

**LOCALLY-EVOLVED KNOWLEDGE IN LIVESTOCK AND RANGE  
MANAGEMENT SYSTEMS IN SOUTHERN ZIMBABWE'S DRYLANDS: A  
STUDY OF PASTORAL COMMUNITIES IN BEITBRIDGE DISTRICT**

by

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presented to the University of Waterloo  
in fulfilment of the  
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# **LOCALLY-EVOLVED KNOWLEDGE IN LIVESTOCK AND RANGE MANAGEMENT SYSTEMS IN SOUTHERN ZIMBABWE'S DRYLANDS: A STUDY OF PASTORAL COMMUNITIES IN BEITBRIDGE DISTRICT**

## **ABSTRACT**

Locally-evolved knowledge systems and their institutions are central to the sustenance of pastoral systems in many parts of the African drylands. Climatic conditions in these environments are unpredictable, highly variable and so may be described as harsh. Pastoralism has evolved as the mainstay of the livelihood of the people in these regions. Adaptive resource management strategies have evolved a resilient pastoral production system which is sustained through a high level of flexibility and innovation. However, one major problem facing many development initiatives in these regions is that the nature, extent and quality of these ecologically and culturally specific innovations are largely unknown outside the communities themselves, and particularly among those agencies which have been given responsibility for developing these areas.

In the past, these knowledge systems were largely ignored in the policy formulation, planning and implementation processes by governments and donor agencies working in pastoral regions. These knowledge systems were sometimes viewed by development professionals as mainly superstition and anthropological myths. Although these perceptions have changed over the last two decades and in spite of the impressive array of studies on pastoral resources management, particularly from the eastern and western African regions, a major challenge facing researchers and development practitioners working in this field is the divergent analytical frameworks for analyzing these systems. Few studies have offered comprehensive, integrated frameworks for analyzing pastoral management systems. This study draws on several social and physical science fields to create a dynamic actor-oriented rule systems framework for analyzing pastoral systems. In that respect, the study offers opportunities for application beyond the study area.

Through a largely phenomenological and qualitative approach, the role of locally-evolved knowledge systems in pastoral resource management and development is explored in the Communal Areas of Beitbridge District of Zimbabwe. However, more objective methods such as socio-economic survey and mapping were also used to complement the qualitative methods, and to enable triangulation and validation of field data.

The social organisation of the pastoral system in the study area, the decision-making processes, and the institutional relations governing the production system and relations were examined at two conceptual levels, namely, the homestead and the wider community. The homestead rather than the household was the primary focus of coping and adaptive strategies (cooperation, sharing, reciprocity and mobility) among residents of the area. It was also the locus of most decision-making processes, and economic and social activities. In that respect, marriage and child fostering were important elements of the risk-sharing strategies among residents of the

area. The pastoral system was centred around cooperation among resource users at homestead and community levels, and based on the mobility of livestock herds and people within and outside their designated area in search of food, water and improved livelihoods. While the pastoral system was largely controlled by men, women and children played a significant role in the management system.

At the community level, the headman's institution was central to the sustainable management of grazing resources in the area. The traditional informal rule system had widespread legitimacy among residents of the area. Many social control measures were used to enforce the traditional rule systems, and often seemed to perform better than the government-imposed system of administration. Their success was largely dependent on the headman and his institutions for administration of the area under his control. The headman's area boundaries were found to be more useful administrative units in the study area than the village-head (*sabhuku*)'s area as is widely advocated in Zimbabwean government publications.

This study concluded that the basic ingredients for reforming the administration of livestock development in regions of Zimbabwe that have similar conditions to the Beitbridge District environment were in place at community levels. What is required is a change of structure and attitude of agencies working in these areas, and more commitment by development agents towards the development of these peripheral regions of the country. The focus of these changes should be the district administration structure which should be reformed in such a way as to create a basis for facilitating vertical linkages between traditional (community level) institutions with district, regional and supra-regional institutions responsible for Communal Area development. A framework to facilitate the reform process is proposed and recommended for adoption by the responsible agencies. Therefore, this research has immediate implications for reforming livestock development policies and programs in the arid and semi-arid Communal Areas of Zimbabwe.

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## **DEDICATION**

**This thesis is dedicated to Eva, Patience and Patrick**



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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1. STATEMENT OF RESEARCH PROBLEM AND MOTIVE FOR THIS RESEARCH**

This study is concerned with the pastoral Venda and Sotho people of Beitbridge District in southern Zimbabwe. These people live in a vast but sparsely populated district in the arid part of the Limpopo River basin bordering Botswana, South Africa and Mozambique. The area is characterized by dry, unpredictable and highly variable climatic conditions. Livestock production, involving cattle, donkeys, goats and sheep, is the mainstay of the livelihood of the inhabitants of the district. Adaptive resource management strategies that have evolved from the production system in this region have been sustained through a high level of flexibility, innovation and resilience. However, the overriding problem is that the nature, extent and quality of these ecologically specific and culturally-derived strategies have largely been ignored by government and donors in the policy and planning processes for livestock development for this region. Thus, this study is concerned with the role of these indigenous (locally-evolved) knowledge systems and their institutions for pastoral resource and environmental management. It explores means of incorporating these management systems and structures more effectively into mainstream livestock development planning processes and programs in the region.

The concern in this research with indigenous knowledge was stimulated by three unrelated events in my life, in three African countries. First was an encounter in Sierra Leone



(between 1979 and 1982) with Dr. Paul Richards, an internationally renowned researcher and author on indigenous knowledge systems in Africa. It was in one of his classes that I was introduced, for the first time, to the emerging and fascinating literature and research on the value of indigenous knowledge systems in peasant agriculture. Second was my experience as an agricultural land use planner with the Ministry of Agriculture in Zimbabwe between 1983 and 1987. It was during this period that I realized the limitations within the planning- and policy-formulation processes regarding land use in the Communal Areas of Zimbabwe and in particular, in the remote and peripheral communities such as the Venda and Sotho pastoralists in Beitbridge and Gwanda Districts. Third, I experienced first hand the value of working closely with farmers when I worked as coordinator of two rural development programs, one in Masvingo Province in southeastern Zimbabwe, and the second with UNDP in Manica Province in eastern Mozambique. What bound these events together was my childhood experience. I grew up among pastoralists in southern Zimbabwe. That experience gave me the motivation and desire to “do something with and for these pastoralists” who were faced with numerous difficulties from within and outside their environment. That wish was rewarded when I was offered the opportunity to undertake this study in Beitbridge District.

In the past, indigenous knowledge systems and institutions central to the success of the pastoral system in this region were widely viewed by development professionals as an “academic, if not dilettantish, concern limited largely to social anthropologists” and “much of it was seen as superstition” (Chambers and Richards, 1995:xiii). These knowledge systems have usually not been adequately understood outside the communities themselves. Perceptions have changed in the last two decades and continue to change, as less stress is placed on transfers of technology and more on learning from and with those inhabiting these

environments. However, for many development policies and programs affecting communities such as pastoralists in Beitbridge, the reality has changed less than the rhetoric. The language, using words like “participation” and “empowerment”, has become bottom-up but the inclination remains top-down (Chambers and Richards, 1995; Murphree, 1996). This characterization is typical of the Zimbabwean situation regarding livestock development policy and practice in the Communal Areas.

This research seeks to explore the current and potential role of local knowledge systems in livestock and range management in the arid communal lands of Southern Zimbabwe. The purpose of the study was to gain insights into the indigenous pastoral management systems and the way they are used by local people to manage resources in their respective areas, with a view to incorporating these knowledge systems into mainstream livestock development policy and practice at two levels.

At a generic level, the key research issue was to identify suitable frameworks that could be used in studies of this nature. Although a review of literature on natural resource management did offer some useful frameworks for analyzing pastoral systems (Rigby, 1985; Homewood and Rodgers, 1991; Oakerson, 1992; Smith, 1992; Ostrom et al, 1994), it did not offer satisfactory insights into aspects of uncertainty, variability, change and adaptation within the pastoral system. These attributes of the pastoral system are pertinent to this study. Therefore a review of literature from other fields in the social and physical sciences was undertaken to identify other complementary and sometimes conflicting frameworks to weave together into a relatively comprehensive framework for analyzing the pastoral system in Beitbridge District. Relevant frameworks were found in Giddens (1984), Burns et al (1985), Fay (1987), Gleick, (1987) Uphoff (1992) and Caulfield (1994).

At a case study level, two key questions underlie much of this research:

- ▶ What is the current and potential role of locally-evolved knowledge systems in livestock and range management in dryland ecosystems, how are these knowledge systems created, maintained and changed, and how are they applied to cope with the challenges of highly variable and unpredictable environments? These issues are addressed in objectives 1, 2 and 3 outlined under section 1.4.
- ▶ How can these knowledge systems be incorporated into livestock development policy processes and management practices in contexts similar to Beitbridge District? Objectives 4 and 5 address these issues.

The five research objectives are presented in section 1.4.

## 1.2. RATIONALE FOR THE STUDY

One of the major challenges facing African pastoral systems is that the long-term sustainability of indigenous resource management strategies and the physical resource base against which they are set cannot be easily guaranteed, given the changing socio-economic, political and environmental conditions affecting many of these pastoral regions. Pastoral systems have evolved in a context of common property regimes, resource scarcity, high risk, uncertainty, indeterminacy, ignorance, variability and vulnerability. Communities in these dryland zones have, over many generations, developed their own knowledge systems and created local institutions to cope with these unpredictable variations in environmental conditions, the lack of information about these variations, and the conflicts associated with such variations.

However, trends towards modernization of the rural economy and changes in the standards of living since the turn of the century have triggered changes to indigenous resource and

environmental management systems as well as cultural norms, to the extent that it is sometimes more appropriate to talk of locally-evolved knowledge systems instead of strictly indigenous knowledge systems in these contexts. Therefore, the term locally-evolved knowledge will be used in this dissertation to acknowledge the on-going transformation and change that traditional systems have evolved through and are continuing to undergo by incorporating other knowledge systems into their own (Murphree, 1995; Blunt and Warren, 1996). In the past, the potential contribution of these local knowledge systems and institutions to national, regional and sub-regional livestock development policies and programs in these dryland zones of Zimbabwe, was not sufficiently considered nor documented.

The thesis of this research is that under such unpredictable and fluctuating environments, risk management strategies are a major priority among the inhabitants of these areas. In this respect, indigenous knowledge systems play a crucial role in decision making and resource management processes, and could provide the entry point for understanding pastoral management strategies in African arid lands and thereby designing for appropriate land and livestock development policy measures for these arid zones.

Since the government is currently developing land reform and resettlement programs for former ranches in Southern Zimbabwe, there is an opportunity to integrate the results of this research into this planning process. One of the major handicaps to sound land use policy and planning for this region is the paucity of data and understanding about indigenous livestock and range management systems. This research is also intended to contribute towards closing that knowledge gap and to move towards alternative resource management and development policies and programs in these areas. The Communal Areas of Beitbridge District will be

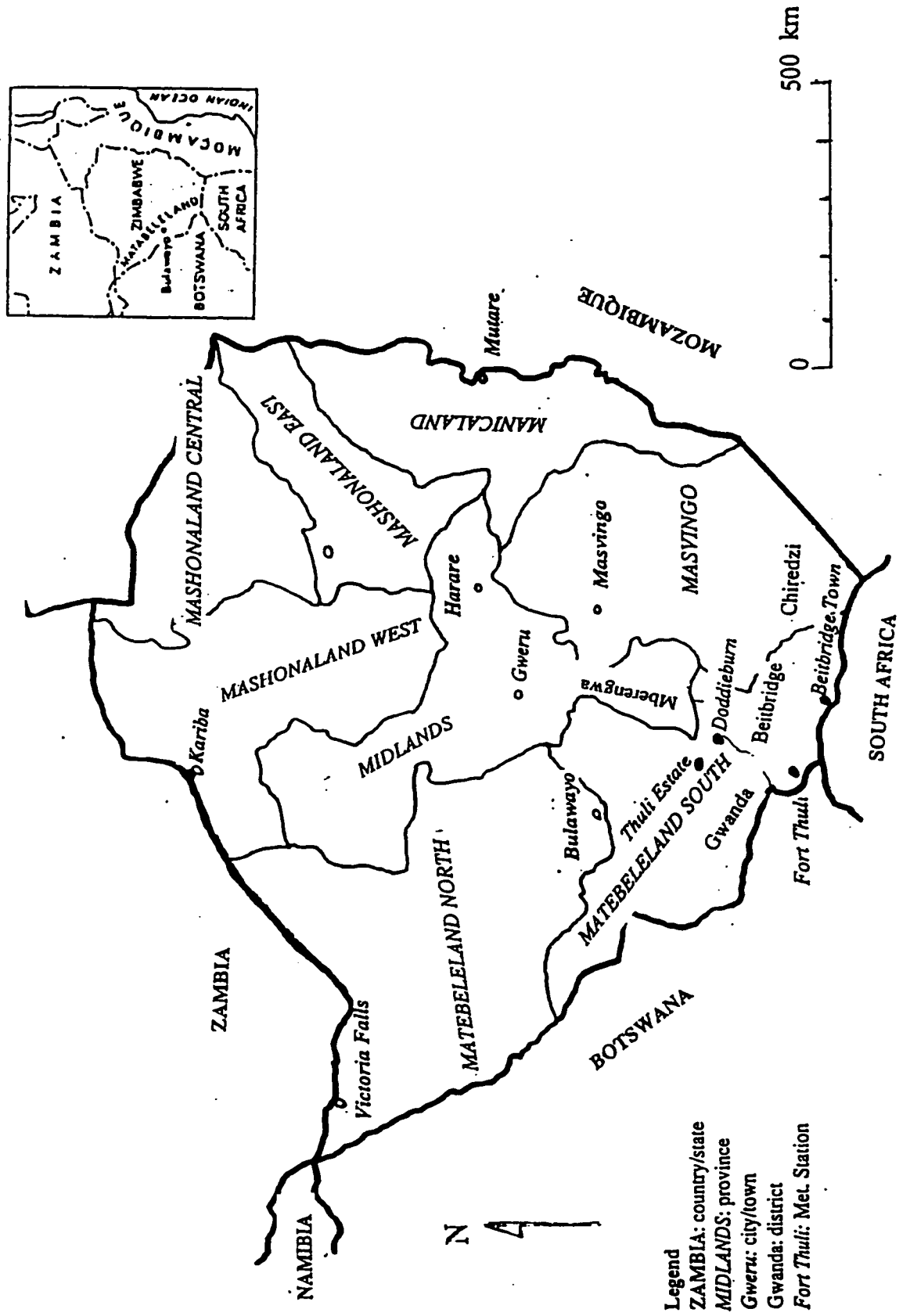
used as the focus of this study (Figures 1.1 and 1.2).

### **1.3. LIVESTOCK PRODUCTION SYSTEMS IN ZIMBABWE'S COMMUNAL AREAS**

Cattle population in Zimbabwe's Communal Areas rose from an estimated 44 000 in 1900 to a peak of 4.25 million in 1975 and then declined to 2.9 million in 1980 (Sandford, 1982; GOZ, 1989). The cattle population in the communal areas rose once again after the devastating 1982/3 drought to reach 4.1 million in 1986. However, by 1988 the cattle population had declined to 3.5 million (GFA, 1987; GOZ, 1989). Although livestock production in Zimbabwe's communal areas is driven by many factors, and although causes for population fluctuations are many, drought, adaptive management systems and the marketing system are the most significant for both the above. Other factors such as cultural norms, values and religion also affect patterns of livestock accumulation, access to livestock, social differentiation and in turn the manner in which grazing resources are exploited.

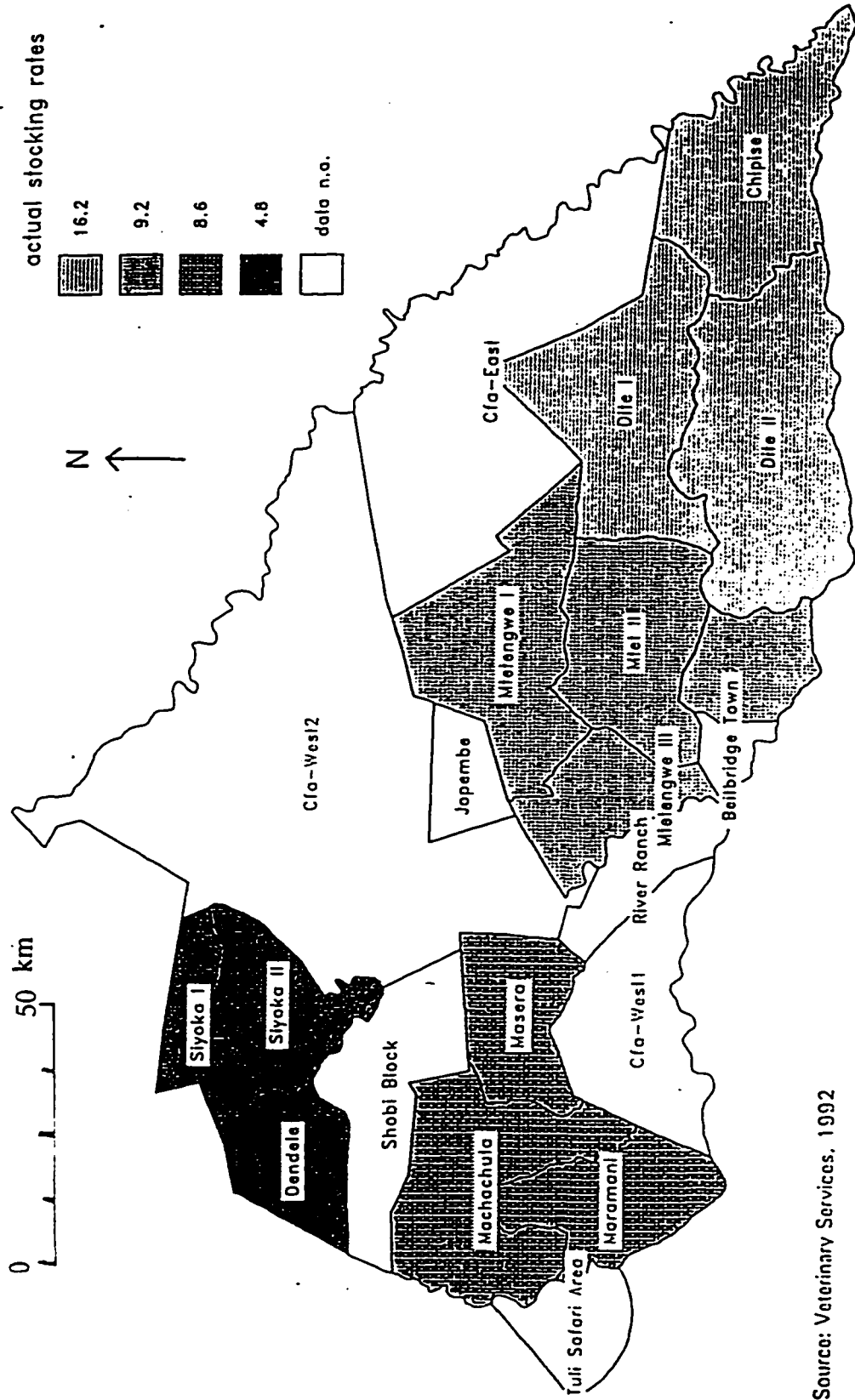
Cousins (1989) and Scoones and Wilson (1989) have provided what are arguably some of the most eloquent discussions of issues central to the dynamics of livestock production in the Communal Areas of Zimbabwe. They conceded that attaining a full understanding of the livestock production systems in these areas remains one of the thornier problems confronting researchers, development planners and practitioners. One reason is the inherent complexity of sociological, economical, ecological, historical and ideological variables driving livestock development in Zimbabwe's Communal Areas. As a result livestock production systems in the Communal Areas of Zimbabwe are not homogeneous.

Figure 1.1. Zimbabwe: Provincial Boundaries, Beitbridge District and environs



Legend  
 ZAMBIA: country/state  
 MIDLANDS: province  
 Gweru: city/town  
 Gwanda: district  
 Fort Thuli: Met. Station

Figure 1.2. Beitbridge District: Communal Areas and Wards



Source: Veterinary Services, 1992

Despite this, Zimbabwe's livestock development policies tend to treat the Communal Areas as homogeneous, thus creating false settings for livestock development initiatives in many of these areas (GOZ, 1989; GOZ, 1992). For instance, Scoones (1989) noted that no systematic research had been carried out on Communal Area livestock production systems in the arid provinces of Matebeleland South and North, although this is a region where rural inhabitants are heavily dependent on cattle, donkeys, goats and sheep for their livelihood, with very little, if any, cropping, due to the nature of the patchy, fluctuating and unpredictable rainfall. Indeed, most of the literature on Zimbabwe's Communal Area livestock production bears little relevance to the inhabitants of Matebeleland North, Matebeleland South and the southern part of Masvingo Province. It is this neglected region with which this study is concerned.

Salih (1992) observed that large herd size is one of the rational responses to the vicissitudes of the climate and market and that ecological degradation may be a consequence. As human and livestock population continues to grow, one of the most pressing issues is whether current management systems can cope with the steadily increasing livestock numbers in the communal areas, particularly in the arid southern and western parts of the country which have close to 50% of all the Communal Area cattle in the country, have the highest cattle off-take rates in the country at over 8%, and have over 70% of the nation's goat and donkey population (GOZ, 1989). Some studies indicate that the nature of the Southern African dryland regime, particularly the rainfall pattern, follows a cyclical pattern that does not allow herd buildup to reach optimum ecological levels before it is severely reduced by drought impact (Scoones, 1994). Given the various adaptive strategies that livestock owners use in this region to avert risk and minimize livestock losses, the issue should not be whether these indigenous strategies can cope with rising livestock populations, but rather how these



knowledge systems can be effectively integrated with modern livestock and range management and with development initiatives in this region.

Indeed, local initiatives, spear-headed by the IUCN's Southern Africa Regional Office in Harare, Zimbabwe, the World Bank, international and local NGO's and Government agencies are already underway throughout Southern Africa to "revive" indigenous knowledge systems in promoting sustainable natural resource management in the region (Matowanyika et.al, 1994; Chimonyo and Made, 1995; IUCN-ROSA, 1995; Opoku, 1995; Sibanda et.al, 1995;). All these publications single out indigenous knowledge systems as the missing link to achieve sustainable natural resource management. They also make passionate pleas for reviving and upgrading these knowledge systems and integrating them into mainstream development initiatives. This study fits into this regional, national, and local framework, and provides an excellent opportunity to present detailed grassroots data and information that is becoming critical in sustainable livestock development efforts in Southern Africa in general and Southern Zimbabwe in particular.

#### **1.4. STUDY OBJECTIVES**

The objectives of this study therefore are to focus on Beitbridge District in Southern Zimbabwe to:

- 1) determine the nature of local livestock production systems that are peculiar to or have been adapted to and practiced in this region and their relevance to the ecological setting (*Chapter 4*);

- 2) examine specific community attributes and interactions that are relevant to adaptive resources and environmental management at community, household and individual levels (*Chapter 5*);
- 3) examine the role of local institutions in the management and development of livestock and grazing resources in the communal areas of Southern Zimbabwe (*Chapter 6*);
- 4) examine current land tenure and livestock development policies and programs in Zimbabwe to determine how they incorporate and hinder the use of indigenous knowledge in resource and environmental management (*Chapter 7*); and,
- 5) consider how these policies and practices could be changed to incorporate indigenous knowledge in resource and environmental management in Zimbabwe (*Chapter 7*).

#### **1.5. RATIONALE FOR A PREDOMINANTLY PHENOMENOLOGICAL APPROACH**

The orientation of this research is more towards practice than theory. In similar studies by Elverson, (1978) and Uphoff (1992), it has been suggested in post-Newtonian terms that a satisfactory unified theory of social organization is probably impossible because social reality is always changing. The significance of context for translating values, identities and motivations becomes increasingly important in this type of inquiry. Therefore, theories have to be constantly adapted to new conditions and environments, and the theories themselves may influence, sometimes heavily, the social reality. Hence, perspectives that

phenomenologists propose acquire more meaning for, and are relevant in, this type of research.

The philosophical school that best formulates this thought, sometimes referred to as post-Newtonian (or post-Cartesian) thought, is broadly known as phenomenology and offers a perspective increasingly appreciated in social science (Merleau-Ponty, 1962; Schutz, 1967; Alverson, 1978; Uphoff, 1992). Phenomenological perspectives are relevant to themes such as relativism, learning process approach (how we acquire and use knowledge), uncertainty and probability, action, and change. Alverson (1978:2-3) made the following observations about the Tswana people in Botswana:

They live in places where the indignities we call colonialism....have been a central fact of life for over a hundred years. But there has been much more there as well: tradition, change, survival, struggle, movement, coping, adaptation....But to learn from the Tswana, we cannot simply travel, tourist-like, through their communities and their lives, taking pictures of the action. For the important lessons are to be found not so much in the surface features of social behavior as at the deeper levels of meaning and experience....If we are to understand the correspondence between the Tswana's institutional structures and their authentic beliefs, we must of necessity enter their interior lives.

There are long-standing and unresolved debates in philosophy over the nature of reality, commonly cast in terms of the perceiver and the perceived, subject and object. Phenomenology rejects the dualism which this classification implies and seeks to resolve it with a systematic analysis and synthesis of how we acquire and use knowledge. As argued by Alverson (1978), phenomenology sees the research process as requiring some connection between the knowing subject and subject known, thus blurring the distinction between them. Observation and participation, central to the methodology employed in this study, are fundamental to phenomenological thought.

Phenomenology is therefore more a bottom-up than a top-down philosophy and because it is experiential, it is open-ended and also includes events as emotionally experienced. It also can encompass exploration of empowerment (Alverson, 1978; Hammond-Tooke, 1981; Uphoff, 1992) and has sometimes been characterized as feminist (Armour, 1990). In a phenomenological world there is no absolute reality as environments and human society are dynamic and constantly changing. Differences and similarities coexist everywhere, brought together and pulled apart by the flow of events and outcomes. Chaos theory, to be explored in Chapter 2, can complement other theoretical frameworks in this endeavor to better understand and explain this unpredictable world.

#### **1.6. THESIS ORGANIZATION**

This thesis has eight chapters. Chapter 2 presents the theoretical and conceptual foundations for this study. Research methodology is discussed in Chapter 3. Data relating to the people and the institutions governing the pastoral system in Beitbridge District are analyzed in Chapter 4. Aspects of risk, uncertainty, indeterminacy, ignorance and vulnerability, as well as individual and group responses within the pastoral system, are discussed in Chapter 5. The roles of local institutions (formal and informal) in regulating these activities and in decision-making processes at household and community levels are explored in Chapter 6. Adaptive and feedback processes are also discussed in this chapter. Chapter 7 explores opportunities for linking informal, local level institutional arrangements with formal vertical and horizontal institutions for land management in Zimbabwe and bases some of its arguments on the review of the Land Tenure Commission Report (GOZ, 1995a) and the Livestock Policy Report (GOZ, 1991). The last chapter summarizes research findings and presents recommendations from this study as well as opportunities for future research and development in this area.

## CHAPTER 2

### THEORETICAL FOUNDATIONS AND CONCEPTUAL FRAMEWORK

*The bottoms of the rivers we try to cross have little bedrock, though there is usually enough solid matter to construct a crossing (Uphoff 1992:395)*

#### 2.1. INTRODUCTION

In 1968, Garrett Hardin published a challenging article in *Science* entitled 'The Tragedy of the Commons' (Hardin, 1968). Although Hardin was not the first to notice the tragedy of the commons - Aristotle had long ago made similar observations (McCay and Acheson, 1987; Ostrom, 1990) - the ideas that he set out to popularize have come to symbolize the over-exploitation of natural resources whenever individuals use scarce and valuable open access resources in common. Consequently, the term "common property resources" is widely used to describe such resources.

The 'tragedy of the commons' model typically starts from a neoclassical economic framework in which individual land users are assumed to have equal rights and access to land. This equality is said to imply disaster - the tragedy of the commons - in which individuals choose to over-exploit common resources because the immediate personal advantages outweigh the longer-term disadvantages. Since all individuals make the same misjudgment, the resources quickly become degraded (Hardin, 1968; McCay and Acheson, 1987; Park, 1993). However, this view increasingly has been criticized as being simplistic, incorrect and misleading.

The purpose of this chapter is to review important theoretical and conceptual frameworks relevant to the management of pastoral resources in African drylands, with a view to proposing an analytical framework for use in this dissertation. The next sections will review key issues in the debates on common property resources, pastoralism, women in livestock development, local knowledge systems and uncertainty. This is followed by a presentation of major elements of critical social science theory, structuration theory, actor-oriented rule systems theory and chaos theory. A dynamic framework for analysing pastoral systems is proposed at the end of the chapter, and its key tenets are outlined.

## **2.2. COMMON PROPERTY RESOURCES AND THEIR MANAGEMENT**

### **2.2.1. Defining common property resources**

The term "common property resources" is a typical example of one term that is repeatedly used by analysts and commentators to refer to many varying situations (Schlager and Ostrom, 1993). These include property owned by government, property owned by no one, and, property owned by a community or a group of resource users (Wade, 1987). The term is also used to refer to any common pool resource used by multiple individuals, regardless of type of property rights (Ciriacy-Wantrup and Bishop, 1975; Runge, 1981; Schlager and Ostrom, 1993). On the other hand, Bromley (1992, 4) strongly argued that there is no such thing as a common property resource. To him there are only resources controlled and managed as common property, as state property or as private property. To this list he adds resources over which no property rights have been recognized (what he calls open-access resources). The position taken in this study is that the differences expressed in these

arguments mainly concern semantics. As such, they do not address the overriding resources management issues that are the primary focus of this research. In that regard, the position taken by Ciriacy-Wantrup and Bishop (1975), Runge (1981), Schlager and Ostrom (1993) as presented above will be adopted in this dissertation because of the overlapping and variable nature of property regimes encountered in the study area (the Communal Areas of Beitbridge District). Therefore, in this study, common property resources are any common pool resources utilized by individuals and groups in the community under communal or state ownership, and common property is simply defined as ownership by the community (Bruce, 1996). However, contemporary debates surrounding the common property concept warrant further analysis because of the significant contributions that these debates have made towards a unified, and yet elusive, common property theory.

The key concept in Bromley (1992)'s argument is property, which he defines as a claim to a benefit stream. A property right is a claim to a benefit stream protected from others who may interfere with the benefit stream. It is from this definition that he proposed the concept of *property regimes* in place of *property resources*. Supporters of this school of thought argue that the problem with traditional approaches to the commons problem is that authors have:

- 1) failed to appreciate the concept of property;
- 2) very often treated a particular natural resource as if it had inherent characteristics that suggested, under all circumstances, it would be controlled under a particular type of property regime; and,
- 3) invariably failed to learn that the world is replete with reasonably successful common property regimes.

Regimes, according to the argument, are human artifacts, reflecting collective perceptions regarding what is scarce and/or valuable and is worth protecting with rights (Bromley, 1992).

Feeny et al (1990) acknowledged that, while the nature of a property rights regime under which a resource is held is important, information is not sufficient to draw valid conclusions concerning behaviour and outcomes in the commons. They argued that knowledge of the property rights is necessary but not sufficient. Many misunderstandings result from the inaccurate assumption that common property is synonymous with open access. This assumption is the cornerstone of Hardin's argument that common property inevitably leads to remorseless over-exploitation of resources.

Notwithstanding the above arguments, however, the key to analysing common property resource management strategies lies in understanding institutional arrangements governing access to and use of the resources, which is part of what this study is concerned with (Chapters 4, 5 and 6).

### **2.2.2. The commons debates and its relevance to pastoralism in African drylands: emerging issues**

In the dry African rangelands, pastoralists and their ways of interacting with the environment have for many years been blamed by policy makers, politicians, senior bureaucrats and foreign advisors for much of the environmental deterioration as noted in contemporary literature (Little, 1987; Sandford, 1987; Munei, 1990; Homewood and



Rodgers, 1991). The basis for most of this blame is rooted in one old and persistent theory of the commons that equates 'common property' with trouble.

One cannot properly generalize from the 'tragedy of the commons' model without incorporating contextual factors (many of which are assumptions built into the model), such as the presence or absence of rules about use and abuse of the commons, monitoring and control mechanisms, and alternatives to exploitation of these resources. McCay and Acheson (1987) argued that many studies using Hardin's model have failed to recognize the underlying assumptions. Some of these assumptions are that common property is always of the open access variety, users are selfish, unrestricted by community social norms and try to maximize short-term gains, users have perfect information, and resources are so intensively used that over-exploitation and degradation are inevitable. This individualistic bias of most common property models leads to underestimates of the ability of people to cooperate in the commons situation. Hence, social, historical and institutional analysis is neglected.

The tragedy of the commons model ignores the important social role of property and management institutions in the exploitation of common property resources. It also ignores uncertainties and decision-making problems brought about by unpredictable environmental conditions as well as by the lack of information on the long-term impact of resource utilization strategies in these regions. In risky environments such as the African arid grazing lands, risk management concepts may offer more useful insights into, and more relevant explanations about, common property theory than the tragedy of the commons model since they consider cultural and institutional attributes and uncertainty in decision-making processes under common property regimes (Hall, 1983; Watts, 1984; Barrett, 1989;

Cashdan, 1990; Low, 1990; Stephen, 1990; Lund, 1993, Hewitt, 1997).

Young (1993), Myers (1993) and Principle Number 15 in the Rio Declaration proposed the adoption of the Precautionary Principle into the decision-making process in the face of such uncertainty and lack of scientific knowledge about the future of the resource base. The Precautionary Principle requires that policy makers and other decision makers exercise great care by making thorough and convincing arguments when authorizing the use of resources in circumstances where the outcome of such utilization cannot be predicted with confidence. However, one of the potential weaknesses of this approach is that it tends to place the responsibility for resource utilization on decision makers who are not necessarily the users and might therefore indirectly absolve the users from responsibilities over their actions. However, affected communities are unlikely to accept this option without protesting, if they believe that they are being misled.

Amongst recent models in human ecology and micro-economics are some that incorporate such features as risk, uncertainty and change as well as the consequences of different attitudes and responses towards risk and uncertainty (Bassett, 1993). These new approaches offer relevant explanations for the behaviour of livestock owners in the African arid and semi-arid regions. Tenure to pasture in these regions is often communal; individuals do not have exclusive rights to discrete areas of pasture (Bassett, 1993). Orthodox intervention approaches focussed on improving their "backward traditional ways of life", primarily to save the environment and commercialize the production systems (Blaikie, 1985). Unfortunately very few, if any, of these interventions have had any positive impact on pastoralists and their livestock (Sandford, 1983; Gulbrandsen, 1985; Munei, 1990; Perrier,

1995; Sandford, 1995; Sylla, 1995).

Holling (1973; 1978) explored the concept of stability and resilience to account for the ability of certain plant populations to thrive under widely fluctuating environments. He identified stable populations as those adapted to regular and predictable environments and able to return to demographic equilibrium after minor disturbances, but with little ability to survive major catastrophic changes. On the other hand, he described resilient populations as having the ability to absorb sharp changes and disturbances associated with highly variable and fluctuating environments. Subsequent studies by Fratkin (1986) and McCabe (1987) concluded that while the application of Holling's model of stability and resilience in human populations is of value in understanding the impact of environmental constraints on social organization, other social features such as the organization of labour and ownership of different livestock types directly result from behavioural responses by pastoralists to the fluctuating and unpredictable environments in which they live.

Based on their research with Tanzania's Maasai pastoralists who were faced with relocation from their native Ngorongoro Conservation Area, Homewood and Rodgers (1991) made a passionate plea for the integration of human rights into the debate on pastoralism. They argued that human rights issues were relevant to the growing pattern of land use conflicts between pastoralists and conservationists in a world that tends to place the survival of wildlife ahead of the welfare of people. Many governments and development agencies are unwilling or unable to understand that pastoralism is a system of production and that pastoralists are an integral part of a remarkable ecosystem. They concluded their argument by asserting that the sustainability of this ecosystem is directly linked to the recognition of

pastoralists' place in the system.

It is also common in debates on development interventions in Africa for pastoralists to be made the symbol of a past world, representing either a romanticist ideal of Africa's pre-modern values and aspirations, as people whose way of life should be protected against the assault of modernization or as characterizing a stubborn conservatism, born of ignorance and cultural arrogance standing in the way of development and modernization. Elaborate reviews of this myth have been provided by Adams and McShane (1992), Barnard (1992) and Smith, (1992). In separate reviews of pastoral research in Africa, Smith (1992) and Anderson (1993) observed that if pastoralism is to be defended as a viable production system adapted to risky environments, and if the slow attrition that many pastoralists are currently experiencing is to be stopped, there is need for research that combines natural science and social science perspectives in order to remove the myths which stigmatize pastoralists as traditionalist, backward, conservative and destructive to the environments that they inhabit.

### **2.2.3. Other models considered in the commons debate**

Hardin's model has been formalized in a number of closely related models and their variants, most of which are nested in micro-economic theory. Prominent among these are the *logic of collective action* (Wade, 1987), the *Pareto Optimality* model (Bromley, 1992), the *free rider* and *Nash equilibrium* models (Runge, 1992; Sandler, 1992) and the *prisoner's dilemma* game (Ostrom et al, 1994). These models, although relevant to certain common property settings, were not utilized in this research mainly because of their reliance on econometrics. However, some of their key tenets are presented in the paragraphs below.

The prisoner's dilemma is conceptualized as a non-cooperative game in which all players (two in the original game) possess incomplete information. Under this scenario, communication among the players is forbidden or impossible or irrelevant as long as it is not modelled into the game. The prisoners (representing common property resource users) opt for what they believe is their individual best choice - non-cooperation. The combined outcome of choosing not to cooperate is not the best choice for both prisoners.

Mancur Olson (1965) had earlier developed a closely related model that challenged the grand optimism expressed in group theory: that individuals with common interests would voluntarily act to further interests of the group. In what has sometimes been referred to as the "logic of collective inaction" or the "illogic of collective action" (Wade, 1987, 221), Olson portrayed the difficulty of getting individuals to successfully pursue their joint welfare as opposed to individual welfare. In his view, some coercion or some other special device like penalties or rewards is needed to make individuals act in their common interest. However, many empirical studies have discounted this argument as overly simplistic and unrealistic (Wade, 1987; Sandler, 1992; Ostrom et al, 1994).

In studying collective action, a behavioural standard is needed to judge whether a group has managed to do well by its members. In resource economics, that standard often is Pareto Optimality. An allocation or assignment of resources is Pareto optimal when it is not possible to improve the well-being of one individual without harming at least one other person's. When an alternative resource utilization exists so that it is possible to improve at least one person's well-being while harming no-one else, the normative implication of the Pareto criterion is that such an alternative should be implemented. An allocation or

utilization is Pareto superior to another if at least one individual has his or her welfare improved and no one has his or her welfare lowered. Similarly, an allocation is Pareto inferior when at least one person's welfare is smaller and no one's welfare is higher when compared to other alternatives.

However, when this model is viewed within the context of the prisoner's dilemma game, and if the rules for extracting confessions from apprehended suspects are structured differently, then isolated prisoners have very different optimal strategies and there would be no dominance (Pareto inferior) of individual strategies (Bromley, 1992). Therefore, like other similar models which are taken as inevitable human tendencies when in fact they are artifacts of the way in which the game is set, field application of this model in common property situations such as exist in Beitbridge District's Communal Areas is very limited.

Another related model, also using non-cooperative game theories in which individuals pursue their own best pay-offs without coordinating with others, is the Nash equilibrium. This equilibrium results when an individual chooses his or her best or optimizing choice for one or more variables, given that the other individuals have chosen their optimizing or best actions for this or these variables. Although conceptually all choices are made simultaneously in the standard form of the Nash Equilibrium, addition of an explicit temporal structure brings with it the notion of repeated choices. Thus, the actions and responses of the individuals are examined over a number of periods. Under completely competitive market equilibrium conditions, independent adjustment leads to Pareto Optimality. In practice, however, Nash behaviour leads to an equilibrium in which too little of the resource is available, thus leading to a 'tragedy'. The model assumes that all willing

users of the resource should be included, as long as they pay for their share or inclusion. In other words, additional members augment the collective benefit through reduced cost shares without increasing collective costs. Thus, in this model, collective group size should be unrestricted. Yet, most common property regimes employ different checks and balances through property and management institutions such as stinting (the practice of withholding access to and use of certain resources until outcomes can be predicted with confidence) precisely to prevent this scenario from occurring.

The "free-riding" concept is also associated with Olson's (1965) "Logic of Collective Action". The model postulates that whenever one person cannot be excluded from the benefits that others provide, each person is motivated not to contribute to the joint effort, but to free-ride on the efforts of others. If all participants chose to free-ride, the collective benefit would not be realized. Free-riding also relates to the failure of individuals to reflect their true preferences for common property resources through their contributions towards the cost of utilizing those resources. It also denotes the tendency for the marginal or average contribution to decline with group size.

All these models are vulnerable because the constraints assumed to be fixed for purposes of analysis are also taken as fixed in empirical settings, unless external forces change them. Ostrom (1990) argued that this metaphorical use of the models is the major source of the problem in studies on common property resource management. For instance, the prisoners in the famous dilemma cannot change the constraints imposed on them by the district attorney: *they are in jail*. Not all users of common property resources are similarly incapable of changing their constraints and circumstances. Empirical studies have shown that they are

indeed capable of avoiding the remorseless tragedy of the commons (Bromley, 1992).

Like most evolving theories, that of common property resource management provokes debate and disagreement on many aspects, ranging from definitions and concepts to methodologies and interpretation of results. Murphree (1996, 2-11) warns us, however, that while common property scholarship has the ability to conceptually produce a more operationally relevant analysis of environmental management than many other popular theoretical abstractions currently in use, the “interpretive articulations of this scholarship should be multidirectional, poly-idiomatic and reflexively rapid”. He argued that most of these interpretations are still “unidirectional, addressed primarily to an intellectual and policy elite; to each other, or to governments and donor agency bureaucrats”. These interpretations are devised and tested in western capitalist and “private-ownership-dominated” cultures with strong Nietzschean “superman” mentality and “progress-through-manipulation” of elements orientation. Ingram’s (1990, 196-197) analysis of post-structuralist and post-modernist Western philosophy is therefore relevant to this discussion. It is in this vein that this study sought to focus on local communities and indigenous and traditional systems of governance in order to enhance community participation, cross-fertilization of ideas and sustainability.

### **2.3. PASTORALISM: MAJOR THEMES AND EMERGING ISSUES**

Before 1960, anthropologists studying African pastoralist societies numbered a distinguished few (Herskovits, 1926; Evans-Pritchard, 1940; Gulliver, 1955). What characterized these earlier studies was their attention to the unique fit between livestock keeping peoples and the



hostile arid lands which they inhabited, and between their particular social organizations and the demands of a mobile livestock production system (Fratkin et al, 1994). Interest in African pastoralists flourished in the 1960's and 1970's as a new generation of anthropologists emerged, mainly inspired by Dyson-Hudson's (1972, 14) call that in order to understand herders, one must understand herding. These later studies increasingly applied new theoretical approaches and methods to the study of pastoralists, particularly those drawn from ecological anthropology (Munod, 1975; Dahl and Hjort, 1976; Weissleder, 1978; Dyson-Hudson, 1980) and political economy, especially in regions experiencing extensive drought and famine (Swift, 1977; Franke and Chasin, 1980; Watts, 1983). However, during the same period, a number of influential studies that pursued the social organizational characteristics of pastoral systems also were published. These included the Almagor (1978) study of the Dassanetch in south-west Ethiopia, and Meeker (1980) on east African pastoralists.

A major conceptual transition during that period was the trend away from idealized "pure pastoralists" to detailed, data-driven studies focussing on the dynamic processes characterizing specific pastoral adaptations. Although these studies did not produce a unifying description of pastoralism, they revealed the large variation in social organization and environmental adaptations experienced by different livestock-keeping populations (Salzman, 1980).

The 1980's saw a gradual tendency towards multi- disciplinary approaches linking the study of pastoral societies to the physical resource base and peculiar problems of the arid lands, especially in the wake of continuing droughts, environmental degradation, and political

instability in most African arid regions (Galaty, 1980; Hogg, 1987; and Little, 1987). This development-oriented period saw the emergence of several important multi-disciplinary projects in which sustainability gradually became an issue. These studies were set within Holling's (1973) concepts of population stability and resilience in ecological systems and adaptation to these ecosystems. Holling had based his conclusions on non-human population dynamics. Since human beings could behave differently under similar conditions, it is important to be cautious when applying these concepts to human populations, a factor overlooked in many of the studies.

Although pastoral research in the 1990's continues to produce monographs about pastoral societies, there is now an increasing tendency in these studies to link anthropology, history, ecology, geography and economics with sustainable development. These studies are unanimous in their persuasive arguments for the need for collaborative and multi-disciplinary approaches to the research on pastoralism (Homewood and Rogers, 1991; Little, 1992). They are, however, nowhere close to a common understanding of what pastoralism is, and what its current and future role in the management and development of African rangelands should be. Most of them are mute on gender roles and relations. Fratkin et al (1994) is one of the few exceptions. As the study of common property resource management widens, so does the debate on pastoralism, thus creating tremendous problems for the development of a unified theory. With so many diverse disciplines involved in the research on pastoralism and given the different theoretical bases for their studies, collaborative research is one way to narrow the gaps among the different theoretical perspectives (Fratkin et al, 1994). The next three sections discuss some of the major trends in pastoral research with special emphasis on African drylands, the issues emerging from this research and the

role of gender in pastoral development.

### **2.3.1. Major trends in pastoral research.**

Although pastoralists were at the centre of regional trade networks in Africa up to the 19th century, today they have been relegated to the periphery of an economic and political system that is now dominated by the needs of export-oriented agriculture, a world in which pastoralists have a very small space (Galaty and Johnson, 1990, Fratkin et al, 1994). The image of the pastoralist in the modern world is a byproduct of this historical shift, an aspect which many studies tend to ignore.

For many years, and particularly in the 1960's and 1970's, research on pastoralism was embedded in anthropological theory and practice. It was during this period that systems theory featured predominantly in anthropology, leading to the conception of pastoral societies as an overall system or structure within which sub-systems are nested. This perception mirrors today's academic world, with its tendency towards specialization rather than generalization. Unfortunately, such specialization often results in the unconscious creation of walls of technical expertise and language which may block communication among sub-fields. Divisions between qualitative and quantitative, cultural and biological, and feminism and androcentricism or physical and social research become rigid and antagonistic to one another. Recent advances in collaborative and multi-disciplinary approaches in pastoral research are meant to eradicate these artificial obstructions as much as possible and allow communication across differing perspectives. Researchers have very little to gain and too much to lose by not doing so.

The concept of *household development cycles*, which stresses that households should be viewed as the sum of vital processes within specific social systems (Stenning, 1958), was featured prominently in earlier pastoral research models. Stenning's concept highlighted Fulani household herd dynamics and human demography which led to the view that a "pastoral strategy" entailed regulating household demography in accordance with the labour requirements of the principal herd animals. The model was reiterated for East African (Spencer, 1975), West African (Swift, 1977), and indeed for all African pastoralists (Dahl and Hjort, 1976). Because of the unique prospects that the model offered to theory and development planning, it was well received in the late 1970's - the heyday of cultural ecological models.

However, inspection of specific case studies sheds doubt on the broad validity of these household development cycle-based models. For instance, among the Rendille and the Turkana, whose cultures have the same environment and the same central domesticated animal, the camel, their demographic strategies are significantly different. Bonte and Galaty (1991) observed that, given the slowly reproducing camel, the Rendille regulate human population size while the Turkana maximize human population size. The one missing link, it would seem, is the historical perspective. Recent historical data reveal that the Rendille suffered territorial contraction resulting from colonialism while the Turkana enjoyed steady territorial expansion (McCabe, 1994).

Today, cultural ecology has been transformed into behavioural ecology, and cultural factors such as resilience, marriage patterns and economic differentiation are integrated with Darwinian biological theory (Mulder and Sellen, 1994). Similarly socio-economic theory

has grown to embrace political economy and current demographic movements in Africa and elsewhere (Little, 1994).

The tragedy of the commons model, which ironically used a hypothetical pastoral system of common grazing as a metaphor for over population and over exploitation, epitomized what Bonte and Galaty (1991:5) called the myths, misconceptions, implications and over generalizations about pastoralists that pervade our popular and academic vision of African pastoralism. Horowitz and Little (1987) traced this view back to the 14th century and Anderson (1984) showed how the dismal picture of the 1930's dust bowl of North America was transferred to the East African Savannas. Although recent data show that traditional pastoralism is at least as productive as commercial ranching (Coughernour et al, 1985; Scoones, 1990; 1992; 1996), this negative view of pastoralism made its way into the development rhetoric. The former director of UNESCO's Integrated Project in Arid Land was quoted as follows: "it seems that the symbiosis of pastoral man and his domestic animals has been very successful if viewed as a survival strategy in the short term. In the long term it appears less successful since it tends to destroy its own habitat" (Lamprey, 1983; quoted in McCabe, 1994:74). This erroneous belief led to strategies that emphasized the need to shift from traditional pastoralism to the other forms of livestock-based economy such as private or group ranches, or away from livestock altogether to fishing or integrated agriculture. It is not surprising that much of the literature on pastoralism during that period was concerned with these issues (Galaty, 1980; Hogg, 1984).

Another widely believed myth about pastoral societies is that they constitute isolated, self-sufficient and egalitarian systems. As a result of this misconception, very little research was

directed at women's nutrition and health, or the interaction between pastoralists and croppers. Recent literature provides evidence of long-standing links between pastoralists and agriculturists in Africa (Little, 1992). One crucial variable in the literature on these linkages is the changing role of women. Although the situation is changing, this issue has been largely overlooked in pastoral literature which historically has focussed on males and male activities.

### **2.3.2. Emerging issues and debates from pastoral research.**

The Irons and Dyson-Hudson (1972) volume on nomadism symbolizes a turning point in the growth of anthropological literature on pastoral societies, from plain descriptions of the culture of these people to a consideration of the structural changes in pastoral systems brought about by the colonization of Africa (Herskovits, 1926; Evans-Pritchard, 1940; Gulliver, 1955). Although a retrospective study, Irons and Dyson-Hudson's publication represents a major milestone as other researchers began to view pastoralism as a system under change. Notable among these was the work by Rigby (1985). His study on the Maasai in Tanzania opened up new perspectives on how nomads think and work, and about their own rejection of the views others hold of them. Rigby himself rejected many of the previous conceptualizations of the pastoral social formation abundant in many pastoral anthropological studies. He persuasively demonstrated that pastoralism, generally regarded as a precursor social formation in Africa, is in reality more life-enhancing and contains lessons for social transformation among the peasantry in general.

Saltzman's (1980) study was the first to focus on the question of risk, adaptation and

response. The case studies in this edited volume are from pastoral societies all over the globe. The central theme of the studies is the process of sedentarization as an adaptive strategy for nomadic peoples. These risk and adaptation themes also feature prominently in case studies by Hogg (1987), Little and Horowitz (1987), Scott (1987) and Manger (1990).

Homewood and Rodgers (1991) offered an integrated, multi-disciplinary account of a working pastoral system in the Ngorongoro region of northern Tanzania. Their account successfully married a historical survey of changing socio-economic patterns and the impact of external events, with a richly detailed ecology of the region. The research was exhaustive, detailed in its collection and collation of locally-derived data, and expansive in its reference to comparative cases and models of analysis and explanation. In their view, which they supported with an immense array of evidence, people, livestock and wildlife could live together in Ngorongoro without one jeopardizing the survival of the other. They concluded that expelling the Maasai would be the surest and quickest way to trigger substantial and disastrous habitat change.

A few recent studies focus on gender and women's issues in pastoral societies. Prominent among these are Dahl (1987), Bruggeman (1994), Fratkin and Smith (1995), Ibrahim and Ibrahim (1995), and, Ruppert and Schufer (1995). Issues affecting children in pastoral societies, especially child fostering, nutrition and education, are also becoming topical in pastoral research and have been highlighted in Galvin et al (1994), Little (1994) and Shell-Duncan (1994). Some of the central questions in this area are:

- ▶ what is the role of children in pastoralism and how is it changing?
- ▶ what is the nutritional status of children in pastoral societies?

- ▶ which children are sent to school and for what reasons?
- ▶ what role does child fostering play in pastoral societies?
- ▶ which children are fostered, and by whom and for what reasons?
- ▶ what is the impact of pastoralism on children?

These questions and issues are explored in the next section and in Chapters 4 and 6 of this thesis.

Adaptive pastoral resource management strategies that have evolved over many centuries have been sustained through a high level of flexibility. It is very possible that the major cause for the failure of most pastoral development projects in Africa is the anti-indigenous bias created by the lack of understanding of the dynamics of these culturally-based livestock and grazing resource management strategies. This bias and the consequent failure to appreciate the real value of environmentally appropriate and adaptive strategies which these indigenous systems often contain has prompted most livestock development agencies to view pastoralism negatively. This negative viewpoint tends to overlook that pastoralists often have, for example, their own systems of livestock disease control, selective breeding, range and water conservation.

There can be little doubt therefore that improved methods will find acceptance among pastoralists as long as they are compatible with on-going schedules and routines. It is this compatibility that seems to elude most pastoral development programs.



### 2.3.3. The role of women in livestock and range management

In a world that is experiencing increasing feminisation of poverty, environmental resource exploitation, degradation and development, one of the extraordinary challenges to development policy and practice is found in linkages among gender, access to and control over resources, and decision-making processes among pastoral communities. While the significance of women's roles in livestock management and development is widely acknowledged by many development agencies, very few studies have actually documented their vital contribution to the sustenance of the pastoral economy in African drylands. Briggeman (1994:1) observed that literature on pastoral and agro-pastoral societies "throughout Africa, the Near East, Asia, and parts of Europe and the Americas ignores women's economic activities, social status and especially the role of women in livestock management". As a result, many pastoral development projects have left out the role of women in livestock management activities. If they are considered at all, it is in relation to "other activities such as health care, literacy, improved stoves and handicraft" (Briggeman, 1994:2). However, it should be noted that a number of development agencies are changing their approaches to livestock development in developing nations. Notable among these are programs supported by the *Heifer International*, a USA-based NGO which specifically targets women in livestock development in developing nations.

This paucity of data and information can be attributed to a number of factors. Key among these factors is the apparent patriarchal dominance in most African pastoral systems, which in turn influences the focus of research in these regions in favour of working with and obtaining data and information primarily from men. Second, development programs are predicated on the common assumption that in pastoral societies, all livestock and range management activities are carried out by men. However, a few studies have observed that

the role of women in these societies is far greater than formerly believed. Briggeman (1994), for instance, observed that among the Dodoth people of Karamoja in Northern Uganda all selection of animals for sale or other needs is negotiated between a husband and his wife (wives). Women also acquire cattle through bride-price of relatives and other economic activities and hold them in trust for their sons who eventually inherit the livestock. Each newly-married woman has to build up her own herd and agricultural production unit.

Helmut (1995) also observed that among the Maasai in Northern Tanzania, women owned large herds of livestock alongside their male partners and participated in all aspects of their management and that of the range. However, the study also indicated that large disparities in wealth existed among these women. Little (1994) described how women vigorously participated in the marketing of dairy products among pastoralists in southern Somalia. Roberts (1996) further noted that gender and age of both sexes were important variables in the study of pastoralists in Africa. Based on a study of the Keriyo in Kenya, he observed that apart from spending considerable amounts of time in livestock-related activities, women were also actively involved in decision-making processes, especially regarding marketing of livestock products. Roberts suggested that children, women and elderly people (above 65 years of age) of both sexes need to be considered regarding efforts to improve livestock production in this sector.

A common theme among all these studies is the complexities of gender-mediated rights to and control over livestock and livestock products, as well as the complex decision-making processes involved in these interactions. This study will explore these complexities among the Sotho and Venda communities in Beitbridge District. As will be shown in this study,

women play a more significant role in the whole decision-making process pertaining to range and livestock management than has been previously reported. Although obscure to the outside and untrained eye, a few of these women, particularly those from ruling families, hold more influential positions, such as advisors to chiefs, headmen and village-heads in informal and traditional institutions, than has previously been acknowledged in Zimbabwe.

Based on data from the field, it will be shown that women and men have specific and sometimes overlapping labour roles within the pastoral system. Women help identify grazing and water resources, the timing and movement of cattle around pastures, as well as the management of the livestock herds at household levels and in a few instances, can even veto certain decisions such as the sale or slaughter of livestock within the homestead. At the household level, marriage plays a significant role in coping and adaptive strategies as well as in risk aversion. Men consult women publicly and privately on most issues concerning their livestock herds and the management of the range. However, official livestock ownership records grossly underestimate women's role in ownership and other arrangements. Part of this problem stems from the predominantly patriarchal system of rule, chieftaincy, ownership and inheritance common in this area. Yet, evidence from Southern Zimbabwe seems to indicate that the pastoral system itself tolerates and even, to some extent, promotes matriarchal dominance in many spheres of daily life. A recent example is the appointment of two women in 1995 as Chief Mathe and Chief Mabhena of the neighbouring Birwa and Sotho people in Gwanda District. Part of the reason for this could be the relationship through intermarriage and centuries-old historical links with the matriarchal "rain-making" queens and people of Lovedu of Northern Transvaal in South Africa, who are closely related to both the Sotho and Venda of Southern Zimbabwe.

A better understanding of these interactions within the Venda-Sotho cultures in Southern Zimbabwe should lead to the integration of these gender-based attributes and their incorporation into mainstream (formal) decision-making processes and development institutions. This could be one of the key variables for the sustainable management of resources in these dryland regions.

#### **2.4. THE RELEVANCE OF RISK, UNCERTAINTY, INDETERMINACY, IGNORANCE AND THE PRECAUTIONARY PRINCIPLE TO PASTORAL ADAPTIVE PROCESSES**

Southern African pastoral drylands are characterized by high levels of unpredictability and variability. For instance, drought is a recurring phenomenon in these regions. Pastoralists respond with short- and long-term adaptive strategies. These strategies contain varying degrees of risk. In order for pastoralists to adopt these strategies, they require reliable information on the phenomena from both conventional and unconventional sources. Unfortunately, this information is not readily available from conventional sources such as development agencies. Such information is neither adequate nor does it come in readily usable forms.

It is against this backdrop that decision making takes place among pastoralists. Decisions are based on experience and experiment and take place in the context of varying degrees and categories of imperfect knowledge and understanding based on what Wynne (1992, 114) calls "different kinds of uncertainty". This section discusses these different "kinds of uncertainty" but I propose to refer to these categories of uncertainty as "varying degrees or

levels of imperfect knowledge and understanding” among which I identify four categories (Table 2.1). This is simply to avoid the unsatisfactory use of the same term “uncertainty” to refer both to the group and to one of the four categories. The associated precautionary principle and its relevance to the pastoral adaptive processes are also discussed.

**Table 2.1. Categories of uncertainty (imperfect knowledge and understanding)**

Risk	Know the odds
Uncertainty	Do not know the odds; may know the key variables and parameters
Ignorance	Do not know what we do not know. Do not even know what questions we should be asking
Indeterminacy	Causal chains and networks are open. The whole is greater than the sum of the parts.

*Adapted from Wynne (1992)*

#### 2.4.1. Risk

Scoones (1996, 5) argued that exploring concepts such as risk, uncertainty, indeterminacy and ignorance in agriculture, let alone pastoralism, presents a range of methodological problems mainly because measuring risk is not easy. There is yet no agreement in the literature about what an acceptable measure of risk should be. However, it is true that most approaches to risk assessment are rooted in probability theory. The distinctions between risk and uncertainty, and indeed among all four categories of imperfect knowledge and understanding, seem to be overwhelmed by the demands of micro-economics to characterize decision making in calculable terms (Scoones, 1996, 6). In practice, the difference is probably blurred. When dealing with field situations such as this pastoral case in Beitbridge District, it may not be possible to get quantitative measures of the probabilities of different

outcomes, thus rendering a measure of risk elusive. Yet, in our quest to study and understand the way people respond to different challenges, shocks and surprises, a distinction among these four categories may provide a sound starting point for learning and understanding the way people respond to complex and unpredictable problems such as are posed by dryland pastoralism. While it may be true that the way people respond to risk may not be reducible to a product of probabilities, as Scoones points out, and while it is true that values, preferences and normative judgments inevitably intervene and that perceptions guide people's responses, ignoring the different levels of imperfect knowledge and understanding under these regimes is dangerous. What is required are new methodologies for risk analysis that take into account local knowledge system methodologies that open up possibilities for improving human conditions and livelihood in a participatory manner by adopting a learning approach to development and change. Uphoff (1992, 25) characterized this 'both-and' approach as post-Newtonian or post-Cartesian science, noting its rejection of the highly deductive and dualistic 'either-or' reasoning which previously dominated most of Western science. Uphoff (1992) further suggested that chaos theory, which is concerned with the emergent properties that can be explained but often not predicted (at least not with much precision), may be relevant to this search for new methodologies of analysing risk, uncertainty, indeterminacy and ignorance. This is also the same position adopted in this dissertation.

Wynne (1992) also suggested that the term *risk* should only be used in this context when we are able to define and quantify the behaviour system and the probability of different outcomes within strict confidence limits and margins of error. The underlying issue here is that information must be available to enable such predictions. Unfortunately, this

information is rarely available in pastoral systems. Based on Johnson and Baksh (1990), four categories of risk, illustrated in Table 2.2, were elaborated for use in this dissertation.

**Table 2.2. Categories of risk**

<b>RISK CATEGORY</b>	<b>NATURE OF RISK</b>	<b>BEHAVIOURAL RESPONSE</b>
Subsistence risk	Fluctuations in food and livestock production	Buffering through sharing, storage, diversification, loaning, child fostering, stock movement and sales, marriage
Environmental risk	Environmental hazards (e.g. drought, disease, accidents, cattle deaths, predators)	Stock movement, water development, supplementary feeding, diversification, livestock loaning ( <i>mafiswa</i> )
Risk of social conflict	Boundary and social disputes, social and economic disparities (social differentiation)	Community-based and traditional dispute resolution processes.
Risk of cultural loss	Threats of cultural identity loss in a new market-driven economy	The creation of local associations and negotiating for cultural space.

*Source: Adapted from Johnson and Baksh (1990)*

Just as pastoralists face varying degrees of susceptibility and vulnerability, they have to deal with varying categories of risk as well. Where the odds are known, they (pastoralists and other resource managers) are able to cope with the hazard. However, more often than not, they have to deal with more complex problems and higher levels of unpredictability than presented above. Those circumstances in which the behaviour of the system is not known and the probability of an outcome can not be predicted is what is characterized as uncertainty.

### 2.4.2. Uncertainty

Uphoff (1992:324) suggested that the concept of uncertainty implied that many, if not all things, are inherently unknowable. The very act of trying to measure or ascertain them affects the phenomenon being considered. While this caution is easily generalizable from quantum physics, it applies to social science perhaps even more than it does to physics. However, because they will not be exact, it does not mean that approximate measurements and determinations should not be made. Under circumstances of uncertainty, all knowledge is to some extent an approximation. Thus, uncertainty implies difficulty in predicting outcomes. Therefore, uncertainty motivates individuals and/or groups to seek information. However, although key variables and the parameters that are most limiting for a given phenomenon may be known, there still are inadequate data and information to estimate the probability of the outcomes with any confidence (Mitchell, 1995:3). Resource managers, including pastoralists, then have to base their responses on the best available information. As will be shown in this study, pastoralists in dryland ecosystems rely on scientifically non-conventional methods of obtaining such information.

Based on 60 year records of cattle populations in Zimbabwe, Ellis (1994:41) noted that while density-dependent factors may regulate both birth and death rates when populations approach ecological equilibrium densities, cattle populations in southern Zimbabwe seldom reached these densities due to droughts, disease or compulsory de-stocking. Rainfall variability, the primary cause for ecological non-equilibrium conditions is the most elusive factor in the uncertainty equation. As will be illustrated in Chapter 5, pastoralists in Beitbridge District have devised methods to cope with this lack of information in the



formulation of their strategies. However, in the process of incorporating the unknowns into the analysis, there is always a danger of assuming that what we know or are able to know and understand about a phenomenon at hand is all that we need to know about that particular phenomenon. The problem arises from the fact that in this process of information gathering, we unconsciously leave out a range of other uncertainties or unknowns. These uncertainties form the third level of imperfect information and understanding and the "more difficult problem of ignorance" ( Wynne 1992:114).

### 2.4.3. Ignorance

Wynne (1992) argued that ignorance is endemic to scientific knowledge. In some cases, resource managers are not even aware of potential problems and therefore do not consider them. The conventional view about scientific knowledge and method is that they "enthusiastically embrace uncertainties and exhaustively pursue them" (Wynne, 1992:115). According to Dover and Handmer (1992:269), a strong thrust of modern science-based hazard management has been to "reduce or eliminate uncertainty and maximize control over the natural environment". It would probably be more prudent to recognize that additional knowledge will not necessarily provide all the answers and means to manage uncertainty and ignorance. On the contrary, scientific knowledge addresses a "restricted agenda of defined uncertainties" and many other uncertainties that are invisible to the system are left out. The key question, however, is whether scientific knowledge and understanding was ever intended, or able, to provide all the answers to all our social problems. Dover and Handmer suggested that more energy and effort should be directed at developing strategies that reduce the impacts of uncertainty and change on natural environments and human systems. "Like

natural systems, human systems need to be flexible enough to cope with uncertainty and unanticipated shocks” Dover and Handmer, (1992:270). Geertz (1972:25) had earlier summarized the outstanding issues surrounding ignorance, uncertainty, knowledge and coping strategies in the following words:

To be a weatherman in monsoon Indonesia, all you need to know is which way the wind is blowing; in Morocco, to be one you need to penetrate the mind of God.

It was in the same vein that Jones (1986:4) criticized economists for their over-enthusiasm about what he called “optimal knowledge”. He argued that information is costly and that attention to the economics of information is vital to management design. He raised the notion of “optimal ignorance” which required that information should be gathered to the level at which any reduction in data would lead to unacceptably low levels of benefits. The implication here is that complete information is not possible and that to pursue optimal knowledge is undesirable and costly. This study will illustrate, in Chapter 5, how pastoral communities use alternative knowledge systems to overcome ignorance. Because risk systems such as dryland ecosystems do not always conform to determinate cause-effect relationships, a fourth level of imperfect knowledge and understanding, referred to as indeterminacy, is introduced (Wynne 1992:114; Scoones 1994:6)

#### **2.4.4. Indeterminacy and the precautionary principle**

Indeterminacies are intervening consequences of decisions taken at a different location, for example, and whose impact affects patterns of interaction at another location. The

relationships and commitments at the various stages of interaction are recipes for open-endedness in the sense that outcomes depend on how the various actors behave at each level. Scoones (1994) suggested that in a highly unpredictable environment such as dryland ecosystems, planning involves two basic alternatives. The first aims at reducing uncertainties to probabilistic descriptions of variability through the collection of more and more data on more and more variables. The assumption is that more information will allow for more effective plans. The alternative is to accept that uncertainty and indeterminacy are fundamental to the extent that no matter how much information is collected through whatever method, all possible outcomes can never be predicted and planned for. Scoones further suggested that rather than hope for complete information and understanding, prior to intervention, it is better to proceed incrementally and initiate learning processes which monitor experiences and feed back lessons through adaptive processes. A similar argument was presented in Holling (1973;1978) and Uphoff (1992).

Events such as droughts provide important learning opportunities for dryland ecosystems. Therefore, it is necessary to facilitate this learning process and respond to these episodic events through forms of institutional and organizational arrangements adapted to local conditions and people. This study will propose one such approach in Chapters 6 and 7. Suffice it to say that while the distinction between uncertainty and indeterminacy might in practice be blurred, the distinction is important and necessary because uncertainty embodies the notion that inadequate control of environmental risks results from inadequate scientific knowledge. As a result, great attention is placed on intensifying the acquisition of that knowledge and rendering it more complete.

It is also important to note that the application of the potentially revolutionary Precautionary Principle does not seem to change the status quo since its use simply lowers the decision-making threshold and increases the level of uncertainties, based on the assumption that this is a stop-gap measure while further scientific knowledge is sought to remedy the situation (Wynne, 1992; Lipietz, 1995). What the implementation of the Precautionary Principle implies is that when the effect of a present cause is uncertain but may be highly damaging and even irreversible, it is wiser to act immediately in order to minimize the effect of that cause until more is known about the phenomenon.

#### **2.4.5. Change and adaptation.**

The basic meaning of the concept of adaptation in the science of human behaviour is the use of coping mechanisms by organisms during their lives (Bennett, 1996). However, one major problem with this concept in a broader science of human ecology concerns the relationship between adaptation in a biological sense and adaptation as a social and behavioural process. In biological sciences, adaptive behaviour of organisms tends to result in steady states. In social behaviour, the organisms may do just the opposite - disturb or overturn existing conditions in order to satisfy needs (Bennett, 1996:30). However, the effect of the union between biological and social adaptation phenomena seems to be the reduction of tension in the adapting organism. This can further be simplified into two sometimes overlapping categories referred to as "internal adaptation" (the resolution of various processes within the individual), and "external adaptation" (or what is now popularly referred to as coping).

Holling (1973) attempted to address this theme of coping by introducing the concepts of

stability and resilience to account for the ability of certain ecosystem populations to thrive under widely fluctuating and unpredictable environments. As indicated earlier in this chapter, Hollings based his conclusions on non-human ecosystem populations. Scott (1984) argued that pastoral communities have developed adaptive mechanisms that permit survival under uncertain and harsh environments and that the key to their success is cooperation and not competition. When communities are faced with continual or regular stress and exhaustion of the population's resource base, individuals adapt, exist in abject poverty, or perish. On the other hand, uncertain and irregular stress (shocks), often resulting from climatic changes, stimulates group responses. They are forced to interact to complement the needs of each other in order to enhance their ability to survive. Changes that occur as a result of these interactions and responses are short as well as long term. These issues will be considered in Chapter 5.

## **2.5. LOCAL KNOWLEDGE SYSTEMS FOR LIVESTOCK AND RANGE MANAGEMENT: MAJOR THEMES AND EVOLVING RESEARCH PARADIGMS**

Local knowledge is sometimes referred to as indigenous knowledge, traditional knowledge or ecological knowledge. McClure (1989:1) defined indigenous knowledge systems as an “integrative concept which keeps the focus on the individual or group as it functions in the local setting”. One of the characteristics of this definition is the dynamism of indigenous knowledge. This dynamism is reflected in Norem et al (1989:91) who defined indigenous knowledge as “knowledge which is unique to a local area, culture, or society, passed down from one generation to the next, usually through oral tradition.” To emphasize the

integrative nature of the indigenous knowledge concept, Warren and Cashdan (1988) defined indigenous knowledge as the sum of experiences and knowledge of a given ethnic group that forms the basis for decision making in the face of familiar and unfamiliar problems and challenges. Yet, until the early 1980's, this type of knowledge was commonly overlooked by much resource management research and development in developing countries.

A key factor in this change was the increasingly widespread recognition that repeated failures that plagued many rural development programs were mainly due to inadequate incorporation of social and cultural inputs into these programs. The second process that favoured the recognition of indigenous knowledge systems was the re-conceptualization of development policies - moving away from trickle down theories to poverty-alleviation oriented strategies (Cernea, 1991).

One of the most eloquent advocates of indigenous knowledge in Africa was Richards (1985). Based on his detailed study of West African rice farmers, he not only urged outsiders to recognize traditional skills of local rice farmers, but proclaimed for these skills the status of an "indigenous science", from which Western agriculture and development specialists could learn. Underlying his analysis was an appeal to reverse the learning process. Ever since, the notions of "coping" and "coping strategies" have increasingly become key in describing indigenous knowledge systems (Richards, 1986; De-Garine and Harrison, 1988; Scoones, 1992; Shaw, 1992).

Because the concept of indigenous knowledge systems is broad and cuts across many disciplines and professions, it facilitates the bringing together of social, natural and physical

scientists in collaborative work within a given environment. Moreover, the collection and interpretation of local knowledge systems cannot be done without the full involvement of the individuals or groups holding the knowledge. This brings in the concept of “participation” which has become one of the most limiting factors in development planning and implementation in many programs in developing countries (Uphoff, 1992; Agarwal, 1994; Murphree, 1996). Unfortunately, “participation” has sometimes been imposed upon people in developing nations, with the negative result that important groups such as women are unintentionally excluded from the development process, thus rendering such programs ineffective (Awa, 1989; Barfield, 1993; Agarwal, 1994).

Although much of the literature on local knowledge systems is based on research in developing countries, these concepts have been applied to situations in developed countries as well, mainly with indigenous or aboriginal peoples. Considerable research involving indigenous knowledge systems in developed nations is centred around sustainable utilization of common property resources such as fisheries, game and forests. Freeman and Carbyn (1988) explored this linkage between local knowledge systems and sustainable utilization of natural resources in North America and Europe. The most distinguishing feature of all the literature on indigenous knowledge systems, whether the focus was on theory or practice, has been that it challenges orthodox “scientific” knowledge. Hence much of the literature on indigenous knowledge systems sought to justify the legitimacy and credibility of indigenous systems by comparing and contrasting them with institutionally organized science and technology (Brokensha et al, 1980, Dei, 1988; Dei, 1993; Agarwal, 1994).

Richards (1986) forcefully argued that the gap between science and indigenous knowledge is

conceptual and not historical. He maintained that the problem with agricultural technology transfer is not how to bridge the centuries old gap and reach “backward farmers” with modern inputs and advice but that these inputs and advice are in many cases totally inappropriate to African peasants mainly because they have been designed without reference to the problems, priorities and interests of those who are supposed to use them.

This disillusion with science and its technology marked the change in the attitude towards indigenous knowledge systems. For most of the 1980's, indigenous knowledge systems were thus glorified mainly through the environmental movement which sought to portray indigenous people in many parts of the world as leading lives that were in harmony with nature (Croll and Parkin, 1992). Thus, indigenous knowledge systems and adaptive strategies became central themes in the debates on common property, pastoralism and sustainable development throughout the 1980's, culminating in the UNCED Conference in Rio de Janeiro in 1992. Appealing phrases such as “harmony with nature” “indigenous people, their knowledge and traditional practices” were incorporated into Principle number 1 and Principle number 22 of the Rio-Declaration (UNCED, 1992). However, the debate about the nature of local knowledge and its significance and future role in sustainable development still continues.

Murdoch and Clark (1994:15) warned of the dangers of giving traditional or local knowledge "virtues it simply does not possess". They argued that science is not different from local knowledge because it has a superior access to reality, but because it is able to act over greater spaces. The problem with this posture is the underlying assumption that all knowledge, including local knowledge, should be able to act over greater spaces. This



requirement, a creation from Western science, is probably not relevant to the demands and requirements of local knowledge - which are primarily for local action.

Mythologizing of local knowledge, which Alvard (1993) and Richards (1993) alluded to, tends to elevate local knowledge to the status of a completely self-supportive system. Murdoch and Clark (1994) extended this argument and suggested that indigenous knowledge may actually be nothing more than the product of improvised capacities necessitated by the needs of the day. Arguing that local knowledge is not always in harmony with nature, Murdoch and Clark (1994) proposed a new social science hybrid between “scientific” and “local knowledge” - a hybrid based on the relationship between nature and culture on one hand and local and universal knowledge on the other. Such representation of indigenous knowledge systems may obscure the importance of indigenous knowledge as an innovative system of knowledge which shows how skills are acquired and adapted to specific environments and circumstances.

The future for sustainable development lies in the merger between what Richards (1985:5) called “scientific universals” and “ecological particularism”. Many environmental problems are localized and specific and require local ecologically particular responses which indigenous knowledge systems are likely to provide. The cumulative impact of these localized processes is of universal significance, requiring an integrative methodological approach to data collection, analysis and interpretation. The integration of indigenous knowledge and science and its role in such an adventure cannot be over-emphasized. The proposed hybrid is a significant step in that direction.

However, issues raised by Richards (1985; 1993), Croll and Parkin (1992), Alvard, (1993) and Murdoch and Clark (1994), although provocative, are indeed important. Researchers have to draw the line between romantic admiration of indigenous knowledge and the sustainability and usefulness of such knowledge systems, and to recognize that by incorporating indigenous knowledge systems, they gain a better understanding of human-ecological interactions in traditional societies. Very few people would disagree that indigenous knowledge systems need recognition and elevation in status to a level of acceptance similar to that of traditional science. The main issue is how to incorporate these knowledge systems into mainstream development planning and implementation in order to reduce susceptibility and vulnerability of those who hold and use this knowledge to the impact of hazards such as drought. This dissertation will propose a framework for incorporating these knowledge systems and institutions into development policy, planning and implementation processes in Beitbridge District, in particular, and Zimbabwe in general. These knowledge systems are also referred to as locally-evolved knowledge systems in this thesis to reflect their inclusive, dynamic and non-static nature. This broadening of the indigenous knowledge concept is relevant to the Beitbridge setting because it captures the influences of external factors (political, economic and social) on the culture and tradition of the Venda and Sotho people in this region (Murphree, 1995).

## **2.6. INSTITUTIONAL ARRANGEMENTS FOR MANAGING PASTORAL LANDS AND DEVELOPMENT**

It is often suggested that the key to studying dryland pastoral management systems is understanding institutional arrangements that govern these management systems (Uphoff,

1992; Ostrom et al, 1994; Scoones, 1994; Sandford, 1994; Dijk and Bruijn, 1995; Brush and Stabinsky, 1996). Because of the significance of institutional arrangements in this study, and because, as indicated in Chapter 1, the term itself means different things to different people and in different contexts, the operational definition for this dissertation offered in Chapter 1 is important. For this research, institutional arrangements are defined as rules, laws, decision-making arrangements and processes, and implementation processes that govern and result from the allocative processes within the pastoral system (Uphoff, 1988; 1992; Fratkin, 1994). One of the objectives of this chapter is to outline the key attributes of the framework used to analyse the pastoral system in this study. The framework is modified from Oakerson (1992) and Ostrom's (1994) work on common property regimes. It borrows heavily from Burns and Flam's (1987) rule system or actor-oriented system dynamics theory, as well as Uphoff's (1992) chaos theory-based institutional analysis and development framework. The framework was adopted after consideration of several theories relevant to studies of pastoral societies. These included Fay's (1987) Marxist oriented critical social science theory and Giddens' (1984) structuration theory. The strengths and weaknesses of these theories regarding their application in this study, are discussed in the next two sections. Despite the weaknesses elaborated in these two sections, it was found necessary to incorporate some of their components into the analytical framework adopted for this study, as will be illustrated in section 2.7.

### **2.6.1. Critical Social science theory**

One of the central themes of Fay's (1987:1-36) critical social science theory is that it viewed humans as "fallen" but only in secular terms. He suggested "we are ignorant of the fact that

we are ignorant; all we know is that life is a frustrating and unsatisfactory undertaking”, and redeemable through our own capacity to change our lives through a process of *education* and *enlightenment*. This process is sometimes referred to as raising the consciousness of the oppressed (Fay, 1987:28). Through a process of analysis, reason and effort leading to enlightenment, society is thought to be capable of solving its problems. Critical social science is “an attempt to understand in a rationally responsible manner the oppressive features of a society such that this understanding stimulates its audiences to transform their society and thereby liberate themselves.” (Fay 1987:4).

Many pastoral systems in dryland ecosystems would fit the above criteria and become prime candidates for the application of critical social science theory. However, in the case of Beitbridge District, the conditions were found to be sufficiently different to the extent that a framework solely based on this theory would not be very useful. In order for critical social science to be applicable, there must be more than just a high level of discontent. For instance, pastoral societies might manifest deep conflict in their structure, but in reality behave in such a way that at critical moments when they are supposed to “explode”, in-built mechanisms moderate the tensions and in that way preserve order in the group. Fay (1987) noted that even though such societies are marked by high levels of discontent, they can indeed be stable and it is this stability that renders them unsuitable candidates for critical social science. This variant of critical social science theory as propounded by Fay, has the following four basic elements:

- ▶ false consciousness
- ▶ crisis
- ▶ education (enlightenment)

- ▶ transformative action.

When all these elements are present and are related to each other in a consistent and systematic way, the theory can be applied. Fay (1987:40) acknowledged that the most difficult of the above elements is defining false consciousness: “how can false consciousness be constructed in the field and on what basis can such a judgment be rationally and objectively made in the field?” Moreover, critical social science theory defines emancipation as a state in which people know which of their wants are genuine because they finally know (through enlightenment) who they really are. In other words, people have to go through this process of enlightenment and education as a necessary step towards freedom. This set of pre-conditions does not exist in this case study. In this pastoral system, people are dealing with too many “unknowns”. It is exactly these grey areas of knowledge that are central to the understanding of pastoral response systems. This is what this thesis is concerned with. Based on this mis-match between research objectives and Fay’s framework, critical social science theory was generally set aside as a framework for analysing pastoral management systems in Beitbridge District. However, some of its elements were incorporated into the analytical framework finally adopted for this research.

Of particular relevance here are the concepts of empowerment and change, as will be illustrated in section 2.7. However, it is worth noting that other variants of critical social science have been applied in studies of a similar nature in Zimbabwe and elsewhere. Notable among these was Drinkwater’s (1991) study of the role of the state in the process of agrarian change in Zimbabwe’s Communal Areas. Using Herbarmas’ (1972;1981) concept of *communicative action*, Drinkwater (1991:15) argued that “modern strictures of consciousness were characterized by our ability to reflect upon and examine the rationality

of actions. When we do not understand or accept something we may seek clarification or challenge it through communication and the use of language". In other words, reason is established as the defender of choice and alternative possibilities (Drinkwater, 1991:290).

Critical social science, using "neo-Marxist" and "neo-humanist" approaches, has also been successfully applied to processes of change in urban inner neighbourhoods (Caulfield, 1994; Caulfield and Peake, 1996). These studies integrated an understanding of political economy with an appreciation of culture in everyday life to explore efforts by inner-city residents to resist institutionalized patterns of dominance and suppression and create new conditions for themselves. Contrary to mainstream thinking regarding contemporary urban life, characterized by widespread transformation of older inner-city neighbourhoods by middle-class resettlement, Caulfield's (1994) case study revealed that a significant proportion of these residents preferred to live in inner-city neighbourhoods and not in the new middle class suburbs for a variety of reasons. These included: 1) a sense of community, 2) demographic diversity, 3) tolerance of non-traditional and marginal values, and, 4) the spatial and architectural environment of the old inner-city. While these perceptions of place were drawn from urban studies, some of their insights are relevant to this study in Beitbridge District, where residents of the Communal Areas have resisted previous attempts to move them out of their pastoral lands, and are currently resisting new attempts to resettle them in wetter parts of the country and change their lands into game parks. Some of the reasons for this resistance are similar to those presented in Caulfield's study. Therefore, where applicable, relevant insights from these studies will be used in this research. Ingram's (1990) critique of critical theory and philosophy in contemporary Western culture was also considered in this study in the attempt to understand the development of critical theory and

the philosophy of critical evaluation.

### **2.6.2. Structuration theory**

Giddens' (1987) structuration theory was also considered, primarily because of its ability to explain how informal rule systems are developed, changed and maintained and also because the theory was found helpful in de Loë's (1994) examination of stability and change in water management strategies in Alberta. It was assumed in earlier stages of this research that this theory could be used to explain stability and change in rule systems within the pastoral system as well. The major attraction of this theory was the simple idea that all human beings should always be regarded as knowledgeable agents, although acting within historically specific bounds of unacknowledged conditions and unintended consequences of their acts.

The major merits of structuration theory are interpretation and correlation of agency and structure. Giddens realized that social theory must deal with the role of human beings (individually or in groups) as actors, and thus with "issues surrounding human agency and social action". Agency, in turn, is related to notions such as purpose, intentionality and responsibility. People, he believed, have reasons for doing things, their behaviour is purposive and reasoned. They also monitor their actions and those of others as well as the social and physical environments affecting their lives.

The methodological implications following from this outlook demand that neither subject (human agent) nor object (society or social institutions) should prevail over the other or be regarded as "having primacy over the other since each is constituted in and through recurrent practices" (Giddens, 1982:20-21). The term agency therefore refers to the

capability for doing what people do, and not necessarily that the outcomes and consequences of these actions are intentional. Even under conditions of limited and constrained choice, people will still choose from the limited and narrowed choice based on their goals or motives. The term structure refers to sets of rules or rule systems and resources that people draw upon to condition certain actions and behaviour (Giddens, 1982:21). Social systems are portrayed as “situated in time and space while structure is depicted as non-temporal and non-spatial”. In other words, social institutions are basically practices through which the “structured properties of society - rules and resources - are instituted and applied in spatial-temporal settings of daily life”. The organization of social life is fundamentally “recursive” in the sense that “structure is both the medium and the outcome of the practices it recursively organizes”.

One significant point relevant to the pastoral system in Beitbridge District emerges from the above discussion. In structuration theory, the rules that comprise structure are usually not specific and detailed enough. People who draw on these rules might not even be aware of them, let alone recognize them as rules. Moreover, people who subscribe to them are often not conscious of them. Thus, people will normally know what to do under typical sets of social conditions prevailing in their daily lives. It is only when they are challenged that they become conscious of the rules and institutions. It is because of this intangibility of the rules, the fact that they cannot be changed by one or a few individuals, and their reliance on interpersonal relationships, that they are referred to, in other schools of thought, as “ideas” and not rules (de Loë, 1994:37). While Giddens explained how rules and social systems are stabilized over time, (as people draw on rules and resources to reproduce certain forms of behaviour, these kinds of behaviour become normal and accepted) he did not address how changes occurred in these systems (de Loë, 1994:38-39). This is probably the weakest point



of structuration theory in relation to the pastoral system under study in this research. Despite its other strengths and attractions, especially in explaining stability and maintenance of social systems, its usefulness beyond that was questionable. One of the objectives of this research is to understand and explain the changes that took place and are still taking place in Beitbridge District. Central to this aspect is how policies and procedures that deal with communal resources management could be changed to facilitate the incorporation of local knowledge systems. It was because of these weaknesses in Giddens' theory that it was also set aside as the main framework for analysing the pastoral system in Beitbridge District.

### **2.6.3. Rule systems theory or actor-oriented systems dynamics theory**

The next theory is what Burns (1985) and Burns et al. (1985) called "actor systems dynamics theory", while Burns and Flam(1987) referred to it as "rule systems theory". The theory will be referred to as "rule systems theory" in this thesis. The core of this theory is the "formation and implementation of social rules" (Burns and Flam, 1987:9). In this theory, social rules govern much of people's behaviour, hence its concern with rule-governed behaviour and the ability of actors to change the rules. Principally, it addresses questions such as the following:

- ▶ why do people create and maintain social rules and why do they follow them?
- ▶ under given contexts and settings, which actors or groups are central to social rule formation, interpretation and implementation?
- ▶ through what social processes are social rules produced and institutionalized, maintained and changed?

- ▶ under what conditions are rules changed and how do communities go about doing this, and under what conditions do they succeed or fail?
- ▶ under any given socio-political and economic contexts or circumstances, what structural opportunities and constraints define different actors' capabilities to change specific rule systems?

Major elements of rule systems theory are *actors*, *rule systems* and *social structuring*. Rule systems at least in part provide the bridging factor between actors and structure levels, as well as the basic framework for the analysis of social activities and their organization. However, rules, as regulators of action, can be changed or transformed. This existence of choice offers a "spectrum of possible human responses" distinguishable within rule system theory as follows:

- ▶ highly institutionalized rules such as those governing access to and control over resources, and moral principles, deeply internalized and enforced by sanctions;
- ▶ technical rules which result in effective action e.g. operation of machines;
- ▶ preference rules which are open to sub-groups or individual preferences (e.g. dress codes).

This research is concerned with the first category: how communities in Beitbridge regulate access to and management of communal rangelands; the success or failure of these institutional arrangements; and, the potential for incorporating these rule systems into a formal structure of rules and regulations governing resource use in these communal lands.

In rule systems theory, social rules are cumulative knowledge held in human groups. Social

rules are established and developed in an effort to “solve certain collective problems, to realize desirable goals and to generate valued or effective activities” (Burns and Flam, 1987:9). This knowledge is maintained, transmitted and reproduced in the form of *social rules knowledge*. This cumulative knowledge includes norms and social institutions that enable these communities to coordinate their activities for “mutually desirable ends and to participate in communication processes, problem solving activities and decision-making processes” (Burns and Flam, 1987:17). In other words, rule systems are the basis on which social activities are organized so as to achieve desirable patterns of behaviour and outcomes, to avoid undesirable ones, or to solve collective action problems. In Beitbridge District, these rule systems are largely informal and are institutionalized into the traditional social and cultural system of the Venda and Sotho inhabitants of this region. Collective action problems, such as violation of grazing rights arrangements, or disputes over land and water rights and other related issues, are handled through the institutionalized social norms that prescribe certain behaviour (honesty, cooperation, reciprocation and sharing) while prohibiting others (cheating, free-riding and dishonesty) under specified conditions.

One of the key attributes of such rule systems is that because they are in effect strategic guidelines for a particular community or communities, they are able to reduce *social uncertainty* which, in communities such as those ones in Beitbridge District, play a significant role in livestock and range management strategies. Rule systems provide opportunities for actors to behave in ways that would otherwise be impossible; they even enable actors to innovate and pursue new alternatives in their social settings. Burns (1985) noted that in this process, mistakes can be made, constraints may vary, and resistance by some or all actors may be encountered, thus necessitating the need to compromise and make

adaptations to these rules or even make new ones.

It is important to note that these adaptations can be made willingly or can arise from circumstances forced upon these communities by external agents or forces beyond the community's immediate control. Examples are drought and central government's land reform programs in Beitbridge. The important thing to note here is the *actual process* through which these informal rule systems are worked out in practice. The process may go through one or all of the following phases: learning, conflict, negotiation, and exercise of power by the chief or village elders or community leaders. The result is that some or most of these informal rule systems are known only to those who are part of the system and practice it, and may be obscure or unknown to outsiders.

Therefore, rule systems theory enables researchers to focus more on processes and less on events affecting actors. As the case is in Beitbridge District, these informal rules are continually formed and re-formed even though organizing principles of these rules and their structures may be maintained over long periods of time. One of the most significant issues here is that this process of rule formation and re-formation, which in turn implies the structuring and re-structuring of social roles and relations as well as institutional arrangements, occurs in "historically given conditions" and contexts (Burns, 1985:27). This process entails social and physical time settings in which the activities take place and decisions are made. Hence the emphasis in studies based on rule system theory is on examining these processes under specific contexts, such as this Beitbridge case, where various actors are pre-disposed to cooperate, conflict or engage in power struggles with one another. Its emphasis is on process and shifting accommodation. It has the great advantage

of bringing into sharp focus the dynamic and contingent character of the phenomena being studied, such as the pastoral systems in Beitbridge. Murphree, (1996:11) summed up the relevance of this approach to studies on human-environment interactions such as the Beitbridge case as follows:

Neither nature nor the systems of its social use are static. Every accommodation to ecological variation or social conflict is an experiment. There are no one-off, permanent solutions to environmental issues. But if we can learn from these experiments, there can be an incremental improvement in their quality. This adds great weight to the articulative obligations of our scholarship since, if it is to be something more than social history, its insights must be fed back into the experimental process expeditiously and continuously.

This approach enables the researchers to operate in three modes, as interpreters, translators, and facilitators. This is precisely the purpose of this study. The five objectives of this research, as presented in Chapter 1, are intended to achieve exactly that: to interpret observations of the pastoral system and its knowledge systems in the field, translate these observations into operational strategies, and facilitate the implementation of these strategies and interventions by incorporating these knowledge systems and their institutions into mainstream development processes.

Thus, the framework adopted for this study borrows heavily from these concepts and has the following building blocks for analysing pastoral systems: *actors; biophysical, cultural and structural context; patterns of interaction; outcomes; and, feedback processes*. This framework will be explained in more detail in section 2.8. However, although the theory, as developed thus far, is well oriented to social institutions and complex settings, it was found inadequate in one important aspect relevant to this research: its limited application to highly

unpredictable environments and its inability to deal with multiple possibilities and realities such as those in the communal lands of Beitbridge District. In addition, rule systems theory does not address forms of social activity which are “ad hoc, temporary or apparently random in character” (Burns and Flam, 1987:32). Yet activities of this nature, including the drought phenomenon, are a major pre-occupation of communities in the study area. It was for these reasons that elements of chaos theory became relevant to this research and were incorporated into the analytical framework, despite the fact that it has had very limited application in natural resources studies.

#### **2.6.4. Chaos theory and its relevance to this study**

Kiel (1996:186) observed that to the “uninitiated, chaos theory often lurks as a mathematical and scientific hinterland, of value only to a small cadre of theorists”. Yet, many disciplines, from neuroscience to public administration, are exploring chaos theory as a means “for understanding and building systems that utilize the potentialities of this new approach”. In the field of natural resource management, Uphoff’s (1992) work on small-scale irrigation development and management in Sri Lanka is probably the pioneer in the application of chaos theory to understanding the dynamics of social and human behaviour (institutional arrangements and decision making). The 1995 Conference at the California Research Bureau on what natural resource management could learn from chaos theory was probably the first organized meeting by natural resources managers focussing on the relevance of chaos theory to the discipline (Koehler, 1996). Kiel (1996:186) suggested that these seminal studies have led to a better understanding of both the nonlinearity of the world in which we live and the “functional aspects of instability as a means for adapting to new situations”.

Chaos theory is concerned with the irregular side of nature. It is concerned with the discontinuous, erratic and nonlinear properties that cannot be predicted with much precision by the interaction of constituent elements and processes (Gleick, 1987; Uphoff, 1992). Indeed, it is best portrayed as a science of process rather than one of stable states and conditions. Yet, within that process, chaos theory seeks to uncover forms of order under the seemingly chaotic disorder (Gleick, 1978; Uphoff, 1992). One of the important properties of nonlinear processes is that when disturbed, they are more likely to return to their original or approximate starting points than are linear ones which tend to destroy equilibrium rather than restore it. Thus, an understanding of chaotic dynamics can help clarify risk aversion strategies such as sharing, reciprocity and the practice of loaning livestock (*mafiswa*) among pastoralists in Beitbridge District as described in Chapters 4 and 5, and sometimes described as *the economy of affection* (defined as a network of support, communications and interactions among structurally defined groups connected by blood, kin, community or other affinities like religion) (Hyden, 1983:9).

The concept of nonlinearity is central to chaos theory because order building is primarily a product of nonlinear dynamics (Robertson, 1995). Robertson identified three variables of nonlinearity. The first attribute of nonlinearity is *simplicity*. Robertson defined a nonlinear system as one in which input is not proportional to output. In other words, an increase in  $x$  does not mean a proportional increase in  $y$ . He gives an example of a headache. If one has a headache and takes one aspirin, it will reduce the headache by a certain amount. If one takes two aspirins, they will reduce it somewhat more. But 64 aspirins will not reduce the headache 64 times as much as one tablet will. A headache is therefore a nonlinear system. "Nonlinearity is everything whose graph is not a straight line - and that is essentially

everything” (Robertson, 1995:19). This is because linear models are actually an idealization. There are no complete linear systems, just linear models. However, linear models are very useful in other respects, especially over short ranges.

Second, more is not necessarily better in nonlinear systems. In linear systems, if something works well, then more is better. If it has bad effects, then less is better. While this is extremely reasonable, one quickly learns that the world is much more complex than this. Robertson(1995) gives an engineering example in which nonlinear modeling has helped engineers to see why adding a new road sometimes increases traffic congestion. Similar contrary phenomena which seem to defy logic and reason have long been observed. Nonlinear modelling has simply made the understanding of such behaviour more concrete, rational and understandable. Thus, chaos theory helps to reveal rationality and logic where it is otherwise obscure.

Third, in chaos theory, it is impossible to attribute a whole to any one type of effect. In other words, the whole is greater than the sum of its parts in nonlinear systems, a diversion from the wisdom of conventional science (natural and social) that assumes the whole is simply the sum of its parts. Instead, the whole should be seen in relation to its parts, which are themselves wholes to be viewed in relation to their parts, and so on, practically indefinitely (Uphoff, 1992:395). The theme of this “nonlinear revolution” is that when one broadens science with insights of the nonlinear world, and thus from chaos theory, one gets a very different yet more realistic picture of how the universe operates (Goerner, 1995).

One of the key tenets in chaos theory is that physical systems do not necessarily have to be



*predictable, controllable and completely knowable* (Goerner, 1995:22). Thus, a changing dryland bio-physical system such as the Limpopo valley may be lawful and physical (in Newtonian terms) but not completely predictable, controllable or knowable. A second and probably more relevant tenet for dryland ecosystems is *that there is order hidden in complexity*. However, the system also produces disorder. Uphoff (1992) reminded us that this disorder is *not* without pattern and structure and we need to plan initiatives with the knowledge that disorder exists. Nonlinear interdependent dynamic systems have inherent capabilities of creating such things as patterns, coherence, stability and synergy (Robertson, 1995). In this way, "the miracle of order becomes part of the world and not some kind of accident" (Goerner, 1995:22). Change is not gradual, but punctuated, moving through periods of stability and qualitative change - "it is holistic, integrated and results from mutual effects".

Climatic unpredictability is a major variable in dryland regions. Responses to events such as drought and wetness may seem random. Changes to institutional arrangements governing access to grazing resources may take place with such speed and effect that might imply spontaneity and randomness on the part of those in charge of making these changes. The urgency of the changes sometimes necessitates short-cuts to procedure. Yet, year-in and year-out, these communities have to face the similar kinds of dilemma and uncertainties regarding the management of their resources (although the severity of events may differ).

Burns and Flam (1987) drew our attention to the limitations of rule systems theory regarding its application to apparently random systems such as pastoral range and livestock management systems. This summary on the relevance of chaos theory indicates some great

potential to fill in this gap. As indicated earlier, chaos theory is concerned with emergent properties that can be explained but not predicted (at least not with much precision) by the interaction of constituent elements and processes (Uphoff, 1992). An understanding of chaos theory, stated Uphoff, helps one to appreciate the principle of relativity by stressing the significance of scale. One cannot assume that wholes are necessarily simply the sums of their parts or that one part can be freely substituted for another, once again reinforcing the fact that *the whole is greater than the sum of its parts*. Social systems are not linear. Neither are they mechanical. Perhaps the strongest link in chaos theory is what Hayes (1990) called its distinction from deconstructionism in that it does not repudiate other theoretical interpretations, including those of classical science. Rather it builds on them. In the words of Gleick (1987:3),

Where chaos begins, classical science stops. For as long as the world has had physicists inquiring into the laws of nature, it has suffered a special ignorance about disorder in the atmosphere, in the turbulent sea, in the fluctuations of wildlife populations, in the oscillations of the heart and the brain. The irregular side of nature, the discontinuous and erratic side - these have been puzzles to science, or worse, monstrosities.

As illustrated earlier, chaos theory cuts across lines that separate professional disciplines, thus bringing together researchers from fields that had been widely separated, such as psychology, physics, geometry, biology, social sciences, neurology and geography. These disciplines have started to apply chaos theory to build on their own classical scientific theories (Gleick, 1987). However, as indicated above, its application to natural resources and environmental management is only beginning (Uphoff, 1992; Koehler, 1996). Therefore, its most important contribution to this research will be to build upon the actor-oriented rule systems framework used in this study in order to obtain a more appropriate world-view of the pastoral system in Beitbridge and its attributes.

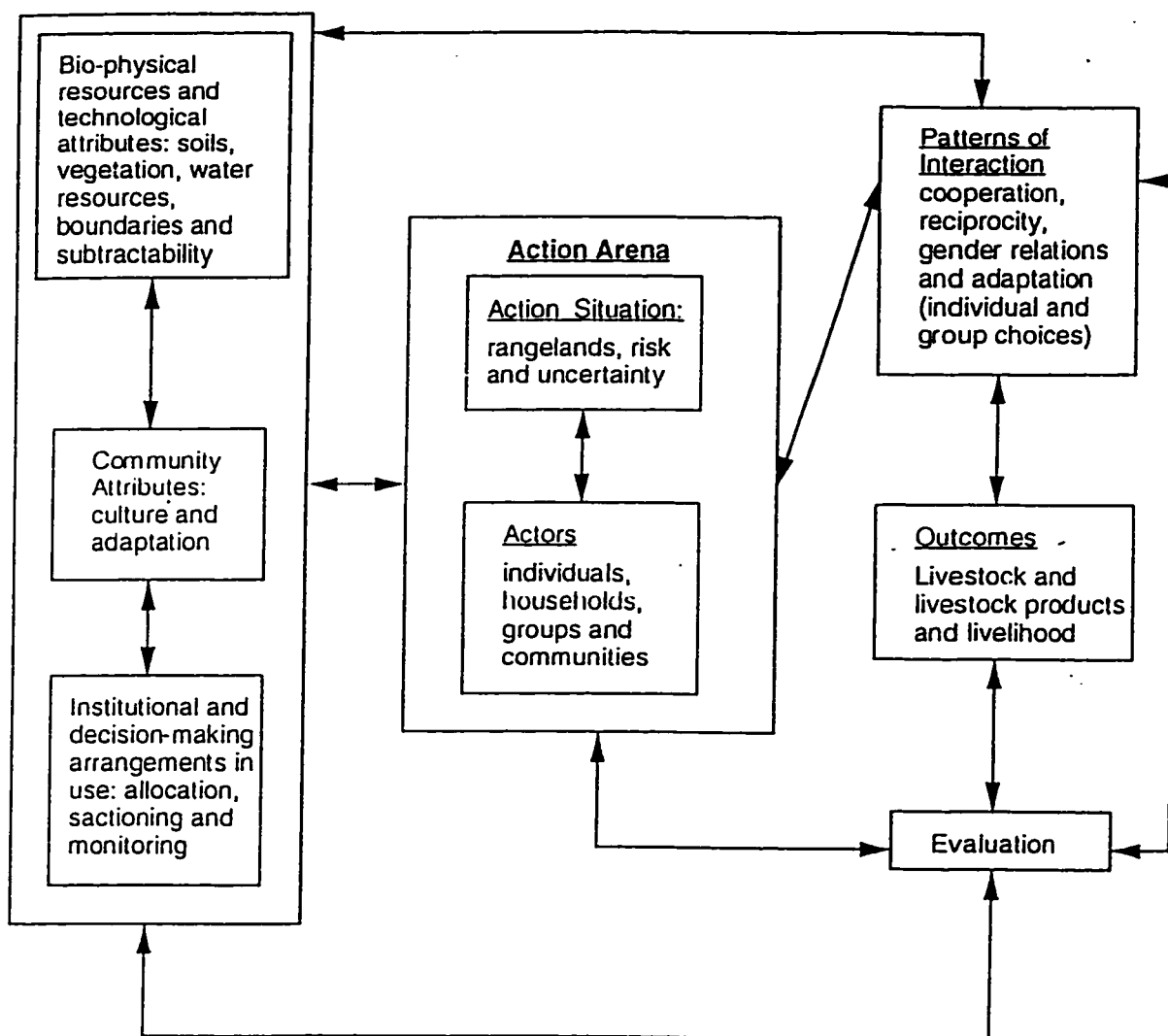
## **2.7. A DYNAMIC FRAMEWORK FOR ANALYSING PASTORAL MANAGEMENT SYSTEMS**

The major concern in this research is to understand the current and potential role of locally evolved knowledge in the management and development of pastoral systems in Southern Zimbabwe. As has been stated, pastoralism in the Communal and Resettlement Areas of Zimbabwe is practised mainly under common property regimes. It was also stated in section 2.2 that the key to analysing management strategies under common property regimes lies in understanding property and management institutions governing access to and utilization of these resources.

To address these concerns requires the posing of fundamental questions that lead to understanding and explanation of observed behaviour in the field. The five key questions presented in Chapter 1 in the form of objectives are primarily meant to serve that purpose. This thesis adopted a dynamic framework, drawn mainly from rule systems theory for analysing pastoral systems. The framework was derived from Burns and Flam (1987), Soderbaum (1991), Oakerson (1992) and Ostrom et. al. (1994) and incorporated elements of stability from Giddens' (1984) structuration theory, change and empowerment from Fay's (1987) critical social science as well as elements of unpredictability from Gleick's (1987) chaos theory. This framework is illustrated in Figure 2.1.

The framework was used to collect and analyse data on pastoral systems in Beitbridge in which individuals, households and communities find themselves in repetitive situations affected by a combination of factors derived from the nature of the bio-physical resource

**Figure 2.1 Analytical Framework for analyzing pastoral management**



*Adapted from Burns (1987), Oakerson, (1992), and Ostrom et al (1994)*

base in this dryland region, a combination of Venda and Sotho cultural attributes, and the informal and formal decision-making arrangements that govern the management of these resources (Figure 2.1). Key attributes that were shared broadly within the pastoral system were identified. This has allowed a systematic approach to the study of the highly variable pastoral phenomenon.

One of the first steps taken in this framework was to identify a conceptual unit that subsequently became the focus of analysis and explanation of behaviour and call it the *action arena*. Because most, if not all, common property situations are always changing, it was useful to start the analysis by looking at factors that affect the action arena rather than the arena itself (Ostrom et. al. 1994). An action arena consists of the following:

*An action situation* which involves

- participants who make decisions under diverse situations,
- their positions,
- their actions,
- potential outcomes, and,
- information available to participants, and,

*Actors* or participants in an action situation who have

- preferences,
- information-processing capabilities,
- decision-making criteria, and,
- access to resources.

In order to analyse behavioural responses among pastoralists, it is necessary to understand how decision-making arrangements and rules combine with the physical/technological and cultural worlds to generate particular types of interactions and their outcomes. Analysis of pastoral management systems must begin with these factors, and then proceed to identify some of the typical action situations that result from particular combinations of these factors.

Rules do not necessarily guarantee the emergence of a particular pattern of behaviour. Patterns of interaction, including gender relations, result from individual and group choices influenced by the uncertainty and stressful conditions imposed by an unpredictable and hostile environment. For instance, reciprocity and cooperation among participants are threatened by the opportunities offered by prospects of free-riding and individualistic tendencies. However, whatever the pattern of interaction, these interactions produce physical as well as emotional outputs, outcomes and impacts subject to human monitoring and evaluation. Econometric tools and modelling have been used by many prominent researchers to evaluate outputs, outcomes and impacts (Perring, 1990; Stevenson, 1991; Anderson and Simmons, 1993; Ostrom et.al, 1994). However, in this study, alternative and non-econometric tools for assessing outputs, outcomes and impacts of rules and rule systems adopted by the communities will be used to evaluate the effectiveness of these strategies in the management of pastoral resources in Beitbridge District. Details of this approach are explored in Chapter 6. Multilevel linkages of the framework were also created in order to link decision-making processes on the ground with regional- and national-level institutions responsible for the management of livestock and pastoral resources in the arid and semi-arid Communal Areas of Zimbabwe, as illustrated in Figure 2.2 and explored in Chapter 7.

Figure 2-2 Framework for linking levels of analysis from field to national level

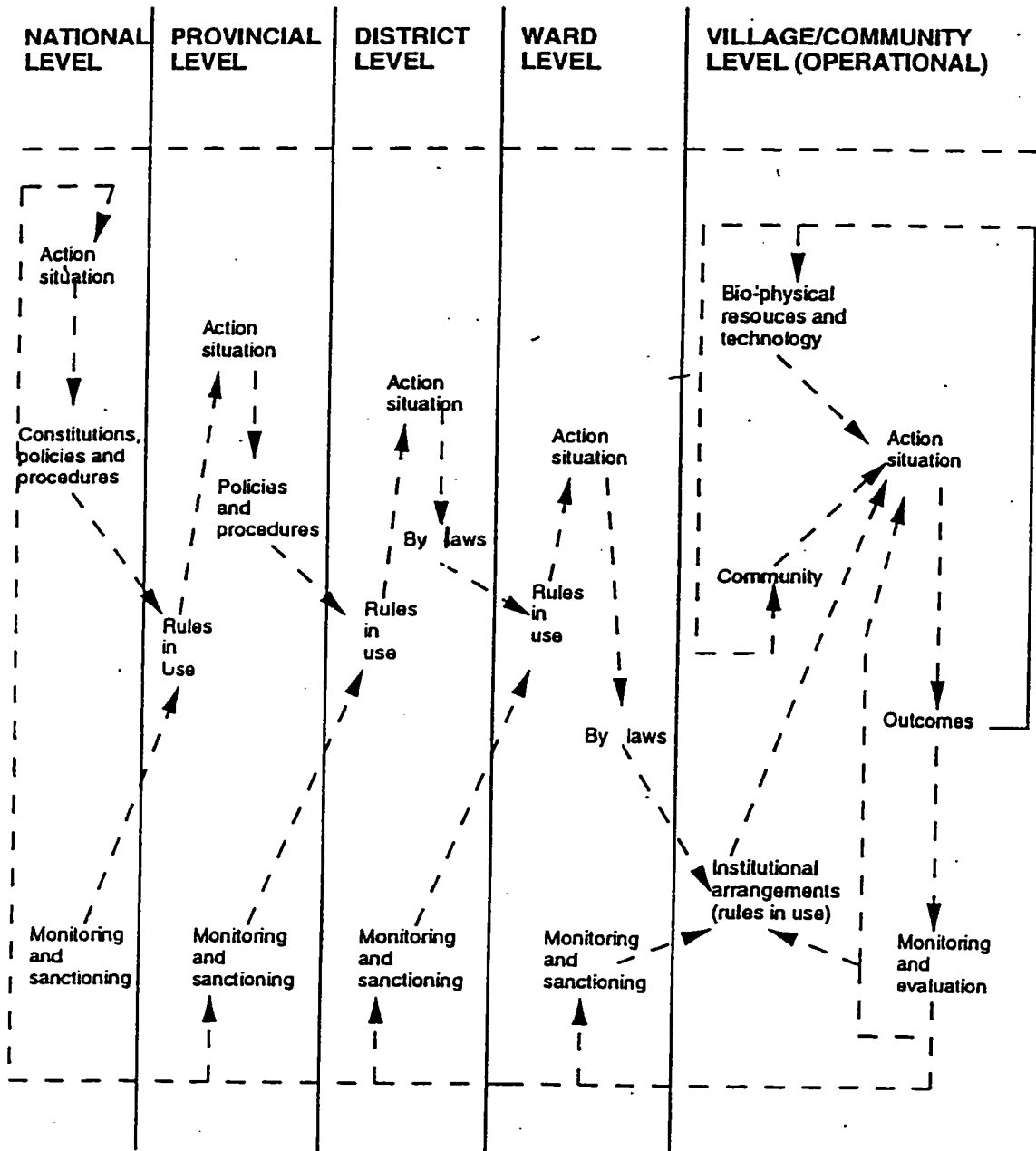


Figure 2-2 Framework for linking levels of analysis from field to national level

(Adapted from Ostrom et.al, 1994.)

The purpose of analysing pastoral systems in this way is to examine relationships among all these dynamic variables and to link the analysis and results at field level with higher levels of action arenas at ward, district, provincial and national levels. This link is necessary to enable the research to link village-based results to higher institutional levels and therefore improve chances of influencing policy at those levels. The framework was used to record, analyse and describe changes at successive points in time: during the dry season, at the beginning of the rainy season, in the middle of the rainy season and at the end of the rainy season. The aim is to understand and explain how a series of changes in the physical environment, technology, cultural norms, decision-making arrangements or the action arena affect patterns of interaction and outcomes. The inclusion of evaluative criteria based on ecological, social, and economic attributes enables analysts to understand how changes came about and their immediate and long-term impact on the communities and the environment in the affected areas, and broader implications for government policy. It is on the basis of this understanding that opportunities and constraints within the pastoral system can be explored and linkages with higher levels of local government and resources management are proposed.

## **2.8. SUMMARY**

This chapter reviewed major theoretical and conceptual frameworks relevant for resource and environmental management of pastoral systems in dryland ecosystems. The main purpose of this review was to assess the appropriateness of these theories and concepts for analysing pastoral systems encountered in this study. It was shown that the debate on common property resources is diverging and that pastoral systems in Africa have been



facing new challenges and threats from socio-political, structural, environmental and economic changes taking place within the nation state. A small but gradual shift in the pastoral research agenda over the last 10 years was identified, with more attention being paid to the role of women and children in pastoral systems. However, local institutions and their knowledge systems have not been adequately incorporated into mainstream development policy process and practice.

Although critical social science and structuration theories were found to be somewhat relevant to the analysis and understanding of pastoral systems, they fell short in addressing some of the major elements of the system. As a result, these two were set aside and will not constitute a major component in the analytical framework used in this research. However, the study will draw on those elements of the two theories particularly useful and relevant to the analysis of the pastoral system. It was found that actor-oriented rule systems theory did address most of the key questions in this study. In order to make up for its weaknesses in accounting for unpredictable change, elements of chaos theory were incorporated into the framework. The application of chaos theory to natural resources management is not well developed and is a recent phenomenon (Uphoff, 1992; Koehler, 1996). However, its potential as a building block upon rule systems theory and in explaining nonlinear behaviour is promising. After all this dissertation is, among other things, about building bridges between disciplines, between the centre and the periphery, between Western science and local knowledge systems and about narrowing the gap between those who possess the knowledge and those who want to learn more about indigenous systems. Chaos theory promises to provide that vital link to facilitate the learning process. Rule systems theory is also potentially useful in explaining how rules are created, maintained and changed within

the pastoral system. Thus rule systems theory provided an appropriate avenue for exploring the role of locally evolved knowledge systems and their institutions in resource and environmental management under dryland ecosystems such as the one encountered in this study.

## **CHAPTER 3**

### **RESEARCH STRATEGY AND METHODS**

#### **3.1. INTRODUCTION**

Studies that involve local communities and institutions, and their role in decision-making processes and resources management, raise numerous methodological issues that must be addressed regarding research strategy and design. This chapter addresses these issues and presents the strategy and design adopted in the study.

#### **3.2. RESEARCH STRATEGY**

One of the great lessons to come out of the African colonial legacy was that African environmental management practices reflected sets of conditions and constraints with which many Western scientists and politicians of the time were unfamiliar. Many of them, convinced of their own intellectual superiority, failed to understand both how particular and place-bound their principles of environmental and resource management were, and the extent to which many of the characteristic practices of African farmers and pastoralists were effective responses to the highly specific challenges posed by the African environment (Richards, 1985). Hall (1983) made similar observations based on studies in the Central American state of Belize.

Many of the attempts to develop Africa - to connect Africa to the global march of progress

by bringing scientific principles to bear on development programs - created as many or more problems than they solved. It was not until late in the 1970s that it became clear that Africa's challenges were best understood from a local perspective, mainly because of their strong cultural, structural and ecological base. Richards (1985) called this local focus "ecological particularism". Ecological and cultural particularism requires that research into issues, such as the ones under investigation in this study, uses primarily case study material. This approach enables the researcher to emphasize depth rather than breadth, and thus reduces the risk of working at high levels of abstraction and generalization usually inherent in studies with a broad focus. Thus, a village level case study was carried out in the area. The use of observation and a participatory approach (the researcher participated in many of the routine activities of carried out by residents of the area such as community meetings, livestock herding, watering livestock and scouting for better grazing) brought the researcher close to the communities involved in the study.

Given the complexity of the local environment in this study and the detailed nature of the data and information required on various aspects of the pastoral system, a single data collection method would not have been adequate to satisfy the research objectives outlined in Chapter 1. Neither was I going to be able on my own to obtain certain details pertaining to women and their perceptions. Thus, one female research assistant was engaged to work with women on questions and issues specifically relating to and affecting women. Two data enumerators were also engaged to assist with the socio-economic survey. Given the complexity of the issues under investigation, the most appropriate and effective approach was to employ a combination of methods which have been extensively described and employed elsewhere by Chambers (1984), Richards (1985), Johnson and Anderson (1988),

Mackintosh (1989), Rose (1992), Park (1993), Thomas-Slayter et.al (1993), and Korsopp-Reed and Hinchcliffe (1994).

The open-endedness of an investigation that is predominantly reliant on the creativity, sensitivity and ability of the researcher to discern patterns and synthesize relevant and sometimes complex information creates a number of challenges. These challenges may create opportunities for the intrusion of sub-conscious biases by the researcher. This necessitates the use of methodological triangulation in order to establish the reliability and validity of the research results. In this study, triangulation was achieved by augmenting participatory and participant observation and informal discussions with structured questionnaire interviews. These interviews were directed at adult individuals in the homestead (including grandparents, single women and men, and other dependent adults within the extended family). Semi-structured interviews with focus groups and key informants, and a literature review, were also used to complement this methodological triangulation.

### **3.3. RESEARCH DESIGN**

This research was carried out in six major, and sometimes overlapping, phases. These phases and the time line for each are indicated in Table 3.1.

#### **3.3.1. Literature Review**

A thorough literature search, which included a detailed review of methodological issues, was

undertaken in order to fully understand concepts and issues under investigation. The results of this literature review are included in Chapters 1 and 2.

**Table 3.1. Summary of research phases, time line and major activities.**

<b>RESEARCH PHASE AND PERIOD</b>	<b>MAJOR ACTIVITIES</b>
<i>1. Literature review:</i> January 1994 to March 1995	A thorough review of literature pertaining to common property resources, pastoralism, indigenous knowledge and local institutions with particular reference to drylands in Sub-Saharan Africa.
<i>2. Developing analytical framework:</i> January 1995 to March 1995	Developing a dynamic framework for analysing pastoral systems and developing appropriate research instruments, based on this framework, to address the research questions.
<i>3. Sourcing for research funding:</i> March 1995 to August 1995	Sending out applications to various agencies for financial assistance to carry out fieldwork.
<i>4. Reconnaissance field visit:</i> August 1995 to September 1995	Reconnaissance field visit to Beitbridge District; preliminary meetings with local leadership, government agencies and non-governmental agencies working in the district; selection of study area; and sample selection.
<i>5. Detailed data collection:</i> September 1995 to May 1996	Carrying out detailed field work (data collection) in Zimbabwe.
<i>6. Data analysis and write-up:</i> June 1996 to August 1997	Analysing data and writing thesis.

### 3.3.2. Development of a framework for analysing pastoral systems, designing appropriate research instruments and fieldwork

A dynamic framework for analysing pastoral systems was outlined in Chapter 2. This framework provided the basis for the development of appropriate research questions. During this process, emphasis was placed on designing instruments that would provide insights into, and understanding of, the pastoral system and how it operates.

As indicated in Chapter 2, the specific methodological approaches most widely associated with phenomenological perspectives are observation and participation. This study required data on biophysical as well as socio-economic, cultural and institutional aspects of the study area. In order to accomplish this task, one would require an enormous amount of resources (financial, human and time). This could not be achieved by one person within the limitations of time and other resources. In order to concentrate more on depth and less on breadth, it was decided to focus on the following activities as the major aspects of fieldwork during the period September 1995 to May 1996 (Table 3.1):

- ▶ Determining community perceptions of the extent of the **bio-physical resource base and boundaries** for each community, by using base-maps and aerial photography. Soils, vegetation, water resources, and topographical data were also collected using rapid rural appraisal methods. Climatic data for the area were provided by the Meteorological Office in Harare towards the conclusion of fieldwork in May, 1996. Rainfall data was obtained for three rainfall stations in the area, dating back to the period each one of the stations first became operational. These are Beitbridge Town,

Thuli Breeding Station (also known as Thuli Estate or Guyu) and Thuli Police Camp (Fort Thuli). These stations are indicated on Figure 1.1.

- ▶ Collection of socio-economic and cultural data at a household or homestead level in the study area to determine the **economic, social and cultural role of different categories of livestock** in the district, using village-based semi-structured household interviews. Major efforts were made to give men and women equal attention during the selection and interview process by hiring a female research assistant.
- ▶ Individual and group interviews were undertaken to assess the **nature and extent of indigenous knowledge** within the communities, using focus groups and key informants to solicit additional, and sometimes sensitive, data and information, especially from women. Key informants were also used to fill in the information gaps arising from the above interviews. Individual time lines (work schedules) for female and male participants were constructed and are presented in Chapter 5.
- ▶ Participatory and participant observation techniques were also used to document certain activities such as **community decision-making processes (meetings, rituals, ceremonies and prayers for rain), herding practices and patterns** carried out by community groups as well as individuals in the study area. The community accepted me, my assistant and the two enumerators into their private and public lives and we were allowed to participate in any of the above activities and observe events as they unfolded without any hindrance. The fact that I grew up in the area and spoke the local languages may have been helpful in gaining such acceptance. Grazing patterns



by different categories and types of livestock were also documented and analysed in order to fully understand local grazing resource strategies and how they relate to resource utilization by different types and categories of livestock in the community.

As indicated here and in Chapter 1, I did not encounter any major problems regarding access into the area, attending community meetings, observing events and participating in decision-making processes and other community activities in the area after the initial introductory meetings during which my identity was established, and my study accepted by the communities. However, as a male, my association with women, particularly younger women (married and single), could only go as far as the local custom and norms allowed. For instance, it was not considered appropriate for me to hold a lengthy conversation with a young woman in the absence of a third person. However, as presented in Chapter 8, brief conversations lasting less than twenty minutes were acceptable. For that reason the female research assistant did most of the interaction with the women.

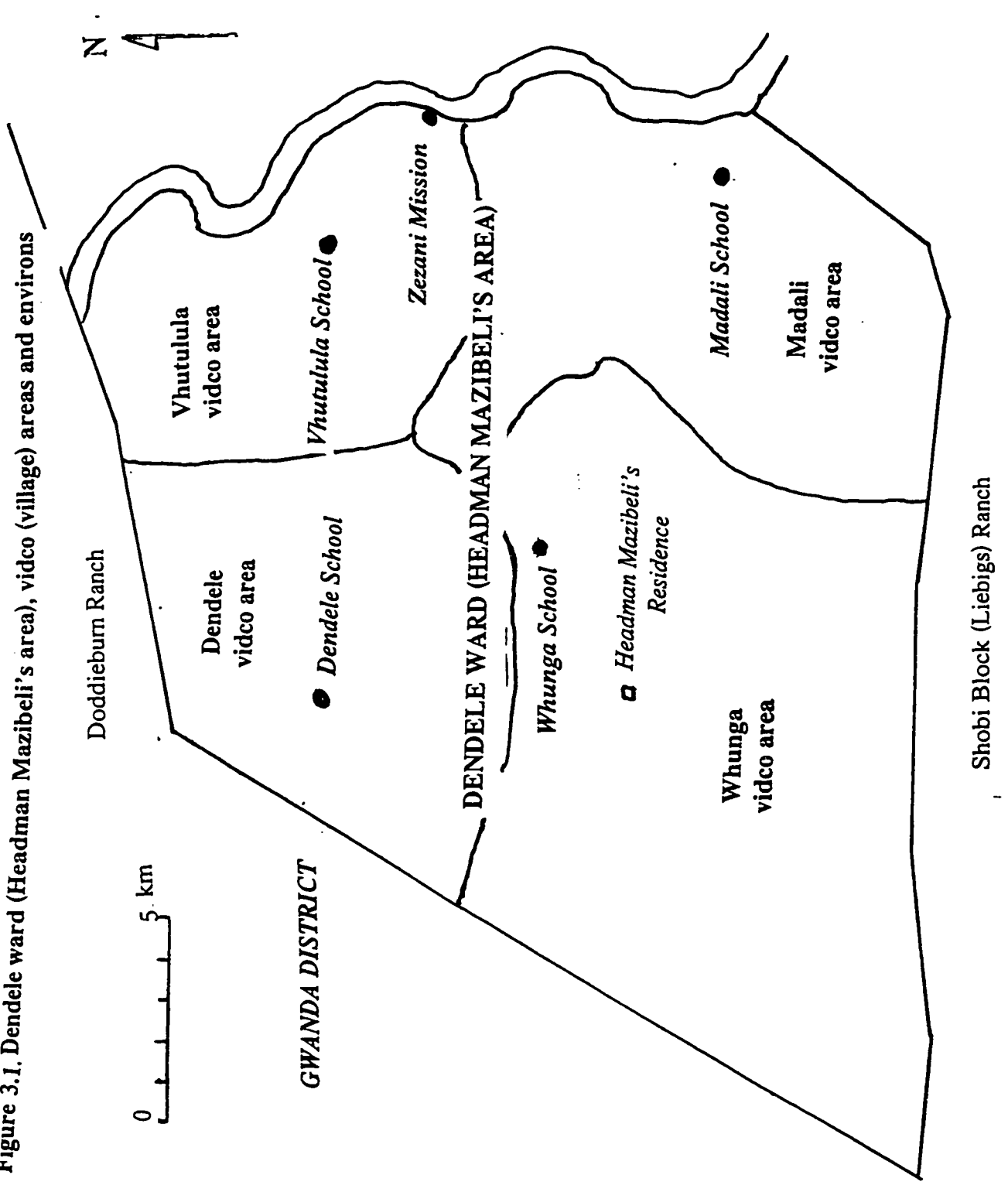
### **3.3.3. Selection of study area**

As already indicated, this research was carried out in the Communal Areas of Beitbridge District in Matebeleland South Province. The district has eight Communal Areas, reorganised into twelve Wards based on population size (Figure 1.2 and Table 3.3). There are usually four to six villages or village development committee (vidco) areas per ward. A broad reconnaissance survey and interview of approximately five key informants per ward was carried out in each of the six wards, Siyoka 1 and 2, Dendele, Machuchuta, Maramani and Masera to gain general insights into the livestock production system in the area. These

key informants included ordinary women and men in the areas as well as village heads who were presumed by the researcher to possess details knowledge about activities and events in the area and were willing to share their views with the researcher. The six wards were selected using criteria outlined in Table 3.2 and mainly because livestock is predominant in these six wards. Of those omitted, Chipise and Dite 1 and 2 wards in the eastern part of the district are prone to tsetse-fly infestations that spread into western Mozambique and northern parts of Kruger National Park in South Africa. Mtetengwe 1, 2 and 3 wards were all left out because of their proximity to Beitbridge town and its influence on the landuse patterns and also because Mtetengwe Communal Area is a transitory (buffer) zone for the tsetse-fly. In addition, all the wards that were left out fall in the red zone under the Veterinary Department's for foot and mouth disease control program. The zones are explained in Chapter 5. However, these wards have more wildlife resources (plains game and elephant) than the selected areas. These wards are illustrated in Figure 1.2.

The second level of inquiry was a more detailed, thorough and focussed data collection exercise in one of the six wards. Dendele ward, which also coincides with Dendele Communal Area, was selected using criteria outlined in Table 3.2. The ward also represented all of the area under Headman Mazibeli. Within Dendele ward, it was necessary to focus on one village, for the detailed interview primarily because the whole ward was too large to be adequately covered by the researcher with a detailed interview process. This exercise was carried out in Whunga village after thorough consultations with district and local leadership and a reconnaissance visit throughout the ward with the local councillor, acting headman and a district council representative at the start of my field work (Figure 3.1). This village had approximately 60% of the total population of the ward and covered more than 50% of

Figure 3.1. Dendele ward (Headman Mazibeli's area), vidco (village) areas and environs



the total area of the ward. Other selection criteria used in this study and based on Burgess (1984:64) and Nsiah-Gyabaah (1994:16) are outlined in Table 3.2. Whunga Village in Dendele Ward met all the criteria and was selected also because of the enthusiasm which the community showed towards the study.

**Table 3.2. Criteria used in selecting study area**

<b><i>CRITERION</i></b>	<b><i>DESCRIPTION OF CRITERION</i></b>
<b><i>1. Simplicity</i></b>	A study area that allowed the researcher to move from simple situations to more complex ones
<b><i>2. Accessibility</i></b>	The degree of access and entry allowed to the researcher by the community and local authorities
<b><i>3. Unobtrusiveness</i></b>	Situations that allow the researcher to take an unobtrusive role within the community during data collection
<b><i>4. Permissibility</i></b>	Situations that allow the researcher free, unlimited and unrestricted access and entry into the study area and patterns of events and behaviour as well as crises that may occur in the area
<b><i>5. Participation</i></b>	Acceptability among the community for the researcher to participate in a series of on-going activities including meetings, ceremonies and day-to-day events
<b><i>6. Attitude</i></b>	Communities participating in the research must also show a favourable attitude and interest in the research objectives as revealed in the reconnaissance survey
<b><i>7. Experience of phenomenon under study</i></b>	The village and the communities within the village were to have been affected by some of the processes described in this proposal such as drought, adaptation and external intervention in livestock and range management
<b><i>8. Potential for livestock and range development</i></b>	The village must have possessed a high potential for livestock and range development based on ecological and socio-economic conditions

A significant amount of data in this study was based on recollection by participants as well

as from secondary data sources and most of the activities of the study took place under social settings in which the researcher participated, observed and recorded events as they occurred. However, despite all these precautions, extra care was taken in the field to avoid what Shaffir and Stebbin (1991, p. 12) called "problems of validity" and "reliability" inherent in this type of qualitative, inductive research. Validity in the field concerns the difficulty of gaining accurate or true impressions of the issues or phenomena under investigation. Reliability, on the other hand, concerns the replicability of observations; it rests on the question of whether another researcher with similar methodological training, understanding of field situations, and rapport with participants can make similar observations. Specific shortcomings of this research and problems encountered in this study will be discussed in Chapter 8.

#### **3.3.4. Sample size and respondents**

According to the Central Statistics Office's census report of 1992 (C.S.O., 1992), Dendele Ward consisted of 964 households and had a population of 5278 people, with an annual growth rate of 2.5%. Thus the 1996 population of the ward might have been 5682 people. However, population figures within the district and in this ward fluctuate considerably due, mainly, to seasonal labour migration to South Africa. The ward consists of four large vidco areas, namely Whunga, Madali, Vhutulula and Dendele. Whunga vidco area has 19 village units with a total of approximately 350 households. These figures were obtained from the local acting headman and were considered the most accurate because they are updated monthly and used for drought relief programs and tax collection. The questionnaire was administered to 300 respondents within this village between September and December 1995.

Out of the 300 responses, 60 were not used in the analysis due to a variety of inconsistencies with responses, leaving 240.

**Table 3.3. Population Distribution in the Communal Areas of Beitbridge District.**

<b>COMMUNAL AREA NAME</b>	<b>WARD NAME</b>	<b>TOTAL POPULATION</b>	<b>HOUSEHOLD NUMBER</b>
Chipise	Chipise	4331	775
Dite	Dite 1	4979	899
	Dite 2	6350	1134
Mtetengwe	Mtetengwe 1	4102	734
	Mtetengwe 2	9311	2658
	Mtetengwe 3	7412	1340
Maramani	Maramani	3787	721
Masera	Masera	2206	387
Machuchuta	Machuchuta	3558	713
Dendele	Dendele	5278	964
Siyoka	Siyoka 1	6290	1174
	Siyoka 2	6359	1159
<b>TOTAL FOR COMMUNAL AREAS</b>		63963	11658
<b>TOTAL FOR THE DISTRICT</b>		80946	16261

*Source: C.S.O. (1992: p. 87).*

The results of the analysis of responses from these 240 respondents are presented in this thesis. The questionnaire interview was followed by detailed follow-up interviews with those members of the communities who showed detailed knowledge of the issues under investigation as well as special target groups such as women, single women, foster children and their parents, traditional and community leaders, spiritual leaders and other key informants. The average family size per household is 5.5 in the Communal Areas and 5.0 for

the whole district (C.S.O., 1992). A detailed description of data collection methods is presented in Appendix A.

### **3.3.5. Data analysis**

Data analysis was predominantly qualitative. Quantitative methods (descriptive statistics) were used to complement results from the qualitative analysis. The results of the analysis are presented in the four subsequent chapters. The major purpose of this analysis is to understand and explain how a series of changes in the physical environment, technology, cultural norms, decision-making arrangements or the action arena affect patterns of interaction and outcomes, including their impact on the communities and the biophysical environment as well as implications for policy and practice. Quantitative data analysis was performed using SYSTAT, a standard statistical analysis software package. The results of this analysis are used in the discussion in the analytical chapters and are also presented in Appendix Band C. The limitations of this research are discussed in section 8.4.

## **CHAPTER 4**

### **PEOPLE, LAND, AND LIVESTOCK IN BEITBRIDGE DISTRICT**

#### **4.1. INTRODUCTION**

It was observed in Chapter 2 that decision-making processes in pastoral communities are affected by a combination of factors. Key among these factors are the cultural and biophysical attributes that regulate the management of pastoral resources. In order to understand how decision-making processes and rules interact with biophysical and community attributes to generate certain types of action and outcomes, it is necessary to identify and discuss these factors before analyzing some of the typical patterns of interactions, responses and outcomes from the pastoral system. This chapter outlines these community and biophysical attributes of the pastoral system. The emphasis is on the biophysical resources of the district and the social and political organization of the people who live there. An important part of this discussion is the role of local institutions in range management and the role of gender in the pastoral system. Cattle, donkeys, goats and sheep have multiple and sometimes overlapping inputs within the system. Their role within the pastoral system will also be presented.

#### **4.2. THE BIOPHYSICAL RESOURCES OF BEITBRIDGE DISTRICT.**

##### **4.2.1. Climate**

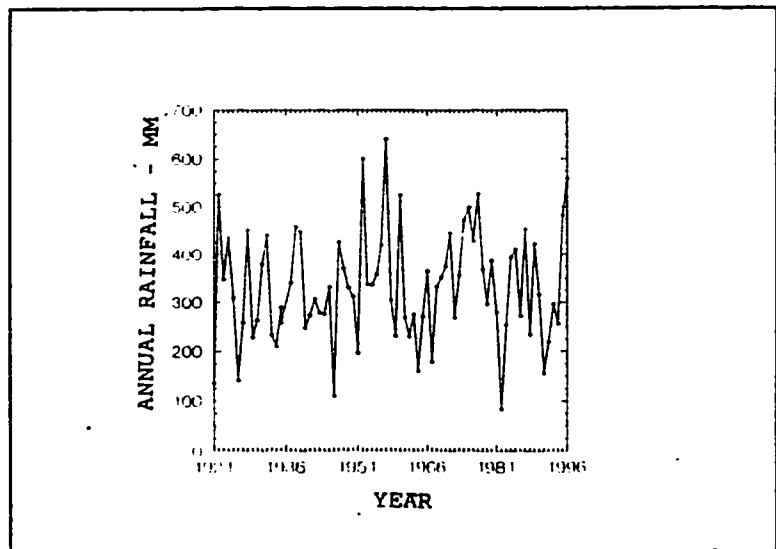
There are two meteorological stations in the district (one at Thuli Police camp, also known as Fort



Thuli, and another one in Beitbridge Town) which have operated since 1898 and 1922, respectively. A third station, Thuli Estate, is located just outside the district to the north, but close enough to be used as one of the referral points in the district. Climatic data from the Beitbridge Town and Thuli Estate stations are presented in Tables 4.1 and 4.2, and rainfall data from the three stations are presented in Figures 4.1, 4.2 and 4.3. Recording of climatic data such as temperature, wind speed, humidity and daily sunshine at Thuli Police Station was discontinued after the Second World War. Only rainfall recordings were resumed in 1956 and figures are presented in Figure 4.3. The location of these stations is indicated on Figure 1.1. These few recording stations make it rather difficult to show detailed and accurate spatial variability of rainfall in this relatively large

district. Since these are the only historical data available from the three stations that were obtained from the Meteorological Head Office in Harare, they will be used here as a basis for discussing rainfall variability in the district. Data from Doddieburn Ranch was not used because it was incomplete (recording was discontinued in 1975).

**Figure 4.1. Average annual rainfall (1921-1996) for Beitbridge Town. The 75-year mean for the station is 325 mm.**

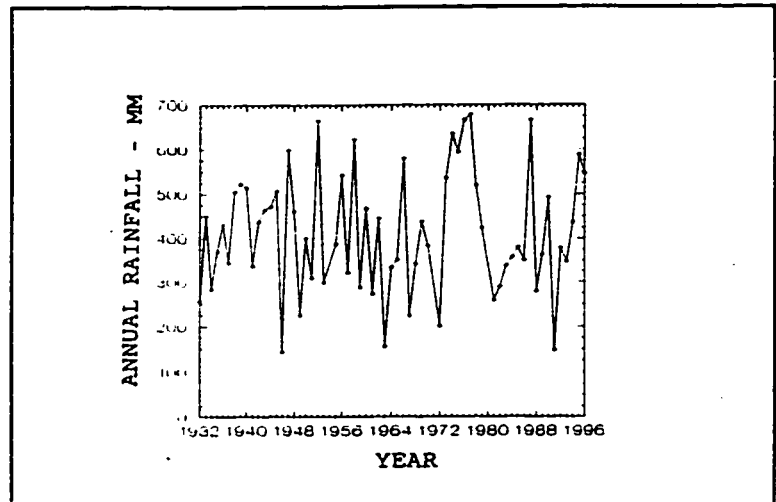


The climate in Beitbridge District is characterized by short and variable rainy seasons and long,

dry winter periods. Rainfall generally decreases from north to south. Coupled with this decrease in rainfall from 413 mm at Thuli Breeding Station (Thuli Estate) in the north to approximately 300 mm in Beitbridge Town in the south, there is an increase in mean annual temperature from 28.7°C at Thuli Estate to 30.1°C in Beitbridge Town. Tables 4.1 and 4.2 illustrate these climatic variations in the district.

An outstanding and thorough study of rainfall patterns in dryland regions of Zimbabwe was carried out by Hussein (1987). From her study, Hussein concluded that rainfall averages were not useful parameters for describing dryland ecosystems such as obtain in Beitbridge District. She used rainfall data from 11 recording stations from

**Figure 4.2. Average annual rainfall (1932-1996) for Thuli Breeding Station. The 64-year mean annual rainfall for the station is 413 mm.**

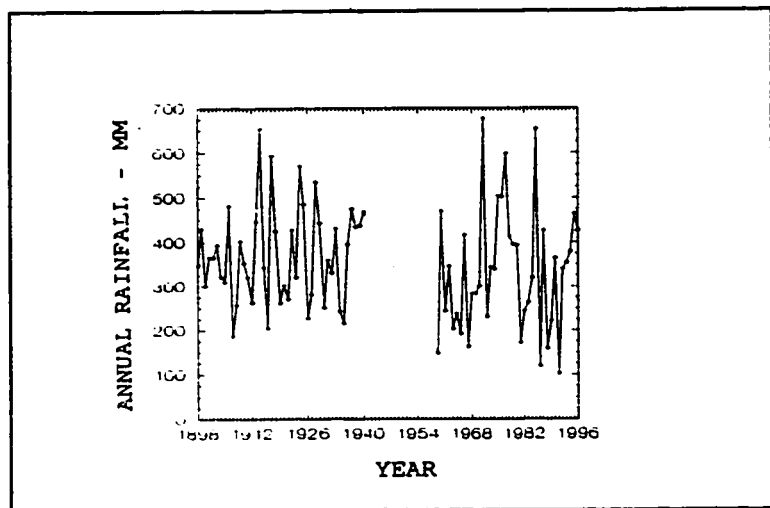


areas with rainfall averages of less than 525 mm, which included the two stations in Beitbridge District, to demonstrate that there was so much variability within the season to the extent that even 30 year averages were sometimes misleading (Hussein, 1987). Hussein remarked that in 30 years of data, between 1954 and 1984, “only two normal crop growing seasons were recorded for Beitbridge” (Hussein, 1987:57). These were in 1957 and 1969. It is important to note that Hussein’s (1987) definition of “normal season” is what is normal for crop production. She defined normal season as a “humid period with an excess of precipitation over potential

evapotranspiration (PET)” (Hussein, 1987:40). The United Nations Food and Agricultural Organization (FAO) defined a growing period as the period (in days) during a year when precipitation exceeded half the PET, plus a period required to evapotranspire an assumed 100 mm of water from excess precipitation

stored in the soil (FAO, 1987). It is evident from Tables 4.1 and 4.2, and Figures 4.4 and 4.5, that neither of the two stations experienced what Hussein called “normal growing seasons”. In both cases, the average monthly rainfall is less than the PET for the same period, suggesting that this area did not experience a

**Figure 4.3. Average annual rainfall (1898-1996) for Thuli Police Station (Fort Thuli). The 98-years mean for the station is 353 mm. Note missing records between 1945 and 1956.**



single normal growing season as defined by Hussein. However, Thuli Estate had three months (December, January and February) when average rainfall was more than half the PET. This is expected given the relatively high temperatures throughout the year and hours of daily sunshine. However, these averages do not reveal the fact that there are some significantly wet years in this region as well, such as 1957 and 1969 as reported by Hussein and illustrated on Figures 4.1, 4.2 and 4.3. These wet episodes occur with enough frequency to allow a relatively “normal” cropping season at least once every five years.

Average wind speed, at 1.6 meters per second, is lower than the average of more than 2.0 meters per second for other areas in Zimbabwe which are at higher altitudes. This is probably due to the

effect of the Limpopo River valley which is protected from the southwesterly winds by the Zoutpansberg mountain ranges in northern Transvaal. However, what appear to be abnormal years for cropping are not necessarily so for livestock production, and indeed for sustaining livelihood, in the district. For local people, a normal year is one that sustains livestock production on the range. If crop production is possible during that season, that is welcome and viewed as a bonus, but crop failure is not the most determining factor by which local people judge a season to be normal or not in this region.

**Table 4.1. Summary of climatic data from the Beitbridge Town meteorological station (1921-1996)**

Month	Mean monthly rainfall (mm)	Temperature (°C)			Relative humidity (% 24-hr mean)	Mean daily wind speed (m/sec)	Mean daily sunshine (hrs)	PET (mm)	0.5 PET (mm)
		24-hr mean	mean daily max.	mean daily min.					
July	1	16.7	25.4	7.9	52	1.1	8.6	70	35
August	1	19.3	27.6	10.6	48	1.4	9	103	52
September	8	22.7	30.2	15	46	1.8	8.9	137	69
October	21	22.4	32	18.7	48	2.1	8.3	169	85
November	39	25.4	32.2	20.3	54	2	7.8	165	83
December	66	26.7	32.8	21.1	57	1.9	7.8	169	85
January	71	27.1	33.2	21.7	60	1.9	8.5	170	85
February	52	26.6	32.7	21.4	61	1.7	8.2	139	70
March	37	25.6	31.1	20	59	1.7	8.1	139	70
April	24	23.2	30.1	17	59	1.4	8	105	53
May	5	19.7	28	11.9	57	1.1	8.8	79	40
June	4	16.5	25.2	8.4	56	1	8.3	60	30
Year	329*	23	30.1	16.2	55	1.6	8.4	125	63

*Altitude - 457 m; Latitude - 22 13' S; Longitude - 30 00' E. \*Sum of mean monthly rainfall*  
 Source: Met Office, Harare; Hussein, (1987)

**Table 4.2. Summary of climatic data from Thuli Estate (Guyu) meteorological station (1932-1996)**

Month	Mean monthly rainfall (mm)	Daily 24-hr Temp ( °C)			Relative humidity (%)	Mean daily wind speed (m/sec)	Mean daily sunshine (hrs)	PET (mm)	0.5 PET (mm)
		mean	max	min					
July	1	14.5	24	4.8	53	1.2	8.7	83	42
August	1	17.2	26.4	7.4	48	1.4	9.1	93	47
September	6	20.9	29.5	11.7	45	1.9	9.5	135	68
October	23	23.8	31.4	15.9	48	2.3	8.1	172	86
November	51	24.3	31.4	17.8	55	2	7.2	154	77
December	79	24.4	30.8	18.5	62	1.7	6.7	149	75
January	89	24.7	31.4	18.8	64	1.7	7.8	156	78
February	83	23.9	30.4	18.3	68	1.5	7.6	128	64
March	54	23	30	16.7	64	1.6	7.5	124	62
April	23	20.8	28.5	13.7	63	1.3	7.6	96	48
May	4	17.3	26.5	8.6	59	1.1	8.1	73	37
June	5	14.3	23.7	5.4	58	1	7.9	53	27
Year	419*	20.8	28.7	13.1	57	1.6	8	118	59

*Altitude - 765 m; Latitude - 21 23' S; Longitude - 28 59' E.\*Sum of mean monthly rainfall*  
Source: Met Office, Harare; Hussein, (1987)

The average rainfall for the period 1922 to 1996 in Beitbridge Town was 329 mm per year, with a standard deviation of 113. However, Figures 4.1, 4.2 and 4.3 indicate a periodicity in rainfall in the district. The cycle between wet and dry years appears to range from 10 to 20 years. Indeed, with the current heavy rains in Southern Africa this season (1996/97), it would appear that the region is experiencing one of the rare cycles that usually follow sustained dry spells. Beitbridge District is also experiencing a sustained wet spell for the second year in a row. However, two

Figure 4.4. Average monthly rainfall and PET for Beitbridge Town (1921-1996)

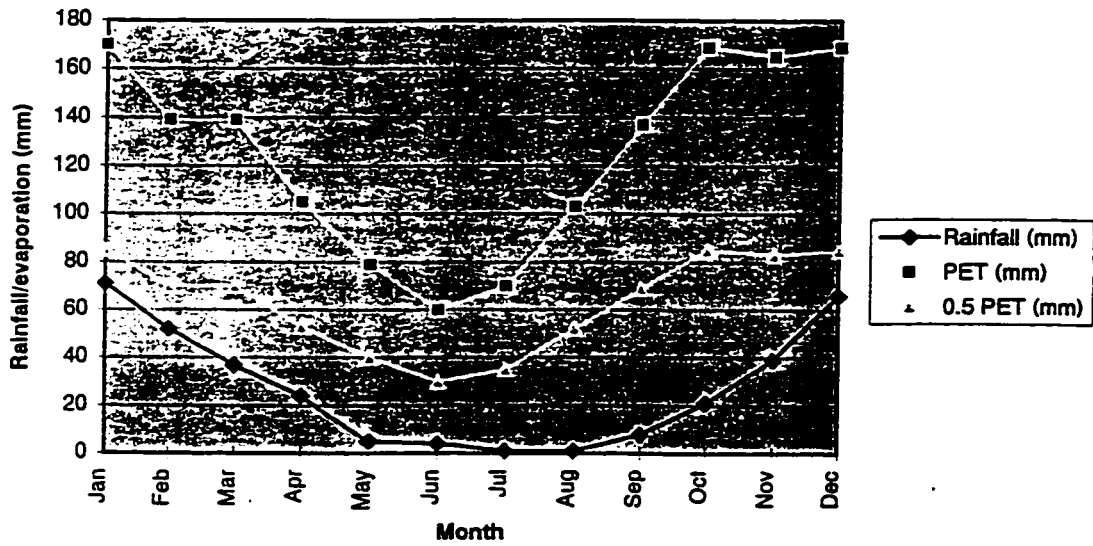
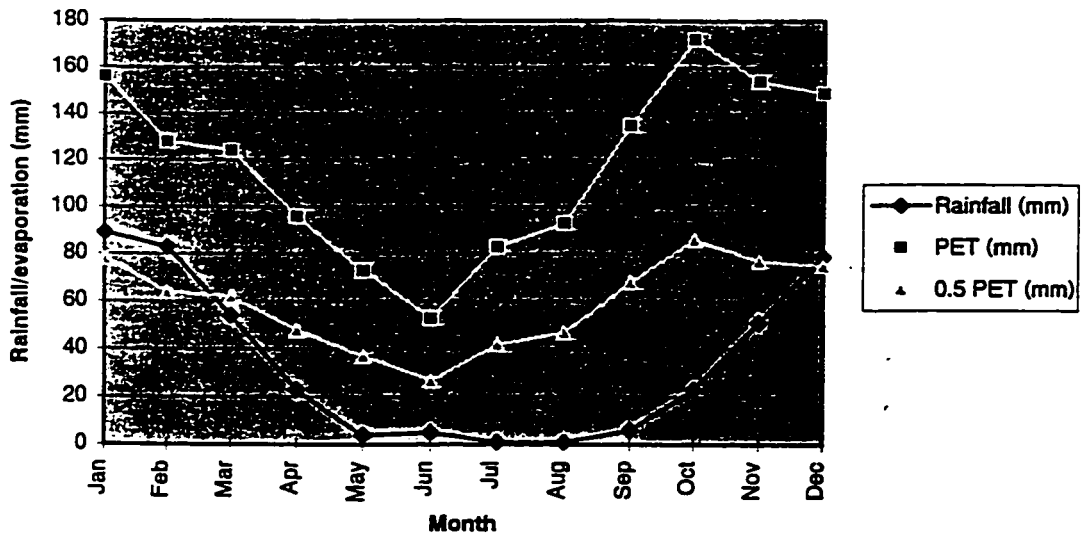


Figure 4.5. Average monthly rainfall and PET for Thuli Estate (1932-1996)



years may not be long enough to confirm the return of a wet spell. Nauta et al (1995) made similar observations regarding the dry spell from 1984 to 1994 in the district. This dry period now seems to have ended. However, given such high temperatures and low rainfall, water availability is crucial to the pastoral system in the district. Soils, such as sands, with low water holding capacity and high porosity, and which occur in many parts of the district, tend to exacerbate the situation by losing the little water it receives rather too quickly for vegetation growth.

#### **4.2.2. Geology and Soils**

Climate, and particularly the amount of rainfall, is an important determinant in the soil formation process and the resultant soil types in many areas of tropical and sub-tropical Africa. However, due to the relatively uniform and dry climate of Beitbridge District, the influence of rainfall on the soil type is minimal. Parent material has a much greater influence on soil type within the district. Thus, soil types found in this district are closely related to the geology of the area. Rainfall generally decreases from north to south. In this respect, the change in the prevalent clay minerals from the relatively more weathered and leached kaolinite in the north to the more active and base-rich montmorillonite in the south is apparent. Fairly deep and reddish soils in the north result from the intensity of weathering under the more moist conditions in that part of the district. However, under the more arid conditions in the south, most of the soils are shallow and gravelly on similar parent materials. Thus, the pattern of geological formations and the prevailing dry climatic conditions (rainfall deficiency) permit a relatively simple zoning of the major soil types as they occur on their parent materials. These soils are described in detail by Vincent and Thompson (1978) and Nyamapfene (1989). This zoning is relevant as it also determines the vegetation type found on each soil type and hence the form of range management regime adopted

by the communities for that range type. Summaries of these descriptions and linkages with local resource management strategies are outlined in the next five subsections.

The extreme northwestern part of Beitbridge District is mostly composed of granites of the basement complex of Zimbabwe. Cambitzis (1972) suggested that the overlying younger sediments had been removed by erosion. Towards the south, this granite changes to gneiss of various ages. However, the dividing line between the granites proper and the gneiss within this contact zone is not always clearly defined, with one merging gradually into the other. To the south of this gneissic complex lies a broad belt of basalt which covers more than 50% of the district in a northeasterly direction. Although relatively flat, soils derived from this rock are relatively shallow and skeletal but very rich in weatherable minerals, resulting in very fertile vertisolic soils. These fertile soils support a very nutritious mix of palatable grasses, shrubs and trees. Further to the south and also along the Limpopo River, a narrow strip of sandstone fringes the basalt zone also in a north-easterly direction to a point on the main Beitbridge-Bulawayo road, 30 km north of Beitbridge Town. In the extreme south and closer to Beitbridge Town, the gneiss which was overlain by the extruded basaltic rocks reappears and continues into the southeastern part of the district.

Knowledge about types of soils and hence the type of grass or vegetation that is predominant on that particular soil type is important in pastoral practices as a key factor influencing the decision to move livestock from area to another. When one area is deficient in one or more soil types, local arrangements are forged with the communities that are endowed with those resources and permission for these *outsiders* to utilize those resources would be granted, provided certain conditions are met. These include the size of the herd, an undertaking to move the animals at



agreed dates, and water availability. It is for this reason that soil characteristics play a significant role in the analytical framework introduced in Chapter 2.

#### 4.2.2.1. Soils derived from granite

These are very sandy and coarse grained, providing free internal drainage which, even under relatively low rainfall, causes rapid removal of weathered base material. Soils formed under these conditions are therefore inherently less fertile and shallower than those derived from more basic rocks. They are also characterized by low water-holding capacity, and natural grasses tend to suffer drought-related stress much earlier than those on other soil types, even during short dry spells within the rainy season. Locally, these soils are referred to as *muthabeni*, which translates to sand. Because of their susceptibility to minor moisture variations, these areas are targeted by local communities for early grazing, when the grass is green and nutritious. This is usually between November and March. Grass begins to turn yellowish and dry by mid-March. This is referred to as the *first tier* of grazing later in this thesis. Because of the inherent low fertility of these soils, grasses that grow on them are relatively less nutritious and hence are best utilized when they are still fresh (green). As they mature, these grasses also tend to lodge to the ground, making it more difficult for livestock to graze on them.

#### 4.2.2.2. Soils derived from gneiss

Two types of soils are derived from these rocks depending on the mineral composition of the parent material. Gneisses rich in weatherable bases give rise to medium-textured fertile soils that are reddish brown in colour referred to locally as *liloko* or *siloko*. On the other hand, acid

gneisses, which consist mainly of quartzite, tend to produce shallow and sandy soils with low water holding capacity and fertility locally known as *liguru*, meaning gravelly. Soils derived from gneiss are predominant in the southeastern and northwestern parts of the district where they are relatively deep, well drained and reddish in color. However, they become shallower and sandier as they approach contact zones with granite-derived sandy soils. Gneissic soils are deeper and more fertile than granitic soils, and they are more prevalent throughout the district. They are less susceptible to mid-season drought or dry spells because of the better water-holding capacity, and grasses on this type of soil are usually more nutritious and palatable than those growing on granitic sands. Thus, grazing lands on these soils are utilized as the *second tier* of range and are normally grazed from March or early April until June or July, depending on the amount of rainfall and quantity of herbage available that year.

#### **4.2.2.3. Soils derived from basalt**

These soils occur in the drier and higher temperature zones of the district and are called *lechobolo* in the local vernacular. They are generally shallow, consist of decomposing rock materials, and give rise to a gravelly appearance. However they are extremely rich in bases and hence are inherently very fertile. These vertisolic, self-churning clay soils are characterized by a distinct black color. The topography is generally flat with gently undulating low ridges and dykes. Where the parent material meets the gneiss rocks, the resulting soils are usually an intense red. In some areas, these soils overlay a calcareous rubble, producing a dark greyish color. Because of the high clay content, however, these soils are very difficult to work when wet and livestock can easily get stuck in the mud. For this reason, these soils are avoided during the rainy season and are only utilized from June to November as a *third tier* of grazing resource. Because these soils support

the most nutritious and palatable grasses, these grasses and shrubs sustain livestock during the dry season despite the fact that the grasses are dry by then. Because of the higher water-holding capacity of the soils compared to granitic sands, vegetation on the soils tends to remain green until mid-winter in June or July.

#### **4.2.2.4. Soils derived from triassic sandstones**

Due to the predominance of quartz in the parent material of these soils, they are generally of poor fertility. Water-holding capacity is generally low throughout the soil profile, rendering them very susceptible to minor moisture stresses. Only a small portion of the district in the south central part is covered by these soils. They are called *likwhareni* in the vernacular. Vegetative growth is poor and grazing quality is very poor. Nevertheless, they make good grazing for goats and sheep because of the predominance of nutritious acacia shrubs. Where these soils occur along a river system, they are usually overlaid by fertile alluvium.

#### **4.2.2.5. Soils derived from alluvium**

Alluvium deposits occur along all major rivers (Bubi, Limpopo, Mzingwane, Shashe and Thuli) in Beitbridge District. A small proportion of these alluvial deposits has been developed for irrigated agriculture. These soils are deep (over one meter), often calcareous, with high pH (7.5-8) and in a few cases, sodic (*likwala*). They are generally referred to as *likhubu* in the local language. Because the vast majority of these alluvial zones are not used for irrigated agriculture, they provide much needed dry season relief grazing for those communities residing within the neighbouring sandstone belt. These alluvial zones, referred to locally as *mihubini*, also provide

rich grazing for communities which do not have access to the *third tier* of grazing in the basalt zone described above and are grazed for much longer periods than other zones or *tiers*, usually from March to November, when it starts raining once again.

#### 4.2.3. Vegetation

The vegetation of Beitbridge District is described and mapped in Pelgrave's (1960) *Trees of Southern Africa* and Lightfoot's (1975) *Common Veld Grasses of Rhodesia*. From these detailed descriptions, three broad species associations, which in turn form vegetation types, can be deduced. The association of trees and grasses follows the soil distribution described in section 4.2.1. above. Four major vegetation types can be distinguished and their pattern can be linked to climate and soil groups. The following descriptions are based on field observations, Pelgrave's and Lightfoot's publications. Vernacular names are shown in brackets.

##### 4.2.3.1. The *Terminalia sericea* deciduous tree savanna (*likhuthu*)

This vegetation type covers the granitic sand areas in the extreme northwestern part of the district and areas of high altitude elsewhere in the district. Tall (up to 6 metres) *Terminalia* tree species dominate this area with *Burkea africana* usually present in fairly large quantities. Varying degrees of mixtures of other species also occur (Box

#### Box 4.1. Other tree species found in *Terminalia sericea* zone

Mixtures of the following tree species are also found in this zone and they provide valuable browse to livestock and game: *Ozora reticulata*, *Peltophorum* spp, *Ficus* spp, *Piliostigma thonningii*, *Bolasanthus* spp, *Combretum* spp and *Colophospermum mopane*. The occurrence of pure stands of *Colophospermum mopane* within this zone is usually an indicator of sodic soils.

4.1) As rainfall decreases towards areas of lower altitude in the south, *Sclerocarya*, *Kirkia*, *Combretum* and *Colophospermum* species become dominant. The grass cover is usually good in areas of slightly higher rainfall (over 400 mm). The common grass species in this zone are *Chloridion*, *Pogonathria*, *Setaria*, *Eragrostis* and *Digitaria*. With the exception of *Digitaria*, these grasses are not very nutritious, especially in their dry states and are not palatable to livestock. They are therefore best-utilized in their green state.

#### 4.2.3.2. *Colophospermum mopane* tree savanna on gneissic soils (*liphani*)

This vegetation type covers most of the transition zone between the granite and the gneiss as well as most of the gneiss zone in the lower altitudes. Lightfoot (1972: 7) made similar observations for Gwanda and Beitbridge Districts. However, within this gneissic zone, vegetation type varies with soil type. On poor alkaline or sodic soils, short but pure stands of *mopane* dominate. On more fertile soils and fairly flat ground, well grown and spaced *mopane* trees dominate. On the shallow, gravelly soils, *Combretum* species are the dominant species, with *Kirkia* and *Adansonia* species found among rocky outcrops. Dark grey to brown soils are indicated by the occurrence of *Acacia* and *Albizia* species. The predominant grasses in this zone are *Setaria*, *Eragrostis*, *Digitaria* and *Aristida*. These are fairly nutritious and palatable grasses. However, the predominance of *mopane* trees in this zone is important for browse to local livestock owners. To quote one community elder in Whunga village, “*Khomu ke m’phane*” which translates as: “Our cattle are entirely dependent on the mopane tree”. Livestock feed on the early shooting *mopane* leaves as early as October, about four weeks before the onset of rains and well before other trees and grasses turn green. Dry leaves from the mopane tree are also a major source of food during the dry season and livestock pick up these leaves as they drop from the trees. This is the major

source of browse in the second grazing tier. This type of vegetation merges with the basalt-related *mopane* in the third grazing tier.

#### **4.2.3.3. *Colophospermum mopane* tree savanna on basalt soils (*lephani-chobolo*)**

This is the richest vegetation type for livestock. High clay mineral content guarantees soils with high water-holding capacities and nutritious grazing. The dominant tree species are the *mopane*. These are large and well developed and sometimes form pure stands. Usually, these trees are found in association with *Combretum*, *Terminalia*, *Grewia* and *Acacia* species. The most predominant grass species is *Digitaria*, which is also very nutritious and palatable to livestock. Other grasses include *Cenchrus*, *Pennisetum*, *Panicum*, *Eragrostis* and *Schmidtia* species. These lands are grazed in the dry season, and grasses are given a good opportunity to grow to maturity before they are grazed. Trees have the opportunity to fruit without much disturbance until the late dry season. This is the third grazing tier described in section 4.2. Because this zone is rich in grazing resources, its utilization is sometimes contested by different users wanting access to it outside agreed schedules. Private commercial livestock and game ranchers sold some their properties in this zone to Government in 1982. Since then, ownership and control of most of the basalt zone has been bitterly contested between the district council and local residents, and had not been finalized when the field work ended.

#### **4.2.3.4. *Acacia* Shrubs (*lisu*)**

This vegetation type is found on shallow gravelly sandstone soils in the district. The trees are usually small or have been reduced to low bushes, due to overgrazing, browsing and low rainfall.

*Acacia* species are dominant, usually in association with *Combretum* species. They grow on the calcareous gravelly soils as well as on shallow, gravelly basalt soils. Grass cover is sparse during periods of moisture deficit but can recover with good rainfall. This area is also dominated by goat and sheep herders because of the abundance of browse. Common species are *Eragrostis*, *Schmidtia*, *Urochloa* and *Cenchrus*. Although most of this zone is found in Masera and Maramani wards, other wards in the district have varying degrees of this vegetation type on small pockets of sandstone found in these areas. The most significant attribute of this zone is that it is of very low grazing potential and is susceptible to rainfall variations during the usually erratic and variable rain season.

Gallery forests occur along streams and rivers and form a part of the riverine vegetation that is usually green for most of the year. Their shade provide cover for understoreys which are useful grazing and browsing for livestock in the dry season.

#### **4.2.4. Water Resources**

Water, both surface and underground, is probably one of the most limiting factors in the economy of the district. There are four major river basins in Beitbridge District. All four, the Limpopo, Bubi, Mzingwane and Shashe flow only during the rainy season (about 5 months). They are dry for most of the year except for isolated pools along the riverbed. However, water continues to flow under the sand throughout the year in all these rivers. In those parts of the district that have no major rivers, people depend on boreholes, earth and concrete dams for domestic and livestock water supplies. However, most of these tend to dry up before the onset of the rainy season. These boreholes range in depth from 30 to 70 metres, with a few exceptions reaching 120 metres in

depth. Because of the large distances between these boreholes, usually 3 or more km, communities and individuals construct wells (about 10 metres in depth) to bring water close to their homes and livestock. Many of these wells are not reliable, and usually dry up during drought years.

One feature of this generally flat landscape is the use of windmills to pump water from boreholes. The use of windmills is not common in other districts in Zimbabwe. These windmills are strategically located close to reliable boreholes throughout the district. Although borehole drilling and installation of equipment are supervised by the central government through the Ministry of Water Resources and Development and the District Development Fund, their maintenance is the responsibility of user communities. Private wells and boreholes are drilled, equipped and maintained by the owners. Cattle diptanks are also located at permanent water sources, with one diptank per ward. These are constructed by the Veterinary Department and maintained by both the Veterinary Department and local residents.

Seven small-scale irrigation schemes, covering a total of just over 300 ha, are in operation on the alluvial banks of the Shashe, Limpopo and Mzingwane rivers. These represent less than 0.02% of the total communal land area. The names, size and year of establishment of these schemes are shown in Table 4.3. Large-scale irrigation schemes using sand abstraction (extraction of water flowing beneath the deep sand on the riverbed) and dam water are located on both sides of the Limpopo River as well as the Mzingwane River. These cover up to 1000 ha of land per farmer and are privately owned. None of these large schemes were in the study area.



#### 4.2.5. Boundaries

The question of boundaries between communities is a thorny issue in the district, with communities superimposing their own boundaries over the government's. Communities in the northern part of the district, bordering Gwanda district, claim that those parts of the Doddieburn and Manyole ranches which fall under Gwanda are part of their land. To press this point, these communities in Dendele, Zezani and Siyoka wards, (under Chief Chitaudze)

**Table 4.3. Small-scale irrigation schemes in Beitbridge District.**

Schemes	Date of establ.	Area (ha)	# of Plot holders
Shashe	1963	84	163
Jalukanga	1967	45	91
Bili	1965	21	41
Chikwalakwala	1966	60	142
Khwalu	1967	46	92
Tongwe	1964	34	62
Mtangamchena	1966	25	55
Totals		315	646

*Source: Field data and Nauta et al (1994).*

illegally graze their animals in the Doddieburn and Manyole ranches in summer as part of their third tier of grazing land. This often leads to conflict with the neighboring Gwanda communities. Central government has not been able to solve this dispute, and there was no hope in sight that this matter would be resolved in the near future. On the southwestern border with Botswana and South Africa, herdsmen allow their cattle to cross both the Shashe and Limpopo Rivers in search of grazing, thus creating potential disputes at international levels because of the potential threat of disease to Botswana and Zimbabwe's lucrative beef export market to the European Union. Botswana and Zimbabwe enforce strict livestock movement and disease control measures required by the European Union. The governments of Botswana and South Africa have lodged official complaints about this apparent infringement each time it happens. Zimbabwe has also

raised similar complaints about cattle straying from Botswana. However infringements from the Botswana side do not seem to bother Zimbabwe because Zimbabwe's catchment area for export beef is in the highveld, further north from Beitbridge District and safe from infection through cattle and wildlife from Beitbridge District and Botswana. Cattle straying from South Africa are rare, although stock theft by locals from Beitbridge District and involving cattle, goats and sheep from South African ranches, is common along the border.

Within the district itself, disputes sometimes occur between neighboring communities regarding access to grazing land. However, data from this study indicate that most of the disputes concern the third tier of rangelands. This is the land that is utilized late in the dry season but also provides relief grazing during poor years. It is also utilized by large herd owners who tend to break existing rules governing utilization of these resources. Community-level disputes are resolved through various mechanisms of consensus and arbitration, the most common being *ho khumela* and *ho lefa*. In the former, the offender sends a representative, usually an elderly woman from within the community, to plead his or her case and ask for pardon from the chief or headman. This may result in a pardon or a fine but this is usually less severe than under *ho lefa*. Under *ho lefa*, the offender pays a fine for whatever violation he or she might have caused. Payments are usually in the form of cattle. These dispute resolution mechanisms are discussed in detail in Chapter 6.

#### **4.3. THE PEOPLE OF BEITBRIDGE DISTRICT**

The people of Beitbridge District, their livestock and the way they manage their grazing resources are central to the theme of this dissertation. The district is inhabited by people of Venda and Sotho origin, who constitute over 90% of the total population of the district. Other distinct groups

include the Shangani in the east and the Lemba to the west. Most of these smaller groups have assimilated into the Venda-Sotho culture. The focus of this research is on the Venda and Sotho people, and the significance of their cultural attributes to the sustenance of the pastoral-based economy and grazing resource management. A detailed account of the history and origins of these people is not possible within the scope of this dissertation. Yet such background information is relevant to the understanding of the basis for some of the strategies adopted by these communities in their daily operations. In the following section, a brief account of their origins and language, their social organization, and marriage patterns is offered. A shorter description of the Shangani and Lemba will also be presented.

#### **4.3.1. The Venda and Sotho of Beitbridge District**

##### **4.3.1.1. Origins and language.**

The Venda in Southern Africa have traditionally been defined as ethnically distinct in terms of linguistic and cultural characteristics which appear to separate them from the Karanga speakers to the North, the Northern Sotho and Tswana speakers to the south and west respectively, and the Tsonga (Shangani) speakers to the east and northeast of their homeland. Their heartland stretches from the relatively wet Zoutpansberg mountain region in northern Transvaal in South Africa to the arid but fertile vertisolic grasslands of Beitbridge District in Southern Zimbabwe (Hammond-Tooke, 1974, Beach, 1980, and Nettleton, 1992). According to Hammond-Tooke, (1974:78), the Venda are distinguished by their peculiar language, “which is a fusion of Northern Sotho and Karanga (Shona) forms of speech and by a culture sufficiently characteristic to separate it clearly from the other Southern African Bantu”. Their forms of social organization also resemble those

of the North-Sotho of South Africa and Karanga of Zimbabwe

There are two major groups of Venda people in Southern Africa. One is concentrated in Northern Transvaal in South Africa, the mountainous region around Zoutpansberg, and the extensive flat country along the Limpopo River. This is what was at one time called the Venda Homeland or Bantustan. 1970 population estimates by the South African Government were around 500 000 people. The second largest group is found in Zimbabwe, and most of them are in Beitbridge District, north of the Limpopo River. This group numbered around 80 000 in 1992 (CSO, 1992). However, their history before the sixteenth century provides some remarkable challenges to historians.

Earlier studies portray the Venda state as non-existent until the arrival of southward migrating groups of the Karanga-originated Singo dynasty from present day Zimbabwe in the seventeenth century, who then conquered local predominantly Sotho-based groups and formed the core of the Venda state (Duggan-Cronnin, 1928; Fouchie, 1939). Other more recent studies dispute this conclusion and argue that when the Singo dynasty arrived in present day Vendaland, they found an indigenous core of Venda-speaking ethnic groups ruled by the Mbedzi and the Ngona dynasties. These groups mixed, fought wars, intermarried and created the present day greater Venda state, under the leadership of the newly arrived Singo dynasty (Wessman, 1969; Kuper, 1979; Beach, 1980; Hammond-Tooke, 1986). In this dissertation, I adopt the latter hypothesis to explain the origin of the Venda nation because most of the evidence in these studies points towards waves of successive movements of Karanga groups southwards across the Limpopo into the Venda state and a simultaneous northward movement of Sotho groups around the seventeenth and eighteenth centuries. These groups were later joined by Tsonga groups fleeing from wars in the east. This is supported by traces of Karanga, Sotho and Tsonga words in the Venda language.

It is this Karanga connection, when their southward movement from the Great Zimbabwe environs took place as well as how far south they actually travelled, which is controversial. In addition, the Lovedu and the Phalaborwa Sotho also claim Karanga origins, but, as Beach, (1980:218) pointed out, "with less supporting evidence". The arrival of Mzilikazi's Ndebele warriors fleeing from Tshaka, and the Dutch (Boers) into the Orange Free State and Transvaal regions seems to have halted much of this southward movement, and is probably responsible for the greater movement of the Venda and Sotho groups back and across the Limpopo River into eastern Botswana and Southern Zimbabwe. Those who settled in present day Beitbridge District were absorbed into the Venda states under the Chitaudze and Matibi dynasties. These two ruling houses not only welcomed Venda-speaking people into their domain, but also a large number of Sotho-speaking groups, mainly Birwa from the south-west, who formed the western interface with Chief Chitaudze. The rest of the Sotho (Birwa and Tswana) groups are resident in neighbouring Gwanda district under Chief Marupi and Chief Mare (one of the four female chiefs in Zimbabwe) and also in Botswana. One of the net results of this mixing is that almost everyone who resides in this district understands and in most cases speaks both Sotho and Venda, regardless of their ethnic background. Their traditions, customs and social organization borrow heavily from the two cultures. Moreover, there has been so much inter-marriage between the groups that it was very difficult in the field to distinguish between the two groups on the basis of language. It is for this reason that I prefer to call these people Venda-Sotho. This form of labelling was also alluded to by Kuper (1979; 1982) and applied by Nettleton (1992:221) in her construction of the Venda identity. The inhabitants of Whunga area reflect this mixed heritage in their traditions, culture, social organization and language, and also in the management of their livestock and range resources.

#### 4.3.2. Other distinct groups.

Two other distinct ethnic groups in the district, while peripheral to this study, face similar challenges as the Venda and Sotho. The Hlengwe or Tsonga are a Shangani group that inhabits the extreme eastern part of the district and they spill over into neighbouring Mozambique and South Africa. Organized along similar political lines as the Venda and Sotho, they are dependant primarily on livestock for livelihood. However, those in Beitbridge District fall under Chief Matibi in the eastern part of the district where they have helped enrich the Venda-Sotho culture through marriage and assimilation. The majority of Hlengwe people in Zimbabwe are found in neighbouring Chiredzi District (Figure 1.1), where they are the dominant ethnic group.

The second group worth noting is the obscure Muslim-inclined Lemba ethnic group. The Lemba are found in the northwestern part of the district. Current historical accounts of their origin are only speculative (Beach, 1980). However, what makes them distinct is their language, which is oriented towards Karanga, and their strict religious beliefs that resemble Islam or Judaism. They also dress in long robes and head-dress similar to that worn by most Muslims and Jews (Van Warmelo, 1940; 1948; Mallows, 1984). What makes them unique is that, apart from learning different languages in the region, they speak their own Lemba language which is a form of Karanga. They refuse to be assimilated, have no chiefs and live in small groups. They practice endogamy and refuse to allow their daughters to marry non-Lemba men. They adhere rigidly to their own customary laws. They have striking Semitic traits like male circumcision (although the Venda also practice it) and refuse to eat meat of animals that have not been ritually killed by throat cutting and draining of all blood (Hammond-Tooke, 1974:81-83). All this suggests they had some ancient Muslim or Jewish ancestry or connection with possible origins in the slave

trade. However, they are also notorious for stock theft in the district and because of that, they are despised by both the Venda and Sotho.

#### **4.3.3. District administration in Beitbridge**

When Zimbabwe attained independence on April 18, 1980, it inherited a dual system of local government administration that has been singled out as a major constraint to development efforts in the rural areas (GOZ, 1990, Drinkwater, 1991, GOZ, 1995). On the one hand is the district administration based on a civil service style system of management, and Beitbridge is one of the 55 administrative districts in the country, (now officially referred to as Rural District Councils as of July 1, 1993). Prior to 1993, the rural areas were administered through two parallel systems. The District Councils were responsible for the Communal Areas and were headed by the District Administrator (a civil servant). In contrast, Rural Councils were responsible for all commercial farmland and towns that did not have city status. Beitbridge is one such town. The Rural District Councils Act of 1988 authorized the formation of a unified system which was eventually put in place in 1993. Under this unified system, all types of rural farmland, including small towns and small mining communities, are administered through one system of local authorities, the Rural District Council (GOZ, 1995).

Each rural district is headed by a Chief Executive Officer (CEO), who is appointed by central government on the recommendations of the district councillors through the ministry of Local Government. Elected district councillors have jurisdiction over all matters of policy within their district, and the Chief Executive Officer presides over council with the council chairperson. However, the legacy of the pre-1993 system of administration has also left the district with a

district administrator whose functions are now limited to “political” responsibilities like presiding over elections and disaster relief programs (Figure 4.6). Details of the operation of these two systems of district administration are presented in Chapter 7.

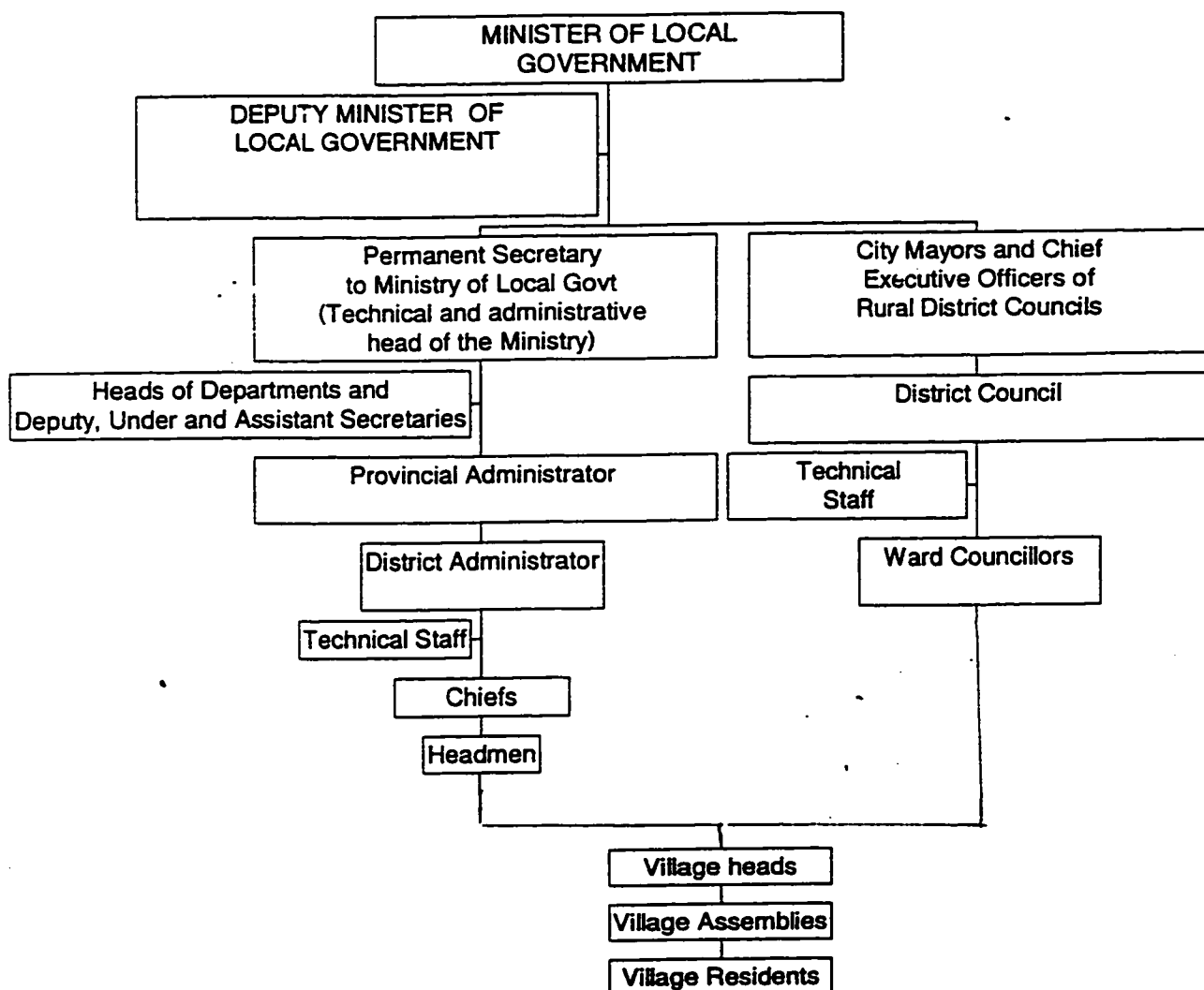
Each councillor represents a ward in the district. A ward would normally consist of between 3000 and 6000 households organized into village development committee areas (vidco areas). A vidco area can have as few as 100 households and as many as 1000 households. Each vidco area is headed by an elected village development committee, headed by an elected vidco chairman. In all these cases, the terms of office last for two years.

Alongside this civil-service style system of administration exists a second one, based on the traditional hereditary chieftainship. Under this system, the lowest tier of administration is *sabhuku* (known as kraal head in colonial times and now called village head). The village-head presides over a village whose size varies according to the size of the area under his or her control. Most people under the *sabhuku* would be related in some way. This is a hereditary position which is commonly passed down to male members of the ruling house. Traditionally, it is the *sabhuku* who presides over issues of land ownership, allocation and dispute resolution. These disputes are only referred to the next higher level if the *sabhuku* fails to resolve the issues.

All *sabhukus* are subordinate to the area headman within whose jurisdiction the village lies. Each headman presides over at least one ward. There are ten headmen in the district. In cases where these areas turned out to be too large to represent one ward, two or more wards were created out of each headman’s area. Mtetengwe wards I, II and III are examples and they all fall under Headman Mabidi. All these headmen are subordinate to one of the two chiefs in the district,



**Figure 4.6. Current administration pyramid for rural development in Zimbabwe (rural councils)**



namely chief Chitaudze and chief Matibi. In 1996, there were two chiefs in the district, ten headmen, 12 councillors and 12 wards. In Dendele ward, which is the study area and falls under headman Mazibeli, there are 4 vidco areas, (Whunga, Dendele, Madali and Vhutulula - Figure 3.1). Whunga vidco area, which is the largest of the four, has 21 village heads or *sabhukus*, compared with 4 in Dendele vidco area, 5 in Vhutulula and 5 in Madali.

Unlike in other Southern African countries where these two administrative pyramids would be formally linked at the top, for instance, in Lesotho, in the office of the paramount chief, there is no such link under the Zimbabwean system. Even the "Chief and Headman Amendment Bill, 1995" which transferred most of the responsibilities of land allocation and administration from district councils to chiefs and headman as well as recognizing *sabhukus* as the lowest tier of traditional administration at village level, does not address this duality at district and national levels. However, the bill addresses the duality at the village level by eliminating vidcos and replacing them with Village assemblies under the leadership of the *sabhuku* (GOZ, 1995b).

What this duality means at the village level is that there are two sometimes competing, if not conflicting, institutions for managing rangelands. Residents at the local level decide which one to obey or disobey, where they owe allegiance and for what benefits, if any. Most important, however, is who makes the rules and administers penalties. Is it the traditional system, the district administration system, both or neither? These are some of the difficult questions that villagers face. Section 4.4 discusses some of these issues and the impact that this arrangement has on the management of rangelands in these areas. Chapter 6 discusses in more detail how local communities and individuals cope with this duality.

#### **4.4. FORMAL AND INFORMAL INSTITUTIONAL ARRANGEMENTS FOR MANAGING PASTORAL LANDS IN BEITBRIDGE DISTRICT**

In order to gain insights into the role of formal and informal institutions in the management of Communal Area resources in Zimbabwe, it is necessary to give a brief historical account of the distribution of land and land tenure in the country, from the time the pioneer settlers took over the administration of the country from the indigenous people in 1890 to present.

##### **4.4.1. Overview of Land tenure in Zimbabwe from 1890 to 1980**

Following colonization in 1890 and the crushing of the Shona and Ndebele rebellion in 1896, the victorious settlers proceeded quickly and insensitively to appropriate land from the indigenous communities. When priests sympathetic to native communities brought this to the attention of the colonial government in England, the British Government passed an Order in Council requiring the colonial government in the then Rhodesia to create Native Reserves in order to prevent natives from becoming “completely landless” (GOZ, 1995:21). In Rhodesia, the Governor gave the task of creating Native Reserves to the Native Commissioners. What these Commissioners then did was simply to allocate the remaining areas deemed unsuitable for white settlement to displaced natives. However, most of these areas were already carrying their own population of indigenous people. This land allocation exercise thus led to immediate overcrowding in fragile environments. This process was then formalized through the Land Apportionment Act of 1930. By the mid 1940's, livestock and human population densities in these Native Reserves had become high, and soil erosion and land degradation were becoming evident. Government reacted through the promulgation of the Native Land Husbandry Act (NHLA) of 1951. Through this Act,

the colonial government sought for the first time to change traditional communal tenure systems into Western-style freehold tenure systems. This law was also intended to enforce livestock destocking and soil conservation measures in the Native Reserves. These measures were met with stiff resistance and only served to fuel the nationalist political sentiments for self-rule during the 1950's. By 1960, there was considerable political tension within the native reserves. The NHLA had failed to attain its objectives. The Act was repealed in 1961. Four years later, traditional communal land tenure was restored under the Tribal Trust Land Act of 1965, with traditional land authorities operating under the District Commissioners of the time. This system operated until Independence in April, 1980, and was eventually replaced by the Communal Land Act of 1982. Henceforth, the former Native Reserves (Tribal Trust Lands) would be known as "Communal Areas or Communal Lands".

#### **4.4.2. Land Tenure and Administration in Zimbabwe from 1982 to the present**

Under the Communal Land Act of 1982, authority over the Communal Lands is vested in the President. The President holds this land in trust for the people. The administration of the Communal Lands is carried out through the Ministry of Local Government, Rural and Urban Development (MLGRUD), with technical support from the Ministries of Lands, Agriculture and Water Resources. The MLGRUD in turn oversees the Communal Lands through the Rural District Councils. However the general interpretation of the Communal Lands Act by government is that Rural District Councils execute their functions through the vidcos, whose functions included land allocation and management on behalf of the council. These Committees arose out of what is generally referred to as "The Prime Minister's Directive of 1984" which was a policy statement and directive by the then Prime Minister regarding the administration of Communal

Areas Development. This directive, together with the Provincial and District Councils Act of 1985, effectively stripped chiefs, headman and *sabhukus* of all authority over land (ironically, it was like a new version of the NLHA of 1951). As in the 1950's and 1960's, this Act was resented in the Communal Areas and was never successful in spearheading the development of these areas. Because of this apparent failure, the new "Chiefs and Headman Amendment Bill of 1995" seeks among other things to restore the traditional role and authority of chiefs, headmen and village heads (*sabhukus*) over land. Thus, together with the Rural District Councils Act of 1993, the new bill strengthens the ability of rural councils, village assemblies and committees to make by-laws relating to the management and protection of the areas' resources held under communal tenure.

#### **4.4.3. Institutional arrangements for resource management in Whunga**

One important question arising from the first objective of this study, described in Chapter 1, is whether the communities in Whunga vidco area have developed livestock management systems peculiar to the ecological setting in Beitbridge. Of particular concern to this dissertation is the formal and informal institutional arrangements that guide the use and management of the grazing lands in this region. In other words, what rule systems are used by these communities as a basis for managing their communal grazing lands? It was suggested in Chapter Two that according to Burns' (1985) rule system theory, different societies have different norms of behaviour, and that people brought up in those communities will be aware of these rules while outsiders may not. This is due mainly to the fact that these rules exist in latent forms in the minds of those who are governed by them or are familiar with them (Burns 1985:294). These rules are learnt and passed on orally from generation to generation. In this regard, the process of learning is crucial to the maintenance of these rules. Therefore, communication is vital for the sustenance of these rules

within these communities. A detailed discussion of how these rules are applied in Whunga will be provided in Chapter Six. In this section, only a description of these institutions for managing communal grazing resources is given.

Burns (1985:257) distinguished between “ideal” or “formal” rule systems, defined as written rules such as Rural Council by-laws, and “actual” or “informal” rule systems, defined as those rules that actually get implemented and these usually include modifications of formal rules. The major distinguishing factor, however, is that informal rules are not in writing. These informal rules are usually a source of dispute, tensions and compromise. Changes are continuously negotiated, but these changes can only be made by those with “meta-power” - the power to alter the rules- and not everyone has this power. In Whunga, this power rests with the headman and his court, and with village heads. This power is also contested by the vidco and its chairman. However, as this dual system is about to be unified through the “Chiefs and Headman Amendment Bill of 1995”, it is anticipated that this power struggle will cease with the abolition of the vidco system in 1997. However, as the two systems were encountered during field work for this dissertation, they are briefly described in the next section.

#### **4.4.3.1. Local institutional structures and range management**

The highest post under the traditional system is that of the chief. Beitbridge District has two chiefs (Chitaudze and Matibi). In other Southern African countries, these would be referred to as paramount chiefs. However, in Zimbabwe, the title of paramount chief is not used. Immediately subordinate to the chiefs are headmen. There are eight headmen in the district, six under Chitaudze and two under Matibi. One of the reasons for this discrepancy in the number of

headmen under a chief is that when the colonial government demarcated what was then called Tribal Trust Lands (now called Communal Lands or Areas) part of Chief Matibi's people and their headmen found themselves under neighbouring Chiredzi and Mwenezi districts. Although these headmen might still consider Matibi as their chief, they have to report to a chief in their own district and not in another district.

Whunga area falls under Headman Mazibeli. The Act is silent on what to call an area under a headman or chief. Currently, areas under headmen are called Communal Lands or Areas. The Act only stipulates that a village head will preside over a village and defines this village as "a collection of families which is regarded, according to customs and traditions applicable in the area concerned, as constituting a village" (GOZ, 1995:2). An area in relation to a chief or headman is "the area occupied by his community and any area declared by government to fall under his/her jurisdiction".

In Dendele ward, there are 35 village heads under headman Mazibeli. Headman Mazibeli died in October 1995, and his younger brother was acting in his position until such time that the headman's son was officially installed as headman. This installation had not taken place at the conclusion of field work for this dissertation. To a certain extent, this leadership vacuum contributed to some local violations of rules governing the grazing of livestock. Because of the size of the area, 21 of these village heads reside in Whunga area. The area under each village head and the people whom he presides over vary widely within the district. In Whunga, the number of households under each village head ranges from as few as ten households to as many as fifty. Unmarked boundaries, mainly for allocating cropping land between village areas, are strictly observed. On the other hand, boundaries for grazing land are very flexible and boundaries

between headmen are respected more than those between village heads. However, the headman enforces rules governing the utilization of grazing lands through his village heads. Thus, it is the village heads who are responsible for monitoring the use of these resources and enforcing the rules. They are also the ones who, with the consent of the chief, can change rules. According to Burns' (1985) theory, they possess "meta-power".

A parallel vidco-based system of administration exists alongside the traditional system. Under the vidco system, the vidco chairperson presides over a vidco area which consists of several village heads ranging from 4 to as many as 20. Whunga area is one such vidco area. All the 21 village heads in the area fall under the jurisdiction of one vidco chairperson, and village heads were supposed to be subordinate to the chairperson. However, because the vidco chairperson is elected to a two-year renewable term, and the village head's position is a lifetime hereditary commitment, people logically pay more attention to the hereditary authority and attach less importance to the more transient vidco chairperson and his committee. This is one of the reasons why the vidco based system has not been successful.

While the vidco chairperson is subordinate to the headman, he or she does not necessarily have to report to the headman. He or she reports directly to the councillor of the ward (another elected post). The area covered by the ward can be as large as the area under a headman. In some cases however, two wards may fall under one headman, as the case is with Siyoka (two wards), Mtetengwe (3 wards) and Diti (2 wards). Each headman, on the other hand, presides over a Communal Area, and there are 8 Communal Areas in Beitbridge District and 8 headmen. However, there are 11 wards and ward councillors and 53 vidco areas and vidco chairperson in the district. These councillors report to the District council in Beitbridge which is presided over



by the chairperson of the council, assisted by the Chief Executive Officer (CEO). The incumbent CEO has considerable experience in administration. He is a retired educationist (former principal of United Teachers College and Bulawayo Poly-Technical College) and former deputy town clerk for the City of Bulawayo.

Headmen and chiefs, on the other hand, report to the district administrator for administrative issues, salaries and welfare matters such as the recent drought relief program. They also attend council meetings as ex-officio members and liaise with the CEO on matters of district policy, revenue collection and developments in their respective areas. This ambiguity is the source of many of the problems that arise with respect to resource management. The traditional system commands more respect among local communities on matters of land use and grazing resource management than the vidco system. However, local people sometimes exploit this ambiguity to their advantage by ignoring both systems in the utilization of grazing lands. For instance, there were a number of violations of rules that prohibit the grazing of animals by livestock owners between January and July of each year on farms purchased by the government for resettlement purposes. Between January and March of 1996 alone, there were 14 such violations and the perpetrator of these violations knew what the rules were but claimed to have been granted permission by either the village heads or the vidco chairperson. Further investigation proved this to be untrue, and the acting headman intervened to force these people out of the area concerned, accompanied by some token fines payable to the acting headman's court.

There are many reasons why people do certain things. The practical value of institutions like those described above is one reason why people remain loyal to them (Burns, 1985:314). However, symbolic and normative meanings also play an important, and in some cases, decisive role in such

judgements, as is the case here regarding the traditional system of resource management. These judgements sometimes have more to do with the social and cultural system of a people and less with the physical results they achieve. The next section describes social attributes relevant to the management of livestock and range among the Venda-Sotho people in this region.

#### **4.5. THE SOCIAL AND ECONOMIC ORGANIZATION OF THE VENDA AND SOTHO**

People in this region practice a modified form of transhumance by regularly moving their livestock among several tiers of grazing resources, depending on the availability of, and access to, grazing. Their system is based on a permanent homestead located in the first tier of grazing. However herders can move their livestock to temporary camps in the range, some 20 km or more from their homes and families. The management of the livestock herds has evolved alongside a land use system that is adapted to these drylands. Based on their study among the Maasai in Tanzania, Homewood and Rodgers (1991:53-55) suggested that environmental conditions do not necessarily dictate specific social structures, but that successful and durable social structures do develop in order to buffer the threats posed by the environment. The next section explores these issues in the study area. The structure and function of households and homesteads, and the division of labour based on age and gender, are briefly discussed below. The manner in which these structures are manipulated within the pastoral system and implications for resource management are discussed in Chapter 6.

#### 4.5.1. Homesteads and households

The use of the concept of household to capture the nature of domestic organization in rural Africa was popularized by the need in the 1970's to generate theories about the African peasantry as it became increasingly incorporated into state structures and world markets (Ferguson, 1990). Thus, the peasant household became the centre and focus of these enquiries. Its use was taken for granted to refer to a range of complex situations in developing countries - for instance, household labour, household consumption, household plots, household income, household size and household production, to name a few. It is only recently that attention has been drawn to the misapplication of the concept to Sub-Saharan Africa (Russell 1993:755). Based on her research in Swaziland, Russell argued that household is a culturally-loaded, historically specific Western term that assumes all populations are composed of households of one kind or another. This assumption simplifies the task of collecting survey data but, she argued, "at the cost of blunting our awareness both of the diversity and complexity of domestic arrangements in many places, and of the ephemerality and transience of many social arrangements for sharing roofs, space and meals" (Russell, 1993:756). Other studies have also raised similar concerns with application of the household concept to rural domestic organization in Southern Africa (Ngubane, 1983; Low, 1986; Kabeer, 1991).

At the centre of this debate is the fact that in most Southern African rural settings the homestead and not the household is the distinctive form of domestic organization and certainly this is so in Beitbridge District. Among the Venda and Sotho in the district, the homestead is called *mutsi* or *mudi* (singular) and *mitsi* or *midi* (plural). A problem arises when attempts are made to bring this indigenous domestic unit into some kind of congruence with the universal household by assuming

that a homestead is a household and vice versa, or that it consists of households, or that it is evolving into a household, or by ignoring homesteads altogether in favour of households. During fieldwork for this research, both homesteads and households were encountered. The distinction between the two was difficult to determine, and while it was quite easy to identify the homestead, it was difficult to isolate households within the homestead, mainly because household boundaries within the homestead were very elastic and unclear, and in some cases were transient. For instance, married sons were uncertain about their independence from their parents, especially when they lived within the parents's homestead. Widows were also uncertain about their rights to homestead headship because the homestead still carried the late husband's name. Female divorcees were accepted back into their parents' or brothers' homestead as "independent" households within the homestead or could build their own homesteads as a *mazakhela* (meaning an unmarried woman, also divorced or widowed).

While decisions regarding the management of livestock within the homestead were made at the homestead level, individuals within the homestead (including households) were responsible for economic decisions such as marketing of their own animals. Homestead-level decisions included issues such as moving animals to new grazing areas, selection of breeding bulls and herding responsibilities. Households' on the other hand were responsible for deciding which animals to sell or slaughter and when to sell or slaughter. There was much overlapping of responsibilities between the household and the homestead regarding livestock and range management. Thus, a conscious decision was made to distinguish between the two based on their physical structure. A homestead consists of two or more households physically located together under one homestead head who may be either male or female. Members within the homestead are assigned specific responsibility by the head of the homestead. As indicated above, the homestead was much easier

to identify, but it was much more difficult to isolate individual households within a large homestead mainly because of the transient nature of households within homesteads and extended family system. However, I am also aware that all homesteads are invariably households of some sort but not all households constitute a homestead (two or more households constitute a homestead).

#### **4.5.2. Household economy and wealth**

Cattle, donkeys, goats and sheep are the mainstay of the economy in the Communal Areas of Beitbridge District. Cattle are the major source of cash, and wealth. Although cattle are occasionally slaughtered for meat, goats and sheep are bred primarily for meat. Goats and sheep are also sold to raise small amounts of cash (the source of what can be termed petty cash). On the other hand, until 1994, donkeys were bred solely for draught power and transport purposes. They are used primarily for drawing “scotch-carts” which are the major means of transport in the area. As indicated in this chapter, they also have replaced cattle almost completely as the source of draught power for ploughing crop fields. In 1994, NGO’s from Zambia and Mozambique started buying donkeys from this area for use as draught power in their respective countries. As a result, the monetary value for donkeys increased from Z\$ 100.00 to over Z\$ 800.00. These NGO’s were still buying donkeys from the areas at the conclusion of field work. As illustrated in the next sections, ownership of livestock is complicated and it involves gender, access and control issues.

The task of distinguishing economic classes of households among residents of this area was not an easy one, mainly because the differences in wealth among these people are not obvious and transparent to an outside observer. Other studies have encountered similar difficulties among

pastoral and agropastoral communities (Homewood and Rodgers, 1991; Scoones, 1992; Fratkin, 1994; Rocheleau, Schofield-Leca and Mbuti, 1995). Even when asked, residents were not willing to divide themselves strictly along economic lines. However, through the use of focus groups, it was possible to identify three key indicators of wealth. These were:

- ▶ size of livestock herd
- ▶ formal employment outside the pastoral economy
- ▶ size of homestead and/or extended family.

Rocheleau, Schofield-Leca and Mbuti (1995) successfully used a similar approach in Kenya.

The most significant characteristic for categorizing wealth of households was that of livestock size and ownership, with cattle being the key variable. There is a local saying (*motho ke khomu*) which literally means that *cattle are the basis for humankind*. Therefore, owning or at least having access to cattle is a priority among the people in this area. A person is considered wealthy depending on the number of cattle he or she owns. All livestock are viewed as very useful economic investments, although goats, sheep and donkeys were considered as secondary and complementary to cattle. However, in spite of the aggressive marketing drive by the beef industry in Zimbabwe, livestock and cash are not freely exchangeable in Beitbridge District. Fergussen (1990) drew similar conclusions about cattle in Lesotho. There is a one-way route between cash and livestock: cash can always be converted to livestock through purchase. However, cattle are only converted to cash under certain conditions, "conditions usually specified as a great and serious need for money which cannot be raised any other way, a situation arising from an emergency..." (Fergussen, 1990:147). In this study, these emergencies, included drought which accounted for 40% of reasons for selling livestock, food shortages which accounted for 30%, school fees 20%, fines 5%, and illness within the family, 5%. These figures seem to indicate that

livestock herds are allowed to build up during non-drought years with fewer sales than during bad years. Off-take figures for the 1992/93 season and the 1994/95 season, both of which were bad drought years, were 15% and 22% respectively, which was significantly higher than the 6% average for good rainy years in the district. Thus, rather than let their animals starve, many of these people prefer to sell them and then restock when the weather returns to normal.

It is important to point out that although livestock are owned by individuals, they are also of concern to the whole community. Unlike cash in the bank which would belong to an individual and benefit that individual alone, livestock is viewed as both a social and economic resource for the whole community. A person is considered wealthy and respected not merely because he or she has many cattle, but because he or she possesses a particular social form of wealth which belongs, in some sense, to the whole community. For it is these wealthy livestock owners who are the source of *mafiswa* (loan cattle), milk and even food during bad times. The community then reciprocates by giving the person "due respect". Those who are wealthy but stingy are not accorded any respect at all by the ordinary residents. These patterns of interaction and elements of cooperation and reciprocity within the community will be analysed further in Chapter 5.

The second indicator of wealth is formal full-time employment outside the pastoral economy. This was indirectly linked to the level of formal education. In this category, we find teachers, nurses, industrial employees in urban centres, soldiers, police and business people. Employment in South Africa was a prominent feature in this category. However, only those with reputable jobs in South Africa (indicated by flashy cars they brought home during holidays, even though their sources of income could not be ascertained) were accorded this status. Farm employees and mine workers, who form the majority of workers in South Africa, were not included in this category

as they were not regarded as wealthy and are normally despised within the community.

The last criterion, and the least precise, is the size of the homestead (*mutsi*). This seemed to relate to the size of the extended family under one's influence, but also referred to the number of people under one homestead. Some of these homesteads were huge, with as many as four wives, an aunt or two, married sons and daughters-in-law and their children, all totalling more than fifty people. Such an arrangement is obviously larger than what would normally be called a household. A few such homesteads exist and are also referred to as wealthy. This is because such homesteads would normally have large herds of livestock. It was difficult to document such households because extended family networks are fluid and are only prominent during periods of stress and deficit in food production. Moreover, extended family members do not necessarily reside in one homestead or household. Details on how the network functions as a mechanism for coping with short-term and long-term stress are outlined in Chapter 5.

#### 4.5.3. The age set

The division of labour within the household is based on age, sex and status. Within the age set, certain features are important for the pastoral system. Men and women's lives are divided into a series of phases in which they and their peers are systematically and progressively promoted from goat herder to adulthood in marriage. The age set system was found to play an important role in the resilience and adaptability of Maasai society in Tanzania (Homewood and Rodgers, 1991:49-53). Similar observations were also reported by Ferguson (1990) in Lesotho, Rose (1992), in Swaziland, and Stayt (1968) among the Venda in South Africa. Until the mid 1950's, this sequence of events was accompanied by ceremonies and rituals through which the phase was



expressed. The ceremonies and rituals have since ceased but the process through which young boys and girls progress to adulthood still exists in Beitbridge District.

Young boys and sometimes girls are responsible for herding goats and sheep until the age of about 10 years. The major activity here is milking goats, separating kids from their mothers, releasing them after milking in the morning, and penning them in the evening. Boys above the age of 10 are responsible for herding calves, which are usually separated from the rest of the herd. This same age set is responsible for looking after donkeys and training young donkeys for draft purposes. These boys are usually under the watchful eye of an adult who guides them through their activities and assigns duties as well. Since most of these boys are of school going age, these chores are carried out before and after school. As these boys approach their legal age of majority (18 years), they are gradually incorporated into adult life and begin herding cattle. Most of them are given their first set of cattle to own by their parents at this stage. Some parents said that the reason for doing this at an early age is to see if the young man has a “good hand” - if he has the potential of becoming rich. Most parents would start these boys with one or two heifers. It is from these small beginnings that these boys start their independent life and are initiated into responsible adulthood.

Girls, on the other hand, are set on a different path. After the goat herding phase, they are withdrawn to perform household chores such as cooking, collecting firewood and water and baby sitting. If they are born into a home with few or no boys, they take up the same route of herding calves and later cattle alongside their male counterparts. A number of wealthy (in terms of cattle numbers) unmarried women in the case study area had this type of background - being born into a family of predominantly girls. They commanded respect from their male counterparts, and,

probably because they inherited a lot of cattle from their parents, or had the potential of doing so, men tended to shy away from them. A possible reason is that these women knew literally everything, if not more, than men knew about livestock and herding. It is some of these powerful women who sit in the village head's court or indeed as headman's court as advisors.

Generally, as soon as they reach puberty, girls are then prepared for marriage. This is very important for the families of these girls because of the potential of bringing in up to 10 cattle per woman as bride wealth. Marriage is an important institution in this society and because of the potential economic benefits it brings with it to the girl's family, marriages between maternal cousins are encouraged. One reason given for the encouragement of marriage between cousins was that the husband could not accuse his wife of witchcraft because indirectly he would be accusing his mother's family of witchcraft. This is particularly important for this society because witchcraft is one of the grounds for divorce permitted under traditional law. Adultery does not constitute a basis for divorce. In cases of adultery, the male offender pays damages to the husband of the accused woman and the marriage continues. It is also important to note that polygamy is common in this area.

#### **4.5.4. Gender roles and relations in livestock and range management**

Although it was helpful to use the household as the basic unit of inquiry, it was also important to look at the structures of both the household and homestead in order to obtain insights into decision-making processes within the household and the homestead regarding the management of livestock and range resources. Two notable features of life in Whunga are the dominant role of the aunt (*borakhali* or *mmakhadzi*), particularly the eldest in the family, and the increasingly

common absence of the adult male members of the household. This is due mainly to employment outside the area. Another important reason is death, especially of elders (over 60 years of age). Divorce was also mentioned as a contributory factor. This is in addition to what appears to be a high incidence of single women, that is, women who never married in the first place who constitute 12 percent of all heads of households (usually living within a brother or father's homestead or constituting a homestead of their own, under their leadership).

The implication of the above scenario is that the daily management of the household and its resources (livestock included) and the interaction with the wider community are carried out by women, who are continuously present to meet these challenges. They are the real managers on the ground. Different categories of women and the households they belonged to were encountered in the field. It was found necessary to assess these households further in order to determine the person who actually was responsible for managing the homestead or household. It was then possible to characterize these households as follows:

- ▶ those for which both spouses were present - 60% of sample
- ▶ those managed by women (husband employed outside the area, comes home for weekends, at month ends or during holidays) - 25% of sample.
- ▶ those headed by women (single women: divorced, widowed or never married) - 15% of sample.

Households headed by single men were negligible and only accounted for slightly under 2% (5 cases) in the sample. What these data indicate is that at least 40% of all households in the survey were managed by women in one form or another. In this study, 132 out of 240 respondents in the survey (55% of total number of respondents) were women. The reasons for men's absence were varied and include the fact that men were out in the range or camps looking after their livestock.

The survey was mainly undertaken between August and December, when livestock are in the third or fourth tier of grazing and men usually accompany these herds. Table 4.4 indicates livestock ownership characteristics within Whunga as reported by respondents in the survey.

**Table 4.4. Livestock ownership patterns between men and women in Whunga in 1995.**

Livestock	Men		Women		Total
	Number	%	Number	%	
Cattle	7399	80.8	1761	19.2	9160
Donkeys	1206	81.9	268	18.1	1474
Goats	8883	72.6	3351	27.4	1223
Sheep	1836	85.6	309	14.4	2145
All livestock	19324	77.3	5689	22.7	25013

Source: Survey data

Gender-based divisions of labour in pastoral systems are complex and are sometimes elusive to the outside eye. While men's roles are usually very visible, for instance herding, milking and watering livestock, women's roles are sometimes very subtle and performed under the shade or indoors during the heat of the midday sun. In this context, the World Bank (1979) referred to the invisible woman. Kelly (1982) observed a similar pattern while working among the Orma people of the Tana River district in Kenya. In her study, Kelly describes why a Kenyan official and a Dutch expatriate worker in the area characterized the Orma men and women as lazy and not working in the fields. The reason why they perceived these people as such was because the Orma spent most of the afternoon in the shade, sheltering from the sun's heat. People driving by would not notice the hive of activity taking place under the shade as women prepared food, mended cloths and engaged in handcraft. Men on the other hand would be carving, mending their sandals

or merely resting before taking off later in the afternoon to round up their livestock. A similar situation was observed in Whunga. What men and women do throughout the day is probably best explained through a description of patterns of daily life for both men and women in this area. These patterns are typical for a day in autumn between March and July for a household where both spouses are present and the rainfall for that season is enough for cattle grazing and to grow a crop in the field as well.

#### **4.5.4.1. A woman's day in Whunga**

On a typical day, a woman gets up at dawn (between 4 and 5 am) and makes a fire. She then warms water to be used later on for various purposes. She then sweeps the yard and cleans the home. Around 6 am, she fetches water and prepares children for school and by 7 am she is leaving for the crop fields to weed or harvest. Milking goats and releasing them is considered children and women's responsibility. By 11 am the heat is becoming unbearable and she stops fieldwork to start preparing lunch. She prepares lunch between 12 and 2 pm. She is back in the field by 2 pm and continues to weed or harvest. She has to leave for home by 4 pm and along the way, she collects firewood. She then starts preparing supper and serves the food by 7 pm. She then cleans up the dishes and pots. She would then take a bath between 8 and 9 pm and goes to bed by 9 o'clock.

#### **4.5.4.2. A man's day in Whunga**

A typical day for a man in Whunga starts at between 6 and 7 o'clock, some two hours after the wife started her day. He releases adult cattle and keeps calves behind until after milking. He may

choose to join his wife in the field for weeding and harvesting or prefer to water his cattle first before milking them. In some cases, he might carry out repairs on the cattle pen until milking time at 10 am. Milking cows normally return to feed their calves on their own and he does not have to round them up. Milking is done between 10 and 11 am. If the cattle have not been watered yet, he does that soon after milking and sends them off to their grazing lands. He then comes back to water the calves and release them into their own section of grazing land. These tasks are normally completed by 12 mid day. He then takes a break, to rest, usually under some shade. During this break, he might carry out minor repairs on tools and footwear while his wife prepares lunch. The men's break usually lasts until 3 o'clock, much longer than his wife's break, if she has any. He might decide to help with the crops in the field or start off on his trip to round up the cattle. Cattle are penned by 6 o'clock and his day is over by 7 pm at the latest.

These short descriptions of men and women's work schedule highlight some of the disparities between the men and women in Whunga. These disparities in work load between men and women are generally maintained throughout the year. While most credit for livestock production in this region goes to men, if we regard all activities as contributing to maintenance of the livestock production system, women contribute more of their time than their male counterparts. Yet, women own a smaller proportion of livestock (22.7% of all livestock) than men within the homestead. These findings confirm what Bruggerman (1994:1) called "a common stereotype of pastoralism....that men carry out all significant phases" of livestock production. Bruggeman further argued that despite revelations such as the above, which point at women's skewed contribution to the development and maintenance of the livestock economy, "this has not led to an increase in women's involvement in livestock management activities". Two livestock development projects, *Malikuwa* and *Tsuhuluho*, were initiated in the study area in 1993, with the

support of the Evangelical Lutheran Church and the Agricultural Finance Corporation. They are dominated by women (80% and 90% female membership, respectively). The projects are aimed at restocking the area after the drought of 1992 and also at empowering women in this pastoral economy by offering them an opportunity to own their own cattle and goats. The significance of the contribution of women to the coping and adaptive processes within the pastoral system will be discussed in more detail in Chapter 5.

#### **4.6. SUMMARY**

Objective 1 of this research was to determine the nature of the pastoral system that is peculiar to or has been adapted to this region, and to establish its relevance to the ecosystem of the area. This chapter presented the image of Beitbridge District, its people and their livestock as a pastoral system under change due to socio-economic, political and environmental changes, a system that is striving to preserve its past in order to build its future against a harsh and highly variable environment. Short and variable rainy seasons and long, dry winters characterize the climate of the district. The area is also characterized by the distinct, black vertisolic soils derived from basaltic rocks. Local residents use their knowledge of soils and vegetation in making decisions regarding the movement of livestock from one area to another. In that respect, water is a major limiting factor on the movement of the livestock especially during drought years.

The Venda and Sotho people who live in this district have a varied account of their origin and history, a summary of which was presented in this chapter. A shorter account of the minority Shangani and Lemba people who also live in the area was presented. All these groups have heritage linkages with similar groups in South Africa and Botswana. However, because of inter-

marriage between the Venda and Sotho in the area, it was difficult to distinguish between the two groups. The people also depict this mixed heritage in their culture, tradition, social organization, language and the management of their livestock and grazing resources.

The new system of local government administration introduced by central government in 1980 to replace the traditional system of administration has not been successful. As a result, it was abandoned in 1995 and replaced with a more tradition-oriented one that recognizes once again the role of the chief, headman and village head in the day-to-day administration of the Communal Areas. However, implementation of the new systems is at an early stage. The history of land tenure in Zimbabwe since the arrival of European settlers in 1890 provides necessary insights into the role of formal and informal institutions for the management of Communal Area resources during these years. Many Acts and Bills of Parliament primarily designed to limit the authority of the traditional system were passed. It was evident in this study that traditional systems of resource management had persisted despite government efforts to limit their influence. Now that government has recognized the traditional system of Communal Area administration and abolished the dual system at the local level, the practical value of these traditional systems should become evident as the years go by.

The application of the household concept to Southern African contexts has raised concerns regarding its appropriateness as a descriptor of the rural setting in these countries. Central to this debate is the fact that in most of these settings the homestead and not the household is the distinctive form of domestic organization. This was found to be true for Beitbridge District as well where *mutsi* or *mudi* (the homestead) was the main decision-making unit for livestock and range management issues. However, while the difficulty of distinguishing between the two was



noted in this chapter, mainly because homesteads are invariably households of some sort but not all households constitute a homestead, a decision was made to maintain the distinction between the two.

The last section of the chapter dealt with wealth, age set and the role of gender in the pastoral system. While some women, particularly those from ruling families, commanded a significant amount of power, authority, and wealth, women overall own less than 25% of all livestock in the area. However, their input into the pastoral homestead (estimated by the total person-hours per day spent on productive and maintenance activities in the pastoral system) was higher than that of men. While men concentrated on livestock only, women spent their time on both livestock, cropping and household maintenance chores. Women also had other ways of accruing wealth. For instance, if they married into a wealthy family, they acquired some of their husbands' cattle and passed them over to their relatives through bridewealth arrangements. The major aspects surrounding bridewealth will be discussed in the next chapter.

## **CHAPTER 5**

### **PATTERNS OF INTERACTIONS: INDIVIDUAL AND GROUP RESPONSES TO VARIABILITY**

#### **5.1. INTRODUCTION**

One of the objectives of this study, (objective 2 in Chapter 1) was to examine specific community attributes (cultural and structural) and interactions relevant to adaptive resource management within the pastoral system in Beitbridge District. It was also stated that rules or institutions do not necessarily guarantee the emergence of a particular pattern of behavior. Patterns of interaction sometimes result from individual and group choices influenced by uncertainties from variable and unpredictable environments. It was further observed that in our quest to study and understand the way these pastoral communities respond to different challenges, shocks and surprises, a distinction among the four categories of uncertainty (risk, uncertainty, ignorance and indeterminacy) was important to understand the way pastoralists respond to these challenges under dryland ecosystems. However, distinguishing among these categories poses methodological problems and Scoones (1996) suggested that under field conditions, the differences were blurred. This dilemma arises mainly because it is not adequate to reduce the way people respond to life challenges to probability statements. These responses are nested in people's values, preferences and normative judgements which interact to shape peoples' actions (Uphoff, 1992). Local communities respond to variations within their environment in different ways. These responses form the basis for an adaptive system moulded by cultural and structural attributes within the pastoral system. Therefore, a decision was made

in this study to determine how people distinguished or interpreted uncertainty in their daily undertakings and how they responded to variability and stressful conditions.

The following key questions guided data collection and analysis for this objective, and they also form the basis for discussion in this chapter:

- ▶ How relevant are uncertainty concepts to the pastoral system?
- ▶ What are the key elements of the response system?
- ▶ What is the role of gender in the response system? and,
- ▶ How do pastoral communities respond to opportunities from external interventions such as marketing?

## **5.2. DETERMINING AND COPING WITH RISK, UNCERTAINTY, IGNORANCE AND INDETERMINACY**

A fundamental challenge in this study was to determine whether local people had categories of imperfect knowledge or uncertainty similar to the ones proposed in Chapter 2. I suspected, and was concerned, that I was imposing external concepts of uncertainty onto local informants who probably had different concepts for the same phenomena. I therefore had to ascertain that what I was talking about was the same thing to which they were responding. Second, key elements of the response system had to be identified. The following two sections address these issues.

### 5.2.1. Relevance of uncertainty concepts to the pastoral system

The Venda and Sotho people in this district believe in what mainstream literature refers to as rational explanation or logic (Stayt, 1962; Alverson, 1978). In their system of beliefs, there are very few mysteries. The small “unknown” world remains “unknown” because of “inadequate methods” (Alverson, 1978: 9-16). They also accept things and explanations on faith, and because there is reason to believe that things accepted on faith can ultimately be known, people will not be surprised when they become known. Thus, they believe that every death can be explained and every disease has a cause and hence it can be cured. Central to this belief system are the traditional diviner and healer (*ngaka* or *nganga*), traditional medicine and healing.

The supernatural or sacred (*siila*) is a very important part of daily life among most people from all walks of life in the study area. There is an almost universal belief that non-animate beings, which may be benign or malevolent, exist alongside animate beings. Alverson (1978) made similar observations about the Tswana. These non-animate beings include ghosts, gnomes, spirits and witches. However, traditional medicine and the *ngaka* (*pl. lingaka*) or *nganga* (*pl. dzinganga*) are powerful enough to deal effectively with those that are evil. In this vein, drought and its causes can be explained, and if instructions from spirits of the dead are followed properly, even drought can be averted. Because it is possible to obtain knowledge about an unknown phenomenon, and even though this may take generations of time to occur, there are very few surprises to this pastoral society. Because of this belief system and the faith in logic, people believe that uncertainties can be minimized. This in turn enables them to take extraordinary risk based on their belief system. Such risks include the refusal to sell livestock despite the threat of an imminent drought. Although the reasons for such action are varied and

the strategy has not always benefitted those who adopt it, it is the strong faith in the local belief system that leads to its continued use.

However, while people were pre-occupied with minimizing risk within the pastoral system, they were also concerned about uncertainty as a higher category of risk. To them, the difference between risk and uncertainty was the presence of “unknowns”. There are no “unknowns” in risk, and individuals and groups could predict without much difficulty the outcomes of whatever intervening strategies they adopted. On the other hand, unknowns introduced uncertainty for which outcomes could not easily be predicted.

However, there is inadequate conventional data and information on rainfall variability available to these pastoral communities to enable them to predict the outcomes of their actions with confidence. Under these circumstances, they resorted to using traditional methods to overcome what they believed was the “unknown”. These methods include resorting to prayer, rain making rituals and rites, and consulting *lingaka* or *dzinganga*. In this way, they believe they are able to better understand the phenomena and take actions to mitigate the “unknown” phenomena at hand, thus reducing the impact of uncertainty on their livelihoods. One of chaos theory’s contributions to the study of complex systems is that physical systems such as pastoral drylands do not necessarily have to be predictable (Robertson, 1995). They do not have to be controllable and neither do they have to be completely known. Therefore, response systems are inevitably based on a learning process (Uphoff, 1992).

As indicated earlier, the problem with this approach to uncertainty is that other “unknowns” which communities are not aware of are unconsciously left out of the decision-making process.

In Chapter 2, this level of uncertainty was referred to as ignorance. Did the pastoral knowledge system recognize ignorance as a problem? This study did not find evidence to support this viewpoint. In their own world, they believed that they had all the information they required and whatever they did not know at that moment (uncertainty) would be made known to them in time. If there was evidence of concern about the possibility of ignorance within their knowledge system, it was adequately taken care of by their faith and beliefs in the future. Whatever they did not know would sooner or later be made known to them. It was therefore not a cause for concern to them at that moment. Similarly, dealing with indeterminacy created methodological problems for both the researcher and the communities, particularly when it came to isolating it from ignorance. The way in which local people adopted an incremental approach through a learning process to deal with what could be defined as indeterminacy will be discussed in Chapter 6.

### **5.2.2. Key elements of risk and uncertainty within the pastoral system**

As indicated above, the major thrust of the analysis in this chapter deals more with risk and uncertainty and less with ignorance and indeterminacy. The study of risk and uncertainty has become a huge field of interest to many disciplines (Cashdan, 1990). Cashdan (1990) characterized the major domains of research in risk and uncertainty as descriptive and prescriptive. He also grouped research problems into four categories (Table 5.1). This research is concerned with the descriptive dimension, which informs us about what pastoralists actually do. Within this descriptive dimension, this study focused on actual responses which pastoralists make relative to risk and uncertainty. The following questions guided the collection and analysis of data on this dimension:

- ▶ *How do local people actually evaluate risk and uncertainty?*
- ▶ *How do local people respond to risk and uncertainty at individual and group levels?*

Psychologists, behavioral ecologists, economists and anthropologists have all made substantial

**Table 5.1. Major Domains of Research in Risk and Uncertainty.**

AIM OF RESEARCH	PROBLEMS ADDRESSED	
	<i>EVALUATION OF RISK AND UNCERTAINTY</i>	<i>RESPONSE TO RISK AND UNCERTAINTY</i>
<b><i>PRESCRIPTIVE</i></b>	<b>Risk Assessment:</b> Qualitative analysis of risk for policy use  <i>Application:</i> public policy, health	<b>Decision Analysis:</b> Optimal decision making under risk and uncertainty  <i>Application:</i> economics, management science, operations research
<b><i>DESCRIPTIVE</i></b>	<b>Risk Perception:</b> How do people actually evaluate risks and uncertainty?  <i>Application:</i> psychology, anthropology, natural resource management.	<b>Behavioral Responses:</b> How do people actually respond to risk and uncertainty?  <i>Application:</i> behavioural ecology, natural resources management, economics, anthropology.

contributions in this field, especially with the use of optimal behaviour models (Little et al, 1987; Onars, 1992). However, these models tell us very little about human behaviour in real life. In most dryland ecosystems, there is no evidence to suggest that pastoral people view optimization as the goal of their actions. Cashdan (1990) observed that there was nothing in

evolutionary theory to suggest that we should expect full optimality in people's actions. People are continually re-assessing and reformulating (or reaffirming) their preferences, strategies and understandings on the basis of their experiences (Berry, 1993: 13). They think about what they are doing and what they are up against. Pastoral systems are in constant flux - the target is not static but fluid and dynamic. Therefore, detailed accounts of local pastoral systems using qualitative approaches may generate detailed insights into how the pastoral system works to sustain itself.

As one of the starting points in this analysis, it was necessary to identify key variables in the response system to risk and uncertainty. The one major concern within the pastoral system was livelihood security. The two key variables in that endeavor were food and water security. Thus, the pastoral response system was primarily targeted at securing food and water for human and livestock consumption. Two key elements of this response system are cooperation (sharing and reciprocity) and mobility of pastoral herds in search of food and water. Cooperation and reciprocity among local people are further embedded in a cultural environment moderated by strong beliefs, faith, values and a harsh and unpredictable climate. At the same time, mobility of the pastoral herds is negatively affected by changes in land tenure, boundaries and fences affecting the area. The role of cooperation and mobility in the adaptive process is addressed in the next section.



### **5.3. RESPONSES AT HOMESTEAD AND COMMUNITY LEVEL**

#### **5.3.1. The homestead as the locus of the response systems**

The people who are the focus of this study reside in the Communal Lands of Beitbridge District. It has been observed by Hewitt (1997) that communal ownership of rangeland reduces vulnerability of the inhabitants to many types of hazards by providing equitable access to resources by all who reside in the area. It was also observed in Chapter 4 that the homestead is the locus of most social and economic activities within Communal Lands in Beitbridge District. Most decisions regarding behavioural responses to stressful conditions are made at homestead level. Indeed, many decisions regarding the management of livestock are made at homestead level. Major variables that trigger the coping and adaptive process are:

- ▶ extremes and range of rainfall and ecological variation
- ▶ structural changes that affect the pastoral system

As variance or extreme conditions increase, for example, through prolonged dry spells, major changes take place within the pastoral system. These changes can be grouped into three categories, namely;

- ▶ behavioural responses by livestock and people
- ▶ modification of the environment
- ▶ physiological changes in livestock

The four types of risk (subsistence risk, environmental risk, risk of social conflict, and risk of cultural loss) identified in Chapter 2 (Table 2.2) will be discussed within the framework of the three categories of change presented above. The relevance of these three categories to the

Beitbridge setting is discussed in the next three sub-sections.

#### **5.3.1.1. Behavioural responses to environmental and structural changes affecting the pastoral system**

As indicated in Chapter 4, perhaps the most crucial aspect of dryland ecosystems is their highly variable climate, water, soil and vegetation. A key feature of this ecosystem is drought. However, two types of drought are particularly relevant to inhabitants of these areas. The first type is drought which results in crop failure but has insignificant or no livestock deaths. This type is almost a permanent feature of the people's experiences. A second type is severe drought which results in crop failure, significant livestock deaths and serious water shortages for both livestock and humans. This second type of drought occurs at intervals not subject to reliable forecasts. These severe droughts may last a year or two. They may also endure for much longer periods, as was the case for the period between 1982 and 1993. Therefore, coping with and adapting to drought conditions are on-going processes within the pastoral system.

Culture is part of that adaptive process. People are always looking for strategies to create new ways of dealing with nature and one another (Bennett, 1993). Even more important is the need and ability to remember these ways for future use. It is this accumulation of precedents (through oral tradition) and their changes (modified through time) that enables these pastoralists to anticipate future demands. It also enables them to use both tradition and innovation in order to handle emergent constraints such as food and water shortages for livestock and humans. Thus, while the dryland ecosystem in Beitbridge creates difficulties for the inhabitants of the district, it also provides opportunities for these communities to cope with or adapt to this variability. The

key to the success of this coping and adaptive process is the mobility of pastoralists and their livestock, and cooperation among these pastoralists to meet the challenges posed by risk and uncertainty within the system.

Cooperation takes place at two levels of the community structure. The first level is among members of each homestead (intra-homestead exchanges) and the second level is among homesteads (inter-homestead exchanges). One of the key elements of this coping and adaptive process is sharing and reciprocity. The primary function of sharing is to reduce risk. It is a strategy in its own right and is not a side effect of risk as was previously believed (Low, 1990). An important aspect of the sharing process is reciprocity. The question that needed to be answered in this study was what forms of sharing and reciprocity took place within and among homesteads?

As indicated in Chapter 4, a homestead is a highly fluid institution, with members joining and leaving depending on the stressfulness of the environment and opportunities such as employment outside the homestead. In general, a homestead consists of a head, usually an elderly male, his wife or wives, his sons (married or single) and daughters-in-law and their children, his unmarried daughters and their children (if they have children), his unmarried sisters and their children (if they have them) and foster children. It is rare for adult brothers to share a homestead. Other homesteads are headed by women, either widowed or single mothers. This category normally consists of wealthy women, referred to as *mazakhela* in Chapter 4, who never married. Single or unmarried female members of the ruling clans also belong to this category. Most of them acquire their wealth through inheritance or as mistresses of wealthy polygamous men, particularly those of the ruling class. The size of these homesteads varies from as low as

two people to as large as thirty individuals. However, the important aspect here is that all livestock, although individually owned by homestead members, are herded and penned together as one unit. Decision making is a collective process within the homestead involving the head (if he is male), his wife (most senior wife for polygamous marriages) and eldest or nearest (distance-wise) sister (also referred to as *mmakhadzi* or *borakhali* or aunt). Married sons, if they reside within the homestead, are also included in this “inner court”. The role of the aunt (husband’s sister) in this process will be elaborated in section 5.4.

Labour for herding and maintaining the livestock system is pooled within the homestead. Milking is also carried out jointly at the homestead level and milk is shared equally among homestead members, regardless of whether or not these members own cattle. When need arises to slaughter one of the animals for beef, the head of the homestead is normally consulted, even though the animal may not necessarily be owned by him. While food preparation and consumption may take place in different locations within the homestead by several female members, the head of the homestead ensures that no member of his or her homestead is disadvantaged or experiences undue hardships due to food shortages, drought or livestock deaths. The burden of maintaining members of the homestead is shared across all members of the homestead. For instance, children normally eat together, although their food may be prepared by different mothers within the homestead. Similarly, food and cash remittances from members working outside the homestead are normally shared among members of the homestead. Other homestead members reciprocate this gesture when it is their turn to help. In this way, the risks of starvation or malnutrition are reduced significantly through sharing and reciprocity.

Hunting and snaring of antelope and eland, and trapping guinea fowls, although illegal, is a favorite pastime for boys and men. It is one means for supplementing temporary food shortages within the homestead during stressful times. Several homesteads may cooperate in group hunting for large game such as kudu and eland. Smaller game like bushbuck and impala are normally hunted by members of individual homesteads. Both poor and wealthy residents participate in hunting game to supplement their diets. However, hunting is more common among poorer members of the community who sometimes hunt in order to sell the meat.

Mobility is a key feature of pastoralism. Movement of livestock from stressed areas in search of better grazing is a common practice in this region (Swallow, 1994). Again, livestock are moved on a homestead basis. Where numbers permit, more than one homestead may combine herds and set up joint camps (*muraka*), usually in the third and fourth tier of grazing or in river valleys such as Mzingwane, Thuli, Limpopo and Shashe to optimize on labour resources and availability. Normally, it is men who go out to these camps. However, women who have no access to male labour, especially single women, also participate in these camping excursions alongside their male counterparts. Livestock are only brought back to the homestead after the first rains, usually around November.

Alongside these strategies, livestock owners sometimes engage in aggressive marketing of livestock, especially when they believe that there is no end in sight for the drought. However, in most cases, the decision is taken late into the dry season when most animals have lost condition, thus fetching low prices on the market. Field observations indicated that this was an option that was rapidly gaining popularity, mainly because of the high prices that were offered in 1995 and 1996. Marketing strategies and their impact on the pastoral systems, are discussed

in section 5.5.2.

Inter-homestead response to risk and uncertainty involves four strategies, namely:

- ▶ child fostering,
- ▶ livestock loaning arrangements (*mafiswa*),
- ▶ marriage, and,
- ▶ joint herding (discussed above).

Child fostering is one risk averting measure that poor homesteads resort to as a long-term strategy to mitigate against stressful times. More affluent homesteads accept foster children from relatives, friends and neighbours. Foster children usually stay with their foster parents until adulthood or marriage. Foster parents assume all responsibilities for education, food and clothing for the child in exchange for herding and other homestead chores. For male children, this becomes an opportunity to start owning their livestock. These boys are given female goats, donkeys and heifers (*malisa*) as soon as they mature into adulthood. They are then free to leave the foster home and start their own lives elsewhere or back with their biological parents. A few successful residents (5 respondents) indicated that this was how they had acquired their livestock.

The livestock loaning system (*mafiswa*) is prevalent in this region and is also practiced in Eastern Botswana (Berry, 1993). Parties to the agreement can be relatives, neighbors or just friends or people known to each other. Either party can initiate the arrangement. Animals involved in the transaction are normally cattle, although donkeys and goats can sometimes be included. However, in general it involves a lessor owning large numbers of livestock and a lessee who owns no livestock or cattle and aspires to have his own. The number of cattle loaned

out does not normally exceed 10. The lessee of the cattle pledges to look after them and in exchange he is given a heifer to start his own herd. The lessor bears the risk of loss of the livestock death, straying or theft. These animals can remain with the recipient for as long as the two parties are satisfied with the arrangement. Other benefits to the recipient include milk and draft power. However, the owner reserves the right to sell any of the animals whenever the need arises. These traditional forms of exchange have been described by Hyden (1983; 1986) as “the economy of affection” in which there is “a network of support, communications and interaction among structurally defined groups connected by blood, kin community or other affinities, for example, religion” (Hyden, 1983:8). While Hyden believed that the persistence of the “economy of affection” was responsible for the continued market and bureaucratic inefficiencies in Africa, I disagree with his assessment and conclusions that these networks were are irrelevant to the sustenance of the local economies and livelihoods. Indeed, these networks, such as this one governing the *mafiswa* system described above, are a necessary survival and risk aversion strategy devised by local communities out of many generations of experience with the vagaries of this harsh environment.

Marriage is another cultural attribute that has been refined in this region to take care of unpredictable variations in the environment. Young men are encouraged to marry their first cousins from their mother’s brothers, referred to locally as *mustwala*. Kuper (1982: 33) called them cross-cousins. In the study area, the practice is common among people of Sotho origin and less so among those of strong Venda inclination. This transaction involves cattle paid as bridewealth. People in Beitbridge District believe in witchcraft and for a long time witchcraft was the only basis on which a marriage could be terminated. All other forms of marriage disputes were settled through fines or consensus and mutual agreement. Informants stated that

marriage between cousins was intended to reduce the incidences of men divorcing their wives by simply accusing them of witchcraft. Under this arrangement, it became difficult for one to accuse his cousin of witchcraft since this would imply that his mother's relatives also practiced witchcraft. In addition, the system empowers women by transferring a good proportion of their husband's wealth to their brothers and cousins. This becomes a safety net for her in case of her husband's death or divorce. It is important to note, however, that only wealthy men are able to raise the required bridewealth and those men who are not able to do so are indebted to their in-laws perhaps for life. It is also common for a man's children to pay off this debt after his death. The implications of marriage as a risk sharing strategy are explored in section 5.4 below.

#### **5.3.1.2. Modification of the environment.**

Communities responded to drought by adopting short- and long-term strategies to modify the environment and reduce the impact of extended dry spells. Short-term responses based on experience included lopping tree branches to provide browse for livestock, digging temporary wells in the sandy river beds, transporting grass and acacia pods (*lithalauka*) to feed vulnerable animals and moving livestock to areas with better grazing. Long-term strategies included construction of private wells within the Communal Lands to supply water to members of that household and their livestock, breaking up the homestead into smaller units that would be dispersed strategically within the Communal Lands, and construction of dams for watering livestock.

Water is the most limiting factor in the system. Homesteads respond to water insecurity by privatizing the resource (private wells and pumps) within a communal context or by



constructing community wells used and maintained by the community. They also dig temporary wells in the sand on river beds, a technique called sand abstraction. These latter wells can be private or group owned. However, they are abandoned as soon as the rains start and rivers begin to flow. Permanent water sources that are communally owned are maintained and managed by water committees which ensure equitable access to the facility at agreed times. For instance, some committees stipulate times for watering livestock and separate times for collecting water for domestic use from the water-point.

Experienced herders also scout the area for edible and palatable species of trees that animals are not able to reach. Branches are lopped to enable animals to access the browse. This activity is a delicate and selective operation, and there are heavy penalties from the chief if the wrong trees are lopped or whole trees are cut down. Wealthy residents who can afford it can also buy hay from as far as Matebeleland North Province and transport it to the area. However, a common practice in this area is the collection of *acacia* pods (*lithalauka*) from the range for feeding to milking cows, calves, donkeys (to maintain them in good shape for draft purposes), goats and sheep.

Finally, the movement of livestock to better pastures is an adaptive strategy that indirectly modifies the environment. This also allows areas that are heavily grazed to rest before the rains. Unfortunately, when a drought endures for more than two years, even those areas that provide this type of relief grazing may also be exhausted. Livestock stray further and further away in search of food and in some cases are lost forever. This is particularly so when they cross the Veterinary Department fence from the Buffer Zone into the Red Zone (foot-and-mouth disease infested area) through open gates and broken fences. Cattle that enter the Red Zone are not

allowed back into the Buffer or Green Zones for fear of spreading the foot and mouth disease. The Veterinary Department enforces these rules and constantly monitors the situation.

### **5.3.1.3. Physiological change as a response mechanism**

Basic animal physiology textbooks stipulate that livestock should be watered at least once a day to enable digestion, growth and maintenance. However, it has also been suggested that livestock undergo physiological changes during severe droughts and are able to reduce their water intake significantly (Behnke et al, 1993). Drought forces pastoralists to move their animals to areas with better grazing but not necessarily with sufficient water. These animals have to travel long distances (20 to 30 km) to find water. These journeys normally take a whole day. After drinking water, these animals rest until night time when it is cool before they begin their long journey back to grazing areas. On the third day, they once again trek back to the water source, meaning they drink water once every third day. This seems to suggest that cattle adjust physiologically to require water less frequently. Part of this adjustment includes grazing at night, early in the morning and late afternoon and resting for most of the day when temperatures can reach 40 degrees Celsius. Livestock owners related accounts of increased abortions by cows, ewes and mares. It was not possible in this research to determine what proportion of these abortions could be attributed to nutritional stress and disease, and what proportion was the result of an internal physiological response within the animal that triggers abortion. Reports of unusually high numbers of empty cows were made to the local Veterinary Department offices at Zezani during the 1994/95 drought. In some cases owners "treated" their animals using traditional medicine, fearing that they could be affected by some disease. It is also common for goats to have high levels of twin and triplet births during the period following a severe drought. On the other hand,

Hjort (1972) and Ornas (1992) suggested that a severe drought was normally followed by low calving rates among affected herds. This does not seem to have been the case in Beitbridge. These are some of the issues that need further research. Unfortunately, they were beyond the scope of this research due to time constraints.

### **5.3.2. The wider community as an institution for mediating risk and variability**

If risk and uncertainty are major preoccupations at the homestead level, they are equally important for the wider community. And while it was stated in previous sections that mobility is the major element of the adaptive process within the pastoral system, social institutions also play a significant role in risk sharing. Vertical traditional institutions outlined in Chapter 4 play a major role in minimizing the negative impact of stressful events such as drought. Thus, the chief and his court (*khoro*), the headman and his court as well as the village head and his court have a social responsibility to ensure that privileged members of the community under their jurisdiction help disadvantaged members in one or both of the following ways:

- ▶ provide emergency aid to affected members directly if they can afford it, or,
- ▶ contribute certain amounts of food to the headman to be distributed as emergency relief to needy families during stressful times.

However, these strategies are of limited effectiveness if the drought endures for more than a year. These traditional leadership institutions are also used for monitoring the utilization of the range by the community. For instance, it is the duty of the headman or chief to negotiate temporary grazing rights for his people with neighboring chiefs, headmen or commercial farmers who may have excess grazing in their areas. This was the case between the people in

Whunga area under Beitbridge District and their counterparts across the district boundary in Nhwali under Gwanda District. These two communities had special arrangements for sharing grazing in Shobi Block (formerly Liebigs Ranches). Chief Chitaudze had similar arrangements with Anderson, a private rancher, regarding the use of his Doddieburn ranches for relief grazing during severe droughts until the ranches were sold to government in 1982 (Chief Chitaudze, 1995, personal communication). Since the sale took place, Chitaudze's people have been barred by government and Gwanda district rural council officials from using the ranches for grazing. The reason is that the ranches are administered from Gwanda District and not Beitbridge.

However, in dealing with drought, the most important strategy for local communities was through praying or asking for rain, through rainmaking rites. Rainmaking rites in Southern Africa and their role in people's lives have been documented by other researchers in the region. Notable among these studies are monographs by Kriege (1965) regarding the Lovedu in South Africa, Stayt (1968) and Wiessman, (1969) for the Venda of South Africa, Schapera (1971) for the Tswana in Botswana and Hammond-Tooke (1974) for several ethnic groups in South Africa.

Among the Venda, there is an ancient belief that links the python to rain. For instance, it is taboo to kill a python, especially at the time when rain begins to fall. The chief will seek anyone accused of such a crime and ensure that they deposit appropriate fines with his court after which a cleansing ceremony is undertaken. The chief will often send his messenger to satisfy him or herself that the dead python's body has been thrown into the river. Otherwise rain will "certainly" not fall (Wiessman, 1969). Similar observations among the Venda of South Africa were made by Stayt (1968: 309) who linked this belief with the python dance called *domba*, performed by young girls at initiation ceremonies. This is a dance performed by young girls as

a fertility rite. Incidentally, pythons are found along river banks and are sometimes referred to as water snakes. This is probably why they have been associated with rain.

During fieldwork for this research, a well known and revered python that had lived around one water point along the Zhobe River for many years was killed and its skin sold to a local businessman. This caused a great deal of distress among the community leading the culprit to confess to the crime. He was made to pay a fine equivalent to 2 head of cattle to the chief. The businessman who had initiated the plan and later bought the skin was asked to pay an equivalent of 4 head of cattle. Emissaries were then sent to *Ngwali* (the rain god at Matopo Hills near Bulawayo, and a spiritual centre for many ethnic groups in Southern Africa) to ask for forgiveness and for rains. Another interesting ceremony that links the python with rain and fertility is the burial of the python's head and tail in the cattle pen, to make the cows prolific. A related practice involves the wearing of a python skin around the waist of a barren woman to induce pregnancy. The killing of these pythons has to be sanctioned by the headman or chief prior to the ceremony and the hunting is normally done by a prescribed traditional healer (*ngaka*).

Praying for rain (*thapelo ya pula*) is a practice that was introduced into this area by Swedish Lutheran Church missionaries after the Second World War. The ceremony is held at Malikuwa mountain every Wednesday (a day selected by *Ngwali*, the rain god, to pray for rain), with several hundreds of people attending each session from a radius of about 30 km. Prior to the missionaries' arrival, this was a local traditional ceremony performed at the same mountain once every year. These ceremonies have been modernized and now included religious churches of all denominations operating in the area. At the time of this research, there were four such

denominations that participated in this weekly prayer. These were the Evangelical Lutheran Church of Zimbabwe, the Apostolic Faith Mission, the Pentecostal Church and Zion Christian Church. These ceremonies lasted for three months (August to November) prior to the onset of the rains. A possible reason why *thapelo ya pula* is performed in Zimbabwe is the influence of the Tswana, Sotho and Lovedu (well known rain diviners) in southern Zimbabwe.

When rain still does not fall, the headman or chief sends emissaries to a rain specialist in Malisungani, in the eastern part of Beitbridge District, to determine the cause for the drought and ask for rain. This rain specialist is referred to as finder of the rain (*mwene wa mvula*), and such people are renowned and consulted by other people throughout the Limpopo valley. Chief Matibe is one such rain specialist. Queen Mujaji of the Lovedu in Transvaal is another famous rain maker in the region (Kriege, 1982). These two command considerable respect in the region as rainmakers. Whether or not it is true that they make rain, these two are undoubtedly outstanding characters in the region and local people have faith in their practice.

Annual ceremonies for rain are a common feature of the Tswana in Eastern Botswana (Schapera, 1971). Although the principle is the same in these rites, they differ in procedure and actors from region to region. With the introduction of Christianity, many of these ceremonies have now become symbolic of traditional beliefs to many people. However, to the vast majority of people who reside in the areas, the ceremonies are significant in the pastoral system. People still accuse each other of not attending this or that ceremony, and believe this contributed to the prolonged droughts of the 1980's. This seems to indicate strong beliefs and faith in their traditions. Most people still pay a lot of attention to instructions that come out of these ceremonies and rites. Such beliefs are individual and community choices that help to determine

people's behaviour under drought and other stressful conditions. Furthermore, local institutions also play a significant role in that decision-making process and people's daily struggles for food and water security. Their role in adaptive processes is will be discussed in Chapter 6. Gender is another variable that plays a significant role in the pastoral adaptive processes and will be discussed in the next section.

#### **5.4. ROLE OF GENDER IN THE RESPONSE SYSTEM**

*"Girls bring cattle and boys look after them"* a local Sotho saying.

##### **5.4.1. The nature of marriage and bridewealth**

Marriage is an important institution among the Sotho and Venda in this region, and cattle play a major role in it. Marriage involves a transfer of cattle from the bridegroom's family to the bride's family in the form of what is called bridewealth or *lobola*. In order to understand bridewealth institutions, one needs to understand what cattle mean to people in Beitbridge District. In Chapter 4, I tried to convey the meanings attached to cattle by the Venda and Sotho in this area. This section focuses on the role of women and men in this "cattle complex", a term coined by Herskovits (1926) for East African pastoralism.

Hoerle (1925: 482), a renowned South African anthropologist, expressed her views about bridewealth in South Africa as follows:

We can never hope to understand the real and original function of such customs as the *lobola* transfer of cattle for a bride, or sacrifices for the dead, until we realize that we are in contact with ideas of cattle radically different from our own.

The following year, Herskovits (1926) characterized these ideas in what he called “the cattle complex of East Africa”. He later attempted to map their distribution in the East African region (Herskovits, 1930). Central to his thesis was the idea that cattle determined a man’s position in society and his ceremonial and social prestige, and that the husbandry of these animals was the responsibility of the owner who often knew each animal in his herd by name. Elsewhere in this dissertation I have argued that while local people may not be able to count or use Roman numerals, and while they may not know the length of the rivers or the height of the many hills and mountains in their areas, they are familiar with every stretch of the rivers and they know all the hills and mountains by name. Modern science finds it easy to group things when it is ignorant of their individual identities and this study agrees with this asseration.

Later studies developed variants to Herskovits’ (1926;1930) idealistic explanation of bridewealth in the “cattle complex” which he described as economically irrational. Herskovits’ argument was that cattle were paid for women not because they represented a direct equivalent to the value of a wife’s services, but because they had a special ritual value. Kriege (1939), for instance, argued that among the Lovedu of South Africa, it was not the sacredness of cattle which explained bridewealth, but that it was bridewealth which explained the sacredness of cattle. In other words, bridewealth was a purely cultural phenomenon (Kuper, 1982: 14). An alternative view is that cattle are used in bridewealth exchanges primarily because of their value as a productive and economic resource (Kuper, 1982: 167).

The rationality of pastoral systems of production is no longer a debatable issue. However, bridewealth still poses analytical challenges. For instance, how does one explain its variants throughout the Southern African region where for instance a commoner’s daughter is worth ten



head of cattle and chief's daughter is worth multiples of that? In Botswana, bridewealth is low in relation to cattle holdings. Among the Ndebele in Southern and Western Zimbabwe, bridewealth is only made available after the birth of a second child to the couple, thus emphasizing the local notion that "*cattle beget children*". In other words, a wife is important only if she can bear children to the husband's family. In the event of infertility, the husband reserves the right to obtain a replacement wife from his father-in-law. If his father-in-law is unable to respond within an agreed time, he can demand his cattle back or in the case of the Ndebele, does not pay *lobola* at all. Some Ndebele also forbid husbands from drinking milk or eating milk products from herds belonging to his wife's parents even after all the bridewealth has been paid. Thus, a general rationale behind bridewealth in Southern Africa may never be sufficiently understood because of these many variants within the region. However, its impact among the Venda and Sotho in the study area is what I turn to in the next section. The central question is who is the major beneficiary of these marriage transactions? Does this practice benefit or empower women or men?

It has been suggested that bridewealth payments and polygamy reduce economic differentiation and ensure equity within society (Goody and Tambiah, 1973). Goody and Tambiah argued that these practices move cattle, and therefore wealth, to the bride's family. In addition, polygamy, more often than not, resulted in additional children to the bridegroom. These children would inevitably divide the wealth (cattle) among themselves and their mothers whenever their father died. Thus, polygamy can accelerate the process of wealth dissipation. If this were always true, then wealthy men would be committing 'economic suicide' by accumulating wives. The fact that polygamy is common among wealthy families, with up to five wives, excluding mistresses, suggests that there is more than economics involved. In fact, through marriage and bride wealth

payment, men are spreading their risks (Kuper, 1982: 169). Marriage is not a simple form of consumption, it represents a shift in investment from cattle to human resources, hence the significance of cousin-marriages. Kuper (1982) further suggests that marriage and polygamy are not necessarily equalizing mechanisms. On the contrary, they are used by the wealthy to maintain their positions in society. However, within the Venda-Sotho culture in the study area, women also exploit the positions of their wealthy husbands to ensure that their matrilineal families benefit from the marriage. They (women) achieve this by encouraging brothers' daughters to marry their sons (*batswala* or cross cousins). In some cases women encourage their younger sisters to marry their husbands as junior wives. This is a strategy adopted by women married to privileged men to ensure the well-being of their matrilineal relatives and does not seem to benefit these men in the short or long run. In the short term, he loses a large proportion of his herd which might take two decades to rebuild (Dahl and Hjort, 1976). In the long run, his many sons will divide what remains of the livestock among themselves when he dies. How this ensures the survival of a woman's matrilineal family in times of stress is the subject of the next section. The status of livestock kept at a mistress' home is different. The difference lies in the inheritance process after the death of the husband. Although mistresses have considerable latitude regarding the disposal of these animals, the husband continues to own them until his death. Thereafter, all the animals are taken over by the mistress and her children, and are not distributed together with the rest of the deceased's estate.

Although I have argued that women benefit to a certain extent from bridewealth payments, bridewealth also can be a potential source of tension between husband and wife. In some cases, it can lead to harassment of women by husbands who believe that payment of bridewealth gives them the right to harass their spouses. In the study area, a number of such cases were reported,

mainly because they had resulted in divorce. The problem was that it took very courageous in-laws to support their daughter and seek divorce, because bridewealth cattle would have to be returned to their former son-in-law and the woman would return to join their homestead. Returning *lobola* to a former son-in-law is sometimes not an easy option. These cattle might have died during droughts or been used to pay their son's *lobola*. Whatever the case might be, it is the parents of the woman who have to come to their daughter's rescue. For wealthy families this option is easy. It is more difficult for less privileged families, as it means becoming indebted to their former son-in-law. As indicated above, one option women have for fighting back is to dissipate their husband's wealth, potentially reduce their children's inherited wealth, by encouraging their sisters and cousins to join them as junior wives. This way, the major source of pride for many men, cattle, are significantly reduced and transferred to the women's parents and relatives. Under such circumstances (polygamy), divorce becomes even more difficult. However the assumption is that a strong and wealthy father-in-law is able to control his son-in-law by using cattle (loaning cattle back to son-in-law) as a bargaining chip for better treatment of his daughters. However, men still have the upper hand in the control of their cattle and often unnecessarily delay payment of bridewealth for their extra wives and in other instances, do not pay at all.

#### **5.4.2 What is the role of marriage and bridewealth in the adaptive process?**

Cattle deaths are a frequent phenomenon in this area. It is therefore rational to spread one's risk by spreading one's livestock over a wider spatial area. Marriage is one way of achieving this. Although the husband loses ownership of cattle paid as bridewealth, in-laws are the first people to come to their daughter's rescue in the event of her husband losing all or most of his cattle to

drought, disease or theft. Earlier in this chapter, it was stated that women, whether married or single, and regardless of where they reside, are regularly consulted by their blood brothers on almost all major issues requiring collective decisions within the homestead. It does seem that the reason these sisters (*borakhali* or aunt to brother's children) are consulted is because they (women) are normally the source or potential source of wealth for their brothers, provided they marry into a wealthy families. For poor families, marriage does not bring any solace. When a woman gets married, it is her brothers, and not necessarily her father, who fix the amount of *lobola* to be paid. It is these same brothers who inherit their father's livestock after his death. It is also some of the same cattle that are used to pay *lobola* for these brothers' wives. Hence the power and influence of the sister or children's aunt in some of these marriages.

It is common knowledge among local residents that many wives dislike their husbands' sisters and the source of this dislike is probably the regular advice the sisters give to their brothers. After all, as described above, "*the house of a brother is believed to have been created by a sister*" - hence his indebtedness to her for life. Ironically, the same women who dislike their sisters-in-law interfering with their household or homestead affairs do exactly the same when it comes to their own matrilineal families. And because of the tremendous influence of sisters in the affairs of their brother's household or homestead, they can actually ruin a relationship, resulting in their brother's divorce. Most women prefer to hide their dislike of their sisters-in-law in public and from their husbands. However, they can make subtle jokes about it to close friends and relatives.

Apart from fostering children from the husband's family, child fostering also included children from the wife's family. 35% of the 150 fostered children in the study area were somehow

related to the fostering family through the wife's family line. In other words, they were either a wife's sister or brother's child. 45% came from a husband's sister or brother. The other 20% were more distant relatives or not related to either adoptive parent at all.

Upon divorce, the same number of cattle paid as bridewealth were returned to the estranged husband. All the progeny of the original bridewealth cattle remains the property of the in-laws and indirectly that of the divorced wife. Among the Shona in Zimbabwe, there is what is called "*mombe ye humai*" (Beach, 1980). This is a heifer that the bridegroom gives to his mother-in-law upon marrying her daughter. This is non-returnable even after divorce and is considered a source of wealth accumulation among women within Shona society, if their daughters get married. There was no evidence of such a practice within the study area. In the event of the death of their father, all male children share most of the livestock equally. Where there are sufficient livestock numbers to go around, female members of the household are given their own share of about 20% of what the male children get. However, their mother or mothers get an allocation of this wealth that is greater than that given to other female members. The sons also have an obligation to look after their mother until re-marriage, if she decides to re-marry, or death. After all, her daughters in-law would most likely be her brothers' daughters. In this way, an intricate "life insurance" system that is centered around marriage and bridewealth ensures the survival of a wider spectrum of beneficiaries who would otherwise face traumatic and stressful lives without this support system. Similar observations were made by Almagor (1978) among the Dassanetch of southwestern Ethiopia.

Each local bridewealth system is adjusted to suit the specific social, economic, climatic and political conditions of the area. During extended drought periods, for instance, it is common

practice to use substitutes for cattle such as symbolic objects like stones or goats and chickens as a debt to be paid, without interest, once the groom builds up his herd. Similar observations were made by Kriege (1965), Hammond-Tooke (1981) and Kuper (1982) in South Africa and Botswana. There were reports in the study area of payment in the form of cash, farm implements, clothes and other items because of the drought.

This analysis has not accounted for all the variants of bridewealth payment in the area. However, the point to be made is that marriage and bridewealth institutions are risk sharing strategies that empower both men and women but in different ways. Yet to say that this is the sole purpose of these institutions would be grossly inaccurate. There is still a lot that is “unknown” to outsiders about bridewealth and its variants among pastoralists in the many localities that they inhabit. For instance, some new versions of *lobola* among certain families require all the bridewealth to be paid in cash. However, in many cases, this cash has to be raised from the sale of livestock. The role of marketing in the response system is the subject of the next section.

#### **5.5. THE ROLE OF MARKETING IN THE RESPONSE SYSTEM.**

So far, I have illustrated the proposition that the ability of pastoralists to respond to variability is embedded in the very conditions of their day-to-day life. Risk and uncertainty posed by the threats of drought and food shortages are a part of these conditions. Pastoralists also occupy particular ecological environments generally unfavorable to crop production but often not exclusive of it. For many of these people, it means that at some point in time, when their own stocks and reserves of grain have been exhausted, a decision is made within the household to

exchange livestock for grain since grain is an integral part of their diet. Some three decades ago, this involved traveling long distances on donkey carts to parts of Midlands Province (Mberengwa and Zwishavane Districts) to buy grain. This also included trips to Transvaal in South Africa to buy grain. The local concept of *hothuta*, meaning importing food, captures the nature of this practice. However, a key component of this process is the use of livestock in the exchange arrangement or, as is common practice now, marketing of livestock to raise cash for the transaction. The role of marketing and how pastoralists have historically responded to markets is the focus of the next subsection.

#### **5.5.1. Livestock marketing**

One issue that dominates the 'official' discussion of livestock development in Zimbabwe is how to induce pastoralists to market more of their livestock in order to control overgrazing in the Communal Lands (GOZ, 1986). The assumption is that pastoralists represent an uncaptured market of irrational livestock keepers who own livestock more for prestige than economic reasons - an extreme version of Herskovits' (1926; 1930) concept of the cattle complex. I have argued elsewhere in this chapter that, on the contrary, pastoralists are rational in their dealings with livestock and that this apparent misunderstanding of the pastoral system often leads to inappropriate interventions. This concurs with Kerven (1992) who argued that, historically, pastoral groups throughout Africa have been engaged in livestock trading and marketing since the pre-colonial era. Indeed, African pastoralism has, neither in the past nor the present, been an inward-looking and self-sufficient production system, isolated from surrounding economies and events (Kerven, 1992: 3).

In Zimbabwe, the period following the Second World War saw a proliferation of large ranches, each up to 40 000 hectares in extent, throughout the country as war veterans were offered land for their services during the war. These ranches needed to be stocked with cattle and since most of the new landowners were by no means rich, government intervention was needed to raise cattle from the Communal Lands for these new farms. Thus began the forced marketing of cattle, and in many cases in Beitbridge, these were confiscated because owners refused to sell. Prices offered were pathetically low (less than two pounds per animal when they were worth more than ten pounds each). The 1951 Land Husbandry Act set ceilings for stock holding in the Communal Lands and excess stock was either sold, forfeited to the state, or shot dead on sight under the guise of disease control. Many of the older folks in the district were able to narrate those “dark days” and the impact it had on them and how they responded to it. A cattle levy and hut tax were also introduced to coerce people to sell livestock and attract them into the labour market (to work on farms and mines). In response, many people presented false records of their stock numbers. In fact, even the Veterinary Department officials admitted that, by 1970, more than half the cattle population of Beitbridge District was not recorded nor reported to government officials, hence no levy on them was collected (Dube, 1996, personal communication).

However, while livestock marketing methods currently used in the Southern African region were introduced at the time of colonization, conceptually they are not inimical to pastoralism. Rather, the indigenous customary commerce involving the exchange of livestock and their products was gradually and in some cases radically transformed through incentives, legislation or force. This viewpoint is supported by Kuper (1982), Galaty and Johnson (1990) and Kerven (1992). In Beitbridge, there are livestock auction centers (locally called sale pens) each servicing



an area of 20 km radius. Sales are held at each one of these centers once every month, although the number of animals sold varies throughout the year, peaking to several thousands during the dry season (June to November) with lowest sales of less than 10 animals per sale between February and May. Private auctioneers submit tenders to government each year for contracts to conduct these sales. These contracts are worth 17% of the price paid by the buyer for each animal at an auction and are fixed by central government.

In general, the response to these marketing incentives has been favorable. However, livestock owners do sometimes withdraw their animals from the auction or boycott the market altogether if they deem the prices to be too low. During fieldwork for this dissertation, four such auction centers (Zezani, Nwhali, Masera and Manama) were boycotted by producers for two months (September and October) and in Toporo, producers from the Malibeng area (Hongwe Dip) withdrew all their animals in protest against low prices. Less than 10 animals were sold at each one of these auctions during the boycott compared to an average of 500 animals under normal circumstances. These producers later invited private buyers (comprising mainly butchers and speculative buyers) to buy their animals. This time prices were 15% higher than what they had previously been offered. One reason was that buyers who pay a 17% auction levy at the point of sale at auctions were able to negotiate with individual owners and pass on the equivalent of the levy or part of it directly to the producer. Thus the buyers got the same animals for the same or slightly less than what they would have paid at the official auction. Cattle owners were also satisfied with prices that were on average 15% higher than what they had previously been offered for the same animals at the auction.

By the end of the year, private sales were becoming common and popular in the area. The

Zimbabwe Farmers Union, the Ministry of Agriculture, Beitbridge District Rural Council and other affected Rural Councils were in the process of preparing legislation that would regulate private livestock sales as they were losing potential revenue through this side-marketing. While pastoralists were in the past not completely able to control exchange values for their animals, they had proved that given the opportunity, they were capable of bargaining effectively with buyers to their own advantage. The strongest tool they could use in the short run was to withhold their cattle. What was particularly significant about these incidents was that pastoralists' responses to external opportunities, even under the threat of a drought, had taken bureaucrats by surprise.

The pastoral system is primarily oriented towards production for home use, in which marketing features as a necessary complement rather than the major goal of production. This prevents pastoralists from taking full advantage of the seasonal fluctuations in livestock prices. For instance, cattle prices are highest between February and May (soon after the rains). Yet the number of cattle sold in this area during this period is less than 25% of total sales for the year (GOZ, 1995). The period between February and May is also the time when food for human consumption is relatively abundant in the area and other commitments such as school fees are paid for in January. The other possible reason is that producers "flood" the market with animals during the dry season between July and December - the so-called stress-sales syndrome (Kerven, 1992). Thereafter, they concentrate on re-building their herds during the rainy season and thus tend to withdraw from the market. Similar observations were made by Onars (1992) and O'Leary and Palsson (1992) in Kenya.

It is also important to note here that in all these marketing activities, wives and aunts are

normally consulted on the selection and number of animals to be sold. In many such instances, wives also accompany their husbands to the auction and are consulted about whether to accept the final price offered or to withdraw the animal. After the sale, some men pass on the money to their wives for safe keeping while they indulge themselves in beer drinking with friends. This is particularly common if the sold animal belonged to the wife or aunt. However, there were other cases in which women were only informed of the intention to sell animals but never saw the cash after the sale nor knew the prices that the animals fetched. In general, there was consultation within the homestead but the degree of involvement by members of the homestead in marketing varied among homesteads.

## 5.6. SUMMARY

Much of this chapter has focused on the way pastoralists in Beitbridge District responded not only to ecological variability, risk and uncertainty, but also to structural changes affecting their system. I have explored the cultural attributes of the Venda and Sotho people in the district, the opportunities and constraints that their production system faces, as well as the coping and adaptive strategies that they have adopted and continue to develop as they face new challenges. I have suggested that the response system is oriented towards risk aversion and adapting to environmental uncertainties. Part of this risk mediation is manifested in strategies and practices centered around cooperation among pastoralists and mobility of their herds. Marriage institutions such as bridewealth and child fostering play a significant role in the response system. Other mediation strategies base their strengths on an indigenous faith and belief system to overcome the “unknowns” brought about by drought and uncertainty. However, the success of the pastoral coping and adaptive strategies rests on the two key elements of pastoralism mentioned above: cooperation, and mobility in the search for food, water and better lives.

It has also been argued that the homestead is the locus of decision making, as well as of economic and social activities. The coping and adaptive system (cooperation, sharing, reciprocity and mobility), while primarily aimed at sustaining the livelihood of homestead members, is also targeted at the larger community. The pastoral system is in a continuous state of flux in which risk and uncertainty are an integral part. Pastoralists respond by changing their behavior and modifying the environment, while livestock feeding habits are changed considerably in the face of severe droughts. For instance, cattle are watered once every three days under these stressful conditions.

As part of a broad adaptive system, marriage plays a significant role in risk sharing strategies by spreading investment (cattle) over the wider community. While marriage in general dissipates wealth, marriage between cross-cousins consolidates this wealth within the homestead of the wife's parents, thus helping to reinforce the bond between extended families. This practice also reinforces the power and influence of aunts in the affairs of their brothers' homesteads. Since women are a potential source of cattle and wealth to their parents and brothers, they ensure that they have a say in the affairs of those who benefit from their bridewealth cattle - their brothers. Hence the local saying "*girls beget cattle and boys look after them*". In general, however, bridewealth is an important mechanism for sharing wealth. It also helps to maintain kinship relations and share livestock wealth across kinship lines and generations. However, it is also a potential source of stress, conflict and harassment from the husband. Some men sometimes think that by paying bridewealth, they can own their wives. Although women have a few avenues that they can take to strike back at abusive husbands, ultimately it is the in-laws who have to stand-up for their daughter's rights and take her back into their homestead and return the bridewealth - a difficult decision, particularly under drought conditions.

As the pastoral economy is increasingly being integrated into the cash economy, so are some of the traditions and customs in the area. It is now common for marriage to be finalized and bridewealth paid without the traditional exchange of cattle but through cash transactions alone, mainly due to the shortage of cattle and the recent high market value of cattle. These transactions are usually below market value. Opportunities brought about by an aggressive livestock marketing drive have made these new arrangements possible. Private marketing, a local initiative, seems to have upset bureaucrats who would like to control the marketing of livestock. However, it is also an indication of the innovativeness of local people in the face of risk and uncertainty.

No part of this discussion is intended to present a romantic view of Venda and Sotho life in the district. Drought is still a permanent feature in the district. Crop failure is also a common feature of the area. However, pastoralists are rational people who make rational decisions concerning issues that affect their lives. Yet it is important to note that the system is under considerable pressure and is threatened by environmental, economic, social and political changes. The fate and tenure of surrounding farms now owned by government that these people traditionally have accessed in times of stress is one major concern for these people. Their institutions for managing livestock and range, including mobility, are under pressure from outside. To a large extent, they have so far succeeded in mediating risk and uncertainty. However, the sustainability of the pastoral system can not be guaranteed outside strong, efficient, equitable and reliable local institutions that bring harmony to the communities. I have argued in Chapter 2 that one of the entry points into sustainable pastoral development is its institutions. The next chapter focuses on the analysis of these institutions and structures of social organization relevant for the long-term sustenance of the pastoral system.

## CHAPTER 6

### THE ROLE OF LOCAL INSTITUTIONS IN THE PASTORAL MANAGEMENT SYSTEM.

*For a creature to be correctly said to have a rule, it is necessary that it should be able to break (transform) the rule. (Bennett, 1996: 17).*

#### 6.1. INTRODUCTION

In Chapter 5, the homestead was portrayed as the locus of decision-making and adaptive processes within the pastoral system in Beitbridge District. The focus of analysis and discussion was on the response system at the homestead level. Smith (1992: 19) referred to this level of analysis as the “domestic or family level”. However, it was also suggested in Chapter 5 that these activities were nested within the larger framework of community, local institutions and rule systems that exist in this area. Much of people’s behaviour is governed by social rules (Smith, 1992). Burns (1985: 265) suggested that social rules not only organize and regulate behaviour, but also help to make it understandable. The third objective of this study (objective 3 in Chapter 1) was to examine the role of local institutions in the management of livestock and rangelands in Beitbridge District. Specifically, this study sought to examine the rule systems that were applied through such institutions to manage communal grazing resources. Thus, the concern in this chapter is with rule-governed behaviour and the ability of actors to maintain or change the rules, or introduce new ones based on past experiences. Whereas the focus in the last chapter was on the homestead-level decision-making processes, this chapter broadens this

discussion to the wider community level.

Two systems of administration of Communal Area resources, the traditional system and the vidco-based system, were introduced in the discussion in Chapter 4. It was stated in that chapter that the vidco-based system was being phased out at the village level at the time of fieldwork in favour of the traditional system presided over by the *sabhuku* (village head), the headman or the chief. These traditional institutions derive their legitimacy from village members and their leadership, and in the mid-1990's, have been gaining recognition from central government (GOZ, 1995). Since the vidco-based system, as presented in Chapter 4 is being phased out, it will not be further analysed in this chapter. Only the traditional system will be discussed. The role played by these traditional institutions in maintaining order and harmony as well as in mediating against risk and uncertainty within the pastoral system is central to the discussion in this chapter. The following questions guide this discussion:

- ▶ what is the nature of these institutions and the rule systems that they apply?
- ▶ how do they operate?
- ▶ how effective are they?
- ▶ what opportunities are available for incorporating these institutions and rule systems into mainstream policy and practice in livestock and range management in this region?

The institutional linkage to central government will be discussed in Chapter 7.

## 6.2. THE NATURE OF LOCAL INSTITUTIONS AND PASTORAL RESOURCES MANAGEMENT IN BEITBRIDGE DISTRICT

The types of institutions discussed in this chapter are traditional or indigenous to the people applying them. The rule systems are informal in the sense that they are not written down. These institutions and their rule systems derive their legitimacy from the inhabitants of the area and are not imposed on the people by external agencies. However, it is necessary to mention that since some of the institutions are recognised by central government, they are formal in that sense. Uphoff (1986) presented an eloquent description of different types of institutions and their definitions. He distinguished between two types of institutions: 1) institutions that are explicit organizations , 2) social institutions that are not explicit organizations (Uphoff, 1986:9). A third type is an overlapping category between social institutions and organizations. This dissertation is concerned with this third category of local institutions, in which the traditional systems are both a social institution (“complexes of norms and behaviour that persist over time by serving collectively valued purposes” such as *milao* and *siila* that will be described in this section) and an explicit organization (institutions that have organizational structure such as the chief, headman and village-head structures) for managing natural resources (Uphoff 1986:9). The approach adopted in this study is to focus on the rule-oriented institutions that shape behaviour, as well as the role-oriented institutions and structures. Uphoff (1986; 1992) suggested that one way of analysing an institution was to ask whether, if it were to disappear, people in the community would want it back and to what extent people would act or sacrifice to preserve the institution in question. As will be illustrated in this chapter, communities in the study area valued their traditional institution of the headman to the extent that they petitioned the chief in a bid to force the reluctant new headman to take up his post (section 6.3.1).



This focus on traditional institutions in this study was necessitated by the apparent abandonment of state-imposed local institutions (vidco system) at the end of 1995 in favour of traditional institutions (GOZ, 1995). As indicated in Chapter 4, these state-imposed institutions had proven unsuitable for rural communities, and these communities had reacted to their imposition by simply ignoring the authority of the newly-created institutions. Similar responses to state-imposed institutions were observed by Dei (1988) in Ghana, Brown (1990) among pastoralists in Botswana, and MacDonald (1994) among the Askole in Nepal.

As indicated in Chapter 4, the lowest office within the traditional management system is that of the village head (*sabhuku*). All *sabhuku* are responsible to the headman, who in turn is responsible to the chief in the area. However, these three institutions use the *khoro* (village court) as a medium for allocating resources and rights of access to resources, monitoring activities within the area, and sanctioning violators of set rules and agreements. In all cases (i.e. village heads, headmen and chiefs), these processes are carried out mainly through two sets of rule systems. These are referred to here as *siila* (sacred rules delivered by *Ngwali*, the rain god and guardian of the land) and *milao* (rules created by humans and based on past experience). The following sections discuss the nature of these two rule systems and the way in which they are created, maintained and transformed within the pastoral system. However, in order to understand the current position of the traditional system within the context of the administration of Communal Lands in Zimbabwe, it is necessary to discuss briefly the historical context within which the current changes are taking place. The following section addresses this issue.

### **6.2.1. The traditional system of management and administration of communal lands: a historical perspective**

The traditional institution and status of the chief, headman and village head have undergone many changes since the introduction of colonial administration in 1890. These changes can be divided into six major phases: Company Rule (1890-1923), Internal Self-Government (1923-1953), Federal Government (1953-1963), Unilateral Declaration of Independence (UDI) (1963-1980), The Post-Independence Transitional (1980-1990), and the Post-Independence Consolidation (1990 to present). Changes in the authority of the chief, headman and village head in each of these phases are summarized below.

#### **6.2.1.1. The company rule phase: 1890-1923.**

During this period, extending from the arrival of the first group of European settlers in 1890 until 1923, the country (Rhodesia) was administered through a legislative council composed of representatives of the British South Africa Company and settlers and chaired by the Company Administrator. Final authority over political issues rested with the British High Commissioner in Cape Town who operated through the Imperial Resident Commissioner in Salisbury, the capital city of Rhodesia (Weinrich, 1971). This Resident Commissioner acted as “the eyes and ears of the British Government”. During this period, chiefs and their institutions were effectively replaced by government appointed native commissioners as local rulers. The chiefs and headmen could no longer preside over land allocation and dispute issues. Their authority to allocate land and regulate the management of rangelands was withdrawn. The native commissioners were selected from among the settler community (in many cases, farmers) and

the Company, and they reported directly to the Administrator of the colony. They had very little knowledge of local cultures and traditions. The authority of chiefs to allocate land was usurped. This move to transfer power from the chiefs to native commissioners had its roots in the deep suspicion and fear which settlers had of traditional leaders following the two rebellions against colonial rule in the 1890's (Palmer, 1977). In order to facilitate this change, chiefs were required to register with their nearest native commissioners. Weinrich (1971: 11) reports that some chiefs refused to register, while others (out of suspicion) sent their subordinates to register as chiefs. It was also revealed during fieldwork for this dissertation that some native commissioners hand picked junior local leaders who they believed were cooperative and registered them as chiefs. It was reported by local informants that in this district, one headman was appointed chief under similar circumstances. This assertion was corroborated by other local leaders in the area, but for purposes of confidentiality, the chief cannot be named since one of his grandsons is the currently holds the position. Nevertheless, by 1914, 323 chiefs (all male) had been registered and the list of their names formed the basis for subsequent administration of the indigenous population (Garbett, 1966). Thus, the Company Rule Phase was a period during which chiefs and headmen in Beitbridge District, and elsewhere in the whole country, lost much of their power and prestige to control the management of natural resources as they were replaced by European bureaucrats and ordered to serve as “constables” and “dependent leaders of a conquered people” (Weinrich, 1971: 11)

#### **6.2.1.2. The internal self-government phase: 1923-1953**

In 1923, settlers voted by a majority of 59% in favour of “responsible government”, thus bringing to an end the period of Company Rule. By responsible government, the European

settlers meant self-government, a government that was responsible to Salisbury, the capital city of the colony, and not to London (through the British High Commissioner in Cape Town), nor to the Administrator, as the case was prior to 1923. It is reported that the other 41% of the settlers would have preferred inclusion into the Union of South Africa, fulfilling what the founder of Rhodesia ( Cecil John Rhodes) had hoped would become of the colony - the idea of Rhodesia as "The Second Rand" (Weinrich, 1971; Palmer, 1977). The strong ties by which many settlers felt bound to South Africa derived from the pioneer days when a large number of South Africans, particularly Afrikaners from Transvaal, participated in the wars and subsequent occupation of the new country. Consequently, after the 1923 elections, the Imperial Resident Commissioner , who was more active in matters of policy and segregation laws, was replaced by a ceremonial Governor who was less effective in influencing policy. The Administrator of the colony was replaced by a Prime Minister of Rhodesia. Sir John Chancellor was appointed the first Governor of the colony, while Sir Charles Coghlan, a settler leader, became the first Prime Minister. Despite these constitutional changes which took place after the 1923 elections, "the day-to-day administration of African or native affairs changed remarkably little" (Palmer, 1977: 133). The same Native Commissioners continued to hold office, and the Native Department itself continued to enjoy a greater degree of autonomy than any other since. Following the South African precedent and at British Government insistence, the Prime Minister was also made the Minister of Native Affairs. Coghlan was very much involved in railway matters and had comparatively very little time to devote to native affairs (Steele, 1972; Palmer, 1977). This allowed the Native Affairs Department to continue on its own and, as a result, racial policies of the country continued to be modelled on those of South Africa, a process that was legalised through various Acts of Parliament, and by different governments until the end of colonial rule in 1980.

Thus, 1923 marked the beginning of self-rule which lasted until 1953. However, during this period, chiefs were largely ignored by the administration. The 1923 constitution had already made provision for racially segregated areas and the Land Apportionment Act of 1931 had legalised the division of land between Africans and Europeans. However, the last years of the period of self-rule were influenced by campaigns for a Central African Federation by industrialists and the rise of African nationalism among the black population. The nationalist movement had used land pressure in the reserves and the erosion of traditional authority as an issue in their campaign against the government. For the first time in 1950, the Chief Native Commissioner's report mentioned a threat posed by nationalist aspirations among the African population and suggested that as a counter measure to this threat, it would be advisable to increase the power of the chiefs (C.N.C., 1950: 20). From then on and as nationalism spread throughout the country, the government responded by fortifying the position of the chiefs and headman.

In 1951, the entire chieftainship of 323 chiefs who had registered in 1914 was restructured by abolishing 89 posts, de-throning 37 chiefs, and pensioning another 11, thus making 137 positions redundant. Salaries for the remaining chiefs were increased and they were organised into provincial assemblies through which they could express their views to government officials. When government realised that support for African nationalism was growing among the African population and that "political agitators" were winning the support of chiefs, it reacted by deposing 13 of the chiefs by bringing criminal charges against seven of them and unsuitability and drunkenness charges against the other six. The late Chief Khwalu in Beitbridge District lost his post during this purge. In general, however, during the last years of internal self-rule, the chiefs' status had been raised, and provincial assemblies had offered chiefs a corporate identity

and had helped to draw them into closer cooperation with the government under the supervision of native commissioners. Their increased salaries encouraged loyalty to the administration.

The period of self-rule also provoked more political awareness among educated Africans. To counteract this process of nationalism, in 1931, government established native boards which consisted of chiefs and headmen representing the tradition-oriented population and an equal number of black appointees who were thought by government to represent the educated section of the population. These boards found little support among the African population and were abolished six years later in 1937, to be replaced by councils which consisted of headmen, teachers and other local business people, all hand-picked by the native commissioners. These councils were chaired by the native commissioners. In 1944, councils were given limited powers of taxation and passing of by-laws and responsibilities over certain roads, bridges and primary education. By 1952, forty-three councils had been established throughout the country but in spite of encouragement by the native commissioners, some chiefs showed little enthusiasm for the councils. Chief Chitaudze in Beitbridge is one of those that resisted the establishment of a council in his area and almost lost his post had it not been for the support he received from his headmen and probably because of the fact that Beitbridge District had been declared "waterless and uninhabitable", except along the banks of major rivers, by the 1925 government-appointed Morris Carter Land Commission (Palmer, 1977: 271). Therefore, the district and its residents were not among priorities for government development programs. The major reason for the lack of support for councils was that chiefs feared councils would undermine their traditional positions, and that nationalistically inclined people refused to serve on councils chaired by government officials. In any case, the amount of work undertaken by councils was so insignificant that they failed to capture the support of most of the rural population.

Traditional systems of government continued to function without sanction or support from government. In Beitbridge, the absence of a council in Chief Chitaudze's area meant that the area would not receive government grants to support infrastructure development programs such as roads, water, education and health. The Lutheran Church moved in to fill in this gap by providing support for education and health. Indeed, the church took over the administration of all primary schools in the district during this phase. There were no secondary schools in the district until 1980.

#### **6.2.1.3. The federal government phase: 1953-1963**

The federal phase began with the establishment of the Federation of Rhodesia and Nyasaland in 1953 and ended ten years later with its dissolution. This period marked a turning point in the position of the chiefs in Rhodesia. Whereas in the past, chiefs, headmen and village heads had been rejected by government as leaders of rebellions or as inefficient old men, and by local populations as constables of the administration, during the Federal Phase, chiefs were wooed by both government and nationalist movements. When, in 1957, Africans founded the first nationalist party in Rhodesia, (the African National Congress), government was alarmed and reacted by turning once more to chiefs and their lieutenants for support. Their salaries were again increased and several public relations activities were arranged for chiefs. Many of them were flown to Lake Kariba to see the new dam and to Bulawayo and Salisbury (Harare) to see industrial development in the big cities. They attended the opening of parliament and also visited the university (Weinrich, 1971). These public relations gestures seemed to pay back when, in 1959, chiefs for the first time sided openly with government against nationalist movements when they petitioned government through the provincial assemblies to ban political

meetings in their respective areas. This was the beginning of the conflict between chiefs and nationalist movements, a conflict that would persist until 1995. In order to further consolidate the chiefs' position, government created a National Council of Chiefs in 1962, consisting of twenty-six delegates from the seven provincial assemblies. The following year, all nationalist parties were banned and chiefs through their council had become politicians, representing the aspiration of their people at national level. No chiefs from Beitbridge District were included in the National Council of Chiefs and these changes had very little effect on the authority of traditional leaders in Beitbridge or other similar remote and peripheral districts.

#### **6.2.1.4. The UDI phase: 1963-1980**

The dissolution of the Federation in 1963 was preceded in 1962 by an election victory for a right-wing party (The Rhodesian Front) that looked to South Africa for inspiration. The new government began to negotiate for independence from Great Britain, but because of its refusal to allow blacks the right to vote, the negotiations were fruitless. When Britain insisted that it would not grant independence until the black majority was allowed to participate in the electoral process, the then Prime Minister of Rhodesia, Ian Smith, declared independence without Britain's consent, hence the name "Unilateral Declaration of Independence" (UDI). This was followed by international sanctions against the country.

Weinrick (1971) observed that if during the Federal period chiefs rose to power, then during the UDI period they were propelled into prominence as one Act after another was passed by parliament to increase their power in a bid to limit the influence of nationalist politics within the African population. Several developments in 1962 influenced the trend of events during the



UDI period. The administration of African areas was reorganised soon after the elections in 1962. The native commissioners were renamed district commissioners, the Native Affairs Department became the Ministry of Internal Affairs, and African rural areas hitherto known as native reserves were called tribal trust lands. In order to increase the experience of the chiefs and augment their esteem among their people, the government sent two parties of chiefs on a world tour to Asia and South Africa in 1964 and 1966. The chiefs recognised their strong bargaining positions and in 1964 asked government for representation in parliament, a request granted in 1969. The chiefs in turn condemned nationalism and claimed to be the true leaders of the African people. The African Affairs Act was amended in 1966 and a section of the old Act that described chiefs as constables in their tribal areas was deleted. The Tribal Trust Land Act was passed in 1967. This Act returned to the chiefs the power to allocate land to their subjects and also held them responsible for soil conservation. The African Law and Tribal Courts Act, which returned to chiefs most civil and limited criminal jurisdiction, was passed in 1969. Although the Minister of Internal Affairs could invalidate or intervene in any decision reached by a chief, these two Acts gave considerable power and authority to chiefs. Finally, chiefs regained most of what they had lost since the European settlers arrived in the country. In 1969 the constitution was amended to include chiefs in both the parliament and the senate (ten chiefs in the senate and eight chiefs in parliament) and government made the appointment. The status and power of chiefs and headmen would continue to increase throughout the years of conflict and liberation war. However, these traditional leaders and their institutions would pay dearly for their support of the Rhodesian government when the nationalists won the general elections in 1980 and paved the way for a new and independent state of Zimbabwe.

#### **6.2.1.5. The post-independence transitional phase: 1980-1990**

With independence in 1980 came the demise of the chiefs' power and authority. The new nationalist government did not disguise their dislike of the chief's institutions and the support which chiefs claimed they had from rural people. Neither did they forget the role of the chiefs in the previous governments. After independence, all the rights of the chiefs to allocate land to their subjects were once again taken away and given to district administrators, local government promotion officers and ward councillors through the introduction of the Chiefs and Headmen Act of 1982. This was done despite the fact that most of these chiefs had publicly supported the new government and even indicated that they had voted for the ruling party during the elections in 1980. The chiefs and headmen's legal jurisdiction over civil and criminal cases was also taken away and given to newly created primary courts presided over by magistrates. Their salaries were suspended from 1980 until 1990. They also lost their parliamentary seats but were appointed back into parliament in 1990. The senate was abolished. The vidco system was also introduced to neutralise the powers of the chiefs, headmen and village heads. However, for reasons given in Chapter 4, these new state-created institutions had limited success in taking over the functions of the traditional leaders, mainly because they (traditional leaders) still retained their titles, commanded respect among their subjects and continued to regulate the allocation and use of land in their areas without government approval.

Chiefs, headmen and village heads also took every opportunity to voice their concerns about this treatment to senior government officials whenever they had the opportunity. Moreover some of these traditional leaders were strong supporters of nationalist movements. In addition, there was evidence of growing breakdown in law and order within the Communal Lands as a result

of the introduction of the vidco system. Conflicts and disputes related to land use were also on the rise (GOZ, 1995). These disputes were exacerbated by the duality created by the vidco and traditional systems and the erosion of authority and responsibility from traditional institutions. District councils ignored chiefs, headmen and village heads in the allocation and management of land in the rural areas. Yet, these same traditional leaders still enjoyed considerable support from their subjects and they continued to carry out their land management functions and preside over community disputes without government blessing. It was for these and other political reasons that the government decided in 1990 to re-instate the chiefs, headmen and village heads to their traditional positions. The implementation of these changes would be in phases. After all, during campaigns for the 1990 general election, the ruling party had promised to reinstate the traditional leaders' authority once it was re-elected. The county is still in this consolidation phase.

#### **6.2.1.6. The consolidation phase: 1990 to present (1997)**

The Lancaster House Constitution, the result of a negotiated resolution of the war in 1979 and which could not be amended within the first ten years of Zimbabwe's independence, lapsed in 1989. A new constitution took effect in 1990. However, the few powers that were given back to chiefs, headmen and village heads were only formalized through the Chiefs and Headmen and Village Heads Amendment Bill of 1995. The Bill expanded the duties of the chiefs by re-introducing the village heads as the lowest tier in traditional leadership. It also established village assemblies and ward assemblies as traditional governing organs at Communal Area level. This Bill also extended the jurisdiction of the chiefs to resettlement areas (former commercial farms). More significant and of relevance to this study is Clause 8 of the Bill, which

amends the Criminal Procedure and Evidence Act (Chapter 59) to designate chiefs, headmen, village heads and chiefs' and headmen's messengers as peace officers. This will restore the traditional leaders' authority to allocate grazing rights and resources, to monitor activities within their respective areas and to sanction violators of set rules. It is within the context of these newly formalised powers and responsibilities of the traditional leadership that the following discussion will take place.

The reinstatement of village heads by government is of major significance to this study, since they represented the lowest socially and culturally legitimated tier of traditional resource management in the Communal Areas before they were interfered with by the various governments that came into power since 1890. Its significance lies principally in the reinstatement of the traditional system of resource management at the same time as government is beginning to implement policies that will eventually devolve full authority over Communal Area natural resources to the inhabitants of these areas and district councils (GOZ, 1995). Government is consolidating the positions of chiefs, headmen and village heads in these areas in order to facilitate the successful transfer of authority to local and traditional institutions. It is an opportune time for the integration of traditional systems into national policy regarding resource management in the rural areas. The major components of Communal Area administration since the arrival of European settlers 1890 are summarised in Table 6.1.

**Table 6.1. Main features of the administration of Communal Lands and their effect on traditional institutions**

PHASE	PERIOD	MAIN FEATURES	EFFECT ON TRADITIONAL INSTITUTIONS
The company rule phase	1890-1923	<ul style="list-style-type: none"> <li>-Arrival of first group of European settlers</li> <li>-country administered through a legislative council composed of BSAC and settlers and headed by Company Administrator</li> </ul>	<ul style="list-style-type: none"> <li>-Authority of Chiefs to allocate land and preside over traditional courts was usurped</li> <li>-Native Commissioners assumed responsibility for the administration of Communal Lands</li> </ul>
The internal self-government phase	1923-1953	<ul style="list-style-type: none"> <li>-Settlers voted in favour of self-government that ended Company Rule</li> <li>-Resident Commissioner was replaced by a Governor</li> <li>-Administrator was replaced by a Prime Minister</li> <li>-Morris Carter Land Commission report was published and the Land Apportionment Act was passed</li> </ul>	<ul style="list-style-type: none"> <li>-Very little change regarding the administration of Communal Lands (native areas)</li> <li>-Marked rise in nationalist political movement opposed to settler government</li> <li>-Entire traditional chiefs structure reorganised and 137 chiefs made redundant. Salaries for remaining chiefs were increased</li> </ul>
The federal government phase	1953-1963	<ul style="list-style-type: none"> <li>-Federation of Rhodesia and Nyasaland established</li> <li>-Government created the first National Council of Chiefs</li> <li>-Nationalist movements were banned, but new parties were formed and support for the movement increased</li> </ul>	<ul style="list-style-type: none"> <li>-Chiefs wooed by both government and nationalist movement.</li> <li>-For the first time, most chiefs sided openly with the government</li> <li>-Chiefs lose credibility among their people for siding with government</li> <li>-Period marked the beginning of the conflict between chiefs and nationalist movements</li> </ul>
The UDI phase	1963-1980	<ul style="list-style-type: none"> <li>-Right wing party win elections, abolishes the Federation</li> <li>-The Tribal Trust Lands Act was passed</li> <li>-Government declared UDI. This was followed by international sanctions against country.</li> <li>-Guerilla warfare against the regime intensified</li> </ul>	<ul style="list-style-type: none"> <li>-The chiefs regained their authority to preside over land issues in their areas</li> <li>-They also regained authority to preside over civil and some criminal cases in their areas</li> <li>-Traditional leaders continue to lose credibility among their inhabitants because of their open support for the white minority government</li> </ul>

The post-independence transitional phase	1980-1990	<ul style="list-style-type: none"> <li>-A cease-fire agreement was signed in London in 1979, and led to electoral victory for nationalist movement in 1980</li> <li>- Chiefs and Headman Act amended in 1982 and salaries for traditional leaders suspended and their authority severely curtailed until 1990</li> <li>-The vidco system was introduced</li> </ul>	<ul style="list-style-type: none"> <li>-Traditional leaders lose most of their power and authority over the Communal Lands</li> <li>-Their credibility and support among their subjects gradually increased</li> <li>-Increased mismanagement of Communal Area resources and evidence of increased lawlessness becomes a major concern for government.</li> </ul>
The consolidation phase	1990-present (1997)	<ul style="list-style-type: none"> <li>-The vidco system is abolished</li> <li>-The Chiefs and Headman Act was amended to reinstate the traditional leaders and their institutions as overseers of management of Communal Area resources and justice</li> </ul>	<ul style="list-style-type: none"> <li>-Chefs, headmen and village heads were reinstated.</li> <li>-Traditional leaders are placed on government payroll and required to undergo in-house training in view of their new and expanded roles as agents of government.</li> </ul>

### 6.2.2. Types of traditional rule systems

Burns and Flam (1987) argued that one of the main purposes for creating and maintaining social rules and rule systems was that such systems were a means of effectively structuring and regulating purposeful collective action, including the establishment of social order. Burns and Flam (1987: 17) distinguished between *instrumental motivations*, which include exploitative purposes (where rule systems are intended to achieve “collective goods” and enable some actors to dominate others), and *communicative motivations*, (where rules are intended to produce clear communications) for the production and maintenance of social rule systems. The latter is, in part, a strategy to deal with uncertainty, ambiguity and conflicts that arise due to people’s interactions with the environment. The *milao* rule system falls in this category. On the other hand, social rules established in efforts to solve certain collective problems fall under what Burns and Flam (1987) refer to as instrumental rules. The *siila* rule system falls into this

category. These rule systems are also referred to as institutional arrangements ( Mitchell, 1975; Mitchell, 1989; de-Loë, 1994)

The utilization and management of grazing resources within the pastoral system in Beitbridge is organised mainly through the two indigenous rule systems of *milao* and *siila*. As indicated above, *siila* is a set of rules established and maintained in an effort to solve certain collective problems, realize desirable goals, and generate certain valued activities within the pastoral system. They are passed on from generation to generation, and only the chief and the headmen can suspend the enforcement of these rules, which occasionally happens.

The term *siila* comes from a Sotho word *hoila* which means sacred, for these are indeed sacred rules. Their origin is said to be divine - they are instructions from *Ngwali*, the rain god and guardian of the land referred to in Chapter 4. Thus, *siila* encompasses this body of numerous rules or instructions from *Ngwali* relating to people's behaviour and activities at particular times of the year and the way they interact with the environment. The chief is the custodian of these rules and he delegates this responsibility to all his headmen, who in turn delegate that responsibility to the village heads. In other words he or she possesses what Burns (1985: 33) calls "metapower" over the rule system. All adults in the area are required to ensure that these rules are passed on to their children. The rules under *siila* are strictly observed and sanctions for non-observance can be very harsh. The offender is normally brought before a *khoro* (chief or headman's court) to enable his or her case to be heard before the chief or headman and his or her *makhotla* (council of advisors) and the public. Penalties for some violations such as cutting down a *mukamba* tree (a rare, majestic and royal tree) can be as high as several head of cattle. Some of these rules apply for only part of the year and it is only the chief or headman who can

lift the *siila* restriction.

Knowledge about these rules is maintained and transmitted orally by traditional leaders and adults within the community. Included in this set of rules are rules and taboos which enable residents of these areas to organize their behaviour on the basis of such rules so as to produce acceptable patterns of behaviour to achieve desirable outcomes in the exploitation of resources. In this regard, social norms, values and traditional institutions are particularly important in the context where the actions of different actors, in the absence of social coordination, are likely to produce negative and unintended consequences. Such actions include the overutilization of certain areas at certain times of the year, resulting in depletion of scarce water resources, grazing, wildlife or other natural resources in the area. Such outcomes usually result from the individual pursuit of self-interested resource exploitation or free-riding.

*Siila* rules forbid the cutting down of certain species of trees. The same rules forbid people from digging wells in certain places (for example, near springs) in case the spring dries. These rules are also used to control the movement of livestock when crops are in the field. *Siila* forbid people from grazing their animals on crop residue until such restrictions are lifted by the chief. While people are told that if these rules are not followed disasters such as drought and locust invasions may occur, it does seem that the main reason for these rules is simply to ensure that there is order and equity in grazing patterns, and that certain scarce tree and wildlife species are protected. The proscription on killing pythons, for instance, falls under this category of rules. Traditional healers must seek the headman's or chief's permission to hunt and kill the snake. While it is said within the community that such an act would result in failure of rain, this rule might be linked to the rarity of the snake and the medicinal values attached to the snake's



products.

Other rules under *siila* relate to the death of adult members of the community. Everyone is supposed to observe a three week period of mourning and not engage in heavy manual work during that period. This is one rule that is difficult to monitor, particularly during the cropping season, although it seemed that almost everyone observed it. However, during crucial periods like planting, the chief may reduce the period of mourning to a week to allow people to take advantage of the rains. While many of the rules under *siila*, including the one described above, may seem strange and therefore difficult to implement, they are deeply internalized within the community because of the long history of socialization. Thus, as Burns (1987) observed, in many instances community members feel alienated and estranged if they behave otherwise.

If *siila* rules look more like strategic rules, then *milao* are what could be termed operational rules. Just like *siila*, the chiefs, acting through the headmen and village heads, are the custodians of the *milao*. One of the differences between *siila* and *milao* is in those who have “metapower” - those with authority to change these rules and create new ones. *Milao* can be changed by consensus of elders within a village. They can also be changed by the village heads, the headman or chief, depending on the seriousness of the issue at stake. New rules are created in the same manner. As indicated above, these sets of rules are intended to deal with the inbuilt ambiguity and uncertainty within *siila* rules. *Milao* are clear instructions passed on from the chief, the headman, village head and village elders down to the ordinary livestock herder. They are enforced on all types of resources and social behaviour. These are the traditional equivalents of government statutory laws. The purpose and effectiveness of these rules discussed in section 6.3. The effect of these rule systems on nine key aspects of the pastoral system is summarised

in Table 6.2..

Several regulatory mechanisms and social control measures are used to implement these rules in Beitbridge. Sanctions and the coercive power of traditional leaders are by far the most prominent. *Milao* are enforced through a network of sanctions and coercion grounded in the nature of communal property rights in the area. However, some of these rules are supported by the payoffs they provide. Examples include the practice of castrating male animals within ones' livestock herd. Only bulls, stallions and rams selected for breeding are not castrated. Failure to comply with this rule means that unwanted breeds may find their way into the herd. The rewards for castration are high as this ensures good breeds within the livestock herds. Anyone within the community is free to castrate bulls or rams that do not belong to him or her, and that are considered by other residents to be of poor quality.

Totems play a major role in the management of resources among the Venda and Sotho people. Totems are normally named after domestic and wild animals. One is expected to treat his or her totem as sacred. In other words, people of a particular totem are normally not allowed to eat meat from that animal, neither are they allowed to kill it for any purpose. However, because of the impact of wars, captives sometimes changed their totem and assumed that of the victor. In other cases, poor sections of the community assumed totems of the people they worked for as livestock herders and some foster children assumed the surname or totems of their foster-parents. The ruling Tlou (elephant) clan is the most common in the area (39.5%). As indicated above, many of these people assumed the Tlou totem although they were originally not of the elephant clan. However, the fact is that these totems are another way of conserving wildlife

**Table 6.2. Types of rules and their application in the pastoral system**

Target of rules	Examples of rules	Type of rule system	Enforcement (sanctions)	Effect and/or intention of rule
Water resources	1. Restrictions on water use (e.g. no irrigation allowed) 2. Set times for domestic water collection and stock watering	1. <i>Milao/siila</i> 2. <i>Milao</i>	1. Verbal warnings and fines 2. Strict enforcement when animals are being watered	1 and 2. Effective rationing of scarce water resources, especially during dry spells
Grazing	1. Restrictions on time and zone to be grazed 2. Restrictions about setting fire in the range	1. <i>Milao/siila</i> 2. <i>Milao</i>	1. Verbal warnings and fines 2. Fines	1 and 2. Ensure equitable access to key grazing areas by community and rests over-grazed areas.
Livestock	1. Breed selection 2. Ear-tagging and branding individual animals within herd	1. <i>Milao</i> 2. <i>Milao</i>	1. Flexible application 2. Strict application (non-compliance may result in stock losses to thieves)	1. Eliminate unwanted breeds 2. Discourages stock theft and facilitates easy identification
Woodlands	1. Restrictions on logging areas (poles for homestead use cut from prescribed zones) 2. Restrictions on time to start harvesting wild fruits.	1. <i>Milao/siila</i> 2. <i>Siila</i>	1. Fines 2. Verbal warnings and rarely fines	1. Provide rational way of conserving woodlands 2. Ensure equitable access
Tree species	1. Restrictions on types of tree species that can be cut down	1. <i>Siila</i>	1. Fines	1. Conserve specific species
Wildlife	1. Restrictions on types of animals and species that can be hunted or killed	1. <i>Siila</i>	1. Verbal warnings (reprimands) and fines e.g. for killing pythons	1. Conserve rare species such as the pangolin
Cropping	1. Certain rituals performed by plot owners during the cropping season	1. <i>Siila</i>	1. Warnings and reminders	1. Crop protection (belief that non-compliance may lead to crop failure).
Boundaries	1. Observance of boundaries and equal access to resources within the community boundaries	1. <i>Milao</i>	1. Verbal warnings	1. Control stock movement, minimize potential for land disputes

Social behaviour	1. Numerous codes of behaviour for different age sets and community in general.	1. <i>Siila</i>	1. Verbal warnings, reprimands, fines and expulsion from the community.	1. Maintain harmony and stability within the community.
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species, as members of the particular animal name are not allowed to eat or kill these animals.

Table 6.3. illustrates the distribution of the totems among respondents to the survey.

### 6.3. ASSESSING THE PERFORMANCE OF THE RULE SYSTEMS

An attempt was made during field work to assess the effectiveness of the rule systems in the management of range and livestock. Customary law as promulgated by traditional leaders and their institutions in this area, and indeed in many parts of Southern Africa, derives its legitimacy through its reference to traditional values and practices and through its recognition of the chiefs, headmen and village heads as the hereditary custodians of the land. Similar observations were made by Rose (1992) based on her work on Swaziland's customary law. The chief, headman or village head and his or her council of elders or advisors (*khotla*) served as "legislator, executive and judge" (Rose, 1992: 77). The charisma of the leadership is the key to the success of these rulers. Peters (1994: 25) described the chief in Botswana as "umpire in all matters and settles all disputes above ground". However, she also suggested that the chieftaincy (*bogosi*) and the public assembly (*kgotla*) were two key institutional and ideological complexes at the heart of the Tswana system of rule, the *morafe*. While there are similarities in the broad principles of the Tswana and Venda/Sotho system in Beitbridge, there are also differences in terms of particularities of the two systems. The Tswana *morafe* system has long been part of local government administration and should present valuable lessons for the *khoro* system in

Beitbridge which is yet to be fully incorporated in local government administration.

**Table 6.3. Composition of survey respondents (n=240) by surname and totem and the English equivalents of the totem.**

TOTEM OR SURNAME	ENGLISH EQUIVALENT OF TOTEM	RESPONDENTS		COMMENTS
		number	%	
Tlou, Ndou	Elephant	95	39.5%	This is the ruling clan. It includes Mazibeli, Madzikiti, Masebe, Nstinya and Matsetlo (from the small bird called <i>tsetlu</i> )
Moyo	Heart	41	17.1%	The second largest, includes Modeme. They do not eat the heart of any animal. Others include the lungs in the proscription
Sebata, Mudau	Lion	30	12.5%	Includes the Makushu clan
Muleya	Zebra	25	10.5%	Includes the Nbalalime and Matsaka clans
Mlaudzi	Goats	17	7%	Include Nsingo. They do not eat the tail of a goat. They however eat the rest of the goat meat
Mbedzi	Pool	14	6%	They are also of the ruling clan in Beitbridge. Some do not eat fish, others the fish eagle
Noko	Porcupine	6	2.5%	This includes the Maphosa (one who throws) clan
Choeni	Monkey, baboon	4	1.7%	Very small group associated with people from Mberengwa District north of Beitbridge District
Nare	Buffalo	2	0.8%	These are offshoots of the Babirwa ethnic group, settled west of Beitbridge in Gwanda District
Nguluvhe / Kulube	Pig	2	0.8%	They do not eat meat from wild pigs. Includes the Mukhwevho and Mabuya clan
Khomu	Cattle	2	0.8%	Some do not eat the liver from cattle. A very small clan
Mukwena	Crocodile	2	0.8%	These are the guardians of many pools of water and great fishers
TOTAL		240	100%	

In Beitbridge, the institution of chieftaincy, however weakened (in the eyes of the people) by decades of being snubbed or courted by different governments, remains central to many of today's social and political activities in the district, either complementing or competing with the modern system of administration. In light of the historical account presented in section 6.2.1. of this chapter, it would be folly for the present government to choose to compete with the institutions of the chief, headman and village heads. Hence the government's change of position in 1990 (GOZ, 1995). However, the challenge for policy makers is how to successfully incorporate traditional institutions into current policy frameworks and practice. In order to accomplish this task, it is necessary to assess the effectiveness of these institutions and their rule systems with a view to promoting those aspects of the rule system compatible with, and complementary to, effective and efficient management of resources in the Communal Areas and improving those that are not. The following sections briefly discuss some of the findings of this study in that respect. Three levels of assessment were designed for this purpose, namely; the output level (the immediate results of activities taking place in the pastoral system), the outcome level (what happens as a results of these outputs) and the impact level (what influence these activities and outcomes will have on the pastoral management system). Each level leads into the next one.

### **6.3.1. Output level results**

Table 6.2 identified nine targets of the rule system most relevant to the topic of this dissertation. The list illustrates the range of targets for which these rules are used. In assessing outputs from such interventions, I was tempted to quantify them. However, it was difficult to arrive at a uniform standard for quantifying results since many were qualitative and it was difficult for

respondents in the study area to place quantitative values on these results. Hence, the idea of quantifying these results was dropped in favour of using more descriptive criteria for assessment.

There were many cases of violations of rules in all nine targets during the period of fieldwork. This situation was exacerbated because the headman of the area, Mazibeli, had died of a stroke a year earlier and his son had refused to take up the post, citing a conflict of interest between his religious beliefs (Christianity) and the traditional and customary requirements of the post of headman. The local village heads and elders refused to excuse him and proceeded to appoint him as the successor (a process called *hosupa*). During this power vacuum, there were many violations of *milao* rules and less so of the *siila* type as discussed above. However, village heads took it upon themselves to enforce the rules as best as they could to maintain harmony and stability within the area. This was one of the most frustrating periods of many village heads' lives. All of those interviewed agreed that the absence of a headman was the source of many problems regarding violations of rules about restricting grazing of animals in parts of the range at certain periods. In December 1995, all village heads in the area (29 of them) requested Chief Chitaudze to force the Headman Mazibeli's son to assume his post with urgency. This seemed to reinforce the importance of the headman to the management system.

The most significant output at this level was that the concern about violations of rules was not confined to village heads alone. Ordinary residents voiced their concerns in focus group meetings conducted during fieldwork. Residents also applied a lot of pressure on the village heads to persuade the late headman's son to take up the post. During this leadership vacuum, the one group that seemed to benefit the most was the large livestock owners. They were the

major violators of grazing rules and abused their water rights by completely monopolizing the use of certain isolated water boreholes by locking the pump and keeping the keys. Only one of the five encountered during fieldwork for this dissertation agreed to pay his or her fine and allowed others to access the water. In contrast, enforcement of rules relating to logging were very strictly adhered to and two men were fined for cutting down trees in a prohibited area, and their axes were confiscated by the village head mainly because of the importance of conserving browse which can be lopped from tree branches during periods of drought. Since there was no headman to preside over a *khoro*, only village head-level *khoro* were held. Cases considered very serious were referred to the chief's *khoro* which also handles appeals from all the headmen's courts. The following discussion summarizes results from the application of these rules on the nine target areas.

#### **6.3.1.1. Rules for Water Resources**

Water is a key and scarce resource in this region. As indicated in previous chapters, community water sources are managed by water committees, usually headed by a woman. Maintenance is carried out by pump minders. Traditional rule systems for managing water resources are many and are usually specific to the type of water source. For instance, there are rules (*milao*) for boreholes and wells that are different from those for dams. There are set times for collecting water for domestic use from boreholes and wells during which no one is allowed to water livestock, and vice versa. Sand-abstracted wells on the river bed are supposed to be covered with a tree branch when not in use to prevent children and animals from playing with water and animals from drinking from the wells without supervision. In addition, there are strict *siila* rules governing the use of water from natural springs. These rules allow for effective rationing of



water, especially during dry spells, and allow irrigation of vegetable gardens in specified locations and at given times of the year.

#### **6.3.1.2. Rules for Grazing Lands**

As illustrated in previous chapters, the regime of rules and rule systems encountered in this study is targeted at effective and equitable utilization of pastoral resources. Grazing lands are a major component of these resources and are governed by many rules, as presented previously in Chapters 4 and 5. The most significant of these rules relates to access by communities and their herds to different tiers of grazing land in the study area. This allows herd owners equitable access to key grazing resources. The movement of animals from one tier to another is a conservation strategy by pastoralists that allows areas previously over-grazed with an opportunity to rest and recover. Similar observations were made by Perrier (1994:54-56). *Milao* also forbid the burning of range, whether deliberate or accidental. However, it seems that this rule is a recent introduction as some old residents recalled setting fire to the range as a method to control ticks before the arrival of European settlers. It is therefore possible that range could be set on fire under certain circumstances (for instance, tick infestation). However, while this practice has since been discontinued in the Communal Areas, large-scale farmers throughout the country continue to use fire to control bush-encroachment.

#### **6.3.1.3. Rules for Livestock**

Breed selection was a major preoccupation of many livestock owners in the study area. Livestock owners are allowed to castrate stray bulls, stallions and rams that they believe are not

good enough for their herds. However, before they castrate these stray animals, they need to ascertain that these animals have not been claimed by their respective owners over a period of about a week. Enforcement of this rule is not strict as it only helps to partially eliminate unwanted breeds within one's herd, yet these animals are free to mix in the range. This is one reason why it is a community requirement to ear-tag or ear-mark one's livestock. The Department of Veterinary Services also requires that all cattle and donkeys be branded with an area number and an owners's number. Both brands are issued by and registered with the Department. Non-compliance with these rules could result in stock loss and denial of veterinary services such as dipping and vaccinations.

#### **6.3.1.4. Rules for Woodlands and Tree Species**

Browse is an important source of food for livestock during the dry season. As indicated in Chapter 4, the *mopane* tree is central to the survival of cattle in this area as it supplies forage throughout the year. This is the major reason why rules on its logging are strictly enforced. The headman prescribes specific areas where communities can cut down trees for poles to construct houses, granaries, fencing, furniture and wood carvings. There are also restrictions on the types of trees that can be cut down, time to start harvesting wild fruits and species that can be used as firewood. Fines for violating these rules can be quite heavy (involving one or more goats or cattle). Their enforcement has largely been successful as indicated by the few violations during fieldwork.

#### **6.3.1.5. Rules for Wildlife.**

Hunting is usually carried out by boys and men to satisfy household or homestead food requirements. However, some residents hunt large game and sell the meat, usually sun-dried, called biltong or *mihwapa*, locally or in surrounding areas. There is a risk of a jail term once one is caught by police but reprimands and fines by local leaders are more common for killing prohibited species. However, enforcement of these rules, which are meant to conserve endangered and rare species, has not been very successful due to lack of incentives for such conservation measures. Most of these prohibited species also fall under the government's protected species category or what is locally referred to as 'royal game'. Protection of these species is enforced by officers of the Department of National Parks and Wildlife (locally known as *Mandou*, which literally means 'people who deal with elephants' because these officers are usually involved in tracking down and shooting rogue elephants in the area) and the police.

#### **6.3.1.6. Rules for Cropping Land**

While cropping is not as important as livestock rearing in this region, there are *siila* rules intended to appease the rain-making spirits and prevent drought. For instance, residents of this area are not allowed to plough their lands until the headman issues the instruction for people to start land preparation. Although the fines for non-compliance with this rule are light (payment in the form of a goat or equivalent), the reprimands can be prohibitive, for instance, delay in planting. These communities believe in the super-natural rain-making and would endeavour to prevent unnecessary drought by complying with these rules.

#### **6.3.1.7. Rules for Boundaries**

Boundary rules are difficult to enforce during a drought. However, violators were given verbal warnings and reprimands for their actions and were allowed to retrieve their animals from the area. During drought years, neighbouring communities enter into mutual agreements regarding access to grazing on either side of the boundary, as well as access to water resources. The village heads play a very significant role in negotiating these arrangements. The main objective of these boundary rules is to control stock movements and reduce the potential for land disputes within the community and with neighbouring communities as well.

#### **6.3.1.8. Rules for Social Behaviour**

Chapter 5 detailed numerous codes of conduct embodied in sets of *milao* and *siila* rules for different age-sets and the community in general. These codes of conduct are part of the norms and values of the Venda and Sotho people in Beitbridge District. These rules include the prohibition of witchcraft which is punishable by heavy fines of several heads of cattle or even expulsion by the headman from the area. However, it appears as if the primary objective of these rules on social behaviour is to maintain harmony and stability within the community. Rose (1992) came to the similar conclusion in her study of the Swazi system in Swaziland.

In general, *siila* rules were observed almost without question throughout the period of fieldwork. There were a few violations, indicating that only a few people regarded them as irrelevant or a nuisance. The *milao* system was occasionally abused and the main reason was the absence of a headman.

### 6.3.2. Outcome level results

There was no question from the results of the fieldwork that the role of the headman in this community was vital to the pastoral management system. The headman was the source of inspiration for many of these people. The headman also kept a strategic reserve of food (grain) and livestock used by needy families during drought years. The grain was donated by residents of the area at the end of the harvesting period as a reward gesture to the guardians of the land and the rain god. Cattle, goats and sheep were also collected as fines for many types of rule violations. These animals were occasionally slaughtered for meat and the community was invited to a feast. The grain was redistributed to needy families and the elderly in times of drought and stress.

One outcome of the death of the headman was that his death served to re-establish the central role of the headman and the traditional institutions that he represented. It was suggested at the beginning of this chapter that one way to assess the legitimacy and relevance of local institutions was to determine how far communities were prepared to go in order to protect their institutions (Uphoff, 1986). This study confirms the fact that communities in the study area were not willing to relinquish their traditional institutions. Similar arguments were made by Rose (1992) on traditional systems in Swaziland, by Uphoff (1992) for irrigation communities in Sri Lanka, by Sylla (1994) on pastoral organizations in Africa, and, by contributors to Blunt and Warren (1996) on indigenous organizations and development in Africa, Asia and the Pacific Islands. There was no doubt that external- or government-created institutions in Beitbridge District had failed to fill this void. The vidco system was also heavily dependent on the presence of the headman. It was within this framework that assurances were given by the chief

to the people of the area that the headman's son would soon take up his post. However, no date was fixed for his return from Harare where he worked as a transport manager.

### **6.3.3. Impact level results**

The impact of all these events can only be a subject of speculation. The fact that government was abolishing the vidco system seemed to add urgency for the return of the headman. The setting up of the new Rural District Council and the appointment of its new chief executive in 1996 required that traditional leaders play their part in this devolution of power from central government. The abuse of the traditional system and the resultant "seeming" breakdown of law and order within the grazing areas, if allowed to continue, can only be harmful to this delicate dryland ecosystem. Overgrazing of certain parts of the range and around water points by large livestock owners who violate set rules can only lead to land degradation and soil erosion in grazing areas. However, there is hope that the traditional leadership will once more be in place and the institutions become functional once more to regulate the use of these rangelands. There is need for harmony and stability within the community to enable sustainable utilization of resources in the area and, so far, it appears the headman is the only one who can bring back harmony and stability to the community.

### **6.3.4. Opportunities for wider application of the institutional arrangements**

The traditional system of administration in the Communal Areas has legitimacy among the inhabitants of these areas. As illustrated in the preceding sections, the system manifested its vulnerability whenever uncertainty is created by a leadership vacuum arising from death or

incapacitation of one or more leaders. It has taken more than two years for a successor to be installed. This period of transition is rather long and it is during such periods that problems relating to the management of pastoral resources emerge. Some residents and outsiders take this opportunity to free ride. The interim leadership does not have the confidence to take decisive measures regarding violators. However, the system does seem to have the potential of functioning effectively once the leadership is in place. As a result, and despite the limitations discussed in this chapter, the institutions of the village head, the headman and the chief indeed offer appropriate alternatives to externally created institutions for resource management in the Communal Areas. These opportunities and how these institutions can be incorporated into mainstream rural development structures in the district and the country are the subject of the next chapter.

#### 6.4. SUMMARY

Local and traditional institutions for livestock and range management present opportunities as well as constraints for effective pastoral management in Beitbridge District. Livestock production is the major preoccupation of the inhabitants of this region. The pastoral system presented to this point in this dissertation is based on access to and control over grazing resources held under communal property regimes. The traditional institutions and institutional arrangements for managing these communal resources offer opportunities for stability, harmony and change within the pastoral system. Traditional rule systems (*siila* and *milao*) have for many generations ensured equitable access to resources, livelihood security for the inhabitants of the area, and effective management of these resources. It is also certain from the historical account presented in this chapter that the institutions of the chief, the headman and the village-head have

undergone many transformations since the arrival of the first settlers a century ago. However, the fact that these institutions are in the process of being incorporated by government into new administrative and development structures for the Communal Lands suggests a recognition by government of the political reality that it cannot continue to ignore the role of traditional institutions in resource management. It also suggests that government realises that traditional institutions have the potential and capability for resolving the longstanding issues of resource management in the Communal Areas of Zimbabwe.

However, the analysis in this chapter has also exposed the vulnerability and susceptibility of these institutions to leadership changes resulting from death of the chief, headman or village head. Succession to these positions can become a very long process, as has been shown. Other constraints relate to the area-specific nature of the institutional arrangements. While it is conceded that the rule systems are area-specific, the principles have the potential for wider application. Recognition of traditional institutions by government and the proposal to use the village head as the lowest tier of local authority offer opportunities for developing these institutions as entry points for development interventions. But, as this study shows, village-head boundaries are not appropriate for pastoral regions similar to Beitbridge District. The headman's boundaries were found to be more appropriate units for managing and developing grazing resources. Nevertheless, the potential for wider application is evident. However, the elusive issue is how this can be done. Perrier (1994:57) raised similar concerns regarding the failure by governments and donors to enact these changes "because they run counter to conventional organizational and administrative norms and interests. A major challenge is how to break down these institutional barriers to improved planning for pastoral development in arid and semi-arid Africa". This challenge will be the subject of the next chapter.



## CHAPTER 7

### OPPORTUNITIES FOR INSTITUTIONAL REFORM IN PASTORAL MANAGEMENT AND DEVELOPMENT

*“In the country of the blind, who are not as unobservant as they look, the one-eyed is not king, he is spectator.” Geertz, (1983; 58)*

#### 7.1. INTRODUCTION

It was suggested in Chapter 2 that one of the keys to studying and developing dryland pastoral production systems is understanding local institutional arrangements that govern their management systems. In that regard, the discussion in the previous chapters focused on local knowledge systems and village-level institutions for resource and environmental management. These institutions enhance community participation, stimulate the cross fertilization of ideas, and facilitate the learning process at the village level. The focus on institutional arrangements for resource management in this study is based on the assumption that one of the most effective entry points into the development of Communal Areas is local institutions and their related knowledge systems. A similar position was taken by Richards (1985; 1986), Uphoff (1992), and Chambers (1994). In addition, the success of pastoral management systems in arid ecosystems is not only based on the interaction between pastoralists and the environment, but also dependent on local-level interactions among pastoral groups and individuals, such as those discussed in Chapter 6.

However, effective local-level (village) institutional arrangements and interactions are not enough to guarantee the sustainability of the pastoral systems and resource management in the Communal Areas of Southern Zimbabwe. While it is important to enhance horizontal linkages at the village level, these institutional arrangements should also be linked vertically to a hierarchy of other institutions at regional and national levels if they are to succeed in resolving issues pertaining to the management of pastoral resources in these dryland regions. Swift (1994: 134) raised similar concerns regarding the absence or ineffectiveness of vertical linkages in pastoral organizations in Africa. The last two objectives of this dissertation (Objectives 4 and 5) address this concern by examining the current livestock policies and programs in Zimbabwe, and the institutions for managing the development of these dryland areas. These two objectives also determine how these policies, practices and institutions could be changed to incorporate local knowledge systems and their institutions in the management of resources.

This chapter reviews current livestock policies for the Communal Areas of Zimbabwe that have not been discussed in the previous chapters. It offers suggestions for strengthening management structures at the community level (horizontal linkages) and also discusses the interface of local institutions with regional and national institutions (vertical linkages). In the last section, an argument is made for the reform of policies and institutions for livestock and rangeland management and development in the arid Communal Areas of Southern Zimbabwe.

## **7.2. LIVESTOCK DEVELOPMENT POLICIES IN ZIMBABWE AND THEIR RELEVANCE TO PASTORAL DEVELOPMENT IN BEITBRIDGE DISTRICT**

Historically, livestock policy in Zimbabwe has always been biased towards beef production

(Chavunduka, 1982; GFA, 1987; Metcalfe, 1995). The beef production component of the agricultural sector is relatively large and integrated into the national economy (Moyo, 1987). Beef contributes about 15% of the agricultural Gross Domestic Product (World Bank, 1995). The growth of beef exports averaged 25% per year between 1980 and 1995, compared to 3.4% annual growth in the world beef market during the same period. Zimbabwe's share of this market was only 0.2% and the high growth rate in exports was largely due to the integration of Zimbabwe into the European Community beef market through the Lome Convention quota system for developing nations. Around 60% of the 5.6 million cattle in Zimbabwe are in the Communal Area sub-sector, but off-take rates are still low, at around 2%. Government policy towards Communal Areas has thus been to encourage increased off-take rates to increase beef production for both the local and export markets. Extension, research and veterinary services in the Communal Areas have been geared towards this goal, but only with limited success (Moyo, 1989:128; GOZ, 1995a).

Most of the reasons for this limited success can be traced to the role of livestock in the Communal Areas, as discussed in Chapters 4 and 5. In the wetter parts of the country, where Communal Area cattle are strongly integrated into the crop production economy for draught and manure, marketing is not a priority for most of the farmers. Beitbridge District, with an average of over 12% annual off-take rates, is an exceptional case when compared with a national average of less than 2% off-take for the Communal Areas. Goat and sheep marketing is confined to the dryland regions of southern and western Zimbabwe, and is not significant nationally.

Since independence in 1980, Zimbabwe has experienced three major droughts (1982-84, 1986-87 and 1991-93) during which producers incurred heavy losses. These have severely affected

livestock production in the Communal Areas. Following the 1991-93 drought, producers throughout the country were forced to reduce off-take while they re-built their herds. Drought has therefore been a major constraint in the livestock sub-sector. On the other hand, there has been a deliberate drive to fulfil the lucrative European Economic Commission (EEC) beef export quota each year, resulting in the slaughter of animals under three years of age, as required by the EEC. This includes young female and potential breeding stock, making the re-stocking process more difficult in the short-term.

One significant contributor to the problems presented above has been the lack of a formal (written) and comprehensive national policy statement regarding strategic goals of the nation's livestock industry, and of strategies to attain the goals from 1980 until 1992. Instead, there has been what Moyo (1989; 129) called "policy by default". The livestock industry has been managed through an export-oriented approach to livestock development, with financial and technical support from the European Union (EU). Thus, animal disease control has been a priority of the EU, the Zimbabwe Government and the livestock industry. This has resulted in construction of foot and mouth disease control fences that split the country into three beef production zones, namely, the Green Zone (catchment area for EEC-export beef) the Buffer Zone (catchment area for most of the national and regional beef market, but can not export to EU) and the Red Zone (foot and mouth zone, beef marketed and consumed within the zone). These interventions have been effective in controlling the spread of foot and mouth disease within the country and have confined it to the Red Zone where wildlife is predominant. As indicated in Chapter 4, the eastern half of Beitbridge District falls within the Red Zone while the western part falls is in the Buffer Zone.

The national focus on commercial beef production resulted in a concentration of funds and subsidies in the large-scale commercial farming sector. Communal Area farmers were not able to benefit from these incentives, mainly because they had different objectives for livestock production and lacked of adequate land and other necessary resources. Moyo (1989) and GOZ (1995a) suggested that such policies reinforced the historically derived dualism of the livestock economy. The first major attempt to produce a comprehensive national livestock policy was in 1992, and resulted in the publication of the first draft of the Ministry of Agriculture's *National Livestock Development Policy Paper* (NLDPP) (GOZ, 1992). It recommended the following:

- ▶ Intensify of livestock management systems in all agro-ecological regions of the country
- ▶ Foster appropriate livestock management systems in the Communal Areas
- ▶ Design appropriate policies to place beef on a competitive basis with other livestock (poultry, pigs, goats and sheep)
- ▶ Improve efficiency in livestock production, leading to improved off-take rates and levels of income, through, among other things, the conservation of rangeland, control of livestock numbers and stocking rates, promotion of grazing schemes and encouragement of cattle sales
- ▶ Improve marketing services and facilities, including deregulation, and research into marketing of small ruminants (goats and sheep).

However, at the conclusion of field work in May, 1996, the policy paper was still at the draft stage. Nothing significant has been done since then.

There are many reasons why it has been difficult for the government to draw up a coherent

policy statement for the livestock sector. First, the major reason has been the lack of government commitment to agrarian reform and rural development. As explained in section 4.4.2, broad socio-economic and structural issues affecting the crowded Communal Areas have not been adequately addressed. Coupled with this problem have been the continuing disparities and inequalities between the large-scale commercial farming sub-sector and the Communal Areas. Second, the large-scale commercial farmers, through their representative body, the Commercial Farmers's Union (CFU), have a powerful voice and lobby to support their sub-sector and have largely been effective in influencing government policy to maintain the status quo while ignoring the Communal Area production sub-sector. The large-scale commercial sector supplies up to 70% of the cattle slaughtered annually, and deserves government attention. However, what is argued here is that the attention should not be totally at the expense of the Communal Area sector.

The third reason for the policy vacuum is the lack of reliable data on controversial issues such as the efficiency of land use in the communal and the commercial sub-sectors. A major outcome from the paucity of data has been the assumption among policy makers that livestock and range management problems, constraints and issues in all the Communal Areas of Zimbabwe are the same. Eloquent discussions about key variables behind the dynamics of livestock production in the Communal Areas of Zimbabwe have been presented (Cousins, 1989, Scoones, 1989; Wilson, 1989, FAO, 1990; Scoones, 1993, Metcalfe, 1995). One major conclusion from these studies has been that the Communal Area scenario has been over-generalized, assuming livestock production systems in the Communal Areas of Zimbabwe to be homogeneous, which they are not. In particular, Scoones (1989) suggested that because of the lack of coherent studies in the dry southern and western parts of the country, it was inappropriate to extrapolate results

from the more numerous studies of wetter parts of the country to these dryland regions. Government has recently started to pay special attention to production systems in the drylands of the country as a special target for policy and practice through the Dryland Areas Resources Management Program supported by the International Fund for Agricultural Development (IFAD) (ARDA, 1993; IFAD, 1994; Nauta et al, 1994; IFAD, 1995).

The fourth reason for the delay in producing a coherent statement for the livestock sector is lack of an effective coordination mechanism among the various ministries, departments and parastatals responsible for livestock development. Currently, there is no structure or forum for linking Communal Area and livestock development initiatives in the field with national policy and program institutions in the country. The closest forum for such coordination is the one presented in Figure 4.6 in Chapter 4. The major policy and implementation responsibilities for livestock development programs lie with the Ministry of Agriculture. However, the Ministry of Lands and Water Development is responsible for land reform and resettlement policy formulation, but the implementation of these policies is by the Ministries of Local Government, Rural and Urban Development, the Ministry of Agriculture, and the Ministry of Environment and Tourism. Of concern here is the lack of adequate coordination structures among all these ministries. The various implementing agencies report directly to their sectoral ministries and are not accountable to any coordinating body at district, provincial or national levels. This arrangement can result in unnecessary duplication of services, competition for scarce resources and institutional jealousies. For instance, the Ministry of Agriculture, through its Planning Branch, is responsible for planning all new resettlement schemes identified by the Ministry of Lands and Water Development, but is not responsible for their implementation. The Ministry of Local Government, through its Department of Rural Development, is responsible for

implementing these plans. This is the context under which the Ministry of Agriculture's *National Livestock Development Policy Paper* (NLDPP) was prepared in 1992 (GOZ, 1992). The NLDPP did not address the question of coordination. Instead, it primarily dealt with technical issues relating to livestock production.

Although it had taken government twelve years (1980 to 1992) to develop a livestock development policy statement, the objectives of the policy document were still directed at the old and conventional approach to livestock development. The focus was still primarily on cattle, less on goats and sheep and nothing on donkeys. Its emphasis was still on the production and marketing of meat and milk. In those parts of the country where draught power from cattle is still of paramount importance, the focus on production for the market is inadequate. However, for Beitbridge District, where only 4% of the respondents in the survey for this research used cattle for draught and the rest used donkeys, the policy may be consistent with some of the farmers' objectives regarding cattle marketing. However, it is totally inadequate for promoting donkeys as alternative draught animals, and goats and sheep as alternative income generating enterprises for these drylands. These market-oriented objectives should be weighed against other non-market-oriented roles of livestock in this region to which the policy document did not pay attention. These roles were discussed in Chapter 5.

The policies promoted through the NLDPP were largely a continuation of policies initiated by settler governments beginning in the 1920s. The underlying assumption in these initiatives was that livestock production in the Communal Areas is inefficient due to poor livestock and range management. In addition, the high stocking rates in excess of "ecological carrying capacities" are perceived as the main causes of environmental degradation, resulting in a perceived need



to limit stock numbers (GOZ, 1995b: 368). Livestock management systems in many Communal Lands, which are largely based on collective responsibility for the resources, are under considerable stress due to human and livestock population pressure.

Two main approaches to tenure reform have been suggested “ to solve the problems associated with collective management of grazing resources in the Communal Areas” in Zimbabwe (GOZ, 1995b; 376). These are:

- ▶ individualization of title (freehold), and
- ▶ community (communal) control of grazing resources.

The major assumption underlying the recommendation for freehold land tenure is that it provides incentives for individuals to invest in and manage their grazing resources more efficiently than communal tenure does. This view that communal tenure is inefficient implies that land tenure reform is a precondition for livestock development (GOZ, 1995b). However, a review of research carried out in Botswana (Lawry, 1990; Berry, 1993), Kenya (Barrows and Roth, 1989; McCabe, 1990), Zimbabwe (GFA, 1987) and other African countries (Park, 1993) suggests no correlation between titles and investment in pastoral systems. From a review of the Kenyan experience, Barrows and Roth (1989) concluded that while freehold tenure benefited some, it also resulted in increased landlessness for many people in the rural areas. McCabe (1990) drew similar conclusions from studies among the Turkana.

Attempts in Botswana to implement freehold tenure under the government’s Tribal Grazing Land Policy did not result in increased investment or productivity. Instead, Lawry (1983) found

more negative social-economic effects, such as loss of access rights to water, than positive ones. For Zimbabwe's Communal Areas, most of which are in the semi-arid regions where water is a scarce commodity, individualization of title in the grazing areas or freehold would result in severe problems related to access to water resources. Some form of communal access to water is required under these dryland regimes. Freehold tenure would also pose serious problems in the management of wildlife resources in the Communal Areas. In Beitbridge, boreholes and wells are the major source of domestic and livestock water. Although a few residents (less than 1%) own private wells, usually close to their homesteads, water sources are largely communal and are managed collectively through water committees.

Communal control of grazing resources assumes that grazing management problems in Communal Areas occur as a result of the failure of local institutional arrangements. Strengthening these local institutions so that they operate more efficiently and effectively would resolve grazing management problems. This thinking has led to the development of grazing schemes and the CAMPFIRE Program in Zimbabwe. Contrary to suggestions in the Land Tenure Commission Report (GOZ, 1995b) that communal control of resources does not guarantee all community members equal access to common grazing resources, especially given the skewed livestock ownership pattern in these areas, evidence from this case study suggests that communal control of grazing lands does indeed foster equitable access to these resources by all members of the community. As illustrated in Chapter 6, problems of access only arose after the breakdown of the traditional institutional arrangements resulting from the death of the headman of the area.

Therefore, what is lacking in the land tenure and livestock policy debate in Zimbabwe is the

need to understand the complexities of tenure and institutional arrangements for resource management in the Communal Areas, and the extension of the debate beyond purely economic and political considerations. This can be remedied only by recognizing that the examination of local institutions in resources management is of fundamental importance to this policy debate. These local institutions, as presented in previous chapters in this dissertation, have the ability and capacity to deal effectively with land resource management issues.

The Land Tenure Commission Report recognized the need to involve local institutions in all issues relating to the tenure and management of community resources. The report suggested that “ the best course of action in the future is, first, to strengthen local institutions, assist the community to appreciate the finite nature of grazing resources” (GOZ, 1995b; 377). A detailed description of local institutions for the management of the pastoral system as well as local government administrative structures in Beitbridge District was presented in Chapters 4, 5 and 6. A brief account of the current land tenure system for the Communal Areas was also presented in Chapter 4. It would therefore be repetitive to restate these accounts here. However, these accounts, together with the analysis of livestock policy presented above, form the basis for the following discussion and recommendations. The next sections extend the analysis by developing themes relating to horizontal and vertical linkages with local, regional and national institutions for resource and environmental management in the Communal Areas.

### **7.3. HORIZONTAL LINKAGES AT THE VILLAGE LEVEL**

One of the characteristics of traditional or informal (unwritten) rule systems as presented in this study is that these rule systems (institutions, rules and procedures) are best known to those who

practice the system. Burns et al (1987; 24) argued that to those outside the system, “uninitiated into the actual practice”, the operative rule system may be largely unknown or invisible. This is typical of the rule systems encountered in this study. They are largely informal (unwritten), but the institutions and actors that enforce these rules have now been formalized by government through the Chiefs, Headmen and Village-heads Amendment Bill of 1995. This recognition has created a suitable environment for initiating co-management institutions for managing local resources in the Communal Areas. The CAMPFIRE program in Beitbridge District had already started to implement this initiative (Metcalf, 1995).

However, broad applications of local rule systems are difficult because many of them are specific to certain local settings. Therefore, each local leadership (headman level) would have to work out with the district council specific rule systems applicable to their areas, with the national government as facilitator and back-stopper of the process. Nevertheless, suggestions are presented below for basic principles for an institutional framework that would enable effective implementation of these local rule systems in resource management in these dryland ecosystems. The main criteria for the framework are:

- ▶ specification of the boundaries to which a particular rule system applies
- ▶ autonomy of the institutions from other organizations so that they (local institutions) are able to apply and enforce rules
- ▶ commitment of involved actors (general public) to the rule systems and their motivation to adhere to or to accept the rule system governing their particular activities in a given setting
- ▶ communication and organization to facilitate orderly coordination of various

activities in the area

- ▶ legitimacy of local institutions, authority to sustain favorable relations with regional (district and provincial) and central government authorities, and capability for managing resources under their jurisdiction.

These criteria are supported by the works of Burns (1987) and Wuthnow (1987) who argued that these were the minimum conditions for institutionalizing traditional or cultural systems into mainstream administrative structures. The following subsections assess traditional institutions encountered in this study against these criteria with a view to proposing a framework for horizontal and vertical institutional linkages in pastoral management and development in Beitbridge District.

### **7.3.1. What boundary settings are appropriate for Beitbridge district**

As indicated in previous chapters, the village head is the lowest tier of authority under the traditional system of resource and environmental management and this is recognized by government. However, one major finding of this study is that the boundaries for each village head only apply to the location of residential properties and cropping land in this area and not to grazing resources. In other words, village head boundaries only relate to residential areas and to a lesser extent, cropping areas.

Contrary to government thinking, grazing resources are held communally by several village heads under one headman. No single village-head has fixed grazing lands boundaries. Only the headman's boundaries are fixed. It was confirmed during fieldwork that two village heads had

actually relocated to other parts of the headman's area with some of their subjects, and leaving behind the rest of his people. The village heads continued to preside over people in the two residential localities (those in the new locations and those who remained at the old sites). This difference between headman and village head boundaries is important regarding the nature of property rights within the Communal Areas. This implies that, under the Communal Area tenure system, land resources in residential and cropping areas are managed as some form of "private property" within the commons, while grazing land is held and managed communally or collectively. Problems related to attempts by development agencies to use village head boundaries in developing grazing management systems in other parts of the country have been documented by Mutandi (1989; 1990) and Cousins (1993). It is therefore necessary to distinguish between the headmen's boundaries and those of the village heads.

This distinction is important in the context of this discussion because it is precisely for this reason that this study could not determine the actual size of the village head's area. It is proposed to use the headman's area as the most appropriate land management unit for intervention in the pastoral resources management system. This should also be used as the entry point for incorporating traditional land management systems into mainstream resource management institutions.

However, it is acknowledged that in wetter parts of Zimbabwe, it may be possible to delineate village head boundaries in grazing areas, although with some difficulty (Mutandi, 1990). Some of these difficulties occur because most of these boundaries were imposed during the implementation of the Land Husbandry Act in the 1960s when the first grazing schemes were initiated in the Communal Areas. These boundaries have not been fully accepted by the

residents of these areas. The proposal that follows will therefore use the headman's boundaries as the setting or smallest physical unit (boundary) for rangeland management in these drylands.

Recognizing the headman's area as the physical unit or entry point for development initiatives within these areas also reinforces the headman's role as the key figure in any co-management arrangements with neighbouring communities. There was no evidence that the village head areas were considered as targets for sharing resources with communities under different headmen. Hypothetically, if people under headman A wanted to access grazing land under headman B, it was headman B who was approached for such arrangements and not the village heads closest to the resource in question. It therefore makes sense that this traditional institution should be reinforced as the central focus for any co-management arrangements in the area. Village heads are obviously involved in such deliberations (by invitation from the headman) since they are responsible for monitoring and ensuring that the agreement is honoured. They are also responsible for removing livestock that do not belong to the headman's area from the grazing areas or reporting them as "lost cattle" (*madimela*) to the headman. In the past, the *madimela* cattle were one source of cattle for the headman and chief as part of their strategic reserves for drought eventualities. This has since changed and *madimela* cattle, particularly from Botswana, are auctioned by the police and district council as they are not allowed back into Botswana under the strict EEC veterinary regulations for beef exporting nations in this region.

### **7.3.2. How much autonomy do these institutions have?**

The Chief, Headman and Village-head Amendment Bill of 1995 empowers traditional institutions in several major respects. First, it expands the duties of chiefs and headmen to

include judiciary responsibilities. Second, it re-affirms the position of the village head as the lowest tier of traditional leadership and administration. Third, it establishes village assemblies (presided over by village heads) and ward assemblies (presided over by headmen) as traditional governing organs at village and rural district levels. The jurisdiction of chiefs is also extended to the inhabitants of resettlement schemes in that chief's area, regardless of the origin and culture of the settlers. In other words, the traditional system of government and resource management is recognized as an independent entity that district councils and development agencies have to work through in their respective areas.

However, many traditional jurisdictions, if not all, lack necessary financial and human resources to enable them to attain their objectives without outside support. It is partly for this reason that co-management might play a significant role in mobilizing financial and human resources from outside these areas to assist these traditional institutions in managing their resources efficiently, equitably and effectively. Nevertheless, the main ingredients for autonomy are present in the traditional systems. In particular, headmen and chiefs have the final word on can and who can not reside in their areas. They also have a final say regarding where such individuals can build their homes. The new bill also allows chiefs and headmen, apart from fulfilling their traditional roles, to collect levies, taxes and other rates payable under the Rural District Council Act. The bill is silent on how these funds are to be utilized by the respective district councils. It would be helpful if such funds were to be re-invested into these areas to meet some of the financial constraints currently experienced by these traditional institutions. It is also important to note that under the Chiefs, Headmen and Village-head Amendment Bill of 1995, central government can relieve traditional leaders of their duties only in the event of commission of a "crime" by the incumbent leader. However, the Bill does not specify which crimes would be considered



grounds for removal of an incumbent leader. It is probably too early to speculate on the impact of salaries, allowances and additional duties on the autonomy, performance and authority of the traditional institutions as they are gradually incorporated into the civil service.

### **7.3.3. Are the residents of these areas committed to and motivated by traditional institutions?**

*“You can only police people for as long as they allow you to police them”*. Village-head in the study area.

A detailed account of the role of traditional institutions (rules and actors) in managing the resources of the study area was presented in Chapter 5. Evidence from this study suggests a very strong commitment to the traditional system by the vast majority of the people, as indicated by the many times respondents mentioned the absence of a sitting headman as the major source of anxiety in the area. Evidence from this study also seemed to indicate a commitment by most of the residents to accept the enforcement of rules in their area. The apparent failure and eventual discontinuation of the government-imposed vidco system as an alternative to traditional systems of resources management is one indicator of the faith of inhabitants of the Communal Areas in their traditional system of management. However, it is important to note that these traditional systems are also changing due to prevailing economic, political and social environments. For instance, chiefs and headmen’s salaries will be reintroduced, while for the first time in the country’s history, village heads will also be paid an incentive allowances of up to 80% of the salary of a headman. However, some traditional leaders with permanent salaried jobs, such as teaching, have in the past been allowed to continue to hold both posts without major disruptions

to either function. The civil service code bars individuals from holding more than one post in the public sector. This means those traditional leaders who are also full-time civil servants may not be allowed to continue to hold or be paid for both positions.

It is the central government's conviction that such measures will only strengthen the motivation of these traditional leaders. There is a potential for problems because such financial rewards may compromise the legitimacy of these leaders as custodians of tradition, norms and values for their people as they face the possible conflicts between their dual roles of civil servants and as traditional leaders. Such attempts to "buy-off" traditional leaders proved to be unsuccessful during the period following the collapse of the Federation of Rhodesia and Nyasaland in 1964 when opponents of the government of the day successfully undermined these arrangements for political purposes. Whereas allowances for village heads will be paid from rural district council budgets, salaries for chiefs and headman will be paid from the central government budget. This arrangement raises questions about the future independence and autonomy that most of these traditional leaders currently enjoy. One can only speculate on the effect this might have on resources management in the Communal Areas. However, the discussion in the preceding Chapters confirmed the commitment and motivation of local people towards traditional leaders and their institutions but not necessarily to government imposed institutions.

#### **7.3.4. Do these traditional institutions have internal systems of communication and organization?**

The organization of the traditional and local government systems was discussed in Chapter 4, and the role of communication within the traditional rule system was considered in Chapter 6.

Communication is one of the major attributes of the traditional rule system. Information is passed orally from one generation to the next as well as within the community. It is everyone's responsibility to ensure that important rules, norms and values are passed on to new or younger members of the community. The important *siila* and *milao* rule systems are propagated in this manner. In other words, *horizontal communication* is reinforced through rule systems and taboos. The traditional hierarchy of leadership is responsible for *vertical communication* from the grassroots to the chief and from the chief to the individuals in the village. This form of communication is reinforced through an oral feedback mechanism employed by the local leadership and the district council. The need to foster communication with respect to resource management within these communities is captured in the following statement by Wuthnow (1987; 51) regarding the need for communication on issues requiring collective action and responsibility: "... we need to be able to communicate with complete openness about desirable collective goals, otherwise, our competitive interests will rule, and we will be guided only by the struggle to attain technical mastery over the physical environment and over one another."

Communication between headmen of adjoining areas is an on-going process, particularly with regard to rangeland management issues. Communication is also vital in the pastoral adaptive process. Traditional leaders in Beitbridge have also been able to negotiate with neighbouring large-scale commercial farmers regarding access to neighbouring commercial farms for relief grazing during periods of drought. Thus, this study established that horizontal communication was not a major constraint to resource management in the study area.

However, vertical communication faced a number of major obstacles related to the structure of these traditional institutions, and the forms of language used in the process. Traditional

institutions will continue to face these obstacles. The major obstacle was the need to communicate in forms not familiar to these leaders. The responsibilities of the traditional leadership under the amended bill requires that these leaders deal with other forms of communication which might be unfamiliar to them, such as written reports, programs of action and statutory laws. They will be required to keep written records of accounts of taxes and dues collected in their respective areas. They will also need to record the proceedings of their court deliberations. All these will be new systems of communication to many of these leaders, many of whose formal education did not go beyond primary school. These will be new challenges that also will have to be faced by local government authorities as they implement the provisions of this bill. It will thus be a learning experience for many of the leaders and their institutions, a learning experience likely to transform the nature of these institutions.

The frustration among traditional leaders with the new requirements was summed up by Murphree (1996:5) from the following two responses from traditional leaders in a Communal Area in northern Zimbabwe where a CAMPFIRE program was under implementation: *“Nothing that we think of down here will ever get up there to Harare until it has gone through a typewriter”*, and, *“But we have already done our planning....The problem is that we can’t show it to you on paper, its in our heads. Perhaps you can help us put it on paper”*. These remarks echo the need for appropriate co-management arrangements to involve local communities and external agencies. The remarks also illustrate the need to strengthen external (government and non-governmental) agencies’ capabilities and capacities in their roles as facilitators of the development process.

### **7.3.5. Are traditional institutions legitimate and capable representatives of local aspirations?**

In Weberian terms (Weber, 1947; 56), traditional leaders (chief, headman and village head) have “traditional authority”. These leaders claim legitimacy from the “belief that the system of order has always existed and been binding” and that such power and authority are handed down the hereditary line. So long as the incumbent of such a position does not “act counter to the traditional order or infringe upon the prerogatives of his or her hierarchical superiors, loyalty is due not to the order as such but to the ruler personally” (Weber, 1947; 61). In other words, the inhabitants of the area are obliged to obey not only the rules but the person who has been assigned this authority through rules in the traditional system. The people in this study area obeyed not only the rules governing the exploitation of range resources, but also the person who occupied the position of headman or village head. This partially explains the insistence that only the “chosen” (*hosupa*) headman’s son could assume the position of headman in the area. Thus, the traditional leadership is legitimized through socialization, reproduction and maintenance of this tradition. Similar observations were made by MacDonald (1994) among the people of Askole in northern Pakistan. It is through this process that the traditional institutions claim their legitimacy.

However, this process does not always guarantee capable leadership for the community. There is always the possibility of someone not capable of fulfilling these duties being appointed. As already indicated, while under section 10c of the Chiefs, Headmen and Village-head Amendment Bill of 1995, central government reserves the right to take disciplinary action, including suspension of the incumbent from office in the event of the person committing a

crime, the Bill does not cover incompetence or incapacitation due to illness, accidents and other non-criminal causes. However, charisma is one of the key elements that sustain the power and authority of these traditional leaders over their subjects. They are the “natural leaders of the people” (Eisenstadt, 1968: 18). In the faith of their followers, the chief, headman or village head is “charismatically qualified and they rule by virtue of this gift (charisma) as well as the divine will” of the spirits (Eisenstadt, 1968; 19).

A significant contribution of many traditional customary land control and management systems to resource and environmental management in Southern Africa is their ability to settle land disputes, as documented by Sibanda (1989) for central Zimbabwe, Ferguson (1990) for eastern Botswana, and Rose (1992) for Swaziland. In its final report, the Land Tenure Commission acknowledged this fact for most parts of the high rainfall areas of Zimbabwe where cropping is a major source of livelihood and disputes related to cropping land and involving village-heads were common (GOZ, 1995a). In this research, no evidence of disputes over land between village heads or farmers was encountered or reported in the study area. All the same, if such disputes or conflicts ever surfaced, the chiefs, headmen and village heads are best suited to handle them by virtue of their legitimacy, power and authority within the communities.

The traditional institutions in the study area fulfil the requirements in the five criteria discussed previously and summarized in Table 7.1. The problematic institutional structures created to facilitate the integration of traditional systems into mainstream development and administration were discussed in Chapter 4. The major weaknesses in the present system are the dual reporting systems between the district administration and the rural district council, and the resultant hindrance to develop effective and efficient monitoring and evaluation systems. These two

systems will have to be harmonized if the new system is to succeed. Section 7.4 will propose how these two systems could be merged to facilitate more effective management of resources and administration of the Communal Areas.

**Table 7.1. Summary of main criteria for incorporating traditional institutions into mainstream resource management systems.**

CRITERIA	EVIDENCE	COMPARISON WITH OTHER RESEARCH
1. Clearly delineated boundaries defining the areal jurisdiction of particular institutions	The headman's area is the smallest unit for pastoral grazing resources. Contrary to other studies, the village head in Beitbridge does not preside over grazing land within strict boundaries. Village heads collectively manage land under their respective headmen.	This research disagrees with all research findings and the Land Tenure Commission report of 1995 that identify the village-head's area as the smallest unit for pastoral resource and environmental management in the Communal Areas in Zimbabwe (GOZ 1995a).
2. Autonomy from other organizations so that they are able to apply and enforce rules	While traditional institutions enjoy a certain level of autonomy from government, they are constrained by their limited capacity to mobilize financial and technical (human and equipment) resources outside their areas. It remains to be seen whether new arrangements implemented in 1995 will further constrain this autonomy.	These findings agree with other studies on the CAMPFIRE program and its philosophy by Murombedzi (1993) Metcalfe (1995), Murphree (1996). Similar conclusions by Ferguson (1990) in Lesotho, Baxter (1991) on African Arid Lands, and Rose (1992) in Swaziland. This study disagrees with Colson (1971) and Chanock (1985) that traditional institutions discourage long-term investment in African agrarian systems.

<p>3. Commitment of participants to rule systems and motivation to adhere to them</p>	<p>Communities in the study area showed a high degree of commitment to the traditional institutions of the chief, headman and village head as shown by their determination to make their appointed headman take his post despite his reluctance to do so.</p>	<p>Research findings are in agreement with those made by Bates (1989), on Kenya, Rose (1992) in Swaziland, and Scoones (1994) and GOZ (1995a,b, and c) on traditional land tenure systems in Zimbabwe. However, this study disagrees with Stevenson (1992) and other similar studies which label all traditional African tenure systems as insecure and often abused.</p>
<p>4. Communication to facilitate coordination of various activities at village, regional and national levels and input into a monitoring and evaluation system</p>	<p>One of the strengths of the traditional systems is their ability to facilitate oral communication within the community and across generations. Coordination with other local leaders and institutions is facilitated in the same manner. The challenge, however, for these institutions is the requirement under the new bill for them to communicate with regional and national agencies in unfamiliar written reports.</p>	<p>Findings from this study confirm observations by Uphoff (1992) in Sri Lanka, and Mundy and Compton (1995), and Benjaminsen (1997) in Mali. The study also agrees with Toulmin (1991), and Murphree (1996) on the potential difficulties of communicating local aspirations up the hierarchy of institutions to central government using conventional and non-conventional methods.</p>



<p>5. Legitimacy of local institutions and authority to sustain favorable relations with other institutions in managing resources under their jurisdiction.</p>	<p>Traditional leaders derive most of their legitimacy from the belief that their authority and power have been handed down to the people from some supernatural power. "This arrangement has always been like this and is binding". The new bill only serves to strengthen this legitimacy of the leadership both among his or her people and within the country as a whole. There was no evidence to suggest that people in this area had no confidence in the traditional system. Traditional leaders were held in high esteem in the study area.</p>	<p>Findings concur with Alverson (1978) on Botswana, Rigby (1987) on Maasai in Tanzania, Rose (1992) on Swaziland, and Peters (1994) on Botswana.</p>
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#### 7.4. VERTICAL LINKAGES WITH DISTRICT, PROVINCIAL AND NATIONAL INSTITUTIONS FOR PASTORAL RESOURCE MANAGEMENT

Communication is of paramount importance in the development of pastoral administration systems. One of the major roles of communication is monitoring and evaluation systems for resource and environmental management in these dryland ecosystems. Local inhabitants have first hand experiences with the vagaries of uncertain weather patterns in the region. They are probably the first ones to notice tell-tale signs of imminent droughts. They are also the first to react to such phenomena at local levels.

It was indicated in earlier chapters that one of the important roles played by village-heads was

monitoring the condition of the range as well as watching for violators of established norms and rules in the respective areas. The village-heads reported their observations to the headmen and appropriate action was taken at the local level. Similar management systems have been identified also in many other pastoral communities in Zimbabwe and Africa in general (Galaty and Johnson, 1990; Baxter, 1991; Fratkin et al, 1994; Scoones, 1994; Breemer et al, 1995). The problem with many of the above studies, however, is that they only go as far as recommending the incorporation of local knowledge systems and management institutions into mainstream development institutions. Although this is vital for the success of pastoral development initiatives in African drylands, these studies are silent on the crucial issue of *how to go about incorporating these knowledge and management systems*. This section addresses this issue and proposes a framework for enhancing and linking these local institutions to intermediate and national institutions primarily for the purpose of coordinating activities at village levels through locally-based resource management and feedback processes. Monitoring and evaluation will be an important component of the functions of such a system from the grassroots to the national level, and vice-versa.

#### **7.4.1. Linkages with supra-village institutions**

Having acknowledged that the five criteria discussed in section 7.3 are important for promoting locally-evolved knowledge systems and their institutions for resource management among local communities, the next challenge is to link these local management institutions with supra-village institutions at district, provincial and national levels. Laban (1995:200) referred to these levels as local, intermediate and national, respectively and suggested that the interaction among these levels must start at the local level. In other words, policy formulation processes must take

into account the needs, perceptions and aspirations of local communities and the realities of local environments. These requirements call for the devolution of much of the responsibility for resource management from national to district and local levels.

The grazing scheme concept has been part of government policy in Zimbabwe since the Land Husbandry Act in 1951. Successive governments have promoted the concept in an attempt to rationalize land use in the Communal Areas by allocating specific areas for grazing to local communities on the basis of village head boundaries that were created by development agencies with minimum input from the communities concerned. Many of these schemes collapsed as members within and outside the schemes did not respect these boundaries for grazing their livestock. Cousins (1993) and Sylla (1994) documented the collapse of these schemes in Botswana, Kenya, Lesotho and Zimbabwe. Although the grazing scheme concept gave local communities some powers and authority to manage their grazing resources, the main element that led to their failure in Zimbabwe was the issue of boundaries and the absence of a vertical framework to link these schemes with intermediate and national institutions for livestock and range management. These linkages are necessary for enhancing and facilitating feedback processes from local levels to national levels and vice-versa.

Swift (1994: 156) suggested three principles for designing new forms of linkages in pastoral administration:

- ▶ flexibility and diversity in institutional and organizational design to capture changes that occur in uncertain environments,
- ▶ subsidiarity, that is, administrative tasks carried out as near as possible to the

- ▶ level of actual users of resources or beneficiaries of such an administration,
- ▶ reduction of the transaction cost of management and administration as far as possible in order to obtain a positive benefit-cost relationship under such arrangements

These principles suggest that development interventions in pastoral systems should seek to minimize administrative levels. Powers and responsibilities should be devolved and authority delegated to the lowest viable administrative unit for resource management (in this case the headman, as elaborated in section 7.3). The last principle suggests that transaction costs be kept at the lowest possible level. Since pastoralists in these dryland zones are already operating through customary institutions and organizations over vast areas of land and over a wide range of issues, the marginal transaction cost of additional responsibilities should be low. These arguments agree with those by Swift (1994).

However, Swift (1994: 158) went on to recommend mixed institutions (a set of hybrid institutions and organizations that combine customary and formal or mainstream regulatory institutions usually set up by government to regulate land use, and pastoral development and administration). What Swift (1994) proposed was a co-management arrangement that placed greater emphasis on customary forms of land tenure, grazing management and resource allocation that have persisted among pastoral communities in these drylands for many generations. These mixed types of institutions have largely been ignored in the literature on pastoral management systems, perhaps, as suggested by Swift (1994:158), “because they are not the obvious responsibility of any one field (anthropologists focus on customary institutions, political scientists on formal institutions), but it is likely that they are widespread and effective”.

Swift (1994: 159) further suggested that these institutions “may offer an important way forward when we come to think about the design of new forms of administration”.

Evidence from this study suggests that mixed institutions are probably the most viable alternative for pastoral resources management on Zimbabwe’s drylands. The Chiefs, Headmen and Village-heads Amendment Bill of 1995 created a mechanism that increases the chances for such institutions to succeed by creating mixed institutions from the current traditional systems of customary institutions. The main ingredients for setting up such linkages are present in Beitbridge as indicated in Section 7.3. The following subsection presents a brief analysis of community perceptions of external agencies operating in their area, followed by a discussion of the key tenets for vertical institutional linkages in Beitbridge District within the framework of transformed customary institutions. However, no single type of administrative system will be suitable for all pastoral areas in Zimbabwe, given the diversity of cultural, structural and economic variables in these areas and the dynamism of the dryland ecosystem, including the degree of aridity and its variability. Therefore, a flexible framework will be necessary. For instance, administrative frameworks for dryland areas such as the one presented here for Beitbridge District will necessarily be very different from those in wetter regions of the country.

#### **7.4.2. Community perceptions of external agencies operating in the area**

Whatever institutions emerge out of the current changes in the customary institutions in these pastoral drylands, they will have to deal with a number of external agencies working in the area. In an attempt to determine the significance and effectiveness of external government and non-governmental agencies operating in Whunga village from the point of view of the people they

are intended to serve, all 240 respondents in the survey were asked to evaluate the usefulness of these agencies to the community under three categories:

- ▶ no help,
- ▶ some help, and,
- ▶ a lot of help.

Part of the reason for asking this question was to determine the most effective and most compatible institution for delivering goods and services to communities in these remote regions and possibly use that as a basis for designing a linkages framework for pastoral resource management in Beitbridge District. These responses are summarized in Table 7.2.

With the exception of the agricultural extension services department, Agritex, government services in general were poorly regarded in the area (Table 7.2). The Veterinary Department, which is supposed to play a key role in livestock management, particularly in this area, is severely understaffed, with one officer servicing three Communal Areas (Dendele, Siyoka 1 and Siyoka 2) and one veterinarian assisted by one animal health inspector for the whole district. The Cold Storage Commission, which is mainly responsible for buying livestock from these areas, seems to be losing business to private buyers, mainly due to price differences. The District Development Fund (DDF), which is a parastatal responsible for district infrastructure development under the Ministry of Local Government, was by far the most popular among respondents. DDF is responsible for construction and maintenance of rural roads and some water supplies. It is in fact the development wing of the district council. It provides technical support for the public water development programs (construction and maintenance of wells,

**Table 7.2. Community perceptions of external agencies operating in Whunga**

Name of Organization	Type of Organization	Major Function of Organization	Assessment criteria (%) n=240		
			<i>A lot of help</i>	<i>Some help</i>	<i>No help</i>
Veterinary dept	Govt dept	Animal health care and monitoring	10	30	60
Agritex	Govt dept	Agricultural extension services and monitoring	35	40	25
District Devt Fund	Parastatal	Development wing of the district council	42	58	0
Cold Storage Commission	Parastatal	Marketing of cattle, goats and sheep; cattle finance	25	40	35
ARDA	Parastatal	Management of agricultural and rural development	0	0	100
Zimbabwe Farmers Union	Communal farmer organization	Mobilizing resources and lobbying on behalf of its members	0	6	94
Agricultural Finance Corporation	Parastatal	Provision of short, medium and long-term agricultural loans	2	25	73
Dept of Parks and Wildlife	Govt dept	Management of parks and wildlife resources	0	0	100
Research and Specialist Services	Govt dept	Provision of research services in crop and livestock production	0	0	100
Lutheran World Federation	NGO	Provision of educational, health and nutrition services; livestock and water development; drought relief	63	37	0
Christian Care	NGO	Provision of educational, health and child nutrition services; water development; drought relief.	46	54	0

*Source: Field data; Percentages are to the nearest whole number.*

boreholes and small and medium sized dams) in the area. Their output in the forms of improved roads and water supplies is therefore quite visible to local residents.

The higher rate of approval for DDF is also due to the fact that water is a scarce but key resource in this area. The maintenance of water sources is carried out through community water committees elected for each water source, with a pump minder in each village. The role of the pump minder, who is trained by the DDF, is to provide routine maintenance to all pumps under his or her jurisdiction. Pump minders are not paid for this work. All they receive is training and tools.

The two NGOs operating in the area, the Lutheran World Federation (LWF) and Christian Care (CC), were popular with residents probably because of their drought intervention and relief programs. The LWF is involved in a livestock rehabilitation and restocking exercise involving mainly women who have no livestock and are in the process of re-building their herds. The LWF was also responsible for the provision of relief grazing on one of the farms which they leased from government in 1986. The lease expired in 1996 and government was not keen to renew it due to pressure from Beitbridge District Rural Council which wanted to use the farm primarily for the district's CAMPFIRE program. The management of the farm was to be passed on to the district council, which is keen on developing it as a wildlife enterprise within the framework of the CAMPFIRE program. Local residents wanted the farm to continue providing relief grazing for livestock during times of stress due to drought and considered this a priority over the game enterprise. This potential conflict between the council and local residents had not been resolved at the conclusion of fieldwork. It is hoped that a decision that satisfies both parties will be reached now that headmen and chiefs are part of the rural district council's decision-



making body.

Table 7.2 indicates that no particular external institution matches the headmen's institution in the important role of land resources management at village level. All these external organizations work through local institutions to provide goods and services. Agritex and the Veterinary Departments also monitor livestock development activities in the area. Resource and environmental management are the responsibilities of the traditional system (chiefs, headmen and village-heads). It is therefore suggested that this role of the traditional leaders in local-level resource management be supported through the provision of technical services to enable traditional leaders to manage these resources more effectively, and create linkages with the district level. It is at the district level that the traditional management system requires linkages and support. This linkage is in the district administrator's office. The next section discusses the key ingredient for such linkages to the district, provincial and national level.

#### **7.4.3. Key tenets for linking traditional institutions with the district, provincial and national level in the management of pastoral resources**

The administration of Communal Area development, which includes pastoral areas, is carried out through numerous government departments, parastatal bodies and NGO's as illustrated in Table 7.2. As indicated in Chapter 4, the role of the District Administrator (DA) in the management of Communal Areas resources under the Rural District Councils Act of 1993 is poorly defined. Moreover, the Act is silent on the relationship between the DA and the Chief Executive Officer (CEO) of the Rural District Council. However, part of the duties of the District Administrator, as a civil servant, is to coordinate all rural development activities in the

district on behalf of the Ministry of Local Government, Rural and Urban Development. This function requires the DA to liaise with traditional chiefs and headmen as well as coordinate the activities of external agencies working in the area. The CEO of the rural district council, on the other hand, is primarily responsible for collection and allocation of financial resources within the district as well as program and project planning for the district. It is only logical under these circumstances of duality between the two offices of the DA and the CEO that one of them be subordinate to the other. Evidence presented above and in Chapter 4 suggests that the DA has a broader mandate on the rationalization of land use and the allocation of land in the Communal Areas. Chiefs, headmen and village-heads are responsible to the DA and not to the CEO of the district council, although the district council is responsible for the payment of allowances to village heads. Salaries for the chief and headmen are paid for by central government through the DA's office. Thus, the DA is in a better position to provide the coordination required for pastoral administration through the traditional system. He or she also provides the necessary linkages from the district to central government through the provincial administrator and provincial governor, linkages which CEOs of district council do not have. The DA's office, in consultation with council, should therefore be responsible for policy issues and coordination of pastoral management and development activities through a monitoring and evaluation system based on locally-evolved knowledge systems.

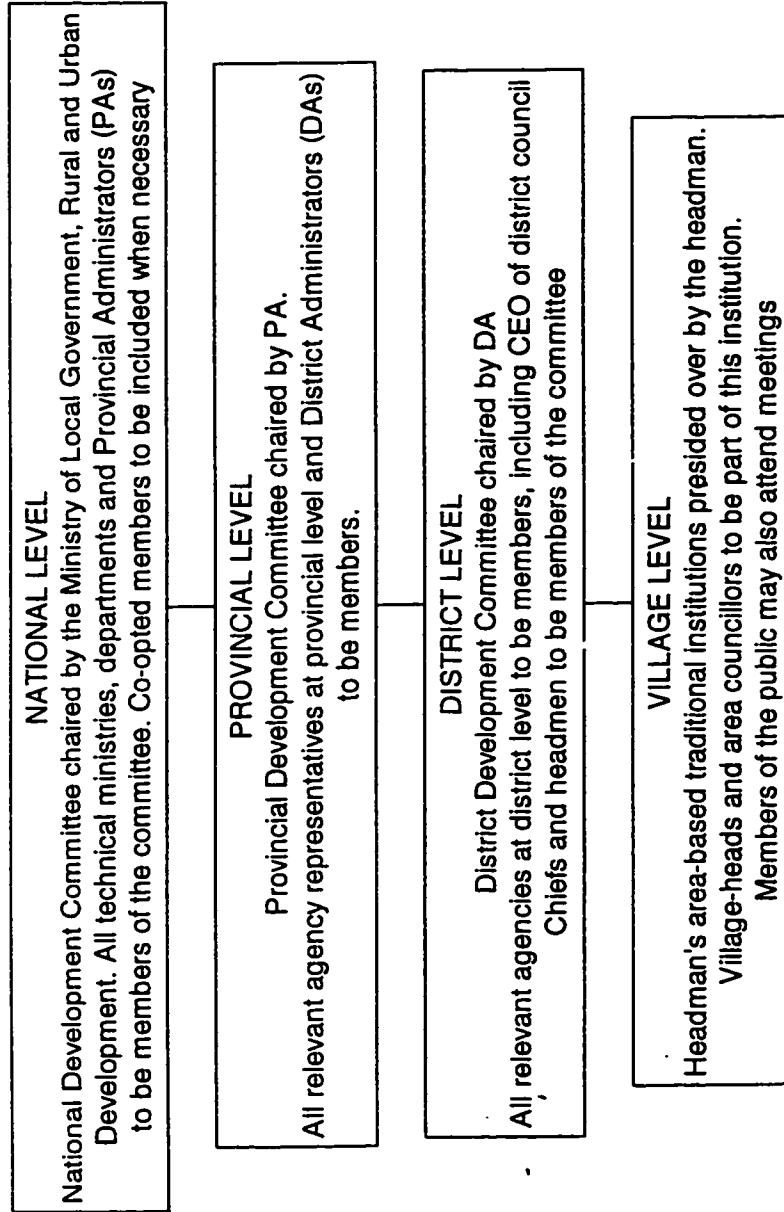
At the district level, the DA should be assisted by the District Development Committee (DDC) in this task of monitoring and evaluating activities in the Communal Areas. The DDC, currently not fully operational because of the duality between the offices of the DA and CEO of the district council, should consist of all heads of development agencies working in the district (they are currently excluded), the CEO of the district council, headmen and chairpersons of

development sub-committees of the district council. The DA should chair this committee because he or she is the highest ranking government representative in the district and has direct line responsibility with the Ministry of Local Government, Rural and Urban Development. However, the DA should also attend district council meetings as an ex-officio member. This “observer status” should enable the DA to liaise with council more closely. The chairperson of the council should preside over these meetings and the CEO should provide secretarial and administrative services to council. Such an arrangement should help avoid duplication of services and responsibilities between the district administration and council. The basic structure of these institutional arrangements is illustrated in Figure 7.1.

For these changes to occur, *four basic principles* need to be observed. These principles are partly based on the work on pastoral development in Africa by Swift (1994) and also on earlier research on institutional linkage mechanisms for agricultural development in developing countries by Farrington et al (1993). They are:

- ▶ devolution of authority to local communities,
- ▶ clear but flexible definition of roles at all levels,
- ▶ complementarity of statutory and customary authority, and
- ▶ defining a common vision for all levels of governance and recognizing a common institution for managing pastoral resources.

**Figure 7.1. Proposed multi-level institutional arrangements for management of livestock and range resources in Communal Areas in dryland regions**



The first principle requires a willingness on the part of government to *devolve authority* to local communities and local authorities in addition to decentralizing its functions to regional levels. It was argued earlier in this chapter that the headman's area was the lowest and most appropriate unit for range management interventions. The Chiefs, Headmen and Village-heads Amendment Bill of 1995 makes provision for the devolution of authority over land management to local communities through their traditional leadership. Thus, this requirement already has largely been fulfilled.

The second principle of this linkage proposal is *clear definition of roles* among all the parties concerned. It is of paramount importance that the roles of local communities and their leadership in the management of pastoral resources be clearly defined and their autonomy guaranteed. Although this proposal might sound prescriptive, and reminiscent of a programmed rather than an adaptive approach, it should not preclude adaptive management and innovative institutional development. In order for the changes suggested here to occur, it is necessary to set broad, but flexible, guidelines within which transactions should take place. Again, the Chiefs, Headmen and Village-heads Amendment Bill of 1995 provides some guidelines but falls short of creating linkages between the district and local communities. The details of these roles and responsibilities will have to be worked out with the communities concerned. This requires policy changes in which the new roles of the district and provincial administrators would also be worked out. The Rural District Councils Act of 1993 is also silent about these roles and responsibilities. However, these new functions can be added to the current functions of the people in these two positions.

There is yet no clear partner at the national level under the current arrangement for Communal

Area management. These functions and responsibilities are split among three major ministries, the Ministry of Agriculture, the Ministry of Lands and Rural Resettlement, and the Ministry of Local Government, Rural and Urban Development. Other Ministries such as Environment and Tourism, and Community Development and National Service, play a minor role in the management of Communal Area resources. It is suggested that all these ministries partly responsible for managing pastoral resources in the Communal Areas should create a coordinating committee chaired by the leading ministry (in this case, the Ministry of Local Government, Rural and Urban Development) for monitoring and evaluating pastoral activities in these drylands. The Ministry of Lands and Rural Resettlement might otherwise have been ideal as coordinator, but it has no direct linkages to any significant provincial or district institutions. Hence this and other ministries should provide technical support to the Ministry of Local Government, Rural and Urban Development and the committee. Because technical and managerial skills are evenly distributed among key ministries, the capability and capacity of the responsible ministry should not be an issue. The mandate and membership for such a committee can be broadened to include other resources in the Communal Areas, such as wildlife, fisheries and forestry resources.

The third requirement is that of *complementarity* between statutory and customary authority over pastoral resources. Until the introduction of the Chiefs, Headmen and Village-heads Amendment Bill in 1995, serious and sometimes violent disputes occurred in many parts of the country where customary laws were apparently in conflict with statutory laws introduced by central government that were incompatible with local resources management systems (Mutandi, 1989; Cousins, 1993; GOZ. 1995b). The recognition of the traditional leadership as established in the Bill has been one of the first steps to create the necessary compatibility between local and

external institutions. The recommendations of the Land Tenure Commission (GOZ, 1995a) to strengthen local traditional leadership in the management and development of resources under their jurisdiction through training was another step to harmonize the two systems.

Lastly, there is need to recognize a *common institution* for governing pastoral resources in these vast drylands. Between gaining political independence from Great Britain in 1980, and 1995, government recognized two institutions in the management of Communal Area resources, namely the vidco institutions (formalized in the Prime Minister's Directive of 1984), and to a lesser extent the traditional systems. This duality proved unworkable, as previously discussed. The abolition of the vidco system paved the way for a unitary system (and institution) for managing pastoral resources at village level. The scope of these traditional institutions can easily be broadened to include other resources in the Communal Areas. Metcalfe (1995) suggested that what the CAMPFIRE program had achieved in terms of devolving authority for wildlife resources in the Communal Areas from the state to local authorities (district councils) could be extended further to local communities. In other words, authority should be devolved further from district councils to local communities and the district council should be involved in monitoring and evaluating the performance of these initiatives and providing policy guidance and technical services to local communities. In this respect, it is important to encourage all levels involved in pastoral management and development, from the national level to the village level, to adopt a common vision for local resource management and governance and recognize the headman's area as the spatial unit for governing pastoral resources in these dryland regions.

## 7.5. SUMMARY

This chapter had two goals. One was to provide a review of current livestock development policies in Zimbabwe with special reference to dryland regions of the Communal Areas, to highlight the strengths and shortcomings of these policies, and to propose remedies for the weaknesses (Objective 4 of this study). The second was to establish a basic framework for creating horizontal and vertical linkages for local institutions and their knowledge systems with district, provincial and national institutions responsible for pastoral management and development in the Communal Areas (Objective 5 of this study). National livestock development policies can at best be described as half-hearted attempts at commercializing the communal livestock production system. To a large extent, these policies ignore the cultural, social, economic and environmental adaptability of most pastoral production systems in the arid regions of Southern Zimbabwe's Communal Areas. There is over-reliance on data from wetter Communal Areas of the country in moulding strategies for livestock development in these drier areas. Such strategies are of limited relevance to dryland environments of the kind encountered in this study. It is also worth noting that the first comprehensive livestock development policy statement for the country was only produced in 1992, 12 years after Zimbabwe gained political independence from Great Britain. It is hoped that the final draft of the policy statement will not take that long to produce.

The institution of the headman and the area under his or her jurisdiction was identified as the most appropriate grazing land management unit for pastoral development and management. Internal and external interventions in the pastoral system will need to be at the level of the headman's area as opposed to the village-head as recommended in the Land Tenure



Commission Reports (GOZ, 1995a; GOZ, 1995b). There was no evidence to suggest that the village-head's areas could be used successfully for grazing land management strategies. Thus, headmen's areas should also be used as a basis for allocation and rationalization of grazing resources in the Communal Areas in this region. Headmen will retain responsibility for negotiating access to grazing resources with neighbouring headmen in consultation with village-heads under the respective headmen. Village-heads will continue to perform the important role of enforcing rules, monitoring and evaluating the exploitation of range resources on behalf of headmen and chiefs, even though they (village-heads) have no strict boundaries of rangeland under their individual jurisdiction.

Five principles for creating horizontal linkages with other headmen in the area and enhancing vertical linkages with district, provincial and national institutions were presented. Data from the field indicated that local communities in Beitbridge District fulfilled these requirements. Four additional criteria were developed specifically for linking local institutions with supra-village instructions. Institutional reforms proposed here for linkages with the district, provincial and national coordinating committees will need to meet these criteria if they are to succeed.

Evidence in this chapter suggests that the basic ingredients for such reforms are in place at the village, district, provincial and national levels. What is still needed is the commitment on the part of actors concerned to arrive at some common vision for pastoral development in these areas and then to implement these reforms. Obviously, details of these reforms would have to be worked out for each level and area. However, a framework for such changes has been presented here. Two crucial changes will involve the recognition of the DA as the overall coordinator of pastoral resource management at the district level and the need to mandate the

Ministry of Local Government, Rural And Urban Development with the overall coordination of activities and agencies involved with pastoral development at the national level. The provincial administration and coordination committee under the leadership of the Provincial Administrator will remain largely unchanged.

As Geertz (1983; 58) reminds us in the quotation at the beginning of this chapter, government and external agencies working in these arid regions should not play the role of king, but of critical spectator. They should provide feedback on policy and practice to local communities who often know more about the attributes of their pastoral system than outsiders do, being involved in the daily struggles for their livelihood security under these harsh environments.

## **CHAPTER 8**

### **MAIN FINDINGS, CONCLUSIONS AND IMPLICATIONS**

#### **8.1 INTRODUCTION**

The purpose of this study was to explore the role of indigenous knowledge systems and their institutions in resource and environmental management among pastoralists in Beitbridge District, with a view to incorporating these knowledge systems more effectively into mainstream livestock development planning and policy processes. In that regard, the preceding chapters discussed the lives and experiences of the women, men and children in the Communal Areas of Beitbridge District. Their livestock production system, set against a harsh and highly variable and unpredictable environment, and the adaptive strategies for coping with this variability and vulnerability, were also examined. Local institutional arrangements for managing livestock and the environment within the pastoral system were discussed. Prescriptions were suggested on how to incorporate these knowledge systems and institutions more effectively into the livestock development process at local, regional and national levels. In this concluding chapter, key findings, conclusions and recommendations of the study are summarized.

The chapter has four main sections. The first presents a summary of research findings and conclusions. The next section discusses implications of these findings on research and development in livestock and range management for the arid Communal Areas of Zimbabwe. Limitations of this research, a reflection on fieldwork, and opportunities for future research and development are presented in the last two sections.

## 8.2. SUMMARY OF FINDINGS AND CONCLUSIONS

The description, analysis and results of this study were particularly concerned with the interplay between actors, indigenous knowledge, and institutions and their rule systems on the one side, and the action arenas and interaction situations in which pastoral communities in the study area find themselves on the other side. In other words, the study dealt with the interaction between the world of human culture, knowledge and institutions and the natural world of environment, resources and technology in the Communal Areas of Beitbridge District. The major reason for these concerns and approach is that the nature, extent and quality of these culturally-derived and ecologically specific interactions between pastoralists and the environment in Zimbabwe's dryland ecosystems have not been adequately incorporated into livestock development policy and practice in this region. These concerns are captured in the five objectives outlined in Chapter 1. The research questions that followed from these objectives were guided by the actor-oriented rule systems framework presented in Chapter 2. The framework was derived largely from Burns' (1985) actor-system theory and incorporated attributes of other frameworks that were relevant to the research questions. These included structuration theory, critical social science theory and chaos theory. A similar framework was used by Oakerson (1992) and Ostrom et al (1994).

One of the important questions arising from the first three objectives of this research was the nature of local knowledge systems and institutional arrangements that guide the use and management of grazing lands in the Communal Areas of Beitbridge District. Of particular concern to the study was the role of locally-evolved knowledge in the adaptive and response process and the nature of the management system in this area. The Venda and Sotho people who reside in this area practice a form of pastoralism called transhumance, which consists of regular

and rotational movement of livestock herds from one grazing area to another, depending on the availability of water and food for livestock, while maintaining a permanent homestead in one location. The success of this system depends on the herders' knowledge of the grazing potential in the different zones in the area at any one time. This study identified four *tiers* of grazing that are used in rotation, during different periods of the year, by the respective communities. The nature of the soils, type of vegetation and water availability are important factors used by the communities to delineate these zones. Informal rules enforced by the traditional leadership were used to govern access to and utilization of these grazing *tiers*. These grazing management actions or practices are neither random nor unintentional, but operate within a framework of risk and uncertainty imposed by the nature of the harsh, unpredictable and highly variable environment and structural changes affecting the pastoral system. The practices are not only responses to variability and events or environmental hazards as they occur, but also act in anticipation of possible disruptions to the pastoral system resulting mainly from drought. In doing so, these communities assume a proactive approach to mediating environmental risk and uncertainty. Thus, the response systems are oriented towards risk aversion and adapting to environmental and structural uncertainties. Informal (traditional) rule systems enhance this adaptive process.

It was also suggested in the preceding chapters that the pastoral response system was centered around cooperation among pastoralists within and outside the area, and mobility of pastoral herds in the search for food, water and improved livelihoods. While the homestead, rather than the household, was the primary focus of the coping and adaptive system (cooperation, sharing, reciprocity and mobility), it was also the locus of most decision-making processes and economic and social activities. As part of a broad adaptive system, marriage and child fostering also played a significant role in risk sharing strategies. Through the *lobola* (bridewealth) practice,

marriage was relatively effective in spreading investment (cattle) over the wider community. While marriage, in the short-term, dissipated wealth from the husband's family, marriage between cross-cousins accumulated this wealth within the homestead of the wife's parents and relatives, thus helping to reinforce the bond between extended families. Since women are a potential source of cattle, and therefore wealth, to their parents and brothers, and since these brothers in turn use some of these cattle or off-spring from these cattle to pay their *lobola*, some women in this area have a significant voice in the affairs of their brothers' homesteads. After all, these brothers benefit directly from the payment of bridewealth for their sisters's marriages, particularly if their sisters marry into wealthy homesteads. This practice reinforces the influence and authority of women over their brother's homesteads. Bridewealth also helps to establish new relationships and to share livestock wealth across kinship lines and generations.

As the pastoral economy is increasingly integrated into the cash economy, so are some of its traditions and customs. And like Bullock's (1965:37) Kiambu case study in Kenya, where changes to the Kikuyu landscape were determined more by "the stroke of an often remote pen reacting more often than not to political pressures", much of the changes to the pastoral system in Beitbridge District are fueled by political decisions taken outside the Communal Area. However, other factors are also important in the pastoral adaptive process, and these include the changing socio-economic climate and the highly variable and harsh environment, to which pastoralists must adapt or face the prospects of disaster. An aggressive livestock marketing drive by government and private buyers has brought about new opportunities to the pastoral system that were previously out of reach for many of the residents of the Beitbridge Communal Areas. For instance, cash is increasingly becoming the medium of exchange for bridewealth payments. More livestock are being sold for cash than in the past and fewer oxen are used for ploughing because donkeys are increasingly used for that task. The formal employment market in farms,

towns and cities in Zimbabwe and South Africa has attracted a significant number of young men and women from the district. This has resulted in many women taking extra responsibilities in the management of livestock while the men are away. This trend has also affected primary and secondary school enrolment in the area as most boys drop out of school to join the employment market (particularly in South Africa, which is within a day's walking distance through illegal border-crossing points).

Much of human behaviour is governed by social rules. This behaviour and the rule systems that govern it are usually nested within a larger framework of local institutions. The focus of this study was on traditional or indigenous institutions and their rule systems. The rule systems were informal in the sense that they were not written down. The major reason for this focus on customary institutions was the long history of apparent failures of successive government-imposed institutions for the management of Communal Area development. The focus was also motivated by the central government's recent abandonment of the imposed vidco-based institutions - institutions which were foreign to the customs and traditions of local people.

Two sets of indigenous rule systems were encountered in this research, namely, *siila* (sacred rules originating from *Ngwali*, the rain god and guardian of the land) and *milao* (human-made rules usually based on past experience). The *khoro* (village court) was used as a medium for allocating resources and rights of access to resources, monitoring activities within the area, and sanctioning violators of set rules and arrangements. While the village-heads were responsible for enforcing these rules, they could not change them. Neither could they create new ones. Only the headman or the chief and their court (council of elders or advisors) could change these rules or create new ones. They possessed what Burns (1985) called "meta-power" - the power to alter the rules - and not everyone had this "meta-power" in the study area.

It has been suggested in this dissertation that the major purpose for creating and maintaining such rule systems was to structure and regulate collective action and establish social order. Many regulatory mechanisms and social control measures were used to implement these rule systems in the study area, including sanctions and coercion. It was established that the system had legitimacy among the residents of the area. They were largely effective in regulating human behaviour within the pastoral system. These traditional institutions indeed offered appropriate alternatives to externally created institutions for resource and environmental management in Beitbridge District. However, the system manifested its susceptibility and vulnerability to sudden leadership changes resulting from death or incapacitation of one or more of its leaders. As this case study illustrates, succession to these leadership positions can be a lengthy and tedious process. Therefore, speedy replacement of such leaders was a requirement for the operation of the system and its institutions.

The last of the analytical chapters is mainly prescriptive. The premise for those prescriptions was the argument that in order to ensure effective pastoral management in the Communal Areas of Beitbridge District and other similar environments, government institutions responsible for livestock development in these areas need to be reformed. Traditional Government of Zimbabwe livestock development policies were characterized as half-hearted attempts at commercializing the communal livestock development system. There is need for institutional reform at national, regional and local levels. In addition, there has to be an appropriate mix of customary and government institutions at the local level - a mix that should vary according to local circumstances. This proposal is similar to Swift's (1994: 155) proposal for reform in pastoral administration in Africa in favour of co-management systems (mixed institutions) in order to "reduce transaction costs and enhance the benefits of a particular type of action in pursuit of pastoral development". In other words, this is a call for strengthening customary or



traditional institutions and devolving power and authority directly to these institutions rather than arguing for devolution of power and authority to decentralized government institutions operating in the area.

However, unlike the Land tenure Commission Report's recommendation for such institutions to be established at village-head level, this research suggests that the headman's area is the most appropriate smallest unit for pastoral management and administration. Village-heads still have a major role in this arrangement. They retain all their monitoring and rule-enforcement responsibilities, but when dealing with grazing issues, they should operate within the context of the headman's areas. Thus, the headman's area was singled out as the most appropriate entry point for developing pastoral systems and reforming their institutions in these dryland ecosystems. It is suggested that greater scrutiny be taken when dealing with Communal Areas in dryland regions. Currently, there is over-reliance on data from wetter Communal Areas of the country in molding national strategies for livestock development. Such strategies are of limited relevance to pastoralists in dryland ecosystems such as these encountered in this research.

Five criteria for linking local institutions horizontally with other headmen in the area, and for enhancing vertical linkages with district, provincial and national institutions, were established.

These were:

- 1) set boundaries over which a particular institution has jurisdiction
- 2) autonomy of local institutions,
- 3) commitment and motivation of actors involved,
- 4) communication and organization to facilitate coordination, and,
- 5) legitimacy of local institutions.

The local communities in the study area fulfilled these requirements. Four other criteria were also developed specifically to link the headman's area with supra-village institutions. These were:

- 1) devolution of authority on the part of supra-village institutions,
- 2) clear definitions of roles,
- 3) complementarity of customary or traditional and statutory authority, and,
- 4) the need to recognize a common institution for pastoral resource management.

The basic ingredients for such reform are in place at all levels of administration and management of pastoral systems - from village to national levels. What is required is the commitment from those concerned towards a common vision in livestock and range development in arid lands. This should include a commitment to implement these reforms. This commitment can be obtained through training and offering incentives and merit awards based on satisfactory performance.

This case study demonstrates that the pastoral system is under continuous but cautious transformation induced by legal, economic, social, political and environmental forces that bear on the system. The above discussion also exposes the vulnerability of the pastoral system to these changes. The impact of these changes and the responses by pastoralists are of great concern to pastoralists in the study area. Similar concerns have been noted by some scholars working on pastoralists among which Rigby's (1985) and Homewood and Rodgers' (1991) studies among the Maasai in Tanzania are the most relevant. Both studies persuasively argue that changing the pastoral lives of the Maasai through relocation and more settled agriculture was the surest and quickest way to environmental and human disaster. The potential of the

pastoral system to the livelihood of the people in the study area can be summarized in the following conclusions:

- ▶ local customary institutions and their leadership are central to effective resource and environmental management,
- ▶ local knowledge systems are essential for indigenous adaptive and coping strategies in pastoral resource and environmental management,
- ▶ women play a more significant role in pastoral management systems than previously reported in Southern Zimbabwe, and,
- ▶ recent departures by the state from imposing reforms that are alien to local traditions and norms offer opportunities for successful policy and institutional reform in the administration of livestock development in the arid Communal Areas of Zimbabwe.

With respect to pastoral life in Beitbridge District, persistent attempts have been made by successive governments in Zimbabwe since the arrival of European settlers in 1890 to move these people from their lands. The area has for a long time been erroneously described as “unsuitable for human habitation” (Native Commissioner of the area in 1914), and “waterless and uninhabitable” (1925 Land Commission), and more recently by the state and donors. As early as 1915, the Native Commissioner of the District indicated in a letter to the Secretary in the Department of Administration that “the district was both inadequate and unsuitable and wholly lacking in water”, except along the banks of the major rivers (Palmer, 1977). Such appraisals are used to justify government inactivity in the area and frequently give rise to proposals for relocation of the population.

Not surprisingly, Beitbridge District residents have resisted attempts to permanently relocate them. Solutions to pastoral problems no longer lie simply in relocation, if they ever did, but in taking an integrative approach to understanding the interaction between pastoralists and their physical resource base. This also involves giving more decision-making and managerial authority to those who exploit these resources (in this case, the pastoralists themselves). It also means a greater, more thorough and more sympathetic involvement of planners in collecting and processing relevant data and information and making it available to affected communities and decision makers. This conclusion concurs with many similar studies, mainly in Botswana, Kenya and Tanzania, that have argued against relocation of pastoralists (Rigby, 1985; Hitchcock, 1990; Spelling and Galaty, 1990; Galaty and Bonte, 1991; 1990; Homewood and Rodgers, 1992; Fratkin et al, 1994). Barfield (1992:16) summed up many of the concerns in this study regarding state intervention strategies for pastoral development in Southern Zimbabwe over the last 100 years as follows:

The mystery of the nomadic life lies mostly in the imagination of the outside observer....we have seen that the world of nomads may be different from that of his sedentary neighbor, but only because it conforms to a different set of rules...It is we sedentary folk who need to widen our own horizons.

### **8.3. IMPLICATIONS FOR RESEARCH AND DEVELOPMENT**

The actor-oriented approach used in this research and the evidence and conclusions presented in this study have several implications for research and development practice in dryland regions where pastoralism is pivotal to the livelihood of the inhabitants. This livelihood is drawn largely from animal products (milk and meat) and goods and services paid for with revenue gained from the sale or exchange of livestock, meat, hides, skins and milk (Galaty, 1994). The dryland environment is harsh, unpredictable and highly variable. This is the context within which the

implications of this study are discussed below.

### **8.3.1. Implications for pastoral research and development in southern Zimbabwe's Communal Areas**

First, several theories and concepts that could contribute to better analysis and understanding of the pastoral system in Beitbridge District were identified in Chapter 2. These included critical social science theory, structuration theory, actor-oriented rule systems theory, and chaos theory. A number of relevant concepts were also discussed. These included common property, pastoralism, indigenous knowledge, and institutional arrangements and development. In an attempt to account for the behaviour of pastoralists in the study area, this research drew from all these theories and concepts but concluded that Burns et. al (1985) actor-oriented rule systems theory was most central to the concerns of the study and the people being studied. Nevertheless, the other theories complemented rule systems theory on aspects in which it fell short. For instance, while rule system theory could not account for unpredictable changes and surprise (shocks) within the pastoral system, such changes and shocks could be explained through chaos theory (Gleick, 1987; Uphoff, 1992). It is important to note that Burns et. al (1985) suggested that social change could occur due to many reasons. They thus proposed a framework that included numerous change points (for instance, changes in actors, data, practices and environment). However, such changes had to be gradual and predictable. This did not seem to be the case in this case study as many of the changes were sudden and often came as surprises or shocks to the pastoral system. Although these changes manifested themselves as 'surprises' and 'shock' to the pastoral system, they were not necessarily perceived as such by local people and their belief system.

In addition, whereas rule systems theory could not account for what was seemingly an irrational response to proposed relocation to wetter areas, critical social science theory offered a useful framework for understanding and justifying such actions (Caulifield, 1994). Thus, this study confirms the importance of an integrated approach to pastoral research. No single approach or theory was found absolutely adequate for this exercise. This position is in agreement with Long and Ploeg (1994:82-84) who concluded that the actor-oriented rule systems approach should not be “embraced as a kind of panacea for ameliorating the poverty, uncertainties and vulnerabilities of disadvantaged groups”. Nevertheless, it does help to identify and explain the nature and degree of socio-economic and political space associated with interactions between humans and a highly variable environment.

The actor-oriented approach offers a flexible framework for analyzing pastoral systems. Its guiding concepts include agency and social actors, the notion of multiple realities and action arenas where different life-worlds and discourses meet, norms and values, structural heterogeneity and organization, networks of knowledge and power, and processes of negotiation and accommodation. “Implicit in this theoretical perspective is a non-linear and non-deterministic interpretation of process of change” (Long and Ploeg, 1994:82). Hence the relevance of chaos theory (which is appropriate for addressing multiple realities) to this study. In other words, there are just as many ways of analyzing pastoralism as there are factors affecting pastoralism. Analysts must determine which of these variables contribute the most to understanding and improving pastoral systems. This case study determined that customary institutions and their knowledge systems were most important entry points to research and development of pastoral systems in Southern Zimbabwe. Thus, the approach adopted in this research stressed the importance of giving weight to local knowledge systems and how communities themselves shape the process of development in their areas. Although their choices

may often be limited primarily due to lack of critical resources, local people should not be seen as passive recipients of planned change, nor should they be expected to routinely follow formal rules alien to their systems of resource and environmental management. Pastoralists devise ways of dealing with the challenges of their environment and creatively use their locally-evolved knowledge systems to deal with these challenges.

Second, it was suggested that current policies for livestock development in Zimbabwe were not appropriate for pastoral development in dryland ecosystems. This research has immediate implications for livestock development policies and Communal Area management in this area, given the recent departure by the central government from implementing state-imposed vidco-based institutions for resource and environmental management in the Communal Areas. The 1995 Chiefs, Headmen and Village-heads Amendment Bill provides the opportunity for changes in policy and practice regarding livestock and range development in the arid Communal Areas of Zimbabwe by recognizing traditional (customary) institutions and their leadership as legitimate agencies for land management and administration in the Communal Areas. This recognition of customary institutions is one of the aims of this research.

The focus of this research is also on how to incorporate indigenous knowledge systems into pastoral development initiatives involving common grazing resources. This required understanding the pastoralists who exploit these resources. Such an approach is predicated on the belief that decision making should not be the preserve only of bureaucrats, development agents and policy makers and that communities should have opportunities to contribute towards development initiatives affecting their livelihood. Policy makers, planners and development agents should facilitate such a shared decision-making process by making available data and information accessible to these communities as well as by assisting them to arrive at

ecologically, culturally, economically viable and sustainable decisions. For instance, land tenure systems for these areas could be designed within the framework of the findings of this study regarding boundaries and the different tiers of grazing developed and used by communities in the study areas. While the implementation of the Bill necessitates some changes in the way customary institutions and their leadership operate, it is government agencies that need to be transformed more to be able to cope with the requirements of the new institutional arrangements.

### **8.3.2. Implications for gender and livestock development**

It was argued that the pastoral system in Beitbridge depicted traces of matriarchy in the way the management systems operate, possibly resulting from historical links that the people in Beitbridge District have with seemingly matriarchal Sotho (Lovedu) and Birwa cultures in South Africa and Botswana. However, despite the relatively strong influence of women in decision-making processes affecting the pastoral system and the community at large, men tended to dominate in most spheres of the system. The significance of these interactions in decision-making processes regarding access to and control over resources and their management within the pastoral systems and the homestead is not widely known outside these communities. This ignorance has tended to obscure the struggles, conflicts and negotiations that many of these women are faced with in their daily lives. Many of them also look after their homestead and livestock when men are employed outside the area.

Gender roles and relations are sometimes contested areas in Zimbabwe's pastoral systems in general and in the study area in particular. Contradictions arising from relations between men and women sometimes contribute to tension. Gender relations also involve struggle and



negotiations over access to and control over livestock, livestock products, and grazing resources at household and community levels. They reflect general inequalities and asymmetries in relations between women and men, and the way these are reinforced or changed, for example, through marriage and inheritance. In Beitbridge District, women tend to play an increasingly significant role in the management of communal rangelands and livestock as many men and boys leave to seek employment outside the Communal Area.

#### **8.4. LIMITATIONS OF THIS RESEARCH**

The justification for choosing the methodology and study area for this research was presented in Chapter 3. However, methods and sources used for data collection in this study have their limitations. Data used in this research need to be considered in the contexts of the personal experiences, culture and biases of the many people who agreed to share their experiences and thoughts with me during fieldwork. Serious efforts were made to eliminate these biases, as was outlined in Chapter 3. However, one can not guarantee a foolproof system in these circumstances and some of these convictions and biases may have filtered through during conversations with key informants and survey respondents.

The communities that I dealt with during fieldwork, although depicting traces of matriarchy, are predominantly patriarchal. Therefore, my acceptance into the life-worlds of women in the area was constrained by my being male. While many women, especially elderly women (over 55 years of age), willingly and freely accepted me and allowed me to sit down for hours to discuss many and sometimes sensitive issues regarding their roles in the homestead and within the pastoral system, I noticed a bit of discomfort among younger women when discussing the same issues in the absence of their male partners. The female research assistant was then called upon

to handle such situations - whenever respondents felt uncomfortable dealing directly with me. By obtaining this information through a third party (female research assistant), I may have lost the opportunity to pursue some of the issues as soon as they were brought up during the conversation, thus risking the possibility of losing some of the data and information that could have been obtained had I been present during the conversation. However, this was not prevalent and I was able to obtain most of the information I required from the younger women through the assistant.

Other limitations which may have affected the results of this research could be related to my position in this research. I was born in neighboring Gwanda District and grew up in Beitbridge District. I therefore knew the study area and the people quite well. During the many conversations that I had with people in the community, I was constantly reminded of my identity by being called "*ngwana wa Muthandi*" (Mutandi's son). In 1952, my father became the first agricultural extension worker posted to this area, a position he held until 1966 when he was transferred to the Zambezi Valley in northern Zimbabwe. Thus, it was evident to me that what was expected from me and the research was more than just a doctoral thesis. Therefore, on many occasions I was requested to do a bit more than an ordinary research student would have done. In this context, I helped two women's groups put together a funding proposal for livestock rehabilitation for submission to an NGO. I was also requested by the community at one of the meetings that I held in the area, to convey (on their behalf) to district council officials the concerns of the community regarding the future of state-owned farms in the area that were to be handed over to the council. Despite my declared neutrality on many issues in the area, I did take the community's concerns to officials of the district council. I am convinced that had I refused, I would have been regarded as siding with the district council and thus created a barrier that would have limited my access to respondents and information in the study area.

However, I am confident that my personal background and being labeled “*ngwana wa hesu*” - our child - allowed me more access to the area and the people than would normally be accorded a researcher foreign to the people and the area, but that this special treatment did not compromise the integrity of the research and the validity of the results presented in this dissertation.

#### **8.5. OPPORTUNITIES FOR FUTURE RESEARCH AND DEVELOPMENT**

The development and sustenance of the pastoral system in Beitbridge District have been a function of the ability of the people living in these marginal lands to adapt to highly variable and unpredictable ecological, socio-economic and political conditions that they encountered. One of the aims of this study is to increase the growing conceptual and practical understanding of the circumstances under which these responses and adaptations take place within the pastoral system based upon local knowledge, customary institutions and traditional practices. The pastoral system operates under a system of Communal Land tenure. This tenure system is characterized as “both a legal framework and a set of customary practices” (Galaty, 1994:198). The latter meaning reflects shared understandings within the community about rights to resources, privileges of residence, settlement and movement, and prerogatives of exclusion. Furthermore, under dryland conditions, this system of communal land-tenure usually is more appropriate for pastoral movement and other forms of extensive resource management than are individual tenure systems.

Moreover, Galaty (1994) argued that communal tenure systems can achieve higher levels of cooperation and coordinated management than can be achieved under state holding. This study’s findings concur with his propositions. However, this study concluded that the nature of tenure

in itself is not enough to guarantee effective and efficient resource and environmental management. It is the combination of the nature of local knowledge systems, customary institutions and their leadership that holds the key to sustainable development. Yet growing livestock and human populations and economic pressures are exerting stress on the Communal Lands. One of the immediate concerns arising from these pressures is whether and how customary institutions can cope with these new threats, and for how long. In this respect, studies that focus on the long-term trends and impact assessment, like Biot's (1990) research on rangeland degradation in eastern Botswana, should be accorded priority.

Many development practitioners in Zimbabwe interviewed during fieldwork for this research clearly regard the Limpopo River as a "no-issues" river system. Such attitudes should serve as a catalyst for those who are concerned with the livelihood of those inhabiting this region. There are indeed many outstanding issues in the Limpopo River basin, with implications not only for Zimbabwe but for the four countries sharing borders along this river. The bioregion is also undergoing changes, particularly regarding the management of water and wildlife resources in the region. Attention should therefore be focused on the nature and extent of these changes and how to manage them effectively and efficiently. In that respect, development efforts in the region by ARDA and IFAD (IFAD, 1994;1995), as well as research by Nauta et al. (1994) and Chimonyo and Made (1995), are a welcome encouragement. The new Regional Water Sector established in Botswana in 1996 within the framework of the SADC is another positive step towards better understanding of the issues facing dryland ecosystems such as encountered in this research. That office has already indicated that they would like to accord high priority to the Limpopo River system.

This study also pursued a rather ambitious challenge to integrate different theoretical

perspectives into an analytical framework that was both flexible and dynamic and that bridged the various ideas on the process of change and adaptation within the pastoral system. In so doing, bridges were built across different and sometimes contradictory theories and concepts. This research was also about bridging the gap between cultures, knowledge systems, institutions and disciplines and chaos theory offers one of the most promising opportunities as facilitator for such cooperation. It is this spirit of bridge-building that should form the basis for future studies on pastoralism. Natural resource management literature can only benefit from such cross-fertilization. In that respect, scholars should vigorously pursue the opportunities offered by the possible use of chaos theory in the interpretation of some of the underlying transformations and processes in resource and environmental management, particularly in dryland and marginal ecosystems.

## APPENDIX A

### DATA COLLECTION METHODS

#### OVERVIEW

Data collection was in five parts. **Part I** used a semi-structured questionnaire to collect baseline data from all willing adult male and female individuals in the area. Participation in the survey was voluntary and no coercion was used on participants. They were free to decline the interview. **Part II** dealt with the collection of data from women's and men's groups using PRA methods. Each group will consisted of 5 to 10 members. The research was also designed to provide women with a relaxed environment to express their views on these issues and such small groups are normally easy to manage. Members could also refresh one another's memories in the event that one of their members could not recall certain things. **Part III** involved collection of data from mixed groups of men and women, key informants, traditional leaders, and livestock development agency representatives. **Part IV** involved collection of bio-physical data and resource mapping with community representatives using various participatory techniques. These techniques are described in **Part IV**. **Part V** comprised data collected through observation of the residents and their livestock.

These different methods and techniques were intended to complement one another and also to validate the data through triangulation, as indicated in this dissertation.

Analysis of pastoral systems, which are, by their very nature, very complex, must begin with an understanding of how decision-making arrangements and rules combine with the bio-physical and cultural worlds to generate particular types of interactions and their outcomes. The main aim of this research was to analyze and understand how a series of changes in the bio-physical environment, technology, cultural norms, rules and action arena trigger certain patterns of interaction, outcomes and adaptations. For example, responses to risk and uncertainty in pastoral systems often involved different local institutions. It was therefore important to understand how such institutions functioned and explore opportunities for strengthening them. This task could not be accomplished through one method, but through several methods described in this Appendix.

## **PART I**

### **INDIVIDUAL AND HOUSEHOLD INTERVIEWS FOR ADULT FEMALE AND MALE RESIDENTS**

#### **Purpose of Part I interview**

This interview was intended to create baseline data that would facilitate better understanding of the family structure, individual functions and responsibilities within the household and the community and the way it impacts on livestock and range management in the village. The main purpose of the interviews was to obtain insights on the participating communities and their capabilities in managing their range and livestock and explore ways and means of strengthening these capabilities.

This part of the fieldwork was intended to create insights towards answering the following fundamental questions driving this research:

1. That pastoralists possess a wealth of knowledge about the local ecology (bio-physical resources), have developed a variety of strategies for surviving under stressful conditions such as drought, and a range of institutions for overcoming food, labor and other resource shortages (OBJECTIVE 1).
2. That these pastoralists and the local ecosystem in this part of Zimbabwe (Zimbabwe's Ecological Region V and the least suitable for rain-fed agriculture) have the capacity to sustain growing numbers of livestock and people in the short and long-term without jeopardizing the bio-physical resources of the Communal Areas they inhabit (OBJECTIVE 2).
3. That these knowledge systems, strategies and institutions influence, to a great extent, how pastoralists make decisions regarding the management of their bio-physical environment (OBJECTIVE 3).
4. That there exists tension and opportunities between these local management systems, which are currently under considerable stress, and those regional, national and international interests (institutions) that wish to transform them (OBJECTIVES 4 AND 5).

Obviously the above questions could not be fully answered through survey data alone. Details were pursued through open-ended participatory discussions and observations of the systems at work in Part II, III, IV and V of the field-work. However, the order in which questions are asked can be critical to the success of the interview. In order to capture the interest of the respondent, Miller (1991, p.143) suggested that questions about sensitive and personal issues like age, income, and marital status should be saved for the end of the interview. In this study, personal and household data were dealt with at the end of the interview in section E in order to protect the interest and ego of the respondent.

## QUESTIONNAIRE FOR ADULT FEMALE AND MALE RESIDENTS

Enumerator.....

Date: .....

Kraaalhead/Sabhuku's Name.....

### A: LIVESTOCK AND RANGE MANAGEMENT

**Each livestock type and category has a specific role in the pastoral system. This section is intended to capture these roles and functions as well as management aspects of livestock and grazing (OBJECTIVE 1).**

Please tell me about your livestock and their roles in your life

1. What types and numbers of the following livestock does your homestead keep and how is the ownership breakdown?

	cattle	donkeys	goats	sheep	total
husband					
wife					
aunt					
uncle					
son					
daughter					
other (specify)					

2. Has there been an increase, decrease, no change in the number of livestock you keep during the last 5 years (Mark in relevant box)

	cattle	donkeys	goats	sheep
increase				
decrease				
no change				



3. Reasons for answers in 2.

.....

.....

4. How did you acquire your livestock (Mark in relevant box)

	cattle	donkeys	goats	sheep
inheritance				
brideworth-lobola				
purchases				
births				
gift				
mafiswa (borrowed)				
others (specify)				

5. What benefits do you derive from your livestock? Rank from most significant to least significant. (Use cards, sticks, stones or draw on ground)

.....

.....

.....

6. On a scale of 1 to 4 rank the long-term and short-term value of these livestock; e.g. 1=most important; 4=least important. Give reasons for your ranking. (Use cards, sticks, stones or draw on ground).

	cattle	donkeys	goats	sheep
short-term				
long-term				

7. In good rain seasons, which one(s) of these livestock do you rely upon most on a scale of 1 to 4; where 1=most reliable; 4=least reliable and 0=not applicable (Use card, sticks, stones or draw on ground)

	cattle	donkeys	goats	sheep
cash				
meat				
milk				
draft				
manure				
other specify				

8. In poor rain seasons (drought years), which one(s) of these livestock do you rely upon most on a scale of 1 to 4; 0=not applicable. (Use sticks, stones, cards or draw on ground)

	cattle	donkeys	goats	sheep
cash				
meat				
milk				
draft				
manure				
other specify				

9. How many of the following animals do you have?

	bulls	stallions	rams-goat	rams-sheep
number				

10. Do you castrate your male animals and if yes, how, and why?

.....  
 .....

11. What are the main ailments for your livestock?

12. Which of the following remedies do you use and for which ailments?

- veterinary.....
- traditional/herbal.....
- none of above.....
- other (specify).....

13. In your opinion, is the use of traditional herbal remedies on livestock increasing, declining, not changing within the community?

.....

14. What do you think are the reasons for the above?

.....  
.....

15. In your opinion, do you think the range condition of your grazing area is improving, declining, or stable; and why?

.....  
.....

16. Do you think improvements are needed in the way the range is managed? If yes, in what ways can improvements be made?

.....  
.....

17. If you could afford (more) animals, what kind, (age and sex) would you buy first, second and third.

- i).....
- ii).....
- iii).....

18. Do you think there should be restrictions on the number of livestock people may graze in the range?

.....

19. Give reasons for your answer to 18.

.....  
.....

20. How can these restrictions be enforced?

.....  
.....

**B: OUTCOMES/BENEFITS**

The guiding questions here pertain to how outcomes (benefits or performance) are evaluated? What criteria are used? Who makes decisions and who benefits from the system? (OBJECTIVE 3).

1. Do you sometimes sell some of your livestock products?  
 .....

2. If yes, which livestock products do you normally sell?  
 .....

3. Do you process products before you market them?  
 .....

4. Who does the processing?  
 .....

5. Who does the actual marketing?  
 .....

6. Are the products sold for cash or paid for in kind?  
 .....

7. Who decides on when and what to sell?  
 .....

8. How are these decisions arrived at?  
 .....

9. What do you do with the proceeds from sales?  
 .....  
 .....

10. How and when do you evaluate your performance? (What indicators or criteria do you use to evaluate performance?)  
 .....  
 .....

**C: DECISION-MAKING, LOCAL INSTITUTIONS AND COOPERATION**

Based on the evaluation of outcomes, feedback mechanisms relay this information back to the decision-making institutions and action arena. To what extent is cooperation among actors and local institutions crucial factors in improving outcomes? To what extent is

**sharing a response to risk? (OBJECTIVE 2 AND 3)**

1. Who makes the important decisions regarding the management of the following livestock categories in your home

- cattle:.....
- donkeys:.....
- goats:.....
- sheep:.....

2. Who do you consult most regarding the management of your livestock?

.....

3. During hard times e.g. drought, who do you rely upon for immediate help- Rank 1 (highest) to 5 (lowest); 0=no help. (Use sticks, stones, cards or draw on ground)

	relatives	neighbors	friends	community	others
rank #					

4. During hard times e.g. drought, who gets most help from you

	relatives	neighbors	friends	community	others
rank #					

5. What type of assistance is mostly sought?

.....

6. What criteria is used to move livestock to new grazing lands?

.....  
 .....

7. What criteria is used to decide on which animals to move?

.....  
 .....

8. What role if any do traditional ceremonies play in making management decisions?

.....  
 .....  
 .....  
 .....

**D: DEVELOPMENT INSTITUTIONS**

**The major issues addressed in this section are as follows:**

**How do existing development policies and programs cater for or hinder indigenous knowledge? How can these development agencies change to improve the use of indigenous knowledge? (OBJECTIVES 4 AND 5)**

1. What kind of help do you get from agents of the following organizations in your area;

ORGANIZATION	TYPE OF ASSISTANCE RENDERED
Veterinary Dept	
Agritex	
Zimbabwe Farmers Union	
Agric. Finance Corp.	
Cold Storage Commiss.	
ARDA	
District Devt. Fund	
Parks & Wildlife Dept	
Research & Spec.Serv.	
Lutheran World Fed.	
Other NGO's	

2. Of the above agencies, which one(s) are most responsive to your needs?

.....  
 .....

3. Do you belong to a livestock group?

.....

4. If yes, name and why did you join a livestock group? What kind of assistance do you get from this institutions?

.....  
 .....

**E: PERSONAL AND HOUSEHOLD INFORMATION**

I would like to know more about you and your family and some of your close relatives. Please tell me about the following:

1. Name of respondent:.....

    Totem:.....

    Place of birth:.....

    Ethnic group/s of parents: .....

    Ethnic group of spouse if married:.....

    Name of area of origin for spouse:.....

    Area of origin for respondent:.....

2. Age/Year Born (or estimate using important historical events) e.g. Before/ After German War or Before/After 1947/48 drought (Kenya maize)

.....

3. Position in the Household:.....

4. Position in the Community/Village:.....

5. Is position elected, appointed, inherited, or other:.....

.....

6. How many people live in this home?

CATEGORY	adults >18yrs	boys <18yrs	girls <18yrs
full-time			
part-time			
boarding- scholars			
day-scholars			
children not attending school			
fostered children			
fostered children going to school			
employment outside home and type of employment			
others			

7. Reasons for adopting or fostering, if applicable:

.....  
 .....  
 .....  
 .....  
 .....

8. What relationship, if any existed between your parents and your spouse's parents before you were married? .....

.....  
 .....



## PART II

### SCHEDULE FOR WOMEN'S AND MEN'S GROUPS

Key questions relating to the role of women in pastoral systems, arising mainly from OBJECTIVE 2, were addressed in this part of the research.

A female research assistant assisted in collecting data with and from women. This component of the research mainly followed the methodology developed for the ECOGEN PROJECT with assistance from Clark University in USA and Egerton University in Kenya. The steps are detailed out in *Tools for Gender Analysis: A guide to field methods for bringing gender into sustainable resource management*, *PRA handbook: Conducting PRAs in Kenya* and *RRA Notes, Special Issue on Livestock*, published by IIED (1994).

It is quite common in many Zimbabwean situations that when men and women are interviewed together, men tend to dominate such discussions. And while it is sometimes easier to interview men, it is also important to hear women's perspectives on resource management and permit them to explore household and cultural linkages within the broader social, economic and ecological systems in which they live. It was therefore necessary to schedule follow-up meetings with women in the absence of their male counterparts in order to re-dress this disparity.

The following questions guided the discussion:

1. What is the significance of marriage patterns in the adaptive process?
2. What is the significance of gender with regard to ownership, control of and access to livestock, its products and other resources such as labor?
3. What is the role of child fostering and adoption in child nutrition and education, labor organization and the management of environmental and subsistence risk?
4. What role do women and men play in range and livestock management?

The following is a summary of participatory techniques that were used to gain a gendered perspective of the above issues. These techniques were also used in **Part III** of the fieldwork.

**1. Focus groups:** This is a small group meeting to discuss a specific topic in an informal setting. The idea is to provide an opportunity to explore gender roles in various aspects of community life, and to understand the diversity of perceptions and opinions about these issues. The groups can be used to generate history time-lines for communities, to explore men's and women's perceptions of community institutions.

**2. Wealth and well-being ranking:** This can be done using cards, stones, sticks, paper slips or drawings on the ground representing individuals from rich to poor or healthy to sick. Symbols can also be used to rank such classifications. These provide useful leads or entry points into socioeconomic distinctions, poverty and vulnerability or baseline for future intervention

**3. Key probes:** These are questions that can lead directly to key issues and how they are resolved locally. For example: "Suppose my cattle stray into your field and destroy your crops. What would you do and what would I do?" This question can be repeated with different groups and informants for comparison.

**4. Folk-lore, songs and poetry:** These are in the local language and terminology and often reveal a great deal about values, beliefs, history and practices.

**5. Gender-disaggregated daily activity profiles and seasonal calendar:** Different seasonal constraints and opportunities identifying livelihood tasks and categorizing responsibilities by season, gender and intensity of activity can be diagrammed (or created with stones, seed, sticks etc.) to show variation in variables. Daily activity time lines can also be constructed for both men and women.

**6. Direct observation:** This involves seeing for myself and following my instinct in relation to key issues and questions coming out of the interviews. The idea is to seek understanding and reason for what I see.

**7. Activities, resource, and benefit analysis:** This is an in-depth analysis of activities, resources and benefits (outcomes) of household representatives of the various socioeconomic categories established through wealth ranking. The purpose is to obtain detailed information about livelihood strategies and resource management activities of household representatives of key socio-economic clusters within the community.

**8. Local histories:** These are detailed accounts of the past and how things have changed, with particular focus on relationships among gender, events and trends.

**9. Future possibles:** This involves asking people how they would like things to be in the future. What happens if what they anticipate does not occur? This reveals people's desires, wishes, expectations and uncertainties. How do they forecast futures?

### **PART III.**

## **INTERVIEW SCHEDULE FOR MIXED GROUPS OF AREA INHABITANTS, KEY INFORMANTS, TRADITIONAL LEADERS, LIVESTOCK DEVELOPMENT AGENCIES**

Methods described in Part II were also applicable in Part III. The following discussion guides were used although the discussions were not necessarily restricted to these issues only. Other relevant issues were explored as they evolved.

### **A: MIXED MALE AND FEMALE GROUPS AND KEY INFORMANTS**

#### ***OBJECTIVE 3: RESOURCE BOUNDARIES AND MONITORING ISSUES AND RULES.***

1. Are there grazing resource boundaries in the area?
2. Can people from other areas ("outsiders") utilize your grazing resources?
3. Can you access grazing resources outside your area?
4. Are there specific requirements in order for new comers to access grazing resources?
5. Are there restrictions for resource users?
6. Do you discuss issues relating to livestock and range management. If yes, when was the last time such issues were discussed? What were the issues under discussion? Who was involved? What was resolved?
7. Are there positions of range and livestock monitors in the community? Can residents monitor others and initiate action or only elected/appointed monitors can do that?
8. How is information regarding your grazing and livestock shared (informal/formal)? What is done with this information?
9. Do you have systems in place for rewarding / penalizing users?
10. What incentives are there to encourage adjustment in resource exploitation?
11. How are rules governing grazing made (basis)? Who is involved in the process of making rules. What were the issues the last time this was done?
12. What role is played by informal community leaders in the community? How do they relate to formal leaders and institutions?

## **B: INTERVIEW GUIDE FOR TRADITIONAL LEADERS**

### ***OBJECTIVE 3: LOCAL INSTITUTIONS, RULES AND DECISION-MAKING***

**The following schedule will guide the discussions. However, other relevant issues that arise during fieldwork will be pursued and explored in detail as well.**

1. How did they attain their positions? For how long have they had this position?
2. Find out their area of origin, ethnic group, totem, jurisdiction and whether related to royal clan.
3. Who are their advisors? How are they selected? What are his/her responsibilities? What is frequency of meetings?
4. What special role do they play in resource management issues? What links, if any, do they have with other development structures e.g. VIDCO, WADCO, DDC? Is there room for improving linkages?
5. What decision-making structures and processes do they have in place to deal with resource management issues e.g. drought, overgrazing, disease out-breaks and predators?

## **C: INTERVIEW SCHEDULE FOR VILLAGE AND WARD DEVELOPMENT COMMITTEE**

### ***OBJECTIVES 3: LOCAL INSTITUTIONS, RULES AND DECISION-MAKING***

1. When was Vidco/Wadco established? How was executive elected? Are there ex-officio and co-opted members? Any changes in leadership since establishment
2. How often does committee meets; What issues are discussed, action taken and results; any attendance records, minutes etc?
3. Any formal or informal links, if any with traditional institutions; links with OTHER Vidcos, Wadcos; DDC; etc.
4. How does community evaluate the relevance and effectiveness of Vidcos? For instance do they enforce rules, and if yes, under what circumstances and how? Or what role should Vidcos/Wadco play in village development? How could it be made more effective?
5. Do they have a village development plan? Or working towards one?

**D: INTERVIEW SCHEDULE FOR LIVESTOCK DEVELOPMENT AGENCIES IN THE AREA (LOCAL AND DISTRICT LEVEL)**

***OBJECTIVE 4: LIVESTOCK DEVELOPMENT AGENTS, AGENCIES, PROGRAMS AND POLICIES***

1. Background information

- organization
- position and area of origin
- formal educational qualification
- age/sex
- base/station and length of stay in the district

2. Are they aware of the existence of local knowledge in livestock and range management? What potential is there for local knowledge in livestock and range management? Has any attempts been made to tap the potential of local knowledge in livestock and range management? Are there obstacles in exploiting this potential?

3. What is the status of their relationship with locals?

Who do they think should be responsible for the management of local resources in this area?

4. Do they think there should be policy and /or legislative changes to facilitate the incorporation of indigenous knowledge into livestock development programs?

5. What institutional barriers hinder the incorporation of indigenous knowledge in existing policies and programs targeted at livestock development in the Communal Areas?

6. How can the institutional environment be improved to facilitate the use of indigenous knowledge in livestock development policies and programs? What are the limitations?

**E: INTERVIEW SCHEDULE FOR LIVESTOCK DEVELOPMENT AGENCIES AT PROVINCIAL AND NATIONAL LEVEL.**

***OBJECTIVE 4 AND 5: LIVESTOCK DEVELOPMENT AGENTS AND AGENCIES, PROGRAMS AND POLICY CHANGES. AND USE OF INDIGENOUS KNOWLEDGE***

1. Do they think that there is a role for indigenous knowledge in livestock development policies and programs? How significant is this recognition?

2. How can the potential for indigenous knowledge be exploited and what linkages and institutional changes are necessary for this change in orientation?

3. What role do they perceive they can play in this policy change? What limitations do they have in achieving this objective? What changes at field, district, provincial, and national levels are envisaged in order to achieve this task?

## **PART IV.**

### **COLLECTING BIO-PHYSICAL DATA**

Part IV is an extension of Part I and details the extent of indigenous technical knowledge regarding bio-physical resources and is also related to all five objectives. The major issues explored here were:

1. To what extent do pastoralists use their knowledge of the bio-physical resources to influence decision-making and the way rules and regulations regarding their resources are made?
2. How is this knowledge used to adapt to the unpredictable and changing environmental conditions under which they raise their livestock?
3. How extensive is the use of indigenous knowledge systems in the utilization of grazing resources and the management of their livestock?
4. Is this knowledge complementary (and how is this so) to modern scientific knowledge which is promoted by livestock development agencies? What opportunities exist for the use of this knowledge in livestock development programs in this area?

#### **A: MAPPING**

Together with community, map and name grazing areas, cropping lands, soil types, vegetation, significant water sources (private, public, shared) and other major physical features using transect walks and air-photos.

#### **B: GRAZING RESOURCE INVENTORY**

Ranking of trees, shrubs, herbs and grasses found in the area to determine browse, medicinal and food value and their importance to different types of livestock based on Ian Scoones' 1994 method for ranking browse in Zimbabwe. The ranking was conducted against set criteria such as local availability, its value (taste, early shooting of leaves, water content, edibility of dry leaves) livestock preference and importance during drought periods.

#### **C: RANGE MANAGEMENT**

1. What are people's conception of overgrazing? What are their suggestions to overcome it?
2. Is there any control over grazing? (If yes, who monitors it and how is it monitored?)
3. How is the management system evaluated, and what criteria are used by community?

4. What arrangements if any exist between this community and neighboring communities regarding sharing grazing resources?

5. On the map, plot seasonal herd movements, if any, and find out about obstacles and opportunities in this management system. Which categories of animals are moved and why? How is this done? Who makes these decisions?

#### **D: WATER**

1. Establish whether shared with neighbors, relatives, anyone in the community or no sharing.

2. From inventory, take one source e.g. dam or borehole and establish;

-what decision process was involved in opening up source?

-who was responsible for doing the work?

-who is responsible for leadership, supervision and maintenance?

-any rules for use, criteria for monitoring and evaluation?

-who enforces the rules? How are they enforced (penalties)?

3. What current and potential role does irrigation farming have in this area? Is there potential for its development? Who should be involved in this a development and how?

#### **E: CONFLICT**

With the help of the local leadership and the community, identify areas and cases of conflict, their history and find out causes and how resolved.

#### **F: SERVICES**

1. What is currently done by government to help livestock owners? If anything, how effective is the help?

2. What are the most important things government and donors can do to help livestock owners? (Prioritize). How should such services be provided and managed?

#### **G: OTHER RESOURCES**

1. Find out the status of firewood availability. Is it plentiful, scarce or stable? If scarce, how can the situation be re-dressed?

2. Find out the status regarding wildlife, i.e. game meat; predators on livestock (lions, leopard, cheetah, hyenas, jackals, wild dogs); crop destruction (elephant, hippos, baboons, birds).

3. Are there mineral deposits in the area? Has the community benefitted from these resources in any way?

## **PART V**

### **OBSERVATION**

A relatively large amount of data for this research was collected through observation. This aspect of the research activities was intended to complement data obtained through methods described in this Appendix by providing more details on various aspects of the research.

Herding practices and movement of livestock, scouting to determine range condition, its status and the presences of predators, monitoring range condition, community meetings and traditional ceremonies are some of the activities that were observed during fieldwork to determine how such information and activities were used to arrive at decisions and improvements regarding range and livestock by individuals and groups.

It was also important to observe who did what, at what periods, and penalties that were applied for violation of agreed rules as well as rewards for observing them. Thus a considerable amount of time was spent with herdsman and their livestock and also at community meetings, funerals, church gatherings and traditional ceremonies such as rainy making meetings to observe and record these activities.



## **APPENDIX B**

### **FREQUENCY TABLES FOR WHUNGA AREA BASED ON SURVEY DATA**

This Appendix presents a series of data tables that are not specifically referred to in the text but are relevant to the discussions and conclusions in the thesis. The tables are based on the data collected through the survey questionnaire (Appendix A: Part I). Question numbers (in brackets) following the titles of the tables refer to the question number in the original questionnaire, on which the particular data set is based. The original wording of the question may be seen in Appendix A: Part I. these 22 tables were generated with SYSTAT, a standard statistical software package that was used to analyse the data.

**Table B.1. Respondents' perceptions of changes in livestock population over the past 5 years (Q.A.2)**

Type of livestock	Responses (N=240)			
	no change	decline	increase	do not know
Cattle	65	100	47	28
Donkeys	63	49	102	26
Goats	61	79	70	30
Sheep	40	89	80	31

**Table B.2. Reasons for changes to livestock population(Q.A.3)**

Reason	Responses (N = 240)
Drought	184
Birth	168
Purchase	119
Theft	33
Disease	24
Lobola	57
Gift (Mafiswa)	63

**Table B.3. Value of livestock in the long-term (Rank 1=highest; 4=lowest) (Q.A.6)**

Type of livestock	Responses (N=240)			
	Rank 1	Rank 2	Rank 3	Rank 4
Cattle	157	47	28	8
Donkeys	154	61	18	7
Goats	150	57	33	1
Sheep	141	59	36	34

**Table B.4. Value of livestock in the short-term (Rank 1=highest; 4=lowest) (Q.A.6)**

Type of livestock	Responses (N=240)			
	Rank 1	Rank 2	Rank 3	Rank 4
Cattle	157	56	26	1
Donkeys	153	53	22	12
Goats	150	72	12	6
Sheep	126	72	15	27

**Table B.5. Sources of livestock (Q.A.4)**

Source	Type of livestock			
	Cattle	Donkeys	Goats	Sheep
Inheritance	212	108	129	137
Lobola	136	0	1	0
Purchase	179	161	133	30
Birth	216	212	229	149
Mafiswa	39	4	4	0

**Table B.6. Types of benefits from livestock and their products (Q.A.5)**

Type of livestock	Responses (N=240)				
	Cash	Meat	Draft	Milk	Manure
Cattle	143	137	97	204	0
Donkeys	64	0	214	0	0
Goats	212	231	0	229	9 (for vegetable gardens)
Sheep	107	145	0	0	0

**Table B.7. Utility of livestock types in good rainy seasons (Rank 1=most reliable; 4=least reliable) (Q.A.7)**

Type of livestock	Product	Responses (N=240)			
		Rank 1	Rank 2	Rank 3	Rank 4
Cattle	Cash	174	35	19	12
	Meat	140	49	39	12
	Milk	168	47	21	4
	Draft	106	102	24	8
	Manure	0	0	0	240
Donkeys	Cash	40	64	76	60
	Meat	0	0	0	240
	Milk	0	0	0	240
	Draft	178	33	19	10
	Manure	0	0	0	240
Goats	Cash	179	31	30	0
	Meat	171	31	38	0
	Milk	184	55	1	0
	Draft	0	0	0	240
	Manure	4	45	61	130
Sheep	Cash	17	65	73	85
	Meat	132	57	48	3
	Milk	0	0	0	240
	Draft	0	0	0	240
	Manure	0	0	0	240

**Table B.8. Utility of livestock types in poor rainy seasons (Rank 1=most reliable; 4=least reliable) (Q.A.8)**

Type of livestock	Product	Responses (N=240)			
		Rank 1	Rank 2	Rank 3	Rank 4
Cattle	Cash	108	99	21	12
	Meat	97	108	12	23
	Milk	92	101	35	12
	Draft	82	112	36	10
	Manure	0	0	0	240
Donkeys	Cash	47	50	108	35
	Meat	0	0	0	240
	Milk	0	0	0	240
	Draft	203	35	2	0
	Manure	0	0	0	240
Goats	Cash	192	35	12	1
	Meat	201	37	1	1
	Milk	194	24	22	0
	Draft	0	0	0	240
	Manure	29	45	55	111
Sheep	Cash	112	102	20	6
	Meat	101	109	29	1
	Milk	0	0	0	240
	Draft	0	0	0	240
	Manure	0	0	0	240

**Table B.9. Ownership of male breeding stock (Q.A.9)**

Type of livestock	Respondents who own breeding stock (N=240)
Bulls	155
Stallion (donkey)	195
Ram (goat)	216
Ram (sheep)	154

**Table B.10. Reasons for castrating animals (Q.A.10)**

Reason	Respondents (N=240)
Breed	206
Marketing	203
Meat	204
Security (theft)	102

**Table B.11. Prevalence of livestock diseases in the study area (Q.A.11)**

Type of Disease	Respondents (N=240)
Contagious Abortion	41
Ephemeral Fever (three day sickness)	173
Black Leg	131
Heartwater	64
Scabies (on goats and sheep)	34

**Table B.12. Type of treatment for livestock diseases (Q.A.12)**

Type of remedy	Respondents (N=240)
Traditional remedies	89
Veterinary medicine	176

**Table B.13. Condition of range (veld) in the study area over the last 5 years (Q.A.15)**

Response	Respondents (N=240)
No change	81
Declining	108
Improving	22
Do not Know	29

**B.14. Reason for condition of the range (veld) (QA.15)**

Response	Respondents (N=240)
Drought (rainfall)	105
Less grass	60
Livestock population (overstocking)	23
Human population	25
Do not know	27

**B.15. First preferences of respondents when purchasing livestock (re-stocking) (Q.A.17)**

Type of animal	Respondents (N=240)
Heifer	71
Steer/bull	11
Stallion (donkey)	16
Mare (donkey)	38
Ram (goats)	1
Ewe (goat)	75
Ram (sheep)	0
Ewe (sheep)	28

**B.16. Second preferences of respondents when purchasing livestock (re-stocking) (Q.A.17)**

Type of animal	Respondents (N=240)
Heifer	81
Steer	12
Mare (donkey)	35
Stallion	13
Ewe (goat)	78
Ram (goat)	9
Ram (sheep)	0
Ewe (sheep)	12



**B.17. Third preferences of respondents when purchasing livestock (re-stocking) (Q.A.17)**

Type of animal	Respondents (N=240)
Heifer	88
Steer	0
Mare (donkey)	56
Stallion (donkey)	0
Ewe (goat)	75
Ram (goat)	0
Ram (sheep)	0
Ewe (sheep)	21

**Table B.18. Should livestock numbers be limited? (Q.A.18)**

Responses	Respondents (N=240)
Yes	63
No	155
Do not know	22

**Table B.19. Reasons against limiting livestock numbers (Q.A.19)**

Responses	Respondents (N=240)
Drought	160
Herd buildup (restocking)	52
Theft	28

**Table B.20. Birthplace of respondents (Q.E.1)**

Place of birth	Respondents (N=240)
Beitbridge District	187
Gwanda District	43
Other	10

**B.21. Age structure of respondents (Q.E.2)**

Age	Respondents (N=240)
<30 years	89
30-50 years	112
>50 years	39

**B.22. Average household/homestead composition (N=240) (Q.E.6)**

Category	Number
<18 years boys (resident)	3
<18 years girls (resident)	4
>18 years (resident adult male and female)	3
Male members employed outside area	2
Female members employed outside area	1

## **APPENDIX C**

### **LIVESTOCK DISTRIBUTION CHARTS FOR WHUNGA AREA BASED ON SURVEY DATA**

Appendix C presents graphs representing livestock ownership and distribution patterns for the study area. These graphs are relevant to the discussion in this thesis although they are not specifically referred to in the body of the thesis. The graphs were generated with SYSTAT, a standard statistical software package that was used to analyse data in this study. Livestock data sets for Beitbridge District were also obtained from the Veterinary Department at District, Provincial and National levels (Ministry of Agriculture). However, there was so much disparity among the data sets that they were judged too unreliable for use in this thesis. The major reason for these disparities was, the long-held suspicion shown by local residents regarding livestock census exercises conducted by the Veterinary Department. In the past, such data was used by government as a basis for tax levies on livestock owners and compulsory de-stocking, resulting in a tendency for local residents to understate livestock numbers.

Figure C.1. Percentage livestock distribution within Whunga area

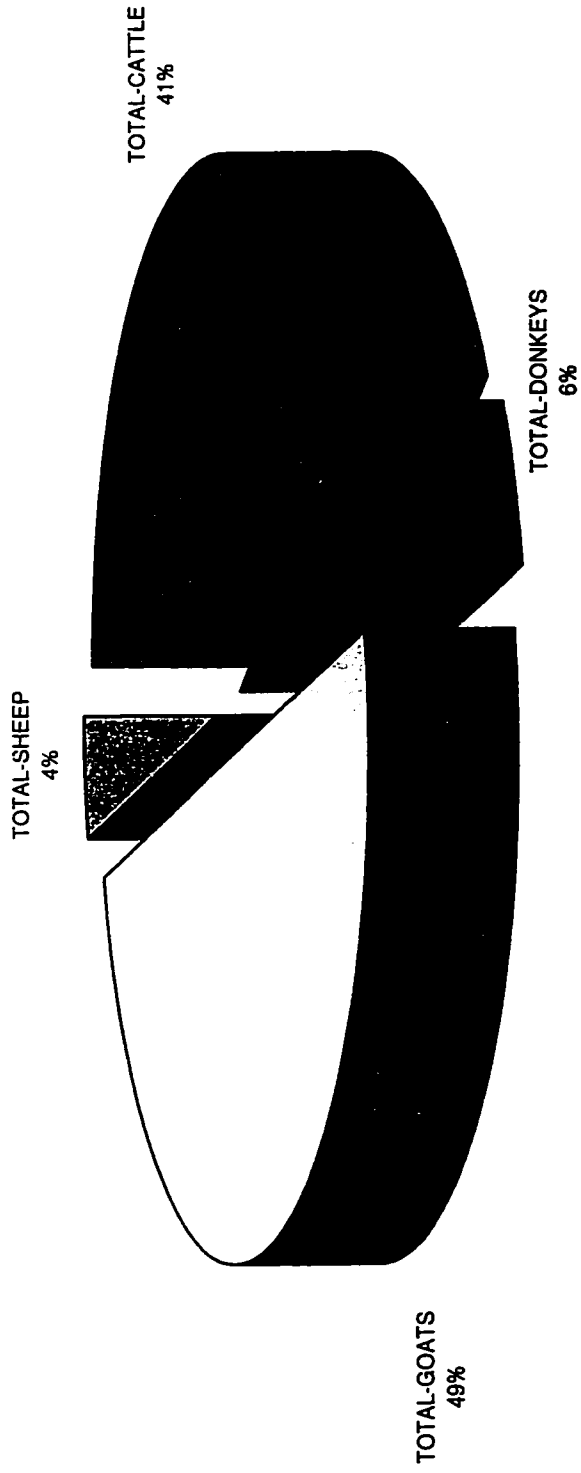


Figure C.2. Cattle ownership by husband, wife, aunt (sister) and son (other relatives own less than 1%)

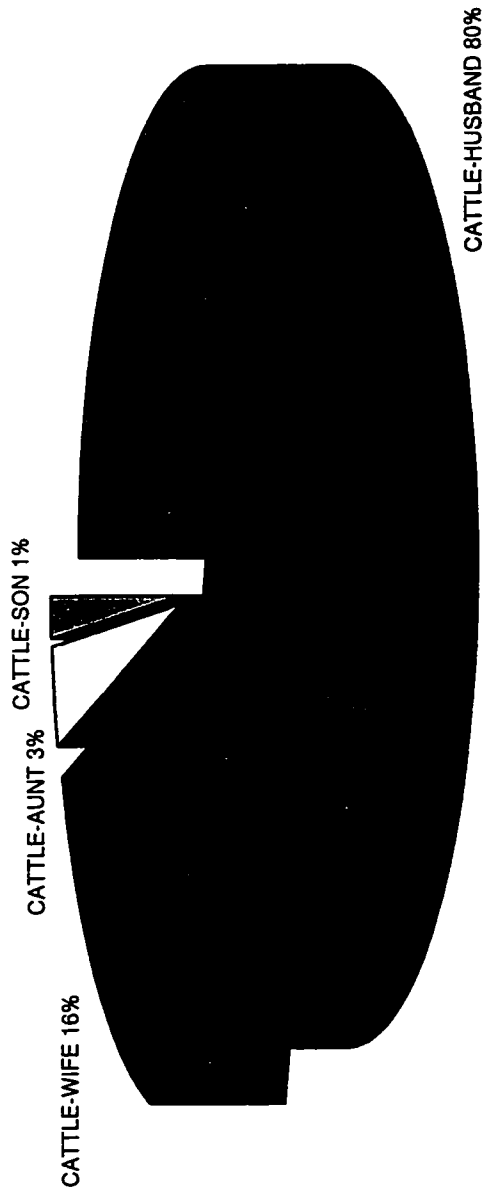


Figure C.3. Goat ownership - husband, wife, aunt, son and daughter. Other relatives own less than 1%

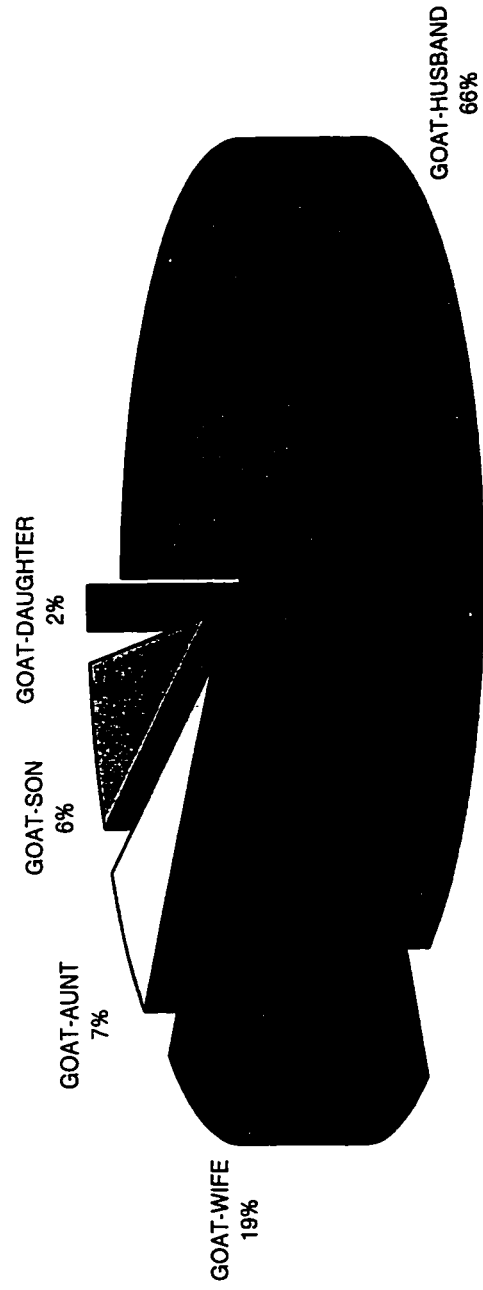


Figure C.4. Donkey ownership - husband, wife, aunt and son. Other relatives own less than 1%.

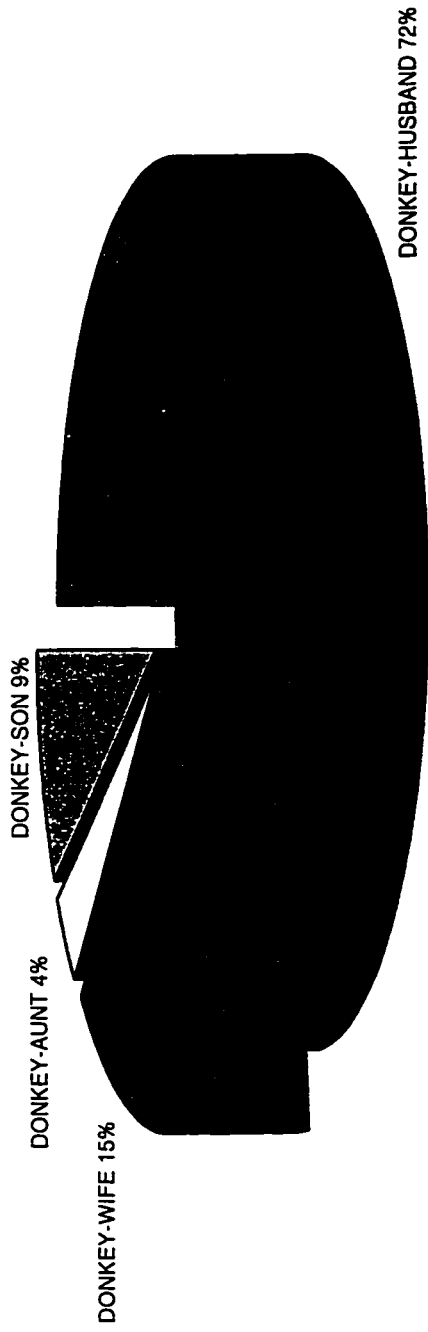
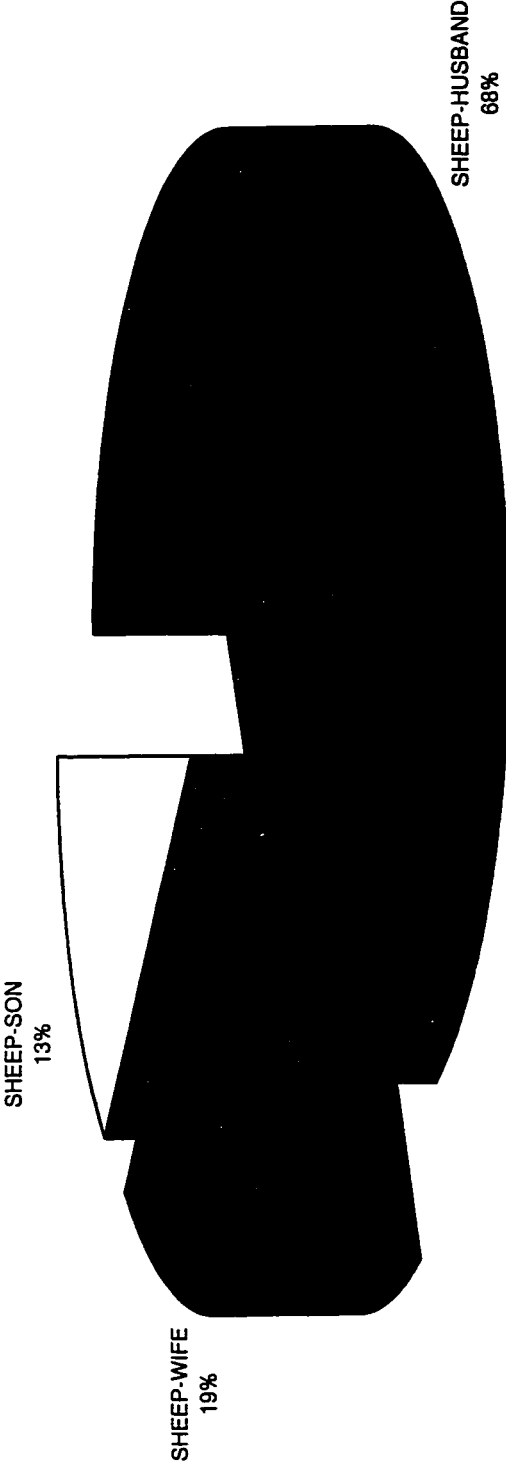


Figure C.5. Sheep ownership - husband, wife and son. Other relatives own less than 1%





## BIBLIOGRAPHY.

Abel, N.O.J. and Blaikie, P. 1989. *Land Degradation, Stocking Rates and Conservation Policies for the Communal Rangelands of Botswana and Zimbabwe*. Land Degradation and Rehabilitation 1.

Abbott, S. (1976). "Full-time farmers and week-end wives." *Journal of Marriage and the Family*, 38 (1): 165-74.

Adams, J.S. and McShane, T.O. 1992. *The Myth of Wild Africa: Conservation Without Illusion*. New York, New York: Norton and Company.

Adams, W.M. 1990. *Green Development: Environment and Sustainability in the Third World*. London: Routledge.

Agrawal, A. 1996. Indigenous and scientific knowledge: some critical comments. *Development and Change*, 26:413-439.

Agarwal, B. 1994. *A Field of One's Own: Gender and Land Rights in South Asia*. Cambridge: Cambridge University Press.

Alexander, D. 1993. *Natural Disasters*. New York: Chapman and Hall.

Allan, W. 1965. *The African Husbandman*. London: Oliver and Boyd.

Almagor, U. 1978. *Pastoral Partners: Affinity and Bond Partnership Among the Dassanetch of South-West Ethiopia*. Manchester: Manchester University Press.

Alsop, R. 1993. Whose interests? Problems in planning for women's practical needs. *World Development*, 21(3), 367-377.

Alvard, M. 1993. Testing the "ecologically noble savage" hypothesis: Interspecies prey choice by Piro hunters of Amazonia, Peru. *Human Ecology*, 21 (4), 355-388.

Alverson, H. 1978. *Mind in the Heart of Darkness: Value and Self-Identity among the Tswana of Southern Africa*. New Haven: Yale University Press.

Amalric, F. 1995. Population growth and the environmental crisis: beyond the 'obvious'. In Bhaskar, V. and Glyn, A, (eds) *The North The South and The Environment: Ecological Constraints and the Global Economy*, 85-101 New York: St Martin Press.

Anderson, D. 1984. Depression, dustbowl, demography and growth: the colonial state and soil erosion in East Africa in the 1970's. *African Affairs*, Vol.83: 321-343.

Anderson, D. 1992. Cow power: Livestock and the pastoralist in Africa. *African Affairs*, 92(366): 121-134.

Anderson, D. and Grove, R. 1987. The scramble for Eden: past present and future in African conservation. In Anderson, D. and Grove R. (eds). *Conservation in Africa: People, Policies and Practice*, 1-27. Cambridge: Cambridge University Press.

Anderson, J.N. 1987. Lands at risk, people at risk: Perspectives on tropical forest transformations in the Philippines. In Little, P.D., Horowitz, M. and Nyerges, A.E. (eds). 1987. *Lands at Risk in the Third World: Local Level Perspectives*, 249-268. New York: Westview Press.

Anderson, T.L. and Simmons, R.T. eds. (1993). *The Political Economy of Custom and Culture: Informal Solutions to the Commons Problem*. Lanham, Maryland: Rowman and Littlefield Publishers Inc.

ARDA-PPU, 1990. *The Sengwe Cattle Rehabilitation Project Proposal - Chiredzi District, Masvingo*. Masvingo, Zimbabwe: ARDA-PPU.

Armour, A.M. 1990. *Socially Responsive Facility Siting*. Unpublished Ph.D. thesis. Waterloo, Ontario: School of Urban and Regional Planning, University of Waterloo.

Attwood, D., Bruneau, T. and Galaty, J. 1988. *Power and Poverty: Development and Development Projects in the Third World*. New York: Westview Press.

Awa, N.E. 1989: Under utilization of women's indigenous knowledge in agricultural and rural development programs: the effect of stereotypes: In Warren, D.M., Slikkerveer, L.T. and Titilola, S.O. (eds). *Indigenous knowledge Systems: Implications for Agriculture and International Development*, 3-10. Studies in Technology and Social Change. Paper No.11. CIKARD. Iowa State University.

Bagadion, B.U. and Korten, F.F. 1991. Developing irrigators' organizations: A learning process approach. In Cernea, M.M. (ed). 1991. 2nd Edition. *Putting People First: Sociological Variables in Rural Development*, 73-112. New York: Oxford University Press.

Baker, R. 1989. Institutional innovation, development and environmental management: An "administrative trap" revisited. Part 1. *Public Administration and Development*. 9: 29-47.

Baksh, M. and Johnson, A. 1990. Insurance policies among the Machiguenga: an ethnographic analysis of risk management in a non-western society. In Cashdan, E., (eds.) *Risk and Uncertainty in Tribal and Peasant Economies*, 193-228. Westview Special Study, New York: Westview Press.

- Barbier, E. 1991. *Environmental Management and Development in the South: Prerequisites for Sustainable Development*. London: IIED - LEEC Paper No. DP 91-07. IIED.
- Bardwell, L.V. 1991. Problem framing: A perspective on environmental problem solving. *Environmental Management*, 15(5): 603-612.
- Barfield, T.J. 1993. *The Nomadic Alternative*. Englewood Cliffs, New Jersey: Prentice Hall.
- Barnes, D.L. 1979. Cattle ranching in semi-arid savannas of east and southern Africa. In Walker B.H. (ed). *Management of Semi-Arid Ecosystems*, 9-54. Amsterdam: Elsevier Scientific Publications.
- Barrett R. and Kemuss, D. 1982. The logic of resource conservation: A discussion of our responsibilities to the future. In Barrett, R.N. (ed). *International Dimension of Environmental Crisis* 31-42. Boulder: Westview Press.
- Barrett, R.N. (ed) 1982. *International Dimension of Environmental Crisis*. Boulder: Westview Press.
- Barrett, S. 1989. *On the Overgrazing Problem*. London: LEEC paper 89-07. IIED/LEEC.
- Bassett, T.J. 1993. Land use conflicts in pastoral development in northern Cote d'Ivoire. In Bassett T.J. and Crummey D.E. (eds). *Land in African Agrarian Systems*, 131-156. Madison: University of Wisconsin Press.
- Bassi, M. 1990. The system of cattle re-distribution among the Obbu Borana and its implications for development planning. In Baxter, P.T.W. and Hogg, R. (eds). *Property, Poverty and People: Changing Rights in Property and Problems of Pastoral Development*, 32-37. Manchester: Manchester University Press.
- Bates, F. and Peacock, W.G. 1993. *Living Conditions Disasters and Development: An Approach to Cross Cultural Comparison*. Athens: University of Georgia Press.
- Baxter, P.T.W. (ed) 1991. *When the Grass is Gone: Development Intervention in African Arid Lands*. Uppsala: Scandinavian Institute of African Studies.
- Beach, D.N. 1980. *The Shona and Zimbabwe: 900-1850. An Outline of Shona History*. London: Heinemann.
- Bebbington, A. 1994. Theory and relevance in indigenous agriculture: knowledge, agency and organization. In Booth, D. (ed). *Rethinking Social Development: Theory, Research and Practice*, 16-46. Essex: Longman.

Behnke, R.H. and Scoones, I. 1992. *Rethinking Range Ecology: Implications for Rangeland Management in Africa*. London: IIED publication.

Behnke, R. 1985. Measuring the benefits of subsistence versus commercial livestock production in Africa. *Agricultural Systems*. 16(2): 109-135.

Beinart, W. 1984. Soil erosion, conservationism and ideas about development: A Southern African exploration. 1900-1960. *Journal of Southern African Studies*, 11(1): 52-83.

Bell, R.H.V. 1985. Carrying capacity and offtake quotas. In Bell, R.H.V. and McShane-Caluzi, E. (eds). *Conservation and Wildlife Management in Africa*, 34-42. Washington: Washington Press.

Belshaw, D. 1980. Taking indigenous knowledge seriously: The case of intercropping techniques in East Africa. In Brokensha, D.W., Warren, D.M. and Werner, O. (eds). *Indigenous Knowledge Systems*, 197-204. Lanham, MA: University Press of America.

Beneria, L. and Roldan, M. 1987. *The Crossroads of Class and Gender: Industrial Homework, Subcontracting and Household Dynamics in Mexico City*. Chicago: University of Chicago Press.

Beneria, L. (ed). 1985. *Women and Development: The Sexual Division of Labour in Rural Societies*. Praeger: Praeger Special Studies.

Bennett, J.W. 1984. *Political Ecology and Development Projects Affecting Pastoralist Peoples in East Africa*. Wisconsin: Land Tenure Center.

Bennett, J.W. 1996. *Human Ecology as Human Behavior: Essays in Environmental and Development Anthropology*. (Expanded Edition). London: Transactions Publishers.

Berger, P.L. and Luckmann, T. 1966. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. New York: Doubleday and Co.

Berkes, F. (ed). 1989. *Common Property Resources*. London: Belhaven.

Berry, S. 1993. *No Condition is Permanent: Social Dynamics of Agrarian Change in Sub-Saharan Africa*. Madison: University of Wisconsin Press.

Bhaskar, V. and Glyn, A. 1995. *The North, The South and The Environment: Ecological Constraints and the Global Economy*. New York: St Martin Press.

Biot, Y. 1990. *How Long Can High Stocking Densities be Sustained?* London: Commonwealth Secretariat.

- Blaikie, P. 1985. *The Political Economy of Soil Erosion in Developing Countries*. Essex: Longman Press.
- Blaikie, P. and Brookfield, H., (eds). 1987. *Land Degradation and Society*. London: Methuen Press.
- Blunt, P. and Warren, D.M. (eds) 1996. *Indigenous Organizations and Development*. London: Intermediate Technology Publications.
- Bohlen, J.G. 1978. Biological rhythms: Human responses in the polar environments. *Yearbook of Physical Anthropology*. 22, 47-79.
- Bonte, P. and Galaty, J. 1991: Introduction. In Galaty, J. and P. Bonte (eds). *Herders, Warriors and Traders: Pastoralism in Africa*, 3-32. Boulder: Westview Press.
- Booth, D. (ed). 1994. *Rethinking Social Development: Theory, Research and Practice*. Essex: Longman.
- Bovin, M. and Manger, L. (eds) 1990. *Adaptive Strategies in African Arid Lands*. Scandinavian Institute of African Studies. Uppsala: University of Uppsala.
- Box, L. 1988. The experimenting farmer: a missing link in agricultural change. In Hinderink, J. and Szuk-Dabrowiecka, E. (eds). *Successful Rural Development in the Third World Countries*, 87-98. Amsterdam: Nederlandsse Geografische Studies 67.
- Breemer, H. P.M. and Venema, L. B. 1995. Local resource management in African National contexts. In Breemer, J.P.M., Drijver, C.A. and Venema, L.B. *Local Resource Management in Africa*, 3-26. New York: John Wiley and Sons.
- Broad, R. 1994. The poor and the environment: Friends or foes? *World Development*, 22 (6): 811-822.
- Brokensha, D.W., Warren, D.M. and Werner, O. (eds). 1980. *Indigenous Knowledge Systems*. Lanham: University Press of America.
- Bromley, D.W. 1992: The commons, property and common-property regimes, In Bromley, D.W. (ed): *Making the Commons Work: Theory, Practice and Policy*, 3-16. San Francisco: I.C.S. Press.
- Bromley, D.W. and Segerson, K. (eds), 1992. *The Social Responses to Environmental Risk: Policy Formulation in an Age of Uncertainty*. Boston: Kluwer Academic Publishers.
- Brownman, D.L. 1990. High altitude camelid pastoralism of the Andes. In Galaty, J. G. and

Johnson, D. (eds) *The World of Pastoralism: Herding Systems in Comparative Perspective*. 323-352. London: Guildford Press.

Bruce, J.W. 1986. *Land Tenure Issues in Project Design and Strategies for Agricultural Development in Sub-Saharan Africa*. L.T.C. paper 128. Madison: Wisconsin.

Bruce, J.W. 1993. Do indigenous tenure systems constrain Agricultural development? In Bassett, T.J. and Crummey, D.E. (eds), 1993. *Land in African Agrarian Systems* , 35-56. Madison: University of Wisconsin Press.

Bruce, J.W. 1996. Legal basis for common property forestry management. *CPR Digest*. June, 1996, 3-5.

Bruggeman, H. 1994. *Pastoral Women and Livestock Management: Examples from Northern Uganda and Central Chad*. London: IIED.

Brundtland, G.H. 1987. *Our Common Future*. Oxford: Oxford University Press.

Brush S.B. and Stabinsky, D. (ed).1996. *Valuing Local Knowledge: Indigenous People and Intellectual Property Rights*. Washington: Island Press.

Bryant, R.L. 1992. Political ecology: An emerging research agenda in Third World studies. *Political Geography*, 11(1): 12-36.

Bullock, R.A. (1965). Landscape change in Kiambu. *East African Geographic Review*. 3: 37-45.

Burgess, R.G. 1984. *In the Field: An Introduction to Field Research*. London: George Allen and Unwin.

Burns, T.R., Baumgartner, T., DeVille, P. 1985. *Man, Decisions, Society. The Theory of Actor-System Dynamics for Social Scientists*. New York: Gordon and Beach..

Burns, T.R. and Flam, H. 1987. *The Shaping of Social Organizations. Social Rule System Theory with Applications*. London: SAGE.

Burnham, P. 1980. Changing agricultural and pastoral ecologies in the West African Savanna Region. In Harris, D.R. (ed) 1980. *Human Ecology in Savanna Environments* 147-170. London: Academic Press.

Burton, I., Kates, R. and Whites, G.F. 1978. *The Environment as Hazard*. Oxford: Oxford University Press.

Buvinic, M. 1986. Projects for women in the Third World: explaining their misbehavior. *World*

*Development*, 14(5): 653-664.

Buvinic, M. and Lycette, M. 1988. Women, poverty and development in the Third World. In Lewis, J. P. (ed). 1988. *Strengthening the Poor: What Have We Learnt?*, 149-162. Oxford: Transaction Books.

Cambitzis, N. 1972. *Agro-economic Survey of South-western Matebeleland*: Report by ADA. Harare: Government Printer.

Cashdan, E., (eds.) 1990. *Risk and Uncertainty in Tribal and Peasant Economies*. Boulder: Westview Special Study, Westview Press.

Caughley, G. 1979. What is this thing called carrying capacity? In M.S. Boyce and L.D. Hayden-Wing (eds). *North American Elk: Ecology, Behavior, and Management*, 123-145. Cheyenne: University of Wyoming Press

Caulfield, J. 1994. *City Form and Everyday Life: Toronto's Gentrification and Critical Social Practice*. Toronto: University of Toronto Press.

Caulfield, J. 1997. Introduction. In Caulfield, J. and Peake, L. (eds) *City Lives and City Forms: Critical Research and Canadian Urbanism*, 3-12. Toronto: University of Toronto Press.

Cavendish, W. 1995. Economics and ecosystems: the case of Zimbabwe. In Bhaskar, V. and Glyn, A. *The North The South and The environment: Ecological Constraints and the Global Economy* 201-231. New York: St Martin Press.

Cernea, M.M. 1991. Knowledge from social science for development policies and projects. In Cernea, M.M. (ed). 2nd Edition. *Putting People First: Sociological Variables in Rural Development* 1-42. Oxford: Oxford University Press.

Chambers, R. 1983. *Rural Development: Putting the Last First*. London: Longman.

Chambers, R. 1987. *Sustainable Rural Livelihoods: A Strategy for People, Environment and Development*. Sussex: IDS. Commissioned Study No. 7.

Chambers, R. 1990. *Micro Environments Unobserved*. London: IIED. Gate keeper Series. No.22. IIED.

Chambers, R. 1991. Shortcut and participatory models for gaining social information for projects. In Cernea, M.M. (ed). 1991. 2nd Edition. *Putting People First: Sociological Variables in Rural Development* 515-537. Oxford: Oxford University Press.

Chambers, R. 1994. The origins and practice of participatory rural appraisal. *World*

*Development*, 22(7): 953-969.

Chambers, R., Parcey, A. and Thrupp, L.A. (eds). 1989. *Farmer First: Farmer Innovation and Agricultural Research*. London: Bootstrap Press.

Chambers, R., and Richards, P. 1995. Introduction. In Warren, D.M., Slikkerveer, L.J. and Brokensha, D. (eds). *The Cultural Dimension of Development: Indigenous Knowledge Systems*, xv-xviii. London: Intermediate Technology Publication.

Chanock, M. (1985). *Law, Custom and Social Order*. Cambridge: Cambridge University Press.

Chapman, M.D. 1989. The political ecology of fisheries depletion in Amazonia. *Environmental Conservation*, 16(4): 331-337.

Chavunduka, D.M. 1989. The Lutheran World Federation's cattle rehabilitation and development program, Beitbridge District. In Cousins, B. (ed). *People, Land and Livestock*, 387-396. Harare, Zimbabwe: Centre for Applied Social Sciences,

Chimonyo, R.G. and Made, J. (1995). *Community Based Communal Land Development Rehabilitation and Development: Eco-social and Zonation in Nendanga Village, Buhera District*. Harare: IUCN-ROSA

Chinembiri, F. 1989. Livestock extension programs and packages in the Communal Lands of Zimbabwe. In Cousins, B. (ed). *People, Land and Livestock*, 139-154. Harare, Zimbabwe: Centre for Applied Social Sciences.

Chritiansson, C. 1985. Different perspectives on the soil erosion complex in East African drylands. In Hjort, A. (ed). *Land Management and Survival*, 57-62. Uppsala: Scandinavian Institute of African Studies.

Ciriacy-Wantrup, S.V. and Bishop, R.C. 1975. Common property as a concept in natural resource policy. *National Resources Journal*, 15(4): 713-27.

Clements, F. 1969. *Rhodesia: A Study of the Deterioration of a White Society*. New York: Praeger.

Cocklin, C. 1989. Methodological problems in evaluating sustainability. *Environmental Conservation*, 16(4): 343-351.

Chokor, B. and Odemerho, F.O. 1994. Land degradation assessment by small scale farmers and implications for sustainable conservation management. *Geoforum*. 25(2): 145-154.

Compton, L.J. (1989). Strategies and methods for the access, integration and utilization of



indigenous knowledge in agriculture and rural development. In Warren, D.M., Slikkerveer, L.T. and Titilola, S.O. (eds). *Indigenous Knowledge Systems: Implications for Agriculture and International Development*, 21-34. Ames, Iowa: Studies in Technology and Social Change. Paper No.11. CIKARD. Iowa State University.

Conghenour, M. Ellis, J., Swift, D., Coppock, D., Gulvin, K., McCabe, J. and Hart, T. 1985. Energy extraction and use in a nomadic pastoral economy. *Science*, 230: 619-662.

Cousins, B. 1989. Community, class and grazing management in Zimbabwe's Communal Lands. In Cousins, B. (ed). *People, Land and Livestock*, 331-372. Harare, Zimbabwe: Centre for Applied Social Sciences.

Cousins, B. 1993. Debating communal tenure in Zimbabwe. *Journal of Contemporary African Studies*, 12(1): 29-39.

Coveney, P. and Highfield, R., (1995). *Frontiers of Complexity: The Search for Order in a Chaotic World*. Newfork: Fawcett Columbine.

Croll, E. and Parkin, D. 1992. Cultural understandings of the environment. In Croll, E. and Parkin, D. (eds). *Bush Base: Forest Farms: Culture, Environment and Development*, 11-38. London and New York: Routeledge.

C.S.O. 1988. *Quarterly Digest of Statistics. June 1988*. Harare. Zimbabwe: Central Statistics Office.

C.S.O. 1993. *Zimbabwe Census 1992: Preliminary Report*. Harare, Zimbabwe: Central Statistics Office.

Curry, J. 1996. Gender and livestock in African production systems: an introduction. In *Human Ecology*, 24 (2), 149-159.

Curry, J., Huss-Ashmore, R., Perry, B. and Mukhebi, A. 1996. A framework for the analysis of gender, intra-household dynamics, and livestock disease control with examples from Uasin Gishu District, Kenya. *Human Ecology*, 24 (2), 161-189.

Dahl, G. (ed). 1987. The realm of pastoral women. Special Issue of *Ethos*. 52(1-2)

Dahl, G. and Hjort, A. 1976. *Having Herds: Pastoral Herd Growth and Household Economy*. Stockholm: Stockholm Studies in Social Anthropology, no.2. University of Stockholm.

De Garine, I. and Harrison C.A. 1988. ed. *Coping with Uncertainty in Food Supply*. New York: Oxford Science publications.

De Jasay, A. 1989. *Social Contract, Free Ride: A study of the Public Goods Problem*. Oxford: Clarendon Press.

de Loë, R. C. 1994. *Stability and Change in Southern Alberta Water Management*. Unpublished Ph.D. Thesis, Waterloo: Department of Geography, University of Waterloo.

Denny, J.P. 1980. *Cultural Ecology of Mathematics: Ojibay and Inuit Hunters*. London: Research bulletin 541. Dept of Psychology, University of Western Ontario.

Dijk, H. and Bruijn, M. 1995. Pastoralists, chiefs, and bureaucrats: a grazing scheme in dryland Mali. In Breemer, J.P.M, Drijver, C.A. and Venema, L.B. (eds) *Local Resource Management in Africa* 77-96. New York: John Wiley and Sons.

Dixon-Muller, R. 1989. *Women's Work in Third World Agriculture: Concepts and Indicators*. Geneva: Women, Work and Development No.9. ILO.

Dixon, J.A. and Fallon, L.A. 1989. The concept of sustainability: origins, extensions and usefulness for policy. *Society and Natural Resources*. Vol. 2(2): 73-84.

Dombrowski, K. 1993. Some considerations for the understanding of small herd dynamics in East African arid zones: The long term consequences of bride wealth exchange networks. *Human Ecology*, 21(1): 23-50.

Dovers, S.R. and Handmer, J.W. 1992. Uncertainty, sustainability and change. *Global Environmental Change*. 2 (1), 262-276

Dovers, S.R. and Handmer, J.W. 1993. Contradictions in sustainability. *Environmental Conservation* 20 (3): 217-223.

Drinkwater, M. 1992. Cows eat grass don't they? Evaluating conflict over pastoral management in Zimbabwe. In Croll, E. and Parkin, D. (eds). *Bush Base: Forest Farms: Culture, Environment and Development*, 169-186. London and New York: Routedledge.

Drinkwater, M. 1991. *The State and Agrarian Change in Zimbabwe's Communal Areas*. London: MacMillan.

Dugaan-Cronnin, A.M. (1928). *The Bantu-Speaking Peoples of South Africa. Vol 1, Section 1. The Venda*. Cambridge: Deighton Bell.

Dyson-Hudson, N. 1972. The study of nomads; In Irons, W. and Dyson-Hudson (ed). *Perspectives on Nomadism*. Lieden: Lieden- Brill Publications. 2-29.

Dyson-Hudson, N. 1980. Strategies of resource exploitation among East African Savanna

pastoralists. In Harris, D.R. (ed). *Human Ecology in Savanna Environments*. London: Academic Press, 171-184.

Dyson-Hudson, N. 1991. Pastoral production systems and livestock development projects: An East African perspective. In Cernea, M.M. (ed). 2nd Edition. *Putting People First: Sociological Variables in Rural Development*, 219-256. Oxford: Oxford University Press.

Ebert, C.H.V. 1988. *Disasters: Violence of Nature and Threats by Man*. New York: Kendall Hunt Publishing.

Eckholm, E. 1979. *The Dispossessed of the Earth: Land Reform and Sustainable Development*. Washington: World Watch, paper 30.

Eisenstadt, S.N. 1968. Introduction. In Weber, M. *On Charisma and Institution Building*. Chicago: University of Chicago Press, ix-lvi.

Ellis, J. 1994. Climate variability and complex ecosystem dynamics: implications for pastoral development. In Scoones, I. (ed) *Living with Uncertainty: New Directions in Pastoral Development in Africa*, 37-46. London: Intermediate Technology Publication.

Ellis, J. and Swift, D. 1988. Stability of African pastoral ecosystems: alternative paradigms and implications of development. *Range Management*, 41: 450 - 459.

Esman, M.J. and Uphoff, N.T. 1984. *Local Organizations: Intermediaries in Rural Development*: Ithaca and London: Cornell University Press.

Evans-Pritchard, E.E. 1940. *The Nuer: A Description of the Modes of Livelihood of a Nilotic People*. Oxford: Oxford University Press.

Farrington, J., Bebbington, A., Welland, K. and Lewis, D. 1993. *Reluctant Partners? NGO's, the State and Sustainable Development*. London and New York: Routledge.

Fay, B. 1987. *Critical Social Science: Liberation and its Limits*. Ithaca, New York: Cornell University Press.

Feeny, D., Berkes, F., McCay, B.J. and Acheson, J.M. 1990. The tragedy of the commons twenty-two years later. *Human Ecology*. 18, 1-19.

Ferguson, J. 1990. *The Anti-Politics Machine: Development, Depolarization and Bureaucratic power in Lesotho*. Cambridge: Cambridge University Press.

Fouche, L. (1939). *Mapungubwe: Ancient Bantu Civilizations on the Limpopo*. Cambridge: Cambridge University Press.

Franke, R.W. and Chasin, B. 1980. *Seeds of Famine: Ecological Destruction and the Development Dilemma in the West African Sahel*. Montclair: Montclair Press.

Fratkin, E. 1986. Stability and resilience in East African pastoralism: The Rendille and the Ariaal of northern Kenya. *Human Ecology*, 14(3): 269-286.

Fratkin, E. and Smith, K. 1995. Women's changing economic roles with pastoral sedentarization: varying strategies in alternate communities. *Human Ecology*, 23 (4), 433-453.

Freeman, D.M., Bhandarka, V., Shinn, E., Wilkin-Wells, J. and Wilkin-Wells P. 1989. *Local Organization for Social Development: Concepts and Cases of Irrigation Organization*. London: Westview Press.

Freeman, M. and Carbyn, L. (eds). 1988. *Traditional Knowledge and Renewable Resource Management in Northern Regions*. Edmonton: University of Alberta, Boreal Institute of Northern Studies.

Freeman, M.M.R. and Carbyn, L.N. (eds). 1988. *Traditional Knowledge and Renewable Resource Management in Northern Regions*. Geneva: IUCN and Boreal Institute for Northern Studies. Occasional Publication. no.23.

Gaard, C. 1993. (ed). *Eco-feminism: Women, Animals, Nature*. Philadelphia: Temple University Press.

Gadgil, M. and Berkes, F. 1991. Traditional resource management systems. *Resource Management and Optimization*. 8(3), 127-141.

Galaty, J. 1980. The Maasai group ranch politics and development in an African pastoral society: In Salzman, P.C. (ed). *When Nomads Settle: Processes of Sedentarization as Adaptation and Response*, 157-172. Praeger Special Studies, Praeger: Praeger Press.

Galaty, J. 1994. Rangeland tenure and pastoralism in Africa. In Fratkin, E., Galvin, K.A. and Roth, E. (eds). *African Pastoral Systems: An Integrated Approach*, 185-204. London: Lynne Rienner Publications.

Galaty, J. G. and Johnson, D. 1990. Introduction: pastoral systems in global perspective. In Galaty, J. G. and Johnson, D. (eds) *The World of Pastoralism: Herding Systems in Comparative Perspective*. 1-16. London: Guildford Press.

Galaty, J.G. and Salzman, P.C. (eds), 1981. *Change and Development in Pastoral Societies*. Lieden: Leiden-Brill Press.

Geertz, C. (1983). *Local Knowledge: Further Essays in Interpretive Anthropology*. New York:

## Basic Books.

Giddens, A. 1984. *The Constitution of Society: Outline of the Theory of Structuration*. Cambridge: Polity Press.

GFA, 1989. *The Study of the Economic and Social Determinants of Livestock Production in the Communal Areas - Zimbabwe: A Final Report fro the Government of Zimbabwe*. Hamburg, Germany: GFA.

Ghose, A.K. 1983. Agrarian reform in developing countries: Issues of theory and problems of practice. In Ghose, A.K. (ed). *Agrarian Reform in Contemporary Developing Countries*, 3-30. London: Croom Helm and St. Martin Press.

Glantz, M.H. (ed), 1987. *Drought and Hunger in Africa: Denying Famine a Future*. Cambridge: Cambridge University Press.

Gleick, J. 1987. *Chaos: Making a New Science*. New York: Penguin Books,.

Goerner, S. 1995. Chaos, evolution and deep ecology. In Robertson, R. and Combs, A. (eds). *Chaos Theory in Psychology and Life Sciences*, 17-34. Mahwah, NJ: Lawrence Elbaum Associates.

Goody, J. and Tambiah, S.J. 1973. *Bridewealth and Dowry*. Cambridge: Cambridge University Press.

Gould, P.R. 1972. Man against his environment: A game theoretical framework. In Prothero, R.M. (ed). *People and Land in Africa South of the Sahara: Readings in Social Geography*, 320-329. London: Oxford University Press..

GOZ, 1980. *Intensive Resettlement Policies and Procedures*. Harare: Government Printer.

GOZ, 1991. *The Livestock Development Policy Report*. Harare: Government Printer.

GOZ, 1995a. *Report of the Commission of Inquiry into Appropriate Agricultural Land Tenure Systems*. Harare: Volume 1 - Main Report, Government Printer.

GOZ, 1995b *Report of the Commission of Inquiry into Appropriate Agricultural Land Tenure Systems*. Harare: Volume 2 - Technical Reports, Government Printer.

GOZ, 1995c. *Report of the Commission of Inquiry into Appropriate Agricultural Land Tenure Systems*. Volume 3 - Methods, Procedures, Itinerary, and Appendices. Harare: Government Printer.

Gulbrandsen, O. 1985. *Access to Agricultural Land and Communal Land Management in Eastern Botswana*. Madison, Wisconsin: Land Tenure Center.

Gulliver, P.H. 1955. *The Family Herd: A study of Two Pastoral Tribes in East Africa, the Jie and the Turkana*. London: Routledge and Kegan Paul.

Hage, J. and Fischerbusch, K. 1987. *Organizational Change as a Development Strategy: Models and Tactics for Improving Third World Organizations*. Boulder and London: Lynne Rienner.

Hall, J.A. 1983. The place of climatic hazards in food security: A case study of Belize. In Hewitt, K., (ed). *Interpretations of Calamity From the View Point of Human Ecology*, 140-161. Risk and Hazards Series 1. Boston: Allen and Unwin.

Hammer, T. 1985. Theoretical and practical endeavor in dryland Africa: retrospect and prospect. In Hjort, A. (ed). *Land Management and Survival*, 70-76. Uppsala: Scandinavian Institute of African Studies.

Hammond-Tooke, W.D. (ed). 1974. *The Bantu Speaking People of Southern Africa*. London: Routledge and Kegan Paul.

Hammond-Tooke, W.D. 1981. *Boundaries and Belief: The Structure of a Sotho Worldview*. Johannesburg: Witwatersrand University Press.

Hardin, G. 1968. The tragedy of the commons. *Science*, 162: 1243-48.

Harding, S. 1987. Introduction: is there a feminist methodology? In Harding, S. (eds). *Feminism and Methodology: Social Science Issues*, 1-14. New York: Bloomington and Open University Press.

Harrison, P. 1987. *The Greening of Africa: Breaking Through The Battle for Land And Food*. IIED-. London: Earthscan

Harris, D.R. (ed) 1980. *Human Ecology in Savanna Environments*. London: Academic Press.

Hames, R. 1990. Sharing among the Yanomamo: Part I, The effects of risk. In Cashdan, E., (eds.) *Risk and Uncertainty in Tribal and Peasant Economies*, 89-106. Westview Special Study, New York: Westview Press.

Hayles, N. (1990). *Chaos Bound: Orderly Disorder in Contemporary Literature and Science*. Ithaca: Cornell University Press.

Herskovits, M.J. 1926. The cattle complex in East Africa. *American Anthropologist*, 28, 230-72; 361-88; 494-528.

- Herskovits, M.J. 1930. The culture areas of Africa. *Africa*. 3, 59-77.
- Herskovits, L. 1993. Political ecology and environment in Loess Plateau, China. *Human Ecology*. 21 (4), 327-353.
- Hessing M. 1993. Women and sustainability: ecofeminist perspectives. *Alternatives*. 19(4):14-21
- Hewitt, K. 1983, Interpreting the role of hazards in agriculture. In Hewitt, K., (ed). *Interpretations of Calamity from the View Point of Human Ecology*, 123-139. Risk and Hazards Series 1. Allen and Unwin.
- Hewitt, K. 1997. *Regions of Risk: A Geographical Introduction to Disasters*. Essex: Longman.,
- Hill, K.A. 1991. Zimbabwe's wildlife conservation regime: rural farmers and the state. *Human Ecology*, 19(1): 19-34.
- Hinchey, M.T. (ed) 1978. *Proceedings of the Symposium on Drought in Botswana*. Gaborone: Botswana Society and Clark University.
- Hinderink, J. and Szuk-Dabrowiecka, E. (eds). 1988. *Successful Rural Development in the Third World Countries*. Amsterdam: Nederlandsse Geografische Studies 67.
- Hitchcock, R.K. 1978. The traditional response to drought in Botswana. In Hinchey, M.T. (ed). *Proceedings of the Symposium on Drought in Botswana* 91-97. Gaborone: Botswana Society and Clark University.
- Hitchcock, R.K. 1990. Water, land and livestock: the evolution of tenure and administration in the grazing areas of Botswana. In Galaty, J. G. and Johnson, D. (eds) *The World of Pastoralism: Herding Systems in Comparative Perspective*, 261-154. London: Guildford Press.
- Hjort, A. (ed). 1985. *Land Management and Survival*. Uppsala: Scandinavian Institute of African Studies.
- Hoernle, A.W. 1925. The importance of the sib in the marriage ceremonies of the south-eastern Bantu. *South African Journal Of Science*. 22, 480-492.
- Hogg, R. 1987. Settlement, pastoralism and the commons: the ideology and practices of irrigation development in northern Kenya. In Anderson, D. and Grove R. (eds). *Conservation in Africa: People, Policies and Practice*, 293-306. Cambridge Press. Cambridge.
- Holland, K. 1990. Land, livestock and people: dilemma of Maasai development. In Ann-McDougall, E. (ed) *Sustainable Agriculture in Africa* 211-220. Africa World Press.

Holleman, J.F. 1952. *Shona Customary Law*. Oxford: Oxford University Press.

Holling, C.S. 1973. Resilience and stability in ecological systems. *Annual Review of Ecology and Systematics*, 4: 1-23.

Holling, C.S. (ed) 1978. *Adaptive Environmental Assessment and Management*. New York: John Wiley and Sons.

Holy, L. 1990. Property differentiation and pastoralism in an agricultural society: The Berti. In Baxter, P.T.W. and Hogg, R. (eds). *Property, Poverty and People: Changing Rights in Property and Problems of Pastoral Development* 206-216. Manchester: Manchester University Press.

Homer-Dixon, T., Bontwell, J.H. and Rathjens, G.W. 1993. Environmental change and violent conflict. *Scientific American* 268(2): 38-45

Homewood, K.M. and Rodgers, W.A. 1984. Pastoralism and conservation. *Human Ecology*, 12(4) 431-441.

Homewood, K.M. and Rodgers, W.A. 1991. *Maasai Land Ecology: Pastoralist Development and Wildlife Conservation in Ngorongoro, Tanzania*. Cambridge: Cambridge University Press.

Hough, J.L. 1988. Obstacles to effective management of conflicts between national parks and surrounding human communities in developing countries. *Environment and Conservation*. 15(2) 129-135.

Howes, M. and Chambers, R. 1980. Indigenous technical knowledge: analysis, implications and issues. In Brokensha, D.W., Warren, D.M. and Werner, O. (eds). *Indigenous Knowledge Systems* 329-340. Lanham: University Press of America.

Hughes, F. 1987. Conflicting uses for forest resources in lower Tana River basin of Kenya. In Anderson, D. and Grove R. (eds). *Conservation in Africa: People, Policies and Practice*, 211-228. Cambridge: Cambridge Press.

Huss-Ashmore, R. and Katz, S.H. (eds) 1989. *African Food Systems in Crisis: Part One. Micro Perspectives*. New York: Gordon and Breach Science Publ.

Huss-Ashmore, R. and Katz, S.H. (eds) 1989. *African Food Systems in Crisis: Part Two. Contending with Change*. New York: Gordon and Breach Science Publications.

Hyden, G. 1983. *No Shortcuts to Progress*, London: Heinemann.

Hyden, G. 1986. Discussion: The anomaly of the African peasantry. *Development and Change*, 17 (4), 667-705.



Ibrahim, F.N. 1987. Ecology and land use changes in semi-arid zones of the Sudan. In Little, P.D., Horowitz, M. and Nyerges, A.E. (eds). *Lands at Risk in the Third World: Local Level Perspectives* 195-212. New York: Westview Press.

Hussein, J. 1987. *Agroclimatological Analysis of Growing Season in Natural Regions III, IV, and V of Zimbabwe*. Harare: Proceedings of a workshop held in Harare, 24<sup>th</sup> to 28<sup>th</sup> August, 1987.

Ibrahim, M.A. 1991. Indigenous agro-veterinary knowledge systems: an alternative resource. In Baxter, P.T.W. (ed). *When the Grass is Gone: Development Intervention in African Arid Lands*, 58-72. Uppsala: Scandinavian Institute of African Studies.

Ibrahim, B. and Ibrahim, F. N. 1995. Pastoralists in transition - a case study from Lengijape, Maasai steppe. *GeoJournal*, 36 (1), 27-48.

IFAD, (1994). *Zimbabwe Smallholder Dry Areas Resource Management Project: Main Report*. IFAD, Rome.

IFAD, (1995). *Zimbabwe Southeastern Dry Areas Project: Main Report*. Rome: IFAD.

IIED. (1994). *RRA Notes Number 20. Special Issue on Livestock*. London: IIED,.

Imam, A. 1989. Gender analysis and African social sciences in the 1990's. *Africa Development*: 1989:241-257.

Ingold, T. 1980. *Hunters, Pastoralists and Ranchers*. Cambridge: Cambridge University Press.

Ingold, T. 1992. Culture and the perception of the environment. In Croll, E. and Parkin, D. (eds). *Bush Base: Forest Farms: Culture, Environment and Development*, 39-56. London and New York: Routledge.

Ingram, D. 1990. *Critical Theory and Philosophy*. New York: Paragon House,.

Irons, W. and Dyson-Hydsen, N. (eds) 1972. *Perspectives on Nomadism*. Leiden: Leiden-Brill Press

Israel, A. 1987. *Institutional Development: Incentives to Performance*. Baltimore: John Hopkins University Press.

IUCN-ROSA, 1995. *Promotion of Indigenous Knowledge Systems in Sustainable Natural Resources Management in Southern Africa. A Project Concept Paper*. Harare, Zimbabwe: IUCN-ROSA,.

- Jackson, C. 1994. Environmental reproduction and gender relations. *Development*, 1994(1): 72-85.
- Jacobson, J.L. 1992. *Gender Bias: Roadblock to Sustainable Development*. Washington: World Watch Institute Paper 110.
- Johnson, D.H. and Anderson, D.M. (eds). 1988. *The Ecology of Survival: Case studies from Northeast African History*. Colorado: Westview Press.
- Jones, D.K.C. 1991: Environmental hazards. In Bennett and Estall Bennett, R. and Estall R. (ed) *Global Change and Challenge: Geography for the 1990's*, 27-56. London: Routledge.
- Jones, M. (1985). *The Economics of Information and its Relevance for Rural Development Planning*. Development Studied Discussion Paper 182: University of East Anglia.
- Kandiyoti, D. 1990. Women and rural development policies: The changing agenda. *Development and Change*. 21: 5-22.
- Khan, A.Z.O. 1990. *Creative Development: An Unfinished Saga of Human Aspirations in South Asia*. Dhaka: University Press.
- Khazanov, A. M. 1994. *Nomads and the Outside World*. 2<sup>nd</sup> Edition. Madison: University of Wisconsin Press.
- Kelly, H. 1982. *Uncounted Labour: Women as Food Producers in an East African Pastoral Community*. Mimeograph, Los Angeles: Department of Anthropology, University of California.
- Kerven, C. 1992. *Customary Commerce: A Historical Reassessment of Pastoral Livestock Marketing in Africa*. London: ODI, Occasional Paper 15.
- Kiel, L.D. (1996). Chaos theory and disaster response management: lessons for managing periods of extreme instability. In Koehler, (ed). *What Disaster Response Management Can Learn From Chaos Theory*. Conference Proceedings, May 18-19, 1995, 186-210. California Research Bureau, California: California State Library.
- Kirsopp-Reed, K. and Hinchcliffe, F. 1994. *RRA Notes Number 20: Special Issue on Livestock*. London: IIED.
- Koehler, G. (1996). What disaster response management can learn from chaos theory. In Koehler, (ed). *What Disaster Response Management Can Learn From Chaos Theory*, 2-41. Conference Proceedings, May 18-19, 1995. California Research Bureau, California: California State Library.

- Korten, D.C. 1981. *Bureaucratic Re-orientation for Participatory Rural Development*. Washington: NASPAA Working Paper No.1.
- Krige, E. J. and Krige, J.D. 1965. *The Realm of a Rain-Queen: A Study of the Pattern of Lovedu Society*. London: Oxford University Press.
- Krummel, J.R., Oneill, R.V. and Mankin, J.B. 1986. Regional environmental simulations of African herding societies. *Human Ecology*. 14(1): 117-130.
- Kuhn, T. (1962) *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.
- Kundhlande, G. and Mutandi, R. 1989. Experience of the CARD program in Gutu in Relation to improving livestock and grazing production. In Cousins, B. (ed). *People, Land and Livestock*, 397-416. Harare, Zimbabwe: Centre for Applied Social Sciences.
- Kuper, A. 1982. *Wives for Cattle: Bridal Wealth and Marriage in Southern Africa*. London: Routledge and Kegan Paul.
- Laban, P. 1995. Accountability in integrated village land management. In Breemer, J.P.M, Drijver, C.A. and Venema, L.B (eds). *Local Resource Management in Africa*, 193-210. New York: John Wiley and Sons.
- Landau, P.S. 1993. When rain falls: rain making and community in a Tswana village, c. 1870 to recent times. *International Journal of African Historical Studies*. 26(1):.1-31.
- Lane, C and Swift, J. 1989. *East African pastoralism: Common land, common problems*. London: IIED paper 8. IIED.
- Lawry, S. W. 1983. *Land Tenure, Land Policy, and Smallholder Livestock Development in Botswana*. Madison: LTC, University of Wisconsin.
- Lawry, S. W. 1990. Tenure policy towards common property natural resources in Sub-Saharan Africa. *Natural Resources Journal*, 30: 403-422.
- Leach, M. 1992. Women's crops in women's spaces in Mende rice farming. In Croll, E. and Parkin, D. (eds). *Bush Base: Forest Farms: Culture, Environment and Development*, 57-75. London and New York: Routledge.
- Leeds, A. and Vayda, A.P. 1965. *Man, Culture and Animals: The Role of Animals in Human Ecological Adjustments*. Washington: AAAS Publication No. 78.
- Levy, C. 1992. Gender and the environment: the challenge of cross-cutting issues in development policy and planning. *Environment and Urbanization*. 4(1); 134-151.

- Lewis, J. P. (ed). 1988. *Strengthening the Poor: What Have We Learnt?* Oxford: Transaction Books..
- Lindsay, W.K. 1987. Integrating parks and pastoralists: some lessons from Amboselli. In Anderson, D. and Grove R. (eds). *Conservation in Africa: People, Policies and Practice*, 149-168. Cambridge: Cambridge Press.
- Lipietz, A. 1995. Enclosing the global commons: global environmental negotiations in a North-South conflictual approach. In Bhaskar, V. and Glyn, A. *The North The South and The environment: Ecological Constraints and the Global Economy*, 118-142. New York: St Martin Press.
- Little, P.D. 1987. Local institutions, tenure, and resource management. In Anderson, D. and Grove R. (eds). *Conservation in Africa: People, Policies and Practice*, 193-210. Cambridge: Cambridge University Press.
- Little, P.D. 1987. Land use conflicts in agricultural/pastoral borderlands: The case of Kenya. In Little, P.D. and Horowitz, M. (eds). *Lands at Risk in the Third World: Local Perspectives*, 195-212. New York: Westview Press.
- Little, P.D. 1992. *The Elusive Granary: Herders Farmers and State in Northern Kenya*. Cambridge: Cambridge University Press.
- Little, P.D. 1994. Maidens and milk markets: The sociology of dairy marketing in southern Somalia. In Fratkin, E., Galvin, K.A. and Roth, E.A. (eds). *African Pastoralist Systems: An Integrated Approach*, 165-184.. London: Lynne Rienner Publishers.
- Little, P.D. and Horowitz, M. 1987. Social science perspectives on land, ecology and development. In Little, P.D. and Horowitz, M. (eds). *Lands at Risk in the Third World: Local Perspectives*, 1-16. New York: Westview Press.
- Livingstone, I. 1986. The common property problem and pastoralists' economic behavior. *Journal of Development Studies*, 23: 5-19.
- Lincoln, Y.S. and Guba, E.S. 1985. *Naturalistic Inquiry*. Beverly Hills, California: Sage.
- Long, N. and Ploeg, J. D. 1994. Heterogeneity, actor and structure: towards a reconstitution of the concept of structure. In Booth, D. (ed). *Rethinking Social Development: Theory, Research and Practice* 62-89. Essex: Longman.
- Low, B.S. 1990. Human responses to environmental extremeness and uncertainty: A cross cultural perspective. In Cashdan, E.(ed). *Risk and Uncertainty in Tribal and Peasant Economies*, 229-256. New York: Westview Press.

Lund, R. 1993. *Gender, Locality and Changing Resource Management Practices: The Dry Zone of Sri Lanka*. Gender Studies Occasional Paper No.5. Bangkok: Asian Institute of Technology.

Mackintosh, M. 1989. *Gender, Class and Rural Transition: Agribusiness and the Food Crisis in Senegal*. London: Zed Books.

MacDonald, K.I. 1994. *The Mediation of Risk: Ecology, Society and Authority in a Karakoram Mountain Community*. Unpublished Ph.D. thesis, Waterloo: Dept of Geography, University of Waterloo.

Manger, L. 1990. Agro-pastoral production systems and the problem of resource management. In Bovin, M. and Manger, L. (eds) 1990. *Adaptive Strategies in African Arid Lands*, 163-180. Uppsala: Scandinavian Institute of African Studies.

Matowanyika, J.Z.Z., Garibaldi, V. and Musimwa, E. (eds). 1994. *Indigenous Knowledge Systems and Natural Resource Management in Southern Africa. Report of a Southern African Regional Workshop, Harare, Zimbabwe, 20-22 April, 1994*. Harare, Zimbabwe: IUCN-ROSA.

Mazonde, I. 1990. From communal water points to private wells and boreholes in Botswana's communal areas. In Baxter, P.T.W. and Hogg, R. (eds). *Property, Poverty and People: Changing Rights in Property and Problems of Pastoral Development* 182-191. Manchester: International Development Center, Manchester University.

McCabe, J.T. 1987. Drought and recovery: livestock dynamics among the Ngisonyoka Turkana of Kenya. *Human Ecology*, 15(4) 371-389.

McCabe, J. T. 1994. Mobility and land use among African pastoralists: old conceptual problems and new interpretations. In Fratkin, E., Galvin, K.A. and Roth, E. (eds). *African Pastoral Systems: An Integrated Approach*, 69-90. London: Lynne Rienner Publications.

McCay, B.J. and Acheson, J.M. 1987. Human ecology of the commons. In McCay, B.J. and Acheson, J.M. (eds). *The Question of the Commons: The Culture and Ecology of Communal Resources*, 1-36. Tucson: University of Arizona Press.

McClure, G. 1989. Introduction. In Warren, D.M., Slikkerveer, L.T. and Titilola, S.O. (eds). *Indigenous knowledge Systems: Implications for Agriculture and International Development*, 1-3. Studies in Technology and Social Change. Paper No.11. Ames: CIKARD, Iowa State University.

McDowell, L. 1993. Space, place and gender relations: Part 1. Feminist empiricism and the geography of social relations. *Progress in Human Geography*. 17(2) 157-179.

McDowell, L. 1993. Space, place and gender relations: Part 2. Identity, difference, feminist,

geometries and geographies. *Progress in Human Geography*. 17(3), 305-318

McGee, T.G. (1989). *Development Theory and The Elusive Household Unit: Are We Building on Shifting Sands?* Vancouver: University of British Columbia, Institute of Asian Research.

Merleau-Ponty, M. (1962). *Phenomenology of Perception*. London: Routledge and Kegan Paul.

Metcalf, S. 1995. *Livestock, Wildlife, and the Forage Commons: Prospects for Rangelands Reform in a Semi-Arid Communal Area of Zimbabwe*. Harare: CASS, University of Zimbabwe.

Miller, D. 1991. *Handbook of Research and Social Measurement. Fifth Edition*. London: SAGE Publications,

Milroy, B.M. and Andrew, C. 1988. Gender-specific approaches to theory and method. In Andrew, C. and Milroy, B.M. (eds). *Life Spaces: Gender, Household, Employment* 176-187. University of British Columbia Press, Vancouver.

Mitchell, B. (ed) 1975. *Institutional Arrangements for Water management: Canadian Experience*. Waterloo: Dept. of Geography, University of Waterloo.

Mitchell, B. 1989. *Geography and Resource Analysis* (2nd. ed.). Essex: Longman Scientific and Technical.

Mitchell, B. 1994. Sustainable development at the village level in Bali, Indonesia. *Human Ecology*. 22(2), 189-211.

Mitchell, B. 1995. Introduction: Addressing conflict and uncertainty. In Mitchell, B. (ed). *Resource and Environmental Management in Canada: Addressing Conflict and Uncertainty*. (2<sup>nd</sup> Edition), 1-8. Toronto: Oxford University Press.

Mooch, J.L. 1986. (ed). *Understanding Africa's Rural Households and Farming Systems*. Boulder: Westview Press.

Morapeli, M. *Land Management Institutions at The Community Level: The Case of Village Land Allocation Committees in Lesotho*. Vancouver: CS24 UBC Planning Papers.

Mordi, A.R. 1991. *Attitudes Toward Wildlife in Botswana*. New York: Garland Publishing,

Moser, C.O.N. 1989. Gender planning in the Third World: meeting practical and strategic needs. *World Development*. Vol. 17(11), 1799-1825.

Mosse, J.C. 1993. *Half the World, Half a Chance: An Introduction to Gender and Development*. Oxford: Oxfarm,

Moyo, S. 1989. The national livestock policy framework. In Cousins, B. (ed). *People Land and Livestock*, 123-139. Harare, Zimbabwe: Center for Applied Social Sciences, University of Zimbabwe.

GOZ, 1989. *The Government of Zimbabwe: National Land Policy*. Harare: MLARR, Harare, Zimbabwe.

Mulder, M.B. and Sellen, D.W. 1994. Pastoralist decision-making: a behavioral ecological perspective. In Fratkin, E., Galvin, K.A. and Roth, E. (eds). *African Pastoral Systems: An Integrated Approach*, 205-230. London: Lynne Rienner Publications.

Munei, K. 1990. Grazing schemes and group ranches as models for developing pastoral lands in Kenya. In Baxter, P.T.W. and Hogg, R. (eds). *Property, Poverty and People: Changing Rights in Property and Problems of Pastoral Development*, 110-120. Manchester: International Development Center, Manchester University.

Murdock, J. 1993. Sustainable rural development: towards a research agenda. *Geoforum*. Vol.24(3): 225-241.

Murdoch, J. and Clark, J. 1994. Sustainable knowledge. *Geoforum* Vol.25(2); 115-132.

Murmann, C. 1974. *Change and Development in East African Cattle Husbandry. A Study of Four Societies during the colonial Period*. Copenhagen: Akademisk Forlag.

Murombedzi, J. 1991. *Decentralizing Common Property Resource Management: A Case Study of Nyaminyami District Council of Zimbabwe's Wildlife Management Program*. London: IIED Paper Number 30. Drylands Network Program.

Murphree, M.A. 1995. *Personal Communication*.

Murphree, M.A. 1996. *Articulating Voices From The Commons: Interpretation, Translation and Facilitation - Roles and Modes for Common Property Scholarship*. Keynote address to the Sixth Annual Common Property Conference of the IASCP, 6-9 June, 1996, Berkeley, California, USA.

Mutandi, R. 1990. *The Administration of Rural Development in Zimbabwe: A Case Study of the CARD Program in Gutu District with Special Reference to the Land use Development Project*. Unpublished MSc thesis. Harare: Dept of Rural and Urban Planning, University of Zimbabwe.

Myers, N. 1993a. Biodiversity and the precautionary principle. *Ambio*, 22: (2-3), 74-79.

Myers, N. 1993b. Population, environment and development. *Environmental Conservation*, 20(3): 205-215.

Nauta, H.G., Schuurman, W.J.M. and Luning H.A. 1994. *The Use of Indigenous Resources in Beitbridge District: An Inventory of the Constraints and Potential for Rural Development*. Utrecht: University of Utrecht.

Nettleton, A. (1992). Ethnic and gender identities in Venda *domba* statues. *African Studies*, 51 (2):203-230.

Niamir, M. 1990. *Community Forestry: Herders' Decision-making in Natural Resources Management in Arid and Semi-arid Africa*. Rome: FAO.

Nobbs, 1927. The native cattle of southern Rhodesia. *Southern African Journal of Science*. 24: 328 - 342.

Nolten, M. 1988. The Felda schemes in peninsular Malaysia: Miracles at the micro level, mirages at the macro level. In Hinderink, J. and Szulc-Dobrowiecki, E. (eds). *Successful Rural Development in Third World Countries*, 129-140. Amsterdam: Nederlandse Geografische Studies 67.

Norgaard, R.B. 1992. Sustainability as intergenerational equity: Economic theory and environmental planning. *Environmental Impact Assessment*. 1992 (12), 85-124.

Norem, R., Yonder, R. and Martin, Y. 1989. Indigenous agricultural knowledge and gender issues in Third World agricultural development. In Warren, D.M., Slikkerveer, L.T. and Titilola, S.O. (eds). *Indigenous knowledge Systems: Implications for Agriculture and International Development*, 91-100. Studies in Technology and Social Change. Paper No.11. CIKARD. Iowa State University.

Nsiah-Gyabaah, K. 1994. *Environmental Degradation and Desertification in Ghana: A Study of the Upper West Region*. Aldershot: Avebury Studies in Green Research.

Nyamapfene, K. (1991). *Soils of Zimbabwe*. Harare: Nehanda Publishers.

Oakerson, R.J. 1992. Analysing the commons: a framework. In Bromley, D.W. (ed): *Making the Commons Work: Theory, Practice and Policy*, 41-62. I.C.S. Press. San Francisco.

O'Leary, M. 1990. Changing responses to drought in Northern Kenya: the Rendille and Garba livestock producers. In Baxter, P.T.W. and Hogg, R. (eds). *Property, Poverty and People: Changing Rights in Property and Problems of Pastoral Development*, 55-57. Manchester: Manchester University Press.

O'Leary M. and Palsson, G. 1992. Pastoral resources and strategies: similarities and differences between the Rendille and Gabra of northern Kenya. In Ornas, A.H. (ed), *Security in African Drylands: Research, Development and Policy* 105-122. Uppsala: Uppsala University.



Olson, M. 1965. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Boston: Harvard University Press.

Opoku, A.O. 1995. *The Traditional Foundations of Development in Africa*. Paper presented at the workshop on Indigenous Knowledge Systems and Institutions in Africa, June 1, 1995, Washington: World Bank.

Osborn, L. 1990. Women and trees: indigenous relations and agroforestry development. In Ann-McDougall, E. *Sustainable Agriculture in Africa*, 135-150. London: Africa World Press.

Oshenrenko, G. 1988. Can co-management save Arctic wildlife? *Environment*. 30 (6), 6-35.

Ornas, A.H. 1990. Production vs environment? Planning resources management and ecological adaptation in Kenyan drylands. In Bovin, M. and Manger, L. (eds) 1990. *Adaptive Strategies in African Arid Lands* 91-108. Uppsala: Scandinavian Institute of African Studies.

Ornas, A.H. 1992. Environment and secure livelihoods: research and development issues for African drylands. In Ornas, A.H. (ed), *Security in African Drylands: Research, Development and Policy*, 1-20. Uppsala: Uppsala University.

Ornas, A.H. and Salih, M.A. (eds) 1992. *Ecology and Politics: Environmental Stress and Security in Africa*. Uppsala: Scandinavian Institute of African Studies.

Ostrom, E. 1987. Institutional arrangements for resolving the commons dilemma: some contending approaches. In McCay, B.J. and Acheson, J.M. (eds). *The Question of the Commons: The Culture and Ecology of Communal Resources* 250-265. Tucson: University of Arizona Press.

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

Ostrom, E., Gardner, R. and Walker, J. 1994. *Rules, Games, and Common Pool Resources*. Ann Arbor: University of Michigan Press.

Ostrom, E., Schroeder, L. and Wynne, S. 1993. *Institutional Incentives and Sustainable Development: Infrastructure Policies in Perspective*. Boulder: Westview Press,

Ostrom, E., Walker, J. and Gardner, R. 1993. Covenants with and without a sword: self-governance is possible. In Anderson, T.L. and Simmons, R.T. eds. *The Political Economy of Custom and Culture: Informal Solutions to the Commons Problem*, 127-156. Lanham: Rowman and Littlefield Publishers Inc.

Palmer, R. 1977. *Land and Racial Domination in Rhodesia*. London: Heinemann.

Park, T.K. 1993. Ecology and risk management: stratified common property and flood recession agriculture. In Park, T.K., (ed). *Risk and Tenure in Arid Lands: The Political Ecology of Development in the Senegal River Basin*, 293-330. Tucson: University of Arizona Press.

Parkipuny, M.S. 1991. *Pastoralism, Conservation and Development in the Greater Serengeti Region*. IIED paper 26. London: IIED,

Peluso, N.L. 1991. Special issue: women and natural resources in developing countries. *Society and Natural Resources*. Vol. 4 (1).

Perring, C. 1990. *Stress, Shock and the Sustainability of Optimal Resource Utilization in a Stochastic Environment*. LEEC paper 90-04. London: International Institute for Environment and Development.

Perrier, G. 1994. New directions in range management planning in Africa. In Scoones, I. (ed) *Living with Uncertainty: New Directions in Pastoral Development in Africa*, 211-241. London: Intermediate Technology Publication.

Perrier, G. and Norton, B. (1996). Administration of pastoral development: lessons from three projects in Africa. *Public Administration and Development*, 16: 73-90.

Phimister, I. 1993. Rethinking the reserves: Southern Rhodesia's Land Husbandry Act reviewed. *Journal of Southern African Studies*. 19(2) . 224-239.

Pinkerton, E.W. 1993. Co-management efforts as social movements: the Tin Wis coalition and the drive for forest practices legislation in British Columbia. *Alternatives*, 19(3), 33-38

Prescott, J.R. 1969. Over-population and over-stocking in the Native Areas of Matebeleland. *Geographical Journal*, 127; 212-225

Preston, D. 1994. Rapid household appraisal: A methodology for facilitating the analysis of household livelihood strategies. *Applied Geography*. 14: 203-213.

Prothero, R.M. (ed). 1972. *People and Land in Africa South of the Sahara: Readings in Social Geography*. London: Oxford University Press.

Ranger, T. 1993. The Communal Areas of Zimbabwe. In Bassett, T.J. and Crummey, D.E. (eds). *Land in African Agrarian Systems*, 354-388. Madison: University of Wisconsin Press.

Rapp, A. 1985. Why do we need a scientific analysis of dryland degradation in Africa. In Hjort, A. (ed). *Land Management and Survival*, 109-118. Uppsala: Scandinavian Institute of African Studies.

- Redclift, M. 1993. The meaning of sustainable development. *Geoforum*. Vol. 23(3): 395-403.
- Reed, M.G. and Staymaker, O. 1993. Ethics and sustainability. *Environment and Planning A*. 25(5): 723-739.
- Rees, J. 1991. Resources and the environment: Scarcity and sustainability. In Bennett, R. and Estall R. (ed). *Global Change and Challenge: Geography for the 1990's*, 5-26. London: Routedledge.
- Renzetti, C.M. and Curran, D.J. 1992. *Women, Men and Society*. (2<sup>nd</sup> ed). Toronto: Allyn and Bacon.
- Richards, P. 1985. *Indigenous Agricultural Revolution: Ecology and Food Production in West Africa*. London: Hutchinson and Westview Press.
- Richards, P. 1986. *Coping with Hunger: Hazard and Experiment in an African Rice Farming Systems*. London Research Series in Geography, 11. London: Allen and Unwin.
- Richards, P. 1993. Cultivation: knowledge or performance? In Hobart, M. (ed). *An Anthropological Critique of Development: The Growth of Ignorance* 61-78. London: Allen and Unwin.
- Richards, P., Slikkerveer, L. J. and Phillips, A. O. 1989. *Indigenous Knowledge Systems for Agriculture and Rural Development*. The CIKARD Inaugural Lectures. Ames: Iowa State University.
- Riddell, B. 1992. The ever changing land: adaptation and tenure in Africa. *Canadian Journal of African Studies*. 26(2), 337-341.
- Riddell, J.C. 1982. *Land Tenure Issues in West African Livestock and Range Development Projects*. Paper No. 77. Madison: Land Tenure Center.
- Riesman, P. 1984. The Fulani in a development context: the relevance of cultural traditions for coping with change and crisis. In Scott, E.P. (ed). *Life Before the Drought*, 171-186. Boston: Allen and Unwin.
- Rigby, P. 1985. *Persistent Pastoralists: Nomadic Societies in Transition*. London: ZED Books.
- Roberts, B.D. 1996. Livestock production, age, and gender among the Keiyo of Kenya. In *Human Ecology*, 24 (2), 215-230.
- Roberts, P. 1984. Feminism in Africa: feminism and Africa. *Review of African Political Economy* (27/28): 275-284.

Roberts, R.D. 1993. To price or not to price: users' preferences in allocating common property resources. In Anderson, T.L. and Simmons, R.T. (eds). *The Political Economy of Custom and Culture: Informal Solutions to the Commons Problem*, 61-68. Lanham: Rowman and Littlefield Publishers.

Robertson, R. 1995. Chaos theory and the relationship between psychology and science. In Robertson, R. and Combs, A. (eds). *Chaos Theory in Psychology and Life Sciences*, 3-15. Mahwah, NJ: Lawrence Elbaum Associates.

Rocheleau, D.E. 1992. *Gender, Ecology and Agroforestry: Science and Survival in Kathana (Kenya)*. ECOGEN Case Study Series. Worcester: Clark University.

Rose, L.L. 1992. *The Politics of Harmony: Land Dispute Strategies in Swaziland*. Cambridge. Cambridge University Press.

Roth, E.A., Fratkin, E. and Galvin, K.A. 1994. Future directions in pastoral society and research. In Fratkin, E., Galvin, K.A. and Roth, E. (eds). *African Pastoral Systems: An Integrated Approach*, 231-236. London: Lynne Rienner Publications.

Runge, C.F. 1981. Common property externalities: isolation, assurance and resource depletion in a traditional grazing context. *American Journal of Agricultural Economics*. Vol.63, 595-606.

Runge, C.F. 1992. Common property and collective action in economic development. In Bromley, D.W. (ed): *Making the Commons Work: Theory, Practice and Policy*, 17-40. San Francisco: I.C.S. Press.

Ruppert, H. 1995. Nochocho - an example of change of the living sphere of the Maasai of Northern Tanzania. *GeoJournal*, 36 (1), 49-55.

Russell, M. 1993. Are households universal? On misunderstanding domestic groups in Swaziland. *Development and Change* 24 (193), 755-785.

Salih, M.A.M. 1991. Livestock development or pastoral development. In Baxter, P.T.W. (ed) 1991. *When the Grass is Gone: Development Intervention in African Arid Lands*, 37-57. Uppsala: Scandinavian Institute of African Studies.

Salih, M.M.A. 1992. *Pastoralists and Planners. Dryland Networks Program*. London: ODI.

Salzman, P.C. (ed). 1980. *When Nomads Settle: Processes of Sedentarization as Adaptation and Response*. Praeger Special Studies. Praeger Press.

Sampson, A.W. 1923. *Range and Pasture Management*. New York: Wiley and Sons..

Sandford, S. 1982. *Livestock in the Communal Areas of Zimbabwe: A Report Prepared for the Ministry of Lands, Resettlement and Rural Development*. London: O.D.I.

Sandford, S. 1983. *Management of Pastoral Development in the Third World*. London: John Wiley.

Sandford, S. 1994. Improving the efficiency of opportunism: new directions for pastoral development. In Scoones (ed) *Living with Uncertainty: New Directions in Pastoral Development in Africa*, 174-182. London: Intermediate Technology Publication.

Sandler, T. 1992. *Collective Action: Theory and Applications*. Ann Arbor: University of Michigan Press.

Schapera, I. 1971. *Rainmaking Rites of Tswana Tribes*. Cambridge: African Studies Centre.

Schlager, E. and Ostrom, E. 1993. Property rights regimes and coastal fisheries: an empirical analysis. In Anderson, T.L. and Simmons, R.T. eds. *The Political Economy of Custom and Culture: Informal Solutions to the Commons Problem*, 13-43. Lanham: Rowman and Littlefield Publishers Inc.

Schmale, M. 1993. *The Role of Local Organizations in Third World Development: Tanzania, Zimbabwe and Ethiopia*. Aldershot: Avebury.

Schmidt, E. 1992. *Peasants, Traders, and Wives: Shona Women in the History of Zimbabwe, 1870-1939*. Portsmouth: Heinemann.

Schmidt, M.S. 1992. Have men become the weaker sex? Changing life situations in Kisi District, Kenya. *Journal of Modern African Studies*. 30(2), 237-253.

Schneider, H.K. 1981. The pastoralist development problem. In Galaty, J.G. and Salzman, P.C. (eds). *Change and Development in Nomadic and Pastoral Societies*, 27-32. New York: E.J. Brill - Leiden Press.

Schutz, A. 1967. *The Phenomenology of the Social World*. Evanston, Illinois: Northwestern University Press.

Scoging, H. 1991. Desertification and its management. In Bennett, R. and Estall, R. (eds). *Global Change and Challenge: Geography for the 1990's*, 57-79. London: Routledge.

Scoones, I. 1989a. *Economic and Ecological Carrying Capacity. Pastoral Development Network* 27b. London: ODI.

Scoones, I. 1989b. Patch use by cattle in a dryland environment: Farmer knowledge and

ecological theory. In Cousins, B. (ed). *People, Land and Livestock*. Harare: Centre for Applied Social Sciences, University of Zimbabwe, 277-310.

Scoones, I. 1989c. Households, lineage groups and ecological dynamics: Issues for livestock development in Zimbabwe's Communal Lands. In Cousins, B. (ed). *People, Land and Livestock*, 13-122. Harare: Centre for Applied Social Sciences, University of Zimbabwe.

Scoones, I. 1990. *Why are There So Many Animals? Cattle Population Dynamics in the Communal Areas of Zimbabwe*. London: Commonwealth Secretariat.

Scoones, I and Wilson, K. 1989. *Households, Lineage Groups and Ecological Dynamics: Issues for Livestock Development in Zimbabwe's Communal Areas*. Harare: Center for Applied Social Sciences. University of Zimbabwe.

Scoones, I. 1992. Coping with drought: responses of herders and livestock in contrasting savanna environments in Southern Zimbabwe. *Human Ecology*. 20 (3), 293-314.

Scoones, I. 1996. *Hazards and Opportunities. Farming Livelihoods in Dryland Africa: Lessons from Zimbabwe*. London: Zed Books and IIED.

Scott, E.P. 1984. Life before the drought: a human ecological perspective. In Scott, E.P. (ed). *Life Before the Drought*, 1-32. Boston: Allen and Unwin.

Scott, M. and Gormley, B. 1980. The animal of friendship: an indigenous model of Sahelian pastoral development in Niger. In Brokensha, D.W., Warren, D.M. and Werner, O. (eds). *Indigenous Knowledge Systems*, 93-112. Lanham: University Press of America.

Seidman, A. 1989. Towards a participatory evaluation methodology. the Southern African pilot process. In Huss-Ashmore, R. and Katz, S.H. (eds). *African Food Systems in Crisis: Part Two. Contending with Change*, 159-180. New York: Gordon and Breach Science Publications.

Shaffir, W.B. and Stebbins, R.A. 1991. *Experiencing Fieldwork: An Inside View of Qualitative Research*. London: Sage.

Shiva, V. 1988. *Staying Alive: Women, Ecology and Development in India*. London: ZED Books.

Shaw, R. 1992. Nature, culture and disasters: floods and gender in Bangladesh. In Croll, E. and Parkin, D. (eds). *Bush Base: Forest Farms: Culture, Environment and Development*, 200-217. London and New York: Routledge.

Shell-Duncan, A.K. 1994. Child fostering among nomadic Turkana pastoralists: demographic and health consequences. In Fratkin, E., Galvin, K.A. and Roth, E.A. (eds). *African Pastoralist*

*Systems: An Integrated Approach*, 147-164. London: Lynne Rienner Publishers.

Schroeder, R.A. 1987. *Gender Vulnerability to Drought: A case study of the Hausa social environment*. Natural Hazard Research. Working Paper 58

Sibanda, H. 1990. Problems of land use planning in the Communal Areas of Zimbabwe: a case study of Gutu, Masvingo Province. *Applied Geography*, 10 (2), 135-146.

Sibanda, H., Matowanyika, J.Z.Z. and Garibaldi, V. 1995. *Reviving Indigenous Knowledge Systems in Promoting Sustainable Natural Resource Management in Southern Africa*. Proceedings of a regional workshop held in Midmar, KwaZulu-Natal Province, South Africa, April 23-28 1995. Harare, Zimbabwe: IUCN-ROSA.

Simon, D. 1993. The communal lands question revisited: Viewpoint. *Third World Policy Review*, 15(1), 3-8.

Smith, A.B. 1992. *Pastoralism in Africa: Origins and Development Ecology*. London: Hurst and Company.

Smith, E.A. and Boyd, R. 1990. Risk and reciprocity: hunter-gatherer socio-ecology and the problem of collective action. In Cashdan, E., (eds.) 1990. *Risk and Uncertainty in Tribal and Peasant Economies*, 167-192. New York: Westview Special Study. Westview Press.

Soderbaun, P. 1991. Actors, roles, and networks: an institutional perspective to environmental problems. In Folke, C. and Kalberger, T. (eds). *Linking the Natural Environment and the Economy: Essays from the Eco-Eco Group*, 31-42. London: Kluwer Academic Publishers.

Spencer, P. 1975. Scarcity and growth in two African societies. In Moss, R. and Rathbone, R. (eds). *The Population Factor in African Societies*, 57-75. London: University of London Press.

Sperling, L. and Galaty, J.W. 1990. Cattle, culture and economy: dynamics in East African pastoralism. In Galaty, J. G. and Johnson, D. (eds) *The World of Pastoralism: Herding Systems in Comparative Perspective*, 69-98. London: Guildford Press.

Spooner, B. 1973. *The Cultural Ecology of Pastoral Nomads*. Manilla: Addison-Wesley Module in Anthropology Number 45.

Spooner, B. 1987. Insiders and outsiders in Baluchistan: Western and indigenous perspectives on ecology and development. In Little, P.D., Horowitz, M. and Nyerges, A.E. (eds). *Lands at Risk in the Third World: Local Level Perspectives* 56-68. New York: Westview Press.

Spradley, J.P. 1980. *Participant Observation*. New York: Holt, Rinehart and Winston.

Spring, A. 1989. Profiles of men and women small holder farmers in Malawi. In Huss-Ashmore, R. and Katz, S.H. (eds). *African Food Systems in Crisis: Part One. Micro Perspectives*, 332-348. New York: Gordon and Breach.

Stayt, H.A. 1968. *The BaVenda*. London: Frank Cass and Co.

Steady, F.C. 1993. (ed). *Women and Children First. Environment, Poverty and Sustainable Development*. Vermont: Schenkman Books. Inc.

Stenning, D. 1958. Household viability among the pastoral Fulani. In Goody, J. (ed). *The Developmental Cycle in Domestic Groups*, 92-119. Cambridge: Cambridge University Press.

Stephen, D.W. 1990. Risk and incomplete information in behavioral ecology. In Cashdan, E. (ed). *Risk and Uncertainty in Tribal and Peasant Economies*, 19-46. New York: Westview Special Study. Westview Press.

Stevenson, G.G. 1991. *Common Property Economics. A General Theory and Landuse Applications*. New York: Cambridge University Press.

Stoddart, L.A., Smith, A.D. and Box, T.W. 1975. *Range Management*. New York: McGraw Hill.

Swift, J. 1977. Sahelian pastoralists: underdevelopment, desertification, and famine. *Annual Review of Anthropology*. 6, 457-478.

Swift, J. 1991. *Local Customary Institutions as the Basis for Natural Resources Management Among Boran Pastoralists in Northern Kenya*. Sussex: IDS.

Swift, J. 1994. Dynamic ecological systems and the administration of pastoral development. In Scoones (ed) *Living with Uncertainty: New Directions in Pastoral Development in Africa*, 153-173. London: Intermediate Technology Publication.

Sylla, D. 1994. Pastoral organizations for uncertain environment. In Scoones (ed) *Living with Uncertainty: New Directions in Pastoral Development in Africa*, 134-152. London: Intermediate Technology Publication.

The Ecologist. 1993. *Whose Common Future? Reclaiming the Commons*. London: Earthscan Publications.

Thomas, D.S.G. and Sporton, D. 1997 Understanding the dynamics of social and environmental variability: the impact of structural land use change on the environment and people of the Kalahari, Botswana. *Applied Geography* 17 (1), 11-27.



- Thomas-Slayter, B.P., Rocheleau, D and Asamba, I. (eds). (1995). *Gender, Environment and Development in Kenya: A Grassroot Perspective*. Boulder: L. Rienner.
- Thomas-Slayter, B., Esser, A.L. and Shield, M.D. 1993. *Tools for Gender Analysis: A Guide to Field Methods for Bringing Gender into Sustainable Resource Management*. Worcester: ECOGEN, International Development Program, Clark University.
- Thomas-Slayter, B.P., Rocheleau, D., Shields, D.M. and Rojas, M. 1991. *Concepts and Issues Linking Gender, Natural Resources Management, and Sustainable Development*. Worcester: ECOGEN, Clark university and Virginia Polytechnic Institute.
- Thompson, C.B. 1991. *Harvest Under Fire: Regional Cooperation for Food Security in Southern Africa*. London: ZED Books.
- Thompson J.G. and W.D. Purvis. (1978). A guide to the soils of Rhodesia. *Rhodesia Agriculture Journal*. Technical Handbook No.3.
- Topps, T.H. 1977. Adaptation of cattle to drought conditions and their requirements for food and water. In Dalby, D., Church, R and Bezzaz, F. (eds) *Drought in Africa: Volume 2. African Environments Special Report No. 6*, 101-104. London: International African Institute.
- Toure, O. 1990. *Where Herders Don't Herd Anymore: Experience From the Ferlo, Northern Senegal*. London: ODI, Dryland Networks Programme.
- Tucker, C.J., Dregne, H. and Newcomb, W. 1991. Expansion and contraction of the Sahara Desert from 1980 to 1990. *Science*, 253:299-301.
- Ulin, R.C. 1984. *Understanding Cultures: Perspectives in Anthropology*. Austin: University of Texas Press.
- Ulluwishewa, R. 1991. Modernization versus sustainability: disintegrating village agro-ecocomplexes in the dry zones of Sri Lanka. *Environmental Conservation*. 18 (2): 103-109.
- Uphoff, N. 1986. *Local Institutional Development: An Analytical Sourcebook with Cases*. Connecticut: Kumarian Press.
- Uphoff, N. 1992. *Learning from Gal Oya: Possibilities for Participatory Development and Post-Newtonian Social Science*. Ithaca: Cornell University Press.
- UNCED. 1992. *The Rio Declaration on Environment and Development*. Geneva: UNCED Secretariat
- Usher, P. 1987. Indigenous management systems and the conservation of wildlife in the

Canadian North. *Alternatives*, 14(1): 3-9.

Varley, A. 1996. Women heading households: some more equal than others? *World Development*. 24 (3), 505-520.

Vet. Dept. 1993. *Matebeleland South Province Livestock Population Records*. Harare: Govt. of Zimbabwe, Unpublished Records.

Wade, R. 1987. The management of common property resources: finding a cooperative solution. *The World Bank Research Observer*, 2 (2). 219-34.

Walker, B.H. 1979. *Management of Semi-Arid Ecosystems*. London: Elsevier Scientific Publishing,

Walker, B. H. (1993). Rangeland ecology: understanding and managing change. *Ambio*, 22: (2-3), 80-87.

Warren, D.M. and Cashdan, K. 1988. *Indigenous Knowledge for Sustainable Agriculture and Rural Development*. London: Gatekeeper Series No. SA10. IIED,

Watson-Gegeo, K.A. and Lee-Seaton, S. (eds). 1978. *Adaptation and Symbolism: Essays on Social Organization*. East-West Center Book. University Press of Hawaii.

Watts, M. 1983. On the poverty of theory: natural hazards research in context. In Hewitt, K., (ed). *Interpretations of Calamity from the View Point of Human Ecology*, 231-262. Risk and Hazards Series 1. Boston: Allen and Unwin.

Watts, M. 1984. The demise of the moral economy: food and famine in a Sudano-Sahelian region in historical perspective. In Scott, E.P. (ed). *Life Before the Drought*, 124-148. Boston: Allen and Unwin.

Watts, M.J. and Bohle, H.G. 1993. The space of vulnerability: the casual structure of hunger and famine. *Progress in Human Geography*, 17 (1), 43-67.

WCED. 1987. *Our Common Future*. Oxford: Oxford University Press.

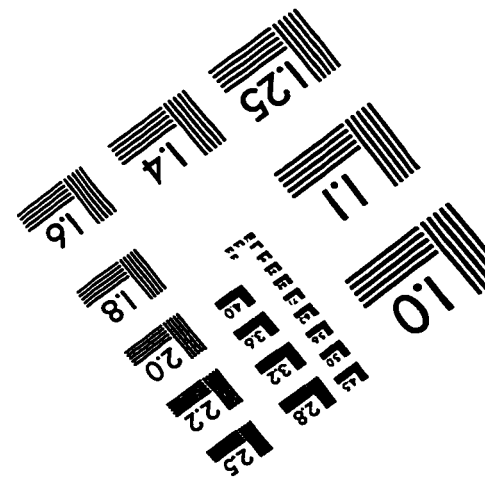
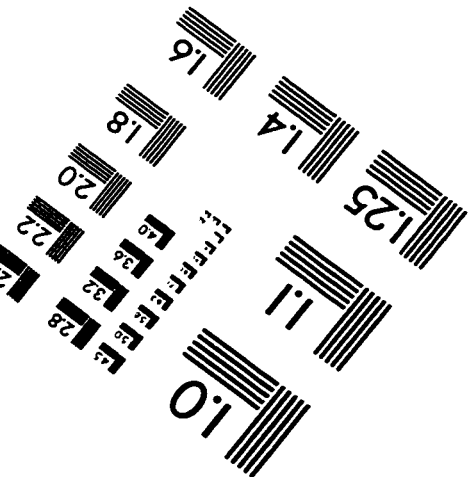
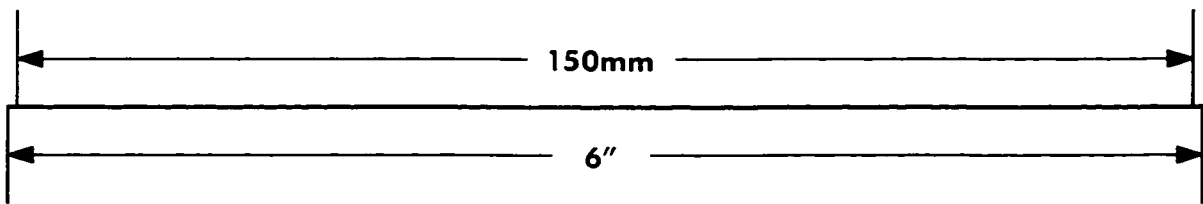
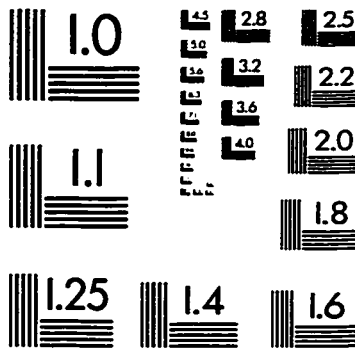
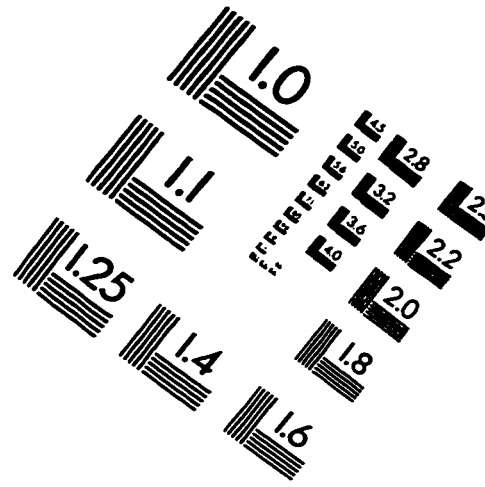
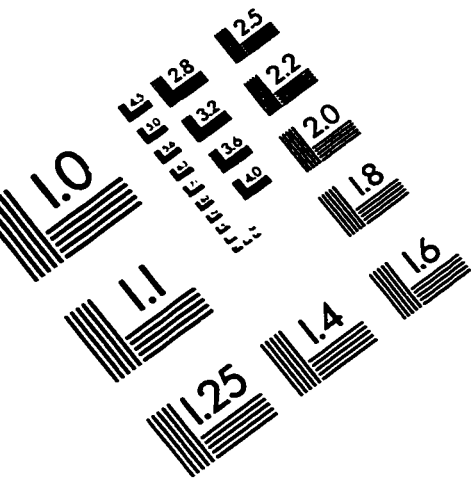
Weber, M. 1947. *The Theory of Social and Economic Organization*. New York: Free Press

Weber, M. 1968. *On Charisma and Institution Building*. Chicago: University of Chicago Press.

Weinrich, A.K.H. 1971. *Chiefs and Councils in Rhodesia: Transition from Patriarchy to Bureaucratic Power*. Columbia: University of South Carolina Press.

- Weissleder, W. (ed) 1978. *The Nomadic Alternative. Modes and Models of Interaction in the African-Asian Deserts and Steppes*. Hague: Mouton Publishers.
- Weissmann, R. 1969. *The BaWenda of Spelonken (Transvaal): A Contribution Towards the Psychology and Folk-lore of African Peoples*. New York: Negro University Press.
- Western, D. and Finch, V. Cattle and pastoralism: survival and production in arid lands. *Human Ecology*, 14(1), 77-95.
- Wexler, P. (ed), 1991. *Critical Theory Now*. London: Falmer Press.
- Wilson, A.D. and Tupper, G.J. 1982. Concepts and factors applicable to measurement of range condition. *Journal of Range Management* 35(6): 684-689
- Wilson, K.B. 1989. Trees in the fields in Southern Zimbabwe. *Journal of Southern African Studies*. 15(2). 369-383.
- World Bank. 1987. *Zimbabwe: A Strategy for Sustained Growth*. Harare. Report no. 6981-ZIM.
- Wuthnow, R. 1987. *Meaning and Moral Order: Explorations in Cultural Analysis*. Berkeley: University of California Press.
- Wynne, B. (1992). Uncertainty and environmental learning: reconceiving science and policy in the preventive paradigm. *Global Environment and Change*, 1992: 111-127.
- Yadeta, G. 1985. *Dynamic Processes of Development in Marginal Areas: A Case Study from the Pokot of Northwest Kenya*. Lund: University of Lund.
- Young, M.D. 1993. *For Our Children's Children: Some Practical Implications of Inter-Generational Equity and the Precautionary Principle*. Resource Assessment Commission, Occasional Publication Number 6, Canberra: Australian Government Printing Services.
- Yudelman, M. 1964. *Africans on the Land: Economic Problems of African Agricultural Development in Southern, Central and Eastern Africa, with Special reference to Southern Rhodesia*. Boston: Harvard University Press.
- Zufferey, F.S. 1986. *A Study of Local Institutions and Resource management Inquiry in Eastern Central District, Botswana*. LTC Paper 88. Madison: Wisconsin.

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