‘A comparative study of institutional arrangements for small-scale livestock farmers in communities the Great Limpopo Transfrontier Conservation Area (GLTFCA) in Zimbabwe and Mozambique’

A project implemented under the AHEAD-GLTFCA Seed Grants Program
by
Centre for Applied Social Sciences (CASS)

FINAL REPORT

Research team

Jeannette Manjengwa	CASS, University of Zimbabwe
Shelton Kagande	Department of Animal Science, University of Zimbabwe
Nícia Givá	Department of Agronomy, University of Eduardo Mondlane
Ilda Mabjaia	Department of Animal Production, University of Eduardo Mondlane

February 2010

Table of Contents

A comparative study of institutional arrangements for small-scale livestock farmers in communities the Great Limpopo Transfrontier Conservation Area (GLTFCA) in Zimbabwe and Mozambique

1.0 Introduction

The Great Limpopo Transfrontier Conservation Area (GLTFCA) is situated in southern Africa and extends over three countries: Mozambique, South Africa and Zimbabwe. It incorporates a number of land uses, including five national parks, neighbouring game reserves, hunting areas, conservancies and intervening areas of communal lands under traditional tenure. The communal lands are inhabited by small scale subsistence farmers and livestock keepers. Small-scale livestock farmers in the GLTFCA have different levels of institutional organisation and support, monitoring, livestock management and disease control activities. The management of livestock and wildlife diseases within the envisaged larger trans-boundary landscape remains unresolved and is an issue of major concern to other economic sectors in the region. It is critical to understand the dynamics of communal cattle production systems, and their interactions, in the GLTFCA context. There does not appear to be an existing formal policy on animal health and disease control for the GLTFCA and therefore, an assessment of existing institutions around cattle and disease control in the different countries will provide a baseline and information that will feed into future policy processes.

The Centre for Applied Social Sciences (CASS) was a recipient of the AHEAD-GLTFCA Seed Grants Program in September 2008 for the implementation of 'A comparative study of institutional arrangements for small-scale livestock farmers in communities the Great Limpopo Transfrontier Conservation Area (GLTFCA) in Zimbabwe and Mozambique'. Preliminary findings of this study were presented in an interim progress report, August 2009. This Final Report records the project's activities and presents an analysis of the findings from January 2009 to January 2010 and provides insights on the various institutional arrangements around small-scale livestock farmers, highlighting a number of problems arising from their situation within the GLTFCA.

Study aim and objectives

The aim of the study was to investigate local institutional arrangements and capacity in small-scale livestock communities in the GLTFCA to manage livestock and control livestock diseases so as to enhance production and marketing. An understanding of the issues surrounding animal health will help us to understand how animal health impacts on the GLTFCA social-ecological system and vice versa. A better comprehension of animal

husbandry practices and examination of current practices particularly in relation to disease prevention will assist in the development and introduction of mitigating strategies by the stakeholders.

Objectives:

1. To understand the institutional arrangements around livestock production in selected local communities in the GLTFCA.
2. To examine the grazing and watering patterns in the local communities.
3. To understand the factors affecting effective disease management and control in these communities.
4. To identify the communities' problems, challenges and opportunities concerning cattle-raising in the TFCA.
5. To determine attitudes of small-scale livestock producers towards wildlife and the GLTFCA.
6. To facilitate engagement between different level stakeholders in order for communities to develop improved management plans so as more effectively manage livestock and control animal disease in the GLTFCA.

2.0 Background to the study: Institutions and small scale livestock farmers in the GLTFCA

Institutions are defined as 'the rules of the game' that shape the way we behave as individuals and as society (North, 1990). Institutions may be formal, as such as in legislation, or informal rules that govern individual behaviour and expectations. Institutions exist at a number of levels that affect small scale livestock farmers, ranging from the international to local, with inter-linkages between the levels. Trade barriers and standards imposed at the international level on beef marketing influence national policies that impact on livestock farmers' management practices and production. International standards for disease control often sway public veterinary resources towards controlling diseases that are of international importance, but which may be of minor significance to the small scale livestock farmers (Livestock in Development, 1999).

Livestock farmers in the GLTFCA are also affected, usually negatively, by international policies and decisions made about the formation transfrontier parks. With the formation of protected areas for biodiversity conservation and tourism development, farmers are often displaced or their grazing land and access to other resources curtailed. For example, with the formation of the GLTFCA people have been moved out of Limpopo Park in Mozambique, and in Zimbabwe there is an on-going conflict between the Chitsa people and the Parks and Wildlife Management Authority over the occupation of ancestral lands within Gonarezhou by the Chitsa people (Mombeshora and Le Bel, 2009).

The Great Limpopo Transfrontier Park, spanning Kruger National Park in South Africa, Gonarezhou National Park in Zimbabwe and the newly designated Limpopo National Park as well as Zinave and Banhine National Parks in Mozambique, was established through the signing of an international treaty in 2002. The Transfrontier Park's goals include: biodiversity conservation, the growth of the tourism sector, regional cooperation and socio-economic development. The Transfrontier Park is set within an even broader 'Transfrontier Conservation Area', approximately 100 000 km^2, although the extent of which remains as yet undefined but which potentially encompasses large portions of Chiredzi and Mwenezi Districts of Masvingo Province in Zimbabwe, the interstitial region between the protected areas in Mozambique, and the areas adjacent to Kruger National Park in South Africa. Nearly half of the Conservation Area is under communal tenure, supporting small scale subsistence farmers.

Since the inception of the Great Limpopo Transfrontior Park there has been increased interest by a wide range of institutions such as government departments, private sector and civil society involved in agriculture, livestock production, land use planning, poverty alleviation and public health to carry out initiatives in the GLTFCA. A number of these initiatives support the livestock sector. This increased interest aims to enhance economic development and biodiversity conservation in the face of an increase in the contact between humans, wildlife and domestic animals (AHEAD-GLTFCA Working Group, 2008).

Participation by local people is viewed as an essential component for successful wildlife protection and promoters of the transfrontier park hoped that through the use of participatory approaches local people would feel that they have a real stake in protecting wildlife. However, funders and parks planners were vague about precisely how local communities can benefit beyond obtaining employment in tourist facilities (Duffy, 1997). In reality, local people have generally been left out of the planning processes and continue to be marginalised. Whereas there may be positive environmental gains from these trans-boundary developments, there are many unresolved issues of sovereignty and national security, immigration and customs controls, veterinary concerns, land tenure, and whether participation by local people will really be equitable and beneficial in the long term.

At regional level the SADC Livestock Sector Unit of the Agriculture and Natural Resources Directorate is the focal point for the coordination of livestock development related activities. There are a number of regional livestock initiatives including:

- The Promotion of Regional Integration (PRINT) in the SADC Livestock Sector, a regional project which aims to strengthen the capacity of the SADC Livestock Sector Unit to undertake its mandate, considering that improvements in the livestock sector represent a considerable potential for poverty alleviation and food security improvement in the region.
- The SADC Livestock Information Management System (LIMS) project which aims to establish a reliable and standardised livestock information system which will supply data for trade and disease management.

- The SADC Foot and Mouth Disease Programme which was formulated to counter the potential economic threat to the region posed by foot and mouth disease and to stop the spread of the disease in the region.
- The SADC Transboundary animal diseases (TADs) Project which is designed to strengthen animal health institutions for the risk management of TADs. An improved Transboundary Animal Disease Information Management System (TADinfo) has been established in Zimbabwe and Mozambique, with support from the Food and Agriculture Organisation (FAO) to promote an information system for animal health.
- A number of pro-poor initiatives for livestock development that emphasise the role of greater market access for agricultural products from the developing world as a pathway out of poverty, have been initiated in the last few years. For example, the FAO-led Pro-Poor Livestock Facility that aims to facilitate the formulation and implementation of policies and institutional changes that have a positive impact on the livelihoods of poor livestock-owners. In parallel, the World Bank, together with the World Animal Health Organisation (OIE) and the FAO, has launched the African Livestock Programme (ALive) which is geared at promoting animal health both for the reduction of poverty and for the facilitation of regional and international trade of animals and animal products produced in Africa.

These various regional initiatives have varying impact on national and local institutions and implementation is generally sporadic, short-term and uncoordinated at local level.

At the national level, both Zimbabwe and Mozambique have Ministries of Agriculture under which the responsibility for the livestock sector falls. In Mozambique there is a National Directorate of Veterinary Services and provincial Livestock Services. In Zimbabwe, the reorganisation of the technical departments of the Ministry of Agriculture created a Livestock Production Department alongside the Veterinary Department. There are a number of government policies, legislation and regulations around livestock management and disease control. In Zimbabwe the legislation that governs the livestock sector is the Animal Health Act (Chapter 19:01) and its Regulations which aim to prevent the introduction, occurrence and spread of animal diseases and pests in the country and to monitor and report diseases and pests. Another law that pertains to the livestock sector is the Stock Trespass Act (Chapter 19:04) and its Regulations which aim to prevent the spread of diseases and pests through straying of animals.

Many national policies are determined by international policies. For example, regarding beef marketing in Zimbabwe, government intervened with a number of policies promoting beef marketing, including the formation of the Cold Storage Commission in 1937, a public body aimed at stimulating the beef industry and providing price guarantees for commercial producers of beef. This focus on beef cattle came to dominate thinking about livestock production, with research efforts concentrated on breed and fodder improvement and stocking rate trials to maximise beef production. Attempts were continuously made encouraging

communal area cattle owners to increase off take and enter the market too. By 1985 the communal, resettlement and small-scale herd stood at 3,409,000, with off-take between 1% and 3%. Much of this was sold to the Cold Storage Commission at guaranteed prices through an auction system.

However, this scenario changed significantly after 1985 when the Africa, Caribbean and Pacific group (ACP) preferential trade agreement came into force. From 1985 Zimbabwe had access to the lucrative European Union (EU) market. Donor efforts, including substantial investments by the EU, focused on upgrading abattoirs to EU export standards, zonation of the country, demarcating a fenced area of disease freedom for compliance with importing country requirements, and improvements in the veterinary services to ensure effective surveillance, movement control and disease management.

However, with the zonation of the country, there was a shift of beef production from the southern regions of Midlands, Matebeleland and Masvingo Provinces to the highveld (Natural Regions I and II), with an inversion of its spatial pattern, with 65% of the commercial herd now located in the Mashonaland provinces (Mavedzenge, et al., 2006). Not only had the south of the country been zoned in the foot and mouth disease vaccination zone (outside the EU export catchment area) it had experienced consecutive years of drought, and there had been a shift by many commercial ranchers into game. As a consequence, the south and lowveld were no longer the 'cattle country' of the past (Mavedzenge, et al., 2006).

The Department of Veterinary Services support was primarily for the commercial beef sector and emphasised combating foot and mouth disease, a disease of key economic importance given it prejudicial impact on exports. Historically the Sengwe region in Chiredzi has always been associated with outbreaks of foot and mouth disease, due to the proximity of buffalo in the region. The first recorded outbreak of foot and mouth disease in the country was in the southeast in 1931. By 1998, the government of Zimbabwe had constructed about 220 Animal Health Centres across the country. Despite the infrastructure, many of the Animal Health Centres are not operational due to lack of institutional arrangements that could fund the daily operations of the centres. Furthermore, the veterinary zones no longer exist, as the demarcating fences have been stolen and vandalised. The current status of fencing is extremely poor.

Another national institutional change that affected livestock farmers in Zimbabwe was the Fast Track Land Reform Programme which began in 2000. The Fast Track Land Reform resulted in the movement of people from the communal areas within the new GLTFCA into former conservancies and ranches some of which had hunting concessions. Some small-scale livestock farmers with previously limited grazing in the overstocked communal areas now had access to more grazing resources in the nearby resettlement areas.

At national level the government of Mozambique in the past endeavoured to control livestock disease through dipping and vaccination. A major event that affected livestock farmers was

the 13-year RENAMO war of destabilisation in Mozambique that ended in 1992. Many farmers lost livestock during the war which dislocated approximately six million people, primarily small-scale farmers, from land resources to which they gradually returned to and reclaimed (USCR, 1993).

As a consequence of the war and the disruption of the economy, particularly in the agricultural sector, the number of cattle was reduced drastically. At present the cattle population is slowly recovering, with the national herd estimated to have risen by 7% a year since 1993. The accelerated recovery of the cattle herd has been aided by restocking programmes support by the government and international development organisations.

During the RENAMO war, much of the livestock infrastructure, such as dip tanks, water points, development stations and quarantine stations were destroyed. Floods and diseases have also contributed to the loss of livestock. Epidemics have been a major constraint to the livestock sector in Mozambique and have had an enormous impact on the stocks and productivity of animals. Diseases such as trypanosomiasis, Newcastle disease, African swine fever and tick-borne diseases pose a major cause for concern to the livestock and veterinary services. Close proximity to the Kruger National Park and other protected areas that have a relatively high concentration of wildlife also results in the latent presence of foot and mouth disease.

Delivery of efficient and effective services is however currently constrained by budget limitations, the shortage of skilled animal health staff, limited institutional capacity for research, and inadequate information on which to base animal health and disease control programmes (Blench, et al 2003). The agricultural sector in Mozambique is currently supported by a large number of overseas donors and NGOs, and refurbishment of dip tanks is one of the issues that have been identified as requiring support.

The on-going National Agricultural Programme (ProAgri) of the Mozambican government aims to stimulate increased agricultural production as well as supporting small scale farmers to develop agriculture and enhance their livelihoods (Republic of Mozambique, 2004). ProAgri has a livestock component and is developing a livestock sector policy. One of the targets of the programme is to consolidate the public-private network of animal health service provision, particularly for increased coverage of mandatory vaccinations.

An innovative donor-funded programme, VETAID was an implemented in Mozambique, particularly in Gaza and Inhambane Provinces, which supported farmers by supporting local government livestock services; by a restocking programme; and by the training of farmers and community paravets. Even though the programme ended in 2007, some of the trained paravets are still active in the communities assisting small scale livestock farmers.

Besides formal institutions at the national level, across the GLTFCA there are also informal customary institutions particularly those pertaining to the value of livestock. Cattle in

communal areas have multiple uses, namely for draught power, transport, milk, manure, savings, bride wealth payments and other traditional events, and only for meat and hides as terminal products at the end of their productive life. Studies carried out in the 1980s demonstrated how valuable cattle were to communal area people, with the total economic value, estimated in replacement cost terms, far exceeding those derived from single-use beef animals (Scoones, 1992). If the full range of economic value of communal area livestock production systems is accounted for, Mavedzenge, et al., (2006), suggest that given existing circumstances of limited land availability, low herd sizes and a multiple use system, where livestock production was intimately bound up with crop production, not gearing towards commercial marketing is actually a rational position, despite all the policy and extension messages urging farmers to sell more.

At the local level there are formal institutional controls of movement of livestock and disease control measures. Whenever cattle are moved from one place to another it is essential to get obtain a movement permit in advance from the local office of the Department of Veterinary Services which requires that the animals must be tick-free, as well as obtaining a Police Clearance Certificate. At the local level, there are also informal rules and practices around common property resources, particularly grazing resources, livestock management practices, and local power structures.

In the communal areas, small-scale farmers aim at maximising numbers while the grazing area usually becomes the limiting factor. This means that stocking rates are considerably higher in the communal areas (at 0.3 – 0.5 animals per hectare or up to 0.8 animals per hectare in stress years) and herd numbers at the more localised scale fluctuate more widely, hitting resource limits during droughts, with resulting density-dependent mortality, and subsequently recovering in the wetter periods between droughts (Scoones, 1993).

Informal rules around grazing in communal lands indicate that cattle are allowed to roam freely during the dry season and local households are allowed to graze any number of cattle wherever they please, with no boundary rules, the only restriction or rule being to ensure that their animals did not destroy other people's crops (Guveya and Chikandi, 1996). After harvest the traditional leaders declare when farmers can graze their cattle on arable land, after harvesting, on stover left in the field. Research by Dore (undated) shows that traditional rules do not comply with the principle of exclusivity of common property regimes and hence do not in themselves offer a lasting solution to sustainable resource use. This is especially true under conditions of growing human and livestock densities. Furthermore, he shows that history matters and that institutions are 'path dependent' – evolving by continual marginal adjustments, building upon the preceding institutional arrangements.

3.0 Methodology

In order to find out about and understand the institutional arrangements around small-scale livestock farmers in the GLTFCA an interpretive approach was used that entailed interacting with and listening to people, recording what people say about what is happening, and analysing what can be learned from people's subjective experiences as well as from 'objective' facts. A combination of qualitative and quantitative research techniques were used as these methods complements each other and allow for thorough triangulation. This combination provided more in depth information, a deeper and more nuanced understanding of the issues.

The research used semi-structured interviews with key informants, focus group discussions, a livelihoods survey, direct and participant observation and secondary data was collected from literature and reports. In some cases, follow-up interviews were held with the same informants or groups. After the research was conducted feedback meetings were held with some of the farmers.

In-depth interviews with different members of the community were conducted to gather information pertaining to particular institutional arrangements within the community and to gather some background information about the community. Key informants included livestock farmers, local traditional leaders, councillors, the local veterinary officers, and other key people in the community such as local nurses, police officers in charge of the stock theft unit, development workers, headmasters and teachers.

Focused group discussions and participatory rural appraisal exercises including community resource mapping and matrix of prioritisation were held with the community. These groups varied in number and structure, and included separate groups of women and men.

Household surveys of approximately 10-15% of households randomly selected from village lists were carried out in three of the four sites, in order to collect systematic information regarding livelihoods, livestock number, livestock management practices and dynamics, diseases and respective treatment, and human/wildlife/livestock interaction.

The Research Team

The project was led by Jeanette Manjengwa, CASS, University of Zimbabwe. Shelton Kagande, Lecturer in the Department of Animal Science, University of Zimbabwe, worked in the Zimbabwe sites. The research in Macaringue, Mozambique was carried out Eng. Nícia Givá, Department of Agronomy, University of Eduardo Mondlane, assisted by Ilda Maria Armando Mabjaia, a final year veterinary student, University of Eduardo Mondlane. In Combomune, Jeanette was assisted by Abel Ngonhamo of Grupo de Trabalho Ambiental (GTA) who works on the scenario planning project in the village.

Project Activities

Planning meetings
Several planning and coordination meetings were held during the course of the research, with the first meeting in Harare, December 2008. A meeting was held in Maputo, January 2009 Maputo to:

- formulate research instruments including designing the questionnaire and compiling a lists questions for key informants and activities for focus group discussions;
- discuss research ethics, codes of conduct and expectations;
- organise field work logistics.

In February 2009 a meeting was held to revise the questionnaire after its initial piloting in Gezani.

A further planning meeting of the whole team was held during the AHEAD-GLTFCA meeting of March 2009, in Namaacha, Mozambique where the project concept and preliminary findings were presented.

Desk study of available literature
A large amount of literature exits on small-scale livestock farming issues in southern Africa, and in particular in areas around the GLTFCA pertaining to the arising issues of animal health and livestock/wildlife interactions and human and wildlife conflicts. The literature search, which began in late 2008 and continued throughout the project as new work was published or discovered, informed the study and forms the background to the research.

Developing the research instruments
Two instruments were developed, namely a questionnaire survey and a comprehensive check list or guide of questions and activities for focus group discussions and key informant interviews organised into 20 themes and sub themes. The research instruments were circulated for validation, piloted and then revised accordingly (see Appemdix).

The checklist or guide was flexible and not all questions were used in each interview or group discussion; rather the numerous questions provided a pool from which relevant ones could be extracted as appropriate to the situation.

The research instruments were translated into Portuguese by Nicia Givá. The research assistants further translated the information into Shangaan.

Field research
The field research activities had to be planned around the farmers other activities, such as ploughing and cultivating fields, attending funerals and political meetings.

During the planning meetings it was decided to include two sites per country as it was noticed that the situation for institutional arrangements around small scale livestock farmers varies somewhat within each country to some extent, as well as between the two countries, Zimbabwe and Mozambique. Four sites were chosen (see Table 1 below). Field work was carried out between January and October 2009 in the following research sites:

Table 1: Research sites

Site	**Location**	**Proximity to protected area**
Gezani	Chiredzi District, Masvingo Province, Zimbabwe	The village is approximately 50 kms from Gonarazhou National Park
Malipati	Chiredzi District, Masvingo Province, Zimbabwe	The village is adjacent to Gonarazhou National Park.
Macaringue	Massingir District, Gaza Province, Mozambique	Community lives within the Limpopo National Park in the multiple use zone
Combomune Rio	Mabalane District, Gaza Province, Mozambique	The community is adjacent to Limpopo National Park, separated by the Limpopo River

Feedback workshops

Two feedback workshops were held in October 2009 with groups of small-scale livestock farmers in Gezani and Malipati. In Gezani, 37 people attended the workshop, including 13 women. In Malipati, 17 people attended, including 6 women. The workshop participants included livestock farmers, chairmen of the dip tank committees, the Veterinary Livestock Technicians, ward councillors and local representatives from the Italian development organisation, CESVI.

Research findings were presented to the participants in vernacular. The farmers expressed appreciation of the fact that we had come back to share our findings with them and indicated that this was the first time they had experienced this sharing of research. The workshops were an opportunity for the research team to validate its findings and also to get more in depth information to fill gaps. The workshops provided an opportunity for engagement between different level stakeholders in order to improve livestock management and disease control and provided a forum for awareness raising as the farmers interacted with local technical officers and development agencies. The CESVI officer gave a short presentation on the Sengwe Corridor, describing its history, implications and the current status. During the workshops topical issues discussed were grazing cattle within the National Park and Parks by-laws; use of supplementary feeds; various diseases and transmission; the importance of dosing; perceptions of the GLTFCA; and CAMPFIRE. A member of the research team, Shelton Kagande, an animal scientist, presented information about various aspects of cattle

management including the use of urea treatment for supplementary feed for which he gave out booklets explaining the procedure. The Veterinary Livestock Technician made a presentation which touched on branding and stock theft; tick born diseases, foot and mouth disease and vaccinations, exploring the possibility of collectively buying and storing the vaccines and community-based vaccinators. The Veterinary Livestock Technician's presentation in Gezani ended with a quiz with the farmers who received veterinary medicines for prizes.

The workshops also provided an opportunity to carry out local level scenario building activities, focusing on livestock management, production and marketing. A SWOT analysis (strengths, weakness, opportunities and threats) by the farmers identified the communities' problems, challenges and opportunities concerning cattle raising in the GLTFCA. Scenario building activities helped the farmers to vision various alternative scenarios concerning the future of livestock management in the context of the development of a transfrontier conservation area.

Facilitating such interaction between small-scale livestock farmers and the technical officers was an important outcome of our project. After the workshops the research team together with veterinary personnel designed a wall calendar for 2010 focussing on livestock management for small scale farmers in the GLTFCA (see Appendix). The calendars were distributed to the farmers and other stakeholders. Through the messages on livestock management and disease control the calendars will raise awareness of basic cattle management practices throughout the year.

Photograph 1: Participants of the Gezani feedback workshop

Comparative analysis framework
A framework for comparing similarities and differences between institutional arrangements around small-scale livestock farmers was developed from the major themes that arose from the research. The comparative analysis is based on the composite findings using the various methods (quantitative and qualitative) and triangulation of these. The main themes of the findings were identified and coded, and then analysed to determine similarities and differences across the sites, within country and between the two countries, Zimbabwe and Mozambique.

4.0 The research findings

4.1 Biophysical aspects

The climate of the whole GLTFCA is subtropical, characterized by two main seasons, a dry season occurring from April to October and a wet season from November to March. The Limpopo basin is also characterized by cyclical droughts and floods. The average annual temperature is relatively high with the annual mean oscillating around 29^{o}c to 31^{o}c, although the maximum can reach 41^{o}c. Mean annual rainfall varies between 250-600mm and is highly variable both temporally and spatially (Cumming, 2004). The region is repeatedly subject to severe droughts. The region is not suitable for any meaningful crop production without irrigation. In Zimbabwe the GLTFCA falls within Agro-ecological region Five which is the hottest and driest region in Zimbabwe.

The majority of the vegetation of the GLTFCA area can be classified as *Colophospermum mopane*/*Terminalia prunioides* woodland to shrubland. Three other vegetation types in the region have been described by Timberlake et al. (1999):

- *Acacia*/*Faidherbia albida* riparian woodland.
- *Albizia brevifolia* /Combretaceae clumped open woodland to shrubland on sandstone.
- Cultivation on alluvium with scattered *Acacia* woodland, close to the Mwenezi, Limpopo and Elephants Rivers.

4.2 Socio-economic aspects

Position of the sites, demography, land administration and tenure
Gezani falls within two Wards: Ward 13 (Chibavahlengwe) and Ward 14 (Sengwe). Malipati is in Ward 15 (Maoze) and is located 170 km south of Chiredzi town. It borders Gonarezhou National Park to the east.

Macaringue is 71 km from Massingir, the District centre, and lies inside the Limpopo National Park, towards the south-eastern tip, occupying the inland part of the confluence of the two rivers, Elephants and Limpopo. Macaringue is one of the villages within the newly designated buffer or multiple use zone of the Limpopo National Park which extends 5 km inwards from the Limpopo and Elephants rivers and comprises about 16.5% of the Park area.

Combomune Rio is approximately 15 km from Combomune Estaçao (station) which is on the rail line and road from the Chiqualaquala border post with Zimbabwe to Chokwe. Combomune Rio is situated on the right bank of the Limpopo River, opposite the Limpopo National Park.

In Zimbabwe, Gezani and Malipati lie in Sengwe communal lands, owned by the state, but with usufruct rights. In Mozambique all land is owned by the state. In Combomune Rio, the community hold the land traditionally, but with no official title under the Land Law. Macaringue is ruled by a community leader, who is helped by the chiefs of each settlement and the secretaries of the village.

Table 2: Populations and number of households in research sites

Village	Population	Number of households
Gezani, Ward 13	1712	203
Gezani, Ward 14	298	35
Malipati, Ward 15	1691	223
Macaringue	1956	427
Combomune Rio	798	133

Box 1: History of Macaringue

The village of Macaringue was created in 1977 during the compulsory 'villagisation' programme, where the government of Mozambique started a campaign to amalgamate people together in villages with the argument of providing better social and economic services. At the time, agriculture and livestock were considered the main livelihood activities. From 1989 to 1992, due to the RENAMO war of destabilisation, people moved to Chókwè, Mabalane and South Africa where they were settled as war refugees.

Between 1993 and 1994, after the Peace Agreement a process of post war resettlement took place and old and new families returned to Macaringue. Today, Macaringue consists of six settlements, four of them concentrated in the centre of the village and the other two, settlements 5 and 6 located 5 km to the north and south respectively of the village.

Gender imbalance

A striking similarity across the sites was the gender imbalance as there are more women than men. In a focused group discussion farmers in Gezani estimated that there is a male to female ratio of 1:2. In Malipati, just under a quarter, 24.5%, of the households are headed by women of whom 15.6 % are widows. The remaining 8.9% of the households were *de facto* female headed households as they were headed by married women whose husbands stayed in neighbouring South Africa and have not returned since they left more than five years ago in some cases. In Combomune Rio and Macaringue there is also a predominance of women in the community due to men working in South Africa and other cities in Mozambique.

This preponderance of women has implications for livestock management which is normally regarded as the domain of men. Interestingly, a significant number of women actively participated at both feed back workshops. Unfortunately however, although women are left with the burden of looking after livestock on a day to day basis, it is invariably the absentee men who make major decisions concerning livestock, particularly sales. Thus informal social institutions negatively influence the role of women in livestock production and their rights over income from the sale of livestock products.

Land holdings and land use

The two principal land uses are cultivation of crops and livestock grazing. Land is an inherited resource, which passes from generation to generation. In Mozambique, the plots of land one can own depend on the number of wives, while the size of plot depends on the power and assets one has to work the land. The larger the family, normally the more numerous and larger are the plots. In Zimbabwe, land is given out and controlled by the local leadership.

In Malipati, homesteads are built on residential plots of between 0.4-0.81 hectares. Farmers have arable land for fields, on average 9.57 hectares for each farmer. The pastures for communal grazing consist of the mopane woodland that surrounds the area. Due to the continual subdivision of land holdings to sons on the death of their fathers, land holdings are getting smaller.

The people

Shangaan is the predominant ethnic group in all three countries of the GLTFCA. In Mozambique, the Shangaan comprise the major ethnic group in the southern Mozambican Provinces of Gaza, Inhambane and Maputo, and the people living in the Mozambican part of the GLTFCA are ethnically fairly homogeneous. In Zimbabwe, the Hlengwe Shangaan people are close relatives of the Makuleke, the former inhabitants of the Pafuri Triangle in the northern Kruger National Park, who migrated from South Africa during the Nguni uprising before the 18th century (Hlambela and Kozanayi, undated). They are also closely related to the Hlengwe Shangaan people in the adjacent Chicualacuala District of Mozambique. The

Shangaan group in Zimbabwe has been able to stay together and maintain their culture but they have mingled with other ethnic groups through intermarriages, especially with the indigenous Karanga Shona ethnic group of Masvingo Province. In Gezani there is a mixture of Venda and Shangaan ethnic groups. Malipati is more ethnically mixed. (see Table 3). During the colonial era, in 1954, Ndebele people from Filabusi, Matebeleland, were forcibly re-settled in the Malipati area. There are very few, if any Ndebeles in Gezani.

Table 3: Ward 15, Chiredzi District ethnic groups

Ethnic group	% of population
Shangaan	72%
Shona	15 %
Ndebele	7%
Venda	3%
Ndau	3 %

Traditionally, Nguni groups (including the Shangaan) were more livestock farmers than crop growers. However, over the years they have gradually embraced crop farming because frequent droughts and disease outbreaks repeatedly decimated livestock. The Hlengwe Shagaan communities are relatively conservative and traditional.

Wealth

The communal areas within the GLTFCA are characterised by high levels of poverty and livelihoods tend to be marginal. Across the GLTFCA region, the major indicator of wealth is regarded as the number cattle a person owns and this is the common form of wealth ranking used by community members. The more the cattle an individual has, the better standard of living the family usually has. In some areas, such as Gezani, the number of wives a person has together with number of cattle is a wealth indicator.

In Macaringue, wealth ranking exercises were carried out with separate groups of men and women to obtain their perceptions of wellbeing and poverty. Table 4 summarises the main criteria used to by men and women to identify wealthy households in Macaringue.

Table 4: Male and female criteria to identify a wealthy household in Macaringue

Criteria	Male group	Female group
Livestock numbers	Cattle (30 animals) Goats (30 animals)	Cattle (20 to 30 animals) Goats (30 to 50 animals)
Size and quantity of fields	3 plots of at least 1ha	3 to 5 plots of at least 1ha

Number of wives	3	Not relevant
Type of house	Not relevant	Not relevant
Others	Car, irrigation pump, canoe	Not relevant

There was consensus between male and female groups that a combination of number of livestock and number of fields distinguish wealthy households. However, women tend to put less emphasis on larger cattle numbers, but more emphasis on larger numbers of goats and more plots of land. Women do not regard number of wives or other assets as being relevant in determining wealth.

Regarding type of house, this was perceived as being irrelevant as a criterion of wealth for both men and women in Macaringue. On the other hand, farmers in Gezani indicated that there was a positive correlation between type of housing and the wealth status of an individual. The common form of house across the region is pole and dagga (mud) huts with thatched grass roofs, although there are several brick houses with asbestos or zinc roofs in the villages.

In all areas, poor households were characterised as those headed by widows or orphans and people with little social networking.

Occupations and income

The dominant occupation in all areas is that of subsistence farming. In Gezani 88.2% of the respondents indicated that they were farmers by occupation, while in Malipati, about 75% of the population described themselves as farmers. Three quarters of the respondents relied on cattle sales at local markets for income to meet their daily household requirements such as buying food, clothes, medical needs and school fees. Other sources of income include activities such as building houses, toilets and sinking wells, beer brewing, selling farm produce and part-time jobs. Most resource poor farmers, mainly those with few or without cattle provide hired labour (*maricho*). They sometimes get paid in cash or are given live goats, sheep, guinea fowls, ducks or chickens. Apart from *maricho*, Gezani farmers also engage in *humwe* which is a form of cooperative labour in the fields whereby families gather and work in a particular family's field until everyone's field is completed.

Some people, mainly youths are migrant labourers in South Africa and their major source of income is salaries (see Box 2). Some households rely on remittances sent by family members who work in neighbouring South Africa. However, it is difficult to ascertain details of the amounts received as people were reluctant to discuss this. Nevertheless, these remittances are not regular or standardised. Details of sources of income in Malipati are summarized in Figure 1:

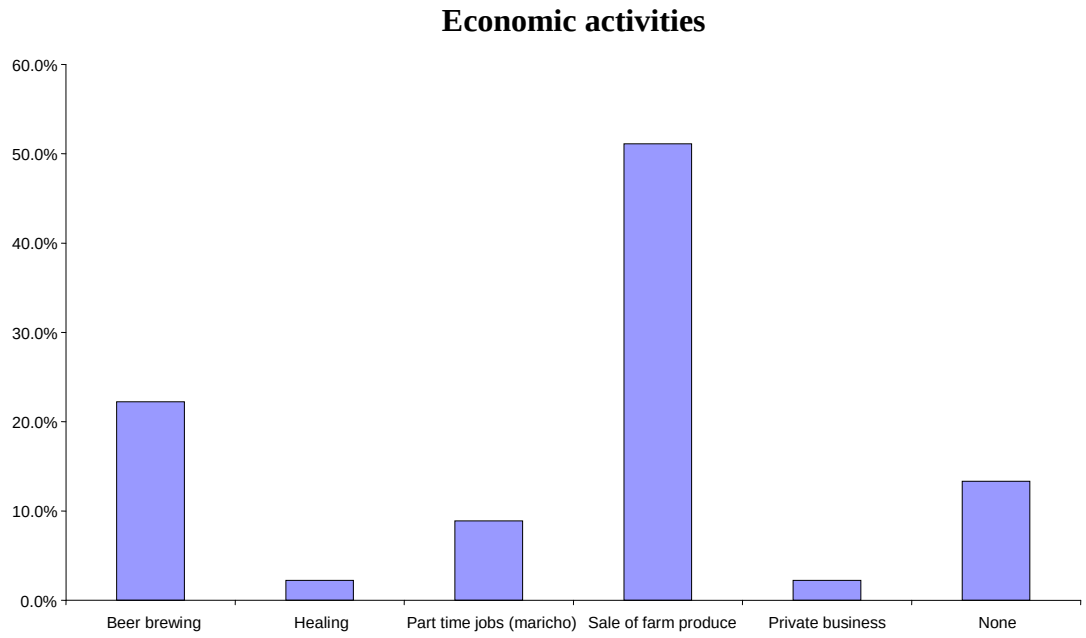


Figure 1: Economic activities in Malipati

Box 2: Work in South Africa for Combomune Youths

The pattern amongst the Combomune Rio community is that youths, from 14 or 15 years old, go to South Africa, usually illegally, work for several years as casual labourers or farm workers and then some return to the village in their 20s when they normally get married. This practice means that they miss out on education and when they return they regard themselves as being too old for studying. In the case of girls, they also tend to miss out on education as they are married very young.

Those youth who work in South Africa do not normally send money home as remittances. However, when they visit during Christmas, they bring money and presents. Although many of the youth go to South Africa to work, they rarely use this to buy assets. An important motivation for going to South Africa is to acquire money for bride price (lobola) or to build a house.

Unlike in Zimbabwe, the Combomune community does not carry out cross-border trade.

Household assets

Agricultural implements Common household assets across the sites are hoes, axes, shovels and picks. Families usually have more than one hoe depending on the size of the household. Most households owned ploughs. In Gezani, 88 % of households owned animal drawn ploughs and those that did not have a plough relied on borrowing from those who had more than one. In Malipati, 78% of the households owned animal drawn ploughs. Ownership of

ploughs was lower in Mozambique than Zimbabwe. None of the farmers in the four sites had tractors.

Water storage containers Water storage containers are also important household assets. Size of water storage containers also varies depending on the household size. In Gezani, for example, households owned water storage containers with capacities ranging from 40 litres up to 375 litres for larger families, with an average capacity of 133 litres.

Means of transport Ownership of means of transport varied somewhat. While in Gezani only 31% of the farmers owned either a trailer or an animal drawn cart, ownership was much higher in Malipati where 80 % owned animal drawn carts. Ownership of wheelbarrows to help carry heavy loads required in the day to day running of the homestead were similar in both Zimbabwean sites with 67% of households owning wheel barrows. Bicycles were common assets in all areas, particularly in the Zimbabwean sites. In Malipati, a surprising 93 % of households have bicycles. Bicycles are an important mode of transport in the area and most of the bicycles are imported from South Africa. In Mozambique several of the farmers also owned canoes.

Photograph 2: Bicycles at the Gezani feedback workshop

Cars are much rarer assets. In Gezani, two of the farmers, both with relatively large herds, have cars: one is a traditional healer with the Zimbabwe National Traditional Healers Association (ZINATHA), who has 79 heads of cattle; and the other one is a farmer who has 141 head of cattle. Both farmers said that they sold large numbers of cattle to buy the cars. In Combomune Rio there are three vehicles in the village, all pickups, including one bought in South Africa by the leader of the Producers Association

Communication Radios were the most common assets for communication. In Gezani, just over half the households, 56%, have radios, while 18% of households in Malipati have radios. Interestingly, there is the same percentage for mobile phones in Malipati. Mobile phones are rare because there is no coverage of Zimbabwe networks in the area, although some areas have South African mobile phone network coverage. Some of the villagers who return from South Africa bring mobile phones, but these are not considered to be a sign of wealth.

Communally-owned assets There are also some communally-owned assets, including boreholes and pumps. In Combomune Rio, two heads of cattle for ploughing belong to the Producers Association and are used by the community. While most villages in Zimbabwe have community grinding mills these are scarce in Mozambican villages and the women prepare maize porridge (*sadza*) by 'souring' the cracked maize in water for a couple of days, before mashing it with large wooden sticks.

Household labour

Household labour tasks tend to be divided between the sexes, although some are carried out jointly. Daily routines such as collecting water, sourcing food and firewood and were mainly done by female members of the household. Other activities such as gardening, ploughing, weeding, children's education and health care were usually done by both parents. Some household duties are exclusively done by males except in cases where no male member of the family was available, namely; cattle management routines, repairing implements and cattle herding. The most labour intensive and time consuming activity by far according to all the respondents was weeding.

Infra structure and services

All the sites are remote and accessible only via dirt roads in poor condition. Sometimes these roads are inaccessible, particularly in the rainy season when bridges are destroyed. The railway passes through Gonarezhou National Park into Mozambique at the Sango/ Chiqualaquala border post, providing transport once a week to passengers.

Photograph 3: Road bridge near Malipati

None of the sites are electrified, although in Zimbabwe the national electricity grid extends to Gonarezhou National Park.

Figure 2 which shows distances travelled by people in Gezani to access various services, is more or less typical for communities in the GLTFCA. Relatively long distances are travelled to get services such as Veterinary offices, secondary schools, and banks.

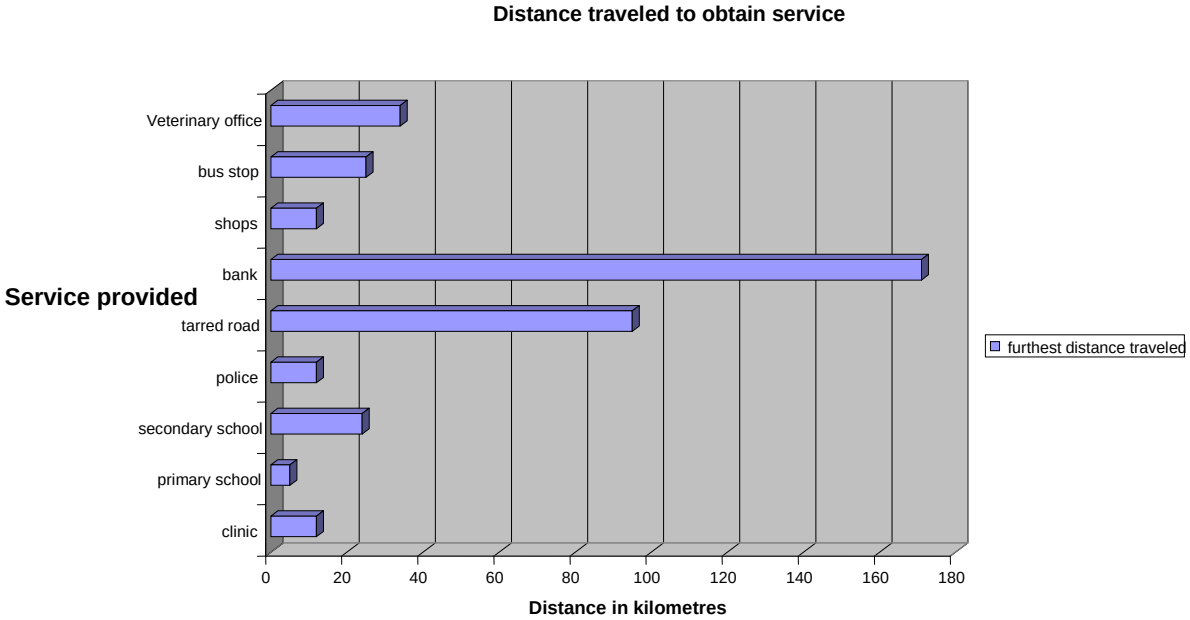


Figure 2: Maximum distance traveled to obtain services in Gezani

Education

Generally across the region, education levels are lower than the national averages, despite the presence of schools in the region.

In Malipati, although there are both primary and secondary schools in the village, 17.5% of the adult population did not go to school, 35% only went to school up to the primary school level, and 33% up to secondary school level (see Figure 3).

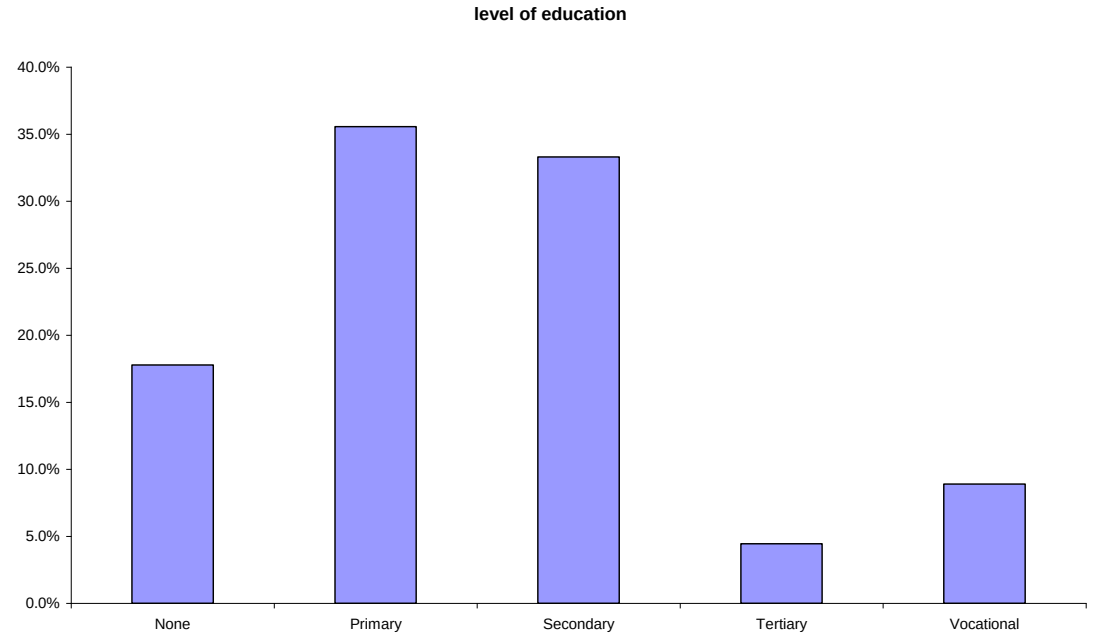


Figure 3: Level of Education in Malipati

Box 3:Macaringue village school

One of the main infrastructures in Macaringue village is a school that teaches from 1st grade till 7th grade. The school was built in 1998/9 funded by a donor, Caritas. It has one cement block with 3 classrooms and an administration room. In addition, there is another classroom built with local traditional building material and two other classes function outside under trees. These last three schoolrooms have no furniture and the children have to bring their own chair from home daily.

The enrolment rate is slightly decreasing year by year (Figure 4). According to the teachers interest in schooling is decreasing among the families and many of the pupils give up school for different reasons such as: earlier marriage for girls (13 to 15 years old); the small boys stay weeks without coming to school because of cattle herding obligations; and some boys go to South Africa at the age of 15 (teachers' interviewed 22/04/09).

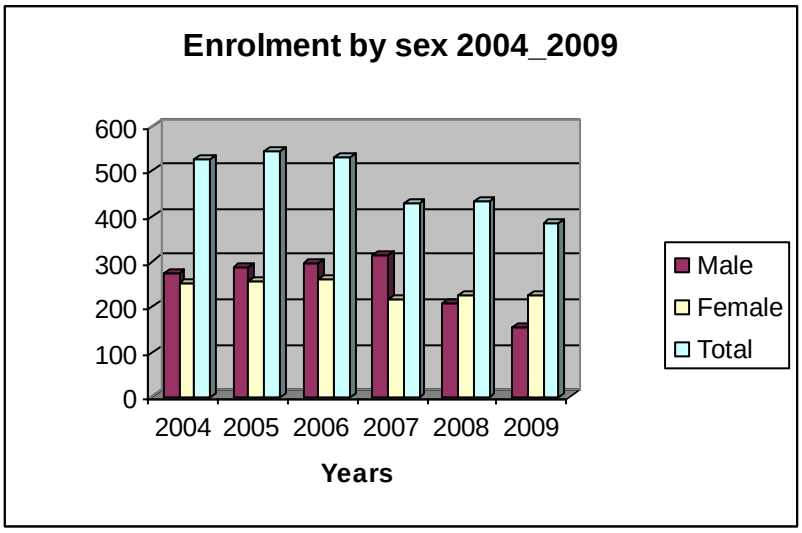


Figure 4: Enrolment rate by sex in the last 5 years in Macaringue Primary School
(Source: Macaringue school statistics)

The graph also shows that for the last two years the female enrolment rate is slightly higher than the male, which means that there is an increase in school boys dropping out.

There are nine teachers, two females and seven males, who work in two shifts (mornings and afternoons). According to them, although books are subsidized by the government, there are a considerable number of parents that do not send their children to school saying that they cannot afford to buy other school material like exercise books, pen and pencils.

Health

Healthcare infrastructure is relatively well-developed at local level across the region with clinics or health posts in the villages. However, in Zimbabwe, healthcare delivery has been greatly reduced due to the economic crisis that the country is experiencing. There is a serious shortage of drugs and personnel. The clinics are not fully staffed or equipped. Similar constraints are also experienced in the Mozambican health centres.

In Macaringue, there is a health post with a nurse in the village. It was built in 2001, also funded by Caritas. The health post is equipped with only the basics for tests and medicines. Complicated cases are transferred to Chókwè and Massingir. Nevertheless, the health post provides first aid, testing and child care services. The principal diseases in the villages are child parasites, malaria, chest infection, and sexually transmitted diseases. There are a number of health programmes that started in 2008 which include child vaccinations, anti parasite treatment, rapid HIV tests and a sanitation campaign.

In Gezani, HIV and AIDS cases are increasing from 1% of pregnant mothers testing positive for HIV in 2007 to about 5% in between February 2008 and February 2009. This is well below the national average, which was approximately 11 % in 2009.

Energy, water supply and sanitation

Fuel wood, mainly gathered from the surrounding mopane woodland, is used by all communities. In Mozambique, charcoal is processed, mainly for marketing. This activity is increasing with the various stressors such as poverty, drought and floods which are being experienced.

In Malipati, all the households depend on fuel wood as the main household energy source for all the cooking and heating requirements at household level although 22.2% of the households had used solar energy mainly for lighting and playing radios.

Water is generally not a serious problem in the four sites. In the Zimbabwean site, there is a prolific aquifer which can supply boreholes, plus the presence of several perennial rivers such as the Mwenezi. In Malipati, 66.7% of the households had access to borehole water while 24.4 % had access to wells, 6.7% to rivers and a small percentage, 2.2 % to dams (Figure 5). A perennial problem in all sites is the frequent breaking down of boreholes.

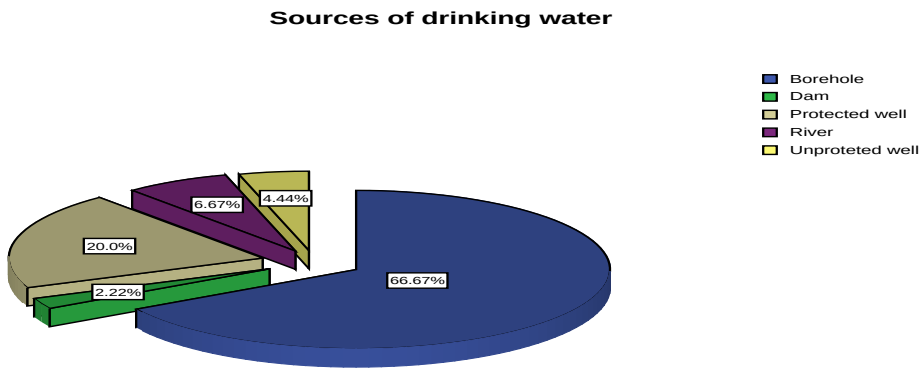


Figure 5: Sources of drinking water in Malipati

Regarding access to water, Macaringue is regarded as a privileged village, as it is located in the confluence of the Limpopo and Elephants Rivers. The two rivers also constitute the main sources of water for animals in the Limpopo National Park. At the village level the rivers are sources of water for domestic purposes (cloth washing, and bathing), cropping, animal drinking, and building. Elephants River is perennial while the Limpopo is dry for most of the year.

In Combomune Rio, the community's major livelihoods concentrate on use of the water from the Limpopo, especially for agriculture and cattle rearing.

Sanitation is either pit latrines or using the surrounding bush for toilet purposes. In the Zimbabwean sites, 66% of the households had a Blair pit latrine which happens to be the standard sanitation facility in the area. The other 34% did not have toilets and relied on the 'bush system'.

Food aid and institutional support

The main social networks that exist in the communities are churches, including Apostolic Faith Mission, Roman Catholic, and several apostolic sects.

A common feature of all communities in the GLTFCA is that they are recipients of food aid, either from the governments or donors, with the World Food Programme being a major actor. In Zimbabwe, Plan International, an international non-governmental organisation provides food items such as maize meal, cooking oil, sorghum and cow peas to the most vulnerable members of the community particularly resource poor farmers and child headed families. About half of the farmers in Gezani had benefited from food handouts from PLAN International.

In Combomune Rio, the World Food Programme and Jamlife (a US religious organisation) feed school children and also provide monthly handouts of food. This assistance is regarded by the farmers as being potentially problematic as it is becoming institutionalised and counter-productive. For the school feeding programmes, the food is prepared daily by the parents.

There are also a number of institutional developmental support initiatives, which were often more active in the past than at present. Such is the case in Combomune Rio where a number of interventions have now ended, including the VETAID community livestock health support programme. Previously, some of non-governmental organisations used to assist the Combomune Rio Agriculture Producer's Association garden project with seeds and gardening implements, but currently only the government assists.

All the communities receive governmental support for development projects, although in the last ten years in Zimbabwe this support has seriously dwindled due to the on-going macro-economic crisis. Most of the respondents in Gezani indicated that they were not benefiting from any government programmes or donor developmental projects. Most farmers said that they had difficulties in accessing extension services and other government services and programmes such as the '*maguta*' programme for farming input provision. In Mozambique, Local Government allocates money for community development projects, but there appears to be a weakness in the ability of some communities to formulate proposals to access these funds.

One socio-economic difference between the people of Malipati and the other sites is that the community in Malipati are more influenced by the long presence of donors and non-governmental organisations in the area and displayed a degree of donor-dependence

syndrome. For example, World Vision and ENDA-Zimbabwe were active about 10-20 years ago, Southern Alliance for Indigenous Resources (SAFIRE), Plan-International and CIRAD are still active in the area. On the other hand, the Gezani community, which has received less donor support, appeared more cohesive, independent and self-organising.

4.3 Dynamics of communal cattle production systems

Livestock assets

The majority of farmers in the GLTFCA rely on livestock production for sustenance, cattle being the major income earner, while goats, sheep, ducks, guinea fowls and chickens being kept for household consumption. Donkeys are kept for draught power and transport purposes only.

It is difficult to ascertain exact numbers of cattle owned. Even when stock cards are used, the numbers do not always tally with what is on the ground. Farmers are generally reluctant to disclose the number of animals that they actually have and tend to give false deflated figures. This is probably because they do not want to be considered wealthy and risk not being listed for food aid. Farmers in Gezani pointed out that some farmers who have lots of cattle and in a position to buy their own food get food aid yet some poor farmers who had honestly disclosed the number of animals they really have may fail to get food aid.

Largest numbers of cattle were found amongst Mozambican small-scale farmers. In Macaringue, over half own herds between 15 and 60 beasts, while almost a third own herds of between 60 and 200 beasts However, 15% owned no cattle. In Gezani, every farmer interviewed owned cattle, with an average of 32 cattle per farmer, the highest number being 141 beasts.

In Combomune Rio the numbers are lower, but are rising as the farmers build up their herds slowly after they were decimated during the RENAMO destabilisation war (1979-1992). A small herd consists of between 4 and 5 heads of cattle, while the largest herds are between 50 and 60, with the average herd size being around 30 cattle. According to the farmers, nobody in recent years, has reached 100, although one farmer indicated that before the war he had 120 cattle, but these were all taken from his kraal by RENAMO bandits in 1988. Three of his sons were also killed by RENAMO. Apparently most of the farmers in Combomune Rio experienced loss of cattle, and other assets such as irrigation pumps, to RENAMO during the war. Although the farmers of Combomune Rio consider themselves to be poor because their cattle were stolen, their herd sizes are actually larger than the national average.

According to the survey in Malipati, farmers generally now own more cattle than they did in 2002. In 2002, 19 % of the farmers had no cattle at all compared to 2009 where all farmers

interviewed had cattle. In 2009, 53 % of the farmers owned herd sizes ranging between 1 and 10 cattle which were considered to be the small herds. Almost 5% of farmers have large herds of over 50 (see Table 5).

Table 5: Cattle numbers in Malipati

Cattle numbers	% farmers in 2002	% farmers in 2009
No cattle	19.0%	0%
1- 10 cattle	38.1%	53.5%
11-20 cattle	20.9%	18.6%
21-49 cattle	17.0%	23.3%
Over 50	5.0%	4.7%

Desired numbers of cattle

All the farmers aspired to have more cattle, with the desired herd size differing depending on a number of variables, particularly available graze. In Gezani, where grazing land is not regarded as a problem, most of the farmers aspired to have double or treble the number they already have, and there was even one farmer who desired to have a 1000 head of cattle. Droughts, cash sales and breeding problems were often blamed as the major hindrances that limited Gezani farmers from realising their desired herd sizes.

In Malipati, most farmers also desired to have larger herds of cattle although not on such a grand scale as the Gezani farmers. 77 % of the farmers in Malipati desired to own herds of between 10-50 animals and only 2 % wished to own more than 500 cattle. The farmers cited a number of problems that limit them from reaching their desired targets, the major stumbling block being lack of grazing around Malipati, with animal diseases, lack of money to buy breeding stock and theft also being limitations. Breeding problems were sighted by about 2 % of the farmers.

Other livestock

Farmers generally own more cattle than goats, donkeys and sheep. For example, in Gezani, farmers owned more than two times more cattle than other animals. However, farmers in other areas own large and growing numbers of goats. In Malipati, for example, while 38% of farmers did not have goats in 2002, by 2009 this percentage had fallen to 9 %. In 2009 the largest goat flock was 55, with an average ownership of between two and 20 goats. (Figure 6).

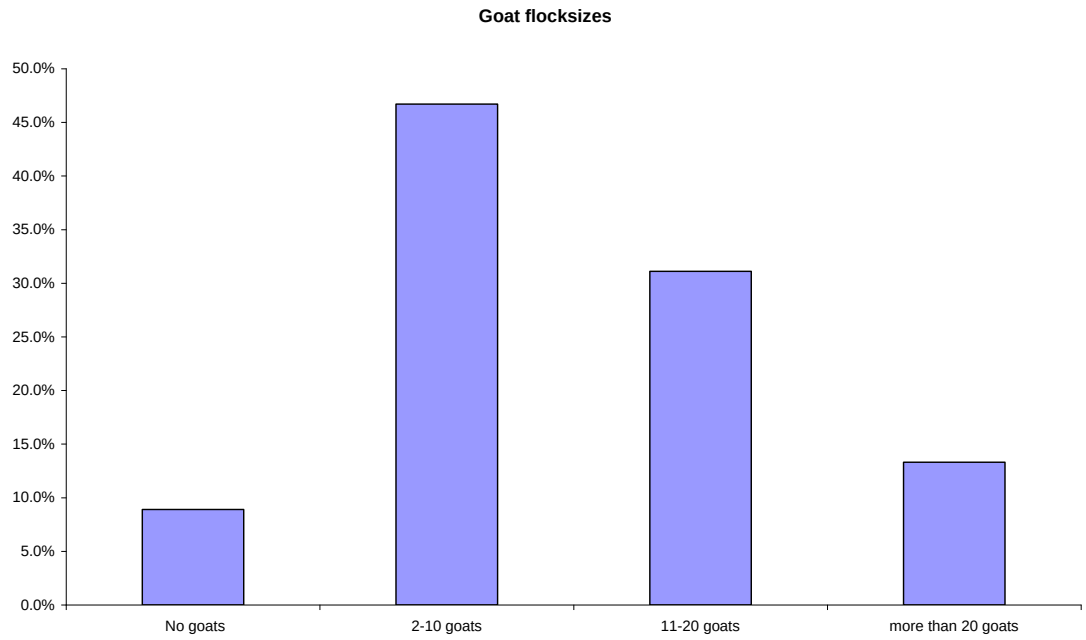


Figure 6: Goat flock size in Malipati, 2009

Donkeys were generally the least numerous type of livestock. In Gezani, only 31% of the farmers owned donkeys, while in Malipati, only about 25% of farmers owned between 2 and 26 donkeys.

In Macaringue, while cattle numbers have increased since 2003, goat numbers are lower and have fluctuated. The few sheep that were kept have now disappeared. However, pigs have generally increased since 2004 (Figure 7). Chickens are kept in almost all households, usually for home consumption.

Photograph 4: Goat eating watermelon in Combomune Rio

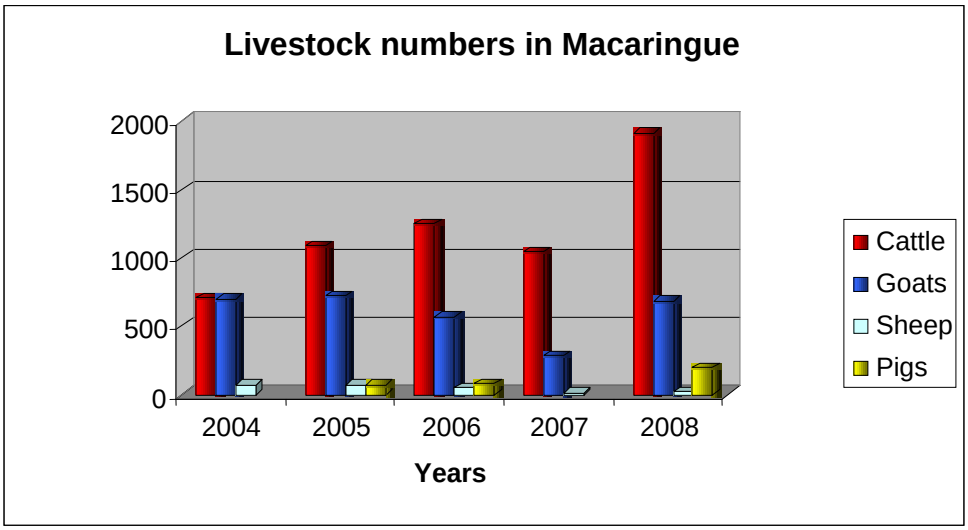


Figure 7: Numbers of livestock in Macaringue over a five year period
(Source: Massingir SDAE's statistics, 2009)

Acquisition of livestock

Farmers acquired their livestock in a variety of ways and the patterns of acquisition are similar across the sites, with the most common way being through purchase. In Macaringue, 79% of cattle were bought, while in Malipati, 71 % of cattle were bought. The role of working in, and remittances from, South Africa can be important factors in the purchase of livestock. However, not all types of work in South Africa result in savings large enough to

invest in livestock. The most common form of employment nowadays is casual part time jobs rather than higher-paying jobs in the mines.

Besides purchasing, other sources of acquiring livestock are through:

- *Inheritance*: when parents die the cattle are automatically inherited by the elder son or the father's young brother. In Malipati, 16% of cattle were inherited.
- *Marriage*: when one's daughter is asked for marriage, traditionally, the son-in-law pays *lobola* (dowry*).* In both countries *lobola* accounts for 4-6% of cattle acquisitions. The number of cattle given in *lobola* varies depending on the circumstances. For example, in Macaringue, *lobola* usually consists of 15 cattle, while in Combomune Rio and Sengwe communal lands, five were considered usual. However, nowadays part of the *lobola* can be paid in money-equivalent to the number of cattle stipulated.
- *Herding cattle and other services*: Young boys who herd cattle have a payment right of an ox or cow per each year for the herding job. In Macaringue, 9% of cattle were acquired in this way. In Zimbabwe, about 7 % of cattle were obtained as payments for services such as building of houses, sinking of wells and keeping a herd of cattle for another person.

Box 4: The restocking exercise in Malipati

During the 1992/93 drought a lot of farmers in the region lost their cattle. World Vision, an international non-governmental organisation, embarked on a restocking exercise where by the community would identify farmers who were left with no cattle. The beneficiaries where divided into groups of five farmers. Each group was given two heifers that would rotate around all the farmers. The first beneficiary would give the cow to the next farmer after it raised a calf for him. This would continue until all the farmers had equal chances of raising calves from the cows. At the end of the breeding rotations the cow would go back and becomes a property of the community development committee. This project was successful in ensuring that the resource poor farmers had cattle. The major challenge was conflicts among farmers as a result of some farmers failing to pass on the cow in time. Another problem was that some animals were lost to diseases. In this scheme farmers were trained on the basic livestock management issues.

Uses and social meaning of livestock

Cattle in communal areas of the GLTFCA have multiple uses. The farmers primarily consider cattle to be their insurance and savings. A councillor who had 25 beasts said that '*it's like having money'.*Cattle in the villages are seen as a sign of social status and prestige. Farmers mainly rely on investing their monetary and labour resources into buying cattle so that they re-sell the cattle whenever they need cash. Cattle are sometimes sold to sustain the family. However, farmers are generally reluctant to sell cattle, except in an emergency such as

famine, a sick child, or for school fees, or as in a case in Combomune Rio cattle sales were used to pay taxes. In Malipati, only 7% of farmers indicated that they sell cattle for cash. In Combomune Rio, the frequency of cattle sales depends on the situation, for example, in years of hunger when crops fail, more cattle are sold. One farmer had already sold eight of his cattle between January and April 2009.

Cattle markets are generally few and far away. For livestock farmers in Macaringue and Combomune Rio the main market for cattle sales is in Chokwe, about 200 km away, and at times Maputo. Buyers come from Chokwe in trucks to buy cattle from the villagers. Occasionally, the government organises agricultural fairs. In Zimbabwe the Cold Storage Company (formerly Commission) which provided a guaranteed market and guaranteed prices has not been operational for the past ten years. There are few private abattoirs and local butcheries and most local sales of cattle are between farmer and farmer, which incur no transport or marketing costs, but prices tend to be low. This lack of markets for cattle drove some farmers to sell them illegally for foreign currency, across the borders in Mozambique and South Africa where it was more lucrative. However, with the introduction of multi-currency use in Zimbabwe, mid-2009, it is now considered too risky to sell cattle illegally in Mozambique whilst cattle can now be sold legally in Zimbabwe for foreign currency (US dollars or South African Rand).

Other major uses of cattle include draught power, milk production and occasionally for meat. Traditional and cultural uses such as for *lobola* (bride price) and other traditional ceremonies are also important.

Photograph 5: Milking cattle in Macaringue

Milk for household consumption and local sales is obtained from both goats and cattle. In Zimbabwe fresh and sour (solid) milk eaten with *sadza* are both used, while in Mozambique it is mainly fresh milk that is used with tea or mixed with maize flour to make porridge. Meat is eaten only for special occasions, although some of the Zimbabwean livestock farmers said that they do not slaughter for beef. In Combomune, a family would on average kill a beast for home consumption once a year, usually at Christmas or another holiday when the family gathers. On the other hand, goats are eaten more frequently, on average between zero and two per month. Other sources of household protein are chickens and ducks, with occasional wildlife such as rabbit and small antelope.

Cattle and donkeys are used for ploughing in all areas, although farmers indicated that they would prefer tractors if these were available. Unlike the other areas, ploughing was perceived to be the major use for cattle in Combomune Rio where agriculture is the main activity. In a good year their granaries are full and cattle are regarded as security during times of bad harvest.

Transport is another important use of livestock. In Combomune Rio, cattle and donkeys are used to transport water and timber. The timber is used in the flourishing charcoal industry. The charcoal is transported to the nearby railway station in Combomune Estacão, where numerous trucks overloaded with sacks of charcoal can be seen at the railway siding ready to be loaded on to the train. The mopane woodlands in more accessible areas around Massingir, south of the Limpopo National Park, have all been exploited so charcoal merchants now come to exploit the mopane woodlands around the Combomune area. Maputo and other cities provide an insatiable market for charcoal.

Photograph 6: Donkey drawn cart near Gezani

Loss of cattle: stock theft

Besides the occasional sale or slaughter of cattle, herds are depleted either by disease or theft. Stock theft is a serious problem throughout the GLTFCA, particularly in Zimbabwe where the stolen cattle usually end up in Mozambique as there is a ready lucrative market in Mozambique for cattle.

Box 5: Lost cattle in Mozambique

During a field visit to Mozambique, in May 2009, a herd of branded cattle were seen grazing on the road side. As cattle are not branded in Mozambique, it was presumed that these were stolen cattle. Furthermore, there was a case we heard about at the Sango border post concerning a group of Zimbabwean women from Malipati, whose cattle had been stolen and they followed them up into Mozambique. The women found their six cattle in a kraal just a few kilometres over the border. Unfortunately, because of the traditional bureaucracy they faced difficulties in recovering all the cattle and only managed to bring four back. Two cattle had to be left behind as payment to the traditional authorities (even though they had been stolen!).

Zimbabwean livestock farmers lamented that *'Once the cattle are taken to Mozambique it's very difficult to get them back – the government should do something!'*

Box 6: What's the point of fattening our cattle?

During the feedback workshop presentation on the use of urea treatment for supplementary feed during the dry season, one woman farmer remarked '*what's the point of fattening our cattle – they'll be more attractive and just be stolen'*.

The Zimbabwe Republic Police have a Cattle Rustling section which keeps records and statistics which are displayed at police stations. Figure 8 shows the incidences of stock theft in Gezani for 2008 and 2009. Foreign and local syndicates are believed to be involved. It was even rumoured that local police officers were involved.

As a way of fighting stock theft the Zimbabwe Republic Police launched a campaign to raise awareness among the community members on the consequences of stock theft. Farmers are urged to report cases of missing animals as soon as they notice them because cattle rustlers act fast. Such timely reports would lead to quick investigations and follow ups that increase

the chances of recovering the cattle before they are crossed into neighbouring Mozambique. Cattle rustlers are non-selective and can drive away the whole herd. Occasionally cattle are recovered well before the farmer finds out that his or her cattle had been stolen. Most cattle are stolen from the pastures when the animals are left unattended.

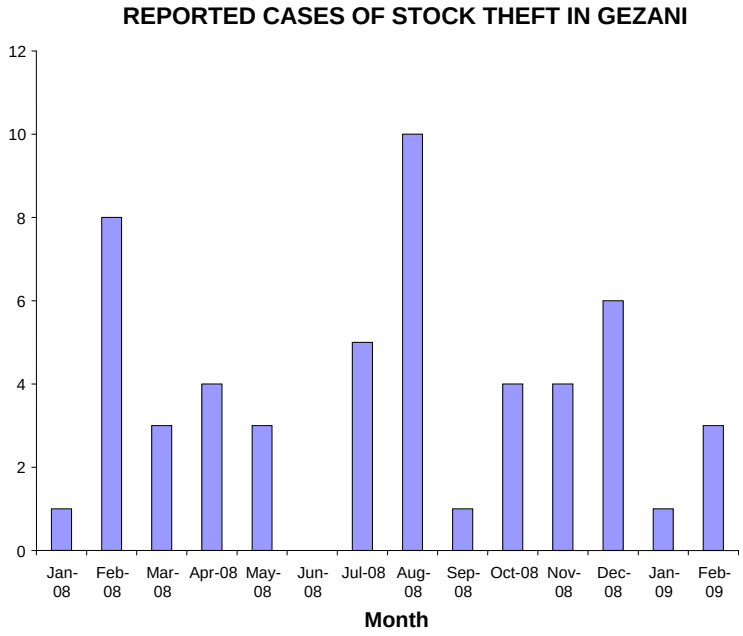


Figure 8: The number of cases of cattle theft reported from January 2008 to February 2009 in the Gezani area

In Zimbabwe, under the Animal Health (Livestock Identification) (Cattle) Regulations of 2003, all cattle over the age of six months are required to be branded on the left neck or shoulder with a brand which is appropriate to the prescribed veterinary area or zone. Under the same regulations, it is also a requirement that all cattle be identified to their dip tank or farm of origin by either (or both) a brand on the right neck or shoulder approved and registered by the Director of Veterinary Services and applied within six months of birth, or ear tags, also prescribed and registered with the Director of Veterinary Services.

Cattle rustling is also becoming a serious problem in Mozambique. Cattle in Mozambique are not branded or marked in any way. In Combomune Rio, one farmer lost 10 heads of cattle in 2007, presumed stolen.

Types of cattle

The cattle are predominantly indigenous Sanga or African breeds of *Bos taurus*. In Zimbabwe the main cattle breed is the Mashona, with smaller numbers of other indigenous Sanga breeds such as Tuli and Afrikaner, as well as some Brahman. There has been interbreeding between

the Mashona and the other breeds. In Macaringue, the type of cattle raised in the village is the traditional breed called *Landi*. Within this breed, there are different types according to the external characteristic of the cattle, see Table 6.

Table 6: *Landi* cattle differentiation according to external characteristics

Designation	External Characteristics
Phuphuphu	Grey camouflaged
Baumucaze	White with a black spot in front of the head and on the abdomen
Nshlavucaze	Shiny brown
Nacaze	Black and white
Mushlope	All white
Lungazene	White with brown spots
Sundo	Brown and black
Nconi	White with black spots
Zimacaze	All black
Mpevu	White face and brown body
Nhanti	Buffalo head and brown greyish colour

There appears to be no difference among the varieties in terms of susceptibility to diseases.

In Combomune Rio, the local breed of cattle is called *chinowani,* a small old breed which the farmers believe has acclimatised to the local conditions over many generations. The farmers perceive the breed to be resistant to disease and hunger.

4.4 Grazing and watering patterns

Grazing areas, consisting of woodland and scrubland areas that surround the villages, are communal common property resources, allocated by local traditional leaders. These vast tract of land have fairly homogeneous vegetation dominated by stands of *Colophospermum mopane* trees and shrubs. The grass species are mainly annuals such as *Brachiaria brizantha* and *Urochloa mosambicensis* which provide excellent forage during the wet season. During the dry season the animals mostly rely on the nutritious browse of the mopane shrubs and *Acacia* pods. The rangelands also have another grass species called *Aristida* that is not palatable when dry because it has spiky awns.

Grazing and herding practices

There are a number of practices for grazing cattle by small scale livestock farmers which are widespread in communities across the GLTFCA. As a common practice, cattle are kept in kraals at night and driven out to graze in rangelands during the day. Farmers kraal their animals because of fear of predators and theft. Kraals should provide adequate shelter and shade and be situated on higher, well-drained ground. The kraals are constructed of large

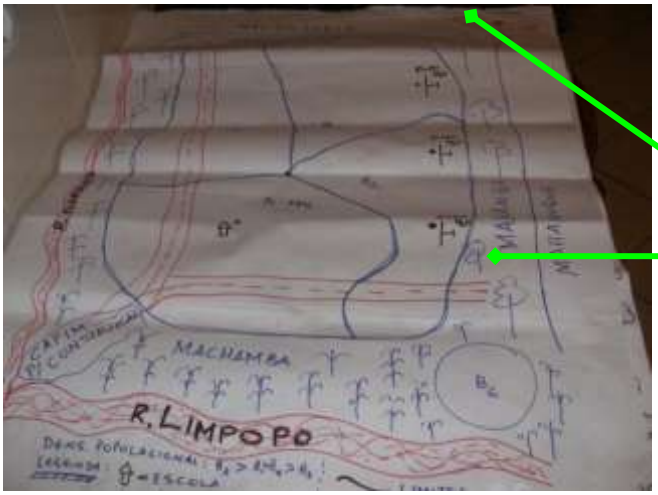
logs or poles and are of varying sizes, depending on the number and type of livestock (see photograph).There are no paddocks.

Photograph 7: Cattle kraals: Malipati and Macaringue

Table 7 illustrates the grazing pattern observed in Macaringue and it is fairly typical for small scale livestock farmers in the whole GLTFCA. During the rainy season cattle are herded around the village environs, whereas in the dry season they are moved more into the mopane woodland. The distance they go depends on the season, the availability of grass and the size of the herd. In the case of Gezani, where there are extensive mopane rangelands farmers reported that the grazing area is at least five kilometres from the homesteads and stretches out for more than 20 km. The further the animals graze into the forest the better the grazing becomes. Grazing distances in Mozambique tend to be shorter at between one and five kilometres in the dry season. In Combomune Rio, the cattle graze in the mopane woodlands and open bush (*managa)* around the village. In Macaringue, there are two principal grazing areas (Figure 9), one from the village towards the southwest where they share with *Maconguele* village and another towards the north sharing with *Chibombe* settlement. After harvesting, cattle graze in the cultivated areas. Other livestock including goats and sheep always browse around the village area.

Table 7: Seasonal cattle grazing areas in Macarignue

Movement patterns	**November to February**	**March to July**	**August to October**
Village surrounding			
In the forest			
In the fields			



Two grazing sites represented on the community mapping

Figure 9: Macaringue community mapping, showing the main land uses

Photograph 8: Calf in maize field, near Macaringue

Photograph 9: Cattle grazing around the village

All farmers except those in Malipati regard grazing land as adequate, although it is often in short supply during the dry season and during droughts. Conflicts over grazing land are rare even when the grazing overlaps with other villages. The only conflict mentioned pertains to cattle invading the crop fields, for which in Macaringue the community have established a fine of 100Mt (USD4) per head invaded. The situation is a different story in Malipati where grazing land is a severely limiting factor to the numbers of cattle due to the extension of the protected area outwards from the original National Park boundary to include Malipati Safari Area. The Park fence is only 1 km from Malipati village and consequently conflicts are common (see Box 7).

Box 7: Grazing and Gonarezhou National Park

In the Malipati community 71% of the households graze their animals, usually for a few hours only, in the Gonarezhou National Park during the dry months of the year when grazing is limited. The fence is broken in a number of places, primarily by elephants.

Farmers told the following story which illustrates the grazing problems faced in Malipati:

> '*Before the inception of the Gonarezhou National Park, grazing was adequate; in fact it was more than enough. Our cattle never had feed problems. The problem began with the establishment of the Park. Before they put their veterinary fences enclosing our grazing in their Park we never knew of grazing problems. Now the pastures are not enough, in fact we have no real grazing*

areas. Our cattle rely on grazing around our homesteads, fields where we leave bush and grass growing. Also important to us here as grazing resources are the uncultivated fields whose owners have since left for work in the nearby South Africa'.

Cattle have been impounded in the National Park and the farmers have to pay fines. In 2009, four households paid fines. In October 2009 a councillor drove 25 heads of cattle 500 metres into the National Park and a National Parks scout impounded the cattle, keeping them in their camp for two days. They charged the councillor 70 USD to release the cattle.

One farmer asked '*why are the animals that come out of the Park not fined as we are when we go into the Park, because they destroy our crops and kill our cattle'*.

In Malipati, farmers said that cattle died of foot and mouth disease after contracting it in the Park. The farmers know that it is not good to graze their animals in the Park, but they are forced to drive their cattle there because there is nowhere else to graze.

Institutional practices around grazing

Institutional practices around grazing are not very well developed. Farmers describe '*driving out cattle into the forest in the mornings and collecting them in the evening for kraaling'*. Herding is invariably done by young boys (and sometimes girls) (see photograph). Each household has a herd boy that takes care of the cattle during the herding. The herd boy is normally a child of the household, but he can also be a worker who is usually paid a cow annually. The herd boy is in charge of the decision of which direction to take the cattle each day, based on his sense about the grass availability. There is no management plan or strategy around grazing areas and the herders normally take the nearest direction from the departure place. Regardless of his age, the size of the herd under his responsibility depends exclusively on the herd size of the owner. Usually the animals are herded in large groups, comprised of a number of households. It is a common sight to see large herds being herded along the roads and tracks back to the village in the evening.

Photograph 10: Herd boys and girl, near Malipati

Use of supplementary feed

Use of crop residues for supplementary feed reflects the relative availability of grazing land. Only one farmer in Gezani, where grazing land is abundant, used crop residues (*majange*) as supplementary feeding for cattle in the dry season. In contrast, about half of the farmers in Malipati, where grazing land is severely limited, provide some supplementary feed to their livestock during the dry season. This supplementary feed is mainly stover collected from the fields after harvest, stored at their homesteads and fed to the animals when need arises. However, the amount of supplementary feed is limited and inadequate to last through the dry season.

A succulent tuber, *zombwe* (*Spenostylis marginata*) is sometimes used for feeding cattle in the dry season. However, it is not widespread or abundant and farmers expressed concern that it would disappear if uprooted too much. Nutritious seed pods, such as from *Acacia* sp., are also used as supplementary feed. No commercially purchased supplementary feed is used by the small scale livestock farmers in the GLTFCA.

Watering points

Apparently, watering is not regarded as problematic in the study sites, even during drought years, and on the whole animals do not travel long distances to drink water as they do for grazing. All the farmers have access to a river, borehole or well at most three kilometres from their homesteads. The boreholes and wells provide a perennial source of water for all the livestock. In the rainy season livestock also drink from the streams and rivulets around the homesteads and pools within the pastures.

In Macaringue, the main cattle drinking points are the two rivers, the Elephants and Limpopo. The cattle routine consists of grazing the whole day in the woodland and drinking in the river

on their way back home. These water points do not have any management strategy or use rules.

Livestock in Combomune Rio have access to drink water in the Limpopo River. When the river dries up, livestock drink in pools in the river bed or from wells dug by the farmers in the river bed to access the water. The cattle do not reach the other side of the river, or enter the Limpopo National Park.

Box 8: Manjinji Pan in Malipati

The lowest point in altitude in Malipati is the Manjinji pan which is an important water source for livestock, particularly during the drier months of the year. The pan is surrounded by *Acacia* forest that supports a rich diversity of aquatic plants, birds and wildlife species. There are plans to fence the pan and make it a protected area.

4.5 Cattle versus cultivation

Generally cultivation is a relatively minor source of livelihood as climatically, the region is not suitable for rain-fed cultivation, although generally the soils are fertile. Neither livestock manure, nor any artificial fertiliser is used in the fields. However, crop residues are usually ploughed back into the soil. Despite the low and erratic rainfall, nearly all farmers grow maize, sorghum, millet, groundnuts, watermelons and pumpkins for household sustenance only. Most farmers begin planting in their fields after the onset rains mid to late December. The soils are mostly clays that become sticky and impossible to work on when wet such that when it rains farmers still have to delay land preparation until the soil conditions permit.

There is a continuum of relative importance placed on livestock rearing and cultivation across the sites. In Gezani, at one end of the scale, cattle are of paramount importance and all farmers in that area perceived livestock farming to be more profitable than crop production. In Malipati, despite the limited available graze, farmers also tend to prefer livestock to cropping. During the community mapping exercise, the extent of grazing land was a little exaggerated on the map than on the ground. The fields were given smaller areas on the map suggesting that the farmers perceive pastures to be more important to them than cropping fields. There is an irrigated garden scheme in Malipati which is of significance to local livelihoods (see Box 9) The ‘success stories’ of the Manjinji irrigation scheme illustrate how widows have used their proceeds from garden produce to acquire livestock assets.

At the other end of the continuum, in Combomune Rio cropping is considered to be more important and the cattle are valued for providing traction. The main local institution is the Agriculture Producers Association, to which 85% of the households belong. The Producers

Association, which is regarded as being well organised with good leadership, oversees and manages the community garden, part of which is irrigated. The garden has a motor pump for extracting water from the Limpopo River. However, the capacity of the pump is limited and only manages to irrigate a small proportion of the garden. The production from the garden is not enough to pay for seeds or fuel for the pump. Apart from lack of water and frequent droughts, insects are also serious pests which decimate crops.

Box 9: Manjinji irrigation scheme

The Manjinji irrigation scheme is located 3 km from Malipati business centre. The irrigation scheme was a Rhodesian government initiative in the 1960s and it operated well until 1970 when operations were disturbed by the liberation war. The irrigation scheme was reopened by the Zimbabwean government in 1980 but collapsed again in February 2000 due to floods during Cyclone Eline. Afterwards, the scheme was resuscitated and expanded by funds from the Liechtenstein Development Services. The farmers in the scheme each pay US$ 10 every 6 months into the maintenance fund. The funds are managed by a farmer led management committee. Until December 2009, the scheme was administered and managed by SAFIRE who injected US$ 500 as maintenance seed money. The major challenge now for the farmers is to continue with the irrigation scheme under their own management. In anticipation of this SAFIRE trained farmers on business management and leadership skills.

The purpose of the irrigation scheme is to alleviate poverty and to improve the livelihoods of over 120 families. Crops grown are maize, wheat, groundnuts, cabbages, tomatoes, onions, sugar beans, cowpeas, round nuts and beetroot. Cultivating in the irrigation scheme can be quite lucrative for the small-scale farmers. However, although production is high, marketing is often difficult and the produce rots.

The Manjinji success stories: The importance of livestock

Farmers in the scheme invest their money into buying livestock. The following stories illustrate the relationship between the irrigated garden group activities and the acquisition of livestock:

> ***Amai Ncube*** *"I am a widow; my husband died six years ago. I have children of school going age. My story is that, ever since I joined the scheme and became a dedicated farmer, I am building up wealth. I bought 10 hens just in one year; I sell a bird every time I need money, now I have over 70 chickens"*
>
> ***Ms Dube*** "*The irrigation scheme is our lifeline, I don't feel like a helpless widow any more, and using the proceeds from the irrigation I have bought 3 goats. I get money for school fees, we also have a women club where we buy blankets for each other, and the money comes from the scheme*"
>
> **Ms Mbagi "***I am a widow as well, but look I am on my way to having cattle of my own, just this year I bought a calf for myself after selling vegetables from the*

scheme, isn't that a good sign? I will never leave the scheme!"

4.6 Institutional arrangements and support for small scale livestock farmers in the GLTFCA

There are various levels of institutional arrangements and support for livestock farmers in the GLTFCA which are primarily associated with disease control, rather than livestock production and marketing. Both Zimbabwe and Mozambique have government veterinary departments mandated to deal with livestock management and disease control.

In Zimbabwe, there are structures and systems in place in the Department of Veterinary Services within the Ministry of Agriculture, with offices at national, provincial and district levels down to the local level at the Animal Health Centres. The structures for institutional support are well developed with active engagement with livestock farmers who are organised into local-level livestock development or dip tank committees. This is a major difference with Mozambique, where, although there are government veterinary offices at district level, the structures do not go below this. Consequently, engagement with small scale livestock farmers is relatively low and farm visits by the veterinary officers rare. However, community-based paravets were trained and equipped through the VETAID donor programme and some are still active assisting their communities in cattle disease management.

This disparity in levels of engagement is reflected in the difference in knowledge and understanding of livestock diseases between farmers in the two countries. While Zimbabwean small scale livestock farmers listed many specific livestock diseases that affect their cattle such as foot and mouth disease, anthrax, blackleg, lumpy skin disease, redwater, heartwater and gallsickness, their Mozambican counterparts were vaguer in their knowledge and indicated presence of ticks and symptoms such as diarrhoea and swollen stomach rather than specific diseases.

Institutional support for livestock in Mozambique is growing in tandem with national development initiatives and increasing donor aid, while in Zimbabwe support has been declining due to the political and socio-economic crisis experienced over the last ten years. Although practices and procedures are well known and used to work in the past, implementation is now weak due to lack of resources and low morale. For examples, medicines are often not available or affordable, and infra-structure broken down and some dip tanks no longer functional. Civil servants salaries are well below the poverty datum line and staff turn over is high.

Local institutional arrangements around small scale livestock farming

Dip tank committees in Zimbabwe Dip tanks are community property even though they are instituted by and are under the jurisdiction of the Department of Veterinary Services. Each

Animal Health Centre serves a cluster of between three and six dip tanks, each with their own local dip tank committees. Malipati Animal Health Centre runs six dip tanks: Malipati, Dumisa, Chishinya, Maoze, Rutandare and Muhlekwani. Gezani Animal Health Centre runs five dip tanks: Dhafi, Gezani, Chilugwi, Chomunga and Bondela. However, currently there was no dipping taking place at Dhafi where the borehole is not functioning or at Bondela where the pipes have been stolen.

The dip tank committees are locally constituted and are responsible for overseeing dipping activities and also act as a focal point for livestock activities. Dip tank committees are composed of seven members consisting of a chairperson, deputy chair, secretary and vice-secretary, treasurer and two other committee members. The chair person and the deputy are responsible for coordinating the committee and chairing meetings, the secretary keeps record of all the animals and dip tank activities. The treasurer keeps track of the subscriptions and makes sure that everyone pays up.

The main duties of the dip tank committee are to make sure that they acquire water for the dip tank and repair the dip tank and associated handling facilities. The committee also makes sure that farmers contribute money to finance the maintenance of the dip tank and handling facilities and to keep the area around the dip tank clean. All farmers are supposed to participate in the maintenance activities and dip water replenishment. Many dip tanks have no water source and water has to be collected from rivers or other water sources. This can be a tedious operation, as for example, in Malipati the Mwenezi river is about 3 km away from the dip tank and each member is supposed to bring water until the desired water level is reached. It is the duty of the committee to make sure that everyone participates equally and to punish any offenders, usually by not allowing them to dip their animals until they have done the omitted task.

There is no equivalent institution for dipping cattle in Mozambique where individual farmers organise the purchase of dip chemicals. Households with small herds of less than five share chemicals with bigger farmers and pay 10 to 15Mt per head of cattle sprayed.

External support for small-scale livestock farmers: Zimbabwe

The District Veterinary Office in Chiredzi is responsible for livestock health and disease control in the District comprising 32 Wards and has the following staff compliment:

- A Principle Veterinary Officer with a degree in Veterinary Science
- Two Animal Health Inspectors with diplomas in Animal Health and Production
- A Veterinary Livestock Technician (for Chiredzi urban) with a diploma in Agriculture
- Three clerks, four general hands and two drivers

The District Veterinary Office in Chiredzi only has one vehicle, a Mazda B16 pick-up to oversee the whole District, and a tractor.

The District Veterinary Offices are in charge of the Animal Health Centres in the District. Previously there were eight centres in Chiredzi District, but in 2007/8 by way of a directive from the Ministry of Agriculture, this number was increased to 24 so as to improve the conditions of service provided.

Each Animal Health Centre has a Veterinary Livestock Technician, one or two dip tank attendants and a general hand, all of whom are government employees of the Department of Veterinary Services.

Photograph 11: The Animal Health Centre in Malipati

The Animal Health Centres have a number of responsibilities as shown in Table 8:

Table 8: Responsibilities of the Animal Health Centres in Chiredzi District

Responsibility	**Activities**
Treating livestock	The Veterinary Livestock Technician visits homesteads to treat sick animals and if necessary gives a prescription. Before 2004 drugs were supplied from Harare, through the provincial office in Masvingo to the district office in Chiredzi which supplied the Animal Health Centres. The prices were low as the medicines were subsidised by the government. However, currently drugs are not available from the government and are instead purchased from private dealers. When the Veterinary Livestock Technicians go to Chiredzi they purchase the most important vaccines and medicines, such as for tick borne diseases, gall

	sickness and heart water, and sell them to the small-scale livestock farmers.
Supervising dipping sessions	The staff work with the dip tank committees to organise the dipping (see Box 10), which is supposed to be done once a month from April to September (dry season) and twice a month from November to March (wet season). The Veterinary Livestock Technician supervises mixing of acaricide chemical for the dip. Each dip tank has dipping activities reports.
Fence inspection	The Veterinary Livestock Technician inspects the game fence around the National Park and reports any breakages. The game fence, which was put up by the Veterinary Services is often broken and they do not have enough workforce or resources to repair it. The Gonarezhou fence was cut in 2006, repaired in 2007 and is currently cut, but has not yet been repaired.
Animal movement permits	The Veterinary Livestock Technician writes animal movement permits whenever farmers want to move their animals. They only have jurisdiction for movement within Chiredzi District.
Mouth inspections	'Mouthing' is carried out mainly at dip tanks, particularly when there is suspicion of foot and mouth disease.
Holding meetings with farmers	These are usually held at the beginning of each year where details about dipping fees and dates for paying are discussed.
Record keeping	Records are kept at each Animal Health Centre. These include monthly costing records for medicines, stock registers, stock cards for each farmer, and records of livestock census reports. Each Animal Health Centre has condensed dipping reports and cattle inspection records. Stock Cards are issued by Veterinary Services and contains the name, ID number, District, kraal and dip tank for each farmer as well as numbers of all the beasts and dates when they are dipped.

Box 10: Institutional arrangements around dipping in Zimbabwe

The government normally provides the dip chemicals, while each farmer pays a dip levy of 1 USD per beast per year. Occasionally farmers do not pay, for example at Dumisa some farmers did not pay in 2008 but were then later made to pay for two years. The dip tank committee identifies any farmers who do not bring their cattle for dipping, and the Veterinary Livestock Technician follows them up to educate them on

the importance of dipping. However, if the farmers continue not to dip their cattle, they can be prosecuted under the Animal Health Act. In the past, if farmers failed to dip their cattle three consecutive times they would be prosecuted and required to pay a fine within seven days at the Police Station. However, currently structures have tended to break down because of the crisis in Zimbabwe and things were described as being haphazard and people '*do as they like'*.

The French development organisation CIRAD is carrying out research on animal diseases and is providing assistance to several dip tanks, including Malipati.

External support for small-scale livestock farmers: Mozambique

In Mozambique, each District has a Veterinary Office with government Veterinary Technicians. Major responsibilities of the Veterinary Technicians are treating and vaccinating the community's cattle. Each cattle owner has a breeder's book and pays fees annually. This book is obligatory and without it, or if the fees are not up to date, animals cannot be treated by the veterinarian.

The study found that veterinary assistance to the small scale livestock farmers from the Veterinary Service is infrequent and irregular.

Currently there is no non-governmental organization that supports livestock management apart from the recent initiative, started in 2008, with a non-governmental organisation called KYEMA, which assists women's groups with Newcastle vaccinations for poultry and advice on chicken management practice. In the past there was a large programme of support for the livestock sector, VETAID, which finished in 2007. The VETAID programme supported livestock farming development by training community-based paravets to assist livestock farmers in rural areas as well as providing medicines and vaccinations at low costs. In Combomune, the VETAID programme was implemented for 6-7 years. The capacity building programme trained paravets in knowledge and skills. Initially medicines were provided, but now they are bought at a relatively low price from the government veterinary department. In Combomune Rio, the paravet, still operates with his veterinary kit, providing services and advice. In Macaringue, VETAID helped with Newcastle vaccinations in the village from 2004 to 2006.

Photograph 12 : VETAID signpost in Combomune Rio

4.7 Animal health management and disease control

Generally, animal health is of great concern to livestock farmers in both countries. Farmers are very keen to know more about livestock health issues and indicated that they are open to new ideas and would like to be linked up with livestock programmes.

Perceptions of a healthy animal

The major indicators of a sick animal are lack of appetite, loss of body condition, dullness of the animal and its general appearance. Regarding perceptions of a healthy animal, the commonest indicator is a normal gait. Famers in Zimbabwe tend to consult a local veterinary officer if they discover an animal not appearing healthy.

Livestock diseases

The most common livestock diseases in the Gezani area are blackleg in cattle and Newcastle in poultry. The Department of Veterinary Services usually vaccinates all susceptible animals annually. Blackleg had killed about 900 cattle within the Gezani area in 2008/9, while Newcastle disease claimed more than a thousand birds, wiping out all chickens and turkeys in some homesteads. Vaccines issued by the Department of Veterinary Services did not reach the community in time. Ducks seemed to be resistant to Newcastle disease.

According to farmers in Malipati, the common diseases that infect their cattle include blackleg, foot and mouth disease, anthrax, lumpy skin disease, and tick borne infections such as redwater, heartwater and gallsickness (See Figure 10).

CIRAD runs a project in the area which tests for a number of livestock diseases and found that some cattle tested positive for mastitis, bovine TB and contagious abortion.

Regarding goats, the majority of farmers in Malipati had no health problems with their goats and did not know if their goats fell ill or not. Only a third of the farmers indicated that their goats had health problems and died of unspecified illnesses. On the other hand, farmers in Macaringue indicated that goats have a higher death rates due to diseases related to diarrhoea.

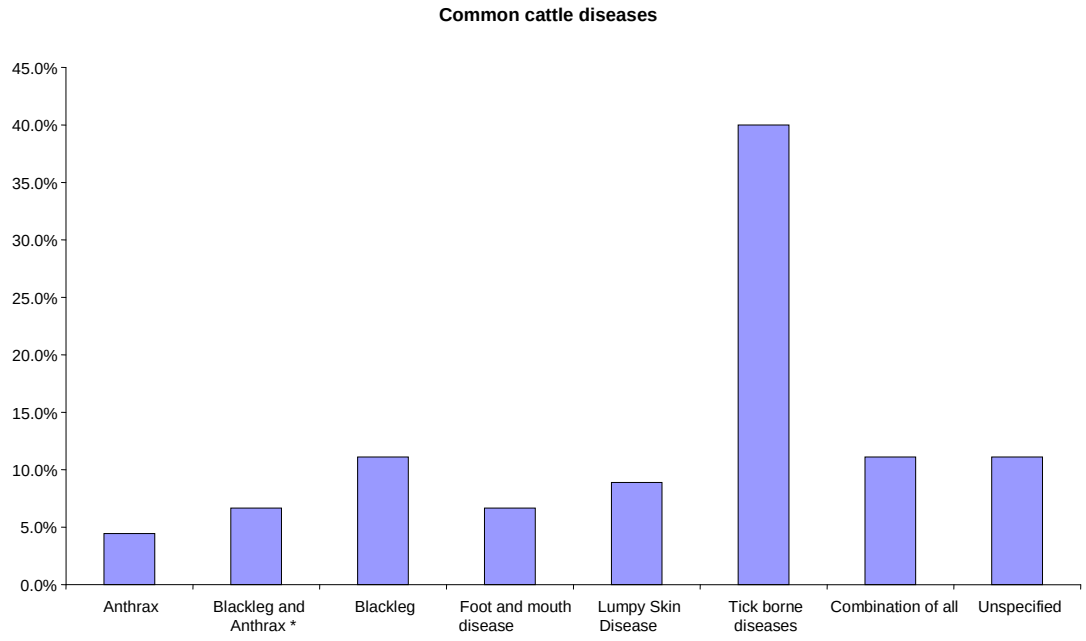


Figure 10: Common cattle diseases in Malipati

**Some farmers grouped blackleg and anthrax together*

Traditional livestock medicine

Most farmers are aware of ethno-veterinary treatments and often use some traditional treatments before they consult the veterinary office. Traditional cures are particularly important in Macaringue as visits by veterinary officers are rare. However, in Combomune Rio, only a few farmers stated that they use traditional treatments, indicating that they preferred the to consult the paravet. About 50 % of the farmers in Gezani indicated that they used non-conventional forms of medicine but added that they are not as effective as conventional drugs. The use of ethno-veterinary practices is often driven by the erratic supply and high cost of drugs.

In Gezani and Malipati, farmers were reserved at first about disclosing details because they think that it is wrong to use traditional medicines. The general perception of the farmers is that such practices are not orthodox and could be illegal. During a group discussion in Malipati, they however shared information on such practices on small pieces of paper that were written in secret.

The most commonly used practices involved the use of aloe and soot. The farmers expressed that the concoction is effective against a lot of disease such as *tingari* (stiff sickness), foot and mouth disease, fever, wounds and internal parasites. Soot and salt are used for stomach problems.

Table 9 describes some of these practices:

Table 9: Ethno-veterinary medicine practices by livestock farmers in Malipati

Remedy	**Animal species treated**	**Disease condition**
Chin'ai (soot)	Cattle, goats	Wounds and internal parasites
Chin'ai + *Gavakava* (*Aloe* spp) Mix the two in water and drench an animal showing signs of fever and any animal that is drooling	Cattle	Fever and drooling
Gavakava Mix with water and dose	Cattle, goats	Internal parasites
Muvengahonye (*Cissus quadrangularis*) Crush bark and roots then mix with water and drench the animal	Cattle	Wireworm and roundworm

Foot and mouth disease is endemic to the areas around the Gonarezhou National Park because of interaction between wildlife (buffalos and wildebeests) and livestock (cattle). The farmers in Gezani burn donkey dung for treating foot and mouth disease. *'It works'* they remarked. Another interesting special remedy was used for treatment of foot and mouth disease cases during a recent outbreak in Malipati: (Box 11).

Box 11: Traditional treatments of foot and mouth disease in cattle by Malipati farmers

'A tree called ***musvimwa*** *(Lannea schweinfurthii) is*

used; the bark is taken, crushed and mixed with burnt ***donkey dung****. The mixture is soaked in water together with* ***muvengahonye*** (*Cissus quadrangularis*)*; you then drench your animals or treat the sores on the infected animals after adding some salt'.*

In Combomune Rio a succulent climbing plant, *tsovoloti,* is used to treat wounds. The juice is extracted and the plant tissue ground into a paste and applied to the wound.

Dosing and dipping practices and control of livestock diseases

Across the region, dosing of livestock is not very regular or uniform. Farmers in Gezani indicated that they do not dose their animals except for one farmer who said he learnt the art of dosing at a farm in Masvingo where he used to work.

In Malipati, most farmers knew about dosing the animals but thought that it was not necessary. During a focussed group discussion the issue of dosing was discussed and farmers acknowledged that they have been ignorant and need to dose their animals. The farmers proposed using their proceeds from the irrigation scheme to buy Antihelmintics (worm remedies) to dose their animals. One of the farmers suggested that they form an 'Animal Health Club' whereby they will collectively buy drugs and chemicals for their animals and manage the health issues collectively.

Dipping or using dip chemicals for controlling ticks is a more common practice than dosing for worms and other diseases. Although dipping cattle is mandatory in Zimbabwe, enforced by the Department of Veterinary Service, in practice, dipping is not always so regular and the practice was not uniform as some dip tanks are not functioning and chemicals are not always available. In Malipati, there is the perception by farmers that the dip is not working effectively as the ticks remain on the cattle. (A possible reason why the dip may not be effective could be because of wrong dilutions, due to dip chemicals being stolen and weak concentrations used in the tank. The dip chemical is also used to spray cotton – therefore they would be a ready illegal market for it).

According to a Local Veterinary Officer, the Government of Zimbabwe endeavoured to provide dips and drugs to the lowveld even when they could not afford to supply the other parts of the country because the area is in the red zone of disease prevalence.

In Mozambique, although there were originally some dip tanks in colonial times, these are in disrepair and none currently in use. The farmers agreed that they never worked properly anyway, possibly due to wrong concentrations of chemicals. Nowadays, the general practice is to spray animals with dip chemicals. Each livestock farmer is responsible for treating their own cattle. Dip chemicals are procured from the district Veterinary office at subsidized prices of 250,00MT per litre of dip chemical, or bought from Chokwe veterinary shops. The

frequency of spraying depends on the extent of tick infection. In Combomune Rio, a few of the more wealthy cattle owners spray their cattle themselves with dip chemicals they procure from Mabalane or Chokwe. Most of the farmers indicated that they had not sprayed their cattle, while a few said that they spray once a year. A farmer who used the dip spray powder twice a year complained that the medicine is no longer effective. According to the paravet, the dip spraying should be monthly, but it depends on the families' situation and is normally more infrequent. The spray costs 3 Mt (0.15 USD) per month.

In Combomune Rio, the paravet treats sick animals. He purchases medicines from Mabalane District Veterinary office and then the farmers buy from him. The medicines are relatively cheap, the most expensive being 50 Mt (about 2.5 USD) for an antibiotic injection. However, at the time of our visit he did not have any medicines.

Vaccinations

In Zimbabwe, animals are vaccinated against black leg and anthrax, which have bacterial spores that can stay in the soil for years. Anthrax is a notifiable disease and farmers with affected cattle must come in person to report the disease. During disease out breaks, the government Veterinary Livestock Technicians train community vaccinators to assist during vaccination campaigns.

There is a problem of keeping the vaccines refrigerated as the Livestock Health Centre does not have a fridge or electricity. During the workshop in Gezani the farmers and Veterinary Livestock Technician discussed the possibility of getting a paraffin or gas fridge. One of the dip tank committee chairs suggested that the farmers could contribute an extra dollar with their stock card so as to collectively purchase gas for the fridge.

In Mozambique, vaccination campaigns are supposed to be carried out annually by the District Veterinarians and paravets. The Veterinary Technician from Massingir District stated that vaccinations are carried out between May and June against "aftosa" fever, carbunculos hematico and sitomatico in both sexes of cattle. He added that the most common diseases are: anaplasmose and babesiose, both caused by the ticks and paralysis of the posterior legs, possibly caused by deficiency of minerals. He mentioned that in 2007/2008 there was an epidemic of nodular dermathose in Macaringue, and the neighbouring villages of Munhamane and Maconguele.

In Combomune Rio, farmers were not aware what the vaccine was for: '*The vet just does it without informing the people what it's for*'. According to veterinary sources, the vaccination is for lumpy skin, anthrax and foot and mouth disease. Three doses are given to younger animals, while two doses are given to older animals. Dogs are vaccinated against rabies. An unfortunate incident occurred some years ago, as VETAID, the paravet and German Technical Assistance (GTZ) were blamed for the death of a great many poultry from Newcastle disease. It was believed by the villagers that the vaccines brought the disease.

4.8 Attitudes of small-scale livestock farmers towards wildlife and the GLTFCA

Ambivalent attitudes toward wildlife

The majority of farmers in the GLTFCA have a negative attitude towards wildlife. They regard wildlife to be a nuisance, as wildlife destroy crops, attacks livestock and transmits diseases to humans and animals (see Table 10).

Table 10: Perceptions of farmers in the GLTFCA about wildlife

Statement about wildlife	**Perception of farmers in the GLTFCA**	**Details**
Wildlife as being destructive	The majority agreed with this statement	94% of farmers in Macaringue agreed 70% of farmers in Malipati agreed Farmers referred to elephants, kudu and baboons destroying crops. In Combomune Rio four elephants crossed the river and extensively damaged the maize fields in February 2009. In Puzani, near Malipati, buffalo had crossed the Limpopo River from South Africa and destroyed crops.
Wildlife attack livestock	There was general agreement with this statement	66% of farmers in Macaringue agreed that wildlife preyed on domestic animals. 43 % of the farmers in Gezani had their livestock attacked by wild animals during the last rainy season (2008-2009). Predators include hyenas, lions and leopards. In Combomune Rio there was a lion attack in July 2007 while cattle were drinking in the river. One lion killed two heads of cattle. Lion attacks are not common in the Malipati area.
Wildlife transmits diseases to	There was general agreement with this statement in	89% of farmers in Malipati agreed and regard the National Park a sink for diseases such as foot and

domestic animals	especially in Zimbabwe	mouth disease. 50% of farmers in Macaringue agreed although another 38% did not know In Combomune Rio, although their cattle do not normally mix with wildlife, the farmers however are concerned about whether their cattle could get diseases from drinking in the same pools in the river bed that the wild animals drink from. Interestingly, the 38% of farmers in Macaringue agreed that their livestock transmit diseases to wildlife, while 38% did not know.
Wildlife transmits diseases to human beings	Perceptions were varied, with most farmers either agreeing or not knowing	60 % of farmers in Malipati agreed 28 % of farmers in Macaringue agreed that wildlife transmit diseases to human beings, although another 50 % did not know
Wildlife as a source of conflict	The majority agreed with this statement	79% of farmers in Macaringue agreed 78 % of farmers in Malipati agreed

Photograph 13: A look out hut for elephants in field near Macaringue

On the other hand, the farmers did see some positive aspects of wildlife and regard them as a natural part of the environment that can benefit themselves (mainly for meat) and the community, as well as contributing towards tourism and development. However, these

positive perceptions were vague and of a general nature. In Macaringue, 47% of farmers regarded wildlife as a benefit to themselves, although 16% did not know if it was a benefit or not. Also in Macaringue, 62.5% of farmers agreed that wildlife contributes towards tourism development, 25% disagreed and 12.5% did not have an opinion. Regarding wildlife being a source of wages there was a divergence of views. While farmers in Gezani disagreed that wildlife could be a source of wages, the majority of farmers in Malipati, (78%) agreed. This difference could be due to the fact that Malipati is adjacent to the Park where local people may be employed.

The major advantage of being next to a protected area appears to be that it provides opportunities for game meat. Despite the fact that the farmers are aware that poaching is prohibited, the majority of farmers regard wildlife as a good source of meat, including biltong (dried meat). In Macaringue, 63% of farmers regard wildlife as a good source of meat, while 66% also regard it as a source of biltong. However, 26% of farmers in Macaringue were non-committal on the issue of wildlife being a source of meat (which is not surprising considering its illegal nature). However, the majority of wildlife species referred to are small antelope, hares and rabbits. All the respondents indicated that they relied more on domesticated animals for meat compared to wildlife.

Wildlife regulations

Generally all farmers were familiar with at least some of the rules and regulations around wildlife, the most commonly known one being the regulation that forbids poaching and unauthorised hunting, which is enforced by the National Parks personnel. The farmers also indicated that such regulations are necessary and that their community observes these regulations. Besides poaching and snaring inside the Park, other prohibited activities are grazing, trespassing, and collecting firewood.

In Malipati, 80% of the farmers knew of the anti-poaching regulation, while 82 % of the farmers know that the major wildlife regulation enforcers are the National Parks personnel. Interestingly, only 2.2 % think that it is the community's duty and the other 15 % do not know who enforces the regulations. Table 11 shows the wildlife regulations known by Malipati farmers.

Table 11:Wildlife regulations known by farmers in Malipati

Regulation	**% of farmers who are aware of the regulation**
No herding in the park	8.9%
No poaching	80.0%
No snaring	6.7%
No trespassing	4.4%

A number of cases of poaching are reported to the police, an example being a case of four Zimbabweans caught in Gezani after illegally hunting in Kruger National Park in South Africa.

Institutional arrangements around wildlife: CAMPFIRE

The Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) implemented in Zimbabwe since the late 1980s, is an innovative community-based rural development and conservation programme which has resulted in sustainable use of natural resources, particularly wildlife, and biodiversity conservation and has also contributed to poverty alleviation for marginalised rural people. Although there are some successes, some difficulties have been experienced during implementation. The official perception is that CAMPFIRE hunting within Malipati Safari Area, which covers part of Sengwe Communal Land, makes an important contribution to the economy of Chiredzi Rural District Council and Sengwe Communal Land. CAMPFIRE revenues are used for infrastructure development and household dividends. However, the local small scale farmers have a different perception:

> '*We are not getting anything from CAMPFIRE'. 'We don't know where the boundaries are – it came from outside and people do not mention the benefits'.*
>
> *'CAMPFIRE used to give dividends but know it has nothing to give'.*
>
> *'CAMPFIRE is useless. It was only helpful in the early days when they would sweet-talk us so that they could take our land'*.

During the Malipati workshop a councillor, who is the chair of the CAMPFIRE committee, announced that two elephants had recently been killed in the Malipati Safari Area and the CAMPFIRE Association has said that the local CAMPFIRE Committee should open their bank accounts. He indicated that every household in Malipati is in the CAMPFIRE zone. However, the farmers expressed doubts as there is no local bank. Nevertheless, this indicates that CAMPFIRE has significant potential to benefit the local people in Sengwe if the institutional arrangements are strengthened.

Attitudes toward the Great Limpopo Transfrontier Park and Conservation Area

The Great Limpopo Transfrontier Park Although all farmers knew that they were near a protected area or National Park, not all had heard of the Great Limpopo Transfrontier Park. In Gezani, about two thirds of the farmers were aware of the Great Limpopo Transfrontier Park. All the farmers strongly indicated that they were not willing to give up their land for wildlife production even in the face of attractive compensatory packages and resettlement to other areas. Farmers in Gezani had not been into Gonarezhou National Park as it is relatively far away compared with Malipati where the majority of farmers have entered the Park while grazing their cattle.

In Malipati, an area where there has been significant non-governmental and donor influence, the majority of the farmers, 71 %, knew about the Great Limpopo Transfrontier Park initiative. Of these, 29 % of the farmers considered the Park initiative to be an opportunity for them to get employment and to have their infrastructure developed in the process due to their proximity to the Transfrontier Park. 35 % indicated that the Transfrontier Park is not going to have any effects on their livelihoods. The remaining 36% indicated that the Transfrontier Park initiative is going to be a constraint to them.

In Macaringue all of the farmers are aware that they now live in the multiple use zone of the Limpopo National Park, which is now part of the Great Limpopo Transfrontier Park. There is still a lot of uncertainty of tenure among the residents of multiple use zone and the issue of protected areas is sensitive. In the past, residents of Combomune Rio used to cross the Limpopo to visit villages on the other side, but since the formation of Limpopo National Park, they rarely cross the river.

The Great Limpopo Transfrontier Conservation Area Fewer farmers had heard of the Great Limpopo Transfrontier Conservation Area and those who had heard about it did not understand much about it or the concept. In Combomune Rio, none of the farmers had heard of the Great Limpopo Trans Frontier Conservation Area (GLTFCA), although the school teacher had heard the name but knew nothing else about it.

In Macaringue, only 25% are aware of the Great Limpopo Transfrontier Conservation Area, although they did not know much about it. Asked if they see it as an opportunity or a constraint, the greater percentage (78%) responded that they do not know. Only one person thought it was an opportunity, but added that it is an opportunity for the country and not for the community.

In Zimbabwe farmers were not familiar with the term GLTFCA and it appears that they refer to the GLTFCA as the 'corridor', referring to the Sengwe Corridor (see Box 12). Those who had heard of the corridor did not know the boundaries. The livestock farmers in Malipati thought that the corridor was a good thing because they can still use the forest products such as medicines, thatching grass and illala palm. However, they have a problem with wild animals which destroy their crops and kill their livestock. Also there was some fear that the initiative would result in them loosing land: '*Maybe the corridor will force us to move'*.

At the feed back workshops, the officer from CESVI, an Italian developmental organisation that has been carrying out research on the corridor explained more about the Sengwe Corridor (Box 12).

Box 12: The Sengwe Corridor

The Corridor which is communal land is the physical link between Gonarezhou and Kruger and Limpopo Parks. The GLTFCA Treaty that was signed by the three governments binds

Zimbabwe to ensuring that this physical link is in place.

The Sengwe Corridor is a narrow strip of land running parallel to the Mozambique border and is linked to the 'Limpopo Strip' running parallel to the Limpopo River adjacent to the northern boundary of Kruger National Park.

Chiredzi, Chipinge, and Beit Bridge Rural District Councils asked CESVI to facilitate community consultations in the corridor. The people were concerned that they would have to be moved, but apparently only 10-15 households will be affected.

4.9 Scenario planning

The scenario planning exercise focused on *cattle marketing*. At present the farmers have few local markets to sell their cattle. They used to sell their cattle in Mozambique but it is no longer profitable and there are a lot of risks involved as the activity is illegal. Before that, there had been a reliable market provided by the Cold Storage Company. However, for the last 10 years the Cold Storage Commpany had not been operational. Table 12 summarises the history of various opportunities for marketing cattle.

Table 12: Scenarios for cattle marketing

Time	**Opportunities for marketing of cattle**
Long ago (10 years?)	Cattle sold to the Cold Storage Company
A year a go	Illegal market in Mozambique
At present	Nowhere to sell their cattle.
Preferred future scenarios	Export markets, such as the European Market. Beef canning factory Local beef markets

One of the potential scenarios (*muvono*) suggested by the farmers to improve cattle and beef marketing was to form local Beef Committees where for example, a group of teachers at a school could buy a beast and share buying the meat.

Another scenario put forward was that of having local canning factories that process and export the meat. Certified canned meat could be exported to Europe and other international markets. Concerns were expressed about the fact that the south east lowveld was in the Red Zone which is regarded as a buffer zone for cattle between the National Parks and

commercial cattle breeding in central Zimbabwe. Appropriate institutional arrangements would have to be put in place first before this scenario is viable.

During the SWOT analysis (strengths, weakness, opportunities and threats) a number of weaknesses were indicated such as high transport costs to the market and lack of handling facilities as the present handling facilities are dilapidated.

The farmers in Malipati would like to see the Park boundaries going back to where they were previously as this would give them more grazing area for cattle. It was clear that at the present time the farmers regard livestock rearing as more important than any of the various opportunities that may or may not arise from the GLTFCA. However, indications are that it is unlikely that this scenario would materialise in the near future.

Other scenarios developed involved more *irrigated gardens* and agriculture. If the national electricity grid could be extended from Mabalaluta (in the National Park) to the area then they could use electric pumps for irrigation. The soil is very fertile, but rainfall is low. Where irrigation is available, such as sugar cane plantations, crop production is very lucrative. At Gezani, water is piped from a central tank, but is not sufficient for irrigated cultivation.

A functioning *CAMPFIRE* project which benefits the community was a suggested scenario. The potential of the original concept of CAMPFIRE which improves local livelihoods as well as conserving natural resources is appreciated by the farmers. However, some had reservations about this as they feared that it would not work as the committee would steal the funds. Farmers' perceptions are that implementation of CAMPFIRE has been mired with administrative problems and corruption.

Another scenario touched on coping with *climate change*. The community is already aware that rainfall patterns are no longer as regular or as certain, as they used to be. The rainy period is now shorter. Recent major droughts occurred in 1983, 1991-92, and 2008, while serious floods caused by Cyclone Eline occurred in February 2000. A number of coping strategies have been adopted, such as the sale of cattle for grain and income. Rather than make use of more drought resistant crops in times of drought more use is made of planning in wetlands and river beds to grow sweet potatoes and pumpkins.

For cattle, during periods of drought, more use is made of browse on the mopane leaves and succulent plants which may be available in the area, such as *zombwe* (*Spenostylis marginata*) tubers.

5.0 Summary of findings and conclusion

The study on institutional arrangements around small scale livestock farmers in the GLTFCA found differences between the sites and between the countries, each sight being unique with its individual characteristics. However, most of these differences were either slight or determined by positionality of the sites. The major difference between Zimbabwe and Mozambique regarding institutional support to small scale livestock farmers is determined by historical factors and political administration (see Table 13). Livelihoods of the small scale livestock farmers were notably similar. Culturally, the people of the GLTFCA are similar, with Shangaan being the principal ethnic group and there are common cultural practices and historical links across the area. Economically all the farmers are relatively poor and tend to be marginalised on the national level. Infra structure is poorly developed. The dirt roads are generally in bad condition and all sites were long distances from tarred roads. None of the sites were connected to national electricity grids. All receive food aid, either from the government or donor organisations.

Table 13: Differences between Zimbabwe and Mozambique

Zimbabwe	**Mozambique**
Government livestock support institutions extend below district level to local level.	Government livestock support institutions extend to district level only.
Local dip tank committees are responsible for cattle dips and other livestock management issues	No local institutions around cattle management and disease control at the local level
Farmers more knowledgeable about livestock diseases	Farmers have little technical knowledge about livestock diseases
Dip tanks used for dipping	Spray dip chemicals are used
Cattle branded	Cattle not branded or marked
Charcoal not produced	Production and sale of charcoal a major livelihood strategy

Across the GLTFCA cattle tend to be the major source of income even though they are not managed optimally. Cattle have multiple uses including savings, draught power, cultural ceremonies, milk production and occasionally for meat. There is little management system regarding off-take and the farmers generally hold on to their cattle and only sell them when they are no longer in prime condition and consequently do not get a good price. There is minimal grazing management and cattle rustling is rife. Cattle numbers are usually limited by

available grazing land which becomes scarce in the dry season. Watering of livestock is usually not a problem.

The study found that there is a large gap between policy and practice regarding livestock management and disease control. Despite sound policies and structures in place, which are particularly well developed in Zimbabwe, practice on the ground is weak and ineffective.

Although most farmers were aware that they were near a protected area, not all knew about the Transfrontier Park, and levels of awareness about the GLTFCA were negligible. Attitudes towards wildlife were generally negative as the farmers perennially experience destruction of crops and loss of livestock by wildlife. In cases where ancestral land has been lost to the formation of protected areas for wildlife there is still much bitterness.

Recommendations

In order to increase livestock production and improve disease control for small scale farmers in the GLTFCA there is need for effective institutions at all levels. National institutions dealing with livestock need more resources and local level institutions need to be enhanced and supported. Local institutions, such as dip tank committees in Zimbabwe can provide a framework for collective action. With good management livestock can enhance sustainable agriculture and improve livelihoods. Recognising the similarities of small scale farmers' livelihoods, aspirations, and livestock management practices, it makes sense that a common strategy be developed to enhance livelihoods, livestock management and disease control across the GLTFCA.

Areas for further research

This study has explored institutional arrangements for small scale livestock farmers in the GLTFCA and has increased our understanding of the complex issues around livestock management and disease control for enhanced production and marketing, as well as attitudes towards protected areas and wildlife, and livestock and wildlife interactions. However, a number of issues arose out of the study which would require further investigation, including the potential for local level institutions for improved livestock management, and the emerging role of women in small scale livestock management in the GLTFCA. It would also be useful to extend the research to the South African component of the GLTFCA. Finally, there is need to incorporate local communities' agendas, needs and aspirations into the overall GLTFCA planning and implementation. This can be achieved by enhancing engagement of small scale farmers with higher level planners and decision makers.

References

AHEAD-GLTFCA Working Group (2008) As the Fences Come Down: Emerging Concerns in Transfrontier Conservation Areas. The Wildlife Conservation Society / *AHEAD* Program.

Blench, R., Chapman, R. and T. Slaymaker (2003) A study of the role of livestock in poverty reduction papers. A Pro-Poor Policy Initiative Paper , Working paper Number 1.
FAO – A living from Livestock.
(undated) Land capability of the support zone of the Limpopo National Park.

Cumming, D. (2004) 'Sustaining Animal Health and Ecosystem Services in Large Landscapes – 2nd Draft'. Prepared on behalf of the AHEAD-GLTFCA Working Group and Wildlife Conservation Society

Dore, D. (undated) "Transforming Traditional Institutions for Sustainable Natural Resource Management: History, Narratives and Evidence from Zimbabwe's Communal Areas." African Studies Quarterly 5, no.3: [online] URL: http://web.africa.ufl.edu/asq/v5/v5i3a1.htm

Duffy, R. (1997) The Environmental Challenge to the Nation-State: Superparks and National Parks Policy in Zimbabwe**.** *Journal of Southern African Studies*, Vol. 23, No. 3. (Sep., 1997), pp. 441-451.

Guveya, E. and S. Chikandi (1996) An Economic Analysis of Grazing Resource Management in Zimbabwe's Communal Areas. Department of Agricultural Economics and Extension, Harare: University of Zimbabwe, 1996.

Hlambela, S. and W. Kozanayi, (undated) Decentralized Natural Resource Management in the Chiredzi District of Zimbabwe: Voices from the Ground

Livestock in Development (1999) *Livestock in Poverty Focused Development.* Crewkerne: Livestock in Development.

Mavedzenge, B.Z., Mahenehene, J., Murimbarimba, F., Scoones, I and W. Wolmer (2006) 'Changes in the Livestock Sector in Zimbabwe Following Land Reform: The Case of Masvingo Province

Mombeshora, S. and S. Le Bel (2009) Parks-people conflicts: the case of Gonarezhou National Park and the Chitsa community in south-east Zimbabwe. *Biodiversity Conservation* (2009) 18: 2601-2623. Springer

North, D. (1990) *Institutions, institutional change and economic performance.* Cambridge University Press, Cambridge, UK.

Republic of Mozambique (2004) Strategy Document: ProAgri II. Ministry of Agriculture and Rural Development, Maputo.

Scoones, I. (1992) 'The economic value of livestock in the communal areas of southern Zimbabwe'. *Agricultural Systems*, 39: 339-59.

Scoones. I. (1993) 'Why are there so many animals? Cattle population dynamics in the communal areas of Zimbabwe'. In: Behnke, R., Scoones, I. and Kerven, C.(eds.). *Range Ecology at Disequilibrium. New Models of Natural Variability and Pastoral Adaptation in African Savannas*. London: Overseas Development Institute.

Timberlake J., Mapaure I. and C. Chapano (1999) 'Vegetation Mapping and Inventory – Final Report' Biodiversity Foundation for Africa. A report for CESVI under the Sustainable development and natural resources management in Southern Zimbabwe project.

USCR (United States Committee for Refugees). 1993. *World refugee survey*. Washington, D.C.

Appendix

1. The research instruments
2. The calendar

APPENDIX 1

A comparative study of institutional arrangements for small-scale livestock farmers in communities the GLTFCA, in Mozambique and Zimbabwe

LIVELIHOODS SURVEY

Name of interviewee..... Date of interview.....

Village / location.....

BACKGROUND OF RESPONDENT

1. Sex of respondent	
2. Age of respondent	
3. Martial status: Single /Married/ Divorced/ Widowed	
4. Level of education? None/ primary / secondary/tertiary / vocational/other	
5. Occupation	
6. Period of residence in the area you are living in (In years)	

HOUSEHOLD INFORMATION

7. Are you the household head?	
8. If respondent is not the household head, who is it?	
9. Age and gender of household head	
10. Number of people in the household	
11. Which members of your household are living away? Where?	
12. How often do they visit?	

13**. Major source of income** for the household.....

14. What other **economic activities** do you or your household members engage in:
....
.....

15. Does your household receive **remittances** from other family members? .....
If yes:

Type (Cash, grocery, farming inputs, other..)	From who? (relationship)	How often?	From where?	Value?

16. Which of the following does your household own?

Motor vehicle Bicycle Scotch cart	Plough Tractor Cultivator	Hoes Solar Panel Water drums	Radio Television Satellite	Mobile phone Wheel barrow Other.....

17. What are the sources of drinking water for the family?	
18. What are your sources of energy?	
19. What are the available sanitation facilities?	

20. What is the most labour intensive activity in your household?
.....

21. HOUSEHOLD LIVESTOCK DETAILS

Animal	**Number in 2002**	**Number now**	**What was the source?**	**Uses and products**
Cattle				
Goat				
Donkey				
Sheep				
Pig				
Chicken				
Other fowl				

22. Cattle numbers

bulls		**cows**		**heifers**		**steers**		**calves**		**oxen**	

23. How many livestock would you like to have? .....

24. What limits you having this number (eg money, grazing land, etc)?..... ....

LIVESTOCK AND CULTIVATION

25. Do you use animals for draught power?.....Cattle or donkeys or both?.....

26. If yes, how many animals do you use for ploughing (span).....

27. Are these animals and ploughs owned by you or do you share/borrow/rent for ploughing?.....

28. If you do not use animals for ploughing, what method do you use for cultivation? (hoe, tractor, other ...) .....

29. What method would you prefer to use? .....

30. Which is more productive: crop production or livestock production ?
.....

LIVESTOCK GRAZING

31. Is there enough grazing in your area?	
32. Who allocates an area for grazing land	
33. Do your livestock ever graze in a National Park or wildlife conservancy? If yes give details.	
34. Do you provide any **supplementary feeding** to your livestock? If yes, what?	

LIVESTOCK HEALTH

35. What is your perception of a sick animal? .....
.....

36. Animal diseases

Animal	**Diseases in 2002**	**Did the animals die?**	**Diseases now**	**Did the animals die?**
Cattle				
Goat				
Pig				
Chicken				

LIVESTOCK OFF-TAKE AND SALES

37. How many cattle are removed from your herd per year? (Eg: sale, consumption, barter, ceremonial, lobola).....

38. If you sell **y**our animals, what are the reasons? (to buy food, other household needs, purchase of breeding animals, agricultural inputs, wages for agricultural workers, clothes, medicine, school fees, pay debts, lobola, etc)

.....
.....

39. Do you also sell meat? .....

40. If yes, give details (local market, private buyers, butcheries, cross border, quantities, prices, quality of meat etc).
.....
.....

HUMAN, WILDLIFE/LIVESTOCK INTERACTIONS

41. Do you rely more on wild animals or domestic animals for meat?
.....

42. Have you heard of the Great Limpopo Trans-frontier Park / Conservation Area (GLTFCA)? .....
43. If yes, do you regard it as an opportunity or constraint? .....
Explain your answer.....
.....

44. Indicate whether you agree or disagree to the following statements about your attitude towards wildlife:

Statement	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
Wildlife a nuisance in your environment				
Wildlife as non-destructive (harmless)				
Wildlife as a benefit to yourself				
Wildlife transmits diseases to your animals				
Wildlife transmits diseases to humans				
Livestock transmit diseases to wildlife				
Wildlife causes destruction of crops				
Wildlife preys on domestic animals				
Wildlife preys on humans				
Wildlife is a good source of meat				
Wildlife can be a source of wages				
Wildlife can contribute towards tourism development				
Wildlife is a source of conflict				
Wildlife is good for making biltong				

45. Which wildlife rules or regulations are you aware of? ..... .
....

....
46. Who enforces these rules? (the Rural District Council/ National Parks / local leaders / community / other (specify) /nobody/ don't know).... .....

47. Do you think that most of these wildlife regulations are necessary? .....

48. How often do you eat wildlife meat? (*3 –often, 2 – sometimes, 1 – rarely, 0 –never)* ..... (Name the species consumed).....

49. Do you prepare biltong? If yes, from which type of animal?.....

50. If you were asked to give up any of your land for wildlife production, would you agree? .....

ADAPTATION

51. What hazards (disasters) have you experienced in the last 5 years? (eg: droughts, floods, human disease epidemics, animal disease out breaks, animal predation)

Hazard	**Response**

Thank you

APPENDIX 2

A comparative study of institutional arrangements for small-scale livestock farmers in communities the GLTFCA, in Mozambique and Zimbabwe

CHECK LIST OF QUESTION AND ACTIVITY GUIDELINES FOR FOCUS GROUP DISCUSSIONS AND SEMI – STRUCTURED INTERVIEWS WITH KEY INFORMANTS

***Before each interview or group discussion, think about the questions and activities, from the checklist below that will be relevant to the occasion.*
**This checklist is a guide – please feel free to add more questions where it is appropriate*

INFORMATION REQUIRED

FOR ALL:

Date of interview/ group discussion

Name(s) of interviewee (s) (for groups state the number in group, list of names, and where appropriate, status of members / type of group, gender, ages, chairperson of group)

Location: village, Ward, District

Leadership: Chief, headman, or councillor

FOR SEMI-STRUCTURED INTERVIEW WITH KEY INFORMANTS:
For each respondent: **Background of respondent** questions:

Sex of respondent	
Age of respondent	
Martial status: Single /Married/ Divorced/ Widowed	
Number of wives (where appropriate)	
Number of children (with ages)	
Level of education did you achieve? None/ primary / secondary/tertiary / vocational/other	
What is your occupation?	
Do you hold a leadership position in your community or are you a member of any organisation or institution in your area? Which ones?	
Period of residence in the area you are living in (In years)	

Add any more information about background of the respondent as you think relevant, including why the person is regarded as a key informant.

For the interview chose appropriate questions from the question check list below:

TOPICS FOR INVESTIGATION

*Topics **A to S** below cover a wide range of areas and activities. They cannot all be done at one time. Choose before the interview or discussion, which topics or activities you want to investigate.*

*There is no need to do the following sections in order. If time is a limiting factor, you will have to prioritise and concentrate on **sections E a) to O** which concern institutional arrangements around cattle.*

A. BACKGROUND INFORMATION OF THE COMMUNITY

(To be supplemented with secondary sources and observation)

Population of area, Male/female ratios, Different age group composition, population density, Ethnic composition
Climate, Vegetation, Topography
Land tenure, land use patterns

B. HISTORICAL EVENTS

Group constructs a time line to indicate major events (such as war, drought, floods, disease outbreaks, changes in government and policies, etc) that have affected the community, including trends in resource and environmental quality. (for example: erosion, loss of biodiversity, deforestation etc..)

C. SOCIO-ECONOMIC ISSUES

Wealth and poverty

Perceptions of wealth: why are people regarded as being 'rich'?

Who is rich in the community?

Wealth ranking exercise

What type of houses do community members live in? What do they aspire to live in?

Assets

What are the main assets acquired by community members?

How many (%) of the community have: bicycles, cars, trucks, TVs, solar power, telephones, tractors, etc?

Does the community have any 'community assets', such as a grinding mill?

Do members engage in any of the following livelihood strategies?

Wood carving Knitting/ sewing Medicinal processing Cross Border Trade Hired farm labour (maricho) Natural Products Enterprises	Brick making Beer Brewing Thatching Building Welding Fishing	Vending Pottery Hunting Healing Tobacco Crafts	Bee keeping Food Processing other.....

Education and health issues

What percentage of children attends primary school / secondary school / tertiary?

What are the constraints around school attendance?

Do more boys than girls attend school? Discuss reasons and consequences.

How would you rate the health services for the community? Has it improved or got worse?

Infra structure and services

Indicate distance from the each of the following service areas:

Clinic Primary school Secondary school Retail shop Police Postal service Bus stop		Dirt road Dip tank Cattle handling facilities Veterinary centre Abattoir Agricultural extension office		Public telephone Bank Tarred road	

Which resources and services does your community have difficulty in accessing? Rank the 3 most serious for the community:

Land for cropping Land for grazing Water Draft power Timber	Extension services Veterinary drugs Dipping chemicals Building materials Cattle marketing	Government Assistance Donor Aid Other

Institutions and social networks

What **social networks** exist in your community? (For example: Women's Club, Burial Society, Cultural Group, Garden group, borehole group, Church Group, School Development Association, farmers group, or other)

What sort of **support networks** exists between members of the community? Reciprocity (nhimbe, jangano, etc) information, mutual help, occasional visits, loans (zvikwereti), (money or goods) others

Do members of the community ever **volunteer** to do anything for other members of the community? (specify which and give details). For example:

Paying school fees Looking after orphans Provide food, Pay a debt Offer transport	Take member to hospital, Build something Provide moral support	Cultivate land Herd cattle Sharing livestock drugs and dip chemicals Other

Are there any **child headed households** amongst your community?

If YES, what are the forms of assistance given to child headed households?

Are there many **terminally ill patients** in your community?

If YES, what are the forms of assistance given to these households?

What **institutions** exist in your community? (For example: Farmers Club, group garden, traditional healers, political party, religious association, war veteran, burial society, money or savings club, other .....)

Institutional analysis

Institutional mapping **:** Venn diagrams of institutions in the community.

Rank in the order of most helpful/important / significance to community.

What services do they provide? Internal or externally driven? Membership, governance etc...

D. EXTERNAL SUPPORT PROGRAMMES

Is your community benefiting from **government programmes**?
If YES, which government programmes ? (eg: food projects, HIV and AIDS projects, food for work, agricultural input schemes, educational projects, resettlement, dams, natural resources conservation, immunisation, livestock programmes etc)

Is your community participating or benefiting from **donor projects**?
If YES, which donor funded programmes?

Does the community sometimes get **donor aid**? If yes, give details. (What kind, how often, which organisations, what criteria is used to select households that receive the aid?)
If no, what kind of aid would you like to receive?

E. COMMUNITY MAPPING

a) Group draws a map of their area with the most significant features on it (rich picture)
   For example, some features that could be included are: residential (homesteads), kraals, stores, roads, paths, railway, grazing land, cultivated land, land under irrigation, rivers, hills, rocky outcrops, wetland, fallow land, woodlots, etc.

b) Group draw a map of the **grazing area** with features such as:
   boundaries, infra structure for cattle management (fences, dip tanks, handling facilities, boreholes, etc), 'key resources' including wetlands, preferred areas, winter and summer grazing areas, rivers, dams, boreholes, springs, topological features.

F. LIVESTOCK

Do most families have cattle? What %?

What are the main breeds or type of livestock.

What is the average herd size and range of sizes? Discuss the ownership of cattle – are some owned by absentees and looked after locally? Give an approximate %.

How important are cattle to the community? What are the main uses / roles of cattle in the community? (For income, security, savings, status, cultural events (explain), ploughing, meat, milk, etc). Rank the importance of these uses.

Are livestock numbers controlled? If yes, who by? How effective is this? Does everyone comply? Were livestock numbers ever controlled in the past? *For Mozambique:* Describe communities ownership of cattle, in relation to the movements of people over the last 30 years. Did they move with their cattle, or start afresh? What happened to their cattle, and where did they acquire more cattle?

Do you know the official **'carrying capacity'** of your area? How does this compare with the *actual* stocking capacity? If there is a discrepancy, what do you think of this?

Who is responsible for **managing** the cattle? Who makes decisions regarding cattle in households/community? Who does the work around cattle management ?

Who ploughs?

Who herds? Under whose instructions?

Who is responsible for dipping? Who takes the cattle to the dip tank? What activities take place at the dip tank (eg vet services, interaction with other farmers, plans for sale or purchase of cattle?

Who builds the kraal?

Who is responsible for the security of the cattle?

Who decides to sell or otherwise dispose of cattle?

Who treats sick animals?

What other animals do the community rear? Discus these including, numbers, uses, management.

G. GRAZING LAND

How much grazing land does the community have access to?

Has this changed over the last 5/10/20 years? If yes, give details.

Where are cattle grazed in: i) wet season ii) dry season
How far is this from the homesteads? (near the houses, less than 1 km, less than 5 km, more than 5 km)

Is there enough grazing in your area?
If not, how do you overcome the problem?

Have there been any negotiations for access to more grazing land?

What are considered to be the key (best) grazing areas?

Who allocates an area for grazing land (eg, cheif/headman, local government, local agricultural officer, etc)? What criteria are used?

What are the rules and regulations that govern access and use of grazing land?
How is grazing and herding organised? Who makes the rules for grazing?

Are **paddocks** used ? If yes: How many? What size? How are the paddocks fenced? Who was responsible for the fencing? Are paddocks used all year round? If not explain.
Are the paddocks adequate for pasture and forage?

Are animals rotated within a grazing area?

Do community cattle sometimes enter into the National Park or wildlife conservancy for grazing? If yes, give details.

Are there any conflicts about moving cattle? Within the community or with other communities or stakeholders (such as conservancies or national parks)?

Which plant species are important for the diet of your animals throughout the year? (Different seasons) Which plant species do cattle prefer?

Do the livestock **browse** on bushes/small trees? If yes, name the species, places and seasons when this occurs.

Are there any particular places where the cattle prefer to feed? If yes, describe the characteristics of these places (what makes them special?)

Is any **supplementary feeding** for cattle provided? If yes: i) when, ii) what kind, iii) quantities.

What plants are useful for supplementary feeding? Explain.
Do you buy supplementary feed? If yes give details.

Are there any wetlands in your area? Do you regard these as important or not?
What are the rules that govern access to these wetland resources?
Do you use animal manure as fertiliser for crops? Give details (amounts, type of crop, application, efficiency, etc)

Do you make use of crop residues?

If yes, give details (for supplementary feeding, collected or free grazing, for fertiliser – green manure, type of crop, effectiveness)

Transect
To determine the different types of vegetation in the area.
Estimate potential carrying capacity.

H. CATTLE WATER POINTS

What are the major watering points for cattle? Wet season, dry season. Do other animals use this source?

How far do your animals travel to drink water? (near the house, less than 1 km, less than 5 km, more than 5 km)? Wet season, dry season.

Is the quantity of water adequate throughout the year? Explain.

Do you consider water for cattle to be a problem? If yes, explain.

What is the quality of water?

What are the rules and regulations and institutional arrangements over cattle watering and access and use of water points?

Are there conflicts over water in your area?

I. LIVESTOCK HEALTH AND DISEASE MANAGEMENT ISSUES

What measures are taken to ensure that animals are healthy?

How often (if at all) are cattle dipped and dosed? Describe.

Are there any non-functional dip tanks in your area? How many?

Has the frequency of dipping and dosing changes over the last 5 -10 years? Explain.

What are the constraints to dipping?

What chemicals are used for i) dosing, ii) dip?

Where does the community currently get chemicals and drugs? Has this changed over the last 5-10 years? If yes, give details.

Where is the nearest animal health centre?

Are there any Community-Based Animal Health programmes in the area? If yes, give details.

Is there a community animal health centre in the area? If yes, give details. If no, do you think that one would be useful?

Who gives advice on cattle management? (eg family members, community members, community leaders, government agricultural officers, government veterinary officers, NGOs, others)

Does the advice come with support (such as medicine and drugs)?

Common disease that affects the cattle	**How is the disease treated?**	**Do the animals usually die from this disease?**	**How are these diseases controlled / prevented?**

Are non- conventional medicine and herbs sometimes used to treat cattle?
If yes, which ones (eg name plants used), and for what diseases? How effective is it? Is it used in conjunction with western medicine, or by itself? Who administers it?

Has there been any major disease out breaks in your area recently / in the last 5 -10 years? Give details.

Do you think that some breeds are more resistant to disease than others? Give details.

Is there any government surveillance of livestock diseases? If yes, give details. How efficient are the government veterinarians and services?

Do you think that the government is more interested in commercial rather than communal cattle rearing? Explain.

What is your birth rate in cattle?

What is the death rate?

What are the opportunities for improved animal health?

What additional skills are required?

What measures/initiatives are you willing to invest in?

Kraal inspection
Map kraals in the village (use GPS if possible). Determine their positions and density.

Determine their size and structure. How many cattle per kraal? Breakdown into age groups.

How many households use the kraal?

Describe kraals for other livestock, such as goats.

Examine the cattle in the kraal and observe fitness and any sign of disease. Examine cattle for presence of ticks. Estimate their density and occurrence, and type (if possible). Devise an abundance scale.

J. OFF TAKE AND MARKETING

When do farmers kill animals for their own family consumption? Which are the preferred animals for family meat? (What are other sources of protein?)

Are cattle sometimes sold? If yes, to whom (eg private buyers, state slaughter house, butchery, locals)

At what prices?

Why are cattle sold?

What is the frequency of cattle sales?

Are other livestock such as goats, pigs and sheep sometimes sold? If yes, to whom, for what reasons and how often?

Has the market for live animals and meat changed over the last 5 -10 years? Explain.

How often are livestock purchased / acquired? Under what circumstances? From where?

Are there any police requirements for moving cattle or other livestock?

What are the institutional arrangements for livestock marketing?

K. SUPPORT FOR LIVESTOCK MANAGEMENT

Does the government provide any support for livestock management? If yes, give details (type, frequency, benefits).

How effective is this assistance?

What more assistance would you like?

Do NGOs/donors provide any support for livestock management? If yes, give details (type, frequency, benefits).

How effective is this assistance?

What more assistance would you like from NGOs/donors?

Have you heard of any other government or NGO/donor initiatives for livestock?

Have you heard of the Transboundary Animal Disease Information Management System (TADinfo)? If yes, give details.

Have you heard of the VETAID programme (Mozambique) and para-vets? If yes, give details, and for paravets, describe their role and effectiveness of their support. What progress has been made?

L. LIVESTOCK ORGANISATIONS/COMMITTEES

Are there any institutions or organisations for livestock farmers in your area/community (eg dip tank committees)?

If yes, how long has the organisation been operational? How was it formed (who initiated it?) Who are the members? Roles and activities? Effectiveness? Representation? Financial and accountability structures? Benefits. Sustainability?

M. LIVESTOCK PLANS

Does your community have any strategies or plans for livestock management? If yes: who developed them (government, NGO, farmers etc...)? Participatory or top down? Who oversees the implementation?

Describe the plans and their implementation.

N. HUMAN, WILDLIFE/LIVESTOCK INTERACTIONS

Which wildlife frequents your home or fields, during which seasons?
(*Frequency:3– often, 2 – sometimes, 1 – rarely, 0 – never)*

Wildlife	**Wet season**	**Dry Season**	**Details**
Lion			
Leopard			
Warthog			
Hyena			
Kudu (or other antelope			
Elephant			
Hippo			
Buffalo			
Baboon			
Other (specify)			

How do you protect your livestock and crops from wildlife? Is it effective? Explain.

Give details of any domestic animals that have been lost to wildlife in the community:

Type of domestic animal killed	Species of wild animal killer	Details (dates, other animals injured, etc)

Is wildlife regarded as a benefit from your environment to the community

(For Mozambique, put these questions in the past tense, as the village is in a buffer zone and hunting is not allowed)

Is there any hunting for wildlife in your community?

If yes, give details – type of animal, type of hunting (eg snares, dogs, pits, arrows, guns, etc), use of animal (sale, family meat, biltong for sale or for family consumption). If biltong is for sale, give details of the marketing.

Are there any professional hunters in your area? If yes, do you have any relationship with them? If yes, explain. Do you regard professional hunters as useful or not useful? Explain.

What are the wild life regulations?

Does your community observe wildlife regulations?

Do these regulations benefit your community?

Have you heard of CBNRM (Community Based Natural Resource Management)? If yes, give details.

Which is the nearest National Park, Protected Area, or Conservancy? How far away is it from your community?

Have you heard of the Great Limpopo Trans-frontier Park / Conservation Area (GLTFCA)? If yes, what do you know about it?

Do you think that the GLTFCA will benefit your livelihoods? If yes, how? If no, why not?

Is your community involved in a CBNRM programme such as the CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) or other type of wild life management project?

If yes, give details. What are the institutional arrangements? How are local people involved and in what capacity? (casual worker /input provider / outlet seller / community group / administrative mediator / other)?

What are the benefits and costs? What do you think of the programme? Do you think that it is for the environment/wildlife or for people?

If the community was asked to give up any of its land for wildlife production, would they agree? *(For Mozambique: this is a very sensitive issue, people there are not happy with the park creation, so may be find a different way of ask)*

Are there any funding opportunities that you know of?

O. CONSTRAINTS FOR LIVESTOCK FARMERS

What are the constraints to livestock production?

Constraint	**Rank (1 = most important constraint)**
Low quality of pasture	
Lack of water points	
Lack of grazing land	
Predation by wildlife	
Disease from ticks	
Disease caused by interaction with wildlife	
Lack of improved breeds	
Lack of supplementary feed	
High costs of inputs (veterinary services, drugs)	
Poor access to inputs (veterinary services, drugs)	
Unavailability of markets	
Lack of infrastructure	
Other (specify)	

After ranking, discuss causes and solutions to the main challenges.

Describe incidence of cattle theft and cattle rustling. What measures are being taken to prevent this?

P. CULTIVATION

How would you describe the soil quality? Is it suitable for cropping? Which crops?

What are the main crops grown?

Describe the yields. Have the yields changed over time?

Q. COMMON PROPERTY RESOURCES

What common property resources occur in the area? (forests, woodland, grazing, wetlands, rivers, springs, lakes, etc)

What are the rules of access, use and management around these resources?

Are there any threats or conflicts around common property? If so, what is the nature of threat or conflict and how is it being resolved?

Community ranking of importance of natural resources: land, trees, forest products, wildlife, water, minerals, etc.

R. ADAPTATION

What hazards (disasters) have been experienced in the last 5 years? (eg: droughts, floods, human disease epidemics, animal disease out breaks, animal predation)

Hazard	**Response**

Do you think that the climate has changed over the last 5 – 10 – 20 years? If yes, explain. (Construct a time line of climatic events – droughts, floods, etc).

How do you cope with persistent droughts (or floods)? Give details of coping strategies and responses to climatic shocks.

Are you getting any institutional support to cope with climatic shocks? If yes, give details?

If no, what sort of help would you need?

Cattle management drought responses

When was the last serious drought?

What was the effect on livestock grazing and watering?

What coping mechanisms were applied to cope?

How many cattle were lost?

S. CREDIT FACILITIES

Does the community have access to credit facilities? In particular, for livestock rearing? If yes, give details – how much, how often, from whom, for what, any conditions attached, repayment arrangements, any defaulting, short and long term benefits?