species may be more valuable than introducing new species (GRZ-MTNR, 1998:44)”.

Similarly, Baudron et al (2007) note the importance of tempering CA with indigenous knowledge and practices. They argue that indigenous knowledge compatible with CA is widespread in many of the rural areas in which CA is promoted in Zambia. In addition, they are of the view that indigenous knowledge is often undervalued because conservation agriculture champions are keen to transfer external knowledge and innovative technology packages as a means of replicating the ‘success’ stories of countries such as Brazil (and the USA).

The Msangu tree is a native of Africa that belongs to the *Acacia* tree species. The choice of the Msangu is based on scientific claims that the tree has special properties that make it a valuable non-food plant to integrate in farming systems (see also Dupuy and Dreyfus, 1992 on the properties of *Acacia albida*). According to GRZ (1998), this tree is leguminous and fixes nitrogen in the soil and therefore can be important for soil fertility improvement. Simuji et al (2008a) note that research has shown that maize grown under a Msangu tree canopy can reach up to 3 tonnes per hectare as compared to 500kg per hectare away from the tree’s canopy. In addition, it is argued that the tree does not compete with crops for light as it sheds its leaves in the cropping season and lets them grow in the dry season (GRZ, 1998). This process, which makes it compatible with crop growing, is called reverse leaf phenology (WAC, 2010). The leaves, when shed, also provide nutrients for the soil and organic cover (together with crop residues) to protect it against erosion. Through these elements, the proponents of CA argue that this farming approach mimics natural forest conditions rather than modern agriculture systems (Scherr and McNeely, 2008; Dumanski et al, 2006).



Source: CFU (2010)  
Plate 9.3 A mature Msangu tree



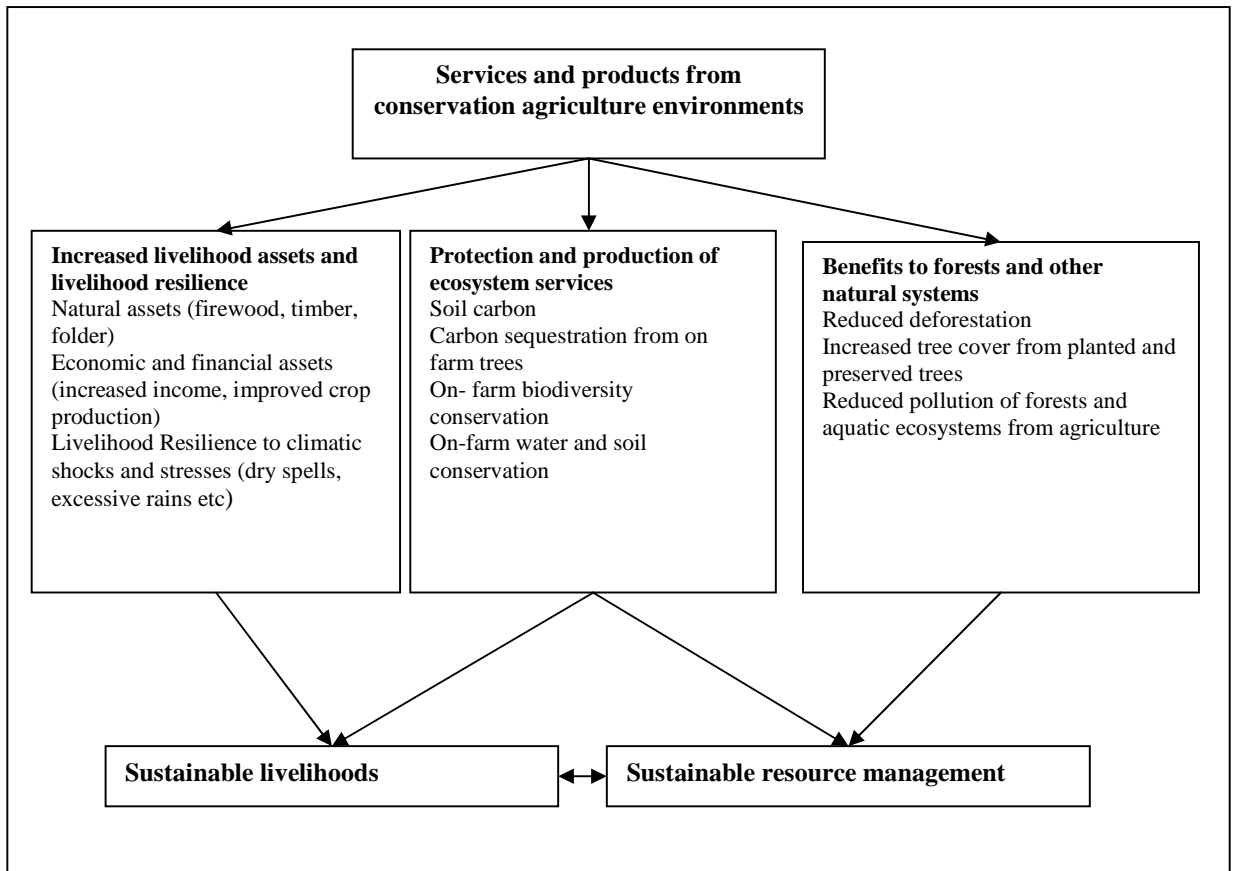


Source: Field photo

Plate 9.4 Msangu seedlings just delivered on farm plot in Munyeta area.

Apart from its ecological benefits, the Msangu tree provides good timber, firewood, charcoal and its pods and leaves are also used as protein-rich livestock fodder (GRZ, 1998; WAC, 2010). Consequently, conservation agriculture fits into the idea of multi-functional agricultural systems (see also Milestad et al, 2011) which deliver multiple benefits to households and society as a whole. By combining agro-forestry and conservation farming, CA is hailed by its proponents as a win-win solution that increases farmers access to diverse livelihood assets (firewood wood, livestock feed, soil fertility, increased crop production), and at the same time delivers important ecosystem services (biodiversity conservation, carbon storage, water conservation, reduced erosion, reduced pollution of aquatic and forestry ecosystems from pesticides and fertilizers). According to the FAO agronomist, the integration of trees, use of planting basins and the emphasis on diversification of cropping systems also increases the resilience of the farming systems to climatic stresses, such as dry spells, shortened rain season, floods and pest attacks prominent in the area. This makes CA a vital ally of mainstream environmental management strategies as well as a tool for construction of sustainable livelihoods. Figure 9.1 illustrates the relationship between conservation agriculture, ecosystem services production, natural resources management and sustainable livelihoods.

**Figure 9.1: Links between conservation agriculture, sustainable livelihoods and sustainable natural resources management.**



Source: Field data (see also Scherr and McNeely, 2008).

As can be seen in Figure 9.1, the outcomes of conservation agriculture, as perceived by its proponents in the context of Chongwe, are sustainable livelihoods and sustainable natural resource management, showing a win-win situation. Conservation agriculture, here, is presented as a strategy for achieving, not only local livelihood goals, but also national and global conservation goals. The production of ecosystem services, such as biodiversity conservation, soil carbon storage and carbon sequestration from on-farm tree resources links CA to the UN goals of carbon emissions reduction and biodiversity protection. Indeed, one of the advisors at the Norwegian Embassy pointed out the importance of CA initiatives to the carbon emissions reduction agenda, noting that CA, under best practice, has the potential to sequester about 1.1 tonnes of carbon per hectare per year (although note that the FAO (2009) presents the figure of 1.8 tonnes). This validates Dumanski et al's (2006:60) argument that:



“Conservation agriculture provides direct benefits to environmental issues of global importance. These include land degradation, air quality, climate change, and biodiversity and water quality. Conservation agriculture relates directly to United Nations framework convention on climate change, the international convention on biodiversity and the United Nations convention to combat desertification”.

This perhaps explains why CA has become a popular agenda with the donor community, such that it has now become part of the ‘greening aid’ agenda in international development assistance. Indeed, according to Angelson (2011), what the world is witnessing at the moment is a form of revised aid to allow the production of global public goods by local actors. Donor agencies, such as the EU and Norwegian Ministry of Foreign Affairs, are now central actors in the deployment of CA (see also Table 9.1). Although these agencies do not have an actual presence on the ground in either Shisholeka or Munyeta, they have provided financial resources which have made it possible for the deployment of conservation agriculture to these local sites. Conservation agriculture seems to present these actors with an opportunity to demonstrate their commitment to globally defined goals outlined in sustainable development instruments presented by Dumanski et al (2006) above. These goals seem to have provided the justification for advancing and funding conservation agriculture in the area. During fieldwork, the researcher came across several billboards that captured this donor commitment towards sustainable development. One billboard (Plate 9.5) captions conservation agriculture as *‘protecting our environment for the benefit of the present and future generations’*.



Source: Field photo

Plate 9.5 Billboard presenting CA as a win-win resource management strategy (Note the emphasis on the funding agency below the advertisement).

From this billboard, CA seems to be a powerful device for illustrating the fact that merging conservation and development is a possibility and those donor agencies are already taking a lead in demonstrating this fact. With their financial muscle and political influence, the involvement of donor agencies in CA has provided a major boost to its advancement. The CFU reports that there are over 160,000 farming households in Zambia now involved in CA, representing nearly a tenth of all small-scale farming households in the country.

However, while implementing actors hail this link between conservation agriculture and global goals, the study shows that implementing agencies do not share this fact with the farming households engaged in this action. For example, none of the local actors interviewed in this study expressed any awareness of the link between CA and this broader agenda, because the implementing agencies have not created a forum for sharing such information. There is no indication that local actors have been involved in the design of these initiatives to have an insight into how their local actions fit into these global goals. However, it is important to note that while local actors may stand outside the international debates surrounding issues of biodiversity and green-house gases reduction, ultimately, many actions defined at the global

level will be undertaken by these actors. As Ostrom (2011) notes, it is important that local actors know what is at stake and that they have a role to play in the global agenda.

This link between local action and the global agenda also raises the ethical question of whether or not local actors should be compensated for producing services with global benefits. According to one of the research participants from the Zambia Community Based Natural Resources Forum (ZCBNRMF),

“... their counterparts in the west receive payments for participating in ecosystem services production schemes while our farmers do not”.

While this is true, the reality is that payments for ecosystem services (PES) as a mechanism for compensating land-owners who adopt environmental measures with wide societal benefits are still very much in their formative stage in Zambia. Currently, there are no existing markets for PES in agri-environments in Zambia, while for forests, REDD initiatives are still under discussion. In addition, PES experts also point out that, although the market is said to be the key player in PES initiatives, such initiatives also require extensive state involvement. Vatn (2011), for example, notes that 99% of PES schemes in the developed world are publicly funded (see also Ferraro and Simpson, 2005). However, in Zambia, with the economic challenges that the country is facing, it is hard to imagine that the state can accommodate PES in its national budget. Moreover, one of the officials from the Ministry of Environment notes that, although the national environmental policy endorses PES, legislation to support such initiatives has not been developed. With such hurdles at the national level, the CFU notes that an alternative to the national markets are international carbon markets. However, the Ministry of Environment official expressed doubt about whether these farmers can get anything from the international market at the moment. He argues that with international markets, the scale or quantity of carbon that these farm sites offset is an important determinant of success. In his view, to participate in the international markets, farmers have to be well organized into farmer associations to deliver the carbon quantities required, something not happening at the moment.

While there are many inhibiting factors in developing PES schemes in CA, some writers note that direct payments are not the only way of compensating farmers for adopting conservation initiatives with wider societal benefits (Vandermeer and Perfecto, 2005; Scherr and McNeely,

2008). Farmers can benefit financially by placing premium prices on their produce. For example, COMACO (also funded by the Norwegian government), an organization working in Eastern province, is already doing this by linking farming households that undertake CA initiatives to urban markets where CA products are sold under a conservation label known as *'It's Wild'*. Through this label, conservation agriculture farmers obtain conservation dividends by selling their products at premium prices. The thinking here is that if there is increased trade value for such products, farmers will be motivated to adopt conservation measures on their farm sites and also avoid exploitation of forests and wildlife products. Similarly, Vandermeer and Perfecto (2005) note that a growing number of eco-friendly agricultural initiatives are now relying on premium prices paid by consumers of products from these initiatives rather than financial compensation (direct payments from government). They give the examples of organic certification and the Smithsonian bird friendly certification for coffee (see also Dumanski, 2006). However, it is important to note that the potential of these instruments (conservation-labels and premium prices) to improve rural livelihoods and the environment in the context of Zambia still requires further research, as there is currently very little information available on them.

#### **9.4 Adoption of CA practices by farmers**

While the preceding section has set out the CA practices prescribed for farmers' adoption, farm visits carried out in this study show a lot of discrepancies between what is prescribed and what is adopted by farmers. The actual farm practices observed on the farms visited are presented in Table 9.5. In total, there were 60 farms using CA, representing 60% of the farm plots visited. From the table, the results in practices of CA farmers can be compared with the practices of farm sites not CA.

**Table 9.4: Farm practices on both CA and non-CA farm plots**

CA activities on farm site	Percentage of farm sites where activity was carried out	
	CA adopters (N=60)	Non CA adopters (N=40)
Creation of planting basins (minimum tillage) on farm portions	100%	0%
Crop residues left on the farm immediately after harvest	100%	100%
Mixed cropping practiced on farm	88.3%	80%
Crop rotation (maize/legume)	76.7%	67.5%
Intercropping of food crops	41.7%	35%
Farm plot where the Msangu was attempted	11.7%	0%
Minimum tillage done on whole farm	3.3%	0%
Green manure use and improved fallow systems	3.3%	0%
Other shrubs were planted as part of CA	0%	0%
All crop residues permanently retained on farm (all year)	0%	0%
Farm plots with Msangu tree standing	0%	0%
Use of mulch	0%	0%

From Table 9.5 it can be observed that crop rotation, mixed cropping and the retention of crop residues are widely practiced by both CA adopters and non-adopters. This stems from the fact that these activities were already common practices in the area, even before the introduction of CA. An important contribution of CA here is the fact that it has served to reinforce these practices. In addition, by emphasizing a maize-legume rotation, CA has helped to refocus attention on groundnuts (as the main leguminous food crop in the area), a crop mainly grown by women and often given low priority in agriculture initiatives. On the other hand, the retention of crop residues on the farm plots has to be viewed with caution. While crop residues

are indeed retained on all the fields after harvest, and not burned as assumed by CA promoters, they are hardly ever permanently retained as the fields are traditionally released for livestock dry season foraging.

A notable practice that sets CA farm plots apart from those where conventional farming is practiced is the use of minimum tillage in land preparation. All CA adopters practice minimum tillage, primarily because this is often the indicator used by the extension officers to identify who has signed up for CA. This also suggests that statistics indicating that almost 10% of small scale farming households in the country have adopted CA need to be treated with caution, as they do not reflect what other practices have been adopted by farmers apart from minimum tillage.

However, although the results in Table 9.5 indicate that minimum tillage was being practiced on all the 60 farm plots that were under conservation agriculture, only two (representing 3.3% of adopters) had placed their whole fields on conservation tillage. On the rest of the farms, conservation tillage is practiced side by side with conventional tillage farming. Adopters of CA interviewed in this study identified two main reasons why they opted to reserve only small portions of land for CA. First, more than half of all CA adopters noted that conservation tillage is time-consuming and places a lot of demand on family labour requirements. In particular, they argue that simply creating planting basins rather than tilling the land before planting allows weeds to grow quickly and to compete with cultivated crops. In contrast, under conventional agriculture, the land preparation process involving tillage ensures that weeds in the field are cleared with hand hoes or ploughs before planting. Weed clearing, according to these farmers, is one of the most time-consuming and laborious tasks in which they have to engage. According to one of the leaders of the women's group in Shisholeka, at the household level, this type of work is often left to women and children. Consequently, this creates an extra burden on women already overstretched with other household tasks. The weeding problem was also mentioned by at least a third of non-adopters as the main reason why they shied away from CA.

The challenge that comes with the problem of weed management in conservation tillage was also acknowledged by officers from the Ministry of Agriculture, the FAO and conservation farming unit. To deal with the problem, they propose that farmers should now use herbicides

as a weed management and labour saving technology. In this research, it was found that none of the participants has had the experience of using herbicides in crop cultivation. In this regard, this suggestion introduces a new input in the local actors' farming systems with new cost implications for the farmers. In addition, it also raises the question of the compatibility of suggested herbicides with the environmental care components of the conservation agriculture. According to the CFU coordinator in the district, it is important that any herbicides used by farmers must be eco-friendly and not lead to the destruction of soil biodiversity or pollution of other ecosystems. On the other hand, he notes that this is also where the challenge lies as eco-friendly herbicides are also often the most expensive herbicides for farmers.

Apart from labour-related problems, at least a third noted that they had spared only small portions of their land for conservation agriculture, because they were only trying this approach to farming for the first time (or in some cases second time). It was observed that at least 25 (41.7%) of the farmers on CA were new adopters (i.e. it was their first year on CA). In this regard, these small portions were experimental plots for these farmers, which suggest that farmers no longer unquestioningly adopt agricultural technology without first putting it to a test. This may stem from the fact that farmers have been subjected to a range of agricultural experiments over the past four decades, sometimes with disastrous outcomes. Besides this group, the study finds that some of the farmers devoted portions of their land to conservation tillage simply because they were attracted to subsidized fertilizer and seed packs that came with the adoption of conservation tillage. Although this is a view that was not openly expressed by most research participants, at least two farmers were open enough to point out that the fertilizer pack was an opportunity that they could simply not let pass.

Overall, the results show that there is a very low adoption of most of the key elements of CA. From Table 9.5, practices least adopted include (a) integration of tree species on farm plots (only 11.7% attempted to do so); (b) use of green manure and improved fallow systems (3.3%); (c) permanent retention of all crop residues (0%); and (d) use of mulching (0%). According to a research participant from the Conservation Farming Unit, these are crucial elements of conservation agriculture, as they delineate CA from other agricultural approaches. For example, he notes that:

“The absence of trees or shrubs on farm sites where CA is said to be practiced means what we cannot in a strict sense say that these farmers are practicing conservation agriculture”.

The retention of crop residues, improved fallow systems and mulch are all meant to create a permanent organic cover on agricultural lands. Together with the tree components, it is these elements that allow agricultural lands to mimic natural forests and thus enhance their capacity to produce ecosystem services.

## **9.5 Factors influencing the implementation of CA**

The huge gap between what is prescribed and what is practised raises numerous questions about the process of translating conservation agriculture into practice. For example, it raises the question of the extent to which CA contributes to stemming deforestation and increasing local actors' access to non-food livelihood assets (e.g. firewood, construction poles and other products). At the moment, CA has not delivered on these promises. In particular, the ecological components of CA are the most neglected in the process, with CA farmers failing to integrate the prescribed trees and shrubs on the farm plots. Indeed, the study finds that there are several factors that hinder farmers' adoption of some of the CA practices, as well as limit CA's contribution to local livelihoods and environmental protection. The first factor, the issue of labour, has already been discussed in the preceding section. An important point to note here is that these new practices, such as mulching, use of improved fallow systems and planting of trees, all place an extra demand on family labour requirements. Apart from the labour problem, other factors that present challenges for CA implementation include: (a) a mismatch between prescribed CA practices and the organization local actor's livelihoods system; (b) institutional constraints that mediate local livelihood practices; (c) biophysical constraints; and (d) the quality of extension services received by farmers.

### **(a) Mismatch between CA practices and organisation of local actor's livelihood practices**

Dumanski et al (2011) argue that for conservation agriculture initiatives to succeed, it is important to align them to the local context within which they are being implemented. However, in the case of Chongwe, it was observed that some prescribed CA practices ignore



the organisation of local actors' livelihoods system and the influence of seasonality on this organization. For example, focus group discussions held with the community show that the emphasis on permanent retention of crop residues and the establishing of the Msangu present a challenge for the community, because of the way their livelihood system is organized. The research participants noted that crop residues are not burnt after harvest, but are retained in the fields as livestock feed during the dry season when pasture is in short supply. This situation reflects a scenario where there is interdependence between crop-based livelihood systems and livestock-based livelihoods in order to cope with seasonal changes in the availability of resources. The farmers note that it is a daunting task to protect Msangu seedlings from cattle during the periods when fields are released by individual farming households for communal grazing. An effective implementation of these practices require that farmers exclude livestock foraging in their fields, a practice that may have negative implications on livestock-based livelihoods which form an important part of local actors' diversified livelihood strategies.



Source: Field photo

Plate 9.6 Livestock open grazing in Shisholeka

### **(b) Institutional factors that mediate access to resources**

Interviews held with local elders in both Shisholeka and Munyeta area show that excluding livestock from farming environments also has an implication for the local actors' institutional arrangements which mediate access to resources such as land and grazing sites. For example, one of the local elders notes that:

“...to say that we keep away livestock from our farms is going against custom, if we have harvested our crop, others have the right to allow their cattle feed from the fields... we cannot fence our fields just like that,...and you have to realize that in the dry season, it's difficulty to find food for animals... ”.

This view was also echoed by more than a third of the farmers involved in CA, who also noted the difficulty of going against local customs by excluding other actors (e.g. farmers without livestock excluding livestock keepers) from their fields during the dry season. Indeed, farmers seem to view this process of restricting access to their farm plots during the dry season as promoting the individualization of landholding, and thus tampering with local institutional arrangements which are characterized by flexibility to fit the local circumstances discussed in the preceding section. These tenurial arrangements were described by one field officer as “a poorly defined tenure system inhibitive of conservation agriculture” (a view also prevalent in EAZ, 2007). Again, it seems that proponents of CA have problems understanding how these local institutional arrangements enable local actors to organize their livelihoods and deal with seasonal resource changes in their environment. This situation surrounding the relationship between CA practices and institutional arrangements seems to validate arguments that institutional factors are arguably among the most important factors that influence the success or failure of natural resources programmes (Temm and Johnson, 2001; Adisu and Croll, 1994). In addition, the study finds that it is not just local tenurial arrangements that present challenges for the effective adoption of CA. In areas around Munyeta reserve, where tree tenure has been an issue (due to the conflicts surrounding the forest reserve), at least one farmer raised the question of “who will own the trees if we plant?”, while another asked if licenses would be required for the commercial exploitation of trees on the farm sites. Interviews with both forestry and agriculture officials show that this is an issue that remains unresolved and will continue to pose a challenge for the integration of trees on farmlands. While the integration of trees has the capacity to improve the supply of tree products for domestic needs, commercial exploitation is still subject to state regulation. According to the forestry extension officer, at the moment, ownership of trees is still vested in the state and the use of licensing continues to guide commercial exploitation of trees, whether on farm plots or forest. While resource management strategies are changing, laws backing the changes remain unchanged. The reader will remember that this is the same scenario that we met in Chapter Seven, where, although

local actors may have taken the steps to protect tree resources, ownership of the trees remains vested in the state and commercial exploitation requires the permission of the Forestry Department. Consequently, the opportunity for farmers to benefit fully from trees on farm sites remains locked in a legal system that favours the state as the main economic beneficiary of conservation initiatives. This is primarily because past policies had positioned the Forestry Department as the only forestry and tree protection agency.

### **(c) Environmental or biophysical constraints**

Apart from the importance of the institutional factors described above, the study found that CA adopters also have to contend with biophysical factors that constrain the implementation of some of the CA practices. For example, the seven farmers (representing 11.7% of all CA adopters in Table 9.5: 4 in Mtanuka, 2 in Shisholeka and 1 in Munyeta-outside the reserve) who attempted to grow Msangu on their fields also cited biophysical constraints as one of reasons their tree planting efforts failed to yield positive results. Three of the farmers noted that the seedlings were destroyed by termites, while two of them indicated that their on-farm water holes used to irrigate the seedlings dried up in the dry season. Faced with the task of walking long distances to collect water from streams for irrigation, they simply gave up on the tree seedlings. Indeed, one of the agricultural extension officers pointed out that despite the push for farmers to grow the Msangu, the challenge of termites in Chongwe is a key problem. He notes that this is the same reason why farmers in this area do not grow cassava. The importance of paying attention to biophysical factors in the establishment of Msangu is also pointed out by Simuji et al (2008b). They note that farmers seeking to establish Msangu face biophysical constraints, such as water constraints and poor soils, such that the survivability of the Msangu seedlings on small-scale farms is usually poor, ranging between 15% -60%.

Apart from the challenges of integrating trees in the area, farmers also noted that they had challenges with the type of crop varieties that were distributed to them under the CA initiative. As part of the seed and fertilizer pack incentive (4 bags of 50kg fertiliser bags and 10kg of seed) for CA farmers, CA adopters received subsidized hybrid maize seeds. The crop varieties are high yielding and early maturing to counter the problem of a short rainy season. Secondly, the officer notes that linking farmers to hybrid maize varieties is also meant to support agricultural entrepreneurship (i.e. support seed producing companies) in the country. Apart

from these two reasons, he also notes that, as field officers, they are often tempted to prescribe high yielding maize varieties to farmers because they have annual maize production targets to meet. While these reasons are quite sensible, it appears that farmers have different experiences with the prescribed crop varieties. In the study, more than half of the respondents expressed disappointment with the quality of the crop varieties in the CA seed and fertilizer pack in CA. There are three main problems associated with hybrid maize varieties that farmers identified. These are the crops' susceptibility to pest attacks, the inability of the crop to withstand excess rains and the high fertilizer (nutrient) demand of the crop. One of the local elders in Mtanuka argues that:

“...while it is true that these maize varieties are high yielding, the problem is that the grain is very soft, it is not like gankhata (local maize variety) .....even before we harvest it, the grain gets attacked and when we harvest it, we cannot store it for longer than a year because it gets all destroyed even with Chilindamatula dust (a pesticide)....”

Again, this scenario shows the importance of understanding local actors' livelihood circumstances in the deployment of any technology. According to the same local elder, it is part of the local livelihood practice to store part of the crop harvest for a period longer than two farming seasons. This is meant to avert risks associated with various uncertainties, including climatic ones such as drought and crop failures due to lack of inputs, which farmers may face in the future. However, some hybrid maize varieties can only be stored for one season because of their susceptibility to pest attacks during storage. In this regard, use of some hybrid maize increases farmers' vulnerability to these stresses and shocks.

While there has been this emphasis on hybrid maize varieties, the study found that farmers also have their own maize varieties called *Gankhata* and *Kapyawangu* which are being ignored by field officers in the promotion of CA. Focus group discussions shed much light on how these local varieties allow the farmers livelihood system cope with vulnerabilities. *Gankhata* is a late maturing maize variety which is grown mainly because it can stand excessive rains, pest attacks and lengthy dry spells. In addition, farmers note that after harvest, *Gankhata* can be stored for more than three years without being damaged by pests. Hence, the rationale for growing *Gankhata* seems to lie in the farmers desire to avert risks associated with

excessive rain, a lengthy rainy season and pest attacks. However, *Gankhata* is not grown as the only maize crop. While a portion of the field may have *Gankhata*, another portion may have *Kapyawangu* which can be literally translated as ‘early maturing’, reflecting the crop’s ability to mature early. The research participants note that this maize variety is planted to avert risks associated with a short growing season, dry spells and also food shortages, as it is ready for harvest during the period when most households are experiencing food shortages, usually January.

What these results suggest is that, while agriculturalists have been pre-occupied with meeting production targets, they have failed to accommodate local farmers’ knowledge and experiences that can boost the resilience of agricultural systems. The ignoring of local actors’ knowledge of agricultural and ecological systems is a long-standing problem of resource management in Africa which requires attention if many of the proposed agriculture initiatives are to succeed (see also Allan, 1965; GRZ, 1998; Banda et al, 1997; Baudron et al, 2007).

#### **(d) Quality of extension services**

The question of the quality of service delivery in CA extension has already been raised in the preceding sections of the chapter. As the FAO officer noted, there are several actors involved in the process of implementing CA and these have varying experiences and expertise. Similarly, a forestry scientist from PELUM notes that most farmers have not properly adopted CA practices because of poor extension services provided by the implementing agencies. He attributes this to a lack of adequate training among field officers working on the ground with farmers. This was equally noted by an FAO agronomist who points out that:

“So far the best trained officers in conservation agriculture are those working for the conservation farming unit. However, CFU officers cannot be everywhere all the time and we have to rely on field officers from the state...you will have to bear with these officers because most of them were trained to promote conventional agriculture which is now being questioned”.

This argument seems valid in the sense that the two agricultural officers working in Munyeta (outside the reserve) and Kanakantapa area (includes Shisholeka and Mtanuka) acknowledged

that they were inadequately prepared for this kind of work, particularly in terms of addressing the ecological components of CA (i.e. the agro-forestry component). However, the agricultural officers also note that part of the problem is that the Forestry Department office has not been very keen to work with them in ensuring that these components are adequately addressed. Indeed, it was observed in this research that the FD was to some extent detached from CA activities taking place in Shisholeka and Mtanuka. Even in Munyeta, where the department has prescribed CA as part of JFM rules (see Chapter 8), and is the main actor promoting CA, the department has not provided any training or extension services to the settlers. In this case, the farmers who are practicing minimum tillage in the reserve noted that they have had to attend CA trainings held outside the reserve by the conservation farming unit. On the other hand, one of the forest officers attributed this lack of 'extensive' involvement in CA to a lack of human resources in the department, noting that:

“We have a very lean staff, it is impossible for us to be in every community like the Agriculture Department. They have officers in all the 12 camps, we don't...”

While this is an important point, it also appears that CA is not viewed as being as important as working in natural forests among some of the state forest officers. During interviews with some of the officers, the study found strong views suggesting that CA should not be a primary concern of foresters, but rather, of the agriculture department. One of the foresters pointed out that:

“Our work is forestry .....conservation agriculture or agro-forestry is not forestry.....I feel we will lose focus on forests which are much richer in biodiversity if we give our time to conservation agriculture...”

Another noted that:

“With Munyeta, there are problems there; we have to do it, but in the other places, it should not be our baby, we can only offer them help when we are able to...”

These views seem to suggest that some conservationists are still not prepared to work in socio-ecological systems despite the strong rhetoric in national policies. For example, the Zambia

Forestry Action Plan was the first to recommend that foresters should focus on agro-forestry awareness campaigns as an important part of participatory management of forest resources (GRZ, 1998: 61). Moreover, the report called for a new era where foresters work hand-in-hand with agriculturalists, as opposed to working in isolation. This was also reiterated in the 2009 National Environmental Policy (NEP) which aims at achieving an integrated approach to the management of natural resources in the country (see GRZ-MTNR, 2009). However, the scenario in Chongwe shows that the agricultural-forestry divide is still very important among foresters, and that agro-ecological approaches may struggle to be accepted as legitimate conservation strategies in their own right (see also Chapter 8).

The views of these foresters, however, contrast sharply with strong arguments from writers such as Scherr and McNeely (2008), who point out that agro-ecosystem approaches are legitimate conservation approaches in their own right, and they argue that the late twentieth century model of land-use that segregated agriculture production from protected areas managed for biodiversity conservation is no longer adequate in much of the world. Vandermeer and Perfecto (2005) also point out that most conservation biologists, much credited with the protected area model, have gone beyond the simplistic idea that there is 'wild habitat' and 'agricultural land', noting that most land is subjected to human interference, and the goal of conservation is to preserve as much biodiversity as possible in landscapes that are under different land-uses. Similarly, the focal point person on biodiversity and community benefit access in the Ministry of Environment notes that the limited view that conservation is a goal that can only be achieved in protected areas is rather flawed and is an impediment to the conservation of a full spectrum of biodiversity, as it tends to ignore wild species in socio-ecological systems (see also Reeves, 2011; Karieva et al; 2007; Vaccaro and Beltran, 2001). The lack of active involvement of the Forestry Department is viewed as an important gap, as it has deprived CA initiatives of important ecological knowledge surrounding the establishment of tree and shrub species on the farm sites. According to FAO (2009), CA can only work optimally if the different technical areas are considered simultaneously, in an integrated way. This is because the multidisciplinary nature of CA requires a mix of expertise from various sectors such as forestry, agriculture and water sector.

## 9.6 Conclusion

This chapter completes the examination of local-level studies carried out in this research. It has discussed the implementation of the second element of sustainable development policies, namely the extension of conservation to agri-environments. Like the discourse of participation and devolution, the extension of conservation or environmental care to farming environments does indeed represent a shift in thinking of conservation as being exclusively a 'natural sites' conservation agenda to a new thinking that extends conservation to socio-ecological systems including agricultural systems. Similarly, it represents a change in agricultural practice from an emphasis on technological advancement that encouraged the removal of wild tree species to one that now accommodates these species. In Chapters Six and Eight, the study has shown how competition between these land-use systems becomes an impediment both for conservation and livelihood improvement. In this vein, a focus on agro-forestry systems and agriculture conservation as accompanying strategies for mainstream natural policy strategies heralds a new chapter for Zambia's conservation and rural development.

An important aspect of this approach is that it has provided an opportunity for other actors, such as agricultural practitioners and farming households that have traditionally been excluded from the nature conservation agenda, to be involved in conservation despite the various limitations encountered in the process. It is also instrumental in reinventing the image of agriculture in the eyes of conservationists. According to Milestad et al (2011), the promotion of an agricultural approach that meets the multiple livelihood needs of families, as well as providing ecosystem services, allows us to view agriculture in a positive way as far as environmental conservation is concerned. For example, in crisis narratives of conservation, agriculture is viewed as inimical to conservation, threatening biodiversity with habitat loss, soil degradation, agricultural chemicals, fires from burning crop residues and poor pastoral practices (Mattison and Norris; 2005, Herman and Hutchinson, 2005; Armitage, 2004; Blaikie, 2008; Robbins, 2004; Fairhead and Leach, 1996). According to Scherr and McNeely (2008), it was such perceived threats that were in the past often used by conservationists to justify the separation between agriculture and natural resources conservation. Agro-ecological systems appear to be quickly reformulating this relationship. This new thinking also allows the reconstruction of local actors from villains of conservation to environmental stewards,



decision makers and ecosystem services producers (Gorman et al, 2001; Scherr and McNeely, 2008). These terms are quickly gaining popularity in the sustainable development and ecosystem services literature. Indeed, the SD discourse of participatory forestry management through JFM similarly reframes local actors as partners in conservation rather than as squatters and encroachers (see Chapter Eight). This seems to validate Campbell's (2000) observation that one of the most important features of the current SD discourses is the reconstruction of rural actors and their livelihoods from the negative representation that most readers are accustomed to in crisis narratives to a positive one.

The piloting of agri-environmental management initiatives in places such as Zambia should be seen in the light of a strong push in much of the sustainable development literature for conservation solutions that posit a win-win solution for both livelihoods and conservation. Vaccaro and Beltran (2010), for example, argue that the protected area model almost always translates into the interdiction of local management and production systems and practices. They note that in this approach, agricultural livelihoods were never part of conservationist goals, as the thinking was that forest species were the most endangered and more in need of protection. Karieva et al (2007) also argue that conservation should shift from simply preserving natural areas to shaping the ecological processes in human domesticated lands in order to enhance human wellbeing. Reeves (2011:3) sum this up in the following statement:

“For me, the environment and agriculture are two sides of the same coin. However, they have become separated and the last 20 years have been about putting them up together. The new ecosystem services, catchment plans and sustainable agriculture are the new mechanisms to address environment-agricultural conflicts”

These views suggest that the move to address the agriculture-forestry divide is quickly gathering speed among conservation theorists (bolstered by ecosystem services thinking) as more and more of them argue that the divide between the two is detrimental to the advancement of both livelihoods and conservation (see also Fay and Michon, 2005; Kereiva et al, 2007; Melania and Sayid, 2011; Scherr and McNeely, 2008). Indeed, Barker and Stockdale (2008) note that the legacy of the protected area model has been the development of conservation islands and a distorted appreciation of the relationship between society and nature.

While there is a burgeoning literature on agro-ecological approaches, there has been little focus on real-life examples of what people have been doing, what works and what does not work (Kretser, 2008; Baudron et al, 2007). This is particularly so in the context of Africa, where the WAC (2011) notes that only 1% of Africa's land is under agro-ecological approaches. Zambia is seen as a pioneer in this context. In this vein, this chapter makes a vital contribution to the understanding of how agro-ecological approaches are being translated into practice.

While noting the merits of conservation agriculture as a sustainable land management approach, the chapter also notes that there are several bottlenecks that limit its contribution to both livelihoods and environmental protection. In particular, it notes that the way agro-ecological approaches are framed and applied to a particular context is crucial for their success. In Chongwe, conservation agriculture is framed in such a way that what is deployed to the local setting is limited to a set of practices prescribed by implementing agencies. There is no focus on allowing a community-driven process where local people identify the best options for CA in their location (see also Dumanski et al, 2006). This is despite the argument that CA moves environmental decision-making to the household level. While there is so much emphasis on what farmers should do, there is little focus on what farmers have been doing or what farmers know in order to adapt CA properly to the local context. The study notes that the implementation of CA, and its capacity to deliver conservation dividends, are undermined by an emphasis on practices that are not in harmony with the organization of local livelihoods, the failure to take into account biophysical factors, and poor extension service delivery resulting from inadequately trained field staff and lack of cooperation between foresters and agricultural practitioners.

The study also shows the importance of paying attention to the institutional arrangements governing access to natural resources in areas where conservation agriculture is being introduced. This is important, as most of the lessons being used in promotion of agro-environmental schemes in Zambia are primarily derived from the USA and some parts of South America, where these approaches have been relatively more advanced than in Africa (Baudron et al, 2007; WAC, 2010). In these countries, however, we have to note that these practices are supported by PES schemes and are taking place in a context where tenurial

arrangements are different from most of rural Africa. It is essential that, as there is a focus on translating technology from one environment to another, practitioners avoid the flaws of past approaches where imported natural resources strategies simply ignored local institutional arrangements. The lessons derived from this chapter are important, not only for Zambia but for many parts of Africa, as there are strong indications that this is the future trend in natural resource management as the discourse of sustainable development and its emphasis on ecosystem services continues to gain ground ( see FAO, 2009; SADC/IUCN/SARDC, 2000).

## **Chapter Ten**

### **Conclusions**

#### **10.1 Introduction**

This research set out to examine the changing nature of natural resource policy and practice in Zambia. In particular, it was concerned with how the new natural resources management strategies derived from the sustainable development discourse are being translated into operational practice and the extent to which they depart from the fortress conservation model in terms of articulating local actors' realities and experiences surrounding natural resources and livelihoods. This chapter now provides a summary of the main research findings and reflects on a number of conceptual and theoretical concerns in the study.

#### **10.2 Fortress conservation: its applications and limitations in Chongwe**

This research shows that for over 70 years of Zambia's conservation history, the vocabulary of environmental conservation has been dominated by western notions of 'nature preservation', 'catchment protection', and the promotion of aesthetic values while marginalising other values, including those that local actors ascribe to natural resources. Drawing on scientific narratives that presented the fortress conservation thinking as ecologically sound, local actors' livelihood spaces were appropriated by the state and designated as protected forests and national parks. Conservation was confined to these alienated lands and separated from human settlements and agricultural lands. Munyeta forest reserve (in Chapter Six of this study) is highly illustrative of this type of conservation. To construct a highly centralised natural resource management regime in Munyeta, the state relied on these nature narratives and constructed Munyeta as an uninhabited territory that required protection and separation from human society. In addition, narratives of open access resources were employed to justify the appropriation of these customary commons for conservation. The idea was to bring such natural resource sites under 'sound' scientific forestry management practices. Customary modes of resource access and management were replaced by licences, fines and the physical policing of the reserve. The costs of this type of conservation were (and are still) disproportionately distributed. While all economic benefits from conservation accrued to the state (in terms of revenue from licences and concession fees) and other economic actors (e.g. concession companies), local actors, whose lands were converted into protected areas without

compensation, received no share of this revenue. This, of course, is not a trend that was restricted to Zambia. Throughout the developing world, these narratives have been used to gain access to local lands for the purpose of establishing protected areas (Forsyth et al, 1998; 2003; Bryant and Bailey, 1997; Campbell, 2000). For example, Mistry et al (2009), reflecting on Guyanese and Jamaican experiences with natural resources discourses, find a similar scenario where such representations of the Caribbean environment were used to justify the appropriation of local actors' lands and the establishment of natural resources enclosures. Consequently, while these landscapes became restricted spaces for local actors, they were opened up for non-local actors (e.g. timber companies).

However, in the context of Munyeta, a historic analysis demonstrates that these narratives contradict local narratives and other evidence that points to the fact that the area, framed as uninhabited or untouched, was, in fact, already inhabited by people of Soli ethnicity and even played host to Zimbabwean freedom fighters before the establishment of the reserve. Moreover, the study shows that state conservation in this area simply ignored local actors' pre-existing institutional arrangements and their claims to the land which they continue to view as a tribal commons. By instituting a highly exclusionary natural resource regime in this area, techno-bureaucratic conservation interests came into direct conflict with local interests. While the local actors' weak political capital did not put them in a position to negotiate the establishment of the reserve, the research suggests that local actors counter-reacted by rejecting and obstructing conservation initiatives which they continue to view as an illegitimate undertaking on their local commons. Indeed, Siurua (2006) similarly observes that the rejection and obstruction of conservation initiatives by communities around nature reserves has been one of the major outcomes of the application of the fortress conservation paradigm in many parts of the developing world. In Munyeta, this rejection and obstruction is evident in the form of encroachment in the reserve and a general disregard of statutory regulations guiding natural resource management in the reserve. While these local acts have been interpreted as a nuisance, or even as acts of criminality by state authorities, the research argues that these acts of resistance should, to a large extent, be understood as 'weapons of the poor' or 'power resources' that are often available to the poor in the absence of other means that allow them to negotiate their interests in conservation initiatives (see also Bryant and Bailey, 1997; Sachedina, 2008). In Chongwe, these contestations between state conservation and local actors have been instrumental in forcing the state to adopt new natural resource

management strategies in Munyeta. While the shift towards democratisation, the internationalisation of conservation issues and the presence of macro-economic factors constraining state budgetary allocations to conservation activities are among the broad-scale factors influencing this shift, these local-level acts of resistance constitute what can be termed as the ‘below factors’ that limit the fortress conservation model and justify the need for new conservation strategies that address local actors’ interests.

Exclusionary policies not only had an effect on natural resource management in areas designated as protected forests, they also had an effect on the management of forest resources in customary areas such as Shisholeka. In these areas, open access resource narratives were deployed to deny local actors the legal right to manage and benefit collectively from their tribal commons. As noted in Chapters Six and Seven, such thinking uses crisis narratives that often represent common pool resources as characterised by unstructured ownership and unregulated natural resource access (e.g. Hardin, 1968; Rolston, 1996). The consequence of this thinking in the case of Zambia (and many other countries in Africa) has been the stifling of local actors’ creative agency and the marginalisation of their governance and institutional arrangements that provided local controls against natural resource degradation. This representation of common pool resources as open access resources in Zambia’s policy documents continues to the present times, despite the shift in natural resources policy (e.g. GRZ, 1998; 2007; GRZ/FAO, 2010; ZFD, 2005). However, the case of Shisholeka provides empirical evidence against such over-generalised interpretations of rural spaces and validates arguments posited by common property theorists that such narratives are far from convincing, as local groups often claim ownership to such resources and collectively organise to control access and avoid natural resource degradation (e.g. Ostrom, 1990; Bryant and Bailey, 1997; Forsyth 2001; 2003, Blakie, 2008; Agrawal, 2001). Moreover, the case of Shisholeka demonstrates that even in a scenario where local actors have been denied statutory rights to manage their tribal commons, some communities continue to manage their resources sustainably as *de facto* managers. It demonstrates the fact that some communities are still capable of holding a shared vision and cooperating for what Ostrom (2011) calls the common good. Drawing on customary governance structures and locally-crafted resource access and use rules, local actors manage different types of ecological spaces that include sacred graves, agro-ecological systems, grazing sites and community forests. This demonstration of local actors’ creative agency equally justifies the need for new natural resource management

strategies, which not only remedy the limitations of the protected area model, but also legitimise or accommodate locally-crafted natural resource management strategies such as Shisholeka.

### **10.3 Challenging fortress conservation dominance: the process of translating new strategies into practice**

Sustainable development strategies seem to offer a way out of the problems that characterise the application of fortress conservation. The discourse of sustainable development emerged at a time when state conservation was faltering under the various pressures highlighted in Chapter Four and the preceding section of this chapter. At the national level, there are many important developments that have emerged as a result of the ascendancy of this discourse. As Chapter Four demonstrates, sustainable development was instrumental in revitalising national interest in conservation and facilitating the development of various pieces of natural resource legislation, as well as establishing various environmental agencies (such as the Ministry of Environment and The Environmental Council of Zambia). In addition, in contrast to the protected area model, sustainable development broadens the scope of conservation and develops strategies aimed at improving both the environment and local actors' livelihoods. In theory, this is a significant shift from the narrow managerial thinking underpinning traditional exclusionary policies. Moreover, by reformulating the relationship between the environment and livelihoods, this discourse has served to focus attention on the value of biological resources to local actors' livelihoods which were previously grossly undermined by the application of the protected area model, as it placed unreasonable restrictions on access to natural resources. In addition, as opposed to a scenario where investment in natural resources management was confined to protected areas, sustainable development allows conservationists to invest their resources and expertise in the protection of agricultural environments and other degraded environments outside protected areas. As noted in Chapter Nine, such measures have the potential to help in the restoration of degraded agricultural lands and to improve the livelihood asset base of local actors, while delivering a range of ecological services beneficial to both local and non-local actors.

The research shows that the hallmark of sustainable development in Zambia's environmentalism is the emergence of participation and devolution as guiding constructs for

the management of forests, as well as embracing the notion of ecosystem services which now serves to link conservation with environments previously viewed as strictly agricultural production spaces. While research on participation and devolution in natural resources in Zambia has primarily focused on wildlife resources management (Nkhata and Breen, 2010; Temm and Johnson, 2001; Musumali et al, 2007), there has been little engagement with participation in forest resources. As a mark of departure from previous studies, this research focuses on forests and tree resources to illustrate the implications of this shift in natural resources strategies. Similarly, the subject of agri-environmental management is still new in a developing country context, as conservationists and agriculturalists are only just beginning to pay attention to it. As the WAC (2010) notes, only 1% of Africa's lands are under agro-forestry or conservation agriculture. A lot that we know on conservation measures in agricultural areas is primarily from developed countries where such initiatives are part of payments for ecosystem services (PES) schemes (e.g. Burton, 2011; Gorman et al, 2001; Prosperi et al, 2011; Batolini et al, 2001; Zwaan, 2010). According to Zimmerer (2006), the extension of conservation to human-dominated landscapes is one of the most important elements of the sustainable development discourse. By drawing on critical tools from political ecology, and focusing on local-level realities through a livelihood perspective, the analysis of agri-environmental management initiatives takes the debate on society-conservation relationships in a different direction, away from an exclusive focus on natural forests to human dominated spaces.

In Zambia, the fact that agri-environmental management strategies have been embraced by the state in both conservation and agriculture policies, and are now being deployed to local terrains, suggests that we are witnessing an important evolutionary shift in natural resource management that will shape future conservation-livelihood debates for decades to come. At the moment, agri-environmental measures mostly take the form of agro-forestry and conservation agriculture. In Chongwe, in particular, conservation agriculture has attracted the greatest attention and is being implemented on a district wide basis. However, it is important to note that the application of agri-environmental measures in Chongwe is limited to croplands and does not go beyond non-productive land management measures. Unlike in Europe and other developed countries, where non-productive agro-ecological initiatives, such as set-asides, have gained ground, these are yet to make their mark in Zambia. In Europe, such measures are largely driven by payments for ecosystem services systems (PES) which have



barely penetrated developing countries such as Zambia. Moreover, in the case of Zambia, there is currently no legislative framework to allow the state to use public funds to develop PES schemes for agri-environmental measures and the political acceptability of PES is still unknown. Consequently, further research is required on how to move agri-environmental measures beyond their current status, and to identify the type of incentives that are appropriate for a developing country such as Zambia. In particular, there is need to examine the potential of eco-labelling and premium prices as substitutes for PES systems.

While noting the importance of this shift in natural resources strategies, evidence from this research shows that the translation of the new initiatives into operational practice is fraught with a range of practical and theoretical difficulties. First, in terms of devolving forest resources management, the research shows that devolution policies have emerged in Zambia in an unclear policy and legal environment with significant implications in the way participation is framed and particularised. One of the distinguishing marks of the discourse of participation is the entry of new actors in natural resource management policy and legal frameworks, hence signalling an important shift from exclusionary policies that have dominated conservation in the past 70 years. However, in terms of forest and tree resources, for example, there is not one coherent policy on devolution, and policy and legal frameworks supporting natural resources devolution are split between the forestry and local government sectors with no clear linkages between them (GRZ, 1995; 1998; GRZ, 2004; 2007). This has created ambiguity and confusion over which agency should lead the process in natural resources devolution and how to devolve natural resources to local actors. To some extent, this confusion results from the conceptual imprecision of the notion of participation which has been highlighted by several writers (Barrow et al, 2003; Hobley, 1996; Fabricius et al, 2007; Sullivan and Homewood, 2004; Cooke and Kothari, 2001; Jones, 2006; Brown, 2003; Buchy and Race, 200; Ribot et al, 2010) and shows that the concept is subject to different interpretations by different actors. While the forestry policy construes participation as devolving powers and responsibilities to communities in proximity to natural resources, the Local Government Act construes it as devolving power and responsibilities to local governments as the elected body representing local actors. The two interpretations have different conceptions of who should be termed the local actor or recipient of devolved powers. The differences are also reflected in terms of the way participatory resource management is being translated into operational practice. While, the Forestry Department seeks to advance

joint forest resources management (JFM) as a model for translating participatory natural resource management into practice, the local government in Chongwe appears to have no real strategy of how to translate its new mandate into action, apart from creating local taxes and new local level multi-purpose governance structures. Moreover, the two are involved in a power struggle that has seen the Forestry Department retain control of protected forest areas using forest policies and laws which appear to be in contradiction to local government legal frameworks. These results suggest that in cases where participatory policies are poorly framed, they can generate new sources of resource conflicts rather than a solution.

The research shows that progress and success in the implementation of participatory natural resources policies is conditional on several factors. These factors include the prevailing political will of the authority devolving power, the capacity of local actors who are the recipients of devolved powers, and the socio-political context in which these programmes are being deployed. The willingness of the state to devolve power to the local appears to be the most important determinant of whether or not any meaningful natural resources devolution can occur. Indeed, writers such as Barrow et al (2002) and Edmund and Wollenberg (2003) have pointed out the importance of this factor (also Barker and Stockdale, 2008). In this research, for example, the reluctance by the state to cede control over natural resources to local governments is one of the major reasons why local governments have hardly at all taken up the responsibility of managing natural resources in their districts of jurisdiction. Instead of empowering local governments, as devolution theorists advocate (e.g. Anderson and Ostrom, 2000; Enters et al, 2000; Fabricus and Collins, 2007; Ribot et al, 2010), evidence from this research suggest that the state is in fact weakening the district councils by systematically starving them of financial resources. This is being done through the non-release of state grants and interference in local taxes and other local government affairs. This shows a rather problematic relationship between local and central governments which ultimately has an impact on natural resources management.

The role of the state in weakening the natural resources devolution agenda is also evident in Munyeta where the process of establishing JFM has failed to move forward, partly due to the state's failure to provide adequate financial and political support for JFM. Without extensive state support, this research shows that there is little that devolution initiatives can achieve. The research also shows that devolving resource management to local actors requires more than

simply prescribing responsibilities to local actors or creating new governance structures. It requires a fundamental investment in building the capacity of local actors themselves, be they local governments or local communities. This capacity is in terms of their social capital (e.g. building cooperation and trust between actors), political capital (building local actors' ability to negotiate their interests and rights in the process) and human capital (training of both programme implementers and local communities) if such initiatives are to be successful (see also Anderson and Ostrom, 2007; Enters et al, 2000; Fabricus and Collins, 2007). These elements are absent both in the case of local government reforms and in the case of JFM in Munyeta, and this partly explain why participatory resource management in Chongwe is in practice far from providing a new way of managing natural resources.

Secondly, the study shows that the success or failure of devolution policies is also determined by the local context in which policies are being implemented. The protected area model largely ignored local specificities, such as local history, local institutional arrangements and the organisation of local livelihoods and local claims to natural resource management. As Benjamin (2004) argues, sustainable development thinking in the form of participatory natural resource management seeks to correct these deficiencies of state-centric models of resource management. In other words, they aim to articulate local actors' experiences and interests surrounding natural resources and their livelihoods. While raising these expectations, the research shows that this discourse of participation, when mapped onto the local terrain falls short of meeting these expectations. The strategies sit rather uneasily with existing local circumstances and fail to address various conflicting interests in the reserve. Indeed, the case of Zambia shows that, although devolution policies have been embraced, local actors have not gained the real decision-making authority to participate actively and effectively in natural resource management. This is because participatory programmes appear to have been constructed in such a way that the state continues to dictate the limits of local actors' participation and that the vision of resource management remains rather state-centric, with very little room for local actors to articulate their own interests.

The failure to engage critically with the local context is also one of the main shortcomings of agri-environmental management initiatives. Aided by the discourse of climate change and high political interest from donor agencies and environmental NGOs (unlike JFM and local government reforms), there is no reason to suggest that financial resources and the lack of

political support also account for the difficulties that implementers are facing in deploying conservation agriculture initiatives. Instead, the research suggests that it is mainly the failure to engage critically with the experiences, knowledge and realities of local actors in the study sites that accounts for the poor results. The research shows that practices promoted by conservation agriculture are not in harmony with the organisation of local livelihoods, negatively impact on household human capital (i.e. family labour demand), promote agronomic practices with the potential to increase livelihood vulnerability and ignore the biophysical conditions of the area. Indeed, the study has noted that part of the challenge of implementing agri-environmental initiatives is that these initiatives are overloaded with a myriad of interests from various actors and obscure the place of local actors' own practices and experiences. In addition, the study notes that these shortcomings have been exacerbated by poor extension services and a heavy bias of foresters towards conservation of 'natural forests', which leaves the implementation of these initiatives largely to agriculturalists (who also lack agro-ecological training). Consequently, many ecological components of conservation agriculture are only partially implemented. For example, farmers are struggling to establish the Msangu and other shrubs on their farm plots, and only practice conservation farming on small portions of their farm plots.

Another important conclusion in this study is that sustainable development initiatives overlook one of the most important issues that have been at the centre of livelihood–conservation conflicts for a long time. This surrounds the question of land and tree tenure. Throughout history, the issue of land tenure, particularly in terms of land alienated from customary actors and allocated for conservation, has been a highly contentious issue between state conservation agencies and local actors (see Temm and Johnson, 2001; Adisu and Croll, 1994; Larson et al, 2010; Hobley, 1996; Barrow et al, 2002). It was envisaged that the discourse of participation and devolution, with their emphasis on empowerment and tenurial reforms, would address these issues by granting local actors long-term rights over land. Instead, the study finds that reforms are merely about change in governance structures and the establishment of 'new' rules that do not address the complex issues around resource tenure. Indeed, the study finds that both devolution policies and JFM guidelines retain the status quo as far as land tenure is concerned. In short, like the protected area model, new sustainable development strategies fail to empower local actors by granting them secure rights over natural resources, and raise uncertainty over the future of local actors living in the reserve. As Smirks (2002) notes,

without empowering local actors, participatory management initiatives only expand state control and risk non-compliance and resistance from local actors. He notes that local actors do not just need responsibilities, they need secure rights (see also Brown, 2002; Enters et al, 2000; Larson et al, 2010).

The study also notes how the deployment of agri-environmental initiatives side-steps the issues of resource tenure in customary areas. While implementing agencies advocate the planting of multi-purpose trees, both for the purpose of improving on-farm environmental quality and increasing local actors' access to tree products, such as timber and fuel-wood, the study notes that the extent to which local actors can take advantage of tree resources on their own farms to convert them into financial benefits (e.g. by selling timber) is rather limited, due to the fact that tree ownership is still solely vested in the state and is subject to state regulations. In addition, the study finds that the deployment of conservation initiatives also ignores local tenurial arrangements and promotes practices that are inconsistent with customary tenure systems.

In general, the findings of this research point to major difficulties in the translation of sustainable development strategies into practice in Chongwe. Given these findings, a major conclusion of this research is that while there is change in the direction of conservation discourse and policy, in practice, the new strategies fail to articulate adequately the interests and experiences of local actors. This, in turn, has made the implementation process of sustainable development strategies difficult. It shows that for the new policies and strategies to depart successfully from exclusionary conservation practices, and to fulfil the goals of environmental protection and livelihoods enhancement, greater attention has to be paid to the realities of local-level actors. This suggests that policy makers need to re-examine these strategies in order to re-align them with the local realities of the people.

#### **10.4 Theoretical and conceptual reflections on the work**

Political ecology and a livelihood perspective have provided the conceptual and analytical tools for studying the shift in natural resource conservation policies in the Zambian context. While political ecology has allowed the research to interrogate the frames or discursive constructs used by the state and other actors to craft natural resource policies and strategies, a

livelihood perspective has served to focus attention on how these strategies fit with the livelihood realities of local actors in the sites of implementation of these strategies. Indeed, from this research, the distinctive contribution of such an approach is that it makes explicit the links between conservation and livelihoods. It provides a nuanced understanding of how scientific understandings, values and perceptions that underpin conservation policy work to influence local actors' livelihood systems and environments. In addition, the two perspectives broaden our understanding of the value of natural resources to various actors (including to local actors) and draw our attention to the type of livelihood assets that are impacted upon by conservation policy and practice. This provides a more enhanced and locally detailed analysis of human-environmental interactions. In this vein, the study responds to Simon's (2008) appeal for political ecologists to engage more with a livelihoods perspective. It builds on the works of scholars, such as Stringer (2009) and Simon (2004), who seek to show the value of combining the two perspectives in order to understand the links between conservation discourse and local realities. While the theoretical diffuseness of political ecology has been cited as one of its major limitations (Kepe et al, 2008; Walker, 2006; Blakie, 2008; Muldavin, 2008), this has been exploited to the advantage of this research, as it has allowed the study to draw on insights from various theories (e.g. common property theory and ecological theory) in order to understand human-environment interactions. In addition, as interdisciplinary approaches, political ecology and a livelihood perspective have allowed the research to employ a multi-method approach beyond disciplinary restraints in order to understand these interactions. The research methods employed include interviews, surveys, and focus group discussions, transects and direct observations. In applying this research approach, the study has also noted the significance of the researcher's positionality in a research project. It has illustrated how, in this study, the researcher was viewed as an outsider and how this can have an important bearing on the research process. In this regard, the research draws attention to the importance of being aware of issues of representation, research participant's expectations of the researcher and the need for researchers to attempt to bridge the gap between them and research participants in order to have access to the lived experiences of the research participants.

Political ecology has allowed the research to situate conservation in the broader historical and political context within which conservation has developed in Zambia. A historical analysis has allowed the research to demonstrate that state conservation initiatives have rarely served the

interests of local actors. Instead, conservation initiatives have sought to appropriate local actors' lands, impose unreasonable restrictions on their livelihoods and circumvent their institutional arrangements. The modern domain of conservation has an 80-year history in Zambia, and throughout this period, conservation has been tied to the interests of powerful non-local actors at the expense of local actors' interests. For example, during the colonial period, resource management was tied to the interests of British conservationists, pre-occupied with nature conservation and the colonialists' quest to link natural resource management to metropolitan economies in Western Europe. In the post-independence era, natural resource conservation has been tied to the state's desire to industrialise and modernise the economy, until the early 1990s when international environmental interests gained ascendancy over national interests and sustainable development entered the lexicon of conservation. Still, the study shows that local interests have hardly received the attention required and resource management strategies continue to ignore local realities in the sites of implementation.

The applications of political ecology and a livelihoods framework also reveal two pressing concerns about the new natural resource management strategies derived from the discourse of sustainable development. The first concerns the relationship between the knowledge of experts and that of local actors in the advancement of sustainable development initiatives. The two appear to be viewed as conflictual rather than complementary, such that the new strategies continue to emphasise a singular source of knowledge on conservation. For example, in the case of agri-environmental management, the framing of conservation agriculture as a narrow set of practices, pre-determined by experts from the Conservation Farming Unit (CFU) and scientists from the Golden Valley Research Trust (GART), seems to devalue the place of local actor knowledge and experiences surrounding their local ecology and agriculture. While many writers have drawn attention to the importance of tapping into local knowledge if natural resource management strategies are to be developed in an appropriate way (e.g. Briggs, 2005; Briggs and Sharp, 2004; Brown, 2003; Lenihan and Brasier, 2009; Fisher, 2000), agri-environmental experts have barely begun to engage with local knowledge, at least in Zambia. A heavy reliance on the knowledge of CFU and GART has the potential to build up the power of these actors and leave little room for local actors to articulate their own interests and experiences with the environment. Even in Europe, where agri-environmental initiatives are relatively advanced, some scholars point out that agri-environmental measures remain centrally defined with little room to accommodate the knowledge of non-experts (Lenihan and

Brasier, 2009; Guy, 2006). Indeed, Lenihan and Brasier (2009: 66) note that “agro-environmental initiatives that are centrally defined fail to account for the diversity of local knowledge systems, agro-ecological practices, and other process enabling a symbiotic relationship between production and sustainable provision of environmental goods”.

The study has shown that local knowledge and experience is manifest in the study area in the form of maintenance of agro-ecological systems, such as the Chinyika, and they not only provide livelihood benefits but deliver important ecosystem services as well. This study has pointed out that such practices should be understood as agro-ecological initiatives that local actors maintain in order to meet their local livelihoods’ needs and avert risks associated with environmental stresses and shocks. Through such agro-ecological systems, local actors demonstrate a considerable knowledge of local ecological and climatic risks that may be useful for agri-environmental initiatives. Such local knowledge and experience can help conservation experts relate their own technical knowledge with local values (Fisher, 2000). In other words, although local knowledge may be seen as lacking the ‘scientific rigour’ associated with expert knowledge, it has the potential to help solve environmental problems by providing contextual knowledge and experiences to complement expert knowledge (Fisher, 2000). Moreover, as the agri-environment measures being implemented at the moment are limited to productive land management (i.e. confined to crop-production areas), local knowledge may also prove vital for extending such initiatives to other socio-ecological spaces such as rangelands, bushlands and homestead gardens. The local actors’ initiatives, such as the Chinyika system and other agro-forestry systems, may provide an important platform to build on in order to avoid a situation where agri-environmental measures result in the creation of ‘on-farm conservation islands’, where croplands are under environmental protection while surrounding ecological spaces are not (see also Lenihan and Brasier, 2009).

In view of the arguments above, this research contends that sustainable development initiatives seeking to replace the protected area model must have a pluralistic view of knowledge systems for sustainable resource management, by recognising and building on the knowledge and experience of local actors working these lands, or living in proximity to the resources of interest. This is somewhat akin to what Brown (2003) refers to as fusion knowledge where outsiders and local actors’ knowledge systems come together to develop new management strategies (see also Doody et al, 2009). Brown (2003:30) argues that it is



often at the “interface between different forms of knowledge that innovation in natural resources management and practice can be made”. While noting the value of local knowledge to sustainable resource management, we also have to acknowledge that there may be challenges in bringing scientific knowledge and local knowledge together, not only because of the perceived gulf between the two, but because local knowledge may be seen as a challenge to the conventional wisdom. Briggs (2005), for example, notes that if local knowledge is taken seriously, it potentially jeopardises the hegemony of western science and the dominant role of the ‘expert’ who may act to discredit it or silence the voice of local actors (for example, through crisis narratives). This suggests that what we need are new power relations that allow a full range of actors to represent themselves in order to foster new knowledge systems (see also Armitage, 2004). This calls for a critical review of processes that guide the design of natural resource policies and programmes, taking into account the inherent power structures that characterise the process. Indeed, a real shift from previous command and control natural resource strategies require that power structures and hegemonic practices that have historically shaped natural resource management should be challenged (Armitage, 2004; Buchy and Race, 2001).

Related to the issue of local knowledge, another pressing concern in this research surrounds the question of what should be viewed as the most appropriate institutional and governance structures to represent the local collective or resource users in a given socio-political context in order to achieve sustainable resource management. In the context of Zambia, the new policy and legal frameworks limit governance and institutional prescriptions to JFM and local government’s established arrangements. This ignores customary governance structures and institutional arrangements that govern the management of common pool resources. Cleaver (2001) points out that it is ironic, that despite the desirability of empowerment and importance of institutions in notions of participation, devolutionists focus only on formal institutions and organisations and overlook communal arrangements that occur through daily interactions and socially embedded arrangements.

In the literature, the debate is still open about the legitimacy or appropriateness of such institutions, and whether or not customary governance bodies should be considered as community based natural resource (CBNRM) governance bodies in their own right (Larson et al, 2010; Barrow, 2003; Wollenberg and Edmund, 2003). Some scholars argue that customary

governance institutions and governance structures, where ascendancy to leadership is hereditary rather than based on election, undermine the key principles of democratisation (Ribot, 2002; Massuanganhe, 2005; Benjamin, 2004) associated with participative governance. The authority of customary bodies and their institutional arrangements are viewed as illegitimate and undemocratic. Instead, formal or local government governance structures are often seen as the tier that offers the best prospects for community engagement with natural resource management as they fulfil the key democratic principles underlying the philosophy of participatory governance (Ribot, 2002; Ribot et al, 2010; Edge and McAllister, 2009; WCED, 1987; UN, 1992). While this view seems convincing, the challenge is that local governments are most often seen through the lens of western models of local government which do not sit well with the realities in much of Africa. For example, proponents of devolution policies rarely consider the extent to which many of the local government institutions are hardly visible in remote areas such as Munyeta and Shisholeka. This is because most local government systems in Africa have roots in the colonial political system, where district councils were created to serve urban elite populations, while rural areas were indirectly administered through tribal rulers (see also Loloji, 2007). In the context of Zambia, this system has changed little, and district councils still view their main role as responding to the needs of urban populations and have little to do with the rural areas where these resources are located. As a result, local governments may only serve to externalise the economic benefits of the resource from the rural areas for the benefit of a small urban population

Larson et al (2010) note that the issue of legitimacy raises additional questions of who considers authority legitimate and what constitutes legitimacy? They note that legitimacy should not be considered as a fixed attribute that can be mandated or assumed, but rather as something that is constructed through social interactions and subject to conflict and contestation. While customary institutions may not be viewed as legitimate or representative by outside actors, local actors may ratify and uphold their legitimacy. Massuanganhe (2005), in his research on natural resource management in Mozambique, also notes that customary institutions should be understood as grass-root institutions that derive their legitimacy from communities themselves and have to negotiate their power day-by-day, and therefore embody a degree of flexibility that may be quite useful for natural resource management (see also Cotula and Cisse, 2006). Similarly, Berkes (2004) argues that it is surprising that there is a rather uncritical look at the time-tested institutional arrangements of local actors when it

comes to thinking about governance and institutional arrangements to represent the collective in devolution discourse and policies. Furthermore, Berkes (2004) asks whether or not this is because the definitions of (and ideals underpinning) conservation are still western-centric that such institutions are ignored. Whatever response Berkes' question may attract, there is a risk that participative resource governance policies, by marginalising customary institutional arrangements, may fall into the same trap as the protected area model and end up being 'tyrannical'. As Cooke and Kothari (2001) note, being tyrannical is not simply the issue of excluding other actors from resource governance, but also of over-riding existing institutional arrangements that others hold as legitimate, thus reinforcing the interests of the already powerful actors.

The arguments given here suggest that local resource governance structures and institutional arrangements may, at times, derive their legitimacy from custom and tradition. In this regard, this research argues that customary natural resource management regimes should be viewed as legitimate institutions with a role to play in sustainable development, as long as they command some degree of ratification by the people they represent. In other words, customary governance structures and their institutional arrangements should be understood as organically constructed community based natural resource management systems (see Larson et al, 2010; Edmund and Wollenberg, 2003; Barrow et al, 2002).

### **10.5 Key messages and policy recommendations**

The results of this research have significant implications for policy makers. They show major challenges in the implementation of conservation policies in Zambia. In part, this arises from the gap between the realities in the local areas where policies are supposed to be implemented and the theoretical assumptions that underpin these policies. In this regard, policy makers need to rethink the new conservation policies and strategies in order to be accommodative of local actors' interests, experiences and institutional arrangements with a bearing on conservation. For example, JFM, in its current form is far from relaxing the fortress conservation approach and has no capacity to resolve the long-standing livelihood-conservation conflicts that have characterised resource management in Zambia as it still reflects a rigid protectionist agenda. To overcome these challenges, it is important that community based conservation policies and strategies are designed to take into consideration local realities such as the co-existence of forests and agriculture in areas targeted for conservation.

It is also important that policy makers pay attention to institutional factors that influence natural resources management. For example, policies must address the issue of land and resource tenure in both state and customary areas. Indeed, the research recommends that in state conservation sites targeted for JFM, local actors should be granted long term secure rights over both land and forest resources to create a sense of ownership among them and to restore their rights over natural resources. In terms of customary areas, there is need for policy makers to recognise the rights of customary (local) actors to manage and benefit from resources located in these areas. In other words, environment and natural resource policies need to be flexible enough to accommodate various institutional arrangements governing natural resources management, including locally crafted institutions. Similarly, in terms of agri-environmental initiatives, rather than think of a single best approach, policies must be accommodative of existing local actor's agro-ecological practices and local circumstances if they are to have a real impact on both livelihoods and environmental conservation.

## Appendices

### Appendix 1

#### Survey of on-farm practices

No. farm plot.....  
 Village.....  
 Tenure system.....  
 Main crop grown.....  
 Other crops grown.....  
 Size of main field.....  
 Farm cultivated by owner/other.....  
 Farm on CA: Yes.....NO.....Year on CA.....

#### On-farm observations (Tick if evidenced)

##### 1. Observed environmental conditions

Erosion on farm plot	Yes	No
Evidence of sheet erosion		
Evidence of gullies		
Evidence of rill erosion		

##### 2. Farm Inputs

Inputs applied	Yes	No
Fertiliser		
Pesticides		
Herbicides		

##### 3. Tillage practices

Tillage type observed	Yes	No
Whole farm on conservation tillage		
Only small portion of land on conservation tillage		
Conservation tillage using ripper (creation of rip lines)		
Conservation tillage with hand hoe (creating of permanent planting basins)		
Conventional tillage using plough		
Conventional tillage using hand hoes		

**4. Trees on the farm plot**

<b>Trees on farm plots</b>	<b>Yes</b>	<b>No</b>
Msangu planted and standing (as part of CA)		
Msangu tree planting attempted but died		
Msangu never planted		
Other trees and shrubs on farm plot as part of CA		
Other trees and shrubs on farm plot(not part of CA)		

Comment on the Msangu

.....  
 .....  
 .....

**5. Other on-farm practices observed**

On farm practices	Yes	No
Crop residue burnt(ask)		
Crop residue retained after harvest (ask)		
All crop residues retained permanently (throughout the year) (ask)		
Evidence of mulching		
Evidence of intercropping		
Evidence of mixed cropping		
Crop rotation (maize/legume) practiced		
Evidence of use of animal manure		
Evidence of use of green Manure/improved fallow system		
Trees forming farm boundary		
Evidence of terraces/ Contours		
Application of lime		
Use of composite		
Application of ash		
Any other		

Comment on other practices.....

## Appendix 2

### HOUSEHOLD LIVELIHOOD ASSETS SURVEY

#### A. Basic Data on Respondent

##### 1: Personal Information

Age	
Sex	
Marital Status	
Ethnicity	
Education	
Length of stay in the village	
Size of Household	
Place of Origin ( if not born here)	

2: What are your major sources of livelihood?

Crop farming	
Animal rearing	
Wage employment on commercial farms	
Crafts making	
Remittances	
Charcoal production	
Beer Brewing	
Small scale trading	

Other (please specify).....

#### B. Livestock

3. What type of livestock do you own?

Livestock Type	Tick as appropriate	Number
Cattle		
Goats		
Pigs		
Other ( specify)		

4. Which of the following livestock types have you lost to diseases in the past 10 years?

Livestock Type	Number
Cattle	
Goats	
Pigs	
Other	

5. Which of the following livestock have you only acquired in the past 5 years?

Livestock Type	Number
Cattle	
Goats	
Pigs	
Other	

**C: Farm implements**

6. Which of the following farming implements does your household own?

Livestock Type	Tick as appropriate	No.
Plough		
Hoe		
Axe		
Irrigation pump		
Ripper		
Tractor		
Borehole		
Ox-cart		
Other (specify)		

7. What do you use for cultivation on your farm?

Livestock Type	Tick appropriate	No.
Own oxen and plough		
Own oxen with hired plough		
Hired plough and oxen		
Hired labour		
Own Tractor		
Hired Tractor		
Family labour		
Other (specify)		

**D. Natural Assets Used By the Household**

8. Which of these products are frequently used by your household?

Natural Resource Product	Tick as appropriate	Distance Covered to collect product	Source
Firewood			
Charcoal			
Construction poles			
Wild fruits			
Wild vegetables			
Wild tubers			
Thatch grass			
Medicinal plants			
Grazing land			
Other			

9. Which of these products are becoming more scarce (difficulty to find) in your local forest?

Firewood	
Charcoal trees	
Construction poles	
Wild fruits	
Wild vegetables	
Wild tubers	
Thatch grass	
Medicinal plants	
Others	



10. Which of the following plants have you planted/preserved on your homestead?

Tree Species	Number on homestead
Exotic trees planted	
Indigenous tree planted	
Indigenous tree preserved	

11. What was the purpose of planting the trees/shrubs you have mentioned on your homestead?

For medicinal purpose	
For firewood	
For fruits	
For aesthetic purpose	
For shade	
Other (please specify)	

12: Which of the following natural resource dependant trade (s) are you involved in?

Trade	
Basket/mat making	
Making of tool handles	
Mushroom collection	
Supply of firewood	
Charcoal production	
Carpentry	
Pitsawing	
Others	

13. What construction materials have been used for your house?

Mud walls (mudindo) and grass thatched house	
Burnt bricks and grass thatched house	
Burnt bricks and iron roofed house	
Other (please specify)	

14. Do you own any of the following energy technologies?

Improved stove	Yes	No
Charcoal brazier		
Solar crop drier		
Solar heater		
Solar panel (PV system)		

#### E. LAND

15. What is the size of your main field (please tick)?

Less than 1 hectare	
Between 1 hectare and 3 hectares	
Between 3 hectares and 5 hectares	
More than 5 hectares	

16. What is the size of field you normally cultivate (i.e over the past 5 years)?

Less than 1 hectare	
Between 1 hectare and 3 hectares	
Between 3 hectares and 5 hectares	

More than 5 hectares	
----------------------	--

17. In the past 10 years, have you expanded your field?

Yes	
No	

18. How did you come to acquire the piece of land on which you cultivate?

Inherited the land from relative	
Was allocated freely to me by village leadership	
Was allocated freely to me with a field opening fee	
Bought the land	
Renting the land	
Borrowed the land	

19: Which crops do you grow on that land (Tick all that is applicable?)

Maize	
Groundnuts	
Vegetables	
Sweet potatoes	
Others	

20. Which of the crops you have mentioned above are for sale?

.....  
 .....

21. Have you experienced food shortages in the previous 2 years?

YES	
NO	

22. If yes, in which month(s) have you experienced food shortages.....

23. Do you own a vegetable garden?

Yes	
No	

24. If yes, where is the source of water for irrigation water? (Please tick as appropriate)?

Along the stream	
Away from the stream	

25. If the source of water is the stream, how many meters away is your garden from the stream.....20m

26. When do you cultivate your stream side garden?

All year	
Off –rain season only	

27. Are crops you grow on your stream side garden for sale?

Yes	
No	

28. What factors attracted you to this forest reserve (for people in the reserve only?)

	(Tick)
Availability of grazing land	
Charcoal production	

Displacement from original place	
Marriage	
Fertile land	
Problems in previous location	

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