

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Agriculture in Zambia has the potential of enhancing economic growth and reducing poverty. A well performing agricultural sector translates into significant improvements in the country's Gross Domestic Product (GDP), contributes to employment generation, and broadens the country's tax base. To the extent that the livelihoods of the majority of Zambians depend on agricultural-related activities, the sector, when well developed, should contribute significantly to welfare improvement. It is in this regard that the Fifth National Development Plan (FNDP) positions the agricultural sector as one of the driving engines for economic growth required to reduce poverty [Government of the Republic of Zambia (GRZ), 2006].

Hans (1982), contended that the African economy is primarily based on the agriculture sector, which employs most of the population, especially in rural areas. GRZ (2004), through the National Agriculture and Cooperatives Policy (NACP) noted that the agricultural sector is key to development of the Zambian economy and will be the engine of growth for the next decade and beyond. GRZ (2004), further noted that agriculture generates between 18-20 percent of the GDP and provides a livelihood for more than 50 percent of the population especially in rural areas. According to Almero (2002), the sector absorbs about 60 percent of the labour force and remains the main source of income and employment for the rural women who constitute 67 percent of the total rural population. Increase in rural incomes will therefore result in the overall poverty reduction and increased food security.

The Movement for Multiparty Democracy (MMD) took over power in November 1991 under Dr. Frederick Chiluba, the second Republican President of Zambia, saw the overall economic and agriculture sector pursued by the previous government under the United National Independence Party (UNIP) under Dr. Kenneth Kaunda; the first Republican President of Zambia, as not sustainable and therefore vigorously embarked upon the Structural Adjustment Programme (SAP). This was in order to remove all monopolistic and government involvement in the running of the economy. Within the agriculture sector, SAP entailed the introduction of market liberalisation by which the government removed subsidies on fertilisers and other inputs, decontrolled prices of commodities and opened up marketing so as to attract competing marketing organisation (Kajoba, 2008). The agricultural

sector under UNIP as with the rest of the economy in general operated under a controlled economy.

Notwithstanding what has been said above, the acceleration of the liberalisation process after 1991 was not accompanied by significant increases in marketing and consequently off-take rates. Due to lack of clear government policy, the SAP policies did not adequately address the livestock sector. Instead, this was made worse with the outbreak of cattle diseases, poor veterinary delivery and extension system, poor livestock marketing and environmental shocks such as droughts and floods to mention but a few. In addition, there was virtual absence of private sector participation in rural areas.

The livestock sub-sector is economically important in Zambia as it accounts for about 35 percent of the total agricultural production as indicated in the FNDP. The Livestock industry plays an important role in the livelihoods of many people, particularly in poorer communities of Zambia in which their role is even more critical (GRZ, 2000). There are more cattle in the hands of traditional herders than commercial farmers in Zambia. This marked the difference in numbers arising from the value that the traditional herders place on the quantity and not quality of their livestock (Rootselaar and Bwalya, 1990). However, in spite of the efforts of government to increase production of beef, the response from traditional herders remained conservative. It is estimated that the traditional cattle keepers sell only three percent of their animals whereas commercial farmers sell about fifteen percent [Central Statistical Office (CSO), 2005].

The Ila people of Namwala District in Southern Province, engage mostly in cattle keeping, fishing, hunting and subsistence farming. The main livestock produced are cattle, goats, pigs, sheep and poultry and more recently donkeys. In the Ila traditional set up, cattle fulfil a number of roles in social functions such as traditional ceremonies and payment for dowry. They also contribute to production through draught power for ploughing, transport and manure (Fielder, 1973). It is also stated that “cattle are seen as the main form of security in Ila traditional society, being a store of wealth and in a way fulfilling the accumulatory role” (Rootselaar and Bwalya, 1990: 494). Further, studies among the Ila (Fielder, 1973) and the Lozi (Beerling, 1986) show that a family needs a minimum of 30 to 50 heads of cattle to live reasonably and to fulfil their social obligations.

Families owning fewer cattle will be unwilling to sell animals except under dire circumstances. Consequently, off-take, or sales from the traditional sector are low ranging from two to seven percent per annum in contrast to fifteen percent from the commercial sector. These figures vary with accessibility for cattle traders and the economic circumstances in a particular year, for example, sales are higher in times of food shortage. Cattle are used for meeting financial obligations such as payment of school fees, purchasing other essential commodities like blankets and ploughs. But these are normally 'target income selling' items (selling of cattle specifically for immediate needs due to cultural attachment to cattle). Thus, cattle contribute to a large extent to the rural livelihood in the district (Mapani, 2008). As a symbol of prestige, the traditional Ila do not routinely use their cattle for domestic consumption, but it is a major source of draught power and social standing in society. Cattle confer status to an individual. The prosperity of the cattle economy among the Ila people is based on the cycle of flooding on the Kafue Flood Plain, which provides year-round naturally irrigated pasture (HODI, 2009).

However, due to poor marketing and infrastructure development and cattle diseases such as foot and mouth, heartwater and many other diseases, have reduced livestock numbers. This has negatively affected the way of life of the people of Namwala which they have enjoyed for decades. The socio-economic situation of the people has drastically changed and indeed the food security situation is threatened. Livestock production remains far below its potential. Traditional communal grazing has, in part, been blamed for the frequent outbreaks of cattle diseases in the district since land ownership is still generally under traditional tenure. "The recurrence of droughts has depleted animal grazing resources and drinking water, thus negatively affecting the productivity of the livestock sector" (GRZ, 2006: 47).

The effect of these cattle diseases (East Coast Fever, Foot and Mouth Disease (FMD), Heartwater, Bovine Tuberculosis (TB), Lumpy skin, Contagious Bovine Pleural Pneumonia (CBPP) and many others) and climatic variability have led to reduced livestock numbers. According to GRZ (2005), cattle numbers in Namwala have been declining from 123,421 in 1998 to 109,746 in 1999, 98,797 in 2000 to 95,287 in 2001, and 94,961 in 2003 and a slight increase of 95,581 in 2004. This decline has been attributed to livestock diseases mentioned above and lack of pastures, especially in the dry season (Mapani, 2008). However, the change in the macro-economic policy in 1991 saw a shift towards moving the economy to private sector-driven initiatives and free market policies and the establishing the disease-free

zones (Yambayamba, 2006). This new scenario led to the establishment of commercial livestock buyers such as Zambeef and Starbeef in 2005 and 2008 respectively.

The main thrust on part of the government is to control livestock diseases of epidemic nature and with transboundary (regional/international) significance. The devastating impacts of livestock diseases have had far reaching negative consequences on the agriculture sector as a whole. In order to halt this trend, the government has come up with comprehensive measures and incentives in order to support the growth of the livestock industry. These include training more extension officers, vaccinations and increasing veterinary services delivery. This could enable Zambia to be part of world beef and dairy trade worth about US \$50 billion and take the opportunity of exporting beef to neighbouring countries such as the Democratic Republic of Congo (DRC) and Angola, which are huge potential markets (Sinha, 2010).

While a number of studies have been carried out on the role of livestock particularly the role cattle play in agriculture and other social obligations, this study focused on the socio-economic dynamics, off-take rates among traditional cattle keepers and the increasing demand for money in the rural economy as a result of the introduced rural livestock markets in Baambwe and Maala areas in Namwala District, Southern Province in Zambia.

1.2 Statement of the Problem

Cattle in Namwala's Baambwe and Maala areas are central to the rural economy and play an important role in the livelihoods of the people. However, due to inadequate intervention measures by the government, such as insufficient and ineffective extension services and restocking of cattle stock, poor livestock marketing system, expensive veterinary drugs and sometimes their non-availability coupled with poor management practices among traditional cattle keepers, the recurrent cattle diseases and climatic variability have resulted in reduced cattle numbers and increased food insecurity. It was therefore necessary to conduct a study to investigate the responses of these agro-pastoral communities to cattle losses and the recent establishments of commercial livestock buyers and how these markets have transformed the rural economy in Baambwe and Maala areas in Namwala District.

1.2.1 Aim

The aim of the study was to find out the responses among traditional cattle keepers to livestock losses due to livestock diseases and the introduction of rural livestock markets in Baambwe and Maala areas in Namwala District.

1.2.2 Objectives

Arising from the aim highlighted above were the following specific objectives:

1. To examine changes in production goals among traditional cattle keepers in Baambwe and Maala areas in Namwala District.
2. To find out the constraints and coping strategies the traditional cattle keepers have assumed due to the impact of recurrent livestock diseases and droughts/floods.
3. To examine whether or not the traditional way of cattle value has changed with the presence of rural cattle markets.

1.2.3 Research Question

1. Has there been socio-economic change in the perception of cattle keeping among traditional cattle keepers in Baambwe and Maala areas in Namwala District given the high prevalence of recurrent cattle diseases and the introduction of rural cattle markets?

1.3 Significance of the Study

The rationale of this study is that in a country like Zambia that is now struggling to rebuild its economy, there is need to concentrate efforts to diversify the economic base with agricultural production, especially livestock rearing. This could be achieved by ensuring that all major components to agricultural production such as access to land, livestock marketing and utilisation of wetlands such as the Kafue flats are well managed.

Given the paucity of micro-level information on contemporary production goals, marketing behaviour and off-take rates among the traditional cattle keepers in Namwala, this study could contribute to the understanding of changing goals and strategies under different socio-economic and historical circumstances in the contexts of recurrent livestock diseases and climatic variability among the Ila people whose economy has revolved around cattle. Given the prevailing government policy on free market enterprise which saw the establishment of Zambeef and Starbeef in the District, it is hoped that this study could establish how these commercial beef buyers may transform the rural economy with regularised markets and how this may change the traditional system of cattle accumulation with availability of markets. In particular, the study could contribute to the understanding on how rural livestock markets may change the objectives for keeping cattle.

Also, the results could add information to already existing literature on the value of cattle and importance of livestock markets. When market exchange becomes important, it is often accompanied by the partial or total shift of production goals and orientations among different categories of cattle keepers. Richer cattle owners can take care of the production side of livestock enterprise on their own, as they have sufficient resources to invest into herd expansion. However, they may greatly benefit from any interventions which seek to solve marketing bottlenecks unlike poor cattle keepers. Investment in strategic infrastructure is a key pre-requisite to increased off-take rates from the traditional livestock sector. For example, the study by Sikana (1997), in Western Province, suggested that the construction of an all-weather road and an abattoir in Mongu stimulated cattle marketing during the 1980s. In addition, the availability and expansion of goods and services in rural areas enhances the utility value of cash and consequently increases cattle off-take rates.

Further, the results could be of help to interested stakeholders on the sustainable utilisation of resources such as wetlands (Kafue flats) for cattle grazing and crop production. They could also be useful to future researchers wishing to have an understanding of the contemporary traditional Ila socio-economic transformation in Namwala.

1.4 Definition of terms

Socio-economic Transformation - as used in this study refers to the situation where the traditional cattle keepers change from mere practices of traditional cattle accumulation to shifts in production goals due to changes resulting from money market economy.

Traditional Cattle Keepers - used in this study to refer to those people who keep cattle traditionally on a small and large scale. Their socio-economic situations can change depending on the constraints and opportunities imposed on them by the local conditions.

Cattle Complex - is used here as the accumulation of cattle among traditional cattle keepers as a vehicle through which individuals strive to enhance their status positions in the community by accumulating cattle for social relationships and extending patronage over others through the distribution of cattle.

Target Income Selling - here refers to the tendency among cattle keepers to hold on to cattle and only sell when there are specific and short-term income targets to be met.

Land Tenure - in this study refers to legal rules recognised and applied in any given country for the acquisition or allocation of land rights, their protection in law, their disposal as well as their regulation with regard to ownership or use of land.

Flood Plain - here refers to land along major river systems that are low-lying and seasonally get flooded.

Kafue Flats - is the low-lying area in the Kafue Basin between the Itezhi-tezhi Dam and the Kafue Gorge. It is 250 Km long and approximately 100 Km at its widest point (World Wide Fund for nature [WWF], (2004).

Food Security - here refers to adequate access to food all the times, throughout the year and from year to year. Access is ensured when all households and all individuals within those households have sufficient resources to obtain appropriate foods for a nutritious and balanced diet.

Livelihood - is here used as a means of living or sustenance. In other words, the term livelihood encompasses all factors, aspects and interactions that form part of, or influence all means of a living of a specific community, group, household or person.

Rural Transformation - here is understood to be multi-dimensional, encompassing improved opportunities for income generation and local economic development; improved physical infrastructure, social cohesion and physical security within rural communities; active representation in local political processes, and effective provision for the vulnerable with access to markets, food, health services, water supply and feeder roads.

Off-take rates - is used in this report to refer to the proportion of cattle sold by farmers as a result of new abattoirs and increased cattle numbers among different categories of people.

1.5 Organisation of the Dissertation

This dissertation is divided into seven chapters including this one. This chapter provides the statement of the problem, aim, objectives, research question, the significance of the study and the definition of the terms related to the topic.

Chapter two reviews secondary literature by considering: the role of cattle in agricultural development in rural Africa; traditional cattle keeping in Zambia; the role of cattle in the Ila economy in Namwala district and historical cattle development programmes before

independence, during the first and second republics, third republic and the new deal administration to date. The relationship between women, customary land ownership and the livestock sector are also considered in this chapter.

Chapter three consists of the description of the study area. This includes the location of the study areas (Baambwe and Maala) in Namwala District, climate, soils, vegetation, the Kafue River and the annual floods of the Kafue flood plain, geology and topology, population and the socio-economic activities. Socio-economic activities are addressed under the general way of life of the people and the state of infrastructure in the district.

Chapter four presents the methodology that was used in this study. To start with, the factors that influenced the selection of the study area are given. This is followed by the sample size, sampling procedure and data collection methods (secondary and primary sources). Finally, some of the limitations that the researcher faced in the field are outlined.

Chapter five presents the findings of the study. This is done by first looking at the analysis of change in production goals and rationale among traditional cattle keepers. The constraints to cattle production are addressed later. Further, adaptive or coping strategies people have assumed due to cattle diseases and droughts/floods are considered. This is followed by the impact of regularised livestock markets and how this has transformed the traditional way of cattle accumulation in the contexts of recurrent cattle diseases and frequent droughts and how this has helped the traditional cattle keepers acquire monetary wealth from proceeds of cattle sales together with capital projects they have embarked on. The government intervention measures being taken to boost livestock production with the help of NGOs and other stakeholders close the chapter.

Chapter six consists of the discussion of the results based on key research questions on transformation in production goals, traditional value of cattle due to markets and government interventions. The last chapter gives the conclusion of the study and the recommendations for future planning policies and research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The institutions, rules and mechanisms governing rural livestock financial markets are important for most rural areas since financial markets in these areas are usually thin and missing. As a result, rural areas face several challenges including weaknesses in financial rural livestock and crop markets, urban biased policies and poorly designed interventions not based on realities of rural areas. This chapter however, outlines the role of cattle in agricultural development in rural Africa; traditional cattle keeping in Zambia; the role of cattle in the Ila economy in Namwala; management of wetlands with emphasis on the Kafue Flood Plain; cattle development programmes and policies in Zambia from colonial times and; the relationship between customary land ownership, women and cattle ownership.

2.1 The Role of Cattle in Agricultural Development in Rural Africa

In Africa, as in other continents, cattle forms part of the worldwide distribution of livestock rearing. Pritchard (1979), contends that the great part of Africa's people probably seven out of every ten adults live directly off the land either by cultivating the soil or by grazing animals. Hans (1982) and Barrett (1999), argue that livestock are vital to subsistence and economic development and their products often constitute the only source of income in rural areas and hence the only way in which subsistence farmers can buy goods and procure the improved seeds, fertiliser and pesticides needed to increase crop yields.

Most of the people in Africa depend on livestock, especially cattle for their livelihood. In Niger, it was found that cattle manure is used in crop production. In the Sahel as well as West Africa, the most common way to fertilise land is to use cattle manure on the crop fields (Nestel *et al.*, 1973). Investment by farmers in livestock is a widespread practice. Cattle serve as a means of saving and accumulating capital and as a productive asset, providing not only meat, milk and manure but also draught power. Scoones (1995: p.64) pointed out that "in Lesotho, investing in cattle earned the equivalent of a 10 percent interest rate, while a bank account lost 10 percent because of inflation". Conditions in many other African countries are probably similar. In Mali and Nigeria, especially among the Fulani, pastoralists have bought crop inputs by selling their cattle and hiring out their oxen to other farmers (Thomson, 2004).

2.1.1 Population Growth and Agriculture Development in Sub-Saharan Africa

It is estimated that in the next 35 years or so the population of Sub-Saharan Africa will increase by about 2.5 times to around 1.3 billion (Winrock International [WI], 1992). The current population growth is around 3.1 percent per year, the highest of any region in the world, and the most rapid population increases are occurring in the urban areas as shown in Table 1. If livestock production continues to grow at the same rate as between 1962 and 1987 (2.6 percent for meat and 3.2 percent for milk), the region will face massive deficits in milk and meat supplies by 2025 (refer to Table 1). The increasing urbanization and population growth of the region should be checked. Unless this is coupled with growth of incomes among people in urban areas, it will not provide a growing market for livestock products for rural as well as peri-urban farmers.

Table 1: Population growth in Sub-Saharan Africa, 1990-2025¹

Year	Population (Million)	Annual Growth Rate (% , 5 Year Period)
1990	503	-
1995	591	3.1
2000	695	3.1
2005	788	3.0
2010	902	2.8
2015	1,028	2.6
2020	1,159	2.4
2025	1,294	2.2

Source: Ogle (2008), p. 49

It has also been estimated by the World Bank that around 10 percent of the population of Sub-Saharan Africa is primarily dependent on their animals, while another 58 percent depend to varying degrees on their livestock. Increasing population pressures will lead to increased intensification of agriculture, as growing competition between crop and livestock farmers leads to the evolution of mixed crop-livestock systems, which are the most efficient and sustainable means of increasing food production (Winrock International, 1992).

Climatic variability, particularly the spatial and temporal distribution of rainfall, affects livestock production systems profoundly through its impact on forage and water resources (Behnke *et al.*, 2006). Ellis and Swift (1993) state that when feed and water resources decrease, livestock struggle to maintain weights and the incidences of malnutrition and diseases rise. To avoid morbidity and mortality, producers sell off non-essential and weakened stock at low prices. Since producers over a wide geographic area may be affected

¹ The population figures from 1990 to 2010 are actual figures while those from 2015 to 2025 are projected.

simultaneously by drought, they offer livestock on the market at the same time, and so depress prices. While livestock prices fall, cereal prices rise, as do the prices of other staple foodstuffs. “Terms of trade between products that livestock owners sell and the goods they buy worsen and livestock producers’ real income decline” (Kalibaba, 2000: 12).

Without ways to control supply in many African countries, non-equilibrium, opportunistic pastoral systems are plagued by market disequilibria. Significant, non-marginal shifts in supply, following the cycle of drought and recovery, play havoc with livestock prices, marketed surplus and producer incomes, not to mention consumption patterns for livestock products. Given the inherent instability of supply, governments and private traders underinvest in livestock marketing infrastructure and facilities. The key issue underlying African livestock marketing is not supply but rather strategic public sector interventions to competitive, efficient and flexible markets. Such markets will generate the most broad-based benefits for rural producers and livestock traders (Scoones, 1995; De Haan, 1999).

Private livestock traders are opportunists. During drought periods, they procure animals at very low prices, knowing that producers are trapped for cash to buy grain and other necessities. While some traders may not serve livestock producers well, this does not mean conspiratorial, clan or class-based conflict. It is true that buyers and sellers have diametrically opposed interests, particularly if they are buying on open, spot markets and mutual trust between buyer and seller does not build up (Williamson, 1997). Yet, despite the fact that traders strive to procure animals from producers at lowest prices, studies of returns to livestock trading enterprises typically show that net returns are modest (Staatz, 1979).

Given the difficult macro-economic conditions and fiscal stringency prevailing in most African countries under structural and sectoral adjustment programmes, expanding existing parastatal agencies or creating new ones are not viable options (Moorehead, 2004). Many parastatals have been dismantled, including Zambia’s Cold Storage Board (ZCSB), Somalia’s Livestock Development Authority (SLDA), the Kenya Meat Commission (KMC) and Mali’s Office Malien du la Viande (MOMV). Parastatals that remain are liquidating assets and shifting certain commercial functions to the private sector, or contracting out some operations, such as transport or storage (Hogg, 2001; Herman, 2004).

In addition, the performance of government marketing boards, with the exception of a few export-oriented parastatals, has been uneven in most sub-Saharan Africa (Woodward, 1992).

Even once praised multi-purpose boards, such as Agricultural Development Marketing Corporation (ADMARC) of Malawi, have come in recently under extensive criticism. Rather than consider creating new public organisations for livestock marketing, “the focus needs to be on what the public sector can do to support, strengthen and facilitate private sector marketing to be responsive to variable supply and demand conditions” (Scoones, 1995: 84).

Kirsten (2001), notes that rural livelihoods in sub-Saharan Africa engage in a wide range of activities in order to create a livelihood with which they are able to achieve food security. Food security, according to Kirsten (2001: 76), is defined as “adequate access to food at all times, throughout the year and from year to year.” Livestock is a prominent feature of many African countries in terms of food security, income, employment and resource utilisation. Foster (1986) adds that there is a strong demand for animal products, which has important implications from the standpoints of both human nutrition and trade. But in the last twenty years, Africa’s livestock industry has made very limited progress, it has not responded to the market demand and its sluggishness has acted as a constraint to overall economic management. Poor marketing has been the major constraint facing small scale farmers and this has resulted in the conservative and low off-take rates from the traditional sector (Holtzman *et al.*, 1992).

One of the most pervasive, powerful and unaltered sources of uncertainty impinging on African agro-pastoral systems is climate variability. Today, climate variability exerts a major influence on human lifestyles and land use patterns. Other problems include; poor marketing, lack of land ownership, poor livestock service provision, inadequate restocking of cattle stock, insufficient and ineffective extension services, recurrent cattle diseases, expensive veterinary drugs and sometimes their non-availability and poor management practices. These have drastically reduced livestock numbers leading to high poverty levels and food insecurity in rural Africa (Scoones, 1995; Herman and Markinen, 2002; Tapson, 1993; Jacksons, 1998). To cope with the fluctuation in forage yield resulting from climatic variability, pastoralists have developed a variety of survival strategies that include:

- Maximizing herd size during favourable periods so that animal losses during drought do not reduce herd size below a variable level;
- Using adaptive breeds and taking advantage of animal physiological processes which make lower demand on forage during periods of low supply;
- Adjusting herd composition so that animals with lower nutrient requirements are kept during dry periods;

- Keeping herds with a mixture of animal species which feed on different components of the vegetation (Scoones, 1995: p. 59).

2.2 Evolution and Development of Cattle rearing in Zambia

2.2.1 Cattle Development Programmes in the Colonial Period

The main interest of the British South Africa Company (BSA Co.) in Northern Rhodesia (Zambia) was the exploitation of the mineral resources. The function of the agriculture sector was to provide sufficient surplus agricultural products to feed the mineworkers. The company felt that this function could best be fulfilled by encouraging the immigration of European farmers. The colonial government's primary objective regarding African agricultural production was to maintain the status quo (Dodge, 1977: pp. 6-7). There were no specific cattle-oriented initiatives presumably because of the pressures from the settler farmers who saw Africans as directly competing with them in the market for beef. However, the various schemes aimed at encouraging the African Farm Improvement Scheme (AFIS) referred to cattle keeping-both in term with the greater use of animal manure to maintain soil fertility and soil conservation by preventing overgrazing (Allan, 1968). This attempt to create an ecologically sound system of mixed farming involved fencing of paddocks within the communal grazing areas to rotational grazing and improved pasture, along with the control of cattle numbers to match the carrying capacity of the grazing areas.

From 1903 onwards, white farmers from South Africa under the BSA Co. settled along the line of rail (from Livingstone to the Copperbelt), especially in the Southern Province of Zambia which had fertile soils and was free from tsetse flies (Roberts, 1976). The land up to twenty kilometres either side of the rail was designated as alienated Crown Land for settlement by European Commercial Farmers and Zambians were pushed in Native Reserves where overcrowding of people and animals led to soil erosion and ecological deterioration. These reserves were established along the line of rail, especially in Southern Province.

2.2.2 Cattle Development Programmes during the First and Second Republics (1964-1991)

The growth of the urban population and the rise in real urban incomes after independence greatly increased the demand for beef. The new government under Dr. Kenneth Kaunda of UNIP introduced measures to meet the local demand. The veterinary services were expanded, especially the number of Veterinary Staff based in villages, while the expansion of the then Cold Storage Board of Zambia (CSBZ) aimed at providing finances to increase

cattle sales. According to Rootselaar and Bwalya (1990: pp 493-513), some of the measures that aimed at increasing beef production among others include the following:

- i. Setting up state ranches to encourage and popularise cattle keeping in the whole country and offer extension services to new cattle keepers;
- ii. Setting up of the CSBZ to purchase cattle from farmers and sell the meat to the public - this organisation was present in all the provincial centres and major towns in Zambia;
- iii. Initiating grazier schemes for farmers living close to state ranches as a way of transferring animal husbandry knowledge and encouraging cattle keeping. Farmers who kept cattle for the state ranches successfully were given some animals as payment;
- iv. Importation of beef breeds of cattle such as the Boran and Afrikander bulls to cross breed with the local cattle aimed at improving the quality of local cattle breeds;
- v. Provision of credit for the purchase of cattle, oxen and farm implements through the Lima Bank and Agricultural Finance Company (LBAFC) - these measures, however, were superseded by privatisation and liberalisation of the agriculture sector in 1991.

During this period, the government tried to achieve its food production goal by encouraging a variety of production farms, including socialist farms, cooperatives, state farms, settlement schemes, Intensive Development Zones (IDZs), and parastatal enterprises that were strongly supported among others. The Agricultural Finance Company (AFC) routinely provided seasonal loans for about half the farmers in Southern Province, while the Cattle Finance Corporation provided loans in kind for the farmers involved to build up their stock. "The statutory body, the Cold Storage Board, purchased beef and the agricultural extension services that were theoretically available to provide advice or veterinary service when required" (Baylies, 1979: 71).

In Namwala, dip tanks, spray races, dams, veterinary laboratory, trained field officers, a quarantine station to regulate movement of cattle and routine vaccination of cattle were provided at the District Office. The tsetse control programme in the District improved animal health and reduced mortality rate, calving, management and grazing systems. However, the impacts of drought, technical and managerial problems together with cattle diseases were major detrimental factors that hindered livestock industry in the District.

2.2.3 Neo-Liberal Reforms and their impact on Agriculture and Livestock sector (1991-2001)

The MMD under Dr. Fredrick Chiluba embarked upon the Structural Adjustment Programme (SAP) by introduction of market liberalization by which the government removed subsidies on fertilisers and other inputs, decontrolled prices of commodities including maize, and opening up marketing so as to attract competing marketing organisations. These efforts were, however, coupled with adverse weather conditions that made food production systems vulnerable to both policy and environmental shocks (GRZ, 1998: 28).

In Southern Province, due to lack of clear government policy on the livestock sector, the devastation of livestock by outbreak of cattle diseases such as Foot and Mouth Disease, Heart water and East Coast Fever (Corridor disease) exacerbated the impact of food insecurity situation. Since cattle are a source of draught power in Namwala, their loss due to livestock diseases and drought has reduced the area cultivated for maize and other cash crops (Kalapula, 2007). Livestock diseases have led to a decline in cattle numbers from 123,421 in 1998 to 109,746 in 1999, 98,797 in 2000 and 95,287 in 2001, and 94,961 in 2003 to a slight increase of 95,581 in 2004. For this reason, livestock losses rendered some families vulnerable especially in Baambwe area. This is because cattle is a source of livelihood as it can be sold to raise income that can be used to purchase available grain and other requirements on rural markets in the district (Kalapula, 2007: 26).

2.2.4 Interventions in the New Deal Administration on Agriculture and Livestock Sector [NDAALS] (2001 to-Date)

The government under the late president Levy Patrick Mwanawasa in 2001 undertook deliberate measures aimed at rebuilding the resilience of small-scale farmers who had experienced both policy (SAPs) and environmental shocks (droughts and floods) in the past ten years (Kajoba, 2008: 26). This rebuilding aimed at reducing poverty by increasing food production, as well as ensuring national and household food security through the promotion of the production by small-scale farmers of cereals, legumes, roots and tubers as well as livestock restocking (GRZ, 2004).

In order to sustain livestock production, the government in Southern Province provided services aimed at improving animal health and control of livestock diseases. Some of the measures include vaccination of cattle against FMD and corridor diseases, restocking, stocking and increasing overall production, productivity and management of marketable livestock and livestock products (GRZ, 2008). In Namwala, about 86,000 herds of cattle

were vaccinated against FMD and 300 heifers were purchased and distributed to four Chiefdoms in the district as part of cattle restocking programme in 2007. It is in this regard important to integrate crop production with cattle husbandry and land tenure in Zambia and Namwala District in particular to improve people's livelihoods and food security situation.

In the FNDP, the objective towards livestock development was to improve the productive efficiency of the livestock sector in a sustainable manner and support the marketing of both livestock and livestock products and contribute to food security and increased income. The strategies during the FNDP were to:

- i. regulate and control the quality of livestock, livestock products and stock feeds;
- ii. promote private sector participation in the provision of livestock and extension services and in marketing of livestock and livestock products;
- iii. create and promote awareness in the conservation of animal genetic resources;
- iv. facilitate implementation of disease and vector control programmes with private sector participation;
- v. establish the emergence disease control fund to control transboundary animal diseases, such as FMD, CBPP, etc.;
- vi. rehabilitate the vaccine unit;
- vii. strengthen the early warning system;
- viii. establish two disease free zones by 2010;
- ix. devise efficient and sustainable diagnostic techniques in investigations of diseases;
- x. enforce all legislation in the livestock sub-sector;
- xi. promote and establish of abattoirs in livestock production areas and
- xii. encourage, supporting and promoting poultry and small livestock enterprises as a way of empowering women and female headed households (GRZ, 2008: 50).

2.3 Traditional Cattle Keepers in Zambia

Cattle have been kept for a long time by most tribes in Zambia's Southern, Western and Eastern provinces and those living in the extreme northeast region near the Tanzanian border. In other parts such as Northern and Luapula Provinces of the country cattle keeping is difficult because of tsetse infestation and traditionally people in these areas have not had any cattle (Beerling, 1986).

Zambia, just like any other Sub-Saharan country also has its economy partly depending on livestock. According to Triffen and Mulele (1994: 46), "about 80 percent of cattle in Zambia

are held by traditional farmers, the rest are on large scale ranches.” Phiri (1989) says about 50 percent of the total cattle production in the country is found in the traditional farming sector of Southern Province.

Jaspan’s (1953: 32) arguments compliment Nestel *et al.*, (1973), ideas that cattle are kept by traditional farmers for the following reasons among others:

- Most important for agricultural use, draught power for ploughing and manure provision.
- Cattle are easy to convert into cash. They act as a security for any eventuality, which requires financial obligation such as payment of school fees, purchase of food in times of drought and purchase of essential commodities such as blankets or ploughs.
- Cattle also have an investment function, which can be compared to that of a long-term security derived from a savings account. In this security function, cattle play as something to rely on in old age. This function can be compared to a pension.
- Cattle play a central role in various ways such as in marriage payment and female initiation ceremonies, funerals and religious rituals.

In Southern Province, traditional cattle keeping is largely among the Ila people of Namwala and the plateau Tonga. Smith and Dale (1920), stresses that the Ila and the Tonga tribes are prominent pastoralists and value their animals highly for their social and economic life. In addition, Fielder (1973), states that livestock plays a critical role in food security and selling cattle has been, particularly important in Namwala as a coping strategy following the recurrent droughts in the 1950s. This is, particularly important because the proportion of households owning livestock is higher compared to many other places in the province.

According to CSO (2003), there were about 454,629 agricultural households involved in raising livestock in Zambia in 2000. Goat-raising households constituted 38.7 percent of all livestock raising households, while cattle-raising households made up 35.2 percent of livestock-raising households. Pig and sheep-raising households made up 22.5 percent and 3.0 percent respectively. There were very few households that raised donkeys in each province and made up the least percentage with only 0.6 percent. The total households in Namwala were found to be 12,072 of which 86 percent were male-headed and 14 percent female-headed (CSO, 2003).

There were a total of 230,967 households raising cattle in Zambia by 2000. These households constituted 35.2 percent of all livestock-raising households (excluding poultry-

raising households). Out of the total number of cattle-raising households, Southern Province accounted for 24.4 percent, followed by Eastern Province with 23.4 percent while Western Province recorded 21.8 percent of the total cattle raising households. Luapula Province had the smallest number of cattle-raising households, accounting for only 1.0 percent of the total.

In addition, there were very few households that raised donkeys. However, Provinces recorded significance numbers due to the deliberate policy by government in promoting the use of donkeys as an alternative source of draught power. Table 2 shows that there were a total of 4,208 households raising donkeys in the country. These constituted 0.6 percent of all livestock-raising households. Of this number of donkey-raising households, Southern Province accounted for the most 36.0 percent, followed by Western Province with 18.9 percent while Central Province recorded 10.0 percent of the total number of donkey-raising households. “North-Western Province had the smallest number of donkey-raising households accounting for only 2.7 percent of the total donkey raising households” (CSO, 2003: 44). Southern and Western Provinces had the highest distribution of donkeys from the government in an effort to increase them as a source of draught power to replace cattle that had been affected by diseases since most of the people in these provinces depended on cattle for their livelihood especially for agricultural purposes. Table 2 outlines the livestock-raising households by province and type of livestock kept in Zambia;

Table 2: Livestock-Raising Households by Province and Types of Livestock in Zambia

PROVINCE	TYPE OF LIVESTOCK				
	Cattle	Goats	Pigs	Sheep	Donkeys
Central	26,956	30,162	7,144	598	419
Copperbelt	3,302	9,463	5,285	1,786	300
Eastern	54,014	58,865	63,627	6,921	403
Luapula	2,237	19,064	9,761	1,524	136
Lusaka	5,710	9,260	2,933	523	199
Northern	21,852	51,445	24,134	4,691	326
N/Western	10,183	17,539	6,368	2,150	115
Southern	56,292	49,306	20,032	1,264	1,513
Western	50,421	8,432	7,684	153	797
TOTAL	230,967	253,539	146,968	19,610	4,208

Source: CSO (2003) p.32

The present distribution of livestock varies widely between ecological zones and is determined, particularly by the distribution of forage and water supplies and by the risk of disease (Foster, 1986). Major constraints that hinder livestock production especially cattle in Namwala (Zambia) are cattle diseases and parasites, poor nutrition and poor husbandry

practices. For decades now, livestock diseases have continued to pose a challenge to the development of the livestock industry in Namwala. Since cattle in Namwala District are a source of livelihood for many people, their loss due to diseases and the impact of drought, have led to reduced area planted of maize and other cash.

There are more cattle in the hands of traditional herders than commercial farmers in Zambia. According to CSO (2007), there were 2,102,245 cattle reared by traditional farmers compared to 413,345 reared by commercial farmers in 2000. This marked difference in numbers arises from the value that the traditional herders place on the quantity and not quality of their livestock in addition to lack of established markets. It is more prestigious for a man to have 500 cattle than to have 50 fat and healthy ones. However, in spite of the efforts of the government to increase production of beef, the response from traditional herders remains conservative. They only sell their animals when they have problems such as raising school fees for their children and settling disputes which require paying money. It is estimated that the traditional cattle keepers sell only three percent of their animals compared to commercial farmers who sell about fifteen percent (CSO, 2005).

In Zambia today, livestock farmers are encouraged to take as much land as they wish under the leasehold tenure system and charge any price that will make them operate profitably for their animals and beef. For example, Zambezi Ranching and Cropping (ZRC) has been given 80,000 hectares of land for cattle ranching in Mazabuka area and Nanga Farms in the Kafue Flats; expanding from 80 hectares to 1,600 hectares under the Commonwealth Development Corporation (CDC) investment. Cattle ranching is a major activity on this farm. On these ranches, cattle are raised from calves to the slaughtering age. Zambeef is another cattle ranching company that has contributed greatly to the increase of beef supply on the Zambian market. The company remained in a unique position in the beef industry with eight abattoirs strategically located around the country to gain access to cattle suppliers. The operations of Zambeef include: purchasing and slaughtering of traditional cattle mainly from Southern, Western and Eastern provinces and transporting them in refrigerated vehicles to their Chisamba ranch; dipping, de-worming and fattening cattle on improved feeds such as maize bran, molasses, cotton-seed cakes for about six months before slaughtering them; distributing the beef to butcheries in major towns using refrigerated trucks.

However, cattle diseases pose a challenge to the development of livestock sector in Zambia and Namwala in particular. Mungaba (1988), reported that the corridor disease has been a

major killer of cattle in Zambia and has become a major constraint to the development of livestock industry in Zambia with losses of about ten thousand cattle per year, especially in the traditional sector. The disease has been enzootic in certain parts of the country like Southern, Central, Western and Copperbelt Provinces (Chizyuka and Mangani, 1987).

Munyama (1994) reported that in Southern Province alone by 1993, cattle population in the traditional sector had gone down by 70 percent. It was reported that two thousand cattle died of corridor disease alone within two months in 1992 in Southern Province. The paper indicated that Southern and Western Provinces had provided 'boiling pots' due to corridor disease. In addition, GRZ (2001) noted that there was a decline in the heads of cattle slaughtered in 2001 from 18,669 in 2000 to 14,120 mainly due to outbreaks of various cattle diseases in Southern and other provinces.

With respect to markets, Zambia could raise about US \$1.5 billion per annum if it matched Kenya's cattle production. Countries like South Africa, Botswana, and Kenya have taken advantage of their livestock industry and are earning large amounts of money from both beef and milk exports. Zambia can export its products to neighbouring countries like the Democratic Republic of Congo (DRC) which is a huge market. Zambia has four times more grazing than arable land and three agricultural zones which are suited for livestock production. When well utilised, Zambia can match Kenya's cattle population which would rise to US \$4.5 billion additional value in total beef exports. Furthermore, the cattle industry would increase its GDP contribution to the national treasury by ten percent instead of the current one per cent (Sinha, 2010).

Zambia can also emulate countries like Namibia and Botswana which supply beef to South Africa and export some to Europe. Also, apart from Congo, Angola is another potential market for beef products. In addition to regional markets, Zambia could take advantage of the international markets which are huge and very competitive. At the moment, world beef and dairy trade is worth about US \$50 billion, a share to which Zambia could be part of. Increasing cattle production is good for reducing poverty in rural areas since cattle are the largest asset which they own. There is need to help the traditional cattle farmers to improve on their farming techniques so that they can take advantage of their assets (cattle).

Sinha (2010), further contends that there is need to reduce the cost of production livestock related products as it undermines competitiveness. At the moment, the cost of feed, drugs

and medicines costs higher in Zambia than in countries like Botswana and Kenya. Other factors like access to veterinary services are also affecting the increase in cattle population in Zambia. Also, high fuel costs and constant power outages contributes to the high cost of doing livestock-related business in Zambia. Furthermore, lack of infrastructure such as rail lines and the use of road transport (usually in deplorable state and impassable during rain season) make Zambia to be three times more expensive in vaccines than countries like South Africa. Financial inaccessibility also makes it difficult for farmers to access the much needed finances to grow their businesses related to the cattle industry.

2.3.1 The role of Cattle Industry in Namwala District

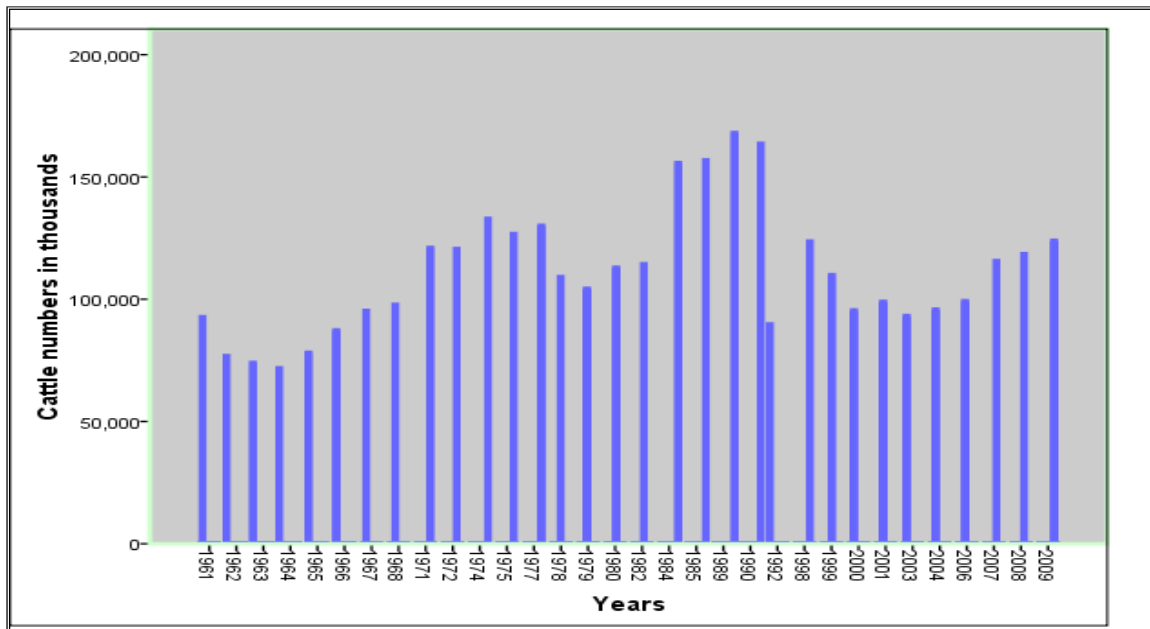
As to where the *Ilas* originated from, there are so many accounts by various researchers. But if you ask a typical old Ila person, the response you would get is “*uswe twakaseluka kuhwa kwizeulu ulubono lwesu*” meaning; ‘we descended from heaven with all our possessions and animals’. They point to a stone found on the banks of Namwala River which has all types of foot prints ‘to prove this point’. It goes without saying that the Ila are simply part of the Bantu speaking people. According to CSO (2002), the Ila language is spoken by more than half a million people and is the 19th most popular and spoken language in Zambia, out of 72 languages. The *Ilas* are part of the Bantu Botatwe group which includes Lenjes and Tongas. They are also related to the Kaonde speaking people. Their traditional cousins are the Lozis, Luvales, Luchazis and Mbundas, owing to many battles they fought with these tribes.

Whenever traditional cattle farming are discussed in Zambia, one of the names that come to mind for many people is Namwala district of Southern Province. This is so because even with the decapitating cattle diseases that have ravaged the area in the last decade, Namwala still that has the largest number of traditional owned cattle. This can largely be attributed to centuries of old traditions whose communities’ social economic well being evolved around cattle as evidenced in Figure 1. Wealth and power is measured by the number of heads of cattle one owns. Therefore, cattle rearing in the area rather than crop farming have taken a centre stage. However, that is not to mean that the area lacks potential for diversification in areas such as tourism with nearby Kafue National Park and Itezhi-tezhi Dam.

Within the traditional sector, cattle fulfil a number of roles in social functions, in marriage payments, and through loans to cement family and political ties, while they also contribute to the production through draught power for ploughing and transport, and particularly, through the provision of manure. Cattle are seen as the main form of security in Namwala, being a

store of wealth, and in a way fulfilling the accumulatory role that land fulfils in many non-African rural societies. As a symbol of prestige, the cattle keepers in Namwala rarely slaughter their cattle for food or sell their cattle for commercial gain. Cattle, despite their numbers, do not form the major source of protein in the traditional diet, except in the provision of milk. In Namwala, especially in the Kafue Flood Plain, cattle are herded communally usually on unimproved and unprotected pasture; their grazing is not controlled except during the cultivation season when crops are protected without major land shortages.

Figure 1: Trends in traditional cattle numbers from 1961 - 2009 in Namwala



Source: Namwala District Veterinary Office (2009)

There are no limitations upon the number of cattle that an individual or family can keep. In most cases, the chief owned more heads of cattle in the village because subjects offered herding services. For instance, chief Mukobela² of Baambwe who died in 1958 owned more than 8,000 heads of cattle and more than half were redistributed (*kushisha*) among his subjects. This was to ensure loyalty, power and prestige among his subjects. This is usually referred to as cattle complex argument where cattle accumulation among successful cattle keepers is used as a vehicle through which they strive to enhance their status positions. This

² Chief Mukobela (Lubanga Shabongwe Kakombo) helped in the political struggle for independence by donating cattle to freedom fighters to eat and sell. In 1950, in order to encourage education, and because he disapproved the wasteful of *masuntu* (cattle slaughtered at a funeral) ceremonies, at which large quantities of cattle were slaughtered on the death of every prominent citizen to provide the spirit a herd of cattle for him in the spirit world, he arranged with his people to save 20 of the cattle that would have been slaughtered at his funeral and donated them to the project - Lubanga Shabongwe Basic building project after his death (although 300 cattle were slaughtered when he died). Chief Mukobela also stipulated that a statue of him similar to that of Livingstone at Victoria Falls should be erected on the site in front of the school. The statue was made by a Cape Town sculptor, Mr. Mitford Barberton, from photographs the Chief had in his prime considering he never saw Mukobela either then or now is a remarkably fine likeness. The school was opened at the end of August, 1952 and the statue unveiled by His Excellence the Governor of Northern Rhodesia, Sir Gilbert Rennie.

enabled them to extend social patronage and relationships over others. This custom facilitates the circulation and redistribution of animals in the Ila society. In Namwala, a corollary of the concept of cattle complex is ‘target selling income’ which has been used to contend that because of their cultural attachment to cattle, traditional cattle keepers are unwilling to sell their animals unless there are specific income targets to be met (Mapani 2008), [for various interpretations see HODI: 2009, Fielder: 1973, Jaspan, 1953]. However, Namwala has been a major cattle-keeping District from time immemorial even before independence in 1964 as it can be observed in Figure 1.

Note from Figure 1 that cattle numbers have been fluctuating due to various constraints facing the livestock industry. There were more cattle in 1961 than at independence in 1964 with 92,513 and 71,595 respectively. The highest cattle population recorded in the history of Namwala was 167,813 in 1989 followed by a massive decline in 1991/92 with only 89,570 when thousands of cattle were lost due to the most dreadful corridor disease coupled with severe drought. With the awareness of farmers by the veterinary officers, the number stabilised and rose from 92,975 and 99,038 in 2003 and 2006 to 118,284 and 123,738 in 2008 and 2009 respectively. The ups and downs of cattle population in Namwala have negatively impacted on the national cattle totals, for example, from 1994 to 2008 as shown in Table 3. The greatest decline was recorded in 2007 and 2008 to 2,457,563 and 2,315,327 respectively from 2,799,965 which was recorded in 2006.

Table 3: National Cattle Totals from 1994 – 2008 in Zambia

YEAR	TOTAL CATTLE POPULATION (IN MILLIONS)
1994	2,525,967
1995	2,642,200
1996	2,562,841
1997	2,700,516
1998	2,747,175
1999	2,572,488
2000	2,620,987
2001 ³	1,596,271
2002	2,517,550
2003	2,375,453
2004	2,341,970
2005	2,799,965
2006	2,799,965
2007	2,457,563
2008	2,315,327

Source: GRZ (2009) p. 32

³ About 1,024,716 cattle decline representing 24.3% was recorded in 2001 due to drought coupled with disease outbreaks such as foot and mouth in Southern Province and CBPP in Western Province.

Despite ups and downs in cattle population, Kalapula (1976), stated that the Kafue Flats of Namwala District are an important grazing area for cattle owned by traditional producers, the Ila people. It was estimated that these people grazed about 132,696 heads of cattle on the flood plain in 1974. Namwala District, located well within the Kafue flats zone, has an area of 14,638 Km² of the flood plain. Further, in 1971, there were 35,000 people giving a density of 9.2 persons per square kilometre. Cattle population in that year was 120,872 heads of cattle. It was stated that “this made the Ila by far the wealthiest cattle people in Central Africa, with an average of 15.1 animals to each adult male” (Fielder, 1973: 34).

The significance of cattle can be seen from the ceremonies practiced. As the Ila would say about Shimunenga, *‘kali muntu upona ulya maila’*, translated as ‘he was a human being living and eating like anybody else.’ The Shimunenga Ceremony of the Ba-Ila people of Maala is celebrated in October. The ceremony involves cultural marching in traditional attire and traditional songs are chanted in honour of Shimunenga ancestral spirits at *isaka*. Drums are sounded and most importantly cattle are taken to the river, where they are displayed in the traditional manner to show off as a symbol of wealth in traditional Ila society. The occasion is marked with pit-stops for traditional beer at different places (Mapani, 2008).

However, livestock productivity in Namwala is currently negatively affected by the scarcity of grazing land due to annual floods and recurrent stock diseases. The annual floods and droughts have made agriculture highly variable and unpredictable creating pressure on the plateau between arable and grazing land. Livestock diseases have led to a decline in cattle numbers from 123,421 in 1998 to 109,746 in 1999, 98,797 in 2000 to 95,287 in 2001, and 94,961 in 2003 to 94,581 in 2004. The traditional rural economy that is based on agriculture and more so on cattle keeping has become vulnerable and experiences severe challenges, especially due to recurrent stock diseases that have led to cattle losses. Because of diseases, the government has been involved in cattle vaccination and restocking programmes. Thus, NGOs such as the Heifer International (HI) and Namwala Livestock Support Programme (NLSP) were conceived as a response to the large numbers of cattle deaths due to diseases.

In addition to cattle diseases, the area planted to maize has also been declining since the 1990s. During the 1990/92 farming season about 9,429 hectares were cultivated for maize and 146,566 bags of maize were produced. Furthermore, the area cultivated for maize during 1999/2000 agriculture farming season was 5,634 hectares, 2.0 percent below the area recorded in the 1994/1995 agricultural season which was 6,309 hectares (CSO, 2001). A

further reduction in the area planted to maize was recorded in the 2003/2004 agriculture farming season. This gave only 603 hectares of area cultivated for maize and about 18,488 50Kg bags of maize were produced (CSO, 2005). Other crops such as sorghum, cotton, groundnuts, millet, and cassava production have also been declining due to droughts and floods caused by climate change, lack of markets to sell their agricultural produce, late delivery of inputs and lack of priority attached to these crops to mention just a few.

2.3.2 Management of Wetlands: The Kafue Flood Plain

Wetlands are areas that are periodically or permanently flooded with water not exceeding several metres. This includes swamps, floodplains and dambos. Floodplains are zones along major river systems that are low-lying and seasonally flooded. They are of great socio-economic significance in Southern Africa due to the extent to which local communities rely on them for agriculture, fisheries, and wildlife (Breen *et al.*, 1997).

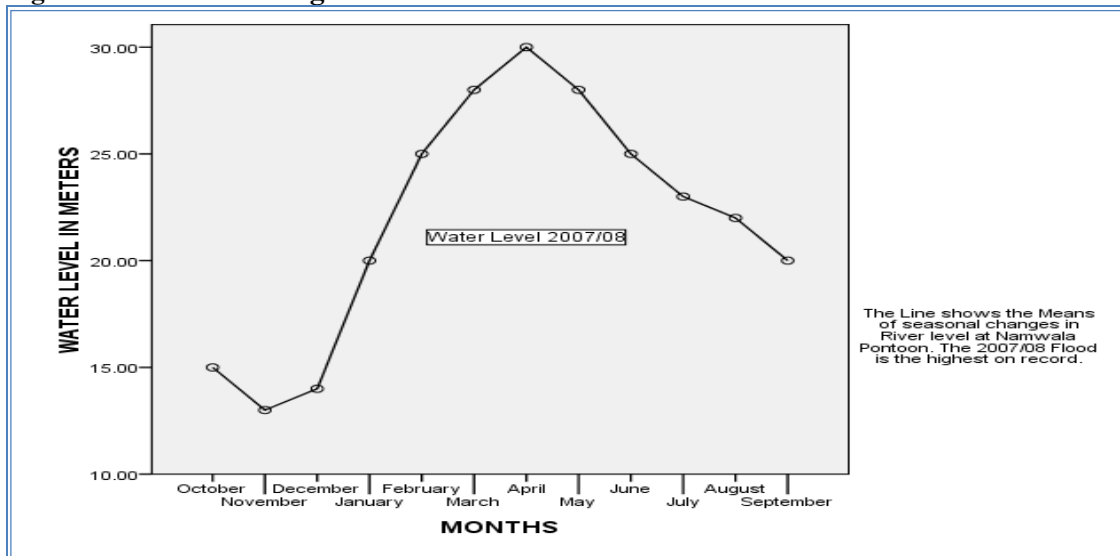
According to World Wide Fund for nature [WWF], (2006), the worlds major Wetlands such as the Danube Delta in Ukraine, The Amazon Basin in Brazil, The Kanabatangan Floodplains in Malaysia, The Yangtze River Basin in China, The Kafue Flats in Zambia to mention just some are of great value in terms of agriculture, fishing and protection of biodiversity. Partners for Wetlands focal projects in China, Brazil, Malaysia, Zambia and Ukraine are actively pursuing strategies to reverse the decline of globally significant wetland ecosystems, and in so doing, ensure that future generations will continue to be delighted by these wetland inhabitants as in ages past (WWF, 2004: 2).

The Kafue Flats, located along the Kafue River, stretch from Itzhi-tezhi Dam upstream to the Kafue Gorge downstream. It is 1,600 Km long from its source to mouth and of course the biggest and longest river wholly confined within Zambia. The catchment's area of the Kafue River Basin is 154,000 Km². This river basin is considered the most dynamic and active in the country and drives much of the national economy. Improving the water management regime in the flats has the potential to lead to greater ecological sustainability, improved natural resource availability, national development and greater food security for local communities [Food and Agriculture Organisation (FAO), 1968].

The seasons 2000-01 to 2007-08 provides us with estimates of areas flooded. The maximum area flooded at any one time ranged from 3,190 Km² in 2000/01 to 6,511 Km² in 2005/06. The 2007/08 flood (Figure 2) is the highest on record, covering many peripheral areas that

had not been flooded before. The duration of the flood also varies from year to year and that flooding is more prolonged at the lower end of the flats. At Namwala Pontoon, the river usually remains above 6.7m level from 56 to 190 days. The flood, however, rises more rapidly than it falls. At Namwala Pontoon, the mean rate of rise is 0.04m/day and the mean rate of fall is 0.02m/day.

Figure 2: Seasonal Changes in River level at Namwala Pontoon in 2007/2008 Season



Source: Namwala District Water Affairs Office (2009)

The Kafue Gorge Dam was completed in 1972 and the Itzhi-tezhi Dam in 1978. Creation of these dams is very beneficial as well as a thrilling human action. Both at Kafue Gorge and Itzhi-tezhi, large stretches of open water present new scenery. Tremendous influences of these reservoirs have been felt by all forms of plant, animal and human life (see Appendices VII and VII). It was established that the flow of the Kafue River has been substantially changed. The effect was inadequacy of grazing ground for cattle and extremely detrimental spawning areas for fish (Sheppe and Osborne, 1971: 23).

Pastoralism constitutes a vital source of livelihood for the people of Namwala, based on the annual cycle flooding of the floodplains of the Kafue River. Artesian fisheries are another important source of income but have from time to time been hampered with recent years of flooding disasters as a result of unusual rainfall patterns due to climate change. The Zambian water sector faces major challenges in terms of technical, financial, and institutional capacity due to lack of Wetlands policy. Efforts to address these issues are ongoing but are constrained by various factors, including a current slowing down of the planned decentralization process.

Smith and Dale (1920), indicated that given the primary economic use of the Kafue flats at present as a winter grazing ground, cattle rearing provide draft power leading to increased agricultural productivity. In addition, the receding floodwaters deposit fine silt sediments ideal for growing crops such as irrigated rice that can be grown during the warm summer season, with stock rearing as a complementary activity. Foster (1953: 373), argues that “this procedure is normal in Texas and Louisiana (United States), and there seems to be no reason why it could not be carried out on the Kafue flats”.

2.4 Customary Land ownership in Namwala and the livestock sector

Land tenure is defined as “the rights of individuals or groups over arable, grazing and residential land, how such rights are acquired, what they consist of, how they operate in the holding, transfer and inheritance of land and how they may be extinguished” (White, 1957: 172). Zambia’s land tenure is categorised into two main systems: Customary and Leasehold. As at independence, about 94 percent of the total land in Zambia fell under the customary land tenure system that is controlled and allocated by traditional authorities (Economic Commission for Africa [ECA] (2003). The leasehold tenure, accounting for six percent of the total landmass, provides for the title deeds for a period of 99 years. “This tenure system provides a sense of security and places value on land for commercial transactions,” (GRZ, 2002: 55). Land ownership under statutory tenure system is often built on leasehold entitlements to the land and offered exclusive rights to the owner that guarantee security including grazing rights (Birgegard, 1993).

Land ownership in Namwala is generally under customary tenure. Land is communally owned and the chief is the custodian of the land on behalf of the subjects. Most individuals own land through lineages or clans in a given chiefdom. The subjects usually pay something in form of cattle in order to own land. This ownership is permanent as long as individuals remain using that particular piece of land. More than 70 percent of the active population in Namwala are dependent on land for the livelihood that includes the management and utilisation of the Kafue flood plain for arable and grazing purposes. Farmers cultivate their land or graze their animals and control how to use it and reap the benefits to themselves (Kalapula, 1984). However, there is increase in land ownership in which individuals acquire title deeds on the upland. But the flood plain is not allocated to individuals; it is a communal grazing, farming and fishing area solely owned by different chiefs. The traditional or customary tenure in the study area is characterised by the following factors;

- i. Land resources are controlled within the traditional tenure system.
- ii. Land use and land rights are matters which are governed by culture and written by customary law.
- iii. Under customary tenure every household has the right to;
 - cultivate as much land as they can manage.
 - graze livestock anywhere except on land actually under crops.
 - take timber from the woodland reserves for building and for firewood
 - use water resources of the land for various uses.
 - use sand, stones, and other unclassified minerals from the communal land resources and
 - choose a site on which to build a house or do farming as long as the Chief in the area concerned is consulted.

To conclude this chapter, literature has pointed out that land is one of the most important resources available to rural small-scale farmers. Livestock, especially cattle, play an important role in realising family goals through provision of manure, draught power, slaughter during funerals, marriages, traditional and initiation ceremonies and social status. The available literature, however, does not provide information on changes in production goals and rationale among different categories of traditional cattle keepers in Baambwe and Maala areas in Namwala District. There is no data on the change in goals and adaptive strategies under different social and economic circumstances especially in the contexts of recurrent livestock diseases and climatic variability. Also lacking is the extent to which the commercial buyers such as Zambeef and Starbeef have transformed the rural economy in Baambwe and Maala areas with regularised markets from the time abattoirs were established there in 2005 and 2008 respectively. There is also a gap in readily available information on the contemporary changes in cattle value, acquisition and redistribution, herd management practices and recent government interventions in the promotion of livestock production.

CHAPTER THREE

DESCRIPTION OF THE STUDY AREA

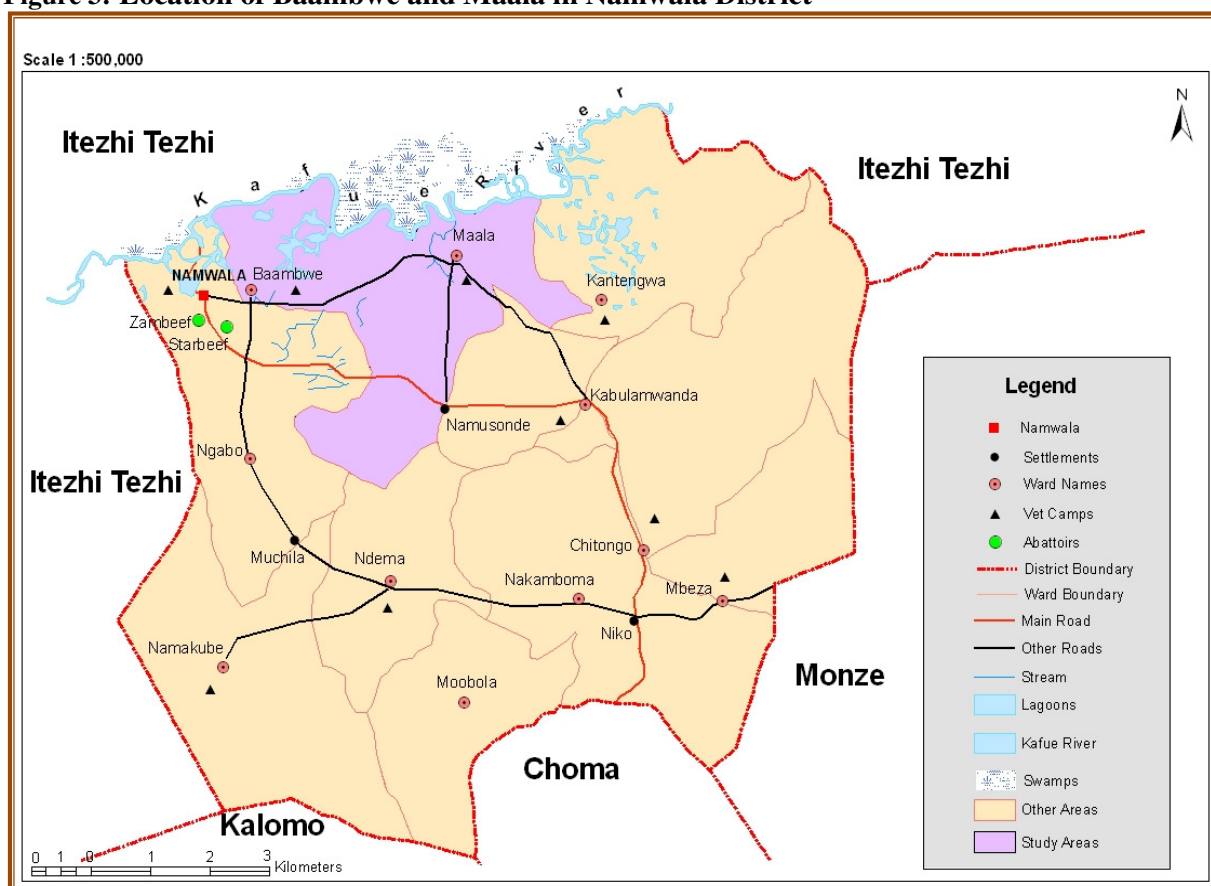
3.0 Introduction

This chapter focuses on the description of the study areas (Baambwe and Maala) in Namwala District along the Kafue Flood Plain. It comprises of eight sub sections namely: location of the study areas, climate, soils of the Kafue flats, vegetation, the Kafue river flow and annual floods on the Kafue flats, geology and typology, population and socio-economic activities.

3.1 Location of Baambwe and Maala areas Namwala District

Namwala District is about 2,175,064 hectares in extent. It is found within the latitudes 15°45' and 15°55' south and longitudes 26°22' and 26°35' east. Baambwe and Maala areas are located in the northern end of Namwala along the edge of the Kafue Flood Plain as shown in Figure 3.

Figure 3: Location of Baambwe and Maala in Namwala District



Source: Geography Department, UNZA (2010)

Namwala is generally a rural district situated in the northwest of the Southern Province of Zambia. It is bordered by Monze District in the east, Kalomo District in the south, Choma District in the southeast, and Itezhi-tezhi in the southwest. It is located 170 km North West of Choma town and 158 km from Monze town and 350 km from Lusaka City. Most parts of the study areas lie in the Kafue basin zone with seasonal flooding being prevalent.

3.2 Climate

Baambwe and Maala generally receive an average of about 800mm of annual rainfall that declines southwards. The presence of distinct wet and dry seasons has a profound effect on cattle husbandry and agricultural regimes in the study areas. The minimum temperatures are at their lowest in June and July when they average 5.5 °C and 7 °C. “A fairly rapid rise in temperature is recorded in October until December and January when they are maintained at about 17 °C, until the end of the rain season,” (Food and Agriculture Organisation [FAO], 1968: 34). Table 4 highlights the mean annual rainfall statistics at the Meteorological station.

Table 4: Monthly Rainfall Distribution in Namwala in mm

J	F	M	A	M	J	J	A	S	O	N	D
20.03	16.58	15.20	0.23	0.03	0.03	0.03	0.23	0.23	1.53	7.70	29.50

Source: Namwala Meteorological Station, 2009

Although fishing is a year-round economic activity in Baambwe and Maala, some people only engage actively in this venture at the height of the annual flooding in February and March. Large numbers of fish take advantage of this flooding for spawning purposes. In turn, the inhabitants over many years have timed this unfailing habit of the fish called *ikuwo*, and kill large amounts of fish particularly barbell fish locally known as *babondo*. The Ila people rarely fish. Instead immigrants such as Lozi, Bemba, Tonga, Luvale and Kaonde are involved in this activity (Sheppe and Osborne, 1971).

3.3 Soils

According to FAO (1968), the soils of the Kafue flats as very heavy-cracking clays, sticky when wet and hard, cloddy when dry. According to Trapnell and Clothier (1996), they listed the Kafue flats soils under the general heading of ‘Valley’ and ‘Flood Plain Grasslands’. Soils along the edges of the Flats in Namwala have been classified as ‘Upper Valley Soils’ and ‘Lower Valley Soils’ and other alluviums that support flood plain variety of grasses. The receding floodwaters leave silt sediments that support a wide variety of grains. The soils are

alluvial in nature and of sedimentary origin. Clay is dominant in both Baambwe and Maala as shown by the extreme cracking of the soil during the dry season. The heavy-cracking soils in the plains of these areas are difficult to cultivate except with special skill, care and timing according to their condition. Generally, the areas are covered by alluvial soils varying in texture and colour from dark coloured topsoil to sandy loamy soils. These support a wide variety of grass used for grazing cattle.

3.4 Vegetation

The main vegetation type in Baambwe and Maala is generally woodland savannah. This vegetation is characterised by *Brachystegia* and *Combretum* species and open grasslands. Typical riverine trees including some evergreen bush species which occur in places along the river banks. The woodlands are protected as reserves on the plateau. In addition, a wide range of vegetation types consists of many species of natural vegetation. Trapnell and Clothier (1996), points out that the range reflects the different soil types and the various climatic and flooding conditions. The effects of grazing by cattle and those burning are also reflected. These are the floodplains, swamps, and dambos. Flooded areas support a rigorous growth of aquatic species such as wild rice (*Oryza Barthii*).

3.5 The Kafue River and Floods

The Kafue River is a major tributary of the Zambezi River which joins it 70 km below the Kariba Dam. With a total length of almost 1,600 Km from the source to the mouth, the Kafue River is the biggest and longest river wholly confined within Zambia. In both Baambwe Maala areas, there is a vast flood plain that gives them great potential for grazing purposes. Every year, the Kafue River floods a broad level area to a depth of up to 235km long and up to 40km wide. The floods have been used for cattle rearing and limited cultivation. Cattle herders drive their herds of cattle on the Kafue Flats for their respective outposts (*kumantanga*) as the waters recede, at the time when forage on the uplands becomes scarce. Most farmers prefer to cultivate along the edges of the Kafue flood plain where the soils are more fertile than on the plateau (FAO, 1968).

Cattle remain the mainstay of large numbers of subsistence peasant farmers. The prosperity of the cattle economy in Baambwe and Maala is based on the cycle of flooding in the Kafue Flood Plain (*ibanda*) from time immemorial, which provides year-round naturally irrigated pasture. People take their cattle on the upland (*mulundu*) since the plain is wet in December and flooded around March. Transhumance system leads to competition between grazing and

arable land because the upland tends to be overstocked. The common hyparrhenia grasses are palatable when young, but are coarse and less nourishing as they ripen. This results in cattle losing weight. There is no forage for off-season consumption other than stalks of maize available after harvesting in April. After this time the floods begin to recede and cattle begin to follow the receding floods on the Kafue Flood Plain (see Appendices VI and VII).

3.6 Geology and Topography

Areas of the Katanga- Kundelungu (Zambia) formations are the main geological features underlying the greater part of the Kafue Basin. Large Pleistocene formations exist in the flatter parts of the basin, where flood plains and swamps exist, including notably the Kafue Flats. Much of the Kafue Flood plain consists of isolated hills with the general terrain ranging from undulating to flat.. Most of the land in these areas is generally flat but slightly slants towards the Kafue River. The altitude of the study areas is between 1,100 and 1,300 meters above sea level (see the photograph in Appendix VI).

3.7 Population

Namwala District has one parliamentary constituency, which is divided into 12 wards. The district has four chiefs namely: Mukobela, Mungaila Muchila, and Nalubamba. The population distribution according to CSO (2002) is shown in Table 5. Baambwe is 8km away from Namwala town with a population of 13,470 people and Maala about 25km from Namwala town with a population of about 16,862 people.

Table 5: Household Population in Twelve Wards of Namwala District.

WARD No.	WARD NAME	MALE	FEMALE	TOTAL	HOUSEHOLDS
1	Baambwe*	1,411	1,463	2,874	515
2	Chitongo	2,049	2,127	4,176	554
3	Kabulamwanda	2,236	2,348	4,584	629
4	Kaluweza/Ngabo	2,725	2,774	5,499	927
5	Kantengwa	2,402	2,216	4,618	806
6	Maala* ⁴	2,616	2,760	5,376	824
7	Mbeza	1,377	1,381	2,758	427
8	Moobola	6,096	6,578	12,674	1,897
9	Nakamboma	9,281	9,843	19,124	2,569
10	Namakube	4,518	4,796	9,314	1,420
11	Namwala Central	2,736	2,796	5,532	977
12	Ndema	3,039	3,442	6,281	821
	TOTAL	40,486	42,324	82,810	12,075

Source: CSO (2002) p. 12.

⁴ *Represents Baambwe and Maala study areas. Note that there were 515 households in Baambwe and 824 households in Maala. This is because Maala ward (5,376 people) is bigger than Baambwe ward with 2,874 people. The total gives 1,339 households out of the district total of 12,075 households. The study areas have a combined population of 8,250 out of 82,810 for the district.

The population of the whole District was 56,058 in 1980, 61,848 in 1990 and 82,810 in 2000. The 2000 population, however, represents only seven percent of the whole population of Southern province. According to Fielder (1973), the Ila speaking people largely occupy the District. They are closely related in language and culture to their more numerous Tonga neighbours in Southern Province.

3.8 Socio-Economic activities

Despite more emphasis on cattle rearing, the Ila people also grow crops (Table 6). *Baila* people do practice crop husbandry on both the plateau and the Kafue flood plain. Jaspán (1953), indicates that the main crop is maize, which together with sorghum, pumpkins, beans, millet and other lesser crops are grown during the single wet season (November to April). In periods of drought, cattle in the study areas are always exchanged for grain with people who had good harvest. According to Trapnell and Clothier (1996: 53), “the rotation employed varies according to the soil, which was judged by its trees and tallness of grass cover.”

Table 6: Area Planted (Maize), Production, Rainfall and Rain Days for past 7 seasons in Namwala District

Season	Area Planted in Ha	Production MT	Rainfall Receive(mm)	Number of rain days	Cattle numbers
2000/01	17,640	52,100	583	60	98,797
2001/02	15,961	7,650	349	23	95,287
2002/03	15,993	34,283	591	62	95,056
2003/04	17,253	48,810	661	41	94,961
2004/05	16,959	18,994	553	28	95,581
2005/06	15,800	57,143	815	38	98,048
2006/07	13,640	33,156	816	48	99,038

Source: Namwala District Agriculture and Cooperatives Office (2009)

In essence, among the Ila and Tonga people, cattle are the best possible investments used in crop production. On the plain margins along the Kafue Flats, there are fertile pockets of land in addition to cattle manure that enable these people grow enough crops for themselves (McClean, 1961). The loss of cattle to diseases and the impact of drought, have led to reduced area planted to maize and other cash crops. The area cultivated by small-scale farmers declined from 53.7 percent in 2005/06 to 46.3 percent in 2006/07 farming seasons as shown in Table 6. This decline is partly attributed to the reduction in cattle numbers which resulted into decreased area cultivated for maize in hectares and production in metric tonnes. Overall, the study areas have similar geographical, climatic and socio-economic conditions.

CHAPTER FOUR

METHODOLOGY

4.0 Introduction

This chapter outlines the methods that were used in the field to collect and analyse data. The sub sections include: factors that were considered for the selection of the study area; sample size and sampling procedure; data collection methods through secondary and primary sources such as; questionnaires and interview schedules; observations; limitations and; data presentation and analysis.

4.1 Selection of the Study Area

Baambwe and Maala areas are typically rural and have the highest herds of cattle and they cover the largest area along the Kafue Flood Plain in Namwala, making them the most representative in the District. The main characteristic of these areas is an expanse plain ideal for rearing cattle hence harbours the highest concentration of livestock necessary to examine the socio-economic transformations among cattle keepers. All activities in these areas entirely depend on the utilisation of the Kafue Flood Plain. In addition, the areas are easy to access due to their location within a short distance from Namwala town, the Kafue Flood Plain and the main road to Monze and Choma where Zambeef and Starbeef abattoirs are found. Further, there is no previous comprehensive study done in the areas to assess the socio-economic changes among cattle keepers after the establishment of the abattoirs.

4.2 Sample Size

A sample size of 98 household heads was selected from Baambwe and Maala areas in Namwala District for interviews. Baambwe has a population of 2,874 and 525 households while Maala has a population of 5,376 with 824 households. Thus, a proportionate sample of household heads was interviewed with 40 and 58 respondents from Baambwe and Maala respectively. In addition, six key informants were purposively selected: two Chiefs; District Veterinary Officer; two Abattoir managers from Zambeef and Starbeef and HODI Director.

4.3 Sampling Procedure

The research used interval or systematic and purposive sampling techniques in the selection of the sample. Since most cattle keepers belong to cooperatives under the government sponsored Farmer Input Support Programme (FISP), complete lists/registers of all the farmers, who are also cattle keepers, were utilised. In this regard, Interval or Systematic

Sampling was appropriate. This technique was based on the selection of elements (names) at equal intervals, starting with a randomly selected name on the population/cooperative list. The targets were household heads; wife or husband. In an event where both were absent, the eldest member of the family was interviewed. Five cooperative lists were used in Baambwe while seven were obtained from Maala. After sampling, they gave a proportionate sample of 40 and 58 respondents respectively. The population in the study areas is concentrated or clustered with many farmers having their fields on the outskirts of the villages. For this reason, carrying out research during rain season was timely and the clustering patterns of selected households saved time on reaching the respondents. Thus, 21 female and 77 male household heads were sampled.

The key informants were purposively drawn and interviewed using interview schedules. These officials were purposively drawn because they are involved in planning and executing government programmes and private sector participation that directly or indirectly affect the cattle keeper's socio economic dynamics in rural economy of Namwala District.

4.4 Data Collection Methods

The study on the contemporary socio-economic transformation among the traditional cattle keepers utilised both secondary and primary sources (Questionnaires were used for household heads while Interview Schedules for key informants).

4.4.1 Secondary Sources

Information on cattle statistics, marketing records, crop production and other archival information were obtained from Books, Journals, Internet, Articles, Periodicals, Maps, Bulletins, Published and Unpublished documents and Farm Magazines. The sources included; UNZA Main Library and UNZA Geography Library provided the researcher with information on historical analysis and maps for the study area; Ministry of Livestock and Fisheries Development (MLFD), UNZA School of Veterinary Library and Central Statistical Office (CSO) were referred to in order to get information on cattle annual statistical reports and trends including the government policy in promoting livestock especially cattle; Namwala Farmers Association (NFA) and Namwala Veterinary Library provided the researcher with information on the help rendered to cattle keepers by NGOs with respect to livelihoods, cattle trends, drought/flood mitigation, disease control, prevention and vaccinations of cattle in the District; and the Namwala Meteorological Station for rainfall variability and reliability including recurrent floods and droughts.

4.4.2 Primary Sources

Primary information was obtained from local respondents (household heads) and key informants in various institutions and by observations.

4.4.2.1 Questionnaires

Questionnaires were used to collect data from the local household heads in relation to the contemporary production goals among the traditional cattle keepers and how the regularised rural livestock markets have impacted on the perceptions and changes in the value of cattle among cattle keepers. Further, interviews were conducted with farmers to find out types of transformations, how they have come about and how they have changed the way of life of the Ila economy. In addition, the household heads were also sources of data on constraints of cattle production due to diseases and droughts/floods; coping strategies among traditional cattle keepers and recent forms of cattle acquisition (see Appendix I).

4.4.2.2 Interview Schedules

The Chiefs, the District Veterinary Officer, Abattoir Managers and NGOs were targeted as key informants where Interview Schedules were used (see Appendices II, III, IV and V respectively). These key informants were interviewed and they provided information on changes in herd management practices among cattle keepers, off-take rates and how farmers have responded to the established commercial buyers in the areas, the amount of beef exported from Namwala and how the NGOs are collaborating with government in helping cattle farmers. Both closed and open ended questions were used in order to maximise the amount of information collected. These methods were efficient and less time consuming since responses were recorded immediately and allowed probing for more information.

4.4.2.3 Observations

Observations were based on the capital projects that have been undertaken in the last five years among the traditional cattle keepers in both Baambwe and Maala areas. Assets focused on during field work include among other things the following: Solar panels, houses, vehicles bought, dip tanks, business enterprises or operating shops, hummer-mills, boreholes and fencing. These were recorded on separate recording sheets and probing involved asking whether they were as a result of proceeds from cattle sales or not. In addition, photovoice was an essential component of this study in which photographs were taken focusing on capital projects and other related changes. The Photovoice process was supplemented by in-depth interviews with cattle keepers, including chiefs and key informants.

4.5 Limitations

Limitations included that;

- (a) Some household heads do not keep written records in both quantitative and qualitative terms due to illiteracy. The number of cattle lost to diseases could not be quantified accurately and remembered by farmers but data from DVO helped on cattle mortalities.
- (b) Some cattle keepers also could not remember the number of cattle sold for some projects. Even disclosing certain things, for example, if there are other people who own cattle in their herd especially salaried relatives in employment was not easy. There is a tendency by many *Ilas* to conceal information from outsiders from knowing their riches (*lubono*). This was achieved by careful approach and probing by the researcher.
- (c) Also some respondents were scattered in remote places along the flood plain that involved crossing of streams in order to reach them. This was time consuming although all places were reached.

However, despite the above limitations, interviews using the questionnaires and Interview Schedules were conducted and responses recorded accordingly by the researcher.

4.6 Data Presentation and Analysis

Data were presented in form of tables, figures, photographs, bar graphs and spatial maps. With respect to data analysis, qualitative methods were mainly used with the aid of the computer's Statistical Package for Social Sciences (SPSS) and Minitab software in computing cattle numbers and off-take rates using past and present statistics from District Veterinary Office (DVO) and abattoirs. Off-take rates from the local cattle keepers were analysed manually by descriptions and classifications using charts, tables, graphs and maps.

The statistics from the DVO on Herd Monitoring and Disease Surveillance and off-take rates and marketing records from local respondents and abattoirs respectively, including diagnosed cattle diseases after 2005, were complemented by interpretations of data on cattle censuses and current marketing records among respondents as reflected in various capital projects. This helped in computing and comparing cattle numbers and off-take rates, past and present trends using graphs and figures while noting changes in production goals and types of transformations and how these changes have impacted on the traditional Ila economy in Baambwe and Maala areas in Namwala District.

CHAPTER FIVE

RESULTS

5.0 Introduction

This chapter presents the results that were obtained in Baambwe and Maala areas in Namwala District. Data were mainly analysed qualitatively and presented using tables, graphs, charts, percentages, photographs and maps. Ninety-eight respondents comprised the sample. Firstly, the chapter reveals demographic characteristics of cattle keepers with respect to sex, age, educational attainment and ethnic origin. This is followed by the contemporary agro-pastoral production goals among traditional cattle keepers; socio-economic transformations; constraints of cattle production due to diseases and droughts/floods; coping strategies among cattle keepers to recurrent cattle diseases and droughts/floods and; intervention measures being taken by the government to promote livestock production.

5.1 Demographic characteristics of Cattle owners

Out of 98 respondents in the study area, 77 respondents (78.6 percent) were males (26 from Baambwe and 51 from Maala) while 21 (21.4 percent) were females (eighty from Baambwe and 13 from Maala). A lesser number of women were interviewed because there are fewer female-headed households as compared to male-headed ones. Out of 77 males sampled, 68 (69.4 percent) own cattle and out of 21 females, only 9 (9.2 percent) own cattle. This is because men rather than women inherit cattle, and own land in traditional set up.

About 52.1 percent males and females between 41 and 50 age groups own more cattle followed by those between 31 and 40 age groups who accounted for 30.6 percent. There are fewer people below the age of 30. These own 10.2 percent since they are often just starting their families and are therefore still settling down. In addition, those above 60 represented 7.1 percent only since there are few surviving household heads considering the low lifespan in Zambia. In addition, the results show that those between 41-50 years of age are the majority since they are at their prime of 'cattle keeping career'.

Of the 98 people interviewed, 61(62.2 percent) attended primary school, 10(10.2 percent) attended secondary school, 5(5.1 percent) attended tertiary education and 22(22.5 percent) never attended formal education. Of the 62.2 percent who attended primary education, 37.7 percent were males while 62.3 percent were females. From 10.2 percent who attended secondary education, 70 percent were males and 30 percent were females. With 5.1 percent

who attended tertiary education, 80 percent were males while 20 percent were females and out of the 22.4 percent who never attended formal school, 40.9 percent were males while 59.1 percent were females.

The majority of the people interviewed (89.8 percent) were natives in the study areas. About 13.3 percent of the total respondents stated that they emigrated from districts of other rural areas such as Kalomo and Choma within Southern Province and these are mainly Tongas. The tribal cousins such as *Lozis*, *Luvales*, *Mbundas*, and *Luchazis* represented 7.1 percent of those sampled. There are many other tribes in Baambwe and Maala such as the *Bembas*, *Tumbukas*, *Ndebeles* who accounted for 3.1 percent and these settled in the study areas after retiring from formal employment.

5.2 Contemporary Agro-pastoral Production Goals among Traditional Cattle Keepers

Although other types of domestic animals are found in Baambwe and Maala, cattle are by far the most important. The social and cultural attachments are still important but the economic value of cattle has taken a centre stage. This has led to change in production goals, for example, being financially fit to purchase crops when there is crop failure as compared to keeping cattle for prestige. An expression given in local language by many respondents signifying the economic importance of cattle in *Iiland* is that '*ing'ombe mbubumi bwamuntu kono kumunzhi*', meaning; 'cattle are our livelihood here in the village'. More than 80 percent of the sample own cattle. Those who do not own cattle are viewed as being inferior. This is so because cattle play various roles in Ila society. Hence, farmers gave the following reasons as to why they kept cattle: financial security, social status, draught power, manure, bride price or lobola and others such as slaughter during funerals, traditional and initiation ceremonies; and for milk and meat production.

Financial security ranked the first and most important primary objective with 40.6 percent and 59.4 percent from Baambwe and Maala respectively as shown in Table 7. This is due to the changing economic environment resulting in an increase in the demand for money in the rural economy in addition to commercial cattle buyers such as Zambeef and Starbeef that provide markets. More than sixty respondents stated that owning cattle avoids the negative impacts or risks such as crop failure. It was found that owning cattle enables farmers to plant early during rain season and often cultivate large hectares of land. In the case of failure due to factors such as drought and flood, cattle provide a source of income either in the form of cattle sales or milk.

The number of cattle sold is increasing every year than what is slaughtered for funerals and other ceremonies. On average 1-3 animals are slaughtered on these occasions as compared to 7-15 in the 1980s and 1990s although this still depends on the status of the deceased. However, cattle do not form the major source of protein in the traditional diet, except in the provision of milk or if an animal dies or *masuntu* or on other ceremonies.

Table 7: Objectives for Keeping Cattle in Baambwe and Maala areas

Objectives for keeping cattle	Number of Respondents			Percentage (%)		
	Baambwe	Maala	Total	Baambwe	Maala	Total
Financial security	26	38	64	40.6	59.4	100
Social status	21	31	52	40.4	59.6	100
Draught power	20	25	45	44.4	55.6	100
Manure	14	22	36	38.9	61.1	100
Lobola	13	21	34	38.2	61.8	100
Other	11	15	26	42.3	57.7	100

Source: Field Data, 2010

Cattle still confer status to individuals. Social status was given as the reason for keeping cattle by 52 households (40.4 percent and 59.6 percent from Baambwe and Maala respectively) as presented in Table 7. Still common and very important, the more the number of cattle one has, the wealthier and respected the individual is. There is change in the cultural value attached to cattle. Although the traditional cattle keepers still keep cattle for prestige, they now do it more for economic reasons. This is due to the growth of markets for livestock, especially cattle that provide opportunities for people to acquire different types of universally accepted items such as shops, vehicles, iron-roofed houses, dip tanks and fencing.

Provision of draught power was accounted for by 45 households of the total respondents (44.4 percent and 55.6 percent from Baambwe and Maala respectively) and this remains an important objective for keeping cattle. The use of manure represented 38.9 percent from Baambwe and 61.1 percent from Maala, who cited it as an increasingly vital primary objective for keeping cattle (Table 7). Farmers pointed out that the use of cattle manure is gaining importance given the high cost of organic fertiliser. They stated that most of the soil, unless in small pockets, is not ideal for growing crops unless with cattle manure which allows them to use the same piece of land for a longer period of time. More than thirty percent farmers stated that an area can be used for a minimum of seven years and maximum of ten years without diminishing soil fertility. It has to be emphasised here that farmers have more than one objective for keeping cattle and these objectives re-enforce each other.

Although bride price is a customary practice, only 13 and 21 households (representing 38.2 percent and 61.8 percent) from Baambwe and Maala respectively, stated that they pay bride price in form of cattle. This form of payment is increasingly being replaced by money especially among non-Ila speaking people. In a case where a non-Ila marries an Ila/Tonga girl, the family would demand that the groom buys cattle to pay as *lobola*, locally known as *chiko*. However, money is paid according to the value of the number of cattle charged (although there is a tendency of undervaluing the worth of cattle). Farmers further stated that the number of cattle charged as *lobola* has increased as compared to those slaughtered during funerals and initiation ceremonies due to loss of cattle as a result of diseases.

Furthermore, the secondary objectives (other objectives) that were cited for keeping cattle were the need to slaughter cattle for *masuntu* during funerals, traditional and initiation ceremonies; and for milk and meat production. This was accounted for by 26 respondents as indicated in Table 7. Instead of slaughtering of many cattle, for example during a funeral, many respondents prefer reserving them to buy items such as agricultural inputs. Cattle also provide fresh and sour milk and meat for home consumption and for sale as a source of income. This is because unlike selling the entire ox or cow, milk (*mukupa*) or sour milk (*mabishi*) can easily be sold and thus, constitute a fast and ready source of income.

5.3 Socio-Economic Transformation: Rural Livestock Markets and Contemporary Changes in the Value of Cattle

As opposed to accumulating cattle for socio-cultural and symbolic value, this study established that cattle keepers are in fact rational economic actors, whose objectives and strategies for keeping cattle are determined not solely by cultural and ideological considerations, but by constraints and opportunities imposed by the wider socio-economic environment. Today, with established abattoirs for cattle, there is an increased opportunity to engage in the rural livestock markets, especially successful cattle keepers who have accumulated enough stock despite recurrent diseases and droughts. Below are some changes or transformations that have taken place in Baambwe and Maala areas in Namwala District.

5.3.1 Presence of Commercial Livestock Buyers

Rural markets are vital for opening up an area for business and other commercial activities. In recent years, there has been a significant decline in 'briefcase' livestock traders who used to buy cattle from traditional cattle keepers at cheaper prices to re-sale at higher price in urban centres such as Choma, Mazabuka, Lusaka and the Copperbelt. However, the great milestone in the history and transformation of Baambwe and Maala areas was set with the

coming of commercial buyers: Zambeef and Starbeef. This trend has significantly transformed the life of traditional cattle keepers from merely accumulating cattle stock, to entering into the money market by actively participating in selling their animals.

There are three slaughter days in a week for all commercial buyers; Monday, Wednesday and Friday. Farmers from Baambwe and surrounding areas slaughter on Monday while those from Maala and surrounding areas on Wednesday. Friday is for farmers from other parts of the District and outside Namwala especially those from Itezhi-tezhi District. Cattle keepers choose where to take their cattle for slaughter. Zambeef slaughters 100 cattle per day but has the capacity of slaughtering 120 animals with 30 local people employed while Starbeef slaughters 80 per day with 25 local people employed as illustrated in Table 8. Most cattle keepers expressed gratitude that the coming of Starbeef has raised the price of beef per kilogram to at least K11, 000 but this price fluctuates depending on supply and demand. The price was said to be as low as K8, 000 between December and March owing to many people selling their cattle. This leads to a glut on the market since most farmers by this time have diminished their maize stock.

Table 8: Comparison between Zambeef and Starbeef Operations

Company	No. slaughtered daily	Local people Employed	Price per Kg - beef	Price per set - offal
ZAMBEEF	100	30	K11,000	K90,000
STARBEEF	80	25	K11,000	K90,000

Source: Field Data, 2010

Before Starbeef came into the District, Zambeef used to buy cattle for as low as K6, 000 per kg in 2007. The establishment of more abattoirs has triggered competition and has given value to cattle and now Zambeef also pays farmers upon slaughtering their animals, a strategy which was introduced by Starbeef. Small scale or 'briefcase' buyers who used to buy from farmers or within communities have drastically reduced their operations.

In Maala, five farmers indicated that they sell to briefcase buyers and 47 percent to abattoirs representing a farmer preference of 45.4 percent for Zambeef and 22.1 percent for Starbeef as shown in Table 9. Although there is a decline in selling cattle to briefcase buyers, farmers pointed out that they still sell heifers and steers to them since they are not accepted by abattoirs and/or allowed by the veterinarians. In both areas, the number of people selling their cattle to abattoirs has increased.

Table 9: Proportion of farmers selling cattle to briefcase buyers and abattoirs

Area	Briefcase buyers within communities	Selling to abattoirs	Abattoir preference	
			Zambeef	Starbeef
Baambwe	2	25	Zambeef	18
			Starbeef	7
Maala	5	42	Zambeef	25
			Starbeef	17

Source: Field Data, 2010

In addition, there was also an increase in the movement of livestock and livestock products in and out of Namwala in the first quarter of 2009 with 38,625 carcasses and 1,859 cattle for rearing as shown in Table 10. Note that other types of livestock such as goats (63) and pigs (61) were taken out of the District to different destinations strictly for slaughter in the same year.

Table 10: Transportation of Livestock and Livestock Products to and from Namwala

Item	F/system	Purpose	Species	Out	Destination	In	Source
Carcass	traditional	sales	Bovine	38,625	Lusaka	nil	Namwala
Cattle	traditional	rearing	Bovine	1,859	Itezhi-tezhi	12	Mazabuka
Off-cuts	traditional	feed	Bovine	9 tons	Siavonga	nil	Namwala
Off-cuts	traditional	feed	Bovine	8 tons	Maamba	nil	Namwala
Goats	traditional	slaughter	Caprine	63	Lusaka	nil	Namwala
Pigs	traditional	slaughter	Porcine	61	Lusaka	nil	Namwala

Source: Namwala District Veterinary Office, 2009

The Zambeef Manager, Mr. Musonda lamented that more than sixty percent of cattle they slaughter come from Baambwe and Maala areas. For this reason, about 540 animals are slaughtered per week, 2,160 per month and over 25,920 per year. The total number of cattle slaughtered within and outside the District was 1,800 in 2000, 1,920 in 2001, 2,030 in 2002, 2,210 in 2003 and 2,642 in 2004. The statistics from Namwala District Veterinary Office (NDVO) confirmed that the coming of Zambeef saw the number rising sharply to 14,400 in 2005, 14,605 in 2006 and 14,905 in 2007 and almost doubled to 26,125 and 26,330 in 2008 and 2009 respectively following the coming of Starbeef in the district as shown in Table 11 (see locations of Zambeef and Starbeef in Figure 3).

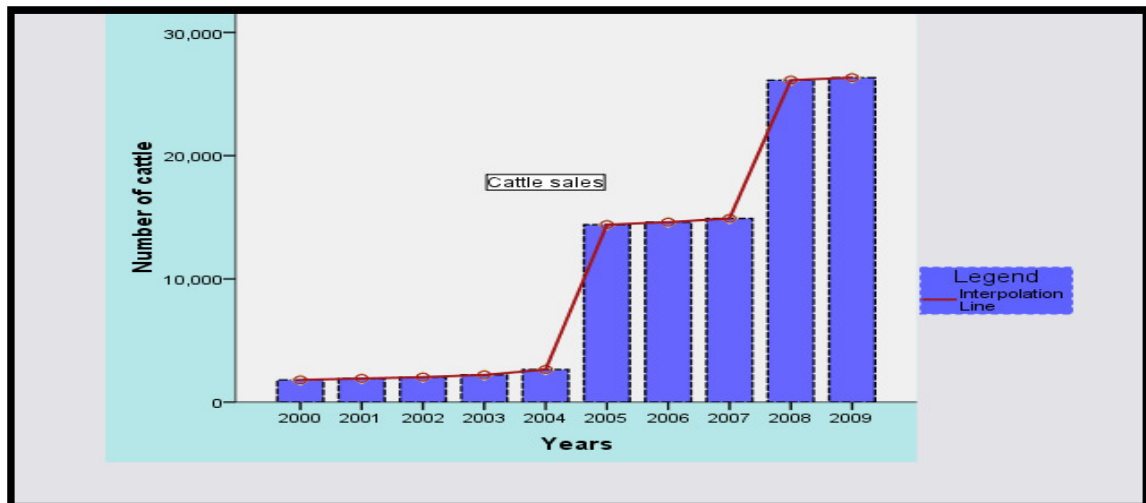
Table 11: Number of cattle slaughtered from 2000-2009

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cattle slaughtered	1800	1920	2030	2210	2642	14400	14605	14905	26125	26330

Source: Field Data, 2010

The commercial sales increased sharply in 2005 and 2008 following the establishment of Zambeef and Starbeef respectively as shown in Figure 4. This is far more than the 1991 commercial sales of 1,700 outside the District and 205 within the District. However, the DVO confirmed that some people have taken advantage of this ready market to rustle cattle but Namwala Police has ensured strict inspection of animals before slaughter, hence three slaughter days in a week to ensure smooth supervision and checking of documents.

Figure 4: Trends in traditional cattle sales from 2000 – 2009



Source: Field Data, 2010

5.3.2 Capital Projects among Traditional Cattle Keepers in Baambwe and Maala

For successful cattle keepers, cattle accumulation has opened unprecedented opportunities to facilitate their participation in regularised rural market transactions. The study established that due to the expansion of market opportunities, richer cattle keepers have redefined their production goals and orientations to take advantage of the opportunity to convert their stock wealth into monetary value, and to transform this value into other forms of economic and social investments. This is the reason why most of the cattle keepers in the study areas, in the contexts of recurrent cattle diseases and droughts, have tended to sell more cattle to abattoirs. This has enabled them to acquire items such as radios, solar panels, vehicles, iron-roofed houses, dip tanks and fencing.

Out of the total 98 households, 72 households have bought radios, 68 households have solar panels whereas 36 households have television sets from cattle sales. Those that have bought vehicles were 35 and 29 households have constructed dip tanks respectively. Most farmers have bought utility vehicles such as pick-ups and canters. These are believed to be dependable for use on the rough plain and sandy plateau. Increasingly, many people who

have sizeable herds of cattle have bought motorbikes first before purchasing a vehicle since their fuel consumption is minimal. The demand and need to build houses has equally spread to rural areas of Baambwe and Maala in Namwala District with 44.8 percent and 55.2 percent respectively of the respondents having built iron-roofed houses while 26 households have fenced their farms and those with shops/guest houses/restaurant were also 26. Other projects such as hammer-mills and bore-holes were owned by 21 farmers as indicated in Table 12. Most farmers that have bought TV sets and dip tanks attended formal education.

Table 12: Capital Projects by Households in Baambwe and Maala

Item bought / Project	No. of Households			Percentage (%)		
	Baambwe	Maala	Total	Baambwe	Maala	Total
Radio	30	42	72	41.7	58.3	100
Solar panels	29	39	68	42.6	57.4	100
Television sets (TV)	13	23	36	36.1	63.9	100
Vehicles	14	21	35	40.0	60.0	100
Built houses	13	16	29	44.8	55.2	100
Dip tanks	7	20	27	25.9	74.1	100
Fences	12	14	26	46.2	53.8	100
Shop/ Guesthouse/ Restaurant	10	16	26	38.5	61.5	100
Other	8	13	21	38.1	61.9	100

Source: Field Data, 2010

In Maala, some wealthy households (61.5 percent) have opened up retail shops and have access to Digital Satellite Television (63.9 percent) in their homes (Figure 5A). Most respondents pointed out that there have been expanded investment opportunities in retail enterprises from proceeds of cattle sales into other forms of investments such as retail shops, restaurants, hammer mills, motor vehicles and houses.

One of the major developments in Maala area is the growth of a vibrant commercial centre especially at a place known as *kumantoolo* where there are several modern shops especially, those owned by Mr. Shibwela. There are sixteen shops (notable among these were two butcher shops owned by Mr. Shibwela and Mr. Auster Chikwayi), three restaurants, one modern guest house, and four hammer mills. Most of these commercial enterprises were started with proceeds from cattle sales after 2005 when Zambeef established an abattoir in that year and later Starbeef in 2008.

In Baambwe, a similar situation prevails although there are no restaurants and butcher shops but farmers running retail shops obtained capital from cattle sales or have expanded their businesses by investing proceeds from shops into cattle and then ploughing the income from

cattle sales back into the retail business. A total number of ten shops that were surveyed in the area run a dual livestock and retail enterprises as shown in Table 12.

Figure 5: A Satellite Dish (A) and Improved Breeds of Cattle (B) at Mr Kabuzu's farm in Maala. Note a modern house (A) and fencing (B) in the background.



Sources: Field Data, 2010 (A)

(B)

The photographs in Figure 6 show that Mr Naboonda is replacing thatched houses in preference to iron-roofed ones. He attributed this to a ready market for their cattle which can easily be converted into cash. He also stated that despite having less than 300 heads of cattle, he already has a dip tank and a motor bike. In addition, he has managed to buy a television, a solar panel and a land cruiser. The situation is similar with other cattle keepers especially those that have more than 300 heads of cattle.

Figure 6: An Aerial for Television reception, Solar Panel, Land Cruiser and a newly constructed Iron-roofed House at Mr Naboonda's farm in Baambwe area. Photo A shows a front view while photo B the side view of the farm⁵.



Sources: Field Data, 2010 (A)

(B)

⁵In both Baambwe and Maala, farmers have embarked on various capital projects as shown in Figures 5 and 6 and Table 12. Farmers attributed this to a ready market by Zambeef and Starbeef who both pay on the same day after slaughtering cattle. This has increased cash available to farmers since cattle can easily be converted into cash, hence embarking on various capital projects.

5.3.3 Increased Cash Investment into the herd

The other aspect of cattle management which has changed with increased commercialisation and market prospects is the degree to which cattle owners tend to invest into the herd. In both areas, richer cattle owners (22.5 percent) tend to buy more veterinary drugs than small cattle owners who constituted 61.2 percent. In addition, very rich herd owners (16.3 percent) such as Fredrick Shibwela of Maala, who owns more than 5,000 cattle, and was honoured by the late President Levy Patrick Mwanawasa for distinguished service in the community in 2007, stated that he sells more than fifty cattle annually for vaccines and dip chemicals. Such rich cattle owners manage to minimise the impact of the flood and drought by using several hired herders who trek their animals over long distances, in search of grazing and water.

In addition, more than 26 percent of the farmers in Maala have made substantial investments into their herd in form of drugs, wages for herdsman and in some cases bore-holes and fencing of their paddocks (see Figure 5B sub-section 5.3.2 showing improved breeds of Cattle at Mr Kabuzu's farm in Maala). In addition, they provide supplementary feed to their pure bulls bought outside the district. Poor cattle keepers can not make such investments.

5.3.4 Withdrawal of cattle from internal redistribution to Individual Accumulation

When cattle assume a high market value, traditional networks of animal redistribution such as *kushisha* and stock gifts tend to decline. New forms of reciprocity which do not involve the transfer of live animals have become more important, for example, between absentee urban-based livestock owners and their rural based caretakers. This practice of *kushisha* is more pronounced in Baambwe area. This is because farmers interviewed in Baambwe have smaller herds of cattle and fall prey to *kushishiwa*. In Maala area, where farmers have relatively bigger herds of cattle, *kushisha* is a lesser practice hence farmers take full advantage of available rural markets themselves instead of consulting as the case in the traditional reciprocity. Bigger/richer cattle owners refer to those who own more than 1,000 herds of cattle and these constituted 16.3 percent; big herd owners represented 22.5 percent with more than 200 but less than 1,000 animals and; small herd owners were those with less than 200 animals and these constituted 61.2 percent of the sample.

5.3.5 Inflating the Bride Price

Bride price or *Lobola*, locally known as *Chiko* accounted for a significant number of cattle transfers in Namwala. *Lobola* is a non-commercial way of acquiring cattle. It was found that transfer of cattle for *lobola* purposes accounted for over 10 percent of all cattle movements

in a year by DVO. At present, there is a growing significance of cattle in marriage transactions in Maala area. The number of animals being demanded as bride wealth has steadily risen between the 1980s and 2009 as shown in Table 13.

Table 13: Number of cattle demanded for bride price: 1980-2009 in Maala

Year of Marriage transaction	Number of animals demanded				Total No. of marriages
	1-2 animals	3-4 animals	5-6 animals	Above 7 animals	
1980-1989	5(33%)	7(47%)	3(20%)	0	15
1990-1999	1(7%)	5(33%)	9(60%)	0	15
2000-2009	0	2(13%)	10(67%)	3(20%)	15

Source: Field Data, 2010

From Table 13, it can be seen that out of 15 marriage transactions that took place between 1980 and 1989, 12 (80 percent) of them were involved in the transfer of four and less animals, with only 20 percent involved in the transfer of five to six animals. While between 1990 and 1999, the number demanded for bride price increased to 60 percent from 20 percent between 1980 and 1989. Six of the transactions involved the transfer of four and less animals. On the contrary, 13 (87 percent) of the 15 marriage transactions which took place between 2000 and 2009 involved the transfer of five to more than seven animals, with none of the marriage transactions involving the transfer of only one or two animals. The above situation was found to be similar in Baambwe since people in these areas share common social, religious, economic, historic and even political practices.

5.3.6 Net flow of Livestock from Poor to Richer cattle keepers

During the last few years, marketing strategies of bigger and small herd owners have been markedly different due to drought, and this has resulted in a net flow of livestock from the latter to the former. Under normal circumstances, one would expect small cattle keepers to sell fewer animals while bigger cattle keepers are expected to sell more. On the contrary, it was established in Baambwe area that small cattle keepers have tended to sell more animals during the drought years, not as a deliberate economic strategy but as a coping strategy to meet their staple requirements. During this period, the market value of cattle considerably drops in relation to the market value of grain. Thus, these small cattle keepers fall prey to local speculators and long-distance grain traders who take advantage of the situation by dictating the terms of exchange unfavourable to them.

From several first-hand accounts during this study, it was established that small cattle keepers had exchanged the whole animal for two 90 kilogramme bags of maize, which were valued at K90, 000 each in 1997/8 farming season. In times of floods, especially those of the 2007/08 farming season, fifteen percent of the respondents from food-deficit households in Maala area exchanged cattle with maize from Chief *Muchila's* area. However, bigger herd owners pointed out that they have responded to the drought situation in the following ways; they withdrew their animals from the depressed local livestock market; they transport their animals either with their own transport or with hired trucks to the line of rail where they fetch higher prices; and they also dominate on the local livestock market by buying animals at very cheap prices from the poor cattle owners who are usually desperate for cash.

5.3.7 Differences in Milking Strategies and Breeding

The study established that small herd owners constituting 61.7 percent of the sample tend to milk all their lactating animals while at the same time stripping more milk than richer herd owners. During the rain season, a cow can be milked three times per day, while allowing the calf to suckle intermittently to stimulate further milk-let down. The three stages are *chifumo-fumo*, *muunza* and *mangolezha* (morning, noon and late afternoon respectively). Small herd owners in Baambwe and women in particular, have direct sources of income from milk sales, and tend to milk *chifumo-fumo* and *muunza* while the poorest may even milk *mangolezha* due to fewer lactating cows. On the other hand, very rich herd owners who constituted 16.3 percent only milk a proportion of their lactating cows.

In Maala for example, in Mr Chaande's herd, only 22 percent of all the lactating cows are being milked invariably. In Maala, where there are more richer cattle keepers than in Baambwe, milking is only done *chifumo-fumo* and prefers to maximise calf growth and weight gain for the market. In addition, most people cross-breed and fetch pure breeding bulls from places along the line of rail such as Choma, Mazabuka, Lusaka, Chisamba and as far as Mkushi from commercial farmers. This has greatly improved the local traditional breeds (Figures 5B and 10B).

5.4 Constraints to cattle production in Baambwe and Maala areas in Namwala District

There are three major constraints that hinder livestock production in Baambwe and Maala. These will be presented inclusively for two areas since people in these areas share common problems that include presence of cattle diseases and parasites; poor nutrition; and poor husbandry practices. These constraints are generally contributing to poor cattle health. About

65 percent of the respondents stated that cattle diseases and parasites constrained productivity while 20 percent and 15 percent were poor nutrition and husbandry practices respectively. Although the constraints cattle keepers are facing are presented here as discrete factors limiting increased cattle production, they re-enforce each other.

Respondents in Baambwe and Maala areas confirmed that livestock diseases have continued to pose a challenge to the development of the livestock industry from the early 1990s in addition to poor state of feeder roads. Although farmers are faced with more than one cattle disease, 56 respondents attributed their loss of cattle mainly to Foot and Mouth Disease (FMD), Heart water with 46 respondents, East Coast Fever or Corridor Disease with 43 respondents, Bovine Tuberculosis (TB) with 31 respondents, while Lumpy skin with 26 respondents and others were 28 farmers as shown in Table 14. On other diseases, loss of cattle was mainly attributed to minor diseases such Anthrax and predators such as crocodiles and hyenas. These diseases have deprived those that have not accumulated more cattle which are a source of income as it can be sold to raise income to purchase available drugs and grain and other requirements on the rural markets. In addition, there is great risk of CBPP due to illegal movements of cattle either to the local abattoirs or for rearing to and from other Districts and Provinces. Note from Table 14 that there were more deaths of cattle as a result of corridor disease in Baambwe area than in Maala area due to differences in management practices (see Table 12 on differences in capital projects especially dip tanks and Table 17 on the frequency on dipping and spraying).

Table 14: Prevalence of Cattle Diseases in Baambwe and Maala areas

Disease	No. of Households			Percentage (%)		
	Baambwe	Maala	Total	Baambwe	Maala	Total
Foot and Mouth Disease (FMD)	24	32	56	42.9	57.1	100
Heartwater	21	25	46	45.7	54.3	100
Corridor	24	19	43	55.8	44.2	100
Tuberculosis (TB)	13	18	31	41.9	58.1	100
Lumpy Skin	12	14	26	46.2	53.8	100
Others	12	16	28	42.9	57.1	100

Source: Field Data, 2010

Laboratory Diagnostic of cattle diseases in the District is presented in Table 15. It shows that FMD did not record serious cases with only 34 cases in 2009 as compared to 123 cases in 2008 whereas corridor disease had 295 cases in 2009 but which was a considerable reduction from 1,053 cases in 2008. There were 145 cases of Anaplasmosis in 2009 compared with 166 cases in 2008. Heart water had 31 cases in 2008 but this increased to 54 cases in 2009

while Babesiosis related cases reduced from 12 cases in 2008 to five cases in 2009. Control of cattle diseases is usually difficult because of transhumance system in the two areas.

Table 15: Laboratory Diagnosis of Cattle Diseases in Namwala District

DISEASE	2008	2009	SAMPLES RECEIVED	POSITIVE CASES	NEGATIVE CASES
FMD ⁶	123	34	215	5	210
Corridor	1053	295	366	186	180
Anaplasmosis	166	145	230	118	112
Heart water	31	54	15	10	5
Babesiosis	12	5	10	7	3
Brucellosis	29	31	76	51	25
Tuberculosis	30	42	64	24	40
Anaplasmosis	456	234	132	98	34
Worms	-	-	60	60	0
TOTAL	1,900	840	1,168	559	609

Source: Namwala District Veterinary Office, 2009

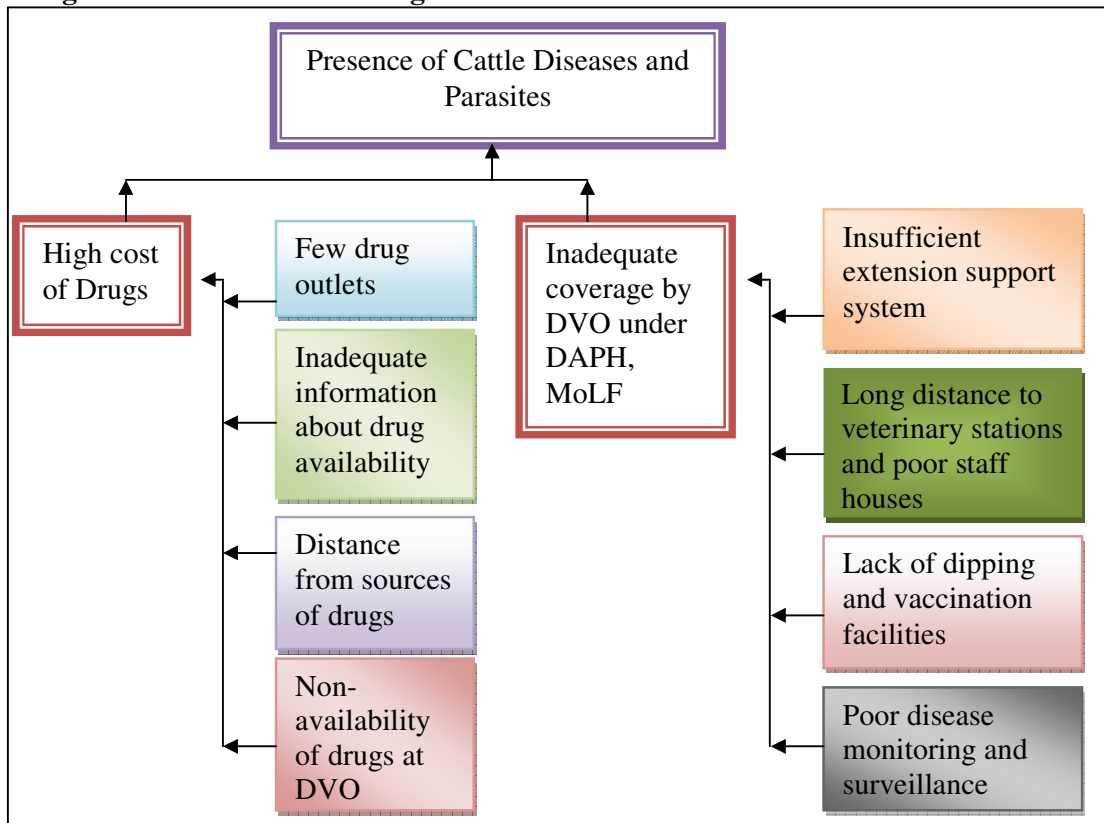
In 2009, Brucellosis increased by two from 29 cases reported in 2008 due to reluctance by farmers to have their cattle tested. TB cases increased from the reported thirty cases in 2008 to forty-two cases in 2009, although this is still very far from reflecting the gravity of the tuberculosis problem on the ground. An idea of the real picture of the disease could be seen on abattoir report during meat inspection. Trypanosomiasis was also encountered during the first half of 2009 in Baambwe Veterinary Camp (BVC) during the disease surveillance exercise. Out of the total 1168 cattle diagnosed in 2009, 559 were positive while 609 were negative. Tsetse flies are also a common feature in the District although not much is being done in the area of controlling flies.

In addition, the District Veterinary Officer, Dr. Ndalama, stated that cattle diseases are depressing productivity among farmers and also lead to low milk yields, low weights, low animal conception rates and long inter-calving intervals and high mortality rates. He further pointed out that the failure by traditional cattle keepers, especially those that have never attended formal education (22.5 percent), to control cattle diseases results from two factors namely; high cost of drugs to either treat or control cattle diseases and inadequate coverage of cattle production and health care services, which are as a result of other sub-factors as shown in Figure 7. Overall, farmers that attended secondary and tertiary schooling (10.2 percent and 5.1 percent respectively) had fewer cases of cattle diseases in their herds than those who have never attended any formal education.

⁶ The Foot and Mouth Disease (FMD) test was mostly for animals relocating for breeding in other provinces/ districts and it was done at CVRI - Lusaka.

Further, farmers stated that the causes of poor nutritional status in the traditional herds are shortage of both feed and water during the dry season. The ability to feed livestock adequately throughout the year is perhaps one of the most widespread technical constraints limiting increased cattle productivity among traditional cattle keepers. Nutrition as a constraint involves lack of provision of quality indigenous pastures, crop residues and feed.

Figure 7: Factors contributing to Poor Livestock Health in Baambwe and Maala



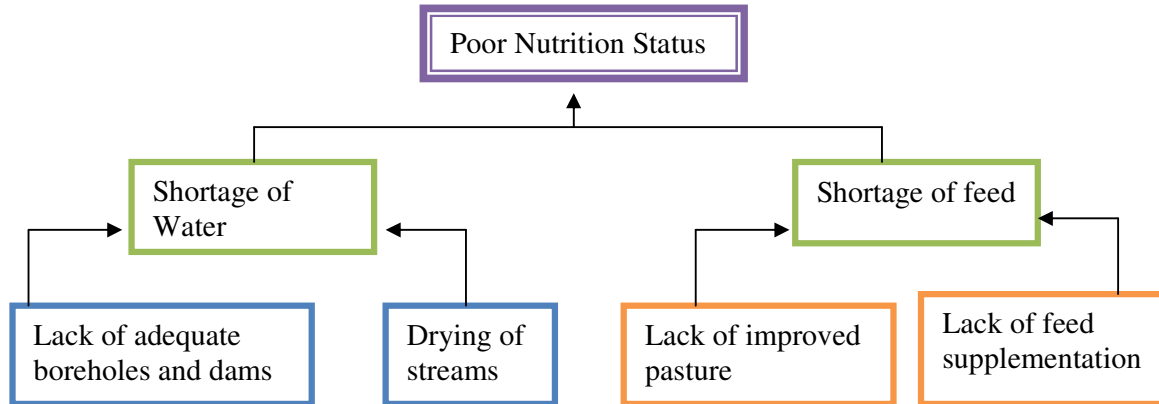
Source: Field Data, 2010

The major problem facing the traditional cattle keepers in Baambwe and Maala is feeding cattle during the dry season. In addition, poor nutrition leads to susceptibility to diseases and parasitism. Cattle keepers pointed out that the shortage of water due to drying of streams and rivers and absence of water reservoirs and boreholes comprise a serious constraint contributing to poor nutritional status of cattle in the dry season. Figure 8 illustrates the causes of poor nutritional status among cattle in the dry season in the study areas.

Respondents also pointed out that livestock health is affected by poor husbandry practices resulting from poor extension system. Farmers lack sufficient knowledge about modern husbandry practices such as good housing practices, feed supplementation, and breeding

which improves the vigour of calves hence more resilience to diseases, internal parasite control (de-worming) and communal grazing of cattle responsible for spreading of diseases.

Figure 8: Causes of Poor Cattle Nutritional Status in the Dry Season



Source: Field Data, 2010

5.5 Coping Strategies to recurrent Cattle Diseases and frequent Droughts/Floods

For a long time now, people in Baambwe and Maala have been facing various problems pertaining to recurrent cattle diseases and climatic variability resulting in cattle losses, frequent droughts and floods. These have affected people’s livelihoods that they have enjoyed for decades. The socio-economic situation of the people has changed and indeed food security has been threatened. The coping strategies people have assumed in the areas are; fishing, poaching, bee keeping, lumbering, vaccination, diversifying with mixed crop/animal production and keeping different animal species as shown in Table 16.

While other tribes such as *Lozis* and *Bembas* are involved in fishing, the *Ilas* use the plain for grazing purposes (see Appendix VI). However, in Baambwe area, 11 respondents stated that they have become fishermen while six respondents are involved in poaching/bee keeping/lumbering respectively. In Maala, 16 respondents stated that are involved in fishing activities while eight respondents are involved in poaching/bee keeping/lumbering respectively. They stated that they catch fish and sell it within Namwala town or dry it and take it to urban centres such as Choma and Lusaka. The money realised is used for meeting various demands and for purchasing steers and heifers in an effort to re-establish themselves in the Ila way of life. They have not completely embraced fishing as a permanent way of life. Increasingly, timber is also sold to urban centres such as Choma, Mazabuka and Lusaka where it fetches higher prices. However, these strategies have remained unpopular in both areas as compared to other strategies shown in Table 16.

Table 16: Coping Strategies among Traditional Cattle Keepers

Coping strategy	Number of Households			Percentage (%)		
	Baambwe	Maala	Total	Baambwe	Maala	Total
Fishing	11	16	27	40.7	59.3	100
Poaching/ bee keeping / lumbering	6	8	14	42.9	57.1	100
Treating cattle	26	48	74	35.1	64.9	100
Mixed crops/animals	34	52	86	39.5	60.5	100
Different animal species	32	44	76	42.1	57.9	100

Source: Field Data, 2010

Treating cattle which involves dipping and spraying is one of the most important coping strategy farmers have assumed aimed at preventing cattle deaths. Table 17 indicates that about 12 cattle keepers dip or spray their animals weekly or regularly in Baambwe while in Maala were 18 respondents. About 31.9 percent cattle keepers and 68.1 percent in Baambwe and Maala stated that they spray their cattle fortnightly, 32 percent and 68 percent monthly, 36.8 percent and 63.2 percent after three months and 30.8 percent and 69.2 percent yearly respectively. Meanwhile, 28.6 percent and 71.4 percent from Baambwe and Maala respectively do not dip or spray their animals at all. The yearly and none responses were obtained from people who mostly own *ing'ombe shakushishiwa* (entrusted cattle by a relative or close friend). The weekly, fortnightly and monthly spraying and dipping is usually done in the months of November to March when tick infestation is high. Out of 25.9 percent of the farmers in Baambwe, (15 percent) use sprayers instead of dip tanks while those in Maala (74.1 percent), 60 percent have their own dip tanks (see sub-section 5.3.2 Table 12).

Table 17: Frequency of Dipping/Spraying among Traditional Cattle Keepers

Frequency	Number of Households			Percentage (%)		
	Baambwe	Maala	Total	Baambwe	Maala	Total
Weekly	12	18	30	40.0	60.0	100
Fortnightly	22	47	69	31.9	68.1	100
Monthly	16	34	50	32.0	68.0	100
After 3 months	7	12	19	36.8	63.2	100
Yearly	4	9	13	30.8	69.2	100
None	2	5	7	28.6	71.4	100

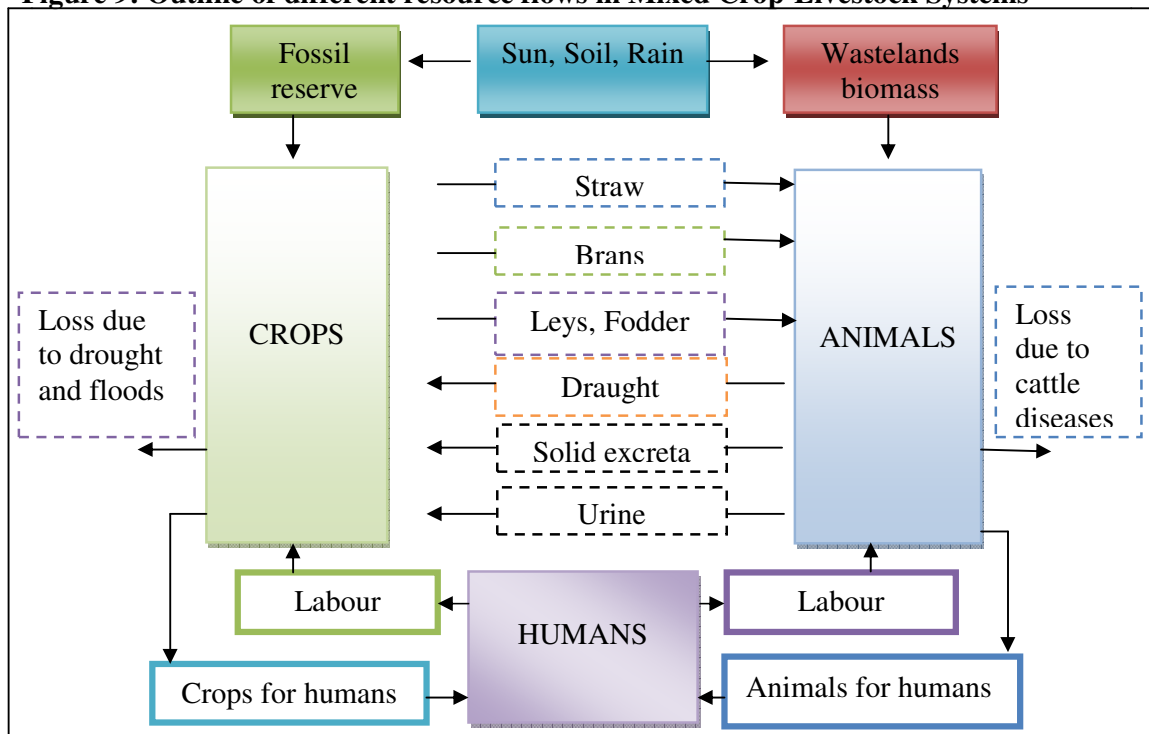
Source: Field Data, 2010

Diversification with mixed crops/animals is another strategy that is used as a coping measure. More than 30 percent of the respondents in Baambwe and 50 percent in Maala are engaged in mixed crop-livestock production. Cropping in this case provides animals with

fodder from grass and nitrogen-binding legumes, leys (improved fallow with sown legumes, grasses or trees), weeds and crop residues, as illustrated in Figure 9. Many farmers stated that they survive by managing a mixture of different crops or animals. They also indicated that crop residues are used to feed the animals and excreta from the animals are utilised as nutrients for the crops due to high prices of organic fertiliser.

Donkeys have also been introduced as beasts of burden, particularly for transport and draught power. This form of livestock farming is seen by many respondents as a risk-minimising strategy especially in Baambwe where more farmers lost cattle than in Maala. Farmers in the two areas (32.7 and 44.9 percent in Baambwe and Maala respectively) have praised NGOs such as Heifer International for coming to their aid in form of goats.

Figure 9: Outline of different resource flows in Mixed Crop-Livestock Systems



Source: Field Data, 2010

In addition, keeping different livestock species helps farmers with the supply of different products. Pigs and goats, and increasingly sheep (Figure 10A) tend to be slaughtered more often on weddings and traditional ceremonies rather than cattle. Major household expenditures are met by income raised from cattle sales, while medium and small expenditures are met by sheep, pigs, goats and chicken sales. Figure 10 shows cattle and sheep at Mr Shanyuka’s farm in Baambwe area and a boy escorting cattle down the plain.

Figure 10: Mixed Cattle-Sheep farming at Mr Shanyuka’s farm (A) and a boy in B escorting cattle towards the Kafue Flood Plain following receding flood water

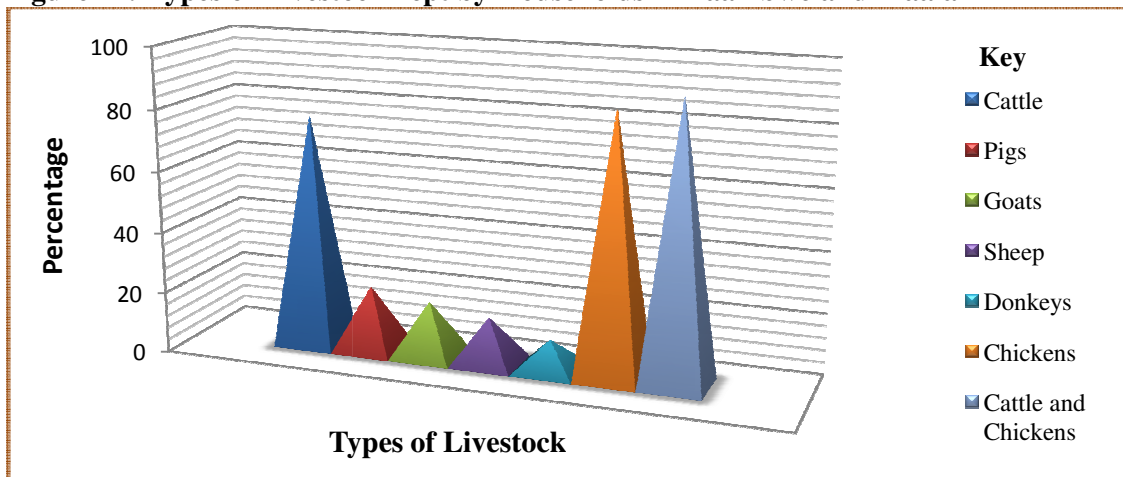


Sources: Field Data, 2010 (A)

(B)

An outbreak of disease may affect certain species, for example, sheep and goats, as these species or breeds are better able to survive droughts and thus help carry a family over such difficult periods. Advantages can also be taken from different reproductive rates of different species to rebuild livestock numbers after a drought. For example, Mr Shanyuka of Baambwe area, who also keeps sheep and goats, stated that the greater fecundity of sheep and goats permits their numbers to multiply quicker than cattle. In addition, more than 70 percent of the respondents keep mixed types of livestock as indicated in Figure 11. Chickens (85 percent) are the most popular form of livestock kept by households followed by cattle (72 percent) while the majority keep a mixture of cattle and chickens (96 percent). Chickens are commonly kept by women because of their small size which makes them easy to handle as compared to large livestock such as cattle.

Figure 11: Types of Livestock kept by Households in Baambwe and Maala



Source: Field Data, 2010

Meanwhile, the routine control measures for different diseases that the DVO undertook in the second quarter of 2009 include vaccinating, dipping and spraying as shown in Table 18.

Table 18: Routine Control Measures by Namwala District Veterinary Office (NDVO)

DISEASE	MEASURE	SPECIES	NO. TREATED
Haemophilic Sepsitemia (HS)	vaccination	bovine	1,404
Black Quarter (BQ)	vaccination	bovine	1,769
Anaplasmosis	vaccination	avian	31,085
Foot and Mouth Disease (FMD)	vaccination	bovine	39,240
Corridor	dipping	bovine	2,169
Corridor	spraying	bovine	127
Brucellosis	vaccination	bovine	20

Source: Namwala District Veterinary Office, 2009

5.6 Interventions by the Government to promote Sustainable Livestock Production

5.6.1 Cattle Vaccinations and Restocking

The government through the District Veterinary Office (DVO) has a number of interventions such as intensifying vaccination exercises and disease surveillance, farmer awareness/trainings and seminars and restocking programme among others. The District has been a beneficiary of the Digital Pen Technology (DPT) administered by Extra Cellular Fluid (ECF) immunisations under IFAD/SLIP and SPINAP. According to Dr. Ndalama, the ECF Immunisation under Smallholder Livestock Investment Project (SLIP) immunised 3, 315 calves against corridor the district in 2009 (340 in Baambwe and 602 in Maala). The District has also been the beneficiary of avian influenza under SPINAP and a total number of 4,732 calves were immunised in 2009. Furthermore, more than 95,000 cattle were vaccinated against FMD (13,367 in Baambwe and 15,402 in Maala). There are 12 veterinary camps out of which nine are manned. Baambwe and Maala camps are both manned.

Table 19: Namwala District Livestock Census in 2009

Camp	Cattle	Goats	Sheep	Pigs	Donkeys	Poultry
Namwala Central	8 812	909	30	437	30	18 157
Baambwe*	20 313	3 050	210	2 059	64	20 037
Kantengwa	10 415	364	20	442	5	9 216
Katantila	18 306	540	42	595	69	29 440
Chitongo	13 303	2 048	8	905	0	21 730
Ndema	4 166	1 476	6	567	24	6 531
Muchila	13 156	6 212	10	3 069	116	22 639
Maala*	21 096	672	123	320	8	12 913
Nakamboma	14 171	3 228	04	2 053	9	30 234
Total 2009	123 738	18 499	453	10 447	325	170 897

Source: Namwala District Veterinary Office, 2009

In 2006, the District was given 800 heifers for restocking and more than 500 households benefited although this number is small considering the number of cattle lost to diseases. About 105 and 225 households benefited in Baambwe and Maala respectively. Apart from

cattle, other forms of livestock are promoted by Heifer International (HI) which gave out 600 goats in 2009. Table 19 shows that cattle is the most important form of livestock kept by the people in Namwala, especially in Baambwe* and Maala* areas with 20,313 and 21,096 in 2009 respectively. There is also an increase in the number of other forms of livestock such as donkeys. Increase has also been recorded in the number of sheep, donkeys, goats and pigs as these are required as ‘income target selling’ as opposed to selling cattle.

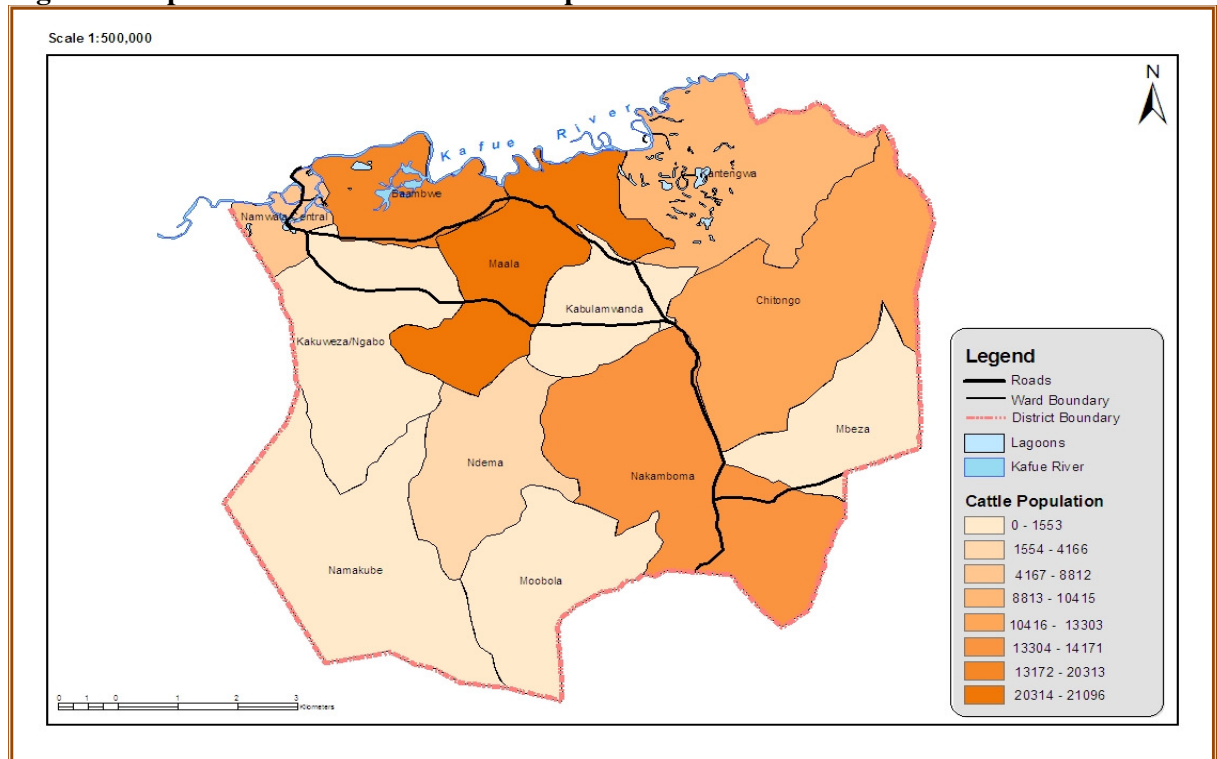
Table 20: Livestock Totals from 2006-2009 in Baambwe and Maala areas

Area/Year	2006	2007	2008	2009
Baambwe	17,861	18,905	19,501	20,313
Maala	19,051	19,879	20,145	21,096
DISTRICT TOTALS	99,038	111,446	118,284	123,738

Source: Namwala District Veterinary Office, 2009

As a result of cattle restocking and vaccination programmes, there has been a significant increase in the number of cattle in the study areas as shown in Table 20. Maala has the highest number of cattle in the district in all years from 2006 to 2009 than Baambwe. Thus, the above increase of cattle in Namwala District as whole is as a result of disease control measures undertaken by the DVO. Figure 12 shows the spatial distribution of cattle population in the district. Note that more cattle population are concentrated in study areas.

Figure 12: Spatial Distribution of Cattle Population in Namwala District



Source: Field Data, 2010

5.6.2 Role of Non-Governmental Organisations (NGOs) in Promoting the Livestock

To supplement government's efforts, a number of stakeholders have come on board. A summary of their activities and achievements are presented in Table 21.

Table 21: NGOs Activities and Achievements in Promoting the Livestock Sector

NAME OF NGO	PERIOD	ACTIVITIES	ACHIEVEMENTS
Namwala Farmers Association (NFA)	1997 to date	- Coordinating body of all cattle clubs in the district - immunization and vaccinations	Vaccinated more than 30,000 cattle against FMD in 2009 - 4,000 in Baambwe and 5,500 in Maala areas.
The Heifer International (HI)	2006 to 2010	- Supplying heifers & goats through Namwala Women's Dairy Association - Promotion of keeping of other forms of livestock	More than 878 households have benefited (105 in Baambwe and 225 in Maala) with more than 400 heifers and 600 goats.
Namwala Livestock Support Programme (NLSP)	First phase; 1994 to 1998. Second phase; 2007 to 2012	- Refresher training in diseases and animal management - Training in livestock production management skills (castration, dehorning, breed improvement, de-worming, vaccinations and fencing.	Helping government in training farmers in diseases control. Cattle keepers now treat cattle on their own in both Baambwe and Maala. -Rehabilitated Maala staff camp house.
Community Led Disaster Risk Reduction (DRR) under HODI	2009-2011	Reducing risks such as livestock diseases, floods and droughts by targeting 2000 vulnerable households and working through government line ministries	- Provided shelters to 50 flood victims, sunk 2 wells in Baambwe and 2 dams in Maala areas. - Providing livestock loans to farmers in Namwala.

Source: Field Data, 2010

This chapter has reviewed that there was an increase in cattle slaughtered following the establishment of commercial buyers; Zambeef and Starbeef in Baambwe and Maala areas in Namwala District. This has resulted in change in perception and unprecedented increase in the number of traditional cattle keepers selling their cattle and acquiring items/projects such as vehicles, construction of dip tanks, television sets, iron-roofed houses, fencing etc. The presence of Zambeef and Starbeef in the District has propelled a high market value for cattle, decline in traditional networks of animal redistribution, inflating the bride, increased cash investments into the herd etc. Although the results are disaggregated for two areas, they are similar in many aspects and shown that the socio-economic changes/ situations are similar. This being the case, the chapter has established that the traditional livestock sector, coupled with regularised rural livestock markets, is an important catalyst for the modern socio-economic transformations among traditional cattle keepers in Baambwe and Maala areas.

CHAPTER SIX

DISCUSSION

6.0 Introduction

This chapter discusses three major issues based on the research question presented in Chapter One sub-section 1.2.3. The categories include changes in production goals and transformations in the traditional value of cattle with regularised markets and coping strategies. These are addressed under one main theme on transformation in cattle value and management practices of cattle. The second part will address government interventions in the promotion of livestock industry in Baambwe and Maala areas in Namwala District. Although some results are discrete for the two areas, the discussion will address the areas as one since they have similar socio-economic characteristics.

6.1 Transformation in the Production Goals, Value and Management Practices of cattle in Baambwe and Maala areas in Namwala District

6.1.1 Changes in production goals among traditional cattle keepers

Whenever traditional cattle farming is discussed in Zambia, one of the names that come to mind for many people is Namwala District of Southern Province. This is so because even with the decapitating cattle diseases that have ravaged the area in the last decade, Namwala still boasts of being the district that has the largest number of traditionally owned cattle standing at 123, 738 (GRZ, 2009). Cattle rearing in Baambwe and Maala have taken a centre stage from time immemorial. It has remained the mainstay of traditional peasant farmers. The prosperity of the cattle economy is based on the cycle of flooding on the Kafue Flood Plain, which provides year-round naturally irrigated pasture (see Appendices VI and VII).

As a symbol of prestige, the traditional Ila people used their cattle as a vehicle of social standing in society. Cattle confer status to individuals. There is a common assertion that the more the number of cattle one has, the wealthier and respected the individual is without considering their health. Also, cattle keepers rarely slaughtered their cattle for food or sell for commercial gain. In addition, cattle fulfilled a number of roles in social functions such as traditional ceremonies and marriage payments. They also contributed to production through draught power for ploughing, transport and manure (Fielder, 1973). It is argued that cattle are seen as the main form of security in the Ila society and in a way fulfilling the accumulating more cattle (Rootselaar and Bwalya, 1990). Farmers in both Baambwe and Maala areas strive to accumulate cattle in an effort to enhance their status in the community

by accumulating social relationships and extending patronage over others. This agrees with findings from studies conducted by Beerling (1986) among the Lozi in Western Province who showed that a family needed a minimum of thirty to fifty heads of cattle to live reasonably and to fulfil their social obligations in the community.

In addition, in Baambwe, there were no limitations upon the number of cattle that an individual or family could keep. In most cases, the chief owned more heads of cattle in the village and subjects offered herding services. For instance, chief Mukobela of Baambwe who died in 1958 owned more than eighty thousand heads of cattle and more than half were redistributed (*kushisha*) among the subjects. This was to ensure loyalty, power and prestige among his subjects without meaningful assets acquired from cattle sales. This is referred to as 'cattle complex' where cattle accumulation was a vehicle through which individuals strived to enhance their positions in the community by accumulating and distributing to others. This facilitated the circulation and redistribution of animals in the Ila society. However, a corollary of the concept of cattle complex is 'target selling income' which has been used to contend that because of their cultural attachment to cattle, traditional cattle keepers are unwilling to sell their animals unless there are specific income targets to be met (Mapani 2008, for various interpretations also see HODI 2009, Fielder 1973, Jaspan, 1953).

However, following the introduction of abattoirs in 2005 and 2008 by Zambeef and Starbeef respectively, the production goals or specific objectives for keeping cattle have changed in both areas. This is due to socio-economic changes among traditional cattle keepers from keeping cattle for prestige and as a symbol of wealth to redefinition of goals. In this study, financial security was ranked the first and most important primary objective of those interviewed. This is due to the changing economic environment resulting in an increase in the demand for money in the rural economy. Many cattle keepers are now market oriented and money acquired is used to purchase necessities ranging from social needs to agricultural inputs. The reliability on cattle among farmers as a source of income was found to be very significant. This suggests that cattle are perceived to be more important than their actual contribution to household cash income. This position agrees with the study undertaken by Hermitte (1974) in Western Province, which revealed that when new trade was monetarised, goods could be obtained by converting surplus animals into cash with which to buy prestigious European goods, especially by the Lozi aristocracy. This became the most important objective for keeping cattle since surpluses were used for financial gain to purchase other items as opposed to using cattle to forge political and social networks.

Furthermore, the study in Manicaland Province in Zimbabwe by Zindi and Stack (1992) indicated that fifty percent of households owning cattle ranked livestock among the two most reliable sources of income. About 40 percent of the households owning cattle ranked them among the two most reliable sources of income compared to 16.3 percent of the households owning only small stock. While 25 percent of the non-livestock owning households ranked livestock among the top two most reliable sources suggesting that poultry enterprises are important for households which no cattle or other types of livestock. This is in line with results from Baambwe and Maala areas that livestock are ranked highly as a form of insurance by households owning cattle in terms of cash.

Although financial requirement was ranked as the first objective for keeping cattle, social status is still important among respondents in Baambwe and Maala. This is because the more the number of cattle one has, the more likely he is to participate in regularised markets. The point here is that once a sufficient herd of cattle has been achieved, it then becomes feasible to sell surplus animals without undermining the reproductive capacity of the herd, as the case by very rich cattle keepers in Maala, such as Mr. Fredrick Shibwela, who owns more than five thousand heads of cattle. This is different from the situation before the introduction of abattoirs where cattle surpluses were mainly used as stock gifts and redistributed to others, and in rare cases, sold to 'briefcase' traders when there were specific income targets to be met. This has also been observed among the Lozi who used cattle to forge social networks.

Furthermore, other objectives for keeping cattle such as the provision of draught power which, use of manure, bride price, and other secondary objectives such as slaughter during funerals, marriages, traditional and initiation ceremonies, milk and meat production are still important. These objectives re-enforce each other and farmers have more than one objective for keeping cattle. The number of cattle slaughtered on funerals has also drastically reduced although this still depends on the status of the deceased. For instance, when Chief Mukobela Kakombo Shabongwe of Baambwe died in 1958, more than three hundred heads of cattle were slaughtered. This symbolised status and power. Today, the mourning period and number of cattle slaughtered have reduced. It is now common for a funeral to pass without any cow slaughtered but in the past this was a 'taboo'. The deceased's spirit was actually expected to be provided with a 'big herd' of *masuntu* at a funeral. This has since changed due to less number of cattle as a result of diseases and the value of cattle now calculated in monetary terms. From this, the production goals have changed among farmers with respect to the prevailing socio-economic environment in an increasingly money market economy.

6.1.2 Transformations in the traditional value of cattle and management practices

Traditional cattle keepers in Baambwe and Maala areas have been facing various problems pertaining to recurrent cattle diseases and climatic variability resulting in cattle losses and frequent droughts and floods respectively. Scoones (1995), pointed out that the key issue underlying African livestock marketing is not supply but rather strategic public sector interventions to competitive, efficient and flexible markets. Such markets will generate the most broad-based benefits for rural producers, livestock traders, consumers and the government despite the fact that most private livestock traders are opportunists. During drought periods, they buy animals at very low prices, knowing that producers are desperate for cash to buy grain and other necessities.

Jaspan (1953), in a study among the Ilas showed that between 1922 and 1933, cattle sales were low due to trypanosomiasis and FMD causing prices to drop and fluctuate and marketing became unreliable. Prices dropped from £10 per animal in 1934 to £1 in 1936. In 1940s, cattle prices were still low averaging £2 or £3 for cows and £3 to £6 for oxen. Fielder (1973), further indicated that in 1960s, due to various diseases, the District was excluded from selling cattle because of the fear of spreading diseases. Consequently, off-take rates from the traditional sector were low ranging from two to seven percent per annum. These figures, however, vary with accessibility to markets for cattle traders and the economic circumstances in a particular year (Rootselaar and Bwalya, 1990). Marketing problems coupled with livestock diseases continued in the 1980s and 1990s with 'briefcase buyers' dominating the livestock markets, especially cattle.

The socio-economic transformation among cattle keepers in the study areas is a result of the rise of rural-livestock markets, with the operations of Zambeef and Starbeef. These have opened new opportunities for traditional cattle keepers to sell their animals owing to recurrent livestock diseases and droughts/floods. This has led to a significant decline in 'briefcase' traders. The situation has changed the perception of farmers and the value attached to cattle from accumulation to entering into the money economy. Off-take rates from 1991 commercial sales were 1,700 outside the district and 205 within the district. The number slightly rose to 1,920 in 2001 and 2,642 in 2004. The establishment of Zambeef saw the number rising sharply to 14,400 in 2005 and almost doubled to 26,330 in 2009 following the coming of Starbeef. About 540 animals are slaughtered per week, 2,160 per month and over 25,920 per year. This proves the point that the availability of cattle buyers has the

potential to increase the number of cattle sold. Hence, there is a relationship between regular markets for cattle and off-take rates.

For successful cattle keepers, especially in Maala, cattle accumulation has opened unprecedented opportunities to engage in regularised livestock markets. The findings from both areas established that with the expansion of markets, cattle keepers have taken advantage of the opportunity to convert stock wealth into monetary value, and to transform this value into other economic investments. The propensity for successful cattle owners to be regularly involved in cattle markets is in line with information presented by Lutke-Entrup (1971), in his study in Western Province of Zambia. He concluded that traditional off-take rates were linked to the sizes of the herd among different categories of cattle keepers in Western Province, particularly in Mongu and Senanga where first abattoirs were established. The bigger the herd, the more surplus cattle sold. Hence, for successful cattle owners in both areas, cattle are increasingly seen as commodities that can congeal with increase in value holding it in a stable social, economic and political environment.

For this reason, there are more cattle keepers in Maala who indicated that they sold their animals to acquire universally accepted and prestigious items such as radios, solar panels, television sets, and vehicles. For example, 21 percent of the cattle keepers have bought utility vehicles from proceeds of cattle sales and 20 percent constructed dip tanks for dipping their animals in Maala while 13 percent have bought vehicles and only seven have constructed dip tanks in Baambwe respectively. In addition, cattle keepers have made other improvements such as building structures, fencing, and opening up of retail shops. In Maala, which is one of the few rural outposts in Zambia connected to the National grid, 23 percent cattle keepers own television sets by taking advantage of power availability and connecting electricity to their homes as compared to only 13 percent in Baambwe area which is not yet connected to the national grid. To support the acquisition of material assets by cattle keepers with increased markets, Zindi and Stack (1992) in their study on communal areas in Zimbabwe, stressed that although 70.3 percent of the households experienced cattle marketing constraints, 76.9 percent indicated that a ready cattle market was the reason for selling their animals to acquire items such as fire arms, hammer-mills and vehicles. Price incentives from Zambeef and Starbeef are therefore a strong driving force that have resulted in farmers disposing off surplus cattle with earned income used to purchase various items. Another observation made was that depending on the status of the cattle owner, surplus animals by different categories of farmers in the study areas are deployed to serve different

socio-economic functions which secure material advantages for their owners. The situation today is that instead of using cattle surpluses to forge for social networks, prestige in society and patronage over others, successful cattle keepers have tended to withdraw their cattle from internal redistribution to acquire universally accepted items. Under the free market economy prevailing in Zambia, increased opportunity to engage in rural markets by private buyers such as Zambeef and Starbeef, has led to some successful cattle keepers to withdraw animals from traditional internal redistribution to individual accumulation in order to participate in the rural markets without consulting anyone. This phenomenon has also been observed in a wide diversity of other African cattle keeping societies such as the Fulani of Nigeria (Sutter, 1987), the Masai of Kenya (Hedlund 1971; Grandin 1988), the Somali of central Somalia (Abdullahi, 1990). Closer to home, Solway (1986) and Behnke (1987), demonstrate this in the case of Botswana among the Tswana that the use of live animals for *kushisha* tends to decrease with the level of increased market opportunities.

Furthermore, the ability to build sufficient herd is partly determined by the extent to which a particular cattle owner can refrain from liquidating the reproductive element of the herd. Thus, access to other forms of income and means of subsistence, such as shops were found to be advantages for cattle keepers who are still attempting to expand their cattle holdings. Once a sufficient herd of cattle has been achieved, it then becomes feasible to sell the surplus animals without undermining the reproductive capacity of the herd. The role of wage employment as a means to acquire animals had been very important in the past and continues to be important today, although this remains low in the study areas. Studies elsewhere in Zambia indicated that people in salaried employment are able to accumulate animal surpluses by investing their wages in cattle and using un-remunerated kinship labour to herd their animals while they are away in employment. In return, the salaried employees have reciprocal kinship obligations to their relatives in the village, such as paying school fees for a relative's child or providing lodging to relatives visiting urban areas. The absence of these salaried employees from the village and their access to an alternative source of income enables them to refrain from eating into their herd capital. These observations agree with findings from studies by Beerling (1991) and Wood (1989) on studies in Western Province.

Another observation in Lutke-Entrup's (1971) sample of 121 cattle keepers, indicated that almost half (59) stated that they acquired their first animals through purchase of cattle after earning money from employment. This situation could have been more pronounced in Baambwe and Maala areas if parents encouraged their children to attend formal education,

instead of the current situation where only 20.4 percent of the respondents stated that their salaried relatives have entrusted them with their cattle. From the findings of this study, more males in Baambwe and Maala are far more educated because a reasonable number of males attended secondary and tertiary education with 70 and 80 percent respectively whereas the bulk of females attended only primary (62.3 percent) and most of them have never attended formal school (59.9 percent) due to cultural arrangements favouring boys. Boys have always been viewed as future family heirs. But in recent years, due to cattle diseases that have reduced their cattle numbers, and in some cases wiped out cattle, especially in Baambwe, many have realised the importance of sending their children to school as a form of investment. They are now more willing to sell cattle to raise school fees for their children just like they sell for acquiring other assets. In both areas, the level of investment was found to be more among farmers that attended secondary and tertiary education.

For example, the son to Mr. Shibwela in Maala, Kanji Shibwela, is a college graduate and Mr Auster Chikwayi and Mr Naboonda are both grade twelve school certificate holders among others. These have gone to the extent of opening up butcher shops in addition to restaurants, retail shops, and improvement in management practices among others. Although this is the case, it has to be emphasised here that even those who only attended primary education such as Mr. Kabuzu and Mr. Shanyuka, have equally made substantial investments in their herds. They were trained by Namwala Livestock Support Programme (NLSP) and HODI in animal husbandry. In both areas, those that have built shops lamented that shops help them meet small financial needs as opposed to selling the whole cow. For richer households, especially in Maala area, cattle are now increasingly seen as commodities and avenues of investment. This reconceptualisation has led to a gradual shift in production goals, to a reworking of production relationships between different households, and to a redefinition of economic ideologies and cultural beliefs. This being the case, the traditional livestock sector is an important catalyst for the modern commercial sector in the study areas. Although the majority of the farmers who own cattle were between 41-50 age groups, transformation cuts across all ages, gender and ethnic origin due to increased use of money.

In addition, cash enables the small scale farmers to buy grain on rural markets especially during drought years when crops fail. Cattle are kept primarily as a store of wealth which could be converted into cash to meet specific obligations. This is a rational choice for the small-scale farmers in the study areas to keep cattle especially with limited access to only one bank, Zambia National Commercial Bank (ZANACO) located in Namwala town.

Increasingly, some farmers are being exposed to formal banking institutions, hence developing the act of saving in a few since they get their money through the bank.

Most cattle keepers, especially in Baambwe area with more than 20 percent, however, have not accumulated sufficient animals. This group just manages to maintain a foot-hold in agropastoral production. Because of their weaker economic base and their lack of access to alternative sources of livelihood, they are more dependent on their cattle for survival and more likely to liquidate the reproductive element of the herd to meet short-term income needs. This depletes their stock and diminishes their chances to successfully accumulate and participate in available markets as compared to very rich cattle keepers in Maala. In situations where they have no immediate need to dispose off their animals, this category of herd owners have shown a greater degree of 'attachment' to their animals, and for this reason their behaviour can be attributed to 'cultural irrationality'. This is the category that tends to inflate the bride price in an attempt to accumulate cattle for the available markets.

For a long time, livestock health in Baambwe and Maala areas has been affected by poor husbandry practices resulting from poor extension system and certain traditional practices. The farmers lacked sufficient knowledge about modern husbandry practices such as good housing practices, feed supplementation, and breeding which improves the vigour of calves to be resilient to diseases, and internal parasite control (de-worming). In most cases, the sizes of herds led to overgrazing particularly in drought years on the plateau. Big cattle herds were also difficult to control and very often left to wander freely, becoming easy prey for lions, hyenas and even crocodiles. Losses due to the depredations of these carnivores were frequent, and sometimes described as large (Jaspan, 1953; Fielder, 1973). Some established traditional practices did not seem to favour stock improvement because too many bulls were allowed in the herds. It was also common to castrate the best bulls so that they would become large oxen for showing off at traditional ceremonies such as Shimunenga and Shikaumpa in Maala and Baambwe respectively. The methods of castration often led to deaths as bad methods and dirty knives were used.

The above situation is different today. Selling cattle has expanded cattle keeper's production opportunities by ploughing capital into modern forms of investments such as retail shops with money realised ploughed back to buy more cattle stock. Increased commercialisation changes aspects of cattle management with and the degree to which cattle owners tend to invest into the herd in form of drugs, vaccines, supplementary feeding and fencing which

controls and protects the spread of diseases and pasture. Apart from direct conversion of livestock wealth into commercial assets, proceeds from cattle trade have also helped owners to purchase pure breeds of bulls such as Brahman from places along the line of rail such as Choma, Mazabuka and Mkushi. Improvements in management have also occurred in which rubber bands are used (instead of using a burdizzo and knives), de-horning, de-worming, and cattle treatments with frequent dipping and spraying and fencing (grazing control). Although different levels in investments could be noticed in the two areas, they are negligible.

6.1.3 Coping strategies to the challenges faced by cattle keepers in Baambwe and Maala

The cattle keepers in Baambwe and Maala areas have been facing various problems pertaining to recurrent cattle diseases and climatic variability resulting in cattle losses, frequent droughts and floods, and consequently crop failure. This has resulted in assuming coping strategies that include among other things the following; fishing, Poaching/ bee keeping/lumbering, Treating cattle with vaccines and dipping/spraying, diversifying with mixed crop/animal production and keeping different animal species. This sub-section will therefore concentrate on fishing and keeping different livestock species as the most viable coping strategies since others are obvious from time immemorial (Yambayamba, 2006).

For a long time, the *Ilas* had little to do with the river. All they used the river for was water for drinking for their animals, and even going near the river was a taboo. But because of the prevalence of diseases like corridor which killed many animals in the 1990s, some of those who were heavily hit have turned to the river for survival with eleven percent and sixteen percent from Baambwe and Maala respectively. However, this was not well received by the local people. If they found an Ila man fishing, they would have a *kama* (small meeting) to find out why, because those who fish are normally *balumbu* (foreigners or non-Ilas) especially the Yao, Lozis and Bembas. Fishing is mainly done for them to re-establish themselves in the Ila way of life. Many people have not adopted this as a permanent activity. Sikana (1997) found out that the situation is similar in Western Province in Zambia in which cattle keepers who lost their animals to diseases turned to the Zambezi River for survival.

In addition, the study by Yambayamba (2006), in other Provinces of Zambia namely: Eastern, Northern and Central Provinces established that other than cattle that were classified as 'very important', other species such as goats, sheep, pigs, poultry and rabbits were generally classified as 'important'. In all the Provinces, the livestock species were ranked in order of their socio-economic importance as follows: cattle, goats, poultry, pigs,

sheep, and rabbits. Small livestock such as poultry and goats have a high turnover rate and can easily be converted into cash. Yambayamba (2006) further stated that experience on the ground showed that with more improved management, local chickens can be raised to market weights within two months. Goats on the other hand have a high thinning rate and can therefore multiply into large numbers in a short period, helping families to survive.

In Baambwe and Maala areas, the coping strategies were found to be similar and the similar situation prevails in which cattle keepers have now realised the importance of keeping other species although they have not yet embraced rabbit keeping as a viable coping strategy, maybe it is time to introduce them! Diversifying with mixed crop-livestock production is vital in addition to keeping different livestock species such as pigs, poultry and goats and now increasingly sheep which are slaughtered more often on weddings and traditional ceremonies rather than cattle. 'Target income' household expenditures are met by these small ruminants. In addition, donkeys have also been introduced for transport and draught power. Like other farmers elsewhere in Zambia, cattle keepers in Baambwe and Maala areas in Namwala District have taken advantages from different reproductive rates of different species to rebuild their livestock numbers. Thus, a call for support to the livestock sector that has mainly been marginalised cannot be overemphasized.

6.2 Government interventions in the promotion of livestock industry in Baambwe and Maala areas in Namwala District

Income from livestock plays an important role in enabling households' access to food during food shortages in Baambwe and Maala areas. This underscores the importance of the role of government in which both formal and informal livestock markets can play in enhancing the food security from cattle sales. Before the establishment of current abattoirs, the marketing system inhibited the role of livestock in rural development. Hence, to encourage farmer's participation in livestock markets requires government intervention in developing an efficient and effective marketing system. In view of this, Scoones (1995: 84) pointed out that instead of creating new public organisations for livestock marketing, "the focus needs to be on what the government can do to support, strengthen and facilitate private sector marketing to be responsive to variable supply and demand conditions to local livestock suppliers.'

Cattle development policies have evolved considerably from pre-independence to date, moving from a perspective that saw cattle as part of an agricultural system to a renewed recognition of the need to see cattle as an important item of rural transformation. This

position is now more holistic since the multiple roles of cattle in the community and economy are now more fully recognised with social security functions as well as productive contributions through the provision of manure and draught power. Nonetheless, there remains an important need for deeper understanding of the economic bases of cattle keepers so that the new approaches to cattle development can be more sensitive to the circumstances for which they are designed. In particular, the implications of the integral role that cattle play in rural transformation need strong government intervention.

The disease control situation deteriorated in Namwala since 1980s primarily because of the declining operational funds caused by the deteriorating financial position of government, and possibly because of lack of priority. Areas of disease monitoring and surveillance declined thereby causing increased cattle mortality. This has threatened the livelihood of people. While in recent years several donors such as HI, SLIP, and IFAD have provided support to the DVO, aimed at preventing the collapse of diseases control measures; there has been to date no radical attempt to reorganise the disease control services in order to ensure sustained protection for livestock in the District. It can therefore be argued that during the first and second republics under Dr Kenneth Kaunda's rule, strong policies were tailored towards cattle productivity in Namwala in which the government had strong commitment towards compulsory free preventive methods such as vaccination and dipping. Two communal dip in Baambwe and three in Maala were sunk to fight diseases especially tick-borne diseases. Today, these structures are a sorry sight with no maintenance! Only one dip tank is operational in each area with charges introduced although preventive treatment of scheduled diseases, such as Foot and Mouth Disease (FMD) and Lumpy skin remain free. In addition, transhumance is still largely a major cause of the spread of diseases where cattle freely mix on the Kafue Flood Plain. But due to large herds of cattle and that most of the people do not have title deeds and sources of water; it still remains the only option from time immemorial.

In addition, much remains to be done in marketing and land management of grazing areas. Many parts in Maala still have limited opportunities to sell cattle despite incentives and full operations of Zambeef and Starbeef. All farmers who want to sell their animals have to certify their cattle with the camp officers before transporting them in trucks for slaughter. Although this is an important measure in controlling the spread of diseases, it at the same time inhibits some potential farmers from selling their animals who are not only charged for the service of inspection, but also transporting to the abattoirs with bad state of feeder roads. The situation is even worse during the rain season when feeder roads are impassable.

Individualisation of land is another important factor in which government can play a part. Farmers can be provided with technical assistance to improve the quality of grazing areas and calculate the carrying capacity for their cattle. Studies by Solway (1986) in Botswana and Zindi and Stack (1992), on communal areas in Zimbabwe, indicated that leasehold tenure was the only way farmers could be made to match their cattle numbers to grazing resources, as communal tenure always encourages individuals to increase their herds. Rootselaar and Bwalya (1990) further observed that in the Eastern Province of Zambia, cattle obtained the bulk of their feed from the crop residues produced by the arable land, while the introduction of legumes helped the increase of crop and fodder production. In Baambwe and Maala areas, this situation is more complex given the greater use of communal grazing land where the flood plain is a common property resource for all.

A survey in Chief Macha's area in Choma confirmed that the above situation is difficult since apart from requiring massive resources to demarcate and plan, the move was also resisted by the local people (Rootselaar and Bwalya, 1990). The individualisation of land would be a drastic change to the traditional customary tenure where grazing land is communal and arable land is held by individuals with usufruct rights. The situation might probably be different and more difficult in Baambwe and Maala areas because the Kafue Flood Plain (as locals say *nchipo kwa leza* - gift from God) is a common property resource (wetland) which cannot be leased. What need to be enhanced are management practices with respect to regular dipping, vaccination and quality bulls. Furthermore, the study by Fielder (1973), points out that it is difficult to take account of local variations in grazing conditions and seasonal changes in grazing sites in Namwala due to vastness of the Flood plain (see Appendix VII). But such measures can be effected on the plateau. Unless people in Baambwe and Maala realise the importance of a strong mixed crop and livestock strategy for the production of more fodder and individualisation of land, such efforts will be in vain.

From all the above situations, the DVO requires more support from the government and other stakeholders. A major subvention is needed to enhance capacity and reduce its total dependency upon the Ministry of Agriculture, Livestock and Fisheries and donors to new directions of sustainable livestock production in the District particularly in relatively more prosperous cattle keeping areas of Baambwe and Maala.

CHAPTER SEVEN

CONCLUSION AND RECOMMENDATIONS

7.0 Conclusion and Recommendations

The purpose of this chapter is twofold. Firstly, it gives a conclusion to the major findings of this study and secondly, it provides some recommendations for future policies and research related issues to this subject. The conclusions and recommendations are based on the two areas since the socio-economic situations are similar with respect to transformations in the value of cattle, management practices and off-take rates.

7.1 Conclusion

The central premise reached in this study is that cattle keepers are in fact rational economic actors, whose production goals and strategies are determined not solely by cultural and ideological considerations, but by constraints and opportunities imposed by the wider socio-economic environment. The shift among cattle keepers in Baambwe and Maala in Namwala District became apparent in 2005 and 2008 when Zambeef and Starbeef respectively established abattoirs there. These provide regular markets for cattle keepers. One of the most important aspects is the differential ability of different categories of cattle keepers in Baambwe and Maala areas to successfully accumulate sufficient number of cattle to take advantage of opportunities presented by regularised markets. Cattle keepers in Maala have much more improved breeds and management practices hence more cattle numbers than those in Baambwe. However, in both areas, farmers have accumulated enough cattle stocks enabling them to participate in regularised markets.

Against this background, one of the conclusions reached is that poor cattle keepers, specially in Baambwe area, who have not yet managed to accumulate enough stock are more likely to exhibit what many commentators have referred to as 'target income selling' syndrome; the tendency to hold on to animals and only sell them when there are specific and short-term income targets to be met. However, the apparent cultural irrationality among traditional cattle keepers should be seen as a prudent economic behaviour to safeguard the reproductive elements of the cattle in order to meet the longer term goal of stock accumulation. Once sufficient animals are accumulated, it then becomes feasible to regularly participate in the ready rural cattle markets currently provided by these two commercial buyers. This has changed the production goals among traditional cattle keepers from mere accumulation for prestige and social standing in society to entering into the money market economy.

Three major constraints that hinder raising of livestock include presence of cattle diseases and parasites, poor nutrition and poor husbandry practices together with droughts and annual floods. These constraints have led to cattle losses and some individuals have resorted to fishing, poaching, honey collecting and lumbering, diversification with mixed crop-livestock and keeping various livestock species. It must be emphasized that the traditional livestock sector is a dynamic enterprise which responds to opportunities and constraints imposed by the wider social, political and economic environment. This study has demonstrated that traditional cattle keepers who have managed to accumulate sufficient cattle stock, especially in Maala area, where farmers were found to have more cattle numbers and much improved breeds than in Baambwe area, are more likely to participate in regularised rural livestock markets. Increased cattle marketing has encouraged change in objectives for keeping cattle from accumulation for prestige to embarking on acquiring universally accepted and prestigious assets such as solar panels, television sets, utility vehicles, dip tanks, iron-roofed houses, fencing and retail shops among others.

It can further be said that the traditional livestock sector is an important catalyst for the expansion of the modern commercial sector in Maala, which now has two butcher shops among other shops which are owned by local farmers. Apart from the propping up of the commercial sector by bringing large amounts of cash into circulation, livestock wealth is being converted into commercial assets by successful cattle keepers. Proceeds from the commercial sector may also be invested into cattle and then ploughed back to expand the commercial enterprises whenever need arises.

The results presented in this dissertation demonstrate the importance of well-established rural livestock marketing system in stimulating off-take rates from the traditional sector. Increased cattle marketing has encouraged change in objectives for keeping cattle from accumulating for prestige to entering into the money economy. The establishment of Zambeef and Starbeef abattoirs has been accompanied with the improvements in infrastructure such as feeder roads, loading bays and improved slaughter and cold storage facilities. There is one loading bay in Baambwe while in Maala, there are two; one in Kantengawa and the other one in Maala Village itself. Whereas marketing is dependent on the private sector, the government has a critical role to play in the construction of a shorter all-weather road from Niko-Monze in addition to the completed Choma-Namwala road and the continuous maintenance of feeder roads. Improvement in road infrastructure outside and within the district, a better pricing mechanism, training smallholder farmers, especially in

Baambwe for them to be in tandem with their counterparts in Maala, and diversifying with other forms of livestock are key pre-requisites to increased off-take rates from the traditional livestock sector. This would further facilitate the exportation of beef products from the District as a whole and importation of drugs and vaccines for sustainable livestock production. Hence, transformation has occurred among traditional cattle keepers in both Baambwe and Maala areas in Namwala District. They are selling their cattle, accumulating both money and assets and have responded positively to the introduced cattle markets by selling their surplus heads.

7.2 Recommendations

Having undertaken this study and for the benefit of improving the livelihood of the people in Baambwe and Maala areas in Namwala District, the following recommendations are made:

1. The government and other stakeholders should focus on interventions which can accelerate the accumulation process to an extent where the break-even point is reached. Such interventions should include training farmers in disease control, cross-breeding and animal nutrition. This should be accompanied by efforts which would prevent poor cattle keepers, especially in Baambwe area, from eating into the reproductive element of the herd, such as drought mitigation programmes and formation of marketing cooperatives. Stocking and restocking exercises should not only target those with larger households but be done in a more strategic manner especially targeting those who have lost/not accumulated more cattle.
2. There is need to place emphasis on expanding and strengthening other alternative income earning opportunities such as bee keeping, lumbering and fishing. In addition, there is need to venture into other livestock species such as donkeys, chickens, pigs, goats and sheep even in Maala where farmers are still lagging. These can easily meet small income requirements needed to purchase various goods on rural markets.
3. As an immediate measure, technologies should be developed to broaden income sources by adding value to milk and transforming it into different end products such as yoghurt, butter, cream and cheese, particularly by encouraging companies like Parmalat and others to establish milk and tannery processing plants in addition to abattoirs that are already there.
4. Although Zambeef and Starbeef have played a major role in transforming the Baambwe and Maala rural economies, there is need to make prices for cattle better. The government and other stakeholders should step up measures aimed at improving the pricing mechanism

to stimulate further off-take rates. One way is to frequently maintain feeder roads and come up with a tax-free policy to those wishing to establish livestock-related industries. This can consequently attract more players in livestock-related industries so that farmers have maximum value for their animals.

5. The District Veterinary Office (DVO) should reduce service charges in cattle certification, meat inspection, cattle levy and transports costs, especially among farmers from Maala who pay a lot of money to have their cattle transported to abattoirs. Instead, there is need to create a livestock fund which will see the creation of livestock council fund directed towards maintenance of loading bays, purchasing of vaccines and other related costs. This would also help increase government coffers so that whenever there is a disease outbreak, there is no rushing to the government.

6. The government through DVO should allocate significant resources to Veterinary Ward Officers (VWO) to both Baambwe and Maala camps and ensure all other wards in the District are manned to provide quick veterinary services to cattle diseases farmers are facing.

7. The government has to ensure that disease outbreaks are controlled and other infrastructures such as dipping tanks are availed to more cattle keepers in Baambwe as the case in Maala, in order to ensure total disease control and eradication. One way to do this is through the encouragement of the formation of cooperatives in all the wards in the District. Due to free range grazing system on the Kafue Flood Plain, this measure would compel most cattle keepers to dip and vaccinate their livestock regularly thereby lessening the outbreaks and transmission of preventable diseases.

8. Priority should be given in scaling up veterinary input provision and improving extension services and construct more/revive communal dipping tanks in order to improve disease monitoring and surveillance in both Baambwe and Maala areas, and the District as a whole.

9. The cattle-husbandry environment is currently not very conducive as there is poor livestock policy and lack of institutional framework. Innovations such as cross-breeding programmes, veterinary care, research, supplementary feeding and borehole drilling should be made available for health livestock production. These should be accompanied by improvements in the marketing arrangements for agricultural products in general, and for cattle and cattle products in particular, and access to credit by all categories of cattle keepers in Baambwe and Maala areas in Namwala District.

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APPENDICES

Appendix I

QUESTIONNAIRE ON SOCIO-ECONOMIC TRANSFORMATION AMONG TRADITIONAL CATTLE KEEPERS IN KAFUE FLOOD PLAIN IN NAMWALA DISTRICT, ZAMBIA.

Serial No:..... **Place:**..... **Date:**

Mr KALAPULA SHEPANDE is carrying out research on the Kafue Flood Plain of Namwala district in Baambwe and Maala areas on the socio-economic transformation among traditional cattle keepers. This is in partial fulfilment of the requirements for the degree of Master of Science in Geography with the University of Zambia.

You are requested to answer all the questions to the best of your knowledge and kindly be assured that information will be kept confidential.

SECTION A: DEMOGRAPHIC AND BACKGROUND INFORMATION

1. Sex: Male: Female:
2. Age..... Years
3. Marital status: (a) Single (b) Married (c) Widow (d) Separated
4. If married, how many children do you have?
5. How many are you in your household including your children?
6. Have you ever attended formal school? Yes (b) No
7. If yes to Question 6, what is your highest educational attainment?
 - (a) Lower Primary 1-4
 - (b) Upper Primary 5-7
 - (c) Basic school 8-9
 - (d) High school 10-12
 - (e) Tertiary
 - (f) Non
8. What is your religious denomination?
 - (a) UCZ (b) Jehovah's Witness (c) Catholic
 - (d) SDA (e) New Apostolic (f) No Religion
9. What tribe are you?
 - (a)Ila (b) Tonga (c) Lozi (d) Luvale (e) Others specify

SECTION B: LIVESTOCK AND CROPS GROWN

10. Do you own any livestock? (a) Yes (b) No
11. If Yes to Q 10 above, how did you acquire your animals?.....
12. Are there any salaried employees who own cattle in your kraal? (a) Yes (b) No
13. If Yes, is the owner (a) Male/ Female.....(b) Age.....(c) Ethnic origin.....
14. Tick below the kind of livestock you own;
 - (a) Cattle (b) Pigs (c) Goat (d) Sheep (e) Donkey
 - (f) Chickens (g) Other
15. Has the use of cattle/donkey helped in agricultural production? (a) Yes (b) No
16. What are your objectives for keeping cattle.....
17. Tick in the boxes below common diseases in your area;
 - (a) Foot and Mouth disease (d) Lumpy Skin

- (b) Corridor disease (e) CBPP
(c) Heart water (f) Anthrax
(g) Others please specify.....
.....
18. Have you lost any livestock (cattle) to diseases (s) you have listed in Q. 30 above?
(a) Yes (b) No
19. How many cattle or any other livestock have you lost in the last five years?.....
.....
20. Would you please list other challenges that are associated with cattle rearing in this area
.....
.....
21. Do you own assets? Yes No
22. Tick the assets that you bought in the last five years below;
(a) Radio (b) Television (c) Solar panels (d) Vehicle type.....
(e) Roofing sheets for building house (s) and a dip tank
(e) Others specify.....
23. How did you acquire the above ticked items?.....
.....
24. What was the price for an animal before and after the construction of current abattoirs?
.....
25. How many cattle do you sell in a year and how much money do you raise from selling Cattle?.....
26. List the reasons for 'target income selling' of cattle.....
.....
27. Where were you selling the livestock (cattle) before the construction of the current Abattoirs?
28. What can you say about the prices before and after the two abattoirs?
29. Which one of the following abattoirs do you sell your cattle too frequently and why?
(a) Zambeef (b) Starbeef (c) Kachema (d) Others specify.....
Reasons why.....
.....
30. What measures has the government put in place to fight livestock diseases in your area?
.....
.....
31. Do you belong to any cooperative? (a) Yes No
32. If Yes to Q.25 above, how are you benefiting?.....
.....
.....
33. Is there any NGO working in your area to assist mitigate the impact of cattle diseases?
(a) Yes (b) No
34. If Yes to Q35, in what way(s) is it helping you?
(a) Restocking (c) Free advice
(b) Free drugs (d) Give other forms of livestock
(e) Others please specify.....
.....
35. Do you visit the Government Extension Offices or Veterinary Officers for technical advice about cattle diseases? (a) Yes No
36. How did you cultivate your fields in the last farming season?
(a) Hand hoe (c) Tractor
(b) Draught cattle (d) Donkey

37. Indicate by ticking the crops that you grow below;
 (a) Maize (b) Sorghum (c) Cotton (d) Groundnuts (e) Millet
 (f) Cassava (g) Others specify.....

SECTION C: LAND OWNERSHIP AND ANNUAL FLOODS

38. Do you own land? (a) Yes (b) No
39. If yes, do you have a title deed?
40. Do you cultivate the total land you own?
 (a) Yes (b) No
41. If No to question 12, give reasons why.....

42. Do you have fields in the plains as well as the plateau? Tick where appropriate:
 (a) Plain only
 (b) Plateau only
 (c) Both plain and plateau
 (d) None of the above
43. What are the advantages of having fields on the plain and the margin? Tick where appropriate:
 (a) The soil is fertile on the plain than the margin
 (b) The soil is sandy on the margins
 (c) It is risky to depend on the plain only due to floods
 (d) Cattle attack unfenced fields on the margins
 (e) To have more harvest
44. How often do you experience annual floods?
 (a) Every year
 (b) Once in three years
 (c) Once in six months
 (d) None of the above
45. How do you survive in times of floods and droughts?
 a) Fishing
 b) Charcoal burning
 c) Game poaching
 d) Honey hunting
 e) Others specify.....
46. Is there any way the government or NGOs are helping in times of floods/droughts?

47. What help is being rendered?
 a) Restocking
 b) Advice
 c) Food For Work
 d) Free seeds / fertiliser
 e) Others specify.....
48. Mention other ways in which the government is helping to boost both crop as well as livestock production in the area.....

THANK YOU VERY MUCH FOR YOUR COOPERATION.

Appendix II

INTERVIEW SCHEDULE - THE CHIEF/HEADMAN

1. Sex: Male Female.....
2. How long have you been a Chief/ Headman?.....
3. Level of education
(a) Primary (b) Secondary (c) Tertiary (d) Never been to school
4. What changes have you noticed from the traditional reasons for keeping cattle?.....
.....
5. What do you think has brought about these changes?.....
.....
6. Are they good or bad?.....
7. To which abattoir do you prefer selling your cattle and why?.....
.....
8. What are some of the improvements that have been brought by these commercial livestock buyers?
.....
9. In what way(s) has the life of people improved with respect to ready cattle sales?
.....
10. What constraints are the farmers facing in controlling livestock diseases?.....
.....
11. How are cattle keepers coping with recurrent livestock disease attacks and droughts/ floods?.....
12. Do women own land/ cattle now?.....
13. What were some of the reasons for not allowing them to own or sale cattle/ land?.....
.....
14. What is the government doing to solve the above livestock diseases?
.....
15. In your opinion, what lasting solution(s) would you want to see done by the government and other stakeholders to completely control these recurrent diseases?.....
.....
16. Has there been any NGO or Government Agency that tried to develop the plain for any agricultural development?
(a) Yes
(b) No
17. If Yes, what were the objectives and crops sought?
.....
.....
18. What were the reactions from the villagers?
.....
.....
19. Are there any possibilities of opening up livestock related industries e.g. Hide Processing in Namwala?.....

Appendix III

INTERVIEW SCHEDULE - NAMWALA DISTRICT VETERINARY OFFICER

1. Name and position officer.....
2. What kind of livestock do people keep in Namwala?
.....
3. What changes have you noticed among the traditional farmers for keeping cattle?
.....
4. How many animals (cattle) does an average Ila man own?.....
5. Under what conditions do people sale their cattle:
(a) Drought (b) Education (c) Sickness
(d) Purchase agricultural input (e) Others specify.....
6. Of what importance is the plain to the people of Namwala?
(a) Farming (b) Winter grazing
(c) Fishing (d) Water transport
(e) Others specify
7. How many cattle do you clear for slaughter in a day?.....
8. In what ways are these big cattle buyers helping in improving the local cattle breeds?.....
.....
9. How does the plain serve as a winter grazing area?
10. Mention cattle diseases common in Namwala?.....
.....
11. How do traditional cattle keepers cope with recurrent livestock diseases and droughts?
.....
12. What measures have you put in place to minimise the spread of diseases to and from
Namwala?.....
.....
13. What constraints do farmers face in controlling these cattle diseases in Namwala?
.....
.....
14. Do you have enough livestock extension officers in the District? If not, how are you
operating with the shortage of staff?.....
15. Mention ways which the government is helping the traditional cattle keepers to control
livestock diseases?
16. In your opinion, what do you think should be done to improve the potential utilisation
of the Kafue Flats?.....
.....

INTERVIEW SCHEDULE - ABATTOIR MANAGERS

1. Name..... Sex..... Age.....
Company..... Position.....
2. When did your company come to Namwala?.....
3. Why did you choose Namwala for your business?.....
.....
4. How many local people have you employed in your company? Male.....Female.....
5. How many cattle do you slaughter in a day?.....
6. Is this number enough and up to your expectations?.....
.....
7. Are there other livestock types that you slaughter apart from cattle?
(a) Yes (b) No
8. If Yes to Question 6, please list them.....
.....
9. If No to Question 6, please explain why.....
.....
10. Are there ways in which you are helping the traditional cattle keepers improve their breed stocks? (a) Yes (b) No
11. If Yes to Question 9, what are they?.....
.....
12. If No to Question 9, explain why?.....
.....
13. Are you in any way involved in Cooperate Social Responsibility in the District?.....
.....
14. In what way(s) is the government supporting your operations in this area?.....
.....
15. What major challenges do you face in your operations?.....
.....
16. What are your future prospects with respect to the operations and expansion of your business here?
.....
17. How often is meat/beef transported out of Namwala and what quantity?.....
.....
18. What form is it transported in? (a) Processed and packed (b) Dead frozen animals (c) Other means please specify.....
19. Do you hire or use your own transport?.....
20. How does the road affect your transportation especially during rain season?.....
.....
21. Where is meat/beef transported to? (a) Lusaka (b) Monze (c) Choma
(c) Mazabuka (d) Kitwe (e) Chisamba (f) Others please specify.....
22. How much is beef and offal per kg?.....
23. How much do you buy the hides and where do you take and use them for?.....
.....
.....

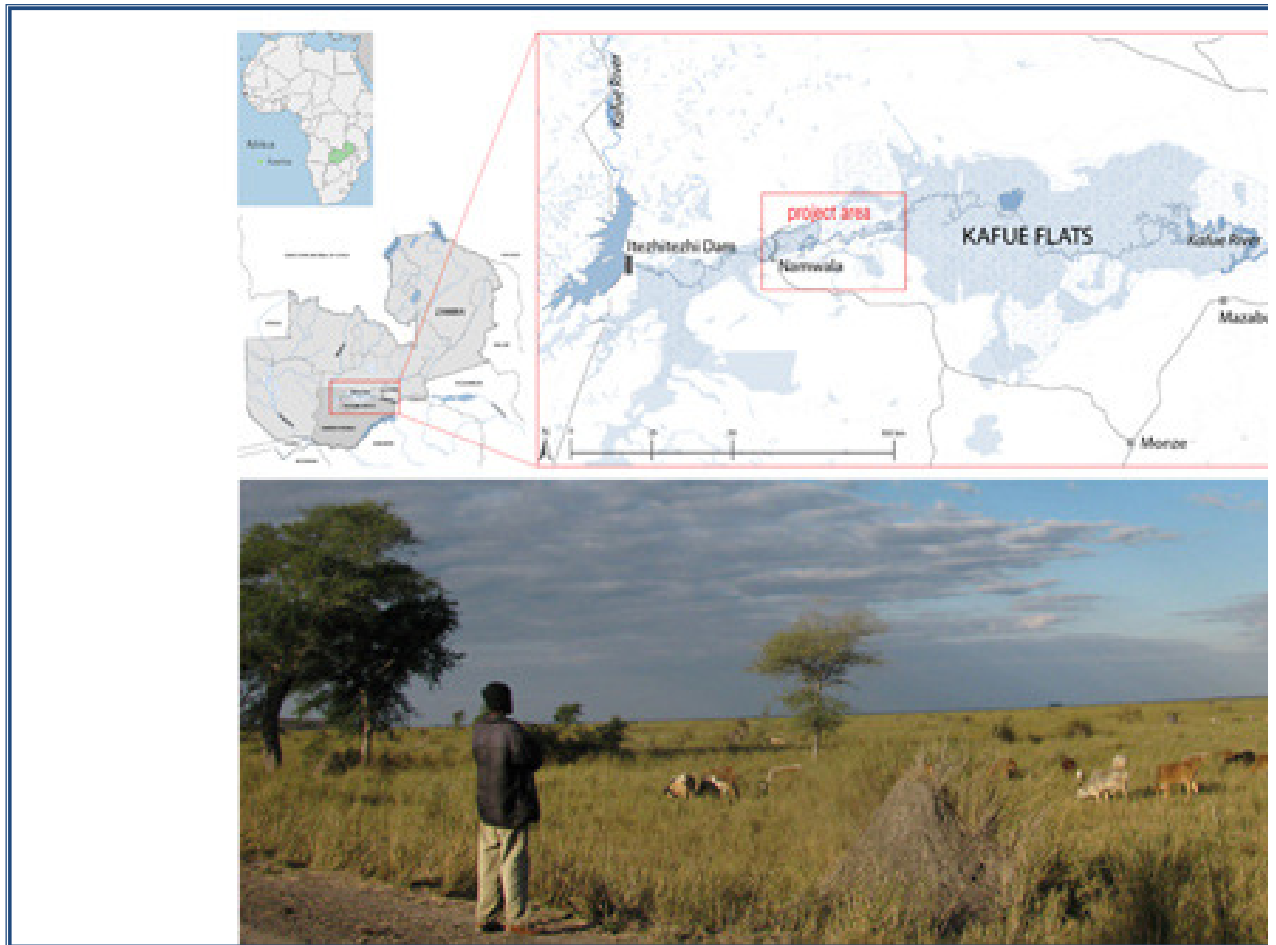
Appendix V

INTERVIEW SCHEDULE – NON-GOVERNMENTAL ORGANISATIONS

1. Name..... Sex..... Age.....
Company..... Position.....
2. When did your organisation come to Namwala?.....
3. Why did you choose Namwala for your business?.....
4. How many people are employed by your organisation in the District? Male.....
Female.....
5. What are the aims and objectives of your organisation?
(a) Aims.....
.....
(b) Objectives.....
.....
6. How has your organisation been welcomed by the local people?.....
.....
7. What are some of the objectives among the traditional cattle keepers?.....
.....
8. How have you helped ‘cattle complex’ and ‘target income selling’ among the
traditional cattle keepers?
.....
9. How have you improved the following among the traditional cattle keepers?
(a) Traditional cattle breeds.....
(b) Cattle marketing.....
(c) Diseases control.....
10. In what way (s) is the government supporting your operations in the District?.....
.....
11. What challenges are you facing in your operations?.....
.....
12. What are your future prospects with respect to the improvement of livestock disease
control and marketing in the next five years?.....
.....
.....

Appendix VI

The Kafue Flats: A Dynamic Flood Plain in Zambia

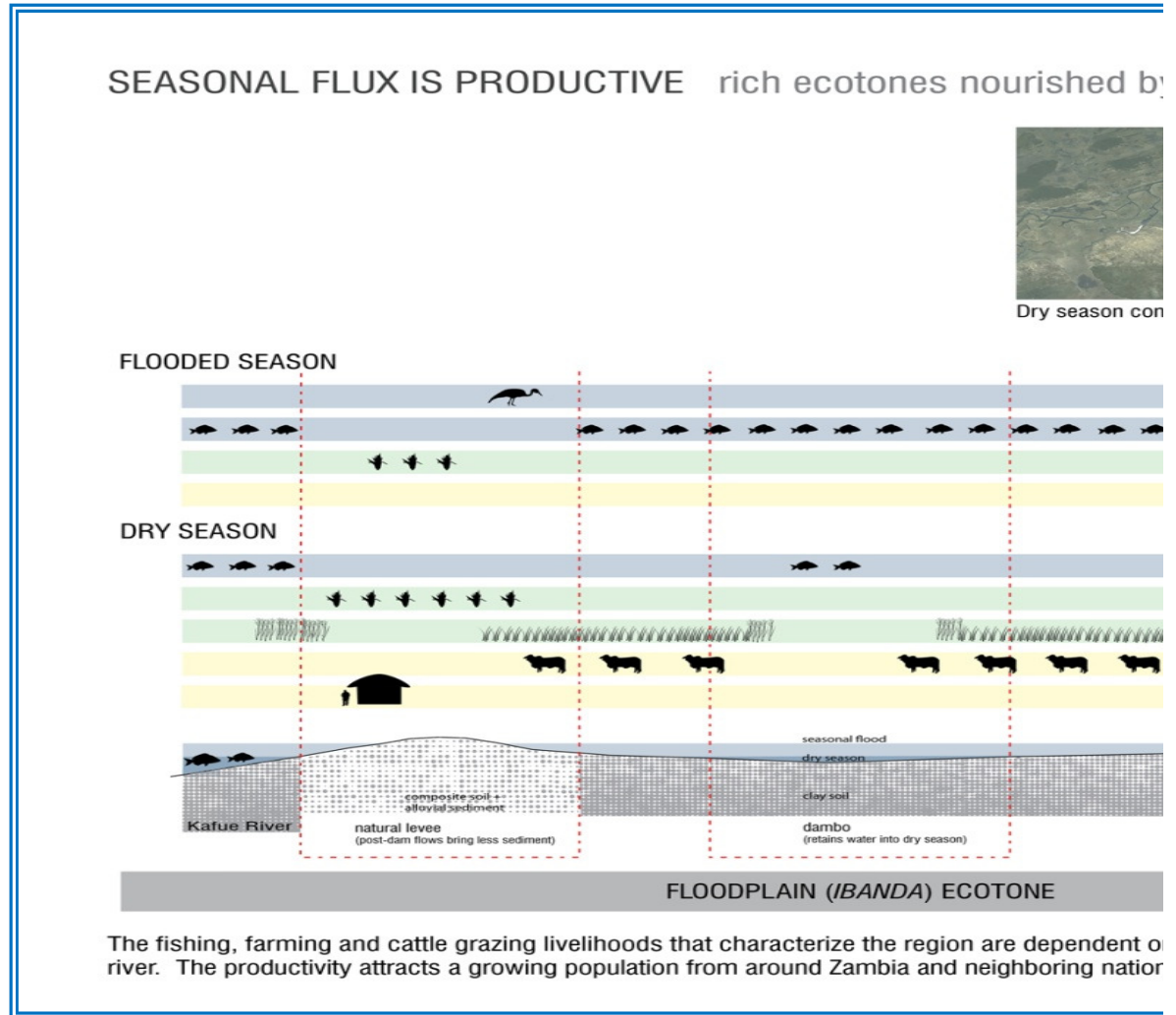


Source: Churchill (2010)

Note: The Map shows the Kafue Flats which is seasonally flooded with landscape of oxbows, verdant grasslands and wooded levees in Central Zambia. The Itezihitezhi Dam (constructed in 1978) regulates the Kafue River as it flows through the Flats to the Kafue Gorge Dam (constructed in 1972). The inserted photograph below shows the cattle keeper ‘admiring’ his cattle grazing in the vast Kafue Flood Plain near Baambwe area. Cattle keeping is the most dominant economic activity in Baambwe and Maala areas in Namwala District shown as ‘project area’ on the Map.

Appendix VII

Seasonal Flux is Productive: Rich Ecotones Nourished by Flooding in Baambwe Maala areas in Namwala District.



Source: Churchill (2010)

Note: The Flood Plain (*Ibanda*) and Upland (*mulundu*) influences the flux of activities with respect to seasonality (flooded and dry) in Baambwe and Maala areas. The Flood Plain particularly largely influences activities related to rearing cattle, crop production and fishing.