WORKSHOP IN POLITICAL THEORY
AND POLICY ANALYSIS
513 NORTH PARK
INDIANA UNIVERSITY
BLOOMINGTON, IN 47406-3895 U.S.A.

Managing Communal Rangeland in Zimbabwe: Experiences and Lessons

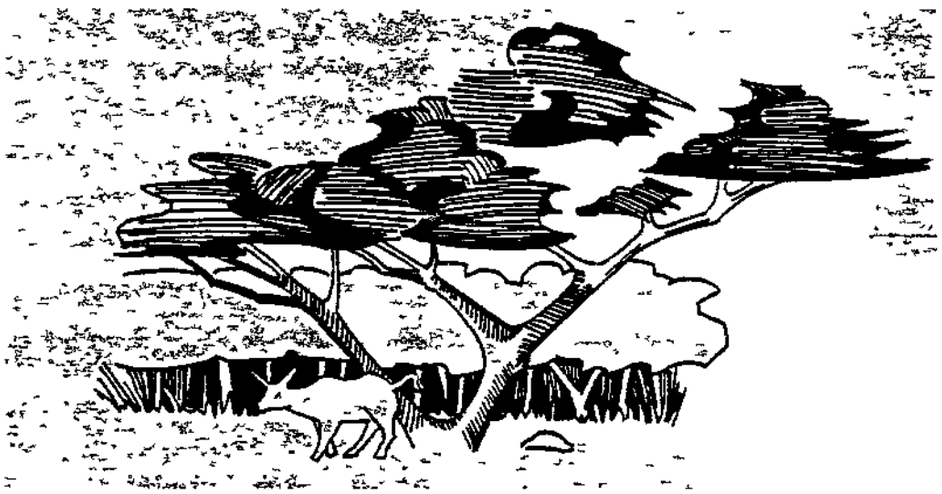
Ben Cousins
University of the Western Cape

Case Study prepared for Workshop on New Directions in African Range Management Policy, Matopos, Bulawayo, Zimbabwe, 13-17 January 1992

Food Production and Rural Development Division
Commonwealth Secretariat
Marlborough House, Pall Mall
London SW1Y 5HX

April 1992

Managing Communal Rangeland in Zimbabwe: Experiences and Lessons



Commonwealth Secretariat

PREFACE

This document has been published by the Food Production and Rural Development (FPRD) Division of the Commonwealth Secretariat, as part of its programme on the **Management and Sustainable** Use of Communal Rangeland in Africa. The programme, which began in 1990 with a technical meeting held in Woburn, United Kingdom, is being guided by consultants' inputs from the Overseas Development Institute (ODI) and the International Institute for Environment and Development (IIED).

This case study is one of a series commissioned by the Commonwealth Secretariat for three African countries; volumes on Botswana, Kenya and a second case study for Zimbabwe will follow later in 1992. These case studies provided an important resource for a workshop entitled **New Directions** in **African Rangeland Management and** Policy, hosted by the Government of Zimbabwe and held at Matopas Rangeland Research Station, near Bulawayo in January 1992. All the reports, case studies and supporting documents published in this series are listed following this preface.

The author of this first case study, Dr. Ben Cousins, has worked for many years in Zimbabwe and previously taught at the Centre for Applied Social Studies (CASS), University of Zimbabwe. This review is the result of many years research in Zimbabwe during which Dr. Cousins visited some thirty grazing schemes in all the agro-ecological zones of the country. The plans and reports from a further seventy schemes were analysed. Therefore this report is not just another desk exercise, but brings together the result of many years field work and a thoughtful evaluation of the approach to rangeland management, on which the grazing schemes were based. Much of the work was carried out with extension staff from Agritex and the author has always consulted and worked closely with all the government research and extension agencies. The report however, reflects his views and does not imply any official position by the Commonwealth Secretariat or the Government of Zimbabwe.

I would like to thank the author for a clear presentation of a complex topic. The Commonwealth Secretariat is grateful to the Canadian International Development Agency (CIDA) who financed the publication of the case study volumes.

I am sure this overview document will be of wide interest and additional copies, and information on the rangeland programme, can be supplied on request.

J **K Muthama**
Director
Food Production and Rural Development Division

MANAGING COMMUNAL RANGELAND IN ZIMBABWE:
EXPERIENCES AND LESSONS

TABLE OF CONTENTS

PART TWO: COMMUNITY RESPONSES AND LESSONS FOR POLICY

3. COMMUNITY RESPONSES TO GRAZING SCHEME POLICIES

Figures

Tables

MANAGEMENT AND SUSTAINABLE USE OF COMMUNAL RANGELANDS IN AFRICA

LIST OF DOCUMENTS

A. Background Documents

(i) Management and Sustainable use of Communal Rangelands in Africa. Project Progress Report, March - December 1990

(ii) Rethinking Range Ecology: Implications for Rangeland Management in Africa, **Roy Behnke and Ian Scoones**

(iii) Report of a Workshop on New Directions in African Range Management Policy - Matopos, Zimbabwe, January 1992

B. Case Studies

MAT/CS/BOTSWANA — Livestock Development and Pastoral Production on Communal Rangeland in Botswana. Richard White, April 1992

MAT/CS/ZIMBABWE.1 — Managing Communal Rangeland in Zimbabwe: Experiences and Lessons. Ben Cousins, May 1992

MAR/CS/ZIMBABWE.2 — Rangeland Management and Research in Zimbabwe: A Review. James Gambiza, May 1992

ACKNOWLEDGEMENTS

The research project which provided much of the data for this study was initiated in 1986 by Professor Marshall Murphree, Director of the Centre for Applied Social Sciences (CASS), as part of a larger research programme on natural resource management in the Communal Lands of Zimbabwe. Without his vision this project would never have been born; without his constant support and guidance it would never have been completed. Marcellino Avila also played a critical role at an early stage in the project and I am greatly indebted to him as well.

The International Development Research Centre of Ottawa provided generous funding for the original research project. The Commonwealth Secretariat made possible the writing of this report; grateful thanks to them and to Brian Kerr of the Secretariat.

Staff of the Centre for Applied Social Sciences provided high levels of support throughout the project, and Charles Cutshall's and Wanda Kawadza's assistance in overcoming practical problems was greatly appreciated.

A special "thank you" is due to the many research assistants who helped collect and analyse field data: Johnson Chinyanga, Tichaona Chirimanyemba, Wisdom Muza, Kenneth Masvingise, Clemence Regedzai, Shadrack Taderere, Nettmore Shoko, Freddy Mushongandebvu, Takemore Chamboko, Garfield Chigarisano, Teddy Sikhakane, Safiya Abdoola and Paul de Jager.

Colleagues who provided stimulating company on field trips and in seminars, and made many useful comments and criticisms include Nick Amin, John Barrett, Biong Deng Kuol, Bill Derman, James Gambiza, Jeremy Jackson, Donald Moore, James Murombedzi, Calvin Nhira, Gul Rukh Selim, Jonathon Timberlake, Ken Wilson, Dan Weiner, and Eric Worby. I am particularly grateful to Peter Frost, Gus Maclaurin, and Ian Scoones for their contribution to the analysis of ecological aspects.

The collection of field data would not have been possible without the generous co-operation of Agritex staff. Particular thanks to Frank Chinembiri, Mike Froude, James Maswaya, Chris Nobbs, and a host of Extension Supervisors and Extension Workers in the field.

Finally, let me record a deep appreciation of the loving-yet-critical support of Colleen, Kezia and Thomas Cousins over a four year period. Colleen contributed enormously to the development of the ideas presented here, and Kezia provided invaluable computer expertise throughout.

INTRODUCTION

The focus of this study is the social, legal and institutional dimensions of rangeland management in the Communal Lands of Zimbabwe, against the background of emerging perspectives on rangeland ecology. A great many interventions by the colonial and post-colonial state into communal area production systems and institutional regimes over the past 70 years have attempted to radically change livestock and grazing management practices, with either "development" or conservation of natural resources as their stated rationale. Livestock owners have often resisted these innovations, however, and only recently has research begun to reveal some of the reasons for this resistance. These derive not so much from the so-called backwardness of peasant producers as from the technical inappropriateness of many of the suggested innovations: "inappropriate", that is, from the point of view of producers with very different objectives to those of the commercial ranchers, the group which most livestock research in Zimbabwe has set out to service.

Recent theoretical developments in rangeland ecology suggest that a flexible or "opportunistic" strategy of rangeland management is needed in semi-arid and arid environments in order to cope with highly variable and unpredictable changes in rainfall and vegetation. While a more conventional "conservative" approach may be more appropriate in moist environments or on low density commercial ranches, opportunism is likely to be optimal for many pastoralists and peasant agro-pastoralists (Behnke and Scoones 1991). Research in Zimbabwe shows that many Communal Land herd owners do in fact practise a form of opportunism, despite the absence of supportive policies. Technical and institutional approaches based on conventional knowledge have failed to recognise this, and this is part of the reason why they have not succeeded.

This study begins by providing background information on agriculture and land reform in post-independence Zimbabwe (section 1). It then reviews the history of policies and programmes aimed at transforming communal rangeland management in Zimbabwe, and evaluates their successes and failures (section 2). The emerging paradigm within rangeland ecology helps us to understand why communities and livestock owners responded as they did to these interventions. These responses are examined through case studies of rangeland management in five communities in different parts of Zimbabwe (section 3). The lessons for rangeland policy and administration are then discussed (section 4).

PART ONE: RANGELAND MANAGEMENT POLICIES IN HISTORICAL PERSPECTIVE

1. AGRICULTURE AND LAND REFORM IN ZIMBABWE

1.1 Zimbabwe: the resource base

Physical geography

Zimbabwe has a land area of approximately 390 000 square kilometres, or 3 070 000 hectares, and is situated between latitudes 15°S and 22°S and longitudes 25°E and 33°E. The centre of the country is a plateau which dips gently towards the low-lying areas of the Save-Limpopo basin in the south-east and the Zambezi valley in the north. A ridge running through the centre of the plateau forms a watershed between these two river systems.

Along the eastern border the edge of the plateau has been uplifted to form the' Eastern Highlands, which extend north and south along the Mozambican border. Only here do elevations rise above 1800 metres; the central plateau or highveld lies at an average of 1200 to 1500 metres and the lowveld areas of the Zambezi and Save-LImpopo basins are generally below 600 metres. Throughout the country ranges of hills occur where belts of harder rock have resisted erosion. The granite of the central plateau forms isolated hills called kopjes, which may be in the form of rounded domes (dwalas) or piles of boulders known as castle kopjes .

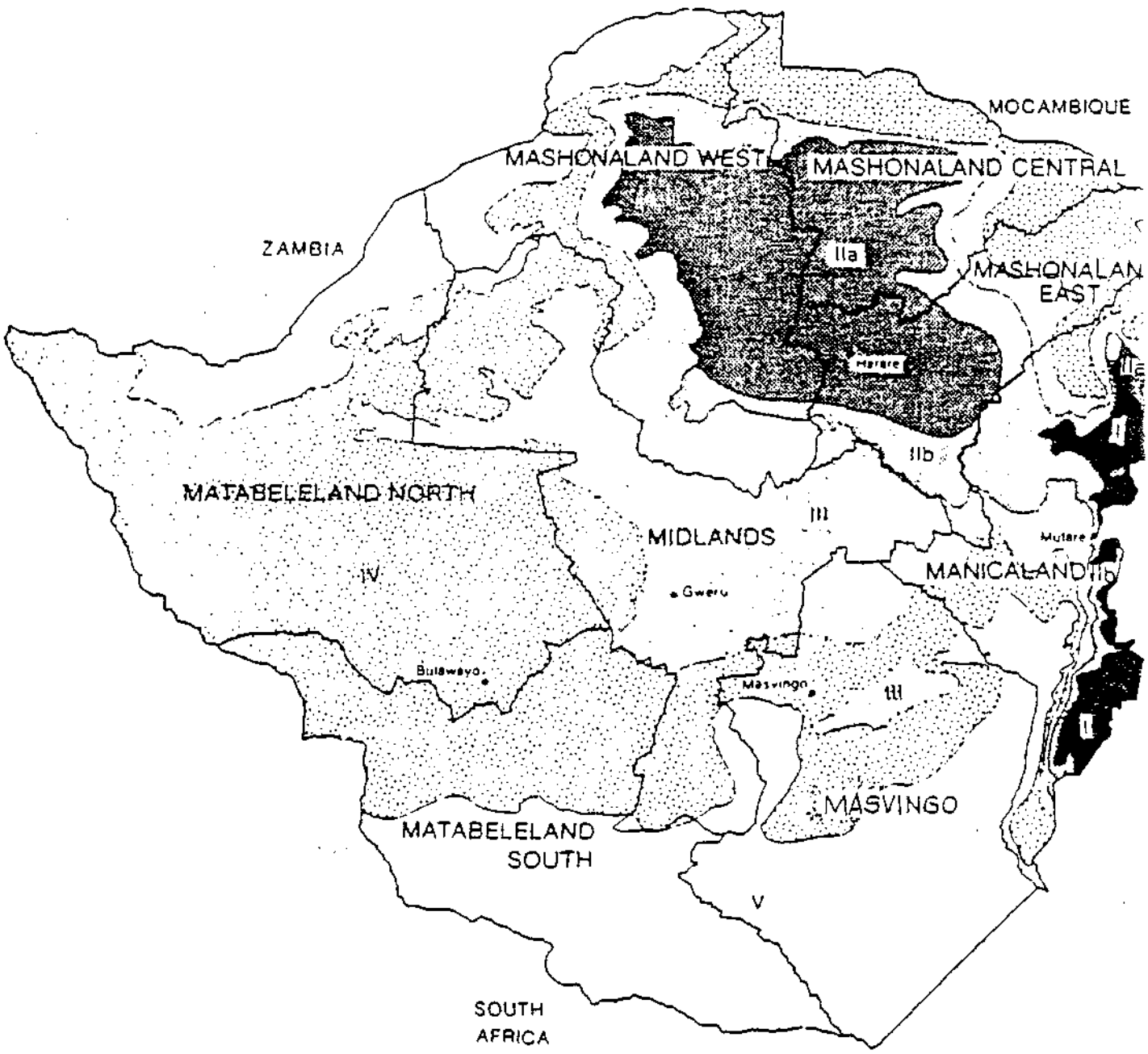
The distribution of soils and the wide variety and variability of minerals indicates a complex geological history and distribution of parent materials. The agricultural potential of soil varies considerably, and while soils with good fertility and moisture retention characteristics are found in all regions, a high proportion of the best soils are found either on the highveld or in the dry south east. A substantial proportion of the country consists of granitic sands of low fertility.

Zimbabwe's climate is tropical but both temperatures and rainfall are strongly affected by altitude. Rainfall is convective in origin and is strictly seasonal, most of the annual total falling in the summer months in all areas except the Eastern Highlands. The northern and eastern parts of the country receive higher rainfall (700 - 1000mm) than the southern and western parts (350 - 700mm). Rainfall tends to decline sharply on both sides of the central plateau. The Eastern Highlands receives between 1000mm and 2000mm.

Agro-ecological regions

Rainfall displays a high degree of spatial and temporal variation at the local level. This tendency towards variability is most marked in the drier zones. Rainfall is the primary limiting factor for agricultural production and provides the basis for the division of the country into five agro-ecological zones, or Natural Regions

Figure 1. Agro-ecological zones in Zimbabwe



I Specialized and Diversified Farming Region

IIa Intensive Farming Region

IIb Sub-Region

III Semi-Intensive Farming Region

IV Semi-Extensive Farming Region

V Extensive Farming Region

1 : 1 000 000

0 50 100 150 Kilometres

0 50 100 Miles

Surveyor-General Harare Zimbabwe 1984

(see Figure 1). Since it was first developed in the 1950s this zoning schema has been widely used for evaluating current and potential land use practices, although these evaluations have always been biased towards large scale commercial systems of production.

Natural Region I: Recommended for specialised and diversified farming; 700 000 ha in extent (1.8 percent of total land area). Confined to the Eastern Highlands. Rainfall relatively high, greater than 900 mm, with some locales reveiving more than 1500 mm. Relatively low temperatures and high rainfall enable forestation, fruit and intensive livestock production. In frost-free areas plantation crops such as tea, coffee and bananas are possible.

Natural Region II; Recommended for intensive farming; 5 8760 000 ha in extent (15 percent of total land area). Rainfall is moderately high but confined to the summer months. Two sub-regions have been defined: sub-region IIa receives an average of at least 18 rainy pentads per season[1]. The region is suitable for intensive crop or livestock farming systems. Sub-region IIB is also classified as suitable for intensive production despite higher levels of rainfall variability.

Natural Region III: Recommended for semi-intensive fanning; 7 290 000 ha in extent (18.7 percent of total land area). Rainfall is moderate (650-800mm) but its effectiveness is limited by severe mid-season dry spells and high temperatures. Growing conditions are marginal for maize and other crops or for enterprises based on crops alone. Recommended farming systems are those based on livestock production and fodder crops or on cash crops where soils have high moisture retention characteristics.

Natural Region IV: Recommended for semi-extensive farming; 14 780 000 ha (37.8 percent of total land area). Rainfall is relatively low (450-600mm) and is subject to periodic seasonal droughts and severe dry spells during the rainy season. This makes cash cropping risky except for drought resistant crops or irrigated crops. Best suited for semi-extensive livestock production systems.

Natural Region V: Recommended for extensive farming; 10 440 000 ha (26.7 percent of total land area). Rainfall is too low and erratic for reliable production of even drought-resistant fodder and grain crops. Included in this region are areas which are below 900m in altitude, and where the mean rainfall is less than 650mm (Zambezi valley) or 600mm (Save-Limpopo valleys). Best suited for farming systems based on extensive cattle or game ranching.

---

[1] A rainy pentad is defined as the centre period of three five-day periods (pentads) which together receive more than 40mm *rainfall* and two of which receive at least 8mm rainfall.

What this classification reveals is that only 16.8 percent of Zimbabwe's land area is recommended for intensive farming systems, and that most of this is concentrated in the north-eastern part of the country. In over 50 percent of the country crop production is risky and conditions are best suited to livestock production.

1.2 Land distribution by sub-sector

The uneven spatial distribution of high quality agricultural land played an important role in the evolution of Zimbabwe's agrarian structure. Through its policies the settler colonial state shaped the development of distinct production and tenure systems, which were subsequently labelled agricultural "sectors" or "sub-sectors". Land tenure was racially defined, and the bulk of high potential land was held under freehold title by white commercial farmers. Most black Zimbabweans lived in Tribal Trust Lands (formerly the Native Reserves) under a form of communal tenure, and these were concentrated in the low potential zones. Much smaller numbers of small-scale producers held land under a form of freehold title in the African Purchase Areas or as plot holders on large state-owned schemes.

Since independence these categories have been redefined, all racial definitions have been abolished, and a substantial resettlement programme has transferred land from the large scale commercial sector to small scale producers. Despite this the skewed distribution of high quality land persists. The pattern of land holdings by sub-sector and by Natural Region in 1989 is shown in Tables 2 and 3[2].

Table 1.1 Land distribution in Zimbabwe by use and sub-sector, 1989

	ha (000)	%
Communal Lands	16 355	41.9
Large Scale Commercial Farms	11 270	28.8
Small Scale Commercial Farms	1 400	3.6
Resettlement Areas	3 090	7.9
ADA/State Farms/Co-ops	884	2.3
National Parks and Wildlife Areas	4 900	12.5
Forest Areas	977	2.5
Urban	196	0.5
Total	39 072	

[2] There are severe discrepancies between data sets published by different sources; these tables are taken from JPAC 1990: 4.

Table 1.2 Land distribution in Zimbabwe by sub-sector and Natural Region, 1989

Natural Region	Communal Lands	Commercial Farming Areas	Resettlement Areas	National Parks & Wildlife Areas	Forest Areas	Total
I	135	416	14	50	90	705
II	1 270	3 890	670	25	2	5 857
III	2 820	2 878	902	545	145	7 290
IV	7 340	3 252	1 048	2 460	670	14 770
V	4 790	3 314	456	1 820	70	10 450
Total	16 355	13 750	3 090	4 900	977	39 072

Communal Lands (CLs)

Previously known as Native Reserves, and then Tribal Trust Lands, the Communal Lands now account for 16.4 million ha or 42 percent of all land in Zimbabwe. Of this total, 74.2 percent is located in Natural Regions IV and V and thus has low agricultural potential. The total population in 1988 was probably about 5.1 million , within 1 million households, representing a population density of about 31 persons per km^2 (Roth 1990: 21).

Large Scale Commercial Farms (LSCFs)

Formerly the European farming area, this sector in 1988 contained 4660 farms on 11.3 million ha, or 29 percent of the national total. They employed 227 000 permanent and casual workers, and probably held a population of 1.8 million people. Most farms are owned by companies (61 percent) or individuals (34.3 percent) (Roth 1990: 22). Government, parastatals and cooperatives make up the remaining 4.7 percent. The average farm size is 2 406 ha. About 35 percent of land in this sector is found in Natural Regions I and II, and 44 percent is in Regions IV and V.

Small Scale Commercial Farms (SSCFs)

Formerly known as African Purchase Land, the SSCFs in 1989 comprised 1.4 million ha and were located mainly in Natural Regions III (35.4 percent) and IV (38.2 percent). When a census on these farms was last carried out in 1983 there were 8653 farms and average farm size was 124.2 ha.

Resettlement Areas (RAs)

After independence the central thrust of government's agrarian reform programme was the resettlement of refugees, displaced

families and landless households from the Communal Lands on farms purchased from white commercial farmers. In 1982 a target of 162 000 families to be resettled on 10 million ha was announced (Republic of Zimbabwe 1982a).

By 1989 the government had acquired 3.1 million ha of land for resettlement purposes at a cost of $68.5 million, on the basis of the willing seller/ willing buyer provision in the Lancaster House constitution (Roth 1990: 25). A total of about 52 000 families has been resettled. Most of this land is in Natural Regions IV (34 percent) and III (29 percent) with smaller proportions in the other Natural Regions.

There are four main resettlement models. These range from individual plots with communal grazing (Model A), through collectively owned production co-operatives (Model B) and nucleus estate and outgrower schemes (Model C), to a grazing management model on adjoining ranches (Model D). Over 81 percent of resettled land takes the Model A form, less than 6 percent the Model B form, and only 1 percent the Model C form. A single Model D scheme comprises 12 percent of resettlement land but is not yet fully implemented.

1.3 **The** agricultural sector in **Zimbabwe**[3]

At independence in 1980 the new government inherited a relatively diversified economy with a developed administrative and physical infrastructure. The agricultural sector accounted for 12 percent of Gross Domestic Product (GDP), industry for 40 percent and services for another 40 percent.

In real terms GDP increased at approximately 2.6 percent between 1980 and 1987, agriculture's increase being in the order of 2.3 percent. Despite its relatively small share of GDP agriculture is a major source of employment (approximately 70 percent of the total if communal area producers are included), inputs for other sectors, markets for local industries, and exports (approximately 40 percent). The agricultural sector was badly affected by the 1982-84 drought, when export volumes declined, but these recovered **and** then increased significantly between 1985 and 1988. Agricultural production is viewed by government planners as an essential component of a growth strategy for the economy.

Crop production

The most important crops produced in Zimbabwe are maize, tobacco, cotton, sugar, wheat, coffee, tea, groundnuts, soybeans, sunflowers, and sorghum. Horticultural products have recently increased in importance. The dualistic agrarian structure inherited at independence persists and almost all tobacco and irrigated crops such as wheat, coffee, sugar, soya beans and tea are produced by large scale commercial farmers. This sub-sector

[3] Data in this section are drawn mainly from World Bank 1990.

currently contributes 82 percent of the total value of crop sales.

In 1980 small scale fanners produced maize, groundnuts and sorghum for subsistence and sale, and cotton as a cash crop. Only 6 percent of marketed output was produced by the peasant sector. As a result of improved provision of services such as extension and credit, higher prices, and an improved marketing and transport infrastructure, producers in Communal Lands and resettlement schemes have dramatically increased their output of these crops and also emerged as major producers of sunflowers. The share of peasant producers in the marketed output of maize for the country as a whole has risen from around 10 percent in 1980 to around 60 percent in 1989, and from 7 percent to 50 percent for cotton over the same period. In terms of total agricultural output the share of small scale producers (in Communal Lands and resettlement areas) has risen from 13 percent in 1978 to 35 percent in 1988/89.

Livestock production

The pattern of crop production across sub-sectors has thus undergone significant change over the past decade, but the same cannot be said of livestock production. Large scale commercial producers continue to dominate the beef and dairy industries, as well as pork and poultry production. Beef dominates the local meat market, but there is an imbalance between the supply of high grade beef and the demand for low grade beef . Because of problems of economic viability the size of the commercial beef herd has declined from 3 million head in 1977 to 1.8 million head in 1986. Production for a potentially lucrative export market have been plagued by periodic outbreaks of Foot and Mouth Disease (CFU 1988).

The Communal Lands hold around 3.5 million head of cattle, or 60 percent of the national herd, but offtake rates are low (2 to 3 percent, compared to 16 to 26 percent in the LSCF sector). It is now widely recognised that cattle in the peasant sector are not kept primarily as beef animals but instead fulfil a number of different functions, of which the most important are the provision of draught power, manure and milk. There are also 1.8 million goats in the Communal Lands (comprising 93 percent of the national total), which are kept mainly for domestic meat supplies and occasional cash sales (Republic of Zimbabwe 1988).

An important new development is the rapid growth of the wildlife industry in Zimbabwe, which is located on both commercial and communal land in the drier regions of the country. Production is increasingly based on wildlife utilisation in all its dimensions, major components being trophy hunting and different forms of tourism; growth rates of up to 25 percent have been achieved in recent years *(Child 1989}.*

Problems in the agricultural sector

Despite the widely hailed increases in peasant crop production and the transfer of over 3 million ha from large scale to small scale producers, many of the problems which made the "land question" a central feature of the national liberation struggle in Zimbabwe still persist, and land use within the country as a whole is far from optimal. The following are some of the issues which continue to make land a volatile issue in Zimbabwe today.

* The distribution of high quality cropping land is still skewed in favour of a small number of large commercial farmers, who dominate the production of high value cash crops and commercial livestock.

* Large farm sizes and restrictions on sub-division in the large farm sector, coupled with government beef policies, mean that large areas of potentially arable land in the highveld are used for grazing rather than crops (Roth 1990: 73). Conservative resettlement planing models tend to reinforce this pattern of land use (Weiner 1988).

* The Communal Lands continue to support large populations of people and livestock, and resettlement has not changed population: resource ratios significantly. Landlessness is probably growing and is reflected in the persistence of "squatting" on commercial farmland and in urban areas. Land previously used for grazing is being encroached upon by cultivation in many areas (Scoones and Wilson 1989). Conservationists and planners take the view that overgrazing is causing widespread ecological degradation[4].

* The increases in marketed output in the Communal Lands have tended to be derived from a narrow layer of better-off farmers with access to draught power, land, labour, credit and off-farm income, and also from those Communal Lands in the higher potential zones in Mashonaland (Weiner 1988; Amin 1991)

* Many households in the Communal Lands have limited access to agricultural means of production and rely on remittances from urban wage labour, local casual labour, and state drought relief to survive (Adams 1991; Weiner and Harris 1991).

The resettlement programme, while judged a success in terms of contributing to post war reconstruction, benefitting the families concerned, and providing an economic rate of return of 21 percent on investments (Cusworth and Walker 1988), has also been disappointing in many respects. It has made little impact on alleviating problems in the Communal Lands; some settlers have

---

[4] This is a controversial issue which will be discussed in other sections of this report.

benefitted much more than others; women are not reaping the full benefits; the supply of support services has been inadequate; and the narrow emphasis on maize production by-settlers reduces the sub-sector's potential contribution to the national economy (Palmer 1990; Roth 1990).

1.4 Government objectives and policies

The central importance of agriculture in the national economy is reflected in government policies. A critical issue for Zimbabwean society as a whole is the question of agrarian reform in the 1990's now that the constitutional constraints imposed by the Lancaster House agreement have fallen away.

Government has defined the objectives of its agricultural sector strategy as: (i) broad-based increases in the productivity of land, labour and water resources (ii) improved household food security and nutrition (iii) increased cash crop production (iv) employment generation and (v) increased stability of incomes. The First Five Year National Development Plan called for an ambitious investment programme and a sectoral growth rate of 5 percent per annum. The Plan also set as national priorities the need to increase both agricultural exports and rural incomes (Republic of Zimbabwe 1986) .

In August 19 90 a new land reform policy was announced. This included amendments to the constitution to allow government to expropriate land and compensate its owner in local currency, amendments to the Land Acquisition Act, the designation of blocks of land to be acquired, the control of land prices, the imposition of a land tax, land inspections to determine underutilisation, limitations on farm ownership and farm size, and the promotion of "emergent" black large scale commercial farmers.

The resettlement programme would aim to relocate 110 000 families on 5 million ha acquired from commercial farmers, and settler selection would give priority to trained Master Farmers from the Communal Lands. The re-organisation of Communal Land settlement patterns would continue alongside of the resettlement programme. A commission of enquiry into land tenure would be appointed (Financial Gazette 3/08/90).

Since then no operational details of how the new policy will be implemented have been released. Controversy has arisen over amendments to the constitution which allow the state to determine rates of compensation for expropriated land, and do not allow appeals to the judiciary by land owners.

A National Livestock Development Policy has been on the drawing board for some years, but has not yet been finalised. Drafts indicate that conventional approaches to Communal Land livestock development will continue to be taken by extension services and development agencies. These include: a "conservative" approach to questions of livestock numbers and carrying capacity; aiming to increase offtake rates through encouraging cattle sales;

promotion of fenced Short Duration Grazing schemes; attempts to make Village Development Committees control livestock numbers through the enforcement of by-laws; and planning grazing schemes as part of the communal area re-organisation programme (Republic of Zimbabwe 1988).

As the next section makes clear, there are many continuities between pre- and post-independence policies and programmes aimed at changing patterns of resource use on communal rangeland.

2. COMMUNAL LAND GRAZING SCHEMES : HISTORICAL BACKGROUND AND CONTEMPORARY POLICIES

2.1 Introduction

Policies and programmes aimed at improving livestock production and range management have been a feature of agricultural development programmes in the Communal Lands from the 1920s through to the present. The assumptions underlying these initiatives as well as the detailed prescriptions proposed to perceived problems have demonstrated a great many continuities.

The main assumptions have been that:

- communal area livestock production systems are inefficient
- productivity is low because of poor management both of stock and of rangeland feed resources
- high stocking rates in excess of carrying capacity are leading to severe environmental degradation
- cattle should be used for beef or dairy production and other uses are inefficient or less important

Implicit in this view is an assumed ignorance and "backwardness" on the part of producers, often accompanied by the notion that irrational cultural beliefs and practices in relation to livestock ("the cattle complex") are preventing rational management decisions (Mtetwa 1978).

Another view which has become increasingly influential over time is that which diagnoses the communal tenure system as inherently problematic and in need of reform. Access to grazing is seen as unrestricted; exploitation of communal grazing land by privately held livestock means that a "tragedy of the commons" is inevitable (Barnes 1978: 52).

Proposed solutions to these perceived problems have generally been premised on reduction and control over stock numbers, restricting access to communal rangeland by means of fences, and management by means of rotational resting systems. In Zimbabwe this combination of measures has been known as a "grazing scheme". Extension officials have aimed to convince livestock owners to give up their "irrational beliefs" and aim instead at commercial production of meat or milk, and breeding programmes to upgrade indigenous stock have been introduced.

Grazing schemes for the Communal Lands have thus always been firmly based on the commercial beef production model which research and extension helped evolve in the Large Scale Commercial Farming sub-sector. Whichever grazing management system was in vogue within this sector has become the ideal to be promoted within the Communal Lands, albeit in a simplified, diluted version suitable for "backward" peasant producers.

Mainstream range science based on succession theory has been used to develop rangeland condition assessment techniques for use by extension staff working *wi*th commercial ranchers (Ivy 1969), and these have been enthusiastically employed on communal rangelands as well.

"Conservative" stocking strategies (Sandford 1983) have been strongly recommended, and estimates of the carrying capacity of range in different Natural Regions have been based on the need to stabilise beef production in a variable environment by preventing botanical changes in rangeland thought to be indicative of "degradation" (Scoones 1989).

The response of livestock owners in the Communal Lands to the recommendations of extension staff has ranged from a guarded acceptance at times to outright hostility, and another theme running through this history is the use of administrative authority to attempt to enforce change. Resistance to measures such as compulsory destocking had powerful political side-effects, however (Ranger 1985), and for the past 15 years the tendency has been to encourage local communities to themselves develop the institutional capacity to enforce the recommended management systems. The threat of forced destocking has remained, however, and fears that this policy will be resurrected have informed community responses to grazing schemes in recent years.

Grazing schemes have thus always resulted in conflicts: within local commmunities, with excluded neighbours, and between local communities and the state. The political and institutional dimensions of rangeland management have become increasingly important, and in the 1980s have placed the issue at the centre of debates on agrarian reform strategies in Zimbabwe. Less obvious has been the ecological dimension, and the possibiity that underlying the responses of local communities to grazing scheme policies are ecological dynamics and understandings poorly understood by planners and extension officials.

This historical overview of the evolution of communal rangeland policies begins with a brief discussion of pre-colonial land tenure and the question of whether or not there are historical precedents for either the definition of discrete rangeland territories or for opportunistic management strategies. It then summarises the main elements of government policies and programmes in relation to communal rangelands in the colonial and post-independence periods, before attempting to assess their success or failure.

2.2. Pre-colonial land tenure and grazing management

There is no general agreement amongst scholars as to the nature of pre-colonial land tenure and resource management systems in Zimbabwe. The analysis of Hughes (1974) was highly influential for many years: according to him in "traditional" society general rights to land, the "Right of Avail", were acquired by virtue of membership of a community, and from this flowed more specific rights to what the community considered to be "the reasonable use

of the natural resources available to that community" (Hughes 1974: 42). One of these rights was the ,"Right of Pasture", which allowed individuals to herd their livestock on community grazing land.

In Hughes' account the land-holding "community" in fact consisted of a hierarchy of land communities nesting one within the other : the village or "kraal" (musha) within the tribal "ward" (dunhu), the ward within the chiefdom (nyika). Membership within the "community" depended upon acceptance by traditional authority at all these levels, but specific allocations of land for cropping or grazing stock were made at the lower levels, either the ward or the kraal.

In the eyes of Holleman (1969: 88), the ward was the more important territorial community, in terms of which the use of grazing and other natural resources (firewood, water, etc) was regulated. Its boundaries were marked by rivers, streams or hilltops; within the ward the location of the kraal was much more mobile.

Recent work by Scoones and Wilson (1989), Cheater (1990) and Ranger (1985; 1988) has taken the view that these characterisations of "traditional tenure" were largely colonial constructions useful to policy makers engaged in setting up a labour reserve system.

Scoones and Wilson point out that Holleman, an anthropologist, was closely involved in the colonial administration's attempts to institutionalise wards and chiefdoms, as "... part of the effort to strengthen 'tradition' in the face of nationalism and rural administrative breakdown" (Scoones and Wilson 1989: 94). However, attempts to delineate these units generated intractable disputes. J.D. White, an ex District Commissioner who spent some years investigating ward boundary disputes, came to the conclusion that there was a weak historical basis for claims to such territories (cited in ibid: 94). Scoones and Wilson concur with White and state that

> Nineteenth century Shona lived in large homesteads on defended kopje clusters, and farmed the vleis around their bases. Though people had an interest in the large uninhabited "deve" plains areas between the patches of hills, there had been no formal land boundaries within these zones (ibid: 94-95).
>
> .... Concern for chiefly control of particular territories seems to have grown greatly during the colonial era. Following white settler conquest and the eviction of people from their strongholds the population rapidly spread out over these plains, and the "chiefs" moved quickly to gain political and spiritual jurisdiction over the land so as to try to maintain their authority (ibid: 95).

Scoones and Wilson come to the conclusion that in Shona polities in the later part of the nineteenth century there was no institutionalised management: of grazing land, but that it remains an "open question to what degree such institutions existed during earlier periods when Shona were more pastoralist and politically united. .... and possibly operated a pastoral transhumance system" (ibid : 183) .

They quote evidence for the existence of such a system in the pre-colonial Ndebele kingdom, with herds of livestock being moved from the "sourveld" in the wet season down to "sweetveld" areas in the dry season (Cobbing 1976, cited in Scoones and Wilson 1989: 103). This is seen as a form of opportunism since it made use of environmental heterogeneity at the macro-scale.

> Little seems to be known about contemporary Ndebele grazing management systems, though we suspect that they may have much deeper historical roots than among southern Shona.... systems of transhumance have remained important, though nothing is known about whether these are continuations of nineteenth century practices or novel innovations (ibid: 104).

In general, it seems that in Zimbabwe the impact of conquest, settler rule and successive state interventions in political and production systems has so radically changed the relationship between rural communities and their resource base that little or nothing remains of pre-colonial tenure arrangements or rangeland management systems.

2.3 **The** colonial **era**

Concern over high stocking rates and overgrazing in Zimbabwe's Communal Lands was first expressed in the 1920s (Palmer 1977). When persuasion to take up the recommended measures failed to achieve the desired results the colonial state resorted to coercion. This succeeded only in generating a deep-seated resistance to interventions of this kind and souring even further relations between the state and the peasantry. In the late 1960's a **belated return** to the principle of voluntary acceptance led to a certain degree of success.

2.3.1 **The centralisation** policy

In 1926 E.D. Alvord was appointed to study African agriculture, train agricultural demonstrators, and begin programmes which would address the "present chaotic condition in the reserves" (Chief Native Commissioner 1931, quoted in Palmer 1977: 201). Problems of land use were seen as resulting from the increasing use of plough, dramatic increases in human and livestock populations, and changes in the ratio of population to land caused by evictions from European land. Alvord began a programme which included improved crop production through demonstration, conservation, irrigation, and "centralisation". The underlying intention, though, was to "develop the native reserves so as to enable them to carry a larger population and to avoid, as far as

possible, the necessity for acquisition of more land for native occupation" (Chief Native Commissioner 1932, quoted in Palmer 1977: 202).

"Centralisation" aimed to consolidate and fence off large blocks of arable land, with villages being resettled in straight lines so that roads and water supplies could more easily be provided. The "lines" also served to separate arable from grazing land, which would support only a "controlled number of livestock". Thus centralisation involved the movement and localised resettlement of large numbers of the rural population.

According to Weinrich (1975: 67) the scheme was popular and met with no apposition, but Palmer finds evidence for this only in Selukwe, where its aims had been "exhaustively explained" and Chief Nhema asked for the whole reserve to be centralised. Elsewhere centralisation was regarded as yet another means of reducing African land holdings, and was met with suspicion and hostility. Phimister states that

> .... at first a considerable effort was made to persuade cultivators of the benefits of centralisation and in many cases peasant acquiescence was freely given, but where people were not prepared to cooperate voluntarily, individual officials used force with the backing of the state (Phimister 1986: 271).

By 1933 Alvord had become convinced that "conditions on some reserves can only be remedied by making centralisation compulsory" (quoted in Palmer 1977: 221). In 1939 the Mcllwaine commission of enquiry into natural resources was of the opinion that:

> Many of the Native areas are heading for ruin through overstocking and .... unless something is done to regulate the number of stock in the others large stretches of land will become useless (Southern Rhodesia 1939, quoted in Scoones 1990: 129).

Attempts to persuade people to engage in voluntary destocking, however, met with completely negative results, and compulsory culling began to be enforced. The Natural Resources Board promulgated regulations for compulsory destocking, and a 5 year destocking programme was initiated in 1945 (Passmore 1972: 26).

Targets for destocking were announced in the most "overgrazed" reserves, in order to bring stock numbers down to the estimated carrying capacity. Permits were issued to regulate the number of cattle held, usually to a maximum of 4 to 5 head per family, and in some areas reductions of up to 60 percent were required. Excess stock were branded at diptanks and then had to be sold on local markets, usually to white commercial farmers who bought large numbers of stock at low prices. Herd owners tried to evade destocking by placing their animals on neighbouring farms or with stockless relatives, but these measures were not always effective (Scoones 1990: 132).

Destocking was bitterly resented, and even some colonial administrators had doubts as to the wisdom of the strategy:

> In achieving the object of reducing the total stock holdings to its carrying capacity we are at the same time in some cases reducing individual holdings to an uneconomic figure (Chief Native Commissioner, Annual Report 1948, quoted in Scoones 1990s 134).

Native Commissioners also sometimes pointed out the apparent contradiction between "overstocking" and cattle which remained" in good condition, and noted the existence of patches of grazing of exceptional quality within the grazing areas:

> Native cattle have come through an appalling period of heat and want very well. .... Of course, there are places where the banks of streams kept moist and supply a fair amount of grazing. Here cattle kept fine (Native Commissioner, Selukwe, 1937, quoted in Scoones 1990: 147).

Despite these inconsistencies, the weight of technical opinion was on the side of reducing livestock numbers within the reserves. By 1946 an estimated 3.5 million hectares had been centralised, and between 1946 and the end of 1948 over one million head of cattle were disposed of under the destocking programme (Phimister 1986: 273). But the Land Apportionment Act of 1930 had seen tens of thousands of Africans moved into the reserves from European land and population pressure was still great. Only a minority of the population was adopting Alvord's fanning methods. By the end of the 1940s a majority of administrative and technical staff were agreed that legal compulsion was necessary to enforce "proper methods of tillage and sound pasture management" (Alvord 1949, quoted in Passmore 1972: 25).

2.3.2 The Native Land Husbandry Act of 1951

The Native Land Husbandry Act of 1951, the statutory instrument through which compulsory planned production was to be achieved, was also a major attempt to restructure communal tenure. As in the centralisation programme this involved an attempt to reduce inequalities in arable land holdings, reduce herd sizes through destocking measures, and reallocate arable, residential and grazing land.

The aims of the Act included :

> * allocating individual rights in arable lands and in the communal grazing on the basis of "economic units" (for cropping land this was estimated to be about 2.4 hectares per household);
>
> * limiting the number of stock in any area to its carrying capacity, and relating stock holding to arable holding as a way of improving farming practice;

* providing individual security of tenure in arable land and individual security of grazing rights in the communal grazing (Duggan 1980: 230).

It was also to be made a condition of the allocation of such rights that "good husbandry methods be observed", with penalties for non-compliance (Garbett 1963: 191).

Each reserve was extensively surveyed and mapped and the fertility and extent of grazing and arable lands was assessed. A ratio of grazing land to arable of about 10:1 was regarded as optimum, and a "safe carrying capacity" was declared after surveying. A "standard number" of cattle was then calculated by dividing the carrying capacity by the number of individuals eligible for grazing rights, and expressed in terms of "animal units" (5 small stock = 1 animal unit). Grazing rights were then allocated in terms of animal units and provision was made for pro rata reductions if it was found that the declared safe maximum number had been exceeded (Garbett 1963: 191).

The state planners realised that the land available under the Land Apportionment Act of 1930 would be insufficient for the population of the reserves when these kinds of formula were applied, but hoped that the buoyant urban economy of the time could absorb the "unsuccessful farmers" together with those members of the new generation who would have no land rights.

Negotiation and explanation were stressed in the early years of implementation of the Act, and the Native Commissioners were required to ensure that full consultation with the tribal authorities took place. According to Passmore (1972; 24), in some areas people welcomed the programme and applications for individual allocations overwhelmed the limited staff available to them. An official report in 1957, however, indicated that in areas which were heavily populated and overstocked there was strong opposition. In 1958 the Natural Resources Board reported that "certain areas which had been destocked with considerable difficulty and unpleasantness five or six years ago are now 100 percent overstocked" (quoted in Garbett 1963: 194).

Part of the problem was that the expected increase in employment opportunities failed to materialise. Also, compulsory resettlement of Africans from European land, in terms of the Land Apportionment Act, had by 1960 removed 113 000 people to the Reserves. Official reasons for the slowing down of implementation of the Act by 1961 were (a) insufficient attention to sorting out "human problems in individual cases" (b) political agitation on behalf of those with no claim to land (c) shortage of staff (d) doubts as to the suitability of the scheme in the lowveld (Passmore 1972: 31). By 1960 individual tenure had been effected in relation to only 10% of African land.

The mounting number of landless people, together with population growth, led to an increased demand for farming land, and in 1962 an amendment to the Act was passed allowing cultivation in land previously demarcated as grazing. Plans were made for the

development of nearly six million hectares of land in such remote and sparsely populated areas as Mt. Darwin, Urungwe, Binga, Gokwe and Nuanetsi. It was recognised that compulsion to adopt "scientific farming methods" was not practical in these circumstances, and in 1964 allocations of land in terms of the Act were suspended.

Part of the resistance to the Act was explained by Holleman in terms of the "underevaluation of indigenous land rights" by colonial administrators. The Act aimed to provide individual security of tenure but it ignored the fact that under "customary law" an individual already had security as a result of his vested right as a member of the community to a share of the land (Holleman 1969: 63). In fact, the Act deprived a great many individuals of their rights and together with the forced resettlement of many from European lands led to a great increase in the number of landless people in the reserves.

Both centralisation and the Native Land Husbandry Act failed to achieve the goal of re-organising the rural economy in terms of what were deemed scientific principles of land use. Underestimated were the economic necessity for households with a foothold in both the rural and urban sectors to retain rights in arable land and to maintain herds of livestock, and the ways in which communal tenure was enmeshed with the production system and provided a degree of security lacking in a system of privatised rights. Discontent with the inequities of the overall distribution of land in the country and with the socio-political order in general, thus merged with a deep rooted resistance to state interventions in peasant land use systems.

Together with resentment of the settler state's role in underpinning white agriculture at the expense of peasant production, these issues came to constitute the "land question", a major motivating force underlying rural support for the guerilla war of the 1970s (Ranger 1985).

Yet despite their failures both centralisation and the Native Land Husbandry Act made a lasting impact on the pattern of settlement in the Communal Lands, and their effects can still be seen today in, for example, the "lines" in which many homesteads are still located, in the grazing areas still understood to "belong" to particular groups, and in the size and location of certain individual arable holdings.

The tenure system and local definitions of the boundaries of communal resources thus adjusted to and incorporated the enforced movements and redesignations that these programmes entailed, and many of the boundary disputes which have marked the implementation of grazing schemes in recent years had their origins in demarcations first made in the 1940s and 1950s.

2.3.3 The early 1970s : the phase of "community development"

In the early 1970s the state gave belated recognition to some of the institutional realities while still attempting to achieve the technical and economic objectives of the Native- Land Husbandry Act. The Tribal Trust Land Act of 1967, the provisions of which were subsequently incorporated into the Land Tenure Act of 1970, gave legal recognition to bodies known as Tribal Land Authorities. These corresponded to the 252 chiefdoms in the reserves, which had been redesignated "Tribal Trust Lands". Within their boundaries the "chiefdom community" supposedly had the right to allocate land and decide how it should be used. In theory it could also decide which institutions should be responsible for making local rules for allocation and good land use, and could make its own by-laws for the enforcement of such rules (Hughes 1974: 149).

These arrangements were complementary to the new policies of "community development", the decentralisation of rural administration, and the return of judicial powers to the chiefs. Since measures imposed from above had failed, the new policy aimed "to inspire collective action by the people in measures for their own advancement" (Passmore 1972: 123), and to build "responsible" and "self-reliant" communities.

At the same time, and perhaps more importantly, the state was pursuing a policy of "indirect rule, by fortifying the position of traditional leaders" (Bratton 1978: 25). The return to the chiefs of some of the powers which they had lost through conquest was used to attempt to legitimise the Rhodesian Front's claim to independence without majority rule. The new policies were thus partly a response to the political problems caused by the Native Land Husbandry Act and the rising tide of nationalist agitation.

With regard to land, it was stated that traditional authority would "control the changes which are necessary in traditional ways of life to permit permanent settlement and development to take place" (Murton 1971: 5). Yet a large degree of control was retained by the state through the District Commissioners, who were, for example, entitled to intervene in the work of the Councils and to invalidate the decisions of the chiefs, including those on land allocation. The Chief Planning Officer in the Ministry of Internal Affairs, T.A. Murton, emphasised the need for education to change attitudes before by-laws were passed and enforced, but nevertheless stressed that in the initial phase of development a "measure of discipline" had to be "imposed", in the mechanical protection of all arable land (Murton 1971: 6).

What constituted a Tribal Land Authority (TLA) was never clearly defined. According to Hughes (1974: 15) many officials assumed that these bodies would be agents of government departments, and some agricultural officers suggested that they themselves nominate TLAs and through them personally control all allocations of land rights. Some chiefs nominated a few "progressive farmers" as their TLAs, others described themselves as "the TLA", and yet others said that their TLAs consisted of themselves, their

headmen and all their kraalheads.

In 1973 it became government policy to identify groups at a lower level in the hierarchy of land communities, comprising several kraals and yet not as large as a ward, and for these to become the primary focus of development efforts. Although the TLA would retain ultimate authority, the aim was to encourage these "development areas" to claim rights of exclusion over defined territories, including grazing areas, and even to fence off these areas of land. Ultimately what was envisaged was the replanning" of arable blocks and local boundaries and the "reorganisation of a haphazard settlement pattern" (Murton 1971: 7). The grazing-schemes which proliferated in the early 1970s were the fruits of this new policy.

2.3.4 Grazing schemes in the 1970s

According to Froude (1974) the small number of two paddock grazing schemes in Victoria Province before 1967 had brought little improvement to the condition of rangeland. Extension efforts in relation to range management began in earnest in 1968 when multi-paddock Short Duration Grazing schemes were first introduced. The accent was on persuasion rather than coercion, and great importance was attached to agreeing the boundary of a scheme with the chief, his headmen and the surrounding kraalheads (masabhuku). Planning consisted of demarcating arable and grazing areas, dividing the grazing into a minimum of 5 paddocks, allowing for stock routes to dips and kraals, making provision for existing and potential water supplies," and siting the homesteads.

During the planning stage the people were "consulted at every stage so that they feel part of the process" (Froude 1974: 29). A committee to manage the scheme was either appointed by the chief or elected locally, and consisted of a chairman, secretary, treasurer, ranger, and other members. The committee was given training and then kept records, managed the finances, organised labour for fencing, and controlled day to day herding. Levies were raised from members for fencing, and fines were imposed for grazing cattle in the wrong paddock.

By 1974 there were reported to be 315 grazing schemes in Victoria Province, covering 221,000 ha or about 11 percent of the total area of the province. On average the schemes incorporated the land under 3 kraalheads and 60 households (within a range of 8 - 120 households), and covered 700 ha of which 300 ha was grazing and 400 ha was arable and treated as a winter grazing paddock. (Sandford 1982: 103-104). Just how many of these schemes were operational and how many remained at the planning stage is not clear.

In some cases fencing was not used and cattle were herded in paddocks marked by beacons. In others fences were erected using monies collected within the community together with prize money from grazing competitions organised by the Natural Resources Board. In the 20 schemes studied in some detail by Danckwerts (nd

- around 1974), an important motivation in adopting-the scheme was the reduction in herding time it afforded, although this was outweighed by the perceived benefits to grazing and to livestock. Membership of the grazing scheme comprised all households in the community, and contributions (in labour or cash) were usually demanded in equal amounts from all members.

The schemes in Danckwerts' study were characterised by high stocking rates, well in excess of those recommended for the Natural Regions concerned. A simplified form of Short Duration Grazing involving a standardised rotation was promoted, but fully and effectively implemented in only some schemes - in others there was virtually no rotation practised at all. Eight of Danckwerts' sample of 20 schemes made some effort to limit stock numbers and two intentionally reduced the size of the community herd. Problems were encountered in excluding cattle belonging to outsiders, internal conflicts were found in some schemes, and in areas which were heavily stocked and on infertile soils enthusiasm for the schemes was not always very high.

Nevertheless, extension officials found that the condition of rangeland showed considerable improvement in some schemes, and in others showed either marginal improvement or no deterioration despite the high stocking rates. Two pasture specialists who assessed rangeland condition in the schemes were

> amazed that heavily stocked veld in schemes where grazing control was satisfactory, was at least holding its own against further deterioration. They were also incredulous at the comparatively low stock losses with present stocking rates and levels of forage production after the exceptionally poor rainy season of 1972/73 (Danckwerts nd: 58).

In all the schemes visited by Danckwerts the grazing scheme committee members believed they now had the right to restrict neighbouring communities.' access to summer grazing, leading to bitter boundary conflicts in some instances. In many schemes exclusive rights to wildlife, thatching grass, winter grazing and other resources were also claimed.

These changes in traditional rights and the new powers granted to the committees had all been sanctioned by the chiefs' dares (traditional councils) before the schemes were introduced, and the authority of the committees was accepted within the communities concerned. Adequate judicial support for enforcing the new rules on grazing was forthcoming in those schemes which either had chiefs resident in them or had chiefs as strong supporters, or alternatively had strong kraalheads (masabhuku) capable of obtaining such support. The success and smooth running of the grazing schemes thus depended on the active support of the traditional authorities, who constituted, according to Danckwers, an "effective leadership".

From the .mid-1970s onwards, virtually all grazing schemes ceased to operate due to the war and the breakdown of government and

traditional authority that it entailed. Froude (1974) had warned that as population pressure grew the trend was for grazing land to be put under the plough, and Sandford (1982: 105) has speculated that the underlying reason for the collapse of the schemes was probably population growth and the consequent pressure on scarce resources.

State interventions in grazing regimes in the communal areas were thus more successful in the late 1960s and early 1970s than in previous decades. The direct attack on communal tenure was abandoned and no attempt was made to impose a destocking policy. Instead voluntary participation, community management, and the cooperation of traditional authority were given first priority. Major replanning of land use and relocation of lands and homes were intended to come only at a later stage.

The willingness of groups and traditional leaders to accept new boundaries for exclusive access to grazing and other resources may have arisen from a growing awareness amongst rural communities that with population growth these resources were becoming relatively scarce and that a claim to them needed to be staked.

2.4 The post-independence period

The achievement of independence in 1980 and the coming to power of a majority rule government with an ideology of scientific socialism radically altered the political context of rural development policies in Zimbabwe. The guerilla war waged in the countryside led to a fundamental change in the relationship between the state and the peasantry, since the latter continued in the post-independence period to constitute the political base of the ruling party. In many respects the state was now perceived to have become a benevolent provider of improved infrastructure and services, rather than being a coercive instrument of settler rule

However, government policies have also manifested many continuities with those of the pre-independence era (Mumbengegwi 1986). Some of the problems encountered in the implementation of grazing schemes have their origin in the muted but nevertheless strongly felt resistance by rural producers to state interventions in locally evolved systems of land use, patterns of settlement and tenure. Other conflicts have arisen between different interest groups within communities . Both the definition of what "sound land use" really is, and measures for its control and regulation, have continued to be sites of struggle.

2.4.1 Communal land tenure since independence

The Communal Land Act of 1982 made the allocation of land in the communal areas the repsonsibility of District Councils, depriving Tribal Land Authorities of these powers. District Councils are elected bodies with jurisdiction over much larger areas than the politically discredited African Councils which they had replaced in 1980. In allocating land, however, Councils are directed to

"have regard to customary law" and to "grant consent to persons who according to the customary law of the community...are regarded as forming part of a community" (Republic of Zimbabwe, 1982a: *136").* Thus although a new local government institution based on universal suffrage has been given authority over the allocation and use of communal land, the underlying system of "communal tenure" has not been subject to legal redefinition.

District Councils cover very large areas, and the situation at a more localised level has remained confused. In creating the District Council system in 1980, the new government had chosen to ignore the village committees which had emerged as embryonic forms: of local administration in many areas in the latter years of the war (Sanders 1984: 6). Linked closely to the guerilla forces, these committees had been in one sense organs of ZANU (PF), but in some areas had functioned as popular representative institutions controlled by community interest groups rather than by the party (Ranger 1985: 291). According to Kriger (1988: 318) these committees were also sometimes the site of intra-community power struggles; one important issue in these was the abuse of land allocation by ruling lineages.

Some local party leaders have attempted to retain their influence and authority in matters of land allocation and development programmes in general. "Traditional" leaders (masabhuku, headmen, chiefs) have also not given up their powers without a struggle, and moreover have enjoyed a degree of popular support (Ranger 1985: 297) . In some areas it is clear that masabhuku are the most important authority in respect of land (Cousins 1990: 23). Scoones and Wilson (1989: 83), however, assert that the most likely general pattern is one of effective control over land allocation by the "shallow patrilineage".

The creation of Village Development Committees (VIDCOs) and Ward Development Committees (WADCOs) in 1984 complicated the situation even further. Thus it was reported in December 1985 that there was "widespread confusion between party structures, village development committees and chiefs in Gutu communal land over who had authority to allocate land" (The Herald, 17/12/85).

In 1990 it was announced that chiefs were to have their judicial powers in respect of customary law restored. This was in response to the perceived lack of success in implementing the village and community courts system initiated after, independence, and to the continued agitation by chiefs for official legitimation of their continued prestige within rural society. Their goal now is restoration of their powers over land allocation, but government has indicated that it will not give way to this demand.

In addition to confusion over which institution or agency exercises land allocation powers, ambiguity remains in respect of many other aspects of "communal tenure" e.g. eligibility for claiming an allocation of land, procedures to be followed, inheritance of rights, female rights, the alienability of homestead buildings and improvements as well as fields, and rights and duties of absentee land holders. What little evidence

exists on de facto practice as opposed to de jure idealisations suggests a great deal of regional variation (Cousins 1990: 23-24). In some areas a degree of individualisation of tenure has taken place and cash transactions for land rights are being negotiated.

A fundamental feature of the system in all cases is the right of access to common property resources such as grazing, woodland, thatching grass and water supplies which membership of a local community entails. Although a limited form of "commoditisation" of arable land is taking place, individual proprietorship is still embedded in a larger "communal" tenure system in which access to the commons is important.

2.4.2 Local government and land use planning

In February 1984 the Prime Minister issued a directive announcing the establishment of a new structure of development planning. The structure includes VIDCOs, WADCOs, Rural-District Councils and Provincial Councils headed by Provincial Governors, and was intended to bring about a decentralisation of planning and supervision, more effective coordination of rural development activities, and greater participation of local communities in development planning (Murombedzi 1987).

A large scale exercise to delineate the boundaries of VIDCOs and WADCOs took place in 1984/5. VIDCOs incorporate about one hundred families and WADCOs represent six VIDCOs. The chairman of the WADCO is the Councillor representing the ward on the District Council. The boundaries were demarcated by officials of the Ministry of Local Government and Town Planning using mainly demographic criteria (i.e. numbers of households). Kinship ties and allegiance to "traditional" leaders such as masabhuku were largely ignored, but a certain degree of renegotiation of boundaries subsequently took place in response to popular pressure (Murombedzi 1987).

The delineation of VIDCO boundaries was also carried out without regard to natural resource endowments, for example, grazing areas used by different villages. It was the strong feeling of extension staff at the time that this would make effective development and land use planning very difficult. However, The Department of Agricultural Technical and Extension Services (Agritex) anticipated a demand for land use planning at VIDCO level and began to develop training courses to provide grassroots extension staff with the skills they would require should this" occur.

The new institutions have experienced many teething problems. Although development plans are now supposed to originate from the grassroots (i.e. villages) and after ratification at higher levels (Ward, District and Province) eventually become part of ministry programmes at central government level, mechanisms and procedures for ensuring that this takes place have not yet been developed. Planning and budgeting for rural development continue to be carried out from the centre. Other obstacles have been a

shortage of technical staff to assist in the drawing up of plans and problems of inter-ministerial coordination. According to Murombedzi (1987: 12) government departments have thus far tended to use VIDCOs and WADCOs mainly for mobilising, motivating and supervising people to implement centrally designed projects.

In 1986, a pilot "villagisation" programme was initiated in 55 villages, one in each of the 55 districts. Agritex, together with the Department of Physical Planning, was directed to demarcate arable and grazing areas, assess overall water requirements for human, stock and irrigation purposes, and plan for consolidated village settlements. The aims of this programme were twofold : to make easier the provision of services such as water and electricity to rural communities, and to reorganise land use in the Communal Lands. Communities were selected for the programme rather than volunteering themselves. A major issue which arose in discussions between government officials and community members was that of compensation for the building costs incurred when homesteads are relocated in consolidated settlements.

The rationale behind these initiatives is stated most explicitly in the Five Year National Development Plan (1986-1990) (Republic of Zimbabwe 1986). In addition to an intensification of the resettlement programme with an annual target of 15 000 families, the Plan announced government's intention to re-plan land use patterns in the Communal Lands in order to achieve "optimum exploitation of the agricultural resource potential on a sustainable basis". Internal reorganisation was seen as a form of resettlement, "on the basis of which potential settlers for the translocation resettlement mode are identified". With regard to livestock a "comprehensive national programme", including stock control, better land management and "destocking where necessary" was envisaged (Republic of Zimbabwe 1986: 27-28).

Government's desire to have land use in Communal Areas controlled by local government institutions is most visible in the Communal Land (Model) (Land Use and Conservation) By-laws of 1985. These are designed to be adopted by District Councils and take effect as if they were by-laws made by the Council itself. Councils may specify "grazing areas", and in consultation with the District Administrator "specify the maximum number of livestock which may be grazed" within these. The Council may also require owners to reduce their stock. "Plan areas" may be declared and persons who are not members of communities within these areas may be prohibited from grazing their stock or cultivating land with the plan area. Conservation measures may also be enforced. Exactly how many District Councils have adopted these Model By-laws is not known.

Since 1986 grazing schemes have been promoted by Agritex in conjunction with villagisation and land use planning programmes (sometimes called "communal area re-organisation"). Researchers have reported resistance in some areas to plans for paddocking, relocation of homesteads and consolidation of villages (Scoones 1990: 460; Drinkwater 1989: 304). The tension between central and local control of land use and between forced and voluntary change

which has marked the history of relations between the state and the peasantry has thus re-emerged in the post-independence era. Some extension staff who remember the negative after-effects of the Land Husbandry Act have expressed doubts about the wisdom of this kind of "top down planning" and have said they would prefer a longer term programme of extension and persuasion.

2.4.3 Grazing schemes after independence : early initiatives -

The ending of the war in 1980 saw order returning to the countryside, and extension staff again began to promote grazing schemes. In mid-1982 the Chief Veld and Pastures Officer at the headquarters of the newly formed Department of Agricultural Technical and Extension Services (Agritex), sent a memorandum on grazing scheme extension to all Provincial Agricultural Extension Officers. The memorandum advised field staff to give maximum publicity to the idea of grazing schemes, to engage in a training programme which would start at District Council level and work its way downwards, to reintroduce grazing competitions, and to start schemes only "when the people wanted them". Planning was to be kept simple and overstocking disregarded for the time being. The memorandum stated that the technical design of schemes should be based on Short Duration Grazing (SDG), with four to eight paddocks per scheme and water supplies within three and a half kms walking distance.

It was also advised that funds for fencing were available from the European Economic Community (EEC) and a formula for sharing of costs was laid down; 25% from the community (in the form of either cash or labour for fencing), 25% from government (mainly in the form of staff salaries and transport), and 50% from the donor (for purchase of wire and fencing standards). Over time a procedure evolved for obtaining donor funding from the EEC and other agencies. A project proposal conforming to a standardised format had to be submitted. This included a detailed plan of the layout of the scheme, an estimation of carrying capacity, and proposed stocking rates. The community concerned had to agree to take action to maintain the viability of the scheme , usually in the form of stock limitation. In some cases a set of by-laws regulating the operation of the scheme had to be drawn up and signed by grazing scheme committee members before funding was approved (Cousins 1988).

Subsequently, other donor agencies also began to assist in the setting up of schemes, notably the Lutheran World Federation (LWF) and the German Agency for Technical Development (GTZ). The former also funded water development within the community, pen-fattening facilities, upgrading of bulls, and offered assistance with restocking when herds were being rebuilt following drought. GTZ initiated an ambitious integrated rural development project in Gutu District in which grazing schemes formed only one component of the overall programme (Stiltz and Weyl 1986).

1982 saw the onset of a severe drought which was to last three years and which resulted in reduced forage production and increased cattle mortality rates in many Communal Lands. It may

be that the positive response given to Agritex's initial programme of grazing scheme extension was prompted by livestock owners' experience of the often absolute lack of available forage in many areas at this time. The decline in stock numbers was seen by some extension staff as an opportunity to begin grazing schemes with stocking rates closer to those recommended by veld and pasture (ie rangeland) specialists.

Many of the communities which indicated their willingness to start grazing schemes were those in which schemes had first operated in the early 1970s. In some cases committees were elected comprising exactly the same members as in the earlier period. Some of these resuscitated schemes were proposed for donor funding, and after following the established planning procedures received fencing materials which were then erected using community labour. Following this route, implementation could take several years.

Other communities either did not apply for funding or were unsuccessful in their efforts to obtain external assistance, but nonetheless were reported by extension staff as putting into practice systems of rotational grazing within "paddocks" which were marked by means of beacons, marked trees or cleared ground. In Mhondoro, one Communal Land in which a number of such schemes of pre-independence origin were said to have been revived, the rotations followed were not based on the SDG system but rather on a simple alternation of resting periods. In Zimuto, on the other hand, extension staff claimed that unfenced schemes were using 4 to 5 "paddocks" for grazing periods of about two weeks i.e. a simplified version of SDG.

The Mwenezi Radical Land Reform Programme in Masvingo Province had its genesis in 1982 when an energetic District Administrator and some of the elected District Councillors began to promote the idea of a voluntary reorganisation of settlement patterns. The programme involved surveying the area to determine available grazing land, introducing Short Duration Grazing within fenced paddocks, resettling homesteads and relocating fields out of the grazing areas into consolidated village settlements, and improving water supplies to both households and livestock. Arable lands were to be consolidated into large blocks, but cropping was seen as secondary to livestock production (SADCC 1986: 3) . By 1984 the first villages to accept the proposals were beginning to implement the programme with funding from EEC and GTZ. Mwenezi was given a great deal of publicity, and some government planners intended that it should form the pilot scheme of the (ultimately not implemented) National Land Use Programme.

2.4.4 The National Land Use Programme

In 1982 the Transitional National Development Plan was published, with a great deal of emphasis being given to Communal Land development. The Plan contained the following statement :

> government will investigate the legal, institutional, social and economic aspects of the traditional

communal system with a view to its modification to achieve the following:-

1) membership of the local community expressed principally in terms of management of common assets, the individual right to share in the communal assets, separated from individual, group or communal exploitation of them;

2) establishment of equal membership rights for men and women;

3) a control system, overseen by Government but managed by the members, to prevent over-exploitation and misuse of natural assets; and

4) realisation of an agrarian system able to optimise land use patterns and maximise group and individual investment and effort (Republic of Zimbabwe 1982b, p66).

In 1984, a programme to give concrete expression to these ideas was proposed by senior officials in Agritex advised by the Chief Economist in the Ministry of Finance, Economic Planning and Development. Explicit reference was made to building on the experience of the Mwenezi programme. The proposal involved the formation of Community Land Societies in each ward, subward or village, which would become members of the National Land Use Programme and receive technical, managerial and financial assistance. Traditional land tenure was to be modified, with membership of a Society being defined in terms of: (a) equal voting rights and (b) equal shares in the common property assets controlled by the Society (grazing, forests, irrigation sources, arable land). . .

The number of Livestock Units (or allocations of arable land, irrigation land, etc) per share was to be determined by Agritex. Temporary leases of unused shares to others within the community would allow compensation for non-use and establish a price for grazing and other common property assets.

A national agency was to be established which would carry out land use and implementation planning and enter into formal agreements with individual societies to assist with execution of the plans.
The proposal failed to generate support at the highest levels of government and was eventually shelved. A bold attempt to. restructure communal land tenure, it was never actively promoted by more than a handful of senior planners in government and was not seriously discussed at village level.

2.4.5 Grazing trials and related research

One of the problems confronting policy makers and planners in the early 1980s was the lack of reliable information on livestock in the Communal Lands and the absence of proven and appropriate

technologies for improving production. Since independence the neglect of the peasant sector by agricultural research scientists has been deliberately reversed, and the limitations of current knowledge have been widely recognised. A review meeting of the Farming Systems Research Unit (FSRU) in the Department of Research and Specialist Services (DRSS) in 1984, noted that livestock production in the communal areas had been almost completely ignored in the past and almost nothing was known about it (Mombeshora 1985: 84).

A research programme was initiated by FSRU and other sections of DRSS which emphasised nutrition as the major constraint to improved productivity. The question of stocking rates and overgrazing soon became a controversial issue. The mainstream view which had dominated in the past was challenged by Sandford in 1982 in an influential consultancy report on livestock in Zimbabwe's Communal Lands. Sandford put forward the view that there is little direct evidence of irreversible environmental degradation as a result of overstocking, and argued that no justification existed for a draconian policy of state control of stock numbers. Since the majority of rural households have insufficient access to draught power, manure and milk, such a policy would have severely negative effects on their welfare. Sandford called for a re-evaluation of the conventional wisdom on carrying capacity and degradation, and suggested that research be carried out on appropriate stocking rates for communal areas which take into account the production objectives of peasant farmers (Sandford 1982).

Advocates of Allan Savory's Holistic Resource Management (HRM) approach also called into question mainstream opinion on overstocking. In the HRM framework semi-arid zones are seen as "brittle" environments which are dependent on animal disturbance rather than climate for the maintenance of stability and diversity. In HRM the essential elements for managing brittle environments are the manipulation of numbers of animals in defined units of land (paddocks) for specific lengths of time; the greater the number of paddocks the more effective this manipulation can be. It is claimed that high levels of production can be achieved at high stocking rates without damage to the environment.

In 1986 a team of six Zimbabweans attended an HRM training course in the United States, under the aegis of the Prime Minister's Office, with the aim of attempting to implement this approach in the Communal Lands on their return. No results of this initiative have been reported as yet, but Savory continues to make regular visits to Zimbabwe to propound his views and appears to have a number of supporters.

Partly in response to this debate, Agritex in 1985 proposed a "grazing trials" research project aimed at testing the feasibility of grazing schemes and identifying constraints to their implementation. The trials were to form part of the National Agricultural Extension and Research Project which began in 1983 with a World Bank loan.

The basic assumption underlying the proposed trials was the view that grazing schemes which provide periods of rest during the growing season allow for improvements in veld condition, even under high stocking rates. Four grazing schemes were *to* be selected, each in a different Natural Region, and divided into four cells. The four different treatments were to consist of :

a) Split season grazing management with stocking rates at double the assessed carrying capacity (i.e. the present situation in most Communal Areas)

b) As for a) but with stocking rates equal to assessed carrying capacity.

c) Continuous grazing at double the assessed carrying capacity.

d) A Short Duration Grazing system, using eight paddocks, at double the assessed carrying capacity (Ivy 1985).

Diagnostic and baseline surveys were to be followed by studies to monitor the biological, socio-economic and attitudinal aspects of grazing schemes. Community participation was to be sought through District Councils, WADCOs and VIDCOs. Agritex field staff under Provincial Agricultural Extension Officers were to be responsible for coordinating the projects.

This proposal was never implemented, however, mainly because of the doubts expressed by Agritex staff. It was felt that full and effective community participation would be problematic in most cases, and that it was unlikely that the strict control over grazing practices required would be maintained.

In 1986/87 a Veld Trend Monitoring programme was initiated by Agritex's Animal Production Branch. This aimed to monitor trends in rangeland condition in 7 grazing schemes over a five year period. Condition was to be assessed using criteria of dry matter production, basal cover and species composition i.e. from within the succession theory framework which has been used to develop range condition scoring techniques in Zimbabwe.

In the late 1980's Scoones' research on ecological dynamics in grazing systems in southern Zimbabwe gave rise to the notion of alternative designs for grazing schemes based on "key resources'' (Scoones 1989a). Although a number of reports recommended that the feasibility of these designs be seriously investigated (e.g. Cousins 1988; Cousins et al 1989), this has not yet taken place..

2.4.6 Characteristics of grazing schemes in the mid-1980s

A survey of current grazing schemes in the Communal Lands was carried out in late 1986 (Cousins 1987). Data from a total of 106 schemes were analysed, estimated as representing 85 percent of operating or planned schemes at that time.

Grazing schemes still at the planning stage numbered 56, and 50

were claimed to be operational; of these 36 were unfenced or in the process of being fenced and 14 were fully fenced. Schemes were found in all agro-ecological zones except Natural Region I, and over half were located in Regions IV and V. A Short Duration Grazing (SDG) system was being practiced or proposed by 66 percent of all schemes, with a rotational rest system being used by another 23 percent, of which the majority were unfenced schemes.

Despite the fact that 83 percent of schemes were in Regions III to V, where recommended stocking rates are between 1 Livestock Unit (LU): 6 ha and 1 LU: 15 ha, in 84 percent of all schemes the stocking rate was higher than 1 LU: 4 ha.

Nearly 43 percent of all schemes had first operated in the pre-independence era and had been revived since 1980. Donor assistance for the purchase of fencing materials had been provided to all 14 fenced schemes and promised to another 20, of which 5 were operating unfenced schemes and 15- were being planned. The EEC was the largest single donor agency (13 schemes).

The most commonly perceived benefit of a scheme, as reported by extension staff, was the reduction in herding time afforded by fencing. Improved cattle performance and rangeland condition were also mentioned by significant numbers. The most commonly perceived disadvantages were the fear of stock limitation and potential conflicts either with neighbouring communities or within the community. Boundary disputes were reported in 36 percent of the schemes, and these were more likely to occur in the case of fenced schemes. Internal conflicts derived most commonly from the need to have some homesteads or arable fields relocate out of grazing areas.

The great majority of schemes (89 percent) had elected management committees, and "traditional" leaders (masabhuku, headmen or chiefs) were found on 86 percent of these. By-laws were reported as having been agreed to by 72 percent of schemes with committees. Non cattle owners participated as equal members of the scheme in all cases except one, and equal contributions of cash or labour for the erection of fences were expected from all members in 82 percent of schemes.

About a third of these schemes were roughly the size of a VIDCO in terms of numbers of households (71-140), and two thirds wer either much bigger or much smaller. The relationship between VIDCOs and grazing scheme committees was variable but in most cases not clearly defined. By-laws for managing the schemes were usually suggested to communities by extension staff rather than originating from within, and their adoption was usually a pre-condition for receiving donor assistance. Most by-laws gave Agritex staff the authority to determine stocking rates and the timing of rotations.

This report recommended that unfenced grazing schemes be further investigated since they appeared to have the potential to

overcome some of the common problems faced by grazing schemes. Grazing management by means of herding between beacons or markers obviated the need for expensive fencing which communities could not themselves afford, and implementation of a scheme was thereby speeded up. The lack of fencing appeared to reduce the likelihood of boundary disputes because of a greater flexibility as to "whose cattle graze where". Greater flexibility in decision making on stocking rates and rotations also appeared to be possible.

A sample of 31 of these 106 schemes was visited between late 1987 and early 1988 in order to investigate in greater depth aspects" of decision making and conflict within grazing schemes (Cousins 1989) . This survey revealed that boundary disputes were much more common than reported by extension staff (they occurred in 77-percent rather than 36 percent of cases), and levels of internal conflict were also high (35 percent experienced major internal conflicts). This was more likely in planned than in operating schemes.

In 14 schemes the views of respondents on the viability of unfenced schemes were obtained. In 4 of these it was felt that grazing management without fences was possible, but many problems were caused by the invasion of neighbours' cattle and by the difficulties of herding within unfenced "paddocks". In 10 cases respondents felt that these problems made the whole notion completely unviable. There was generally little enthusiasm for unfenced schemes.

In 14 schemes by-laws included rules regulating resource utilisation in one form or another (e.g. rotational grazing, tree felling, cutting of thatching grass). In only 7 cases did grazing scheme members state that the by-laws included a provision for the control of stock numbers. In 4 schemes which were EEC funded it was found that two sets of by-laws co-existed. A formal set, drawn up Agritex or the District Council, and signed by the committee as a precondition for funding, included a stocking rate by-law. Another set appeared to have been drawn up at community or committee meetings and included rules not appearing in the "official" by-laws; these made no mention of stocking rate controls.

These surveys revealed that the planning and implementation of grazing schemes had become problematic in respect of: the high cost of fencing and the boundary disputes it tended to generate; the sensitivity of the issue of stocking rates and control of stock numbers; ambiguity as to where the locus of institutional control over stocking rates and grazing rotations lay; lack of clarity on the relationship between grazing scheme committees, "traditional" leaders and VIDCOs; and a perceived shortage of grazing land in many communities (Cousins 1987: 68).

2.4.7 Grazing schemes in the late 1980's and early 1990's

The late 1980's saw the initial enthusiasm with which donors had greeted the grazing scheme programme diminish somewhat, and by

the early 1990's most fencing for schemes was being provided by District Administrators' offices as part of the Food-for-Work or Public Works programmes.

An evaluation of EEC funded grazing schemes was carried out in late 1987 (Cousins 1988). The report found that overall the schemes had the potential to increase the capacity of local communities for resource management, but that there were a great many problems with the way they were being implemented. It recommended that grazing schemes continue to be vigorously promoted by Agritex and supported by the EEC, but that a number of modifications be made in the approach adopted. These included a firm statement by central government that stock limitation would be voluntary, that projects focus more clearly on institutional development, that a central objective be greater community participation in planning and management, and that by-laws be encouraged to emerge which reflect a community's actual intentions with regard to resource management rather than a means to secure funding. It also recommended research into the vexed issue of carrying capacity and alternative designs for grazing schemes.

The EEC Micro-projects Fund,, however, appears to have discontinued funding of Communal Land grazing schemes since then; only 2 schemes in resettlement areas have been financed since 1988 (Nobbs pers. comm.) . Although less than half of the funding promised to the Mwenezi Radical Land Reform Programme has been released since 1984, release of the remainder by the Fund was dependent on a full accounting of the funds already disbursed. The Batanai District Council, the implementing agency, has been unable to provide this in the absence of either the District Administrator who initiated the programme in the early 1980's, (since transferred elsewhere), or supporting documentation. Local government has supplied a certain amount of fencing for the programme in recent years.

In 1989 a World Bank\IFAD mission visited Midlands Province to assess the viability of a planned rural development programme which had ward-based grazing schemes as a major component. Because of doubts as to the economic rate of return on costly fenced paddocks this component was not approved. A number of NGO rural development agencies have continued to fund grazing schemes in various locations (e.g. Christian Care in Sangwe, World Vision in Vugwi), but these have tended to be isolated cases.

The most consistent donor has been the German Agency for Technical Co-operation (GTZ) which has continued to fund grazing schemes as part of the Co-ordinated Agricultural and Rural Development (CARD) programme in Gutu District. Sibanda (1990: 144) reported that 15 schemes had been planned by 1990 and of these 12 had reached the- implementation stage, while in 3 agreement had not yet been reached with the communities concerned on issues such as the proposed reduction in cultivated area in order to increase the area available as grazing.

The CARD approach has attempted to be flexible and open to

modification by local communities while remaining "technically sound" in the eyes of the land use planners. Through a drawn out process of meetings and discussions a "compromise solution" is sought which involves the consolidation of cultivated, residential and grazing areas, the reduction of cultivated fields, and the standardisation of field sizes within the consolidated blocks. SDG rotations are recommended within fenced paddocks. Sibanda reports that many institutional problems have been encountered in respect of VIDCO and ward demarcations, and as a result of conflicts between kraalheads, VIDCOs and Councillors (Sibanda 1990: 145).

Parastatals involved in rural development have also promoted grazing schemes; most notable is the Dairy Development Programme which was first located within the Dairy Marketing Board (DMB) and is now within the Agricultural Development Authority (ADA). Grazing schemes have been proposed in several communities as part of the upgrading of feed resources required for improved levels of milk production off communal rangeland (Henson pers. com.)

Recently the Forestry Commission has proposed the development of grazing schemes in state forests which adjoin communal areas in order to promote their controlled utilisation. The Mafungabisi Project in Gokwe District is the pilot scheme, and the project document proposes a "very conservative stocking rate and a flexible grazing system" rather than the standard Agritex SDG plan, as well as a strong emphasis on community involvement in planning (Forestry Commission 1990).

Since 1988 most fencing for grazing schemes has been provided by local government bodies, usually the District Administrator's offices. Agritex staff are still required to undertake planning of these schemes but the signing of by-laws is not usually a precondition for assistance. In some cases fencing work has been carried out under the Food-for-Work drought relief programme, and the fencing materials are usually provided from public works budgets. Often these schemes are seen as part of the "communal area re-organisation" programme which the Ministry of Local Government, Rural and Urban Planning is responsible for. In Zimuto Communal Land, for example, at least 9 such schemes have been fenced since 1988, but implementation of rotational grazing has been problematic. Some schemes in Zimuto have suffered boundary disputes and fence cutting, while others have not been supplied with gates and herding of livestock is still necessary.

2.4.8 Grazing schemes and agrarian reform policies

Zimbabwe's post-independence resettlement programme, despite its relative success at addressing the dislocations of the war years, has not been able to radically transform the inherited colonial agrarian structure. Since the mid-1980s the design of a more thorough-going agrarian reform strategy has been much debated, **and** questions of livestock production, grazing land management and communal tenure have been central to this debate.

Cliffe's influential FAO consultancy report of 1986, for example, saw problems of grazing and draught power shortage as critical factors in the generalised imbalance between people and resources in the Communal Lands. The report recommended that reform proposals take into account significant regional variations, and in particular the contrast between the "relatively fertile and less overcrowded north versus the barren, populous south" (Cliffe 1986: 23), and the needs of the poorest families, in particular the stockless and households headed by women.

While intensification of production in the Communal Lands was seen as essential, mechanisation of tillage is appropriate only to high potential areas with little grazing left, and this in the medium term. The central function of cattle of supplying draught power for crop production must be recognised and supported in most regions.

According to Cliffe reorganisation of land use as in the Mwenezi programme could bring advantages, but many communal areas would still be short of land in the absence of significant external resettlement. Resettlement as an extension of Communal Land grazing areas, as in the Model D scheme, is an urgently needed measure in the low potential, overcrowded areas in the south.

Since destocking programmes are both unpopular and worsen the draught shortage problem, this is no solution. Improving the productivity of grazing land through planting legumes and through grazing schemes needs to be explored further. Individualisation of grazing would be at the expense of the stockless and is therefore not appropriate, but the mechanics of managing grazing schemes needs more attention. Policies which encourage the sharing of livestock so that the sizeable minority of stockless households have access to draught should be an important part of any reform package.

With regard to tenure reform, Cliffe recommended that a form of communal tenure be retained in Communal Lands. Community control of land allocation and land use is an extension of the existing system of tenure, and the allocation of land rights could be democratised by giving this authority to representative bodies such as VIDCOs. This would lead to the possibility of the improved management of land use, especially grazing, and the reallocation of land rights to meet changing needs.

A National Symposium on Agrarian Reform held in late 1987 debated these recommendations, and again recognised the central significance of communal grazing management: "... it was felt that the issue of grazing deserved serious attention because it was often the most serious constraint on agricultural incomes in the dry Communal Areas which are the majority..." (Republic of Zimbabwe 1937: 24). Three recommendations were made:

> (a) Communal grazing should be the basic pattern especially in Regions III to V, but where ecologically feasible, and where desired, individually managed plots could be demarcated.

(b) A concerted effort should be made to promote research on communal area farming systems, and especially on improvement and management of grazing areas.

(c) Management of the commons should be in the hands of the resource users through VIDCOs and similar institutions. Grazing management committees under VIDCOs should use locally evolved by-laws to manage the environment and "livestock numbers could then be matched to ... carrying capacity" (Republic of Zimbabwe 1987: 25).

Other views have been expressed on these controversial issues by various interested parties. In 1989 the organisation which supposedly represented all Communal Land farmers (but in the eyes of many has stood for the interests of only a narrow layer of wealthy "Master Farmers" - see Bratton 1990), the National Farmers Association of Zimbabwe (NFAZ)[5], came out in favour of individualised leasehold, (and eventually freehold) tenure over both arable and grazing land (NFAZ 1989).

In contrast, a statement on agrarian reform in 1990 by the Joint Presidents' Agricultural Committee (JPAC), representing all three farmer's unions, limited itself to calling for measures to increase herd offtake in the Commmunal Lands and the allocation of more government resources for grazing schemes and livestock improvement.

The draft National Livestock Development Policy of 1988 also placed great emphasis on increasing offtake, to be achieved through the promotion of grazing schemes, a "massive educational campaign" to promote cattle as a "cash crop", and supportive measures such as improved marketing facilities. On the grazing schemes "... principles of range management will be strictly adhered to" (Republic of Zimbabwe 1988: 29).

2.5 Evaluating grazing schemes

How successful have been the policies and programmes promoting grazing schemes in the Communal Lands of Zimbabwe? The following criteria will be used to attempt an assessment: rate of adoption; the extent of stock reduction and control of animal numbers within schemes; the degree of implementation of grazing management recommendations; improvements in range condition or animal productivity; and the emergence of institutional capacity for the management of rangeland as a form of common property. These criteria would seem to be the most relevant given the objectives defined by the makers of these policies themselves.

[5] The NFAZ has since been amalgamated with the Zimbabwe National Farmers Union (ZNFU) which formerly represented small scale commercial farmers.

Rate of adoption

The history of grazing scheme programmes shows that attempts to impose them on communities have generated opposition, often because of the forced destocking that has accompanied them. A "persuasive" approach has yielded a more positive response, as in Victoria Province in the 1970s (Froude 1974).

Cousins' survey in the mid-1980s estimated that approximately 125 schemes were operational or planned in the country as a whole, and multiplying this figure by the mean size of surveyed schemes (160 households and 1213 ha - see Cousins 1987: 34) yields a total of around 20 000 households and a fenced area of around 150 000 ha. On the optimistic assumption that all the planned schemes would become operational, this would mean a coverage of about 2.5 percent of the Communal Land population. A more realistic assumption that half of the planned schemes would become operational would mean a coverage of around 1.6 percent.

The primary motivation for adopting a grazing scheme has most often been reported as being the reduction in herding labour that fenced paddocks afford, but with improvements in cattle performance and grazing conditions also said to be expected by community members (Cousins 1987; 47; Cousins 1988: 58). Some authors have speculated that these improvements may be expected by livestock owners not so much as a result of rotational grazing, but rather as a result of the exclusion of neighbours' livestock that fencing makes possible (Scoones 1990b: 13), and "the desire to secure preferential access in circumstances of land inequality" (Scoones and Wilson 1989: 105) and that this may be the major perceived benefit of a scheme.

Chinembiri reported that in 1988 there was "great interest in grazing schemes countrywide", but that the high cost of fencing (Z$ 1300 per km) and the uncertainties around continued donor support made the future of the programme uncertain (Chinembiri 1989: 148) . A host of other problems have made adoption difficult in communities targeted by planners: eg boundary disputes, shortages of grazing land, internal conflicts and factional struggles, fears of destocking, unwillingness of households to relocate out of grazing areas, and unwillingness of non-livestock owners to contribute (Cousins 1987, 1988, 1989; Kundhlande and Mutandi 1989; Sibanda 1990).

Thus in the period since independence the response of communities to proposed grazing schemes has often been positive. A range of motivational factors has contributed to this response, some possibly having to do with claiming exclusive access to rangeland rather than a desire to manage it, but coverage of the rural population has been limited by a number of difficulties.

Stock reduction and control of **animal numbers**

Control of livestock numbers has been an important objective of the grazing scheme programme. This has been true in recent years as much as in the past, even when destocking policies have been

abandoned, and attempts to at least stabilise present stocking rates by encouraging increased offtake through sales have received greater emphasis. This is why by-laws proposed to communities by external agencies have generally included rules stipulating that livestock numbers should remain within recommended stocking rates.

Danckwerts (nd) reported that some of the Victoria Province schemes in the 1970s attempted to limit stock numbers (see section 2.3.4 above), but there is little evidence of limitation in post-independence schemes. Stocking rates in implemented grazing schemes have remained high and generally been between twice and four times those recommended by research and extension (Cousins 1987: 36; Cousins 1988: 73; Cousins 1989: 344.: Kundhlande and Mutandi 1989: 413). By-laws agreed within communities have generally not included provisions for regulating stocking rates (Cousins 1989: 351), and members of grazing schemes have most often expressed the hope that stocking levels would increase after the adoption of a scheme (Cousins 1988: 59) .

Grazing schemes have thus notably failed to make much impact on stocking rates on communal rangeland.

Implementation of grazing management recommendations

Since the late 1960s the grazing system recommended by extension staff to both commercial and communal area producers has been Short Duration Grazing (SDG).

Assessment of the extent to which schemes have actually followed the recommended grazing system is difficult. Danckwerts (nd) reported that rotational grazing was being practised in some of the schemes he studied. Of the 18 EEC funded schemes visited by Cousins in 1987, only 7 had become operational, and all of these claimed to be implementing a SDG system (Cousins 1988: 70). Kundhlande and- Mutandi (1989: 415) state that in the CARD programme schemes in Gutu improvements in range condition have been achieved under "good grazing management", which appears to imply SDG rotational grazing.

Of the sample of 31 schemes visited by Cousins in 1987 and 1988, 17 claimed to be operating a SDG system, and 4 claimed to be using some form of the older rotational rest system. However, only 4 schemes out of the 24 with by-laws had ever imposed sanctions for infringements of by-laws (including those relating to rotations) (Cousins 1989: 352).

One of the reasons assessment is difficult is because of the possibility of great discrepancies between the claims made by members of schemes and their actual practices. Claims to be practising grazing management help to preserve the reputation of adopting communities in the eyes of government officials and donor agencies, and thus the potential for further development assistance. (See the example of Ndambani, winner of the National Conservation Competition in 1988, given in Cousins 1990c, where

the fenced paddocks were used as a winter grazing reserve but records were kept which purported to show implementation of SDG.)

Evidence of the non-implementation of rotational grazing systems in 7 schemes is provided in the annual reports of the Agritex Veld Trend Monitoring programme, the second of which concludes

> As reported in the 1986/87 report there is a need for grazing scheme committees to enforce their by-laws. The implementation of a rotational grazing system and adherence to it is of paramount importance if we are to see any changes in the veld (Mupangwa 1988: 17).

According to Scoones grazing practices, instead of following SDG,

> .... often involve adaptations of pre-scheme local grazing practices (eg use of deferred grazing, use of vlei/river bank resources) or the initiation of new ones (eg use of reserve grazing along fence lines or adjacent to roads) (Scoones 1990b: 13).

The available evidence on implementation of rotational grazing systems is inconclusive, but there are grounds for scepticism with regard to claims that SDG has been implemented; the case studies in Part Three of this report will explore this issue further.

Improvements in range condition and animal production

Assessment of improvements in range condition or animal production as a result of a grazing scheme are also difficult. Changes are hard to detect in the short term, and observed changes may be the result of factors such as higher rainfall or the exclusion of outsiders' cattle (ie a reduction in stocking rate in one portion of rangeland, with a corresponding increase elsewhere). Conventional assessment methods, such as the use of indicator species, have also been questioned in recent years (Abel and Blaikie 1989: 11).

Again, the available evidence is inconclusive. Robinson (1951: 5) claimed that an early grazing scheme in Zimutu Reserve had "... improved both vlei and upland pastures and increased the carrying capacity of the reserve." Danckwerts (nd: 58) reported "considerable improvement" in range condition in some schemes in the early 1970s, despite high stocking rates. Kundhlande and Mutandi (1989; 413) assert that schemes in Gutu showed "some veld improvement" after two years. In none of these cases was quantitative evidence in support of these conclusions presented.

In the EEC evaluation study carried out in 1987 Agritex staff assessed range and cattle condition in 7 grazing schemes which had been operational for 1-2 years, but no definite conclusions could be drawn (Cousins 1988: 70-74). In one scheme the range was judged as showing "definite signs of regeneration", but in others condition was assessed as either stable or showing no signs of improvement. There was a poor correlation between cattle

condition and range condition, and also between cattle condition and stocking rate within the area enclosed by fenced paddocks.

Abel and Blaikie (1989: 9-12) attempted to systematically assess and quantify differences between rangeland and cattle inside and outside of fenced grazing schemes "with known and relatively long histories of good management". No significant differences in cattle condition were detected. Rangeland inside the grazing schemes had better litter cover and less hare ground than range outside, and species composition (in terms of the conventional wisdom on indicator species) was more favourable inside the schemes, but it was clear that "no spectacular changes in vegetation condition have occurred". Scoones (1990b: 12) commented that these findings may reflect differences in stocking rate rather than "good management".

Institutional capacity for common property management

In "open access" property regimes there is no exclusion of non-members of a resource user group and individuals use such resources without regard for the consequences of their behaviour on others. In common property regimes, by contrast, there are clear membership criteria for a group of resource users, communally defined guidelines for resource use exist, and enforcement mechanisms for punishing deviant behaviour are defined and used by the group (Bromley 1989: 872). A "minimum" definition of common property obtains where membership is well defined and non-members are excluded from resource use (Lawry 1990).

Grazing schemes have attempted to install the more developed version of common property by means of defining exclusive grazing territories with well demarcated boundaries, agreeing on by-laws which define rules for resource use, and electing committees which are supposed to keep detailed records, raise cash for fence maintenance, organise work parties, decide on grazing rotations and enforce scheme by-laws.

In the Victoria Province schemes of the 1970s extension officials devoted a great deal of attention to helping committees to form (Froude 1974), and Danckwerts (n.d.) found these to be effective when they had the support of "traditional" authorities.

Surveys by Cousins (1987, 1988, 1989) have reported that post-independence schemes have generally elected committees, that "traditional" leaders sit on most of these, and that almost all communities with operational schemes have agreed on by-laws. In some cases these are derived from external agents (extension staff, donors or the District Council), but in others they appear to have originated within the community in discussions of resource management issues; the latter have tended to ignore the question of stocking rate regulation.

The performance of the committees in carrying out the tasks assigned them was assessed, and many were found to be deficient in respect of record-keeping, implementation of by-laws

(particularly the imposition of penalties), and organising fencing repairs and maintenance. Nevertheless, in the majority of cases the committees were judged to be local institutions which enjoyed community support, with the potential to develop greater resource management capacities. Realising this potential would necessitate greater support from extension agencies which have tended to under-value the importance of institutional development in the communal areas (Cousins 1988: 118-119).

Another problem which many have noted is the lack of clarity with respect to the relationship between grazing scheme committees and VIDCOs, and between scheme and VIDCO boundaries (Cousins et al 1989: 425; Sibanda 1990).

In the survey of 31 schemes carried out in .1987/88 it was concluded that

> . . . grazing schemes are at present a focus for an emerging redefinition of 'community identity' in the Communal Lands; some groups are defining their boundaries in relation to the physical boundaries of their grazing land and developing sets of rules for the management of shared resources (Cousins 1989: 365).

Scoones and Wilson (1989: 106) are more sceptical of the motivations of communities adopting grazing schemes which may "be rooted in the efforts of communities to secure better than average grazing areas for themselves" (ie result in a form of "minimum" common property only). Despite the problems Scoones and Wilson identify in respect of the definition of boundaries, a "lack of clarity of rights", and the "lack of will to use oppressive, punitive machinery to sanction others", they do allow for the possibility of effective institutions emerging. The conditions for this

> ... remain unclear, but must combine the definition of suitable management units, the identification of the appropriate scale of organisation to be responsible for management, the resolution of conflicts over overlapping rights and the involvement of both rich and poor (Scoones and Wilson 1989: 109-110).

Summary

Grazing schemes in the Communal Lands of Zimbabwe have thus been adopted by a number of communities, but the proportion of the total population covered is still very small. Recurrent difficulties have been experienced in relation to the high cost of fencing and uncertainties as to its economic benefits, and a generalised shortage of grazing land to support growing human and livestock populations . The planning and implementation of schemes has entailed a number of conflicts both between and within communities.

Control over livestock numbers has not been achieved within grazing schemes, despite donors sometimes making a commitment to regulating stocking rate a precondition for funding. Communities have often claimed to operating the recommended SDG rotational grazing system, but doubts exist as to whether this has taken place in practice to any significant degree. The evidence on improvements in rangeland condition is inconclusive, and the possibility exists that those improvements which have been observed have been due to exclusion of outsiders' stock and a consequent reduction in stocking rates within fenced paddocks.

The election of grazing scheme committees and the agreement of by-laws have created the potential for institutional capacity to manage a developed form of common property to emerge. In the absence of efforts to firmly regulate use of rangeland resources by members within schemes or enforce by-laws, this potential is not yet being realised and only a "minimum" form of common property regime has emerged to date.

PART TWO: COMMUNITY RESPONSES AND LESSONS FOR POLICY

3. COMMUNITY RESPONSES TO GRAZING SCHEME POLICIES

How have communities responded to grazing scheme policies aimed at transforming their use of communal rangeland? What do these responses reveal to us of the ecological and institutional-dynamics of communal grazing regimes, and do they shed light on the question of opportunistic management strategies? This section attempts to answer these questions through case studies of five-Communal Land grazing schemes in different parts of Zimbabwe." Some of the main ecological and socio-economic features of the schemes are described and compared first, as background to the detailed case studies which follow.

3.1 General characteristics of case study schemes

3.1.1 Selection and research methodologies

These case studies form part of a larger research project on decision-making in grazing schemes (Cousins 1987), and were selected on the basis of the sample survey of 31 schemes carried out in 1987 and 1988 (Cousins 1989).

Schemes were classified as "apparently successful" or "apparently unsuccessful", and three of each were selected as case study sites. Three were fenced, two were completely unfenced, and one was beginning to erect fences on a portion of its grazing land. The sites were selected in three different Communal Lands across a range of environmental conditions: two are located in Natural Region IV, two in Natural Region III (but bordering on IV) , and two on the border between Natural Regions II and III. Soils and vegetation are notably different in the three areas selected.

One case study could not be carried out for logistical and personnel reasons. The location and fencing status of the five remaining schemes are shown in Table 3.1

Both quantitative and qualitative data were collected. Methods used included questionnaire surveys, interviews with key informants, crosschecking of interview data (triangulation), observation of community and committee meetings, participation in community work sessions, cattle following, monitoring the use of grazing areas, and the perusal of local records and documents.

Cattle following data were collected using the same methods used by Scoones in Mazhviwa in 1986 (Scoones 1989) so that results could be compared, and analysed in terms of seasonal patterns of habitat patch use by livestock. Habitat patches were identified, and their areas estimated, from both ground observation and aerial photographs.

Table 3.1 Location and status of case study grazing schemes

Scheme	Communal Land	Natural Region	Fencing status (1988)
(Apparently successful schemes)			
Chamatamba	Mhondoro	II/III	Unfenced (initiating fencing)
Maraire	Zimuto	III/IV	Unfenced
Mangezi	Matibi I	IV	Fenced
(Apparently unsuccessful schemes)			
Mutakwa	Zimuto	III/IV	Fenced
Machingo	Matibi I	IV	Fenced

3.1.2 Ecological and technical characteristics

The individual case studies will describe the ecological features of each scheme in detail; the profiles provided here serve to highlight the diversity of local contexts in which grazing schemes have been implemented.

* Chamatamba (in Region II\lII) experiences higher and more reliable rainfall than the other schemes, is located on sandy soils with a high water table, and contains grass species which are generally unpalatable. There is little environmental heterogeneity at the macro-scale, but a great deal at the micro-scale. There is a high ratio of grazing to arable land, and stocking rates are therefore low. Before 1989 (when three paddocks were constructed) there was little fencing of grazing land, and what there was appeared to play a symbolic role in bolstering the community's "image" rather than serve as a grazing management tool.

* The two schemes in Zimuto (in Region III\IV) experience unreliable rains and the sandy soils are of low fertility. Livestock are dependent on vlei (dambo) land for most wet season grazing since toplands provide very little forage. The environment is extremely variable within the schemes. Land for cropping is in short supply and there is pressure to cultivate lands which have been left to fallow. In one scheme (Mutakwa) the ratio of grazing to arable land is extremely unfavourable (less than 1), and in the other (Maraire) it is slightly more favourable but still low for

the Natural Region; stocking rates are high compared to those officially recommended. Mutakwa has 6 fenced paddocks but Maraire has no fencing.

* The two schemes in Matibi 1 (in Region IV) are located in an area of unreliable rainfall; soils are mixed and consist of either sandy loams or fertile high level alluviums. The environment is "patchy" and the riverine areas and drainage lines are important sources of grazing. Arable land is inshort supply within these communities, and the ratio of grazing to arable land is very low given the semi-arid nature of the region. Both schemes have fenced off portions of their grazing land but in neither is fencing of paddocks complete.

Table 3.2 Ratios of arable to grazing land and stocking rates in case study schemes

Scheme	Cham	Mut	Mar	Mang	Mach
Total land area (ha)	2306	640	738	789	705
Non-arable land (ha)	1804	301	428	459	440
Grazing:arable land ratio	1: 3.6	1: 0.9	1: 1.4	1: 1.4	1: 1.7
Livestock Units (LUs) 1988	464.6	278.1	202.7	169.4	130.1
Stocking rate - total area (LU: ha)	1: 4.9	1: 2.3	1: 3.6	1: 4.7	1: 5.4
Stocking rate - non-arable area (LU: ha)	1: 3.8	1: 1.1	1: 2.1	1: 2.7	1: 3.4
Recommended stocking rate (LU: ha)	1: 2-4	1: 6-8	1: 6-8	1: 8-10	1: 8-10

NB Abbreviations in this and subsequent tables refer to :
Cham = Chamatamba grazing scheme
Mut = Mutakwa grazing scheme
Mar = Maraire grazing scheme
Mang = Mangezi grazing scheme
Mach = Machingo grazing scheme

Table 3.2 shows total and non-arable land areas within community boundaries, the ratio of grazing to arable land, and stocking rates for each scheme, the latter calculated for both total and non-arable land. Officially recommended "rule of thumb" stocking rates for the regions in which the schemes are located are also shown.

Only one scheme, Chamatamba, has a stocking rate close to that which is officially recommended. For the other schemes the low ratios of grazing to arable land shown provide part of the explanation for this: animals are needed to plough the arable land but grazing land to feed these animals is in short supply.

3.1.3 Socio-economic characteristics: some general features of the Communal Lands

Before describing features of the case study communities some of the general characteristics of livelihood systems in the Communal Lands are briefly summarised. The case studies tend to conform to these general patterns, but some variation is also evident.

* The rural population of Zimbabwe is highly differentiated and heterogeneous, and many households engage in a wide range of livelihood strategies. Off-farm (and in particular wage remittance) incomes play a significant role in these strategies. Rural incomes are highly skewed, with a small layer of households earning large proportions of total crop, livestock and off-farm income. Both total income and security of income are increased by diversification of sources of income (Jackson et al 1987; Weiner and Harris 1989).

* There is a strong degree of inter-relatedness between the cropping and livestock components of the basic farming system found in the Communal Lands. This is because of the importance of draught power provision through animal traction; the value of manure for improving crop yields on poor sandy soils; the fact that crop residues constitute a major source of dry season feed for livestock; the use of draught animals for the transport of manure and fertilizer to fields and for the transport of harvested crops from fields; and the multi-purpose role of goats in the agropastoral system (TSRU 1985; GFA 1987). An essential component of this agropastoral fanning system is extensive grazing, the source of the bulk of livestock feed. Cliffe (1988) has characterised the overall system as Arable Plot - Ox Plough - Communal Grazing (or AP-OP-CG), and this neatly summarises its integrated nature.

* Communal Land cattle are not produced for sale as beef animals, but rather to fulfill a number of different functions: in providing inputs to arable production, as a source of milk and transport, and as an asset for income security (Danckwerts nd; GFA 1987; Scoones and Wilson 1989). Estimates of livestock productivity and valuation of output have to be determined by household objectives, not by measures derived from a completely different production system. Estimates using replacement cost methods have consistently valued the output of Communal Land livestock systems as higher than that of commercial beef ranching enterprises (ARDA 1987; Scoones 1990a).

* The explanation for the generally low offtake rates in

Communal Lands (2 to 8 percent as compared to rates of between 16 percent and 26 percent in the large scale commercial sector) is to be found partly in the multiple-function nature of cattle herds and the relatively high rate of return to investments in cattle, and partly in the distribution of cattle among the population. In 1985/6 about 70 percent of Communal Land households owned less than 6 head of cattle (CSO 1986). Sandford (1982) estimated that the minimum herd size required to sustainably reproduce a draught team of two oxen is ten head of cattle, and a team of 4 oxen may be required to plough early in the wet season (FSRU 1985: 33). The vast bulk of households are not, therefore, interested in selling cattle except in case of emergencies (to raise cash for school fees, for example, or in a drought year), and are much more interested in acquiring cattle and increasing herd size.

3.1.4 Socio-economic characteristics of case study schemes

Demographic features (Table 3.3)

In Machingo the proportion of female-headed households[6] is low. In Mangezi, however, it is higher than in the other cases; most of these are older widows with male relatives in the community. Three communities have high rates of labour migration (nearly two thirds of households contain wage workers) and two have rates which are much lower (close to one third of households with wage workers).

Table 3.3 Demographic features of case study schemes

	Cham	Mut	Mar	Mang	Mach
n	120	99	61	68	50
Mean Household Size	6.4	6.7	6.1	6.6	7.5
Mean age of household head	49.0	48.2	50.1	43.8	41.7
% female headed households	17.5	19.0	19.6	27.9	10.0
% households with wage workers	36.7	63.3	62.3	30.9	60.0

[6] Female-headed households are defined as those headed by widows, divorcees or single women.

Crop production (Table 3.4)

Chamatamba in Mhondoro Communal Land is located on the boundary between Natural Regions II and III and has a reasonably high potential for cropping. Grain production is highly skewed -- the mean amount produced per household was 2106 kg but 50 percent of households produced 1210 kg or less. A similar pattern of skewedness is seen in regard to grain sales.

The two schemes in Zimuto (Mutakwa and Maraire) are on the boundary between Regions III and IV, but many crops in this Communal Land are grown in wetland (vlei or dambo) fields. The range of different crops grown in the Zimuto schemes (5.4 and 5.5) is much higher than in the other areas, and commonly includes finger millet (rapoko[1]) for brewing purposes and rice, intercropped with maize in vlei fields. In both schemes grain sales are somewhat skewed, with the median figure less than half of the mean.

Mangezi and Machingo are located in Region IV where cropping potential is generally poor. The range of crops grown is small, particularly in Mangezi, but includes a higher proportion of drought-resistant small grains than is the case in the other areas.

Table 3.4 Crop production in case study schemes

	Cham	Mut	Mar	Mang	Mach
n	42	43	29	27	25
Number of crop types grown -- mean	3.1	5.4	5.5	2.7	3.4
Mean grain production per household in kg	2106	1960	2475	679	1498
Median	1210	1550	2610	360	980
Mean legume production per household in kg	169	153	187	40	241
Median	90	135	135	0	0
Mean grain sales per household in kg	1104	652	731	78	213
Median	540	270	360	0	0

Cattle herd structures and offtake rates (Table 3.5)

The structure of the "community herd" in Chamatamba, Mutakwa and Maraire is typical of draught-oriented cattle herds: there are high proportions of oxen and cows (both in the order of 30 percent of the herd). In Mangezi and Machingo the proportion of oxen (and male animals in general) is much lower, and the proportion of female animals (cows and heifers) much higher. The herd structure is similar to that found in Mazvhiwa (also in Natural Region IV) in 1987 by Scoones (1990: p26), who ascribes the high proportion of females to the need to rebuild draught oriented herds after drought. It may be, however, that in the drier regions, where cropping is more risky, livestock play a greater role in contributing directly to household livelihood (through milk, meat and cash sales), and that more female animals are kept as a result.

The generally low offtake rates for the five herds are broadly-similar to those for Communal Land herds in general (CSC 1988: 12) and confirm that these are not commercial, beef-oriented herds. Higher offtake from sales as opposed to slaughters in Mangezi and Machingo may reflect the greater direct dependence on livestock production hypothesised above. The numbers involved, however, are very small (12 sales in Mangezi and 13 in Machingo)

Table 3.5 Cattle herd structure and offtake rate in case study schemes

	Cham	Mut	Mar	Mang	Mach
Community herd size (1987)	748	413	293	207	164
Community herd structure (%)					
Bulls	3.1	6.1	3.1	1.9	6.7
Oxen	29.4	27.4	31.7	16.4	18.9
Steers	6.9	8.4	4.8	4.8	3.7
Cows	34.6	30.5	33.8	36.2	34.1
Heifers	9.0	9.2	9.5	20.3	17.7
Calves	17.0	18.4	17.1	20.3	18.9
Offtake rate (%)	5.5	7.3	5.5	5.8	9.1
- sales	2.4	1.5	2.7	5.8	7.9
- slaughter	2.7	4.9	2.8	0	0
- other (eg roora)	0.4	0.9	0	0	1.2

Cattle ownership[7] (Table 3.6)

The distribution of cattle holdings within communities displays the highly skewed pattern characteristic of the Communal Lands (Jackson 1989; Chipika 1989), but with significant differences. In Chamatamba over a quarter of households hold 10 or more cattle, but in Mangezi these large herd owners comprise only 10 percent of the community. In Mangezi and Machingo 50 percent or more households are non-cattle owners; in the other schemes non-owners comprise between 33 and 40 percent of the total.

Table 3.6 Cattle ownership in case study schemes

	Cham	Mut	Mar	Mang	Mach
n	120	99	61	68	50
Household holdings (%)					
0 Cattle	40.8	40.4	32.8	50.0	54.0
1-9 Cattle	33.4	45.5	49.2	39.7	32.0
10 or more cattle	25.8	14.1	18.0	10.3	14.0
Mean cattle holdings - all households	6.2	4.2	4.8	3.0	3.3
Mean cattle holdings - owners only	10.5	7.0	7.1	6.1	7.1

Sources of draught power (Table 3.7)

Very few crop producers in the schemes use a source of draught power other than cattle, and this means that the large numbers of non-cattle owners either borrow or hire cattle from other households. Households without sufficient draught animals to make up a ploughing team also mostly borrow or hire. Borrowing is far more common than hiring in four of the schemes - only in Mutakwa is this relationship reversed, and here a common form of payment is labour on the fields of the cattle owner. In all cases most

[7] "Ownership" here refers to cattle held in a household's kraal and available for household use, whoever the legal owners of the cattle are; it is thus synonmous with "holdings" in these tables.

borrowing is from patrilineal relatives within the community. There is thus a great degree of interdependence between households within grazing schemes in respect of one of the most important functions of cattle - the provision of draught power.

Table 3.7 Sources of draught power in case study schemes

	Cham	Mut	Mar	Mane	Mach
n	120	99	61	68	50
Source of draught power (%)					
Own Cattle	48.3	43.4	37.7	36.8	34.0
Borrowed Cattle	35.8	19.2	27.9	32.4	36.0
Hired Cattle	13.4	21.2	14.8	11.7	8.0
Other Sources (eg tractor)	1.6	4.1	9.8	7.4	10.0
No crops planted	0.8	12.1	9.8	11.7	10.0

Summary of socio-economic features

Households within the five case study grazing schemes are generally involved in a number of different economic activities, but the most important for cash income are wage labour and crop production. Cattle do not generate a cash income directly to many households and instead provide inputs to cropping and some subsistence products such as milk and occasional slaughters. Both crop production and cattle ownership tend to be highly skewed in their distribution, although there are differences in the extent of this between schemes. In all schemes there is a high degree of interdependence between households in respect of draught power.

3.2 CHAMATAMBA GRAZING SCHEME

Chamatamba grazing scheme is widely regarded in Zimbabwe as a rural development "success story". The scheme has won several conservation competitions, including the national prize in 1987, and has received a great deal of publicity in the press. Until 1989 no donor funding had been received for fencing purposes, and Chamatamba was perceived as a rare example of a self-financed grazing scheme. On closer inspection, however, the reality of common property management in Chamatamba has proved to be much more complex.

3.2.1. Ecological and technical characteristics

Climate, soils and vegetation

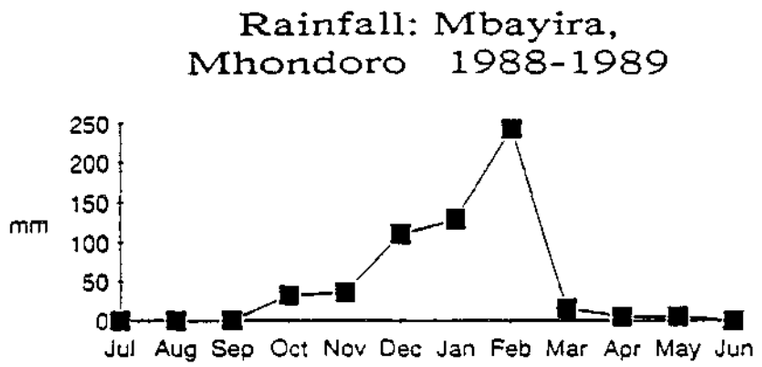
Mhondoro Communal Land is situated some 60 kms south of Harare, and straddles the boundary between Natural Regions II and III. Average rainfall at the centrally located Mbayira station for the decade was 676.4 mm. In only one year (1986/87) was rainfall less than 500mm (see Figure 2).

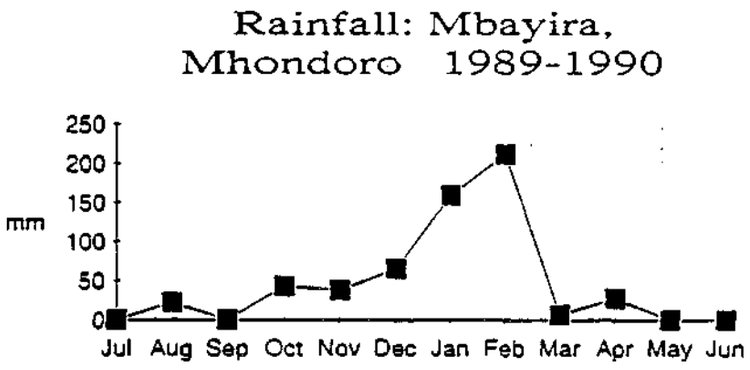
In the part of Mhondoro where Chamatamba is located the soils are generally sandy, derived from slightly gneissic rocks juxtaposed onto grits and sandstones of the Karoo Formation. The water table is high, lying 1m deep in summer and 2m deep in winter.

The characteristic vegetation for the region is woodland dominated by Brachystegia spiciformis (msasa) and Julbernadia globiflora (mnondo) (Vincent and Thomas 1962: 57-58). Because of the high water table the "Parinari open woodland" subtype, dominated by Parinari curatellifolia (muhacha), is found in the Chamatamba area. Another common tree is Strychnos spinosa (matamba), which is the source of an edible fruit, and which gives the grazing scheme its name. A common grass species, highly unpalatable and largely unutilised by livestock, is Schizachyrium jeffreysii. Hyparrhenia grass spp are also common, as are a number of sour grass species such as Hyperthelia dissoluta, Loudetia simplex and Aristida spp. This "Parinari open woodland" is found in the central topland area of Chamatamba, between the two lines of settlement (see Figure 2).

Another vegetational subtype, similar to the "plateau grassland" described by Vincent and Thomas (1962: 58), is found between the lines of settlement and the two rivers which form the north eastern and south western boundaries of the scheme. Here the height of the water table militates against tall tree species and sour grasses of poor grazing value predominate (Schizachyrium jeffreysii, Loudetia simplex, Melinis repens, Trachypogon spicatus, and Elynorus argenteus).

Figure 2. Rainfall at Mbayira, Mhondoro





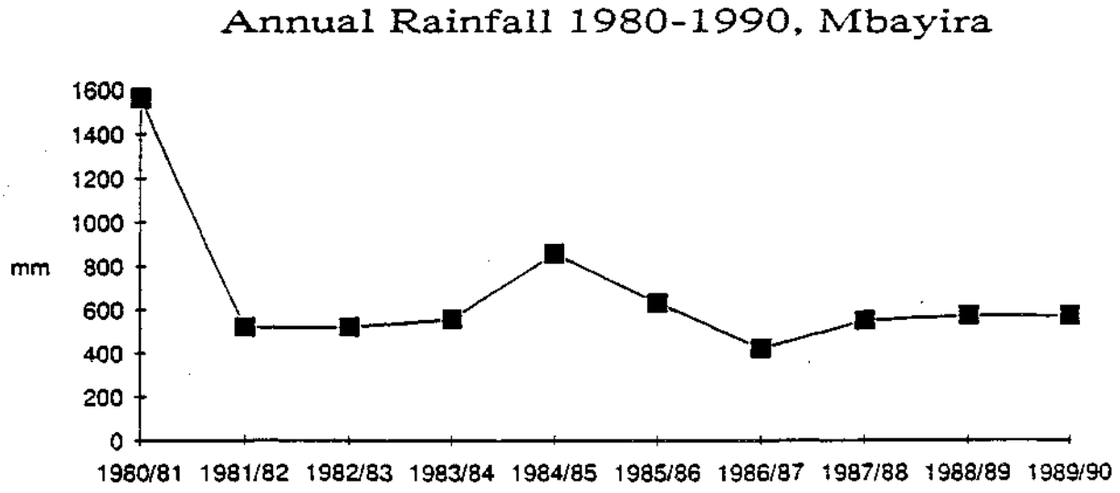
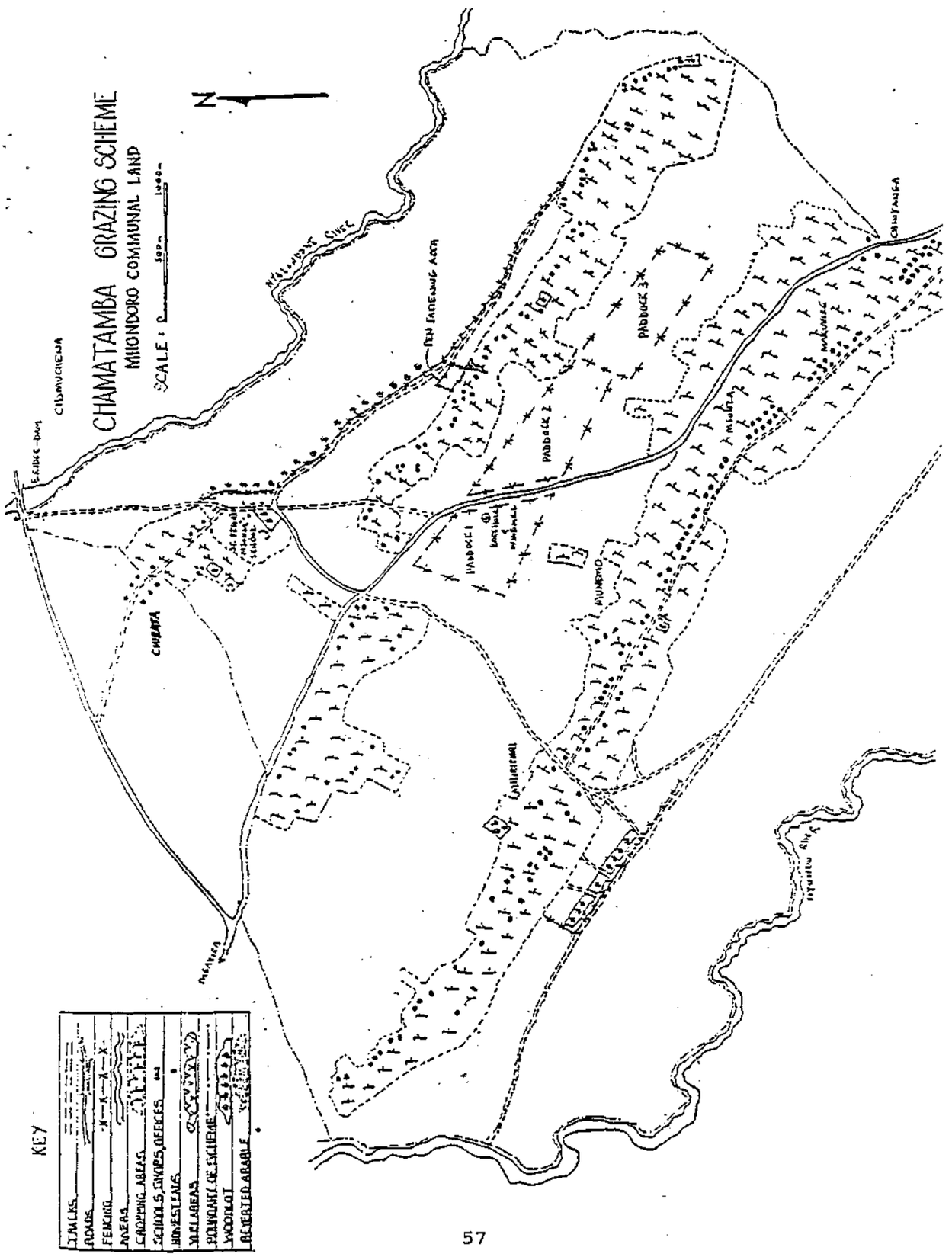


Figure 3. Land use in Chamatamba grazing scheme



A notable feature of these open grasslands is the large number of termite mounds colonised by Cynodon dactylon (couch grass), which is palatable and hence heavily grazed. Heteropogon contortus (spear grass) is found on and adjacent to mounds and is also heavily grazed. Woody plants (eg. Albizia amara and Diospyros lycioides) are found on some of these termite mounds, and some are browsed by livestock.

Habitat patches and land use

The pattern of land use and the incidence of habitat patches in Chamatamba are shown in Figure 3 and Table 3.8. The community which has adopted the grazing scheme consists of five villages (kraals), which are located in two lines of settlement and cultivation running north west to south east.

Table 3.8 Habitat patches available for grazing within Chamatamba grazing scheme in different seasons

	Wet season		Dry season	
	ha	%	ha	%
Fallow fields	150	7.7	-	-
Fields[1]	0	0	467	20.3
Open grasslands	1049	53.8	1049	45.6
Central grazing	656	33.7	656	28.5
Homesites, kraals and pens	35	1.8	70	3.0
Riverine	58	3.0	58	2.5
(Woodlots)[2]			6	
Total	1948		2306	

[1] "Fields" in the dry season includes both cultivated and fallowed land.
[2] Small fenced woodlots are scattered throughout the scheme and are not available for grazing.

There are three recognised grazing areas in Chamatamba; the central grazing area between the two lines of settlement (656 ha), and the two "open grasslands" running down to the rivers (together comprising 1049 ha) . The central area is now the site of three fenced paddocks, enclosing an area of perhaps 150 to 180 ha. The fields are generally located in the vicinity of the homesteads, at the edges of the central topland zone.

The most important contrasts in habitat type are; (a) between the central grazing area, which contains scattered tall trees, and the open grasslands, which do not, and in which scattered termite mounds are found; (b) between both of these grassland habitats and the riverine areas adjoining the Nyundo and Nyakandowe Rivers. This is a narrow zone which contains a greater density of trees and shrubs than the grasslands and which sustains a

green sward of grass until late in the dry season. . In general there is not as much environmental heterogeneity at the macro-scale as in the other case study grazing schemes.

The grazing scheme

In the 1950's extension staff introduced a system of deferred grazing in Mhondoro Reserve. In theory this involved the rotational rest of a "paddock" (reserved area) for a full grazing season, but in Mhondoro the practice was often to merely assign an area as winter grazing, and to use it to grow thatching grass in the summer months.

In Chamatamba two lines of settlement had been established by the 1960s, and the area reserved for winter grazing was the central grazing between the two lines. This "winter reserve" system survived through to the 1980s, and was what was known as "the grazing scheme" when the provincial conservation competition was won in 1985.

Grazing management in Chamatamba in recent years has consisted largely of sporadic attempts to enforce the rule which defers grazing in the central area until the dry season. The apparent success of this system, as evidenced by the tall stands of grass in the central area, resulted in Chamatamba winning conservation competitions, in 1985, 1986 and 1987. Bundles of barbed wire were included in the prizes for these competitions.

Figure 2 shows the location of two lines of fencing which were erected using the wire won in the competitions. The first runs southeast from St. Peter's Msonza school and separates the Nyakandowe summer grazing area from one line of settlement and cultivation. The other runs south east for a short distance parallel to the other line of settlement, in the Nyundo summer grazing area. According to the grazing scheme committee these lines of fencing were intended to prevent animals from community herds straying into the central grazing during the summer and to reduce the problem of unherded animals from neighbouring communities "poaching" Chamatamba grazing. They were often referred to as "the boundary wire".

The long term plan was to construct a series of paddocks in both summer grazing areas. If the problem of water supplies in the central area could be overcome then parts of the winter grazing in the central area could also be fenced into paddocks. Some paddocks were to be planted with improved pasture grasses, pen fattening of animals was to be undertaken, and Short Duration Grazing would be practiced.

Since at least the mid-1980s, however, the "grazing scheme" in Chamatamba has been portrayed by the energetic committee as being much more than lines of fencing and a potential paddocking system. The "scheme" denotes, rather, an ambitious resource development programme which includes woodlots, fruit orchards, water development, wildlife conservation, and livestock production projects.

In late 1987 the Committee clearly envisioned the spatial form of the scheme as a series of concentric zones around the central grazing area. The outermost ring would consist of paddocks of summer grazing, separated from an inner ring of planted pasture grasses by a belt of gumtrees (Eucalyptus spp). These pastures would provide the fodder for intensive raising of beef cattle or dairy cows, and improved bulls for upgrading the local herds would be kept here as well. Community fruit orchards would also be located in this zone. Homesteads and arable lands would remain in their present location. The central area would be developed as a winter grazing reserve with a pumped water supply, which could also serve community vegetable gardening projects. The small buck (mene, or duiker) still living in the thickly grassed central grazing would be conserved by the strict control of hunting. Fish would be introduced into the bridge-dam at Chamuchena and fishing controlled by means of a licensing system.

Between late 1987 and late 1990 some components of this plan were implemented. Gumtrees and a fruit orchard were planted, pen fattening projects were carried out, and a borehole was sunk in the central grazing area using donor funds. A pure Mashona bull donated by one of the judges in the NRB conservation competition began to be used for stock improvement. A windmill was also purchased with part of this donation. Fencing materials were donated by the District Administrator and three paddocks were constructed in the central zone.

Despite Chamatamba's reputation for a high level of community motivation, however, participation in these activities has been limited to a minority of households, and intra-community tensions have arisen. Grazing management has been limited, and upkeep of the first lines of fencing has been problematic. Between August 1988 and November 1990 the two lines of fencing were in a extremely poor state, and in places had collapsed completely. By late 1990 the three fenced paddocks were being used only sporadically, and the windmill was not yet in place.

Patch use by livestock

Habitat patch use by cattle herds was investigated for the period January to December 1989. Two herds of cattle (numbering 13 and 26 respectively) were followed for a full day each month, and habitat patch and foraging activity were noted at half hour intervals.

Table 3.9 Seasonal habitat patch use in Chamatamba, 1989 (expressed as a percentage of total feeding time)

	Cropping	Early dry	Late dry
Fallow fields	6.7	-	-
Fields	-	11.0	15.0
Open grasslands	42.1	32.3	21.0
Central grazing	9.3	13.7	26.0
Home sites, kraals, pens	25.3	20.0	16.0
Riverine	16.6	23.0	22.0

Table 3.9 shows clearly that cattle herds did not follow the deferred grazing system. The central grazing area was used for nearly ten percent of the time in the wet season, and never for more than 26 percent of total feeding time even in the late dry season. The open grasslands were used for nearly a third of feeding time in the early dry season, and for a significant proportion of time even in the late dry season.

Given their small area, surprisingly large proportions of feeding time were spent in home sites, kraals and pens, on the one hand, and in the riverine zone, on the other. The foraging preference index calculated for the different habitat patches, shown in Table 3.10, highlights this pattern. In the case of the former this pattern is partly explained by the supplementary feeding practiced by the herd owners. In the case of the riverine zone a major reason is undoubtedly the need for stock to water at least once a day, but the presence of green grass and some browse throughout most of the dry season is probably also important.

Table 3.10 Foraging preference index[8], Chamatamba 1989

	Cropping	Early dry	Late dry
Fallow fields	0.87	-	-
Fields	-	0.54	0.74
Open grasslands	0.78	0.71	0.46
Central grazing	0.27	0.48	0.91
Home sites, kraals, pens	14.0	6.67	5.33
Riverine	5.53	9.2	8.8

One notable feature of habitat use is not reflected in these data. This is the considerable amount of time cattle spent grazing couch grass (Cynodon dactylon) and spear grass (Heteropogon contortus) growing on the termite mounds scattered throughout the open grasslands, and found to a lesser extent in

[8] The preference index was calculated as:

$$PI = \frac{\%\text{ feeding time spent in habitat patch x in season y}}{\%\text{ of area available as habitat patch x in season y}}$$

the central grazing area as well. Frost (pers. comm.) is of the opinion that the termitaries may constitute "patches" of higher quality grazing (possibly containing higher levels of protein) and thus function as "key resources" within an environment which is otherwise fairly homogeneous and providing only poor quality grazing resources.

The pattern of use of rangeland in Chamatamba differs from those found in the vlei-based systems of Zimuto or in the sandveld/clayveld dual-zone system in Mazvhiwa described by Scoones (1989; 1990). Spatial heterogeneity is less significant, but is still apparent in the use made of the "key resource" of the riverine zone, which is more heavily used in the dry season than in the summer months, and in the grazing of couch grass on termite mounds in the "open grasslands".

3.2.2 Socio-economic differentiation

Both grain production and maize sales in Chamatamba are highly skewed (see Tables 3.4 and 3.11).The top 24 percent of households accounted for 81.5 percent of all the maize sold in 1987/88.

Table 3.11 Maize hectarage, maize sales and cattle ownership in Chamatamba 1987/1988

	Cattle ownership			
	0 cattle (n=49)	1-9 cattle (n=39)	10 or > cattle (n=32)	ETA
Hectares under maize (mean)	1.1	1.2	2.1	0.41
Maize sales in bags (mean)	2.2	8.4	23.2	0.54

The level of cattle ownership of households is strongly associated with crop production characteristics. In the stratified sample survey the mean grain production of large herd owners was over 4 tonnes, as compared to under 2 tonnes for medium herd owners and less than 1 tonne for non-owners. Table 3.11 shows that cattle holdings and maize sales are fairly strongly correlated.

In Chamatamba a wealthy rural elite made up of older households, and generally headed by males but not exclusively so, owns most of the cattle in the community and dominates surplus crop production. Some of this elite are engaged in wage labour in urban areas and return home at regular intervals, others are either retired workers or work locally as teachers, builders or traditional healers.

3.2.3 Institutional arrangements and power relations

The grazing scheme committee

Visitors to Chamatamba are welcomed and given guided tours around the scheme by members of the grazing scheme committee. One version of the committee's composition, (often presented to visitors), states that each of the five kraals within Chamatamba is represented by two committee members. In reality the committee includes four members of Munemo kraal and only one from Msonza. Members included masabhuku from three kraals and acting masabhuku (younger brothers of aged and inactive incumbents) from the other two kraals.

The committee combines two sources of legitimate authority: the "traditional" leadership role of the masabhuku, and some notion of representative democracy involving election by members and accountability to them. It is the only local institution with recognised authority over common property resources in Chamatamba.

The VIDCO

Four of Chamatamba's kraals fall within VIDCO 7, and the fifth, Chinyanga, falls within a neighbouring Ward and thus a different VIDCO. This is said to be not problematic by community leaders, "because we have been together a long time" (implying that continued co-operation is not threatened), but perhaps a more important underlying reason is that VIDCO 7 is largely inactive, has no projects of its own and is generally characterised as "not working" . One possible reason for the lack of interest in the VIDCO is the fact that the grazing scheme committee in Chamatamba has assumed responsibility for all the development planning functions of a VIDCO.

Grazing scheme by-laws

There is no formal, written set of grazing by-laws in Chamatamba, but there is widespread agreement that a rule exists prohibiting the use of the winter reserve in the central area during the summer months, thus allowing a deferred grazing system to be practised. In a sense this rule has "constituted" the grazing management scheme in that it has been the only management practice being followed to any degree..

Informants expressed very different views on the issue of what sanctions can be used to enforce this deferred grazing rule. Some stated that fines of between $5 and $10 per head of stock per day were agreed, others asserted that these amounts applied to herds and not individual animals, and yet others disagreed that any such fining system existed at all. No fines were seen or reported to be imposed between August 1988 and November 1990, despite numerous instances of cattle grazing in the central area.

Other projects

All of the development projects undertaken in recent years have been carried out in the name of Chamatamba grazing scheme. Some of these have been unambiguously social in character, benefitting all residents - the best example is the bridge-dam at Chomuchena which has resulted in much better road access to the area. Others, such as the initiation of fencing lines between summer and winter grazing areas or the planting of community "woodlots" (lines of Eucalyptus trees) along this fencing, have been accepted by most local residents as being community-oriented, and: yielding collective benefits. Another project of this type initiated in 1989 was the planning of village fruit orchards.

A third type of project, however, has involved the use of community resources for private income-generating enterprises, and used the name and reputation of the grazing scheme to solicit government support. The pen-fattening scheme which was operated in Chamatamba between September 1987 and May 1989 was of this nature. To visitors this was presented as a "community project", aimed at raising funds for the fencing of communal grazing paddocks. Local residents, however, understood that pen-fattening was being undertaken by a small group of cattle-owners who could afford he. costs involved. The project was open to anyone-willing and able to participate, but benefits were identified as unambiguously private in character.

A project with a somewhat different character was the agricultural supply co-operative. This was registered in the name of the grazing scheme and requested support from the District Council on the grounds that it was a community project. The co-operative was set up in 1988 with 15 members, 5 of whom were also members of the grazing scheme committee. The chairman of both bodies was a local schoolteacher, Mr Frederick Mhiripiri, who has helped to develop a close relationship between the grazing scheme, the co-operative and St. Peter's Msonza School. The school is the unofficial "headquarters" of the scheme and its storerooms are used by the co-operative. The latter also includes 5 members from Chirata kraal (supposedly outside Chamatamba), but none from Chinyanga kraal.

The co-op used its starting capital to open a credit facility with a fertilizer company and bought 9 tonnes of fertilizer at a bulk discount. These were then sold locally at a mark up of $2.00 per bag. By the end of the 1988/89 season over 25 tonnes of fertilizer and over 50 bags of hybrid maize seed had been sold, and the co-op had shown a profit of over Z$ 2000.00. The following season the co-op again traded in fertilizer and seed, and moved into the cement business.

In mid-1988 a typed constitution for the cooperative was drafted, with the help of the headmaster of the school, so that the co-op could be registered. The name of the co-operative was given as "Chamatamba Grazing Scheme". Clauses on membership dealt only with the composition of the committee, and one clause stated that "all members elected to sit on the committee shall be members of

the co-operative (Scheme) at the time of the election". This is profoundly ambiguous. The chairman stated that all those residing in the 5 kraals are members of the co-op, but other members of the co-op have confirmed in interviews that membership is currently restricted to the 15 founding individuals.

Thus the lines of demarcation between projects to improve general social infrastructure and develop the grazing scheme and woodlots, (for the benefit of all co-owners of the commons), the pen fattening project, (in principle open to any scheme member but in practice largely restricted to the larger herd owners), and the cooperative, (a private business initiative), have been blurred, and perhaps deliberately so.

Power and decision making

The cattle wealthy dominate decision making in Chamatamba. The leadership of the scheme (ie the committee), those farmers engaging in pen fattening, and the membership of the co-op are almost all drawn from this group. Another relevant characteristic of this leadership group is the presence of most of the masabhuku or acting masabhuku within it. The masabhuku of all five kraals in Chamatamba are represented on the grazing scheme committee, and four of these are large herd owners.. The co-op group contains four masabhuku: three from within Chamatamba (from Mhiriphiri, Munemo and Msonza) and one from Chirata kraal.

Between 1988 and 1990 the active core of the grazing scheme committee, a group of about 5 or 6 men, met regularly and informally at the primary school to discuss their various projects, but very few general meetings of the whole community were called. Those that were held were poorly attended. Decisions were communicated to residents by word of mouth through the masabhuku or his "assistant". Some tasks (e.g. collecting maize contributions from households for sale as a way of generating community funds) were delegated to the masabhuku. There was no hard and fast distinction made between Committee meetings and co-op business meetings.

Political and economic power in Chamatamba are concentrated in the hands of a small but active group of wealthier men. This group draws its power partly from the strong allegiance of most households to "traditional" forms of authority, partly from the status of its educated and eloquent chairman and the close association between the leadership and the local school, and partly from the proven success of this leadership in bringing development funding into the community. The "grazing scheme" in Chamatamba denotes much more than a mode of managing grass and livestock; it is at the centre of a carefully nurtured image of a self-reliant and dynamic "resource-managing community". This image appears to have been used as a vehicle for the establishment of purely private economic ventures undertaken by the Chamatamba elite.

3.2.4 Patterns of interaction and struggle

There are three distinct phases in Chamatareba's recent history. In the first, from roughly 1983 to mid-1987, the emphasis was on projects which were uncontroversially "community-oriented" in character and the scheme leadership acquired both local legitimacy and a wider reputation for effective organisation. Work sessions were organised for the building of the bridge-dam on the Nyakandowe River, the erection of the first "grazing scheme" fences, and the planting of gumtrees along the fence lines.

In the second, from September 1987 to mid-1989, the scheme leadership focussed its energies on pen fattening of cattle and the establishment of the agricultural supply co-operative. The grazing scheme committee devoted some time to attempts to obtain donor funding for a windmill, a borehole and fenced paddocks. The fruit orchards project was also initiated in this period, but only the orchard at the homestead of the Chairman, Mr Mhiripiri, was actually established. Few general meetings were held, and only one community work session for the repair of fences was called, in June 1989. This was poorly attended (by 27 people, representing 21 percent of all households in Chamatamba), and the fences were in a state of disrepair within a month.

In the third phase, from mid-1989 to December 1990, the major focus of the scheme became the windmill/borehole and paddocks project in the central grazing area. Donor funds were received, the District Administrator provided fencing materials, and the Committee had to work hard to purchase additional fencing materials, organise work sessions, hire a drilling rig, obtain a measurement of borehole yield, and purchase a windmill. Another project to which the committee devoted its attention was an application by Chamatamba to join the Cold Storage Commission's Cattle Finance Scheme (CFS), which is aimed at encouraging beef production in the Communal Lands. This third phase saw the emergence of open antagonisms within the community, mostly centred around the windmill/borehole and paddocks project.

One incident reveals the lack of community consensus on the new paddocks. In July 1989 informants from Chinyanga village expressed their disillusionment with the way that "community wire" had been used. The boundary wire won in the conservation competitions did not extend as far as their village and they felt that the neglect might well continue. "The borehole is in Mr Mhiripiri's village and the paddock is in his village as well; pen fattening is in Munemo's village".

On the 1st August work on the fencing of the new paddocks began. Twelve men reported for work and all villages were represented except Makuvire and Chinyanga. During the day a note arrived from the Chinyanga youth. "We have our own football team but no ball. We are prepared to do any fencing work in return for a ball." Wisdom Muza, research assistant, reported that:

> All the people who were there had to think about it over and over again, and they decided not to reply to the letter . . . But many people were complaining about those who were not coming to work. People in Chinyanga were saying that when the loan comes it will only be available to the people in the pen fattening project. They said that if the committee proclaimed that the money was to be used for the benefit of the whole community they would be prepared to join in.

Other antagonisms emerged in the course of the next 9 months. The leadership group suffered internal strains as it took the burden of seeing the borehole/windmill/paddocks project through to completion almost entirely onto its own shoulders. Members of the committee could not agree on ways of raising the level of attendance at work sessions, the Chairman refused to use his personal vehicle for transport of fencing materials, and members of Munemo and Mhiripiri kraals began to express resentment at the poor commitment of members from other kraals. No attempt was made to invoke by-laws of any kind. Chinyanga kraal members continued to boycott work sessions and to question the "community" character of the projects.

Although no open challenges to its authority were made during 1990, the Committee was unable to arouse much enthusiasm for its activities amongst ordinary members. The windmill/borehole/paddocks project was accepted as being essentially for the benefit of the better off minority with sufficient resources to engage in pen fattening, but some benefits to other cattle owners were also anticipated.

The members of Chinyanga kraal remained alienated, but their attitudes are revealing. At a group discussion in February 1990 some of them expressed a great deal of resentment at their neglect by the Chamatamba leadership. The new paddocks were to be used for the pen fattening scheme, "not for the community", but it was still possible that one or two people from Chinyanga, who could afford the high costs involved, would be able to participate. Anxiety was expressed over the possibility that the central area would in time be used only for intensive grazing, whereas people also needed it to supply thatching grass.

Use of the new paddocks for pen fattening was also accepted because participation was in principle open to anyone from Chamatamba who could afford the costs involved. Central to this discourse were notions of "communal resource use", "community" and "development" which did not differ significantly from those put forward by the Chamatamba leadership.

As the borehole/windmill/paddocks project took shape the leadership continued to emphasise its character as a "community" project:

> The fences, water troughs, and windmill don't belong to one person, but to Chamatamba. The road and the

> bridge are used by everyone, and it will be the same with the new paddocks" (F. Mhiripiri 19/2/90).

By the end of 1990 it appeared to be the case that this notion of "community development through leadership anterprise" was able to subsume and neutralise, to a large extent, the antagonisms which had begun to be expressed. Nevertheless, the antagonisms remained and it was clear that they would have to be taken into account by the leadership in any future developments.

3.2.5 Outcomes

It is clear that on Chamatamba's rangeland only a "minimum" form of common property (see section 2 above) has existed to date. Membership of the scheme has been relatively clearly defined (although there remains a degree of ambiguity as to the boundary with Chirata kraal), and more effort has been devoted to excluding neighbours' cattle than enforcing the deferred grazing rule. Within this tenure regime a small group of cattle wealthy households with political power have pursued a strategy of private accumulation.

The scheme leadership is also constrained in the extent to which they can pursue this strategy. The dominant discourse of "community" and "development", which the leadership has manipulated so ingeniously, are sufficiently ambiguous to allow this manipulation, but nevertheless provoke expectations amongst the membership as a whole of a flow of at least some material benefits for themselves.

The project of fattening cattle through the Cattle Finance Scheme, using the new paddocks and the borehole/windmill water supply in the central grazing area, reflects this tension most clearly. Cattle will be taken from the CSC on credit, and, although obtained only through group negotiations, will be individually owned. Any profits earned will accrue to individual owners. However, the project is based on communal grazing land developed with funds granted for a community project. The principle that it is open to anyone from within Chamatamba who can afford the associated costs serves, therefore, to balance the fact **that private** profit is being pursued through the use of collective resources.

In Chamatamba the antagonism between private and collective use of grazing land can be contained partly because of the relatively plentiful supply of grazing resources. The paddocks do not enclose the whole of this area, and fears that the supply of thatching grass will be threatened by intensively grazed paddocks are not yet justified. In other words, communal use is not yet under threat. Thus the outcome of the power plays within this grazing scheme is neither a high degree of equity, nor unrestrained domination by the elite, but reflects instead an uneasy compromise between different groupings within the contested terrain of "development" within Chamatamba.

3.2.6 Rangeland management and differentiation in Chamatamba

The question of how to improve management of rangeland resources in Chamatamba was discussed with an ecologist who has visited the scheme, Peter Frost, and then at a well attended community meeting in November 1990. The first issue requiring clarification in these discussions was that of the objectives of livestock holders; in Chamatamba two distinct sets of objectives appear to be held. One set is held by all cattle owners, and which corresponds to that described for Communal Land draught-oriented herds in general (Danckwerts nd; GFA 1987; Scoones and Wilson 1989), the other held only by those large herd owners who are interested in beef production through pen fattening. Improvements in rangeland management were judged possible in terms of both sets of objectives, but rather different technical and institutional innovations would be required.

Frost's main recommendation for a draught-oriented herd was to aim at improving cattle condition at the end of the dry season. This is because this is the time of year when the greatest physical demands are being made on the animals, and a time when they are in poorest physical condition. One way to achieve this in Chamatamba would be to improve the quality of the dry season grazing in the central area, which is dominated at present by unpalatable grasses such as Schizachyrium jeffreysii, Hyparrhenia spp, and Elyonurus argenteus. One way to achieve this may be by means of a late dry season burn on at least a portion of this grazing land. Regrowth would provide more plant protein in animals' diet just before the start of the ploughing season, and would improve the usefulness of these rather poor grass species.

Institutional action would be needed to carefully manage such a strategy. The areas to be burnt would need to be carefully identified, since they would have to contain sufficient residual soil moisture to permit sustained regrowth under the combined effects of fire and grazing. This points to either low-lying areas close to the rivers, or more clayey soils, or other areas where the water table is high. Cattle would have to be kept off the burnt area until the grass had regrown to at least 8-10 cm. The burn and its control would have to be organised, and community support for such an intervention secured (burning is still frowned upon by extension staff and thus also by many fanners).

More conventional recommendations for improving management would be to develop a system of paddocks in order to practise Short Duration Grazing (SDG), as advocated by Agritex extension staff. The effectiveness of rotational resting in Chamatamba is questionable, however, given that most of the present grasses are so fibrous and unpalatable, without marked changes in species composition.

If beef production is the main objective of livestock owners then the conventional methods of improving pasture quality during the wet season (planting improved species, including legumes, fertilising, and possibly irrigation) are recommended by both

Frost and extension staff. The cost of such interventions would be high and their financial viability is doubtful.

The Chamatamba leadership have clearly opted for the objective of beef production in relation to the use of the new paddocks. They are much more interested in pasture improvement with exotic species and so on than in management practices aimed at improving the supply of draught power within the community as a whole - probably because for large herd owners draught supply is not a major problem.

3.3 MUTAKWA GRAZING SCHEME

Of the 5 case studies Mutakwa is the most typical of the fully-funded and fenced schemes which have been the major focus of communal rangeland management programmes since independence. In these Agritex officials play a major role in planning the scheme's layout and management system, negotiating costs with donor agencies, supervising the erection of fencing, drawing up by-laws, and advising communities on the operation of the scheme. In Mutakwa the design of fenced paddocks took little account of local patterns of resource use, and the scheme has contributed towards tensions and disputes both within the community and with neighbours. Conflicts over vlei (dambo) grazing land in particular, much of it situated outside of fenced paddocks, has made rangeland management the site of a fierce contestation for power.

3.3.1 The context: Zimuto Communal Land

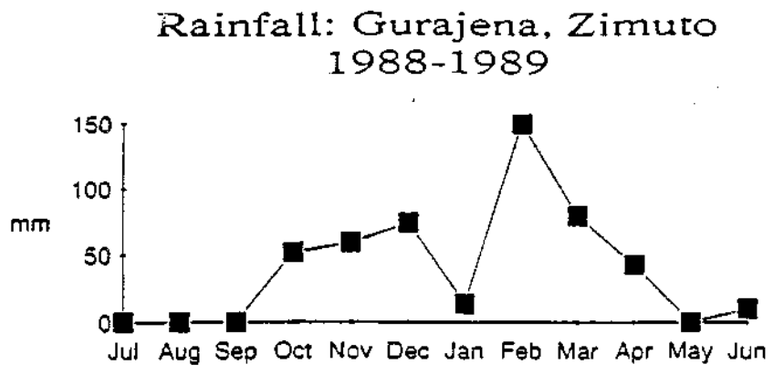
Zimuto Communal Land is situated some 35 kms north of Masvingo (formerly Fort Victoria), the capital of Masvingo Province. Average rainfall in Zimuto between 1981/82 and 1989/90 was 511.1 mm (Figure 4). Vegetation is of the Burkea/Terminalia type with Brachystegia spiciformis (msasa) woodland on the main crests and Julbernadia globiflora on areas with slightly heavier soils (Jordan 1964: *66)*.

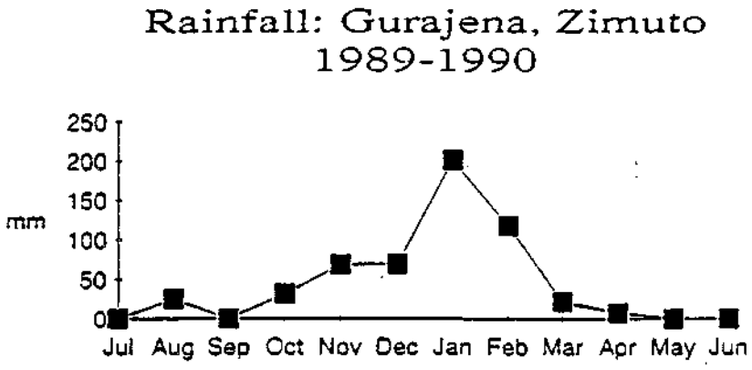
Zimuto falls on the boundary between Natural Regions III and IV, and is classified as being suitable for "semi-intensive livestock farming" based on livestock and drought-resistant crops. As with most other Communal Lands, however, farmers depend on a mixed crop-livestock farming system. In Zimuto this is made possible by the large number of vleis (dambos) which criss-cross the Communal Land and drain into the two main rivers, the Munyambi and the Popotekwe.

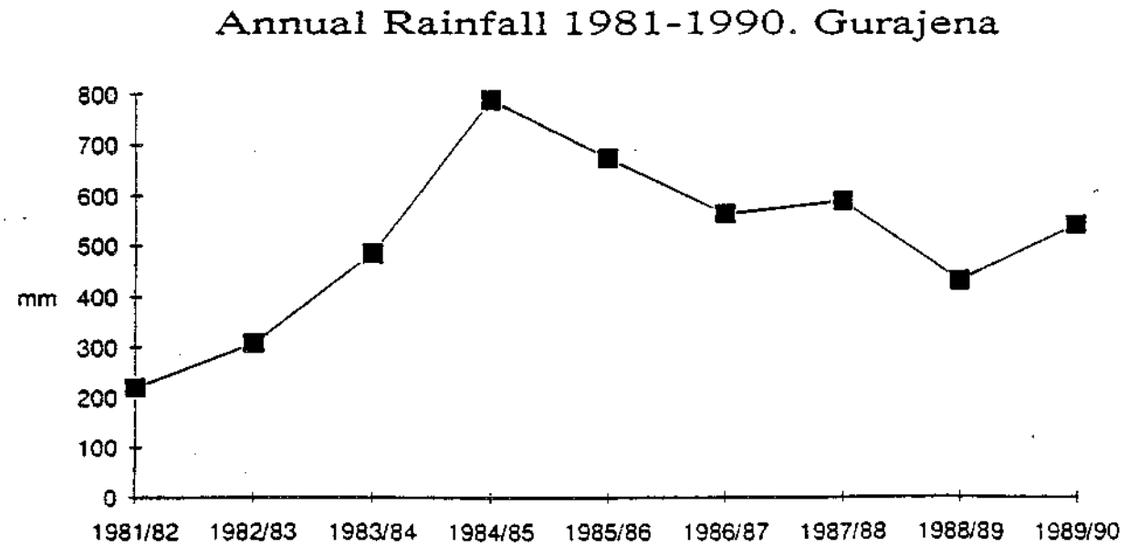
Of all the former Native Reserves Zimuto has experienced one of the longest and most sustained efforts on the part of government planners to introduce "improved grazing methods". This history stretches from the first centralisation in the 1930's to the contemporary period.

In 1946 the Animal Husbandry Officer for Fort Victoria North District reported that in his opinion "deterioration of the grazing ... is critical... I feel that the only remedy will be controlled grazing by paddocking...", and recommended the planting of Napier Fodder on unoccupied arable land. Paddocking commenced in some areas in 1947, as was the planting of Napier grass in pasture furrows. A limited recentralisation of the Reserve was initiated in 1948, in order to increase the proportion of grazing land, and a system of deferred grazing was introduced in 1949 which, according to Jordan (1964: 62) was still "fully operative" in 1964.

Figure 4 Rainfall at Gurajena, Zimuto







Robinson (1951) has described the first grazing schemes in some detail. These were located mostly in the vlei lands. The justification for introducing the schemes, without much attempt at consultation with local residents, was that the grazing areas had a "sparse grass cover" and. the vegetation indicated "a worn out and overgrazed veld and soil of low fertility". The vleis were drying out and "erosion was much in evidence" (Robinson 1951: 3). The Native Agriculture Department decided to begin a major programme of "pasture improvement".

To begin with an area of 1460 hectares was fenced into four paddocks. A system of rotational grazing was adopted, paddocks being grouped in pairs and rested in January, February and March in alternate years. Pasture furrows were constructed in the vleis in order to "check erosion", and sponge areas were fenced off from livestock. Because more fencing could not be obtained other grazing areas were divided into "paddocks" by means of demarcation banks and the animals were herded within these. Hay making and silage production were carried out with the help of mechanical mowers. By 1952 the Provincial Agriculturalist reported that a total of 44,467 acres was under rotational grazing in Zimuto Reserve, and the second centralisation exercise was said to have been completed in that year.

In 1955 Zimuto was surveyed prior to the implementation of the Native Land Husbandry Act of 1951, following which individual arable and grazing rights were allocated (Jordan 1964: 62). The boundaries of village grazing areas were mapped and gum trees were planted as permanent boundary markers. Grazing rotations through the 1950's and early 1960's continued to be of the two paddock/ deferred grazing type.

Changes in grazing scheme policy in the 1960s and 1970s are described in section *2.1* above. A number of schemes of the type described by Froude (-1974) and Danckwerts (nd) were located in Zimuto. These collapsed after the mid-1970s as the war took its toll? local residents remember pitched battles between guerillas and the Rhodesian armed forces, the killing of kraalheads (masabhuku) named as "sellouts", and the disappearance of fencing materials from grazing areas.

The boundaries between grazing lands continued to exist, however, marked by means of beacons or gum trees, on old Land Husbandry maps held by extension staff, and in people's minds. After independence in 1980 extension staff revived the notion of Short Duration Grazing schemes, promoted them widely within the District, and disinterred some of the plans which had been drawn up in the course of the previous decade. Donor agencies such as the EEC began to make funding available for the purchase of fencing materials.

3.3.2. Ecological and technical characteristics

Land use and habitat patches

Land use and habitat patches in Mutakwa grazing scheme are shown in Figure 5 and Table 3.12. The villages of Nhanzva and Tirivanhu stretch from east to west, between two of Zimuto's major roads. The six fenced paddocks are found in the east, on either side of the Gurajena road, and each paddock abuts the perennial Munyambi River. The paddocks enclose 235 ha, which is 36 percent of the total land area. Vleis and drainage lines comprise only an estimated 68.75ha, or 10.5 percent of the total. The stocking rate for the paddocks alone is 1 LU: 0.85 ha, and for the area as a whole 1 LU: 2.3 ha - much higher than the recommended rates of 1 LU: 6-8 ha.

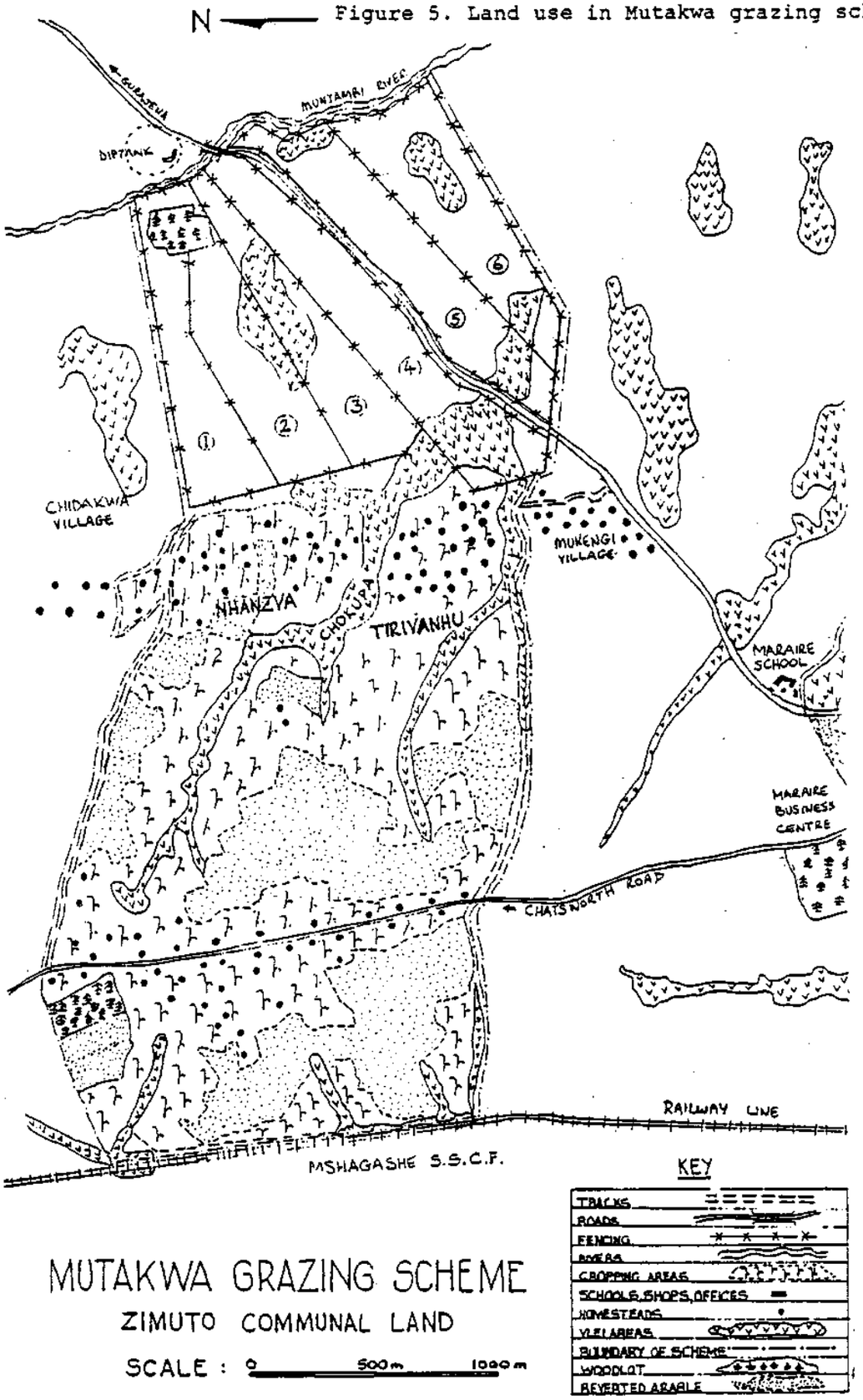
Table 3.12 Habitat patches available for grazing within Mutakwa grazing scheme in different seasons

	Wet season		Dry season	
	ha	%	ha	%
Reverted arable	123.4	29.1	123.4	19.3
Fields	0	0	178.5	27.9
Contours	0	0	12.0	1.8
Toplands	198.4	46.7	198.4	31.0
Vleis and drainage lines	68.8	16.2	68.8	10.7
Home sites	24.8	5.8	49.5	7.7
Riverine	9.4	2.2	9.4	1.5
Total	424.8		640.0	

Half of the total area of vlei land is found within the paddocks - some 35 ha. This comprises 14.8 percent of the total area which is fenced. The major vlei line draining down through the centre of Mutakwa is known as the Chokupa vlei. Most of the wooded toplands fall within the paddocks, and comprise 81.5 percent of the fenced area. Today the dominant species are Brachystegia spiciformis and Julbernadia globiflora, underlain by an extremely sparse cover of grasses and invaded by unpalatable Lophalaena and Helichrysum shrubs.

Arable fields are located on the crests rather than lowlying areas, but many are also found on the margins of the vleis which drain into the rivers and small streams. There is a growing land shortage in Mutakwa, and the substantial area of "reverted arable", which is land being rested to recover its fertility, is now under pressure from young families from within the community as well as outsiders seeking land to settle on.

Figure 5. Land use in Mutakwa grazing scheme



The grazing scheme

It seems likely that in Mutakwa some sort of deferred grazing system was in force during the 1940's, but older residents remember the first paddocks as having been introduced in 1959. They were initiated by the Agricultural Demonstrator, who did not consult with villagers but "simply told people what to do". There were two paddocks to begin with, one for Nhanzva and one for Tirivanhu, the boundaries being demarcated by gumtrees. The two grazing areas were rested in alternate years, between January and March. The toplands were not used much by the animals since they didn't contain much in the way of grass. According to one informant, "cattle always used the vleis because they were fertile", and another states that "tall grass was found in the vleis only".

The present-day sabhuku for Nhanzva, Chitime, says that people were not happy with the grazing area demarcations made at that time since they were cut off from the vlei grazing in the neighbouring Chidakwa village area. Fencing made its first appearance in 1968. Money was collected from each family and a boundary fence was erected along two sides of the grazing area, "to keep out the neighbours' cattle". Poles were used to show the internal divisions into paddocks. Between four and six paddocks (informants are not in agreement) were then marked off and fenced. Rotations were supposed to follow a cycle of 14 days per paddock.

After independence the idea of reviving the grazing scheme came from Agritex extension officials, and initial discussions were held in 1985. The donors, the EEC Micro-projects Programme, provided fencing materials worth $7002, and the community was expected to provide labour for fence erection and also supply timber for fencing poles from local woodlands. A small cash contribution of $0.45 per family was levied to buy tying wire and nails. Agritex planners retrieved the 1970's paddock design from their files and replicated it with a few modifications. The recommended rotation is two weeks per paddock during the growing season. Fencing began in May 1986, was completed in 1987, and the paddocks were first used in the 1987/88 season.

Patch use by livestock

Habitat patch use by foraging livestock was investigated between January and December 1989. Two herds of cattle located in the east and west of Mutakwa respectively were followed. The two herds displayed broadly similar foraging behviour across the seasons, but there were a number of differences as well. The herd from the west of Mutakwa, located across the Chatsworth road, hardly used the paddocks at all, and only in the late dry season. The bulk of grazing was done in the small vleis which abut onto the railway line, in the narrow strip of toplands along the railway line, and in the reverted arable in the west.

The herd from the east of Mutakwa used the fenced paddocks to a much greater extent, but even in the cropping season for only

34.2 percent of the total-feeding time. In the early dry season and late dry season paddocks were used for 17 percent and 27 percent of total feeding time respectively. The community herd as a whole was never observed to be all using the same paddock simultaneously, and there was no regular rotation practiced. The dominant pattern throughout the year, but most markedly during the cropping season, was for livestock to be taken to the paddocks only during the afternoon, and left there until evening. During the mornings small co-operative herding groups herded animals in other habitat patches. One rationale for this was that the smaller individual herds could be taken into small drainage areas or pieces of reverted arable more easily, with less danger of damage to crops.

Using combined data for the two herds, the use of the habitat patches in three different seasons (cropping, early dry and late dry) was estimated (Table 3.13). Vlei grazing is critically important during the cropping and late dry seasons. Fields and contours assume great importance in the early dry season. The riverine habitat, and home sites (where cattle are fed with stored crop residues), play a major role in sustaining livestock during the late dry season. Some grazing habitats are more important than others, and those that keep animals alive through the late dry season are perhaps the key to understanding how such high stocking rates are maintained.

Table 3.13 Seasonal habitat patch use in Mutakwa, 1989
(expressed as a percentage of total feeding time)

	Cropping	Early dry	Late dry
Fields	-	27.2	5.0
Reverted arable	28.8	12.1	3.0
Contours	-	18.8	4.4
Home sites	10.2	10.0	17.5
Toplands	17.5	12.3	18.0
Vleis and drainage lines	39.1	19.6	39.3
Riverine	4.4	0.0	12.8

0.0 = patch available but not used

The large proportion of time spent in the reverted arable in the cropping season partly reflects the relative scarcity of vlei grazing for the herd from the west of Mutakwa, partly the shortage of grazing land for the community as a whole. The low figures for topland grazing reflects how little time was spent in the fenced paddocks, but also the low preference for this habitat in general. This pattern is highlighted by calculating the preference index for habitat types (Table 3.14).

Table 3.14 Foraging preference index, Mutakwa 1989

	Cropping	Early Dry	Late dry
Reverted arable	0.99	0.63	0.16
Fields	—	0.97	0.18
Contours	—	9.89	2.3
Home sites	1.76	1.30	2.27
Toplands	0.37	0.40	0.58
Vleis and drainage lines	2.41	1.83	3.67
Riverine	2.0	0	8.53

Deferred grazing in Chokupa vlei

In the course of the cattle following exercise another resource management strategy practiced in Mutakwa became visible, one which had not been referred to by Agritex staff or by community members in initial interviews. This was the closure of-the upper portion of Chokupa vlei, which lies outside the paddocks and is perhaps 15 to 18 ha in extent, for a period of time in late summer. In 1989 this "key resource" was closed from mid-February to mid-April; in 1990 from late January to late April. According to informants this practice of deferring grazing on a highly productive vlei area during the late summer months has been a feature of life in Mutakwa for many years. It's origins are probably the earliest deferred grazing systems introduced into Zimuto in the 1940's. The actual timing of the closure depends on rainfall.

It is interesting to note that this deferred grazing system operates with a fair degree of effectiveness even though no fencing is involved. No complaints of poaching of grazing in Chokupa were recorded during 1989 and 1990, although according to Mr Chitime-the planned closure in 1990 between January and the 1st July would only be effective if "people do not pressurise us by illegal use". Some people in Mutakwa feel that there is insufficient vlei land for winter grazing. Nevertheless, the system has been maintained for many years.

One factor in the relative effectiveness of this exclusion rule may be the highly visible location of the vlei, sandwiched between fields and homesteads (see Figure 5). However, the habitat patch use data demonstrates how important vlei grazing is in Mutakwa, and the practice is aimed at spreading the availability of scarce grazing resources across seasons. The rule is thus rooted in a rational management strategy, and is effective mainly because it is understood and accepted within the group of co-users.

3.3.3 Socio-economic differentiation.

The community of Mutakwa comprises two "kraals" or villages which have a common origin and a long history of shared resource use. Although the distribution of arable land is not highly skewed

within the community, the same cannot be said for grain production or for crop sales. Of the 520 bags of maize sold in 1988 57.1 percent came from only 11 households, and 35 percent came from the top four sellers. Figures for total grain production show a similar pattern.

The distribution of cattle is highly skewed; 42 households own none, and only 15 own more than ten. The mean herd size for the remaining 42 households is 5.2, compared to a mean herd size of 11.9 for the large herd owners. The most significant index of socio-economic differentiation in Mutakwa appears to be cattle ownership, which is strongly associated with successful crop production. Neither gender of household head nor the presence of wage workers in a household are as strongly correlated as cattle with a number of wealth indicators such as total grain production, ownership of implements, and housing. Maize sales for the three groups of cattle owners are shown in Table 3.15.

Table 3.15 Maize hectarage, maize sales and cattle ownership in Mutakwa 1987/1988

	Cattle ownership			
	0 cattle (n=40)	1-9 cattle (n=45)	10 or > cattle (n=14)	ETA
Hectares under maize (mean)	0.6	1.0	1.4	0.51
Maize sales in bags (mean)	1,7	5.6	14.2	0.50

3.3.4 Institutional arrangements and power relations

The masahuku and the grazing scheme committee

The two major sources of authority over land in Mutakwa are the masabhuku or kraalheads, and the grazing scheme committee. The present-day sabhuku for Nhanzva is Chitime Madzimba, who succeeded to the post when his father died in 1959, shortly before the paddocks were planned. Chitime says that as a result of his opposition to paddocks he was deposed as sabhuku and his younger brother Thomas was installed in his place. Thomas and sabhuku Tirivanhu were in favour of paddocks and co-operated with extension staff. In 1963 the first grazing committee was formed, with Tirivanhu as chairman.

When paddocks were first demarcated using fencing, in 1968, the collection of money and the work sessions were organised by Tirivanhu. In 1972 or 1973 more money was collected and they were also donated wire after field days and competitions. In the early 1970's the committee continued to be chaired by sabhuku Tirivanhu, who decided on rotations. Some informants, however,

claim that the paddocks were used only in the afternoons, with livestock being herded by small co-operative groups of households in the mornings.
When the grazing scheme was revived after independence a committee was elected. Neither of the two masabhuku, Chitime and Titos Tirivanhu, son of the previous sabhuku, were on the committee. A new committee was elected in January 1988, allegedly because the previous chair and treasurer were not effective.

Other institutions

The Village Development Committee (VIDCO) includes Mutakwa and its neighbour, Chidakwa, but is an extremely weak body and is almost completely inactive, The local Councillor, too, has no effective presence within the community.

There are also "development-oriented" bodies such as the local farmer's club and a women's group, the leaderships of which are elected. There is a fair degree of overlap in the composition of the various committees in Mutakwa e.g. the past chairman, the vice chairman, the treasurer and the secretary are all on the committee of the farmers' club, and the secretary and -two other female members of the committee are leading members of an energetic women's knitting cooperative. Respondents generally gave as a reason for the election of these individuals their willingnes to lead and be active on behalf of the community. This stratum of leadership might be said to constitute a local "power elite".

The power elite of Mutakwa

To what extent does this "power elite" coincide with the large herd owners who are also generally the most successful crop producers? The mean size of cattle holdings of the ten Committee members in 1988/89 was 7.6, well above the mean for Mutakwa as a whole of 4.0. There were two non-cattle owners on the Committee, both women. The mean for cattle owners was 9.5; four members had herds of ten or larger, and two others had herds of 9 cattle. Thus the Committee was by and large composed of the cattle wealthy in Mutakwa.

This group was also made up of people whose homes are in the "line" of settlement nearest the paddocks, and they were also all permanently resident i.e. they are not migrants, (although the vice secretary was the wife of sabhuku Titos Tirivanhu, an urban worker who visits home every weekend). There were 5 members each from Nhanzva and Tirivanhu.

Grazing scheme by-laws

A standard set of grazing scheme by-laws drawn up by Agritex was - signed by the committee as a precondition for receiving assistance from the EEC, but the contents of these are not widely known within the community. The first three by-laws all refer to the setting of a maximum stocking rate within the scheme by Agritex staff, and its enforcement by the committee.

An alternative set of loosely formulated rules agreed at a community meeting are more widely, if unevenly, known. These refer to the use of the correct paddock in the rotation, the prohibition of fence cutting, controlled tree felling, a prohibition on the collection of leaf humus from the paddocks, and the paying of a fine of 50c for absenteeism, from work sessions. In the case of those households who did not contribute any labour at all to the erection of fences a $20 fine was laid down.

At a group discussion with the committees of all four EEC-funded schemes in Zimuto held in October 1987 the standard set of by-laws drawn up by Agritex was read out, and comments called for. None of the members of the committees had even mentioned their existence in interviews over the previous two days, and none of the schemes had made provision for control of stocking rates in their own bylaws. Yet all the committee members enthusiastically agreed that they did in fact remember these by-laws, had indeed signed them, and furthermore agreed with them.

Since that discussion, there has been no attempt by extension staff to fulfil their regulatory function as laid down in these by-laws: they have not communicated the recommended stocking rate to the grazing scheme committee in writing, there has been no control over rotations, and there has been no attempt to recover the cost of the materials "in the event of the by-laws not being adhered to", (Clause 11, Grazing Scheme By-laws, reproduced in Cousins 1988: 162). It has also proved difficult, however, for the committee to enforce the locally agreed by-laws.

External authorities

Agritex staff played a major role in reviving the Mutakwa grazing scheme, negotiating with the donor agency, and creating scheme's institutional framework. There are a number of other grazing schemes in Zimuto, and the District Council has discussed the adoption of the Model "Land Use and Conservation" By-laws (1985). Agritex planners from the provincial offices carried out a land use planning exercise in the District in 1989, and suggested allocating some of Mutakwa's grazing land to their neighbours in Mukengi kraal.

In all these instances external authority in one form or another has the potential to make decisions which would greatly affect decision making within Mutakwa; in none has this potential been realised. Agritex staff have effectively withdrawn from their regulatory role; the District Council has not formally adopted the Model By-laws; and no re-allocation of grazing land has as yet been carried out. Despite this the attitudes and actions of people in Mutakwa have continued to be influenced by fears that government will at some stage re-introduce a destocking programme.

3.3.5 Patterns of interaction and struggle

The practice of reserving grazing in Chokupa vlei has in recent years been the site of a struggle over decision making powers within Mutakwa. In February 1989 the decision to close the vlei was made at a meeting of the grazing scheme committee. On the 25th of April the vlei was declared open by Chitime, the sabhuku of Nhanzva, without consultation with the committee. The following year Chitime asserted his authority again and declared the vlei closed on the 27th January 1990. He "took charge", he said, because the control of vlei grazing had been his responsibility long back, and his authority in these matters overrode that of the committee.

At the same time Chitime vigorously denied that he had any responsibility for the organisation of fence repair sessions in the paddocks. "I can only take reponsibility when it is a burning issue. Until then it is the chairman's job", he said. The assertion of sabhuku authority in 1990 was not contested by the grazing scheme committee, a fact which can only be understood in the context of the complex power plays which arose over the maintenance of paddock fencing in 1988 and 1989.

By November 1988 the fences in Mutakwa's paddocks were in obvious need of repair, and in early December the Committee decided to call for weekly work sessions. These began in mid-December, with 30 people present. Under the overall direction of the Scheme chairman, the men worked on the fencing and the women weeded the invasive Lophalaena and Helichrysum shrubs, which are found on the topland areas under the msasa trees. After the work session a meeting was held to discuss organisational issues. It was agreed that, allowable excuses for not attending work sessions were illness, attendance at funerals, and cattle herding duties. The question of how much the fine for non-attendance should be was postponed to another meeeting, and there was an animated discussion of the urgent need to obtain payment of the $20 fine from those households who had not participated in the original erection of the fencing. The chairman also explained that the committee had given the masabhuku "the powers to push people to work in the paddocks".

Over the next few months the question of uneven attendance at work sessions threatened to undermine further maintenance of the scheme, and blame for this state of affairs was assigned by different people to several different actors and causes. People from Tirivanhu kraal began to blame Nhanzva people for not attending in sufficient numbers. Nhanzva people began to blame those members of their kraal who live at the western end of the scheme, along the Chatsworth road. Some Tirivanhu people blamed the sabhuku for Nhanzva, Mr Chitime, for not using his authority to ensure attendance. Another explanation offered was that the non-payment of the $20 fine by some 20 households was causing bitterness.

Members of Nhanzva who live along the Chatsworth road responded in different ways. Some denied angrily that they were not

attending work sesions, or blamed the Committee for not informing them of when these were due to start. Others felt that they didn't use the paddocks very much anyway, and should therefore not be obliged to maintain them. Two large herd owners from this area said that the benefits of the paddocks are only reaped by those who live nearby them, and one asserted that "the Tirivanhu people take all the advantages of the paddocks".

By February 1989 these tensions had brought the work sessions to a halt. Several meetings were held to try and resolve the problem, but attendance at these was generally poor. Eventually the decision was made to separate the organisation of work by kraal, with separate attendance registers being kept. Attendance at the next four work sessions was somewhat higher than average (36 percent, from both kraals, on average), but by April had fallen to very low numbers (12 percent). The work sessions lasted on average for only 3 to 4 hours, and levels of attendance were low. By June 1989 the repair work was still not complete.

These facts indicate that upkeep of the fenced paddocks have a low priority for most members of Mutakwa, despite their widely recognised usefulness for relieving herding labour for parts of the day during the cropping season. Paddocks are not viewed within Mutakwa primarily as a means to manage grazing; they are first and foremost seen as an aid to livestock management and the organisation of household labour.

This conclusion is further reinforced when we examine the desultory attempts by the Committee to institute a system of rotational grazing within the paddocks. The first attempt to do so occurred in late February 1989; before that date, said Committee members, the late start to the rains had meant such poor grass growth that it was not worth beginning any rotations. According to the chairman Paddocks 3, 4, and 5 were closed on the 27th February, but large numbers of cattle and goats were observed in Paddock 5 on the 2nd March. On the 3rd March a large herd owner from near the Chatsworth road said that he had not heard of the closure, and a woman herding cattle in lower Chokupa vlei said that only Paddock 4 was closed.

In 1989/90 no attempts were made to begin rotations in the paddocks, and the dominant pattern of use, observed and also referred to in many interviews, was for herding to take place in the mornings followed by use of the paddocks in the afternoon. Repair sessions began again in December 1989, after several months of inactivity, and continued through the rainy season, but attendance was generally low. The fencing in many paddocks was in a decidedly poor state by March 1990, with many posts beginning to rot and collapse.

3.3.6 Outcomes

The attempt by the Grazing Schemne Committee to increase commitment to the Scheme by invoking the authority of the masabhuku, and their resigned acceptance in 1990 of Chitime's decisions to regulate access to Chokupa vlei, can be read as a

failure of legimitacy on the part of an embryonic common property decision making body. At the root of the failure to achieve effective authority, however, is a local perception of ecological reality and appropriate management strategies. The fenced paddocks are not perceived by cattle owners in Mutakwa as very useful in terms of managing access to scarce vlei grazing resources; rather, they are a way to reduce herding labour during the summer months, and as a result are most useful to those whose homes are nearby the paddocks.

This locational unevenness in the spread of benefits has resulted in a complex series of displacements of "blame" within Mutakwa, with accusations being traded back and forth. While there is some recognition that the location of the paddocks is problematic for those households living at the western end of the scheme, tensions have emerged between the two kraals of Nhanvza and Tirivanhu. This is partly because there are more Nhanzva people living across the Chatsworth road.

The deferred grazing system on Chokupa vlei, however, does have legitimacy, and Chitime appears to be capitalising on this to reinforce his authority as a sabhuku. Thus the problems associated with managing a conventional,, paddocked grazing scheme have been the occasion of a power play by one sabhuku in order to regain authority over the use of vlei grazing land outside the paddocks, at the expense of the Committee, and possibly to gain greater local legitimacy at the expense of the other sabhuku within the community.

This power play has coincided with the emergence of tensions between the two kraals within Mutakwa, and together these have tended to emphasise the collective identity of the "kraals" (i.e.Nhanzva and Tirivanhu) rather than the wider entity. While this is the case for many households within Mutakwa, it appears to be less true for one important group in particular. This is the grazing scheme committee, which has attempted consistently to rally support for upkeep of the paddocks on the basis of an appeal to "community" (i.e. Mutakwa) interests. It is clear that they have failed in this project, despite an attempt to co-opt the authority of the masabhuku.

In the light of their identity as a cattle wealthy "power elite", how can we understanding the committee's role in local political dynamics? The most relevant characteristics of members of the Committee thus appear to be a combination of their larger than average cattle holdings and, given the location of their homes, their interest in use of the paddocks for reduction of herding time. The fact that they are locally resident means they are able to undertake duties such as the organisation of work sessions.

If committee members' individual interests are well served simply by the maintenance of paddocks as an aid to herding, what explains their attempts (admittedly somewhat half-hearted in character) to institute a rotational grazing system? This can only be understood by referring back to the regulatory role of extension staff. Agritex staff have overseen the signing of by-

laws as a condition of funding by the EEC, and are seen to represent the state and donor agencies. These by-laws contained the threat of removal of fencing materials if Agritex recommendations are not complied with.

The attempts by the Committee to begin a rotational system can be seen as an attempt to maintain and operate the Grazing Scheme in an attempt to maintain at least the appearance of conformity with the conditions of funding. This is aimed partly at preventing the removal of fencing (although to date this has not yet actually taken place anywhere in Zimuto), and partly to ensure that the community is still seen in a positive light by state officials who may offer general development assistance or bring in donors for other kinds of projects.

In the light of the analysis of habitat patch use by cattle in Mutakwa it would appear that the layout of the fenced paddocks is frustrating rather than facilitating the management of the most important rangeland resource in Mutakwa, the vleis. In the eyes of livestock owners the practice of deferred grazing on Chokupa vlei is much more relevant than Short Duration Grazing in paddocks enclosing largely useless toplands. One positive feature of the paddocks for farmers is that they provide some relief from herding duties, and this is perhaps one reason why some members of the community have been prepared to put some effort into maintaining the fences.

The lack of fit between the preferred pattern of use and the paddocks has had effects on the rules governing the grazing scheme. The following of rotations in paddocks is not perceived as useful and the attempts of the Committee to institute rotations has failed; this in turn has contributed to the loss of legitimacy and effectiveness on the part of the Committee.

3.4 MARAIRE GRAZING SCHEME

Maraire grazing scheme is located 1.5 kms south of Mutakwa, and the ecological characteristics of the two schemes are similar. There are important differences between the two schemes, however, and the most obvious of these is technical in character: none of the grazing land in Maraire is enclosed by fencing. A deferred grazing system is practised on key vlei grazing, but the grazing scheme experiences many problems in its attempts to exclude non-members. A limited institutional capacity for rangeland management has been adequate in the past but is no longer so, and the scheme has come under great pressure from neighbouring herd owners in recent years.

3.4.1 Ecological and technical characteristics

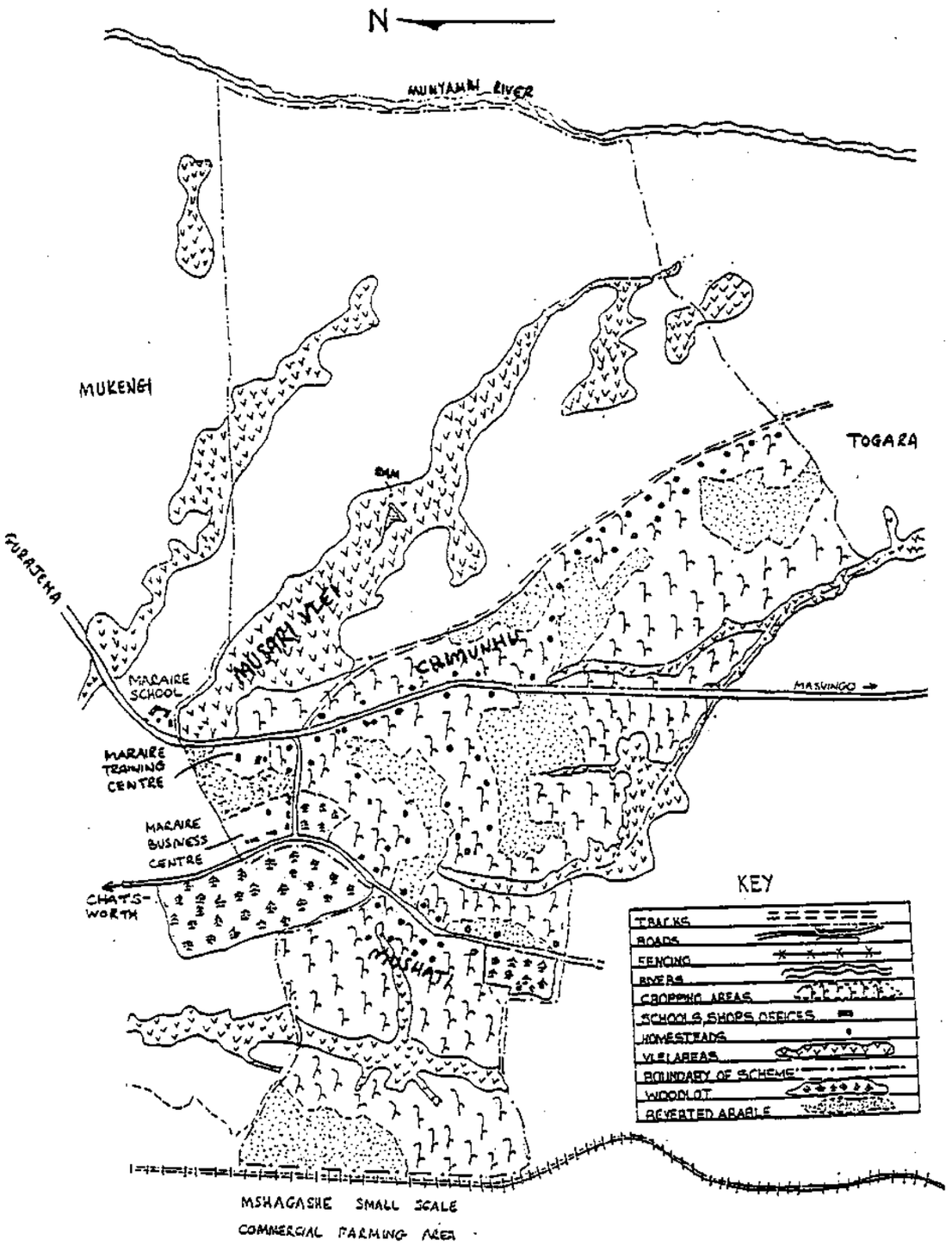
Land use and habitat patches

Land use and habitat patches in Maraire are shown in Figure 6 and Table 3.16. There are two kraals (villages) within the scheme, Chimunhu and Mushati, which have long been treated as one unit by resource planners, and the kraals are perceived by residents to be sub-units of a larger community, Maraire. The two villages are not located in clearly separate zones of settlement, but there is a degree of clustering of households (see Figure 6).

The Gurajena and Chatsworth roads which run through the scheme are important transport routes in Zimuto, and they almost converge at Maraire Business Centre. This is also the site of two District Council woodlots, the main Catholic church for Zimuto, and the Maraire Training Centre. This consists of two buildings used for extension meetings and agricultural shows, and as a meeting place by women's clubs and sewing and knitting groups. In the pre-independence era Maraire was an important focal point for development projects of various kinds, and this is still true, although to a lesser extent than before.

As in the case of Mutakwa, the "centralisation" policy created lines of settlement and cultivation along the crests (toplands) in the landscape. However, a great many fields are found along the margins of the vleis. In Maraire this wetland cultivation is concentrated around the vleis in the west and south of the scheme, and the vleis in the north and east are defined as grazing areas.
Toplands within the grazing area make up some 40 percent of the area, and as in Mutakwa the dominant species are msasa (Brachystegia spiciformis) and mnondo (Julbernadia globiflora). There is little grass growth, and the invasive and unpalatable shrubs Lopholaena coriifola and Helichrysum kraussii are found in profusion.

Figure 6. Land use in Maraire grazing scheme



MARAIRE GRAZING SCHEME

ZIMUTO COMMUNAL LAND

SCALE: 0 500 1000

Maraire is much more favoured than Mutakwa in terms of total land area per household (a mean of 12.1 ha as compared to 6.5 ha), and cultivated area per household (2.7 ha as compared to 2.1 ha). Maraire is regarded locally as a community with a better than average proportion of vlei land available to it for grazing and cultivation, and this is borne out in the estimates in Table 3.16. Vleis and drainage lines occupy 15 percent of the total land area, somewhat more than the 10 percent found in Mutakwa. The main vlei in the grazing area is known as Musari vlei.

Table 3.16 Habitat patches available for grazing within Maraire grazing scheme in different seasons

	Wet season		Dry season	
	ha	%	ha	%
Reverted arable	122.5	21.6	122.5	16.6
Fields	0	0	147.8	20.0
Contours	0	0	8.6	1.2
Toplands	304.6	53.8	304.6	41.3
Vleis and drainage lines	112.5	19.9	112.5	15.2
Home sites	15.0	2.6	30.0	4.1
Riverine	12.0	2.1	12.0	1.6
Total	566.6		738.0	

The grazing scheme

Older residents of Maraire remember the first demarcations of grazing land as having been carried out by state officials in the 1930s. Grazing management interventions are recalled as having begun in the 1940s, when the present boundaries between communities were demarcated by extension staff and gum trees (Eucalyptus spp) were planted as relatively permanent markers. A rotational resting system was recommended and the grazing area was divided into three "paddocks", marked by lines of poles but without wire fencing. In the early 1970s the grazing was divided into five "paddocks", again demarcated by poles, and Short Duration Grazing was recommended. Rotations of two to three weeks per "paddock" are said to have been undertaken, the animals being herded in large groups.

An aerial photograph reproduced in Jordan (1964: 67) shows the upper portion of Musari vlei, and illustrates the range of interventions being attempted by extension staff at that time (Figure 7) . These include Eucalyptus plantations, fruit orchards, Turkish tobacco seedbeds, planting of the vlei to improved grasses, and pasture furrows planted to Napier fodder. The woodlot and orchard can still be seen today. No Napier fodder survives,

Figure 7. Air photograph of upper portion of Musari vlei, Maraire grazing scheme, cl964 ((from Jordan 1964).

(1) Arable block, Mukengi kraal
(2) Reverted arable
(3) Eucalypt plantations
(4) Orchard
(5) Unimproved vlei (Mukengi)
(6) Turkish Tobacco lands
(7) Pasture furrowing in grazing
(8) Vlei planted to improved grasses (Musari vlei)
(9) Pasture furrows planted with Napier Fodder and Dhal
(10) Vegetable gardens
(11) Tobacco seedbeds
(12) Maraire Primary School

although the pasture furrows remain-. Members of the scheme assert that the area planted to "improved grasses"[9] is still noticeably better grazing. A dam for watering of livestock is found halfway down the vlei, and dates from the 1950s.

The scheme did not operate during the late 1970s because of the liberation war, and was revived again in the early 1980s. A boundary dispute with Togara village to the south of Maraire was resolved with the assistance of Agritex staff. To achieve this extension staff made use of a map, probably made during implementation of the Native Land Husbandry Act in the 1950s, which showed the boundaries of the grazing areas. A boundary. dispute with Mukengi village in relation to the top portion of Musari vlei was not resolved and is still a source of tension.

The divisions between the five "paddocks" were no longer clear as a result of bush growth on the toplands, and in the mid-1980s community work sessions were held to clear lines through the bush and erect poles to show the boundaries. People also cleared Lopholaena coriifolia at these sessions, as routinely recommended by extension staff.

According to grazing scheme committee members the scheme should still operate as an unfenced Short Duration Grazing system; rotations should consist of 14 days grazing per "paddock". The vlei area to the west of the community, near the railway line, together with the uncultivated land around the Business Centre and Training Centre, is said to be "paddock 6", and included in this rotational system.

Deferred grazing on vlei lands

In the period September 1988 to March 1990 no SDG rotational system could be observed to be in operation. Instead a deferred grazing system was practiced, in which the upper section of Musari vlei in "paddocks 1 and 2", and the vlei lands in "paddock 6", were rested in the late wet season and early dry season and opened to grazing again after two to three months. In both seasons the deferment of grazing in Musari vlei was effective even in the absence of fencing, but was not effective in respect of the railway line vleis. In 1989 the reserved area in the west of the scheme was opened to grazing prematurely because the deferment rule was not observed by livestock owners in neighbouring villages, and in March 1990 "poaching" of this grazing by neighbours was said to be taking place.

The resting of Musari vlei in the late wet and early dry season produced what appeared to be a fairly plentiful reserve of dry season grazing in both 1989 and 1990. The lack of fencing, however, meant that this reserve forage was made use of by livestock owned by outsiders as well as Maraire members. In 1989 the reserve forage had been consumed after only two weeks of use and livestock in Maraire were then said to be "on free range"

[9] It is not clear what species were planted.

i.e. herding was no longer required. Informants predicted a similar pattern for mid-1990 after the opening of the reserved area.

Regular observation of livestock movement in Maraire showed that, as in Mutakwa, the vleis, drainage lines and riverine areas are habitat patches which are heavily utilised by animals. Detailed data on habitat use were not collected, but research assistants commented on how seldom livestock were observed in toplands. In the early dry season fields were an important source of forage in the form of crop residues and grass on contour banks.

Thus Maraire displays some similarities to Mutakwa in respect of rangeland management, but there are some clear differences too: Table 3.2 shows that Maraire is more lightly stocked than Mutakwa, and that the stocking rate for the total land area within Maraire (3.6 ha per Livestock Unit) is much closer to the rate officially recommended (6-8 ha per LU). This relative abundance of grazing land may have led to a degree of complacency amongst the members of Maraire.

Exclusion of non-members from vlei grazing is clearly more problematic in Maraire. Interviews with community members show that the lack of fencing is perceived to be the major problem within the grazing scheme. Maraire appears to have more vlei grazing within its boundaries than its neighbours, and than Mukengi village in particular. This inequality is the major underlying reason for the "poaching" of Maraire grazing by outsiders' livestock.

3.4.2 Socio-economic differentiation

In contrast to the other case study schemes there are generally high levels of grain production in Maraire, and distribution of total grain production within the community is not highly skewed (Table 3.4 above). These features are probably explained by favourable and reasonably equitable access to productive fields in vlei margins. Two thirds of all households own cattle, and this is the highest proportion among the five case study schemes.

Nevertheless, socio-economic differentiation is evident in Maraire too. Sales of maize, the main crop, are highly skewed. Only 48 percent of households sold any maize in 1987/88, and 20 percent of households sold 72 percent of all the bags sold. Cattle ownership and maize sales are strongly associated, as shown in Table 3.17. Cattle holdings are again more strongly correlated with crop production and asset holdings than the variables of gender of household head or presence of wage workers.

Table 3.17 Maize hectarage, maize sales and cattle ownership in Maraire 1987/1988

	Cattle ownership			
	0 cattle (n=20)	1-9 cattle (n=30)	10 or > cattle (n=11)	ETA
Hectares under maize (mean)	0.5	1.1	1.2	0.53
Maize sales in bags (mean)	1.0	5.2	18.5	0.64

Thus in Maraire there are significant disparities in cattle holdings and crop production, although this pattern of differentiation is less marked than in nearby Mutakwa. The large herd owners tend also to be the successful crop farmers, and constitute a wealthy elite. Table 3.7, however, shows that the effects of this inequality may be blunted to a certain extent by inter-household interactions : households with inadequate numbers of draught animals tend to borrow these from their relatives; there is much less hiring of draught power than in Mutakwa.

3.4.3 Institutional arrangements and power relations

The grazing scheme committee

The grazing scheme committee was first elected in 1973, and few changes in its composition have occurred since then. After independence the same committee was formed to revive the scheme. The sabhuku for Mushati kraal was asked to be on the committee in 1984, but declined because of his age. The present sabhuku for Chimunhu is not formally a member of the present committee, but is said to be always consulted when important decisions are made. Between 1988 and 1990 there appeared to be no tensions between the masabhuku and the committee.

The most authoritative and influential member of the committee is the secretary, Tongofa, who has occupied this post since 1973. Tongofa lives not far from the upper portion of Musari vlei and takes an active role in "policing" the deferment of grazing which is practiced there, a far more active role than the designated mupurisa of the scheme. Even the chairman of the scheme defers to the authority of Tongofa. He is also the secretary of the VIDCO. The vice-chairman of the grazing scheme committee also sits on the VIDCO.

In 1985 members of the committee visited grazing schemes in Mwenezi District, an expedition organised by the local Agritex Extension Worker. Some of the transport costs were met by community contributions. Committee members also attended a 2 week training course on grazing management run by Agritex in the same

year, and the course included a discussion of grazing scheme by-laws.

The VIDCO

Maraire, together with the neighbouring kraals of Kwanga and Mukengi, falls within VIDCO 6. The VIDCO chairman is William Maraire, brother to the sabhuku of Chimunhu kraal, and until recently the acting sabhuku. The VIDCO is not perceived locally as being an effective planning or decision making body. Only two development projects have been initiated by the VIDCO in recent years: a woodlot, and improvements to the Maraire Training Centre. The woodlot is small and not well maintained, and the Training Centre improvements had been left half-completed for over a year by March 1990, and there was no evidence of any enthusiasm for its completion amongst local residents. Many people in Maraire are not aware of who sits on their VIDCO, and some openly dismiss it as a weak and ineffective institution.

Grazing scheme by-laws

The by-laws put forward by Agritex at the training course attended by committee members in 1985 placed great importance on Short Duration Grazing, and included the stipulation of fines for fence cutting. According to committee members there was no mention of a maximum stocking rate. Since Maraire has not received any donor funding, a formal set of by-laws has never had to be adopted as a pre-condition for financial assistance.

Some members of the committee claim that a set of by-laws has been agreed within the community, but there is no consensus as to their contents. When first interviewed on this issue the scheme's secretary, Tongofa, maintained that the Committee had drawn up its own set of by-laws in 1986 and put them forward for community discussion and acceptance at a general meeting. Tongofa's version of the by-laws stated that rotations must be followed and Lopholaena coriifolia shrubs weeded at regular work sessions, with fines of 50c for non-compliance. William Maraire's version included compulsory rotations, but not fines; instead unco-operative members should give an account of themselves to the committee.

The chairman and vice-chairman of the scheme could only remember one by-law each when questioned on this issue; in both cases this was the rule making the following of rotations compulsory. In all these different versions of the by-laws the rotations were said to refer to 14-day grazing periods in each of the five "paddocks". However, there is a sharp contrast between the rules regulating rangeland use which are said to operate and those which are actually followed. As described above, Maraire practises deferred grazing on portions of the vlei grazing, not Short Duration Grazing.

External authorities

State officials and agricultural extension staff have played a central role in the history of Maraire grazing scheme[10]. The demarcations of grazing land which created the Maraire scheme were carried out by extensior staff in the 1940's, and deferred grazing may well have been practised, under their supervision, before then. Musari vlei was the site of many official trials and demonstrations in the pre-independence era. The Extension Worker who lived in Maraire had worked in the area for 22 years by the time he left in 1988, and had been a key figure in initiating the" SDG scheme in the the early 1970s and in reviving the scheme after independence. The Training Centre at Maraire is often used for extension meetings and field days, and on these occasions senior officials often urge farmers to practise grazing management.

The Extension Worker was said by one. member of the Committee to be "toothless" (ineffective). The example offered was his inability to secure for Maraire both the bull and the rolls of fencing wire said to have been won in a conservation competition in 1985. The non-arrival of these have contributed to a rankling feeling amongst many residents that the scheme has been sorely neglected by government officials.

The lack of fencing in Maraire is a particularly sore point with residents. People expect the scheme to be provided with fencing, from either donors or government, since "we have and will put all our efforts to reserve our grazing areas", as one committee member put it. However, it appears that the grazing scheme committee has made few efforts to actively secure this kind of support. Both ordinary members and the committee evidence an attitude of passivity, on the one hand, and a muted resentment of the perceived neglect of Maraire, on the other.

The power elite of Maraire

As noted above, there is a degree of overlap in the composition of the VIDCO and the Grazing Scheme Committee, and the sabhuku for Chimunhu (the senior kraal) is often consulted when important decisions are being made. The dare (court) of the sabhuku is used to hear cases of violations of grazing scheme rules. The leadership layer in Maraire, as in Mutakwa, thus constitutes a local "power elite", but this power appears to be exercised only sporadically and to relatively little effect. This elite does not engage in much "development-oriented" activity, either on their. own behalf or in the interests of the wider community. The grazing scheme committee does not meet often, and the question of when to begin the resting of grazing land is discussed - informally on social occasions such as beer drinks, and then

[10] According to Garike the name "Maraire" itself was originally that of the white local government official who enforced the centralisation policy in the 1930's, and means "the one who gives laws".

acted on by the secretary, or sometimes by the secretary and the chairman together.

The mean size of "cattle holdings of committee members in 1987/88 was 6.2, higher than the mean for Maraire as a whole (4.8). but less than the mean for cattle owners only (7.1). Only one of the five committee members, the treasurer, belongs to the group of 11 large herd owners in the community. Most of the cattle wealthy in Maraire are not active in local politics. Of the 10 bone fide large herd owners[11], 4 are absent most of the time in wage employment, returning home either at weekends or at the month's end. One operates a local grinding mill in addition to working in Harare. The other 6 are all retired workers, and while they may well have invested part of their earnings in cattle, only one, the sabhuku for Chimunhu kraal, participates actively in grazing scheme affairs.

3.4.4 Patterns of interaction and struggle

Deferred grazing in 1989

On the 1st March 1989 the upper portion of Musari vlei, part of what is known as "Paddock 1", was declared to be reserved for winter grazing. According to the chairman of the scheme, Tauya, he and the secretary, Tongofa, made this decision: "we are the decision makers here" he declared. The masabhuku, he said, would help to "push people" to use paddocks in the correct way. The closure took place later than usual, said Tauya, because of the lateness of the rains; early January was usually the period in which the deferred grazing system began to operate. The vlei would be rested for three months. The main problem that the chairman anticipated was the invasion of the reserved grazing by outsiders. They might put their animals onto the vlei at night, or wait until after the grazing was declared open again.

Tauya affirmed the importance of having a grazing scheme committee, but also expressed some personal dissatisfaction with his role as chairman and a desire to resign:

> Our people are unhappy because they won prizes in previous years but never received them. They blame the chairman for this. People have been made to work in paddocks, but get no rewards. Without fencing wire it is very difficult. In the long run people may not co-operate (Tauya 1/3/89).

The vice-chairman of the committee, Muchova, outlined the difficulties the committee faced in their attempts to enforce grazing scheme rules:

---

[11] One women who is head of her household holds 4 cattle in her kraal, with 7 head held elsewhere and still to be delivered in terms of a roora agreement. All the cattle are said to be "owned" by her son, who is regarded as a member of the household but lives and works in Harare.

> Our main problem is with the Mukengi people. Someone from there went into Paddock 2, and we had to sit down with them and discuss it. But they continue to do it; without a fence it is a continuous problem.
>
> People within Maraire have a liking for paddocks, so they all obey our laws. Paddocks help in that areas are reserved for cattle. We have worked for the past two years to clear the lines which demarcate the paddocks. Many people came to these work sessions. We used to make the non-attenders pay a 50c fine, but now people are disappointed; we have long been promised some wire but nothing ever comes. People are quite disheartened but due to the committee they just carry on (Muchova 1/3/89).

By mid-April herders from Maraire were putting their animals into fields to feed on crop residues, and Musari vlei remained ungrazed, although cattle from Mukengi were reported as "breaking in" at night. By mid-May a good reserve of grazing had built up in Musari vlei. On 1st June Tongofa declared Musari vlei open for grazing again, after the planned three month rest period. Maraire residents were informed on the evening of 31st May, and took their herds to Musari the following morning. On the 2nd June their livestock were joined on the vlei by animals from neighbouring kraals. By the middle of June, after two weeks of use, the grazing reserve in Musari vlei had all been consumed.

Deferred grazing in 1990

In early January 1990 the secretary expressed his hopes and fears for the grazing scheme in the coming year. He had misgivings about the planned deferment of grazing on Musari vlei, and foresaw a decline in the effectiveness of the systems

> I will call a Committee meeting at the end of January, when our area might have received some good amount of rainfall, to try to reserve Musari. But people are discouraged since it is so hard to control poaching by people within the scheme and by neighbours when we have no wire to protect our grazing (Tongofa 4/1/90).

On the 26th January Tongofa announced the closure of Musari vlei together with the vlei and reverted arable near the railway line, in "Paddock 6". Whereas the previous January had been very dry, this January had seen heavy rains falling in the two week period immediately preceding the closure.

On the 17th February the mupurisa for the scheme, Mariba, called an emergency meeting of the Committee together with sabhuku Vaki Chimunhu. Three boys from families within Maraire had been apprehended grazing their cattle herds in the reserved grazing in "Paddock 6". All three families owned herds of less than 5 animals; none were part of the leadership group.

A meeting of the dare was called, with Chimunhu presiding over the proceedings. At first the boys maintained that they knew nothing of the closure of the grazing in this area, but after Tongofa threatened to make them pay a $5 fine, and in addition have them brought before the magistrate's court in Masvingo, they admitted to wilfully disobeying the deferment rule, and apologised. The dare gave them a "final warning", and Chimunhu stressed that any future violations of the "law" would automatically result in $5 fines.

On the 20th February Chimunhu complained again about poaching of grazing by herders from Mukengi. He said that the grazing was in good condition after the recent rains, but that poaching was proving troublesome along the railway line in particular. The scheme had had no success in procuring any fencing materials from the District Administrator, because the Councillor had done nothing to help.

By mid-March the late summer rains had come to an end and grazing was once again in short supply. The portion of "Paddock 6" in the vicinity of the Business Centre was opened up for grazing first, on 7th March. Musari vlei and the area along the line of rail was left closed.

3.4.5 Outcomes

Large herd owners in Maraire, in contrast to Mutakwa, are not particularly active in the grazing scheme committee. They appear to pay more attention to their wage earning, business and cropping interests than to livestock and grazing. Since Maraire is a relatively well endowed community within Zimuto in terms of vlei land for both cropping and grazing, there may exist a certain amount of complacency amongst these wealthier households, and more generally within the community. The existing property regime may be perceived to be operating sufficiently effectively for greater involvement in grazing scheme affairs not to be necessary. If land use planning by state officials was to re-allocate large areas of vlei grazing to neighbouring communities then this might change.

The legacy of the colonial past seems to hang over Maraire. Even the meaning of its name ("one who gives laws") evokes the era of state imposed plans and compulsory "development". The ruins of the old tobacco sales building, and the empty contours in the grazing area which once grew stands of Napier Fodder, testify to the failures of this era. Some components of state planning survive, however - for example the old gum trees marking out grazing territories, and perhaps most notably, the deferred grazing system on Musari vlei. Another survival, less positive in character, is a legacy of passivity in relation to external authority and government agencies.

The grazing scheme in Maraire is clearly more than simply a "minimum" common property regime, since there are definite rules in place for the use of vlei grazing at certain times of year. These rules are articulated and enforced by an institutional

structure which has its roots in the colonial period, and there has been little innovation (and indeed little change in personnel even) over the past twenty years. Maraire grazing scheme thus developed what might be termed an "adequate" institutional capacity, but has been unable to adjust to the demands of the post-independence situation.

New pressures have been experienced in recent years: "poaching" of grazing by neighbours has become a major problem, and Maraire residents feel that fencing is needed to exclude outsiders. Other grazing schemes have received donations of fencing from donors and government: why not them? But the scheme leadership has not cultivated the political connections (e.g. with the local Councillor) which might bring "development", and the committee felt sorely deprived when its strongest link with the stats bureaucracy, the local Extension Worker, suddenly moved away. Land use planning initiatives by the post-independence government may bring changes in village boundaries, and Maraire is in a weak position to resist re-allocations of grazing land.

Thus the members of Maraire grazing scheme, who might wish to resist changes in the existing property regime, may nevertheless be forced to embrace them. The leadership will have to develop new capacities (e.g. to argue their case with external authorities, to negotiate changes in scheme boundaries, to organise community support for new grazing management rules and their enforcement), or face a decline in the effectiveness or even the extinction, of any kind of common property arrangements on their grazing land.

3.5 MWENEZI DISTRICT SCHEMES: THE ECOLOGICAL AND INSTITUTIONAL CONTEXT

Mangezi and Machingo Grazing Schemes are both located within Mwenezi District. They are immediately adjacent to one another, fall within the same Village Development Committee (VIDCO) area, and have their origins in a high profile land use planning initiative within the district known as the Mwenezi Radical Land Reform Programme (MRLRP). This section describes the shared ecological and institutional context of these two case study schemes.

The "radical land reform programme" initiated in Mwenezi District in the early 1980's soon caught the imagination of donors, planners and journalists. It was referred to in the press as "one of the most radical advances in communal farming since the plough" (Sunday Times 17/11/87). However, problems as well as successes were experienced. By 1990 the spread of the programme through the district had slowed and the MRLRP had lost its high profile as a successful grassroots land reform initiative.

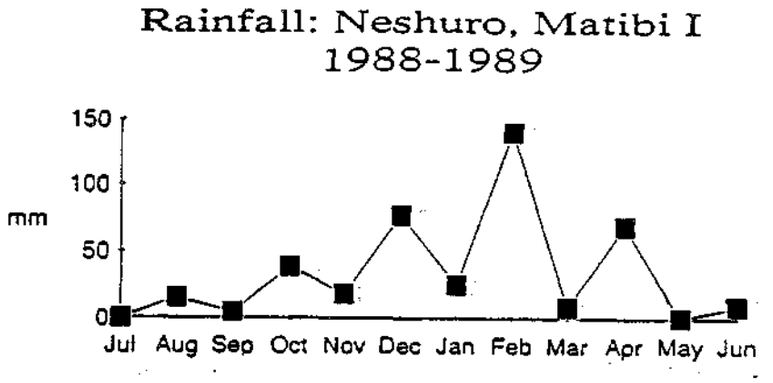
The case studies of Mangezi and Machingo illustrate the nature of the problems encountered. Although the rhetoric of the MRLRP stressed its popular, "bottom up" character, in reality the planning and implementation of resource management in these two communities was little different from conventional, "top down" approaches. In addition many difficulties were experienced as a result of attempting to implement an SDG grazing system in a semi-arid environment with highly variable rainfall. These were exacerbated by high population densities (of both people and livestock), which leave little room for manouevre.

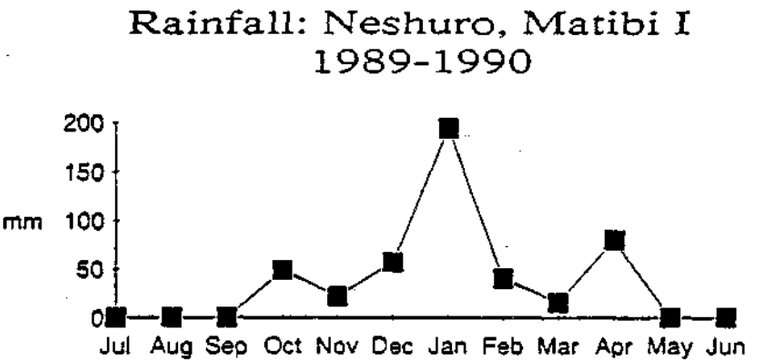
3.5.1 The ecological context

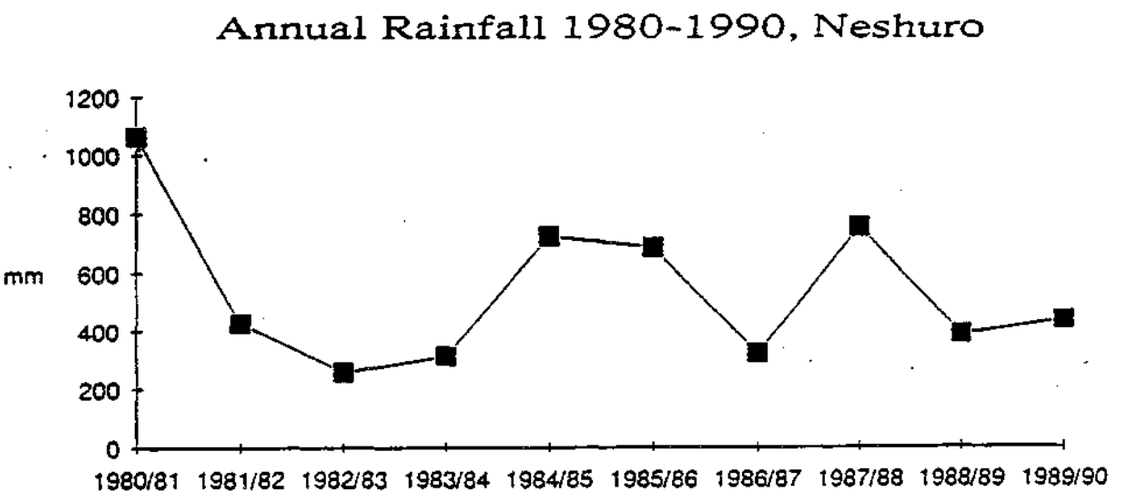
Location and population

Mwenezi District is located in the dry south eastern lowveld of Zimbabwe. Most of the District falls within Natural Region V, but a portion in the north with higher rainfall is classified as Natural Region IV. Most of the land in the district (83 percent) is held as large scale commercial ranches. The Communal Lands of Maranda and Matibi I make up the rest of the district. The population of the Communal Lands was approximately 73 300 in 1982 (SADCC 1986: 2/1). The commercial ranches contained a much lower population of people (approximately 10 000 in 1982) and livestock, at much lower stocking rates than on the Communal Lands (Cliffe 1986: 65).

Figure 8. Rainfall at Neshuro, Matibi I







Rainfall

Mean annual rainfall at Neshuro recording station in Matibi I between 1980/81 and 1989/90 was 538.3 mm. Rainfall varies considerably from year to year, both with respect to total amount and seasonal spread, and mid-cropping season droughts are common (see Figure 8).

Soils and vegetation types

Mangezi and Machingo are located in the portion of Matibi I which falls within Natural Region IV. This area falls in a transition zone between broken granite country to the north and the flat, fertile mixed bushlands of the south east lowveld. There are many domed hills and castle kopjes interspersed with gently sloping areas and thickly wooded river valleys.

Vincent and Thomas (1962: 92) describe the vegetation of those parts of the south and south east of Zimbabwe which fall within Natural Region IV as belonging to three basic types:

(a) The vegetation of the granite sand areas is characterised as "mixed deciduous Terminalia-Burkea woodland". Colophospermum mopane is found scattered throughout and is dominant in areas of poor drainage. The grasses are described as "mainly 'sour', poor species, but with some more palatable ones mixed in the sward" (ibid: 92). Examples are Eragrostis spp, Digitaria spp, Cenchrus ciliaris and Aristida spp.

(b) On loam soils the vegetation is characterised as "very mixed, with general co-dominance of Combretum apiculatum and Acacia nigrescens" (ibid: 92). Grasses include Themeda triandra, Eragrostis spp, Cenchrus ciliaris, Urochloa spp, and some Panicum maximum, and these are mostly palatable and of high value as grazing.

(c) On the heavier red clay soils Vincent and Thomas describe the vegetation as "Acacia-other species bushland", dominated by Acacia spp, mainly Acacia karroo. Grasses in these areas comprise many species (e.g. Heteropogon contortus, Themeda triandra, Eragrostis superba, and Digitaria spp), and where soils are deep a good sward of Panicum maximum and Urochloa pullulans and other good grazing grasses can be found.

The vegetation of Mangezi and Machingo fits broadly into this general typology. The grazing areas are mostly on sandy loam soils and contain a mixture of Terminalia sericea, Combretum apiculatum and Acacia spp. These areas contain a mixture of species of poor to moderate value for grazing (e.g Digitaria spp, Sporobolus spp), and highly productive grass species (e.g. the prized Urochloa mossambicense, known locally as 'mbavani'). Patches of sodic soils dominated by Colophospermum mopane are found throughout the grazing areas.

Two rivers border Mangezi and Machingo, the Shashe and the Chivakhe (see Figure 9). Adjacent to these lies a zone of high level alluvium with red loamy soils . In the past portions of the alluvium were cultivated, but land use planning carried out under the MRLRP has converted these into grazing areas. The woodland in these red soil zones conforms broadly to the third vegetation type described by Vincent and Thomas. Tree and shrub species of high browse potential are found (e.g. Combretum fragrans, Dichrostachvs cinerea, Grewia flavescens), and the dominant grass species is the productive Urochloa mossambicense ('mbavani') . Patches of Panicum maximum also occur, particularly under trees.

Spatial heterogeneity

Heterogeneity is found within these two grazing schemes between two zones with contrasting characteristics. Most of the paddocked grazing area is located on sandy loam soils with sodic patches, and both the quantity and quality of grazing here are poor to medium. Higher quality grazing and good browse species are found in the red soil alluvium zones alongside the rivers.

Within these zones a certain degree of heterogeneity is also found, and distinct habitat patches can be identified. Drainage lines within the mixed woodlands on sandy loams appear to produce more grazing than do the surrounding areas. Within the alluvium zones there is a contrast between the densely wooded river banks and the more open mixed woodland further back from the river.

In the past livestock owners exploited spatial variations in rainfall and vegetation at a much larger scale, along the lines described by Scoones (1989; 1990). In drought years herds in search of grazing were often taken as far afield as Matibi II and Sengwe Communal Lands in the south of the district, and sometimes left there under kuronzera (loaning) arrangements until conditions had improved. When Foot and Mouth Disease control measures were introduced in southern Zimbabwe in 1984, and movement across zones was restricted, some people from Matibi I had to abandon their plans to bring back herds of cattle from the south after the end of the drought. They were forced to either sell their herds and buy other cattle or come to some kind of "mutual aid" arrangement with households looking after these animals. Some people are said to have permanently moved their homes to these southern communal areas to be with their herds.

3.5.2 The institutional context: The Mwenezi Radical Land Reform Programme (MRLRP)

Programme objectives

The "land reform" programme which began to be formulated in 1982 and 1983 consisted largely of a reorganisation of land use within the Communal Lands, not a redistribution of land from commercial to communal. The major emphasis in the programme has always been on livestock production.

Cliffe (1986: 63) has succinctly summarised the main components of the MRLRP as:

> i) re-establishing demarcated grazing areas that had been encroached upon as households dispersed during the war... and introducing village management of the grazing, using fenced paddocks
>
> ii) putting greater emphasis not only on herd improvement but on livestock production as the main source of cash income
>
> iii) consolidating arable holdings into blocks but reducing total area thus in turn reducing the need for draught
>
> iv) catering for the needs of the stockless by giving them rights in grazing areas, encouraging the spread of the traditional custom of lending out cattle for the use of those herding them, and by promoting co-operative use of draught animals on neighbouring plots in the village block
>
> v) establishing more centralised villages between grazing and arable areas (Cliffe 1986: 63).

Since in many respects the MRLRP appears to have amounted to little more than Native Land Husbandry Act planning with popular consent, one can ask: why the epithet "radical"? As the 1986 SADCC study pointed out:

> The MRLRP is perceived by some as the continuation of old policies and schemes - slightly embellished, perhaps; by others as a "radical reform", a "social transformation".
>
> The former group point to pre-war grazing schemes.... the latter to equalisation aspects and communal management of common resources (SADCC 1986: 5/1).

According to Cliffe (1986: 64) the two features of the programme with most general relevance were firstly, "the communal commitment developed from processes of grassroots discussion" i.e. its popular character, and secondly, the measures aimed at assisting the non-stock owning households. Central to the MRLRP, and the feature which has been most often stressed, was the institutional dynamic whereby a "communal commitment" was said to being generated.

Institutional structures

For the first decade of independence the Batanai District Council represented the population in Maranda and Matibi I. The Council was headed by a Chairman and Vice-Chairman elected from the ranks of councillors.

The key role envisaged for the Councillors in the MRLRP was summed up in a 1983 planning document:

> ... it is the councillor who is responsible for introducing the concept of land reform and social transformation within each ward, and thus his catalytic and organising role is extremely important (DPP 1983; 3).

Before 1984 and the creation of VIDCOs and WADCOs the councillor operated within the ward through the so-called "Ward Standing Committees". These were not elected bodies, and were structured to include representatives of various interest groups within the ward (DPP 1983s 3). They were constituted from above by local government officials working together with the ruling party. They appear to have been composed largely of members of the local elite, such as kraalheads (masabhuku), businessmen, headmasters, local party officials, and master farmers, as well as extension staff from government departments. In the mid-1980's these bodies fell away and were replaced by VIDCOs and WADCOs. The Councillors continued to be directly elected and to be the key linkage between Council and its constituency.

In Mwenezi the party appears to have played a particularly active role in post-independence initiatives, perhaps because of its high profile in the area during the last few years of the liberation struggle. In Ward 14, for example, where the MRLRP is said by some local informants to have originated, the Councillor and Village Standing Commitee Chairman were both active and leading members of the "liberation committee" formed to assist the guerillas (Sanders 1984).

Beginning the MRLRP: an "educational war"

The key figures in the early stages of the programme were the District Administrator (DA), K. Mugoni, and the new Councillors elected in 1982. Particularly influential were the first Chairman of Council, Francis Christmas, and the Chairman of the Planning Committee, Phineas Sithole.

The SADCC report of 1986 provides the following account:

> The policy was one of "soft selling". The sensitivity of people to relocation, to land reorganisation, to cattle controls, to conservation disciplines, was taken into account....
>
> The informal planning group of DA and a few councillors set out to share their ideas, using village standing committees....Simultaneously they enlisted the support of the technical staff...some of whom had in any case contributed to strategy formulation, Bringing the village leaders and the technicians together, motivation of the people soon had its effect in one ward (No. 4) (SADCC 1986: 3/1 - 3/3).

According to the SADCC report the role of party activists is described as "... being not without an element of threat,

coercion - the 'hard sell'" (ibid: 3/3). The District Administrator's document of 1984 asserts that "After the leaders understood an educational war was then switched on to the masses ..."(Mugoni 1984: 3).

Implementation of the programme started in a small number of pilot wards, the first two being the constituencies of the Chairman of Council (Ward 4) and the chairman of the Planning Committee (Ward 14). Within these wards the programme began to be implemented in the home villages of these two highly-influential individuals. As the two case studies which follow make clear, the MRLRP was a programme conceived and planned by a small group of officials and members of the district elite rather than a grassroots initiative.

The MRLRP and land redistribution

From its inception the MRLRP faced a fundamental dilemma. Given a history of forced relocation of rural communities into densely settled "reserves" in low potential areas, it was unlikely that the kind of land use reorganisation proposed by the MRLRP could by itself resolve the problems faced by Communal Land households.

We have noted above the stark contrast between human and livestock populations in the commercial and communal sectors within the district. Livestock numbers declined sharply in Matibi I and Maranda during the 1982-84 drought, and the situation thereafter was one of much-reduced stocking rates on communal grazing. While this gave comfort to extension officers and planners who were worried about "overgrazing", it left many households without access to sufficient animals for draught purposes, and undermined the notion put forward by planners of building a local agricultural economy based on livestock sales. The obvious imbalances led to calls for "external" resettlement as a necessary complement to "internal" land reform within the MRLRP (although the latter were always given greater prominence) .

Cliffe calculated that the two Communal Lands could hold a total of 14 350 LUs, at stocking rates of 1 Lu per 10 ha, but that this would provide only 1.2 LU per household. According to Cliffe

> ... [there is] no marked shortage of arable land for household needs, nor of grazing for the number of available livestock after the drought. But these 'balances' are not enough to give all households enough draught animals or to give them sufficient herds to make a living.... there is a poverty not a conservation problem (Cliffe 1986: 64).

Cliffe went on to conclude that substantially expanded access to grazing land <u>outside</u> the confines of the present Communal Lands was critical to the success of attempts such as the MRLRP to undertake "internal" transformations. The Chairman of the District Council, Francis Christmas, continued to raise this issue throughout the '1980's, in Council meetings and at public gatherings, but no programme along the lines recommended by

Cliffe has so far been proposed by government. As it took shape the MRLRP remained to all intents and purposes a programme of land use planning with little or no attempt to radically alter the pattern of access to resource' across sectors.

Implementation record

The MRLRP was formally launched in 1983 when the land use planning of 6 villages in 3 pilot wards (Nos 4, 14 and 23) was carried out by Agritex officials. Funding was sought from two donors, the EEC Micro-projects Fund and GTZ, who were working closely with the ARDA Provincial Planning Unit. A project budget of Z$ 241 018 was agreed, with the EEC and GTZ providing Z$ 72 912 each and the local community and government departments providing labour and services estimated to be the equivalent of *Z$* 95 180. All of the GTZ grant and an initial payment of Z$25 000 of the EEC funds were released in early 1984.

Fencing of paddocks and relocation of households and fields commenced in 1984. Members of the schemes were transported by the District Administrator's office to commercial ranches within the district to cut fencing posts, which were paid for from project funds. In September 1986 it was reported to the EEC that fencing of paddocks was 63 percent complete in the pilot wards, but that problems were being experienced in relation to transport for fencing materials and for the cutting of more posts. The District Administrator had not accounted for the initial EEC payment with the relevant supply invoices, and this was delaying further payments needed for the purchase of materials (Cousins 1988: 34).

By 1990 this problem had not yet been resolved, preventing the completion of fencing in Wards 4 and 23. All the paddocks in Tagarika village in Ward 14 had been completed, but the planned extension of the programme to other villages within the ward was now not possible. In 1986 some fencing had been diverted from the first two Ward 4 villages in the programme (Machingo and Mativenga) to" "a village, Mangezi, which had joined Machingo in the new VIDCO structure.

From 1985 through to 1990 Agritex staff continued to undertake land use planning exercises in other villages in the district which expressed interest in the programme, but most of these plans remained unimplemented due to the shortage of funds. From around 1987/88, however, the District Administrator's office began to make grants of fencing materials to communities as part of the public works programme, and boundary fencing was erected in villages in other wards within the district. Unfortunately it has proved difficult to locate any documentation of these schemes.

By 1990, however, only Tagarika village in Ward 14, the home of Councillor Sithole, could be said to be a completed and fully functioning scheme. All households in Tagarika were living in a centralised village area, and many had received loans to build improved houses under the Rural Housing scheme. The chairman of the VIDCO claimed that Short Duration Grazing was being

practised, and that the community had agreed to a rule that households with more than 12 head of cattle should share cattle with stockless households, as in the traditional kuronzera arrangement. The reality of these claims is difficult to establish. In the rest of the district the MRLRP was proving much more difficult to get off the ground, and had lost its high profile and reputation as a grassroots initiative to restructure land use in communal areas.

3.6 MANGEZI GRAZING SCHEME

Mangezi has a reputation within Mwenezi District for being better organised and more willing to accept the central features of the Mwenezi Radical Land Reform Programme (MRLRP) than most of the other communities within the programme. However, implementation of the grazing scheme has resulted in internal conflicts, paddocking has not been completed despite the availability of fencing materials, and there has been no attempt to practise the recommended SDG grazing system. Institutional development has been weak, with few meetings held by the grazing scheme committee and little discussion of by-laws. Livestock owners within Mangezi have made use of the paddocks to reduce the time spent herding, and showed commitment only to maintaining boundary fencing which excludes neighbours.

3.6.1 Ecological and technical characteristics

Habitat patches

Land use in Mangezi is shown in Figure 9, and the availability of habitat patches for grazing purposes in Table 3.18. Most of the grazing areas within Paddocks 1 and 2 belong to the mixed deciduous woodland types identified by Vincent and Thomas on granitic sands and loams in Natural Region IV. They have been designated as "sandy loam woodland" in Table 3.18. The quantity and quality of the grazing is generally poor to average, and lacks bulk rather than palatability. Better grazing is found in the drainage lines within these paddocks, which have been separated out as a distinct habitat patch.

Found mostly within Paddock 3 is a zone of red loamy soil of high level alluvium. This habitat patch, together with smaller patches of alluvium close to the Chivakhe River in Paddocks 1 and *2,* and in the unfenced grazing area, have been labelled "alluvium woodland" in Table 1. The quality of grazing in these zones is generally somewhat better than in the sandy loam woodland, with Urochloa mossambicense ('mbavani') found in abundance and Panicum maximum found in patches under trees.

The narrow riverine zone has been classified as a separate habitat patch. Only half of the home site area, which usually contains at least some crops, is estimated to be available for grazing in the wet season (and some of this area is taken up by cattle and goat kraals). This is also classified as a habitat, patch.

Figure 9. Land use in Mangezi grazing scheme

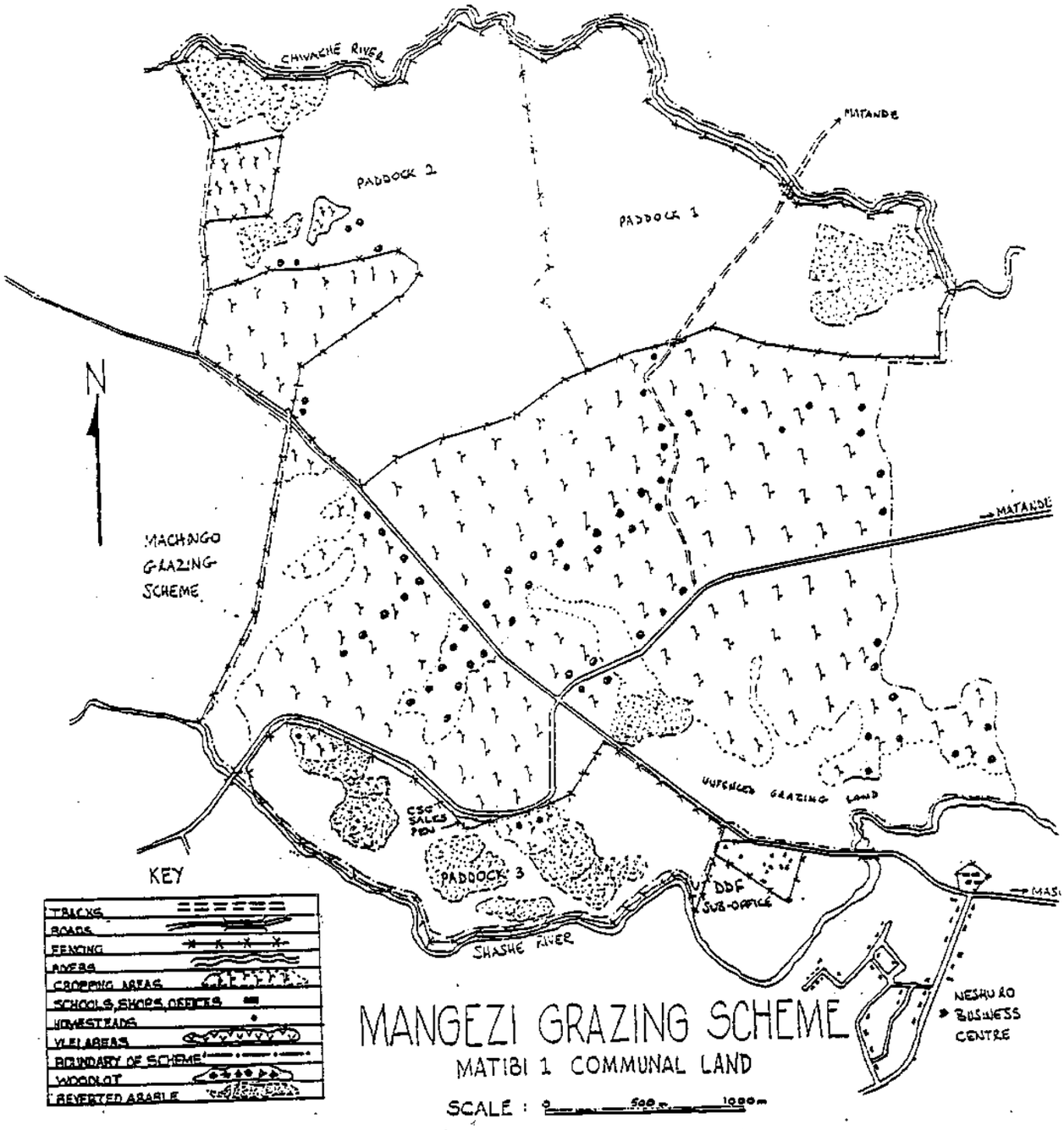


Table 3.18 Habitat patches available for grazing within Mangezi grazing scheme in different seasons

	Wet season		Dry season	
	ha	%	ha	%
Fields	0	0	296.0	37.6
Sandy loam woodland	274.2	57.6	274.2	34.7
Alluvium woodland	154.0	32.3	154.0	19.5
Drainage lines	14.4	3.0	14.4	1.8
Home sites and kraals	17.0	3.6	34.0	4.3
Riverine	16.5	3.5	16.5	2.1
Total	476.1		789.1	

The grazing scheme

Fencing, with materials supplied by the District Council from EEC funds granted to the MRLRP, began in May 1986. By September 1987 the perimeter fencing of the three paddocks had been completed, and a beginning made on the internal divisions. By mid-1990 the division between Paddocks 1 and 2 had still not been completed, despite the availability of fencing wire. About 12 families which had been located in the grazing areas moved homesteads and fields to the central areas of settlement in 1986 and 1987, but a few people have refused to move: three households in Paddock 3, and four in Paddock 2. The latter have used grazing scheme fencing materials to fence off their fields and claim that they were given official sanction to do so; this is disputed by others within the scheme.

Agritex recommended that the scheme follow a Short Duration Grazing system, on a two week rotation, and committee members faithfully reiterated to visitors that this was the management plan they hoped to follow one day. However, no attempt was made during either the 1988/89 or the 1989/90 cropping seasons to implement this recommendation. Residents in Mangezi put their livestock into either Paddocks 1 and 2, which are not separated by fencing, or into Paddock 3, at any time they wanted to without consulting the committee or anyone else. The decision as to where to place grazing animals appeared to be an individual one. Owners used the paddocks to reduce the time spent herding during the cropping season.

The stocking rate in 1988/89 in Mangezi was 1 LU to 4.7 ha for the total land area, but only 1 LU to 2.7 ha for the non-arable areas (Table 3.2). Since the recommended stocking rate is 1 LU - to 8-10 ha, according to conventional estimates Mangezi was severely overstocked. With a mean of 3 head of cattle per household the supply of cattle for draught and other purposes was clearly inadequate.

The high stocking rates led to pressures from extension staff to reduce stock numbers by means of increased sales to the Cold

Storage Commission, but given the already inadequate supply of animals this did not have much effect. To the contrary, Mangezi residents spoke of the need to increase herd sizes, and they hoped the grazing scheme would help them achieve this goal.

One of the ways in which the scheme could do so was by protecting Mangezi grazing from the incursions of livestock belonging to neighbouring villages. Repairs to the perimeter fencing were seen as necessary to achieve effective protection from "poaching" of grazing, as well as to stop unherded animals from straying. Decision making within Mangezi with respect to rangeland revolved around fence maintenance and attempts to resolve disputes with neighbours (i.e. issues of control and access) rather than management.

Exclusion of outsiders is possible in Mangezi given the boundary fence, but the fact that a major access track from Matande to Neshuro Business Centre runs through Paddock 1 (see Figure 9) has presented many problems. Gates have often been left open by people using the track, with the result that unherded Mangezi livestock have wandered out of the paddock and caused damage to crops in the villages of Matande and Mukweva, or that neighbours' cattle have entered the grazing scheme. This problem led Mangezi to attempt to fence off the track as an access "corridor" in early 1990, using grazing scheme fencing materials, but Agritex officials refused to sanction this use of the materials.

Exclusion of outsiders' livestock from the unfenced grazing area north of the DDF sub-office (sometimes referred to as "Paddock 4") is problematic. The location of a diptank nearby means that large numbers of cattle regularly gather in this area and graze on the higher quality grasses found in this alluvium zone. Members of Mangezi sometimes aseert a desire to obtain more fencing from the MRLRP so that another paddock can be constructed here.

Patch use by livestock

The use of habitat patches by cattle was investigated between January and December 1989. A herd containing 8 cattle, whose home kraal is nearly equidistant from Paddocks 2 and 3, was followed. Paddocks 1 and 2, where the sandy loam woodland habitat is concentrated, were extensively used during the cropping season (Table 3.19). However, the preference index (PI) for this habitat patch is negative (less than 1), whereas the PI for the small area of drainage lines within these paddocks is very high (5.57), indicating the importance of these as a key resource (Table 3.20).

The alluvium woodland was used for grazing for only part of the time in the wet season and thus has a negative PI value. In contrast both the home sites and the riverine zone have high positive values. The riverine zone has a high PI value at all times of the year because it is virtually the only source of water for livestock. The value is highest in the late dry season

because the cattle spent a considerable amount of time browsing on palatable tree and shrub species in this zone.

In the early dry season cattle spent nearly half their time grazing on crop residues and grass growing on contour ridges in the fields. Nearly a third of their time was spent in the alluvium woodland zone where they grazed mostly *on* Urochloa mossambicense. In the late dry season the time that the herd spent in the fields decreased considerably. More time was devoted. to grazing and browsing in the alluvium and riverine zones. The-small amount of time spent in the sandy loam woodland area in the late dry season was devoted to browsing on the slopes of the hills.

Table 3.19 Seasonal habitat patch use in Mangezi, 1989 (expressed as a percentage of total feeding time)

	Cropping	Early dry	Late dry
Fields	-	47.5	26.5
Sandy loam woodland	43.6	0.0	4.2
Alluvium woodland	16.7	31.3	36.0
Drainage lines	16.7	0.0	0.0
Home sites	10.0	13.2	14.1
Riverine	13.0	8.0	19.2

0.0 = patch available but not used

Table 3.20 Foraging preference index, Mangezi 1989

	Cropping	Early dry	Late dry
Fields	-	1.26	0.70
Sandy loam woodland	0.76	0.0	0.12
Alluvium woodland	0.52	1.61	1.85
Drainage lines	5.57	0.0	0.0
Home sites	2.78	3.07	3.30
Riverine	3.71	3.81	9.14

The pattern of habitat patch use by this herd thus appears to reflect a grazing strategy exploiting environmental heterogeneity across space and time. The contrasting character of the sandy loam woodland areas and the alluvium zones is significant; this-herd making more use of the former in the wet season and more use of the latter in the dry season..

The major perceived benefits of the grazing scheme in the eyes of Mangezi residents were the reduction in time spent herding made possible by the paddocks and the protection of Mangezi grazing from outsiders' animals. Mention of controlled rotational grazing through all three paddocks was only ever made by committee members, and this was never discussed at community

meetings when the question of the grazing scheme was raised. When the issue was raised in interviews, respondents always stressed individual decision making, as was the notion that members of the community could choose to put animals into any of the three paddocks. This flexible arrangement may reflect an underlying and implicit principle, that of maximising the possibilities, for grazing strategies which exploit spatial heterogeneity.

3.6.2 Socio-economic differentiation

Mangezi is a community with a high proportion (28 percent) of female-headed households[12] (Table 3.3), most of whom are widows. Eleven households, all non cattle-owners, did not plant any crops in 1987/88, and 8 of these said they were landless. Levels of crop production In Mangezi are poor as compared to neighbouring Machingo (Table 3. ?). Small grains (millets and sorghum) are more important in the Mwenezi schemes than in the other case study areas, but maize is still the most widely grown grain crop(66 percent of all households grew maize in 1987/88). Only 3 households, however, sold any maize in that year, and maize sales were not associated with cattle ownership.

The most important differences between households in Mangezi, for a wide range of variables (crop production, ownership of other livestock, wealth indicators such as housing, etc) are evident when cattle owners are compared to non-owners. There are fewer statistically significant differences between households at the three levels of cattle ownership than in the other case study schemes. Less than a third of households contained wage workers and the relatively poor access to external income that this entails may contribute to poor levels of crop production. It is harder to distinguish a layer of wealthier cattle-owning households who also dominate surplus crop production in Mangezi than in the other case study schemes.

3.6.3 **Institutional arrangements and power** relations

The VIDCO

When VIDCOs were first formed in 1985 Mangezi was placed in Ward 4, and formed one VIDCO (Mavangwi VIDCO) together with its neighbour, Machingo. The kraals had equal representation on the VIDCO, and there were no separate grazing scheme committees; these were meant to be sub-committees of the VIDCO.

Although VIDCO meetings to discuss issues such as drought relief have taken place, the fact that the two communities have separate grazing schemes has tended to undermine the effectiveness of this body. Between 1988 and 1990 there was a discernible decline in VIDCO activity, and a tendency for Mangezi and Machingo to meet separately, often to discuss issues to do with the grazing

[12] "Female-headed" households are defined here as households headed by widows, divorcees or unmarried women, not as those in which husbands are absent as migrants or for other reasons.

schemes. At the same time the grazing scheme "sub-committee" found in Mangezi has not constituted an effective decision-making body either.

"Traditional" leadership

In 1986 the sabhuku for Mangezi died and a factional struggle over succession to this position has been waged since then. Divisions within the ruling lineage meant that it was not clear who even the acting sabhuku was. These divisions have partly overlapped with opposing viewpoints on the value of the grazing scheme, and on the issue of relocations out of the grazing areas into the central line of settlement.

One of the main contenders for the post of sabhuku has his homestead and fields in the part of Paddock 2 which was designated grazing land, but was instead fenced off with donated grazing scheme materials. The other main contender for the post has been an enthusiastic supporter of the paddocks, and has often helped the VIDCO chairman organise fence repair sessions. Other members of the ruling family have not consistently supported either faction, and their waverings have added to the confusion.

The Ward Councillor

The Councillor for Ward 4 since 1982 has been Francis Christmas. Christmas, whose home is in Machingo, who was also Batanai District Council Chairman between 1982 and 1986, and then again from 1988 to 1990. He played a key role in the initiation of the Radical Land Reform Programme, and was responsible for Ward 4 becoming one of the "pilot wards" within the MRLRP. Christmas has continued to enthusiastically promote the programme within the District and has also been one of the main architects of the Council's drive to adopt and implement conservation and land use by-laws.

Christmas belongs to the ruling lineage within Machingo kraal. He has been involved in a dispute there with one of his relatives who is the sabhuku, and who has refused to be relocated out of one of the paddocks. He has also been involved in the dispute within Mangezi over the fencing of the fields of the 4 households who have refused to move out of Paddock 2. Christmas sanctioned the use of donated fencing materials for this purpose "as a temporary measure", until alternative land and residential sites had been found for these households. The households have since claimed that no alternative land of comparable quality or quantity is available, and are invoking the Councillor's authority in claiming a right to the use of the fencing.

Although Christmas is recognised as the most capable leader within the Ward, and is praised by many residents of Mangezi and Machingo as "someone who knows development", he has both detractors and supporters within these communities. This is partly because of his involvement in local disputes over relocation, but also because of his eagerness to have Council initiatives (such as by-laws on conservation and land use)

implemented. Christmas claimed, for example, that these by-laws had been "widely discussed" and were adopted by the Council because they had proved "popular" at the local level. However, attempts in 1989 to enforce some of the by-laws (in connection with the use of sleds and the construction of storm drains) succeeded only in generating resentment, non-compliance and in some wards even violent attacks on "conservation police" employed by Council to impose fines.

Grazing scheme by-laws

Batanai District Council decided to adopt the Communal Land (Model) (Land Use and Conservation) By-laws at a meeting in 1987, but these were not officially gazetted until 1989. However, there was no attempt to apply these to the regulation of rangeland use in any schemes within the district. Acording to the Council Chairman this would have to wait "until a later stage when they stand a a better chance of being accepted".

Within Mangezi there had been some discussion of grazing scheme by-laws when Agritex staff first planned the scheme in 1985, but residents and committee members put forward conflicting versions of what had been agreed. Mentioned most often were rules making attendance at fence erection sessions compulsory and prohibiting fence cutting, the use of paddocks by outsiders' livestock, and the felling of trees without permission. By 1988 none of these appeared to be operational.

The issue of by-laws was discussed at a well attended community meeting in March 1989. Low levels of attendance at fence repair sessions had by this time become a major problem to the scheme leadership, and a large herd owner from Machingo had been making unauthorised use of Paddock 2. A group of four men was appointed to draw up a set of appropriate by-laws to deal with these problems, but by mid-1990 it had not yet met and the initiative appeared to have been abandoned.

A crisis of authority

Some households within Mangezi are clearly more powerful than others in community affairs; these belong to the ruling lineage and one or two other leading families. They are not all large herd owners or successful crop producers, and some rely mainly on wage income rather than agriculture. The power elite, however, is internally divided, and the grazing scheme is one of the sources of conflict. The VIDCO chairman, the leading member of one of the leading families, has not managed to constitute either himself or the grazing scheme sub-committee as an effective alternative leadership.

The Ward Councillor played an active role in bringing Mangezi into the MRLRP and has been an influential local presence, but his involvement in intra-community disputes has not helped to overcome the lack of effective leadership. Complex and cross-cutting lines of conflict and allegiance within Mangezi have resulted in a crisis of authority which has hampered the

development of an institutional capacity for rangeland management.

3.6.4 Patterns of interaction and struggle

Mangezi's boundary fences were in urgent need of repair in October 1988. A community meeting attended by representatives of about half of the total of 68 households was held, and it was agreed to work on the fences on Wednesdays each week. Approval from the chief for working on a *chisi* day was to be sought by the VIDCO chairman. This took three weeks to secure, but work on the fences did not begin until January 1989. The first reasonable rains had fallen in mid-December 1988.

Attendance at work sessions was poor, with between 5 and 12 households generally represented, and the sessions lasted for 3-4 hours at most. The reason given for beginning repair work at this time was that "cattle are passing out of the paddocks". Two work parties were organised, one for Paddocks 1 and 2 and the other for Paddock 3. According to informants people chose a work party "depending on which paddock you use most", and it was argued by the chairman that this arrangement would encourage higher levels of attendance. This proved not to be the case, however, prompting the meeting in March referred to above which gave a small group the task (never completed) of drawing up a set of enforceable by-laws.

The following season repair sessions began in November 1989 and attendance was much higher, with 25-30 households regularly sending representatives. However, this did not reflect higher levels of motivation but rather the fact that fence repairs in 1989/90 qualified as a drought relief project under the Food-for-Work programme.

Part of the reason for the poor attendance in early 1989 may have been the lack of enthusiasm for their duties displayed by two members of the grazing scheme sub-committee with *mupurisa* (policing) responsibilities. The previous November these two men had attempted to arrest a stranger they encountered herding cattle in the Mangezi paddocks, and had "beaten" him in the process. Upon taking the stranger to the local police station they had themselves been fined for assault and the stranger had been freed. Feeling bitter and disillusioned with the lack of real authority their posts as *mupurisa* appeared to entail, they not only neglected to assist the chairman in his task of encouraging Mangezi residents to attend work sessions, but, according to rumour, actively discouraged their neighbours from attending.

A different example of power at the community level not being recognized by external authorities occurred in February 1990. In this incident, referred to in section 3.6.1, cattle from Paddock 1 wandered through a gate left open by neighbours passing through from Mutande to Neshuro and damaged crops in Mukweva kraal. The owner of the damaged crops demanded a beast in compensation. Since this was only one in a series of disputes involving these

neighbours, Mangezi residents decided at a large and well attended meeting to fence off both sides of the access road through the paddock using grazing scheme materials.

The local Agritex Extension Worker ordered that the work on this project be stopped two days after it had begun, on the grounds that the resulting sub-division of Paddock 1 would not make sense in terms of Short Duration Grazing, and because "it is not in the plan for the grazing scheme". The Mangezi leadership then decided to permanently close the access road, arguing that this was the only option left open to them. This is unlikely, however, to put an end to disputes with their neighbours in Mukweva and Mutande, who admit that there is insufficient available grazing land on their side of the Chivakhe river and who often grazed their herds on Mangezi land before the fences were erected.

3.6.5 Outcomes

Mangezi grazing scheme has developed a "minimum" form of common property on its rangeland which uses boundary fencing to exclude non-members. Few components of the MRLRP other than boundary fencing have been implemented, and one, the relocation of homesteads and fields to a centralised site, has been the occasion of severe internal conflict. No attempt to implement an SDG system has been made. The use of habitat patches by cattle appears to reflect a strategy of exploiting environmental heterogeneity on a seasonal basis, which is thought by local livestock owners to be more appropriate than rotational grazing according to extension recommendations. Household production is still predominantly agro-pastoral in character, the projected move towards commercial livestock production not having been feasible in any respect.

Institutional development has been limited, despite active attempts to create a framework within local government structures (District Council, Councillor, WADCO and VIDCO) for such development. Power struggles between competing factions of the "traditional" leadership of the kraal have complicated this attempt.

Population densities of both people and livestock are high and the growing shortage of arable land has contributed to the conflicts over relocations. The possibilities for flexible herding strategies over a wider range of habitat patches is limited by these population densities, and shortages of grazing land in neighbouring communities have prompted Mangezi residents to use their paddocks to claim exclusive rights to the rangeland within their boundaries. Despite the Council Chairman's persistent attempts to have central government address the question of resettlement (and thus the possiblity of much lower population densities within these semi-arid Communal Land communities), the MRLRP has failed to change this underlying condition.

3.7 MACHINGO GRAZING SCHEME

Machingo grazing scheme was one of the first to be implemented under the Mwenezi Radical Land Reform Programme (MRLRP). Discussions with the community first took place in 1982, land use planning was carried out in 1983, and the first fencing was erected in 1985. Yet by 1990 the scheme was still not complete, and rotational grazing had not been implemented. Although Machingo is a small community with many close ties of kinship it has experienced a great many factional disputes and tensions. In recent years there has been a long drawn out power struggle between "traditional" leaders and a "modernising" element represented by the Ward Councillor, who has been a key figure in the evolution of the MRLRP. Resistance to planned relocations of homesteads and fields has been a major factor underlying the power dynamics within the community. Institutional development in Machingo has been extremely weak.

3.7.1 Ecological and technical characteristics

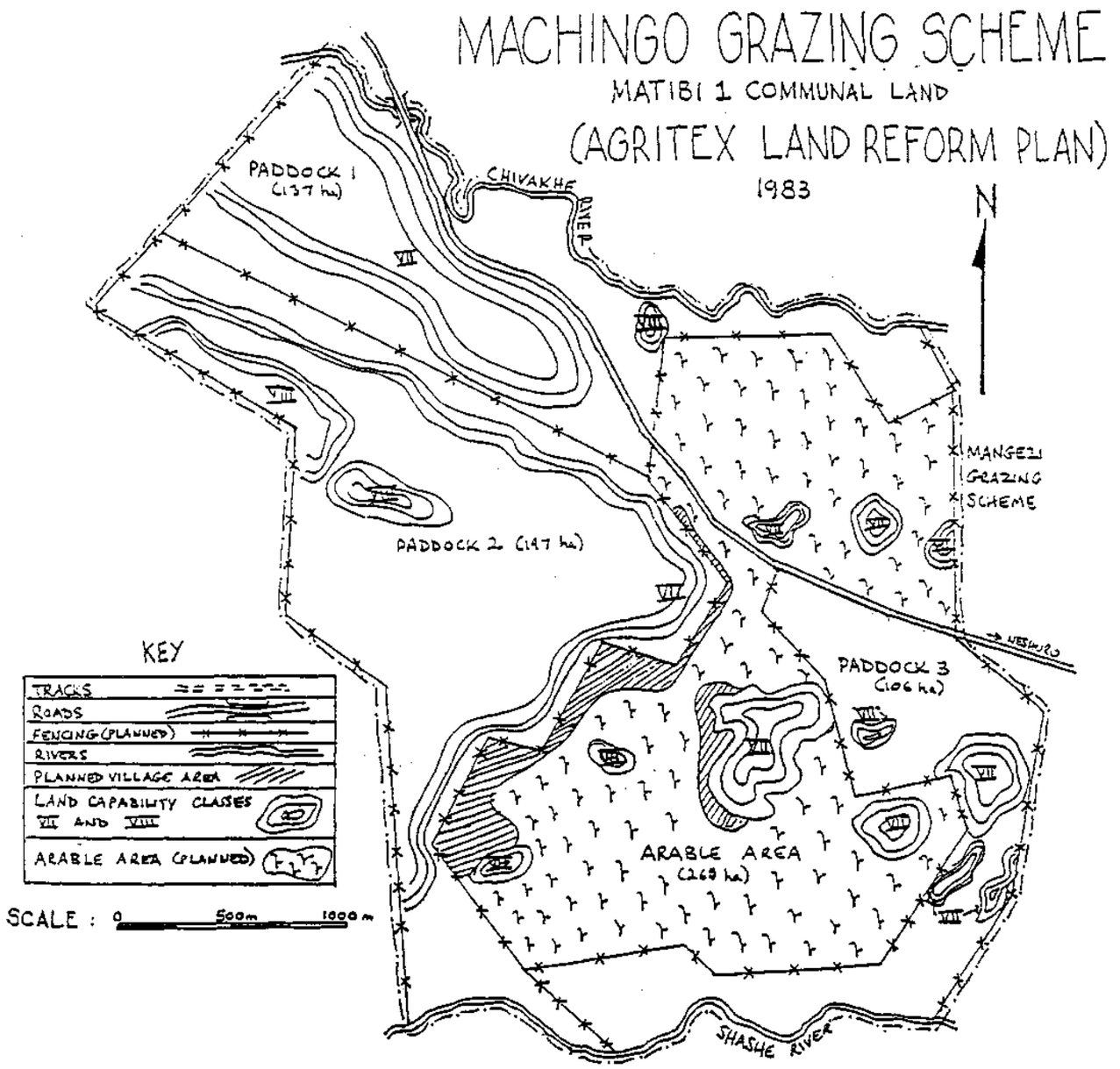
Land use and the grazing scheme

The land use plan for Machingo prepared by Agritex staff in 1983 is shown in Figure 10. The "land reform plan" shows the location of a number of small hills and kopjes within the scheme, classified as land capability classes VII and VIII, and the planned arable block, 265 ha in extent. Three paddocks were planned: Paddock 1 to the north of the scheme and bordering the Chivakhe River (137 ha); Paddock 2 to the west (197 ha); and Paddock 3 to the south and east and bordering the Shashe River (106 ha). Centralised village settlements within the arable land area were planned, adjacent to two kopjes in a central location.

A detailed assessment of the pattern of land use in 1988/89 and of habitat patches within the scheme could not be carried out for various reasons, and cattle following data cannot be analysed in terms of habitat patch use as a result. However, observations of land use made in the course of fieldwork, together with research assistant observations and interview data, reveal that only some of this land use plan had been implemented between 1985 and 1990. While in many respects the plan coincided with existing patterns of use, it did propose some major modifications, few of which were acted on.

The plan attempted to reduce the area under cultivation and expand the available grazing area correspondingly. Thus the area under crops in 1990 included land in the alluvium zone bordering the Chivakhe River which had been planned to be part of Paddock 1. Fields in Paddock 3 near the eastern boundary with Mangezi grazing scheme were also still under cultivation; these included fields belonging to the sabhuku for Machingo. Only a few homesteads relocated into the planned village area, and again the sabhuku was one of those who refused to move.

Figure 10. Land use in Machingo grazing scheme



In terms of fencing of paddocks only Paddock 3 had been completed, and insufficient materials were left over for the rest of the scheme. It was claimed that some of the original fencing materials from the EEC grant had been diverted to Mangezi when it joined the programme in 1986. The boundary fence was in constant need of repair and this made demands on fencing materials and labour. More materials were promised by the MRLRP, but none had been delivered by mid-1990 due to the difficulties experienced by the District Administrator's office in accounting for the first instalment of funds (see section 3.5.3).

Machingo was involved in two boundary disputes when the scheme's external fencing was first erected in 1985/6. An argument over the correct location of the western boundary with Zvirikure village was still unresolved by 1990 and incursions of livestock belonging to these neighbours were said to be common whenever the fence was in a poor state of repair. A boundary dispute with Mukweva village to the north of the Chivakhe River was eventually resolved when the boundary fence was relocated on the Machingo side of the river. In the period 1988 to 1990 the scheme leadership portrayed the problem of "poaching" of grazing by neighbours as one of the major problems facing the scheme, and attempted to maintain the boundary fencing in good repair through the organisation of work parties.

Attendance at these work parties, however, was poor (see section 3.7.4 below). Some Machingo residents appear to have assigned higher priority to the maintenance of sections of paddock fencing separating their fields from nearby grazing areas. Their decision to do this work was taken on an entirely individual basis, and not as a contribution to the community project. In some places (eg. along the southern boundary in Paddock 3) only one strand of wire had been used for the boundary fence while four strands were used for internal fencing (ie. between the paddock and the arable area). This pattern was not consistent, however; in other locations the internal fencing was not well maintained either. In one place the internal fencing had been laid flat because it crossed a pathway much used for the collection of firewood and the gateway to the paddock was about 1km distant.

Two boreholes to supply households with water were sunk under the MRLRP but both contained brackish water; some residents expressed disillusionment with the programme as a result.

Habitat patch use

The general features of the environment in Machingo are outlined in section 3.5. Without detailed data only an impressionistic analysis of habitat patch use by livestock can be made; observations and interviews indicate a similar pattern to that found in neighbouring Mangezi. The contrast between the vegetation in the sandy loam woodland zone and in the high level alluvium zone is again evident, as are the seasonal variations in foraging patterns (heavy utilisation of grazing areas in the cropping season, arable fields in the early dry season, and

browse on hillsides and in the riverine zone in the late dry season) . The most valued grass species is the palatable Urochloa mossambicense (mbavani) , and occasional stands of Panicum maximum are found.

"Drainage lines carry heavier stands of grass, and where these are found within the arable block they are utilised by herded livestock even during the cropping season. The explanation given by the scheme leadership for the poor state of fencing in one location was its proximity to a drainage line with a particularly good stand of mbavani grass; according to them children on herding duty regularly pulled down the fence to provide access to this drainage line grazing.

In Machingo decision making on rangeland utilisation was highly individualised - perhaps even more so than in Mangezi. Paddocks have been used by some households to relieve the labour of herding, making use of those fenced areas closest to their homesteads. Where fences have not been well maintained herding has been necessary; some informants also complained of gates being regularly left open by children. Livestock from homesteads located in the north eastern corner of the scheme have occasionally made use of paddocks in Mangezi, claiming that their contribution to maintenance of the joint boundary fence entitled them to do so (this was disputed by Mangezi residents). No reference was made, in this case or in the other examples of individual decision making, to any institutional context in which these matters were discussed. No rotational grazing involving the community herd as a whole had been undertaken by 1990.

In general very little in the way of collective management of rangeland has been attempted in Machingo. As in Mangezi, this may indicate a need to allow for the flexible use by individual herds of a spatially heterogeneous environment. However, another possibility to be considered is that the weakness of the institutions supposedly managing Machingo's common property resources may in itself have contributed to this individualisation of decision making. Reinforcing this view is the fact that even the maintenance of what fencing had been erected, for purposes of excluding neighbours' cattle, reducing herding or protecting crops from animal damage, has proved beyond the capacities of Machingo.

3.7.2 Socio-economic differentiation

Machingo is significantly different to its neighbour, Mangezi, in respect of two key demographic variables: only 10 percent of households are female headed (compared to 28 percent), and 60 percent of households contain at least one wage worker (compared to 31 percent) (Table 3.3). This means that a higher proportion of households have access to wage income, but that more male labour is absent from the community for much of the year.

It is likely that some of this off-farm income is invested in agriculture; this helps to explain the much higher levels of crop production in Machingo than in Mangezi: both mean and median

levels of total grain production are over twice as much in Mangezi, and mean maize sales are nearly three times as much (Table 3.4). Large differences between mean and median, however, indicate that these levels of crop production are unevenly distributed.

Machingo contains the highest proportion of non cattle-owners of all the case study schemes (54 percent), and nearly 60 percent of all cattle are concentrated in the hands of the 14 percent of households with herds of 10 or more. Cattle ownership and crop production are moderately associated (Table 3.21), and as in Mangezi the most significant differences are between non-owners and owners. As the data on sources of draught power indicate, however, there is a high degree of interdependence between owners and non-owners; in Machingo close to 40 percent of households borrow draught animals (Table 3.7).

Table 3.21 Maize hectarage, maize sales and cattle ownership in Machingo 1987/88

	Cattle ownership			
	0 cattle (n=27)	1-9 cattle (n=16)	10 or > cattle (n=7)	ETA
Hectares under maize (mean)	0.8	1.3	1.3	0.39
Maize sales in bags (mean)	1.0	2.3	7.3	0.37

3.7.3 Institutional arrangements and power relations

The VIDCO

Mangezi and Machingo together comprise Mavangwi VIDCO. The "Village Standing Committee" which had overseen the introduction of the MRLRP to Machingo was replaced in 1985 by the VIDCO. Although a "grazing scheme sub-committee" was formed in Mangezi, in Machingo no such body has ever existed.

When this issue was discussed with Machingo residents in 1987- they were at a loss to explain why no grazing scheme committee was formed, but indicated that they viewed the VIDCO as the body responsible for the scheme. The absence of some committee members who were wage workers was put forward by some people as a reason for the organisational problems the scheme was experiencing.

By 1989, however, it was apparent that residents had little confidence in the VIDCO, and saw Mangezi as an entirely separate community with its own institutional arrangements for managing common property. The VIDCO Chairman, a Mangezi resident, began

common property. The VIDCO Chairman, a Mangezi resident, began to complain that members of Machingo were not co-operating with him and "made their own decisions". When the Food-for-Work drought relief programme began in early 1990, the projects submitted had been decided upon at separate meetings of Machingo and Mangezi, although these are supposed to be administered by the VIDCO. Thus the VIDCO has over time declined in effectiveness and lost the potential to play an active role in respect of grazing management.

The Ward Councillor

The Councillor for Ward 4, and District Council Chairman, Francis Christmas, played a key role in the initiation of the MRLRP, and it is ironic that within his own community institutional development has been so weak. Within Machingo Christmas is respected for his power and influence at district level, but he also has "enemies", having become embroiled in a dispute with the sabhuku over the latter's refusal to move out of the designated grazing areas. According to Christmas the sabhuku is "more than conservative", and his opposition to the land reform plan has been an obstacle to the formation of a committee.

The Councillor works at a training centre in nearby Neshuro, where the Batanai District Council offices are located. When not at work he devotes most of his time to Ward and Council business rather than Machingo affairs and rarely attends community meetings except in his official capacity; he sends his son as his representative to fence erection or repair sessions. Nevertheless, his presence within the community is strongly felt. Some residents feel that no village-level leadership has developed in Machingo because there is a general expectation that Christmas will represent community interests in the wider world.

There is a central ambiguity surrounding the authority wielded by the Councillor: is he a popular representative of his constituency, taking up issues and representing the interests of residents of his village, the ward and the district, or does he primarily represent external authority - in this case the District Council, which is formally part of the structure of local government and generally executes the policies of central government? The divided response of Machingo residents to the land reform plan is perhaps partly explicable as a response to this ambiguity: Christinas is seen by his supporters as bringing development resources to the community, but by his detractors as encouraging the reimposition of coercive state power over the lives of rural communities, often in the service of ill-conceived by-laws regulating resource use (see section 3.6.3).

"Traditional leadership"

The sabhuku for Machingo in the period under review was Bian Mahlauri, who had occupied the post for many years and was the undisputed "traditional leader". Informants claimed that in Mwenezi District generally both chiefs and masabhuku had suffered a severe loss of legitimacy during the liberation war years when

they were seen as "agents of the Smith regime", but that soon after independence they began to be again recognised by residents as legitimate land authorities. They then shared land allocation powers with the VIDCO and the Councillor, and were consulted when boundary disputes occurred. The situation in Machingo, according to many respondents, reflected this situation of "dual authority", although the sabhuku had not played any role with regard to grazing scheme development. The Councillor himself agreed with this analysis, but suggested that a lack of clarity was leading to conflicts, such as the relocation dispute within Machingo.

In March 1989 it was rumoured that the sabhuku had been issued with a "ticket" (ie. asked to pay a fine) by the Council's "conservation police" for not moving out of the grazing areas as stipulated in the land use plan. Bian himself denied this, and said that the local Extension Worker had given him permission to remain within the paddock because of the lack of suitable alternative sites. In any case, he said, "why should I move out of the grazing area when the Councillor himself, who brings all the by-laws, and many others, are still in the paddocks?"

It was difficult to verify the truth of the sabhuku's allegation since the Councillor's fields lie on the western edge of the arable block adjoining Paddock 1, which has not been fenced and where the precise location of the paddock boundary is not clear. The Extension Worker denied giving permission for anyone to remain in the grazing areas, and explained the divisions within Machingo and the resultant lack of progress as due to two factors: opposition on the part of many to the proposed relocation of fields and homesteads, and family loyalty to the sabhuku.

In March 1989 Bian appointed an acting sabhuku, on the grounds that since he was away working and only returned once a month he could not carry out his duties properly. The appointee was Albert Dzingai, an elder brother of the Councillor, who was said to be only fourth in line to inherit the post but the only one of those in the line of succession locally resident (ie. not away in wage employment)[13]. According to the sabhuku, Dzingai, a firm supporter of Christmas and land reform, would be responsible for organising fence repair sessions from now on.

Dzingai responded with enthusiasm to his new responsibilities and made a concerted effort to increase levels of attendance at fence repair sessions. By February 1990 he was talking of having decided to "develop my kraal without any member of the VIDCO because they do nothing for development". Attendance at work sessions continued to be poor until they became an official Food-

[13] The system of collateral succession involves inheritance of authority not from father to son but from each man to the next most senior within the family. Descent from different wives of the founding patriarch leads to the emergence of "houses", which in theory are supposed to alternate the ruling position, but competition and complex disputes are common.

for-Work project in 1990, and some resentment at Dzingai's "harsh" approach was expressed within Machingo. Bian's decision to appoint the acting sabhuku may have been calculated to encourage further resistance within Machingo to the land reform plan, and to relieve some of the pressure on the sabhuku himself to relocate out of the grazing area.

Party organisation

As mentioned in section 3.5.2, local organs of the ruling party played an important role in the initiation of the MRLRP. Although their is little evidence of this in Mangezi, in Machingo local party officials have been important. In the absence of a grazing scheme committee, or an active VIDCO, the responsibility for organising work sessions in Machingo in 1988/89 fell on the shoulders of the chairmen of the two party cells (the lowest level of party organisation) within Machingo. These two men, referred to locally as "village chairmen", have both been supporters of the Councillor and regularly led fence repair sessions both before and after Dzingai's appointment. One owned no cattle and the other five, illustrating the general point that support for the opposing factions in Machingo does not coincide with level of cattle ownership or other wealth criteria.

Grazing scheme by-laws

No by-laws governing the grazing scheme had been agreed in Machingo by mid-1990, although respondents indicated that the question of what rules should be in force had been debated in the past - probably in the early stages of planning, when Agritex staff were promoting grazing management. Rules which had been discussed included compulsory rotations, fines for fence cutting, tree cutting and "poaching" by outsider's cattle, and the laying down of a maximum number of cattle per household.

3.7.4 **Patterns of interaction and struggle**

Council initiatives on land allocation and land use

In October and November 1988 the Batanai District Council initiated a series of discussions and meetings at district, ward and village level on issues related to land. The Council Chairman, Christmas, who had attending a Ministry of- Local Government workshop in Harare in August which had raised some of these same issues, played a leading role in these discussions. The issues raised were those of:

(a) the high population densities within the district, and the difficulties this created for agricultural development, with a consequent need for increased resettlement

(b) the minimum size of land allocation needed by individual households, together with desirable herd sizes, and the possibility of equalising land allocations

(c) the land rights of those without land at present, and whether or not households whose heads were in permanent employment should be allowed to retain their fields

(d) the enforcement of Conservation By-laws, and the imposition of fines on those households still occupying sites on designated grazing areas.

Part of the rationale for the meetings held to discuss these issues, according to Christmas, was to collect data on the "surplus" population in the district, so that the figures could be sent to central government. This would put pressure on policy makers to expand the rate of resettlement, without which the MRLRP could not succeed.

The meetings, however, generated dissent and confusion. The Council Chairman introduced the notion of a minimum land allocation of 4 ha and a minimum herd size of 20 head per household into the discussions. At many meetings residents pointed out that there was insufficient land to allow this given the present population density. There was scepticism at the notion of a massive resettlement exercise being mounted, and opposition from some to the idea of "equalisation" of land holdings or those with large land holdings sharing land with the landless, particularly non-family members. Open resentment was expressed of the announcement that fines would be imposed in terms of Conservation By-laws on those households using sleds to transport ploughs to fields, or ploughing without first constructing a storm drain above the fields.

At one well attended meeting held in Mavangwi VIDCO the Councillor announced that people still living in the grazing areas would also be arrested, but it was angrily pointed out to him that many of his neighbours and relatives in Machingo were occupying sites in the paddocks. "You can start arresting people in your own area" said one person. When Christmas replied that this was a resolution of Council, someone responded; "But we send you to the Council...", and another said: "You asked us to make paddocks and to resettle, now you are getting people to come and arrest us!".

Over the next few months these initiatives came to nothing; there was no sign of any change in official policy in respect of land allocations or resettlement planning, and the attempt to enforce Conservation By-laws generated such intense resentment that it was quietly dropped. Scepticism of the rhetoric of the MRLRP grew, added to by the continuing failure of the Council to secure the promised additional fencing materials or improved water-supplies for those communities which had joined the programme. Within Machingo the possibility of the powerful and externally well-connected Councillor becoming an aid to internal institutional development appeared to recede even further.

Fence repairs in Machingo

In mid-November 1988 a meeting was held in Machingo to arrange for repairs of the grazing scheme fences. The Councillor was in attendance but the meeting was chaired by one of the local party chairmen. It was agreed that work sessions would take place from 6 a.m. on Wednesdays each week, that one person from each household would attend, and that women would dig holes for posts while men would cut posts and strain wire. It was decided that a fine of a hen would be paid by absentees, to provide food for those who did attend, but after no-one would volunteer to collect the fines the notion was dropped.

In early December the first repair session was held, with the two "village chairmen" in charge, but only 18 people in attendance. Beer drinks and the lack of sanctions for absenteeism were blamed for the poor turnout. The following week the work session was cancelled because it clashed with a ward conservation meeting, and the week after only 11 people attended for a session lasting only two hours. Again intense dissatisfaction was expressed with the lack of action against absentees, some people threatened not to attend unless action was taken, and the opinion was voiced that many people were only prepared to work on sections of paddock fencing near their homes. It was suggested that work sessions should perhaps be organised in terms of the village sections corresponding to the party cells.

Attendance continued to decline in January and February 1989, sometimes falling as low as 5 or 6 people, and often no sessions were held at all. Repairs were mainly carried out on boundary fencing, and twice the reason given for this was that reports had been received of neighbours' cattle grazing in Paddock 2. By March many sections of the paddock fences were still in a poor state.

In late March 1989 the newly appointed acting sabhuku, Dzingai, called a meeting in Machingo to discuss the problem of poor attendance. The meeting was well attended and the Councillor and the VIDCO chairman were also present. There was a great deal of acrimony and accusations and counter-accusations were traded back and forth. Dzingai named a number of people whose homes were close by to sections of fencing in particularly poor states of repair, but some blamed the problem on poor leadership. The problem of fence cutting by neighbours and "poaching" of Machingo grazing by outsiders' cattle was put forward as a problem, and one man said that "paddocks are no use if cattle from Mativenga graze in our paddocks but ours do not go to their area".

The question of by-laws was discussed, and four "fence repair leaders" (which included the two village chairmen) were elected and charged with the task of convening smaller meetings to develop appropriate rules 'and regulations. The Councillor supported a suggestion that attendance registers be kept, and announced that he would ensure that only those who attended fence repair sessions would in future be eligible for the Food-for-Work programme.

Despite these efforts there was little improvement in levels of commitment to fence maintenance in Machingo. No further repair sessions were held that year and no by-laws were forthcoming from the "fence repair leaders". In January 1990 work sessions began again, as a public works project in terms of the Food-for-Work programme, with gully reclamation as a second project. Levels of attendance were now much higher. Dzingai and the village chairmen were the chief organisers of this programme, and the boundary fences to the north and west were completely repaired by April-1990, when the programme came to a halt due to inadequate supplies of maize by government.

3,7.5 Outcomes

By mid-1990 it was clear that the divided community of Machingo was unlikely to complete the fencing of paddocks and the relocation of homes and fields out of designated grazing areas, and begin to implement recommendations for rotational grazing. Internal power struggles were centred mainly around a widespread resistance to relocations, but were also articulated in terms of an opposition between "traditional" and "development-oriented" leaderships. Inequalities in respect of cattle ownership, crop production and wage income appeared to not be relevant factors in these internal divisions.

To what extent was the failure of the grazing scheme a result of the paralysing effect of these power struggles on local institutional development? Alternatively, was opposition to the scheme rooted in a perception that it was an ecologically inappropriate plan which failed to address the heterogeneity of rangeland resources? The latter view had not been articulated by any of the group who refuse to relocate out of grazing areas and who generally fail to attend • fence repair sessions. They emphasised instead the difficulty of finding suitable alternative sites in the planned centralised village area and arable block.

On balance the failure of Machingo to organise collectively to maintain even the most basic condition of their minimum common property regime (exclusion of outsiders) can be understood in terms of two underlying factors. Firstly, the bitter struggle between the two opposing community factions, together with the ambiguous position of the most powerful community leader, Christmas, created a power dynamic which tended to undermine the emergence of an effective and united leadership committed to common property management. Secondly, the spatial distribution of arable land in Machingo meant that planned relocations affected more people than in Mangezi, and a general shortage of arable land left little room for flexible readjustments. The power struggle was closely related to the tensions generated by this perceived threat to some people's livelihood.

4. LESSONS FOR RANGELAND MANAGEMENT POLICY

What lessons can be drawn from the responses of the five case study communities to grazing scheme policies in Zimbabwe? Does the emerging paradigm in range ecology help us to better understand these responses?

Large scale surveys enable us to assess the success of policies in terms of rates of adoption, and help to identify broad trends and regional variations. Detailed case studies, on the other hand, have the advantage of enabling research to focus on the reality behind a group's presentation of themselves to the outside world, and on the complex conflicts that often characterise rural communities. Ideally, large surveys and individual case studies complement each other and provide both breadth and depth of analysis. In section 2.5 grazing scheme policies in Zimbabwe were evaluated on the basis of survey findings and the broad generalisations of different authors. Returning to these assessments in the light of the case studies is a useful place to begin to look for lessons for policy.

4.1 Re-assessing grazing scheme policies

Reasons for adoption

The case studies reveal a range of motivational factors underlying the decision to adopt a grazing scheme. In Chamatamba, for example, the motives of the elite leadership group were very different from the motives of ordinary members. The leadership was intent on engaging in capital accumulation activities (including pen fattening of cattle), and were using the grazing scheme as a means for securing government and donor support for these, while for other herd owners paddocks were seen as useful for reducing herding-labour in the cropping season, protecting crops, and keeping the use of grazing land exclusive to the group of co-owners.

In Mutakwa the scheme leadership was drawn from residents close to the fenced paddocks who used them primarily to reduce herding labour, and this was the major perceived advantage of the paddocks. Members of the community located some distance away were much less committed to the scheme. The fences also excluded neighbours' cattle from a portion of the valuable vlei grazing. In both Mutakwa and Chamatamba an additional motive for continuing to present the grazing scheme in a positive light was the expectation of further donor or government support for other kinds of development projects.

In Maraire no fencing had been erected and range management consisted of deferring grazing on a portion of vlei grazing until the early dry season. Exclusion of non-members' livestock was the major problem, and fencing was desired to make this possible in relation to all of Maraire's relatively favourable endowment of grazing land.

In Mangezi the major motivational factor was again the possibility of exclusion of outsider's livestock, reductions in herding labour and crop protection. An additional factor may have been expectations of improved water supplies and other infrastructure promised by the Mwenezi Radical Land Reform Programme (MRLRP). The scheme was not popular with people expected to relocate out of designated grazing areas, and conflict engendered by relocations undermined the completion of the scheme in neighbouring Machingo.

In none of these schemes was the opposition of non-cattle owners a problem. Nevertheless internal conflict made implementation difficult in most cases, usually because of the uneven spread of costs and benefits across the community. Location relative to paddocks was the critical factor here. Boundary disputes tended to reinforce community identity rather than undermine it.

Significantly, a detailed study of what people did rather than what they said to outsiders and visitors, revealed that in these schemes the possibility of improved range management and productivity was not a major motivational factor influencing adoption. The partial exception was Chamatamba, where the wealthy minority interested in commercial production showed interest in the development of improved pastures. The continuing support for the deferred grazing system in the two Zimuto schemes, however, shows that there is a definite potential for innovations aimed at improving range management provided they are perceived as ecologically appropriate by communities.

Stock reduction and control of numbers

The case studies confirm the finding that grazing schemes have had little impact on stocking rates, and that if anything adopting communities expect to increase their herds rather than reduce them. Members of these schemes acknowledged the existence of upper limits to stocking rates, when numbers would have to be controlled, but felt that these had yet to be reached.

The provision of ' draught power was clearly one of the most important functions of cattle for households in these communities, and only the leadership elite in Chamatamba showed any interest in commercial beef production. Offtake rates in the schemes remained low, and the policy of promoting destocking through encouraging herdowners to sell unproductive animals did not meet with any success.

Large proportions of all these communities relied on other households (usually relatives) for the supply of draught animals. The possibility of more formal arrangements for pooling draught-resources, and thus reducing the urgency of the need to acquire more animals, was not been explored in any of these schemes. This was an explicit goal of the MRLRP but had not been promoted in-either Machingo or Mangezi.

Implementation of grazing management recommendations

None of the five case study schemes were found to be practising the recommended Short Duration Grazing (SDG) system, despite claims by some of them that this was the case. In Chamatamba the "winter reserve" system which had been inherited from the pre-independence period was only partially in operation. A form of deferred grazing was in operation in the two Zimuto schemes, making use of productive patches of vlei grazing. In the case of Mutakwa this took place outside of the fenced paddocks, and the formal grazing scheme appeared to be frustrating rather than facilitating effective management of scarce rangeland resources. In Mangezi and Machingo herding decisions were left to individuals and no form of common rotation was practised.

Analysis of the use of different habitat patches by cattle in three of the schemes showed that heterogeneity of forage resources was important over both space and time. Some patches were much more intensively used than others, and the pattern of use varied significantly by season. Common to all the schemes was the importance of crop residues and contour bank grazing in the early dry season, and riverine zones in the late dry season.

Habitat patches varied between different agro-ecological zones. In Chamatamba some of the most significant variations were at the micro-scale, with termite mounds providing higher quality grazing than the surrounding grassland. In the Zimuto schemes there was a marked contrast between the unproductive toplands, which comprise the largest portion of the grazing areas, and the smaller but more productive vleis. The two Mwenezi schemes enclosed grazing areas with different soil and vegetation types and herding strategies appeared to exploit this heterogeneity.

The design of the fenced grazing schemes by Agritex planners all followed a standardised format based on SDG principles (paddocks of roughly equal sizes on large blocks of grazing land, clearly separated from arable and residential sites, and aimed at allowing grazing periods of 10 days to 2 weeks per paddock). The designs took little or no account of existing herding practices or deferred grazing systems, and extension recommendations made no reference to the "patchiness" of grazing resources or possibilities for improving the effectiveness of their use. There was a sharp contrast between the current practices of herders and foraging preferences of livestock, on the one hand, and the standardised recommendations of extension staff, on the other. Disjunctions between these recommendations and the localised ecological knowledge of stock herders was probably the major reason for the failure of schemes to implement the recommended management practices.

Improvements in range condition and animal production

Criteria to be used in assessments of range condition derive from some theoretical framework or paradigm, and the technique developed in Zimbabwe by Ivy (1969) clearly has its basis in the "mainstream approach" (Behnke and Scoones 1991).. The

applicability of this approach to arid and semi-arid communal grazing situations has been called into question, but an alternative method has not yet evolved. Given these uncertainties it is difficult to make judgements on range condition in Communal Land grazing schemes.

Maclaurin visited the case study schemes in May and June of 1989 and used the conventional methods to assess range condition. His findings and comments are presented here.

Table 4.1 Range condition assessments in case study schemes, 1989

Method used: Ivy (1969)

Criteria	Maraire (Pd 1)	Maraire (Pd 2)	Mutakwa (Pd 5)	Mutakwa (Pd 4)	Mangezi (Pd 3)	Chamatamba (Summer gr)
Species composition	6	4	3	5	6	6
Basal cover	5 (4%)	4 (4%)	1 (1-4%)	3 (0-5%)	2 (1-2%)	4 (4-5%)
Litter cover	1	2	1	3	3	4
Erosion and compaction	5	6	5	6	6	4
Forage vigour & production	4	5	2	3	7	6
Veld score	21	21	12	20	24	24
Veld rating	Fair	Poor -fair	Poor	Poor -fair	Fair	Fair

Comments:

Maraire, Paddock 1 (Mukengi vlei): Species composition variable, depending on position of observation it would appear to contain some reverted and disturbed land. Basal cover quite high, but patchy and due in part to Cynodon (couch) cover. Litter almost non-existent. Obvious pedestals and a worrying erosion channel in the main water course. Considering the rest from grazing, vigour is only fair at this time, but plants have obviously seeded or are seeding.

Maraire, Paddock 2: Somewhat similar to Paddock 1, but with less high succession grasses and rather patchy cover in part due to disturbance. Vigour and production similar.

Mutakwa, Paddock 5: Dearth of grass cover under the miombo trees, but some good grasses in the open vlei area. Patchy and poor grass cover. Surface erosion fair but obvious. Vigour poor except in the vlei.

Mutakwa, Paddock 4: Rather better cover and composition of grasses than in Paddock 5, but still poor under the miombo trees. Plants appear to be slightly more vigorous. Evidence of seeding but this may be due to lighter use.

Mangezi, Paddock 3; Species composition quite good. Obviously reverted land, still with signs of disturbance. Recent rains have improved late season production. Obvious pedestal and sheet erosion, especially on unprotected slopes, typical of red soils.

Chamatamba, summer grazing area: Fairly variable veld, influenced by a shallow water table. Cover slightly variable, only fair for conditions but some litter present. Quite severe pedestalling in places and soil surface movement, compensated by the flatness of the landscape. Vigour quite good, but appears underutilised.

(Maclaurin pers. comm.)

It is clear from this assessment that in terms of mainstream criteria these grazing schemes have not showed great improvements in range condition. Since rotational grazing through the paddocks has not been practised this evidence says nothing about the merits od rotational versus continuous grazing. If any "improvements" had been noted they would probably have been due to reduced stocking rates as a result of the exclusion of outsiders.

However, it is notable that only one paddock, in Mutakwa, was rated as being in poor condition, despite high stocking rates. In the early 1970s pasture scientists were surprised at how much better than expected was range condition in the grazing schemes studied by Danckwerts (nd.: 58), and perhaps these kinds of observations reflect the "resilience" of rangeland under high stocking rates (Abel and Blaikie 1989).

Institutional capacity for common property management

Only one scheme, Chamatamba, displayed high levels of organisational capacity, but this was put to the service of the private accumulation strategies of the leadership rather than for developing any capacity for management of the commons. In Mutakwa, Maraire and Mangezi the elected grazing scheme committees met seldom, called few community meetings, and were easily discouraged by internal conflicts. Institutional development was exceedingly poor in Machingo. Maintenance of fencing was problematic in all schemes because regular attendance at repair sessions by a majority of members proved difficult to organise. Only the Chamatamba committee kept an adequate set of written records.

Although the committees in these schemes claimed that by-laws to govern the operation of the scheme had been discussed and agreed on at community meetings, knowledge of their contents amongst committee and community members was extremely sketchy. Very few instances of by-laws being enforced were observed, and these had mostly to do with the exclusion of outsiders; one notable exception was the disciplining of herders not observing

the deferment rule in Maraire. In Mutakwa by-laws drawn up by Agritex and agreed to by the leadership as a condition of donor funding played no part in the operation of the scheme. The Communal Land (Model) (Land Use and Conservation) By-laws adopted in 1987 by the Batanai District Council in Mwenezi had not yet been applied to schemes within the MRLRP.

In only two schemes, Mangezi and Machingo, was the VIDCO a potentially relevant institutional setting for common property management. However, this potential declined over time as the two schemes, supposedly closely linked within the same VIDCO, increasingly separated their affairs from each other. The fact that in none of the case studies did VIDCO boundaries coincide with those of the schemes contributed to the increasing irrelevance to local decision making of *the* formal structure of local government institutions. However, the institutions more firmly rooted in local communities (the elected committees) had not yet developed a great capacity for common property management either.

Although paddocks in the case study schemes were not used for rotational grazing, some members of the schemes were clearly committed to maintaining the boundary fences. Exclusion of neigbours' livestock was an important reason for these communities adopting the grazing schemes. The fenced paddocks in Mutakwa, Mangezi and Machingo, and the first lines of fencing erected in Chamatamba, were thus all used to maintain a "minimum" version of common property. In the two Zimuto schemes the deferred grazing system which was operated on productive vlei grazing areas meant that in these cases rangeland was more actively "managed". They thus involved a more developed version of common property. It is interesting that these regimes were relatively effective even in the absence of fencing, although exclusion of non-members when rested grazing was opened up for use was problematic.

To what extent was the weakness of institutional development in these cases - due to the design of the grazing schemes, which failed to take note of how livestock in the Communal Lands use the spatially heterogeneous rangeland resources available to them? In Mutakwa the disjunction between the fenced paddocks and the preferred strategy of deferring grazing on Musari vlei certainly contributed to internal conflicts and a decline in support for the grazing scheme committee. In other schemes the connection was less direct, but it was clear that a "package" approach to grazing scheme planning and implementation had led to a neglect of the particularities of local situations.

Agricultural extension staff tended to focus their efforts on the technical rather than the institutional dimensions of grazing-schemes. Combined with a generalised neglect by government departments of any form of local institutional development, this meant an absence of effective external support for grazing scheme committees.

Summary

The case studies presented here, although few in number, confirm the generalised conclusions made in section 2.5 above. Grazing scheme policies in Zimbabwe have seen few successes in terms of the objective of encouraging the emergence of effective common property management regimes. Communities have responded to these policies in a variable and highly selective manner. Adoption of the recommended technology (rotational grazing at low stocking rates with high offtake rates) has been poor, with fences being used mainly to exclude outsiders. The possibility of basing the design of schemes on existing patterns of resource utilisation has not been explored. Management committees have performed poorly. Numerous intra-community conflicts have demonstrated that communities are internally heterogeneous in complex ways and that the objectives of different interest groups cannot easily be reconciled.

4.2 Do Communal Land livestock owners practise opportunism?

The concept of opportunism may help us to understand the response of communities to grazing scheme policies. Following Sandford (1983), Behnke and Scoones assert that "high but fluctuating stocking rates and migratory patterns of forage exploitation are recurrent features of pastoral opportunism" (1991: 23). Mobility is essential to the survival of stock where stocking rates are high, rainfall is highly unpredictable and the dynamics of the grazing system are of a "non-equilibrium" nature (ibid: 9-11). Livestock movement patterns are often related to the variability of resources both within and between different rangeland types, and "key resources" can offset constraints at particular times of year (ibid: 21).

"Opportunistic management" (Westoby et al 1989) thus consists of attempting to track the wide variations in forage availability found in arid and semi-arid environments by varying stock numbers over both space and time. It involves adapting to instability rather than trying to control it, seizing opportunities and evading hazards wherever possible. Behnke and Scoones suggest that this concept of opportunism expresses an increasing convergence between the methods of range exploitation used by African pastoralists and recent theories of range ecology.

The possible utility of this concept in respect of Zimbabwean grazing schemes will be considered in relation to three aspects:

a) stocking rates
b) livestock movement
c) spatial heterogeneity of resources
d) rangeland types and dynamics

Stocking rates

Data on stocking rates in the case study grazing schemes show that these have remained high despite extension policies aimed at encouraging higher offtake through regular sales (Table 3.2).

As pointed out above, in Zimbabwe the reason for this derives most fundamentally from the agro-pastoral nature of the production system and the multi-purpose functions of livestock. The draught, transport, manure and milk functions of cattle are particularly important.

Periodic crashes in livestock populations do occur, mainly as a result of severe droughts, although official destocking programmes have also contributed in the past (Scoones 1990c). Although only anecdotal evidence on fluctuations in livestock populations in the case study schemes could be gathered, residents of the schemes in Zimuto and Mwenezi reported severe losses during the 1982/4 drought, with less severe losses reported in Chamatamba. The Mwenezi schemes also suffered losses in the 1986/7 season.

After periods of high mortality people in these schemes attempted to rebuild their herds, and only the small minority with herds somewhat larger than ten animals generally considered the possibility of regular sales to the CSC. (Only in Chamatamba, located in a relatively high potential zone, was this strategy taken up by a significant number of herd owners, but even here they constituted only a small minority within the community.) In all schemes there was thus a constant upward pressure on stocking rates, broken by episodic events such as drought.

Livestock movement

Movement of herds allows for the exploitation of a variety of environments across space and time. In Zimbabwe the agro-pastoral character of Communal Land production systems means that cattle are generally kept near the homestead and overnight kraaling is practised throughout the year in most areas. Regular transhumant migration is thus not a feature of the Communal Lands[14]. Large scale migration in most areas is therefore undertaken mainly as a contingent response to unpredictable periods of low rainfall.

In Zimbabwe migration across long distances is, however, constrained by a number of factors. Communal Lands are often separated from each other by large tracts of fenced and privately-owned commercial farmland, and this restricts migration routes. Communal Lands themselves are mostly densely settled with high livestock populations, leaving little room for in-migrating herds (or even for herds en route somewhere else), and severe conflicts can result. Illegal "poaching" of grazing on commercial ranchland or resettlement schemes often takes place (The Chronicle 14/1/92). Veterinary regulations and fences for the control of Foot-and-Mouth Disease are major constraints to movement, and these have become particularly prominent since independence.

---

[14] One exception is in parts of Matabeleland where dry season migration to water pans, along the lines described by Prestcott (1961) is still undertaken (see discussion in Scoones and Wilson 1989: 103-105).

For these reasons there has probably been much less movement practised in recent years than in the past. Residents of Mangezi and Machingo grazing schemes reported that before independence they often moved their livestock onto commercial ranches within the district in drought years, after making an arrangement with the landowner, and occasionally migrated to distant Communal Lands with excess grazing (eg. Sengwe and Matibi II). People in Maraire and Mutakwa talked of having rented grazing from small scale and large scale farmers within Zimuto district during the drought in the early 1980s, and of having taken some of their cattle to relatives in other Communal Lands such as Chivi at times in the past. In Chamatamba, in a more favoured agro-ecological zone, there appears to have been much less resort to migration.

Despite these constraints migration is undertaken in periods of severe stress. Scoones (1989: 17-18) has documented a case of drought-induced movement in Mazvihwa in both 1982/3 and 1986/7. In this area localised migrations took place from a clayveld zone, which is particularly susceptible to forage shortages in dry years, to a more stable sandveld zone nearby. Migration to more distant areas was carried out as the drought lengthened. Scepticism as to the sustainability of a planned grazing scheme in the clayveld zone was expressed by local residents because of the restrictions on movement they envisaged the scheme would imply.

In the case study schemes the boundary fences were seen as important to keep neighbours' animals out, but also to keep their own animals in when unherded. In the period of the study no large scale migration was practised in any scheme. There is thus no clear evidence as to whether or not these grazing schemes frustrated opportunistic movements of stock, or indications as to the feasibility of using fenced paddocks in a flexible and adaptive manner which allows for mobility and the negotiation of "mutual aid" arrangements with other communities.

Spatial heterogeneity of resources

Analysis of habitat patch use by season in three of the case study schemes revealed that spatial heterogeneity is a vital element in rangeland resource use. Although there were clear differences between the schemes in respect of types of habitat patch and their relative availability (see discussion below), some general patterns emerged. Firstly, some habitats were clearly critical to the survival of livestock in the late dry season when forage resources were in limited supply. In all cases these included the riverine zones; in Mutakwa they included the vleis and drainage lines; in Chamatamba, the termite mounds; in Mangezi, the alluvium zone. In Mutakwa and Mangezi browsing was also observed to increase in intensity at this time of year. Secondly, crop residues and grass growing on contours were heavily utilised in all schemes in the early dry season. Thirdly, livestock spent considerable periods of time at home sites and kraals. Some of this time was "unproductive" since no feeding took place, but the high preference index values for this habitat

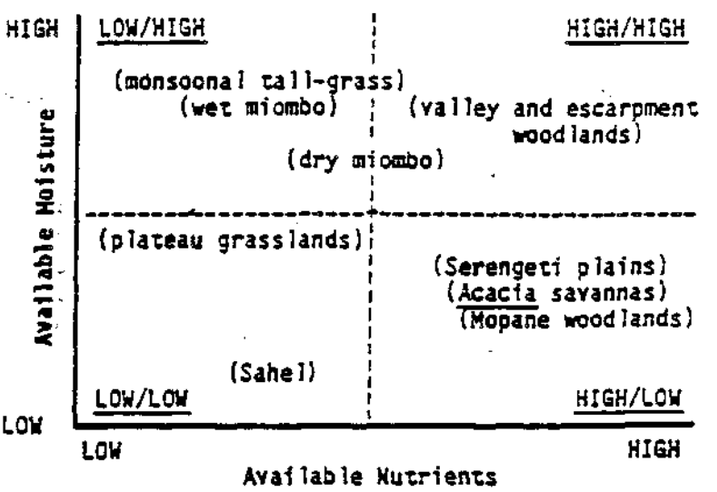
also reflect the feeding of stored crop residues or supplementary feeds.

These data thus tend to confirm Scoones' analysis of the importance of "key resources" in Communal Land grazing systems (Scoones 1989; Behnke and Scoones 1991: 21-22). Although the lack of data for other years makes it difficult to assess exactly how the use of key resources in these schemes varies with rainfall, it seems likely that they are exploited in a contingent and flexible manner. Thus in. wet years one would expect the "key" resources" to be less heavily utilised than in periods oil drought.

Rangeland types and dynamics

Behnke and Scoones (1991: 18-21) suggest a possible classification of different rangeland types, based on relationships between available soil moisture and soil nutrients and derived from classifications of savanna types. In these various permutations of soil moisture and soil nutrients are associated with characteristic combinations of savanna vegetation and wild herbivore populations (Figure 11).

Figure 11. Hypothetical distribution of savanna types in relation to the main determinants of savannas



Source: Reproduced from Frost et al. 1986 (modified from Bell 1984)

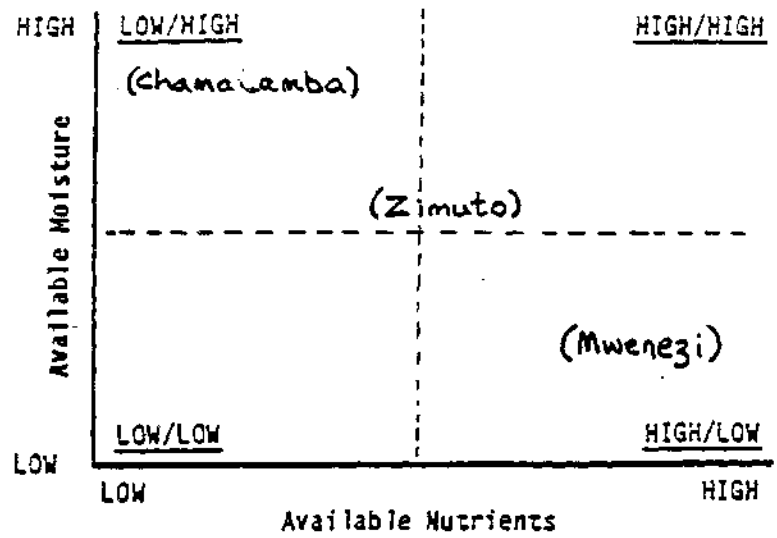
Behnke and Scoones , following Ellis and Swift (1990) and others, attempt to apply these concepts to rangeland management. They suggest that as rainfall becomes lower and more erratic so the likelihood of non-equilibrium dynamics being observed increases. In wetter areas equilibrium patterns are likely to be more applicable. In areas with both wet and dry periods there may be shifts between equilibrium and non-equilibrium dynamics. Soil type and associated vegetation also have an influence: on heavier clay soils with high nutrient levels primary productivity will be unstable over time due to the infiltration properties of these soils, leading to large fluctuations in livestock population numbers. By contrast, areas with lighter soils will show much more stability.

These differences in rangeland type influence the choice of management intervention: in conditions where equilibrium dynamics are at work the regulation of stock numbers may be appropriate, and in nutrient-poor range types investment in high quality grass or tree species may be worthwhile. On the other hand, in non-equilibrium conditions a management strategy based on opportunistic responses and mobility will be needed, and where nutrients are not limiting but feed quantity may be a constraint, seasonal fodder biomass shortages could be offset by interventions such as increasing the supply of browse.

The case study grazing schemes, located as they are in contrasting agro-ecological zones, can be classified according to this typology (Figure 12). Chamatamba, in Mhondoro, is found in the low nutrient/ high moisture type where equilibrium dynamics are more likely to be at work. The two Mwenezi schemes are in the high nutrient/low moisture type, with numbers of stock fluctuating greatly in response to rainfall variability and quantity rather than quality of feed resources being a limiting factor. The two Zimuto schemes, in an area where the high moisture vleis compensate for unreliable rainfall and soils are of medium to poor fertility, appear to fall into an intermediate type.

Management interventions clearly need to recognise the differences in ecological context that these schemes display. In Chamatamba interventions aimed at changing botanical composition (through the controlled use of fire or through pasture improvement) may be most appropriate, and regulation of stock numbers may well be an important issue. In the Mwenezi schemes support for opportunistic "tracking" strategies is more relevant. In Zimuto improved management of key resources is probably most important.

Figure 12. Classification of case study grazing schemes by rangeland type



In general it appears that livestock owners in the Communal Lands of Zimbabwe do practise a form of opportunism similar in many ways to that undertaken by pastoralists in other parts of the continent. However, the sedentary nature of agro-pastoral production systems combined with high population densities means that mobility, and hence the viability of migratory strategies, is constrained. As a consequence the importance of spatial heterogeneity of resources at the local level has probably been enhanced. Grazing scheme designs have tended to ignore these factors and the uneven response to the schemes reflects this disjunction. In agro-ecological zones with higher rainfall there is greater stability of production and less need to resort to "tracking" environmental variability, but even here the concept of opportunism helps us to understand why offtake rates remain low and how high stocking rates are able to be sustained.

4.3 Lessons for rangeland management policy

Are there rangeland management policies which would bring the objectives of government and Communal Land livestock owners closer together, and thus allow for the design of interventions more likely to be adopted? One clear implication of the case studies documented here is that the design of grazing schemes must be re-examined. Another is that the notion of "efficient opportunism" (Sandford 1983) must be taken seriously. Behnke and Scoones (1991: 24) suggest that

> Livestock development programmes based on opportunism would not attempt to suppress these fluctuations in livestock numbers, but to exploit them by developing mechanisms to promptly and profitably remove stock when it does not rain...

Policies in respect of livestock marketing, land tenure and herd movement, and institutional development ("pastoral

administration") would need to be revised if the promotion of efficient opportunism became an objective.

4.3.1 Livestock marketing

A marketing system appropriate to the needs of Communal Land producers would be based on an acceptance of the multi-purpose nature of livestock production and the provision of draught power, manure and milk as the most important functions of cattle. The system would attempt to accommodate high levels of cattle sales in dry years, accept much lower levels in wet years, and help farmers acquire stock for rebuilding herds after the ending of droughts. Stock numbers would fluctuate *in* an attempt to track the changing "carrying capacity" of rangeland. Abel et al (1987) have outlined how such a system could work in Botswana, where livestock marketing, as in Zimbabwe, is dominated by a large parastatal.

The potential costs of such a system to government, however, are high. Abbatoir capacity would have to be maintained at a high level but remain underutilised in many years. Buying stock at reasonably high prices in poor years (to encourage farmers to sell) and helping farmers acquire stock in good years would involve expensive subsidies which may be only partially offset by a decrease in drought relief funding. Urban populations, often politically influential, might be unhappy with highly fluctuating beef supplies.

Sandford (1982) suggested that another important function of an appropriate marketing system would be to facilitate the buying and selling of cattle for draught purposes. He recommended encouraging inter-district trade, the emergence of private livestock traders and village livestock markets. This would entail relaxing to a certain degree veterinary restrictions on inter-district movement imposed mainly for prevention and control of Foot-and-Mouth Disease.

Sandford's recommendations to the Zimbabwean government were not taken up, and livestock marketing policy through the 1980s and early 1990s has resolutely retained its central focus on commercial beef production. The cornerstones of this policy ares

- support for the dominant position of the Cold Storage Commission (CSC)

- reliance on an EEC export quota for high-grade beef, which is essential for cross-subsidising low earning domestic sales

- attempting to prevent and control outbreaks of Foot-and-Mouth Disease by strict enforcement of veterinary restrictions on the movement of wildlife and domestic livestock

- attempting to increase beef offtake from the Communal Lands in order to supply the domestic market with cheap low-grade meat.

However, the beef industry in Zimbabwe has undergone a major crisis of confidence in recent years. The financial viability of the CSC has been in question, recurrent outbreaks of Foot-and-Mouth Disease have resulted in the periodic loss of the export market, supplies of imported feed ingredients have been inadequate, rising costs and controlled prices have undermined the viability of commercial enterprises, and consumers have been resistant to high prices for high grade beef (CFU 1988; Cross 1990). Questions have also been raised as to the appropriateness of raising beef cattle for export on large areas of potentially arable land in the high potential zones of the country, when there is an urgent need to acquire land in these zones for resettlement purposes (Raikes 1987; Scoones and Wilson 1989: 51; Cousins 1990: 56).

In this context any discussion of marketing policies which might facilitate opportunistic strategies in the Communal Lands cannot be separated from the debate on the beef industry as a whole. Re-orienting the marketing system to accomodate the needs of Communal Land producers may require accepting the loss of the EEC market, a change of emphasis from beef to other kinds of meat (eg. goat meat or white meat products) for the domestic market, shifting subsidies from consumers and commercial farmers to Communal Land producers, and redefining the role of the CSC in the industry. While the control of Foot-and-Mouth Disease would still be important, measures which did not involve such severe restrictions on movement could be considered, as Sandford (1982: 122) suggested.

Potential benefits of a strategic re-orientation of the industry, in addition to opening up the option of support for opportunism, include the diversification of the meat industry, the encouragement of goat production in Communal Lands, more support for wildlife production enterprises, and greater freedom of manoeuvre in respect of resettlement planning for the high potential areas of the country (Cousins 1990: 54-56). If support for opportunism improves the prospects for improved management of communal rangeland, as the emergent literature suggests, then the argument for such a re-orientation is strengthened.

4.3.2 Herd movement and land tenure

If opportunism involves a high degree of herd mobility then it has implications for disease control measures which have to be considered by policy makers. As outlined above, in Zimbabwe the control of Foot-and-Mouth Disease has become critical to the export-oriented commercial beef industry, and the main control measure adopted is restrictions on stock movement between different zones within the country. Greater emphasis on other kinds of control measures might allow for much greater mobility of Communal Land herds, but to date there are no indications that this has been considered.

The implications of mobility for land tenure arrangements also run counter to the general thrust of present policies. Grazing schemes have been promoted within the framework of communal tenure, and attempted to institute a common property resource management regime involving the demarcation of exclusive territories with- unambiguous boundaries. The case studies presented here suggest that the possibility of exclusion of non-member's livestock using donated fencing has been a major motivation for adoption of schemes. However, opportunistic migration involves access to resources in areas not permanently occupied or used, or to areas "belonging" to other groups of users. In this situation what kinds of tenure arangements are "capable of providing security of tenure while permitting flexibility of use patterns" (Behnke and Scoones 1331: 24)?

One advantage of allocating distinct territories to user groups (in Zimbabwe, "communities") is that institutional development can emerge from within and build upon a pre-existing social and political framework. Another is that "territorial control by specific groups of people .... internalises costs and benefits" (Abel and Blaikie 1989: 21). Retaining these advantages but permitting access by outsiders to rangeland resources thus implies that this access has to be negotiated, agreed and co-ordinated. Abel and Blaikie suggest that "groups must be able to negotiate reciprocal, paid-for grazing arrangements to cope with spatial variation in rainfall" (1989: 21).

Arrangements permitting drought-induced migration in Zimbabwe have included renting of commercial ranch grazing by Communal land herdowners, and clearly rent is one feasible institutional form. Less formal arrangements made in the past have included the mobilisation of kinship obligations, but these, as with renting, have been individualised rather than communal in character. The Model D resettlement model being implemented in South Gwanda proposes a form of. co-ordinated access to range on a former commercial ranch, with different communities making use of this grazing in rotation, but on a regularised rather than contingent basis. In-general there are few precedents for secure, flexible and co-ordinated tenure arrangements involving groups rather than individuals. Institutional innovation is clearly necessary.

Spatial heterogeneity and the existence of key habitat patches within grazing territories imply that in dry years it is access to these high quality resources that will be critical. Their relative scarcity and uneven distribution across landscapes will make the negotiation of access in crisis years particularly difficult, but a clearer focus on the management and enhancement of key resources would undoubtedly support the search for appropriate institutional regimes to govern their use.

4.3.3 **Institutional development**

The emerging perspective on opportunism indicates that African livestock producers often have a better understanding of specific problems and opportunities in local environments than centralised bureaucracies promoting standardised "packages" of

recommendations. To Behnke and Scoones (1991; 25) this suggests that a more appropriate management model would involve

> .... less rather than more centralised regulation, the devolution of control over local resources to producers and producer groups, and a shift in emphasis from enforcement to monitoring critical developments and servicing local needs.

However, analysis of decision-making in the five grazing schemes described in this report suggests that "producer groups" are far from homogeneous, often comprising diverse interest groupings with different, and sometimes conflicting, objectives. Questions of access to and control over land and resources usually involve complex power struggles within communities, and these often implicate external agencies and structures of authority. Recommendations to "devolve control" and "service local needs" fail to explicitly address the questions of "control to which interest group?" and "whose needs?"

In the current political and economic climate the notion of less rather than more governmental control will clearly resonate with other kinds of policy thrusts, and it may be argued that local power struggles should be left to themselves. Since some role for the state or other agencies is still envisaged, however, the question of how even minimalist interventions articulate with local struggles, and whose interests they serve, cannot be avoided.

The case studies also demonstrate how local institutions, even those with a supposedly "traditional" character, have been deeply impacted upon by state interventions in both the colonial and post-colonial periods. This has left a legacy of ambiguity and fluidity in institutional and power relations which will not be resolved by simple withdrawal. As the literature on common property makes clear, issues of power and authority are central to the evolution of property regimes, and in the contemporary world this unavoidably involves relationships between local and central authority. This dichotomy is itself too simple, since what is is usually at issue is a hierarchy of institutions dealing with land, development planning, support services, and governance in general.

What this suggests is that "co-management" models (Lawry 1990) of common property may be more appropriate than "devolution of control"." This will involve radical changes in emphasis of the kind Behnke and Scoones indicate, (eg. from enforcement to monitoring events and servicing needs, abandoning the "blueprint" approach to resource management etc), but also increase the urgency of the search for adequate institutional arrangements for planning, implementation, monitoring, regulation, arbitration, and rule enforcement within communal grazing regimes. No ready-made models exist and innovation and a learning-process approach are required; the complexity and difficulty of the task should not be underestimated.

From a co-management perspective the experiences of the case study grazing schemes reported here suggest that government departments concerned with resource management in Communal Lands will have to develop the capacity to undertake the following roles:

* promoting the emergence of local institutions which have legitimacy and are effective decision-making bodies

* assisting the evolution of a legal framework (eg. rangeland management by-laws) which is locally accepted and enforceable

* servicing resource planning and management by local institutions which builds on local ecological understandings

* facilitating bargaining and negotiated compromises between communities, and user groups within communities, in cases of conflict or when migratory strategies were being considered.

Given the poor performance of government departments to date in respect of institutional development (for example, in relation to VIDCO development), and the likelihood of declining levels of government spending on rural development, the prospects for this kind of capacity-building exercise may not appear to be good. However, it is being increasingly recognised that achieving sustainable development in Africa will require the mobilisation of human resources as much as appropriate technical expertise and capital investment. Institution building is coming to be seen a foundation stone rather than an afterthought in the design of rural development. This re-ordering of priorities now needs to be translated into practical policies and programmes.

4.3.4 Grazing scheme design

As outlined above, the demarcation of exclusive grazing territories and their allocation to particular user groups or communities does not necessarily preclude migration out of or into these territories when the need arises. Stable tenure arrangements which allow co-ordinated access to critical range resources by different groups are feasible; grazing schemes and opportunism are not inherently antithetical. The central issue is rather the design of management systems and institutional regimes which have a better fit with the objectives and practices of livestock herds and herdowners on communal rangelands in Africa.

Event-driven movement is one- dimension which needs to be taken account of; another is that of spatial heterogenity within grazing territories. An understanding of the critical role of the "patchiness" of rangeland habitats has prompted suggestions for alternative grazing scheme designs. Scoones (1989) proposed "key key resources, schemes which would establish a system of regulated use of" *key habitat patches. These would be locally* specific, address

critical constraints (eg. quality vs quantity of forage), and be relevant to the objectives and management capabilities of the community concerned. Community members, with their fine-tuned understanding of local resource dynamics, would be the primary participants in the design and development of these schemes. Abel and Blaikie (1989; 21) make similar suggestions: grazing territories should be established taking into account spatial and temporal variations in the quality and quantity of forage and water, perhaps using "ecological fencing" to separate habitat types with different degrees of resilience and resource endowments.

The problem with both of these proposals is their extreme generality and lack of detail. To date no attempts have been made to flesh out these ideas or examine how they would be translated into practical reality in specific situations. Grazing schemes continue to be planned as Short Duration Grazing systems[15].

The time would appear ripe to put these ideas for alternative designs to the test. The new paradigm on rangeland ecology is still evolving and a great deal of more research on non-equilibrium dynamics and opportunistic strategies is required. The most appropriate course of action is thus to implement a small number of pilot projects which explore the management implications of these ideas, in a form of action-research. The active participation of community members in the design process would have to be sought. Experience suggests that many rural communities would be eager to participate in such projects, but that the complexity of decision-making dynamics would require a great deal of attention to the institutional issues discussed here.

Pilot projects would also have to take into account a range of agro-ecological conditions, and the rangeland typology proposed by Behnke and Scoones might be useful in setting the parameters of the exercise.. Using the Zimbabwean case study schemes as an example, one might propose pilot projects of the following broad types:

(i) Schemes in arid and semi-arid zones where rainfall is highly variable and rangeland dynamics are of a non-equiibrium nature. Opportunistic tracking of forage fluctuations through varying stock numbers across time and space and planning for migratory movement. Development of the browse resource through tree planting could be explored. Location : the dry south and south west of the country.

(ii) Schemes where spatial heterogeneity of rangeland resources at a local level is critical for sustainable

---

[15] Unconfirmed reports suggest that a possible exception in Zimbabwe may be the planning and implementation of a few schemes based on Savory's Holistic Resource Management model, but to my knowledge these have not yet been written up.

production, and the option of migratory movement is less available. Designs involving the fencing and regulated use of key resources by selected types of stock, and the enhancement or upgrading of these resource patches. Location: areas with variable rainfall but high prevalence of vleis, drainage lines, riverine zones or similar habitats.

(iii) Schemes in higher potential zones where soil nutrients are a limiting factor. Designs could explore the more efficient utilisation of what key resources exist, the supplementation of natural forage with cultivated forage crops, and improving the quality of the botanical composition of rangeland (ie. intensification measures).

4.4 Conclusion

The increasingly obvious failure of conventional approaches to the management of communal rangeland makes the search for alternative perspectives and interventions more credible. In Zimbabwe the large amounts of state and donor funds spent on fencing of paddocks in Short Duration Grazing schemes has begun to be questioned, but no proven alternative has yet evolved. The emerging paradigm in rangeland ecology helps us to understand why the conventional approach has not been more positively responded to by Communal Land producers, and suggests a way forward. Given the relative infancy of the new perspective, however, the management and policy implications are not entirely clear. An action-research programme made up of a number of pilot projects exploring different kinds of intervention is urgently needed.

REFERENCES

Abel N.O.J. and Blaikie P.M. 1989. "Land degradation, stocking rates and conservation policies in the communal rangelands of Botswana and Zimbabwe" Land Degradation and Rehabilitation Vol 1. (also reproduced as Pastoral Development Network paper 29a, ODI, May l990).

Abel N.O.J. , Flint M.E.S., Hunter N.D., Chandler D., and Maka G. 1987. Cattle-keeping, Ecological Change and Communal Management in Ngwaketse Addis Ababa: International Livestock Centre for Africa, and Gabarone: Ministry of Agriculture (140pp).

Adams J. 1991. "The Rural Labour Market in Zimbabwe" Development and Change 22: 297-320.

Amin N. 1991. "Peasant Differentiation and Food Security in Zimbabwe", Working Paper No. 1, SSRRC Project on African Agriculture, New York; Social Sciences Research Council.

ARDA 1987. Resource Management Project for Kanyati and Gatshe Gatshe Communal Areas Harare: ARDA.

Barnes D.L. 1978. "Problems and Prospects of Increased Pastoral Production in the Tribal Trust Lands" Zambesia 6 (1): 49-59.

Behnke R.H. and Scoones I. 1991. Rethinking Range Ecology; Implications for Rangeland Management in Africa Overview of Paper Presentations and Discussions at the Technical Meeting on Savanna Development and Pasture Production, 19-21 November 1990, Eoburn UK. London: Commonwealth Secretariat.

Bratton M. 1978. Beyond Community Development: the Political Economy of Rural Administration in Zimbabwe London: CIIR.

1990. "Ten Years After: Land Redistribution in Zimbabwe, 1980-1990", in R. Prosterman et al, (eds) Agrarian Reform and Grass Roots Development Boulder: Lynne Rienner.

Bromley D.W. 1989. "Property Relations and Economic Development: the Other Land Reform" World Development (17)6: 867-877.

Central Statistics Office 1986. Agriculture and Livestock survey. Communal Lands 1985/86 Harare: CSO.

commercial Farmers Union 1988. "The beef plan. A combined producer organisation document". Harare: CFU.

Cheater A.P. 1990. "The Ideology of 'Communal Land Tenure' in Zimbabwe: Mythogenesis Enacted?" Paper presented to Conference on Land Policy After Lancaster, University of Zimbabwe, Harare, February 1990.

Child B.A. 1989. "Economic development, employment and the wildlife and tourism industry" (unpublished paper).

Chinembiri F. 1989. "Livestock Extension Programmes and Packages in the Communal Lands of Zimbabwe", in B. Cousins (ed) People, Land and Livestock Proceedings of a Workshop on the Socio-Economic Dimensions of Livestock Production in the Communal Lands of Zimbabwe, GTZ and Centre for Applied Social Sciences, University of Zimbabwe: Harare (pp 139-154).

Chipika S. 1989 "Livestock Ownership and Inequality With Particular Reference To Cattle: The Case of Some Communal Areas of Zimbabwe", in B. Cousins (ed) People, Land and Livestock Proceedings of a Workshop on the Socio-Economic Dimensions of Livestock Production in the Communal Lands of Zimbabwe, GTZ and Centre for Applied Social Sciences, University of Zimbabwe: Harare (pp 373-386).

Cliffe L.1986 Policy Options for Agrarian Reform: a Technical Appraisal Harare: FAO.

1988. "The prospects for agricultural transformation in Zimbabwe" in: Stoneman C.(ed) Zimbabwe's Prospects. Issues of Race, Class, State and Capital in Southern Africa Macmillan: London.

Cousins B. 1987 A Survey of Current Grazing Schemes in the Communal Lands of Zimbabwe Centre for Applied Social Sciences, University of Zimbabwe, Harare.

1988 Evaluation of Pilot Cattle Grazing Schemes Harare: EEC and Agritex.

1989 "Community, Class and Grazing Management in Zimbabwe's Communal Lands" in: Cousins B. (ed) People, Land and Livestock Proceedings of a Workshop on the Socio-economic Dimensions of Livestock Production in the Communal Lands of Zimbabwe. Harare: GTZ and Centre for Applied Social Sciences, University of Zimbabwe, (pp311-371).

1990a "Property and Power in the Communal Lands of Zimbabwe: Implications for Agrarian Reform". Paper presented to conference on "Land Policy in Zimbabwe After Lancaster", University of Zimbabwe, Harare, 13-15 February 1990.

1990b "A Stone Unturned: Local Political Dynamics and the Transfer of Technology in the Communal Lands of Zimbabwe". Proceedings of the Agrotec Regional Workshop on Research, Training and Education in Rural Technology, Harare, March 26-30 1990.

1990c. Comments in Pastoral Development Network Paper 29d.

Cousins B., Jackson C. Maclaurin A. and Scoones I. 1989. "Workshop Discussion and Recommendations" in: Cousins B. (ed) People, Land and Livestock Proceedings of a Workshop on the Socio-economic Dimensions of Livestock Production in the Communal Lands of Zimbabwe. Harare: GTZ and Centre for Applied Social Sciences, University of Zimbabwe, (pp 417-457).

Cross E. 1990. "A comprehensive review of the beef industry-situation necessary", Financial Gazette June 1, 1990.

Cusworth J.and Walker J. 1988. Land Resettlement in Zimbabwe. A Preliminary Study. London: ODA.

Danckwerts J n.d. A Socio-economic Study of Veld Management in Tribal Areas of the Victoria Province. Salisbury: Tribal Areas Research Foundation of Rhodesia.

Department of Physical Planning 1983. "Land Reform and Social Transformation: Mwenezi District Development Strategy", mimeo, 5 pp.

Drinkwater M.J. 1989. "Technical development and peasant impoverishment: land use policy in Zimbabwe's Midland Province" Journal of Southern African Studies 15: 287-305.

Duggan W.R. 1980. "The Native Land Husbandry Act of 1951 and the rural African middle class of Southern Rhodesia" African Affairs. LXXIX: 227-239.

Ellis J. and Swift D. 1990. "Stability of African Pastoral Ecosystems: Alternate Paradigms and Implications for Development" Paper delivered at Technical Meeting on Savanna Development and Pasture Production, Woburn, UK, November 1990. Commonwealth Secretariat.

Forestry Commission 1990. "Forestry II Project. Pilot Forest/Grazing Management Scheme" Harare: Forestry Commission (mimeo).

Froude M. 1974. "Veld Management in the Victoria Province Tribal Areas" Rhodesian Agricultural Journal 71(2): 29-37.

Farming Systems Research Unit 1985. Annual Report Harare: .... Department of Research and Specialist Services.

Garbett G.K. 1963. "The Land Husbandry Act of Southern Rhodesia" in: Biebuyck D. (ed) African Agrarian Systems London: Oxford University Press.

GFA 1987. Study on the Economic and Social Determinants of Livestock Production in the Communal Areas- Zimbabwe. Harare: Department of Veterinary Services.

Holleman J.F. 1969. Chief, Council and Commissioner. Netherlands: Koninkelijke Van Gorcum and Co.

Hughes A.J.B. 1974. Development in Rhodesian Tribal Areas Salisbury: Tribal Areas of Rhodesia Research Foundation.

Ivy p. 1969 "Veld Condition Assesments" in: Proc. Conex veld management conference, Bulawayo (pp 105-112) .

1985. "Communal Area Grazing Trials" in: Proceedings of the Annual Review of the National Extension and Research Project. Harare: Agritex and Department of Research and Specialist Services.

Jackson J.C. 1989. "Exploring Livestock Incomes in Zimbabwe's Communal Lands" in: Cousins B. (ed) People, Land and Livestock Proceedings of a Workshop on the Socio-economic Dimensions of Livestock Production in the Communal Lands of Zimbabwe. Harare: GTZ and Centre for Applied Social Sciences, University of Zimbabwe, (pp 183-212).

Jackson J.C, Collier P. and Conti A. 1987. Rural Development Policies and Food Security in Zimbabwe: Part II. Geneva: International Labour Organisation.

Joint President's Agricultural Committee 1990. "Report on Resettlement, Distribution and Utilisation of Agricultural Land in Zimbabwe," Harare: JPAC (mimeo).

Jordan J.D. 1964. "Zimutu Reserve: A Land-use Appreciation" Human Problems in Central Africa 36: 59-81.

Kriger N. 1988. "The Zimbabwean War of Liberation: Struggles Within the Struggle". Journal of Southern African Studies, 14(2): 304-322.

Kundhlande G. and Mutandi R. 1989. "Experiences of the CARD Programme in Gutu in relation to improving livestock and grazing production" in: B.Cousins (ed) People, Land and Livestock Proceedings of Workshop on the Socio-Economic Dimensions of Livestock Production in the Communal Lands of Zimbabwe, Harare: Centre for Applied Social Sciences, University of Zimbabwe and GTZ, (pp 397-416).

Lawry S.W. 1990. "Tenure Policy Toward Common Property Natural Resources in Sub-Saharan Africa" Natural Resources Journal 30: 403-422.

Mombeshora B. 1985. "Livestock Production Research" in: M Avila (ed) Crop and Livestock Production Research for Communal Areas. ZAJ Special Report no 1. Harare: Department of Research and Specialist Services.

Mtetwa R.M.G. 1978. "Myth or Reality: the Cattle Complex in South East Africa, with Special Reference to Rhodesia" Zambesia 6 (1): 23-36.

Mugoni K.T. 1984. "Land Use Reforms Mwenezi-District. Project Document" Mwenezi: District Administrator's Office (mimeo), 15pp.

Mumbengegwi C. 1986. "Continuity and Change in Agricultural Policy" in: I.Mandaza (ed; Zimbabwe. The Political Economy of Transition: 1980-1986. Dakar: Codesria.

Mupangwa J. 1988. "End of Season (1987/88) Veld Trend: Monitoring Report" Harare: Agritex (mimeo), 17pp.

Murombedzi J. 1987. "An Outline of the Historical Trajectory of Local Government Institutions and Community Development in Zimbabwe since 1923" Paper presented to Seminar on Issues and Experiences in Rural Development": China, Kenya and Zimbabwe. Harare: Centre for Applied Social Sciences, University of Zimbabwe.

Murton T. 1971. "Land Use Planning in Tribal Areas in Rhodesia" Rhodesian Agricultural Journal 68 (1).

National Farmer's Association of Zimbabwe 1989. "Proposals for Land Reform and Distribution Policy" Harare: NFAZ (mimeo).

Palmer R. 1977. Land and Racial Domination in Rhodesia. London: Heinemann.

1990. "Land Reform In Zimbabwe, 1980-1990" African Affairs 89: 163-181.

Passmore G.C. 1972. The National Policy of Community Development in Rhodesia. Salisbury: University of Rhodesia.

Phinister I. 1986. "Discourse and the discipline of historical context: conservationism and ideas about development in Southern Rhodesia 1930-1950", Journal of Southern African Studies. 12(2) : 263-275.

Prescott J.R.V. 1961. "Overpopulation and overstocking in the native reserves of Matabeleland", Geographical Journal 127: 212-25.

Raikes P. 1987. "The Common Agricultural Policy and the African Food Crisis" CAP Briefing, pp 13-14. London: CIIR.

Ranger T. 1985. Peasant Consciousness and Guerilla War in Zimbabwe, Harare: Zimbabwe Publishing House.

1988. "The Communal Lands of Zimbabwe" Paper presented to Symposium on Land in African Agrarian Systems, University of Illinois, Urbana Champign, April 10-12 1988.

Republic of Zimbabwe 1982a. Transitional National Development Plan 1982/3 - 1984/5 Harare: Government Printers

1982b. Communal Land Act of 1982 Harare: Government Printers.

1986. First Five Year National Development Plan, 1986-1990, Vol 1. Harare: Government Printers.

1987. Report of the National Symposium on Agrarian Reform in Zimbabwe. Harare: DERUDE and FAO.

1988. The National Livestock Development Policy (draft). Harare: Ministry of Lands, Agriculture and Rural Resettlement.

Robinson D.A. 1951. "Pasture Improvement in Zimutu reserve" Bulletin No. 1578. Salisbury: Ministry of Agriculture and Lands.

Roth M. 1990. "Analysis of Agrarian Structure and Land Use Patterns. A Background Paper for the Zimbabwe Agriculture Sector Memorandum" Harare: World Bank.

1986 SADCC 1986. Involving the People in Soil and Water Conservation. The Mwenezi Experience - a Case Study Harare: SADCC.

Sanders D. 1984. "The state and popular organisation" Journal of Social Change and Development 8: 6-8.

Sandford S. 1982. Livestock in the Communal Areas of Zimbabwe, Harare: Ministry of Lands, Resettlement and Rural Development.

1983. Management of Pastoral Development in the Third World, London: John Wiley in association with Overseas Development Institute.

Scoones I. 1989a. "Economic and Ecological Carrying Capacity. Implications for Livestock Development in the Dryland Communal Areas of Zimbabwe" Pastoral Development Network Paper 27b London: ODI.

1989b. "Patch Use by Cattle in a Dryland Environment: Farmer Knowledge and Ecological Theory" in: People, Land and Livestock. Proceedings of a Workshop on the Socio-economic Dimensions of Livestock Production in the Communal Lands of Zimbabwe. Harare: Centre for Applied Social Sciences, University of Zimbabwe and GTZ.

1990a. "Livestock populations and the Household Economy: A Case Study from Southern Zimbabwe" unpublished PhD.Thesis, University of London.

1990b. Comments in Pastoral Development Network Paper 29d

1990c. "Why are there so many animals? Cattle population dynamics in the communal areas of Zimbabwe" Paper delivered

Production, Woburn, UK, November 1990. Commonwealth Secretariat.

Scoones I. and Wilson K. 1989 "Households, Lineage Groups and Ecological Dynamics: Issue- for Livestock Research and Development in Zimbabwe's Communal Lands", ins People, Land and Livestock. Proceedings of a Workshop on the Socio-economic Dimensions of Livestock Production in the Communal Lands of Zimbabwe. Harare: Centre for Applied Social Sciences, University of Zimbabwe and GTZ;

Sibanda H. 1990. "Problems of land use planning in the communal areas of Zimbabwe: a case study of Gutu District, Masvingo Province" Applied Geography 10: 135-146.

Stiltz D. and Weyl U. 1986. A Model of an Ecology-oriented Agricultural Development Programme Osnabruck: Universitat Osnabruck.

Vincent V. and Thomas R.G. 1962. An Agricultural Survey of Southern Rhodesia Salisbury: Federation of Rhodesia and Nyasaland.

Weiner D. 1988. "Land and Agricultural Development" in: C. Stoneman (ed) Zimbabwe's Prospects. London: Macmillan.

Weiner D, and Harris T. 1989. "Agricultural Development in Zimbabwe: Transition in a Labour Reserve Economy" in: A. Seidman et al (eds.) Rethinking Agricultural Transformation in Southern Africa. Trenton: Africa World Press.

Weinrich A.K.H. 1975. African farmers in Rhodesia London: Oxford University Press.

Westoby M., Walker B. and Noy-Meir I. 1989. "Opportunistic management for rangelands not at equilibrium" Journal of Range Management 35 (6): 694-689.

World Bank 1990. "Issue Paper: Zimbabwe Agricultural Sector Memorandum" Harare: World Bank.