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Agrifood Sector Studies

Restructuring food markets in Zambia: Dynamics in the beef and chicken sub-sectors (A)

M. Ndiyoi, C. Mudenda , A. Louw, D. Chikazunga C. Hankuku, L. Ndanga

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List of Acronyms

BQ	Black Quarter
BRE	Baroste Royal Establishment
CBI	Crest Breeders International
CBPP	Contagious Bovine Pleuro-pneumonia
CSBZ	Cold Storage Board of Zambia
DOC	Day Old Chickens
FAOSTAT	Food and Agricultural Organization Statistics
FMD	Foot and Mouth Disease
GDP	Gross Domestic Product
GRZ	Government of the Republic of Zambia
HACCP	Hazard Analysis and Critical Control Practices
HHMS	Herd Health Management Scheme
MRI	Maize Research Institute
HPL	Hybrid Poultry Limited
LCMS	Living Conditions Monitoring Survey
LDT	Livestock Development Trust
LUSE	Lusaka Stock Exchange
MAFF	Ministry of Agriculture Food and Fisheries
MDFA	Mongu District Farmer Association
NAMBOARD	National Marketing Board
NGO	Non Government Organisation
PROFIT	
TB	Tuberculosis
USAID	United States Agency for International Development
WPCU	Western Province Cooperative Union
ZAMTEL	Zambia Telecommunication
ZIMCO	Zambia Industrial and Mining Company
ZNBC	Zambia National Broadcasting Corporation
ZNFU	Zambia National Farmers Union
ZRC	Zambezi Ranching and Cropping

Executive summary

The report presents the results of a study of the restructuring that took place in the beef and chicken subsectors. The areas of focus of the study were the Western and Southern provinces for beef and Lusaka province for chickens. The aim of the study was to answer two main questions:

(1) Why and how are food industry sectors restructuring? (policy and non-policy reasons), with: (a) a focus on the study product, but adding the general context of food sector restructuring; and (b) the national-meso (sectoral) and local-meso (study zone) context.

(2) How is the interface between the actors in the food industry, and the farmers, restructuring: that is, how is the procurement system of the buyers (the segments of the food industry) transforming? And why? (policy and non-policy reasons).

The questions were addressed through interviews and review of reports at a national level and interviews with companies and other principal stakeholders involved in the sector, including the department of veterinary services, district farmer organizations, abattoir operators, supermarkets, butcheries, restaurants, cattle owners, traders and transporters.

The bulk of the beef processed and consumed in Zambia comes from small scale farmers. The cash benefits to the farmers are minimal because the primary objective of keeping the cattle is not for sale purposes, but as insurance against uncertainties (defined in the report as stress sale) or to meet specific household programmes. In contrast to this, cash sales are the main motive for the production of cattle for the large scale producers. The sectors are thus clearly divided into large and small producers. For most small producers, entry into the market is mediated through traders, whereby the trader assumes the transaction risks, such as cattle being rejected by the processor. The farmers prefer the use of traders because of the benefits of immediate cash payment.

The beef sector has undergone fundamental transformation driven mainly by market liberalization and the decline of national disease control, particularly of national importance such as FMD, CBPP. The sector has largely been in private hands, though for a long time the government of Zambia has been a big player in the market.

In the early 1980s, the most dominant mode of trade was to move live animals from the main sources in Western and Southern provinces to the processors in Lusaka and the Copperbelt. The trend has moved decidedly towards ranchers and supermarkets establishing their own processing units. Some supermarkets may choose to avail the processing space to a meat supplier. The five models that appear to be operating in the beef sector are given below.

1. The ZAMBEEF Model
   In the ZAMBEEF system the operator has integrated all the processes involved from production through to retail. The processor buys cattle from all categories of producers and performs both wholesale and retail functions through a network of butcheries and exclusive contracts to run and stock the butcheries within the Shoprite network of supermarkets.

2. Dar Farms model
   In the Dar Farms model the integration is from production to processing and wholesale to retailers. The company has started both second and third stage processing. The company purchases cattle from other, largely commercial farmers.

3. ZAMZAM model
   In the ZAMZAM model the processor relies on cattle from small scale producers in the source (Western) Province and sells beef and other second stage processed products like sausages to consumers and other independent retail outlets (such as point 4 below).

4. Retailers of beef and processed products with no involvement in upstream operations.

5. Supermarkets and traditional butcheries that purchase their beef wholesale from processors or producers.

The production restructuring is seen in the increase in number of feedlots. This is prompted by the poor condition of livestock from the traditional sector. Some commercial producers have taken advantage of the possible improvement in quality and profits by fattening smallholder cattle before processing. The marketing restructuring has seen the market share of ZAMBEEF increase to the level that this company basically sets the price, particularly for animals provided by the small producers in distant provinces.

There is no apparent barrier to entry, however the benefits of accessing the modern channels are limited by the quality of the animal sold and the location. Often the small scale farmers fetch the lowest prices for their animals. Improving the terms of trade for the smallholder has two faces. In the short term, the diseases of national importance such as CBPP need to be controlled. Such control would allow traders to transport cattle from the provinces to cities. This transportation would provide competition for the processors who have opened up abattoirs in the source areas. This competition might potentially lead to better prices for the small farmers. In the long term, the smallholders need to spend more on disease and pest control and invest in higher yielding breeds. Efforts are underway to introduce smallholders to improved management techniques.

This report presents the findings of the study on restructured beef and table chicken markets in Zambia in two parts. Part I first discusses changes in the national food systems, then focuses on the overall food market restructuring, particularly examining major observed changes downstream at retail, wholesale and processing levels and their degree of consolidation and integration. It also analyses the driving forces of the above observed changes and their implications for C3, as well as implications for Modules 2 and 3 studies. Part II investigates the production and marketing arrangements for the restructured beef and chicken markets in Zambia at the local level.

1.0 Introduction

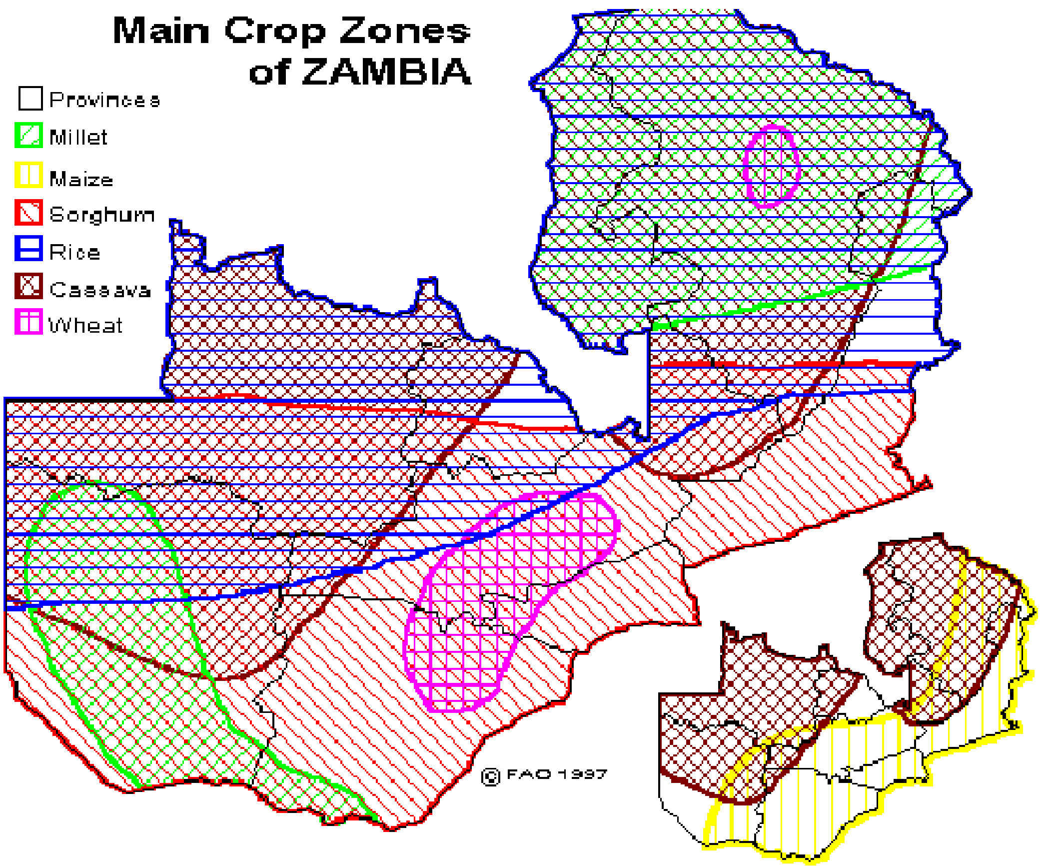
The agrifood system in Zambia is changing in response to a number of factors, both internal and external. Domestic policies such as market liberalisation, regional integration and foreign direct investment (FDI) have brought private companies and corporations into the supply chains of most agricultural products. The arrival of large firms, especially in food retail and processing, has been accompanied by increasing concentration of the processing and retail sectors of the food chain, hence creating problems related to governance issues. The evolving of new food systems affects small-scale farmers and small to medium-scale enterprises. While the increased involvement of supermarkets has opened up opportunities for local large-scale farmers and processors, stringent quality and consistent supply requirements tend to exclude small-scale producers from participating in these supply chains.

This paper reports on the effects and implications of these changes for small/medium-scale beef and poultry producers as well as the implications for policies and programs within the context of the agrifood market. Beef and poultry were chosen as the products of investigation since these two subsectors are the most important livestock sectors of the Zambian agricultural economy. There is an urgent need to fill the gap in knowledge regarding the implications and opportunities of the aforementioned food industry restructuring for small-scale producers and small and medium enterprises and how to help these actors to take advantage of the opportunities and face the challenges of these restructuring markets.

1.1 The role of the agricultural economy

Although Zambia is better known as a world-class copper producer, it has principally become an agriculturally-based economy. As a result of the sustained decline in world copper prices, the agricultural sector became vital for the diversification of the economy and poverty reduction (PRSP, 2000). In Zambia, the agriculture sector contributes 18 per cent to GDP (PRSP, 2000). The agriculture sector is dualistic, where a developed commercial farming sector coexists with a large number of subsistence small farms. Agriculture provides food, is a source of income and remains important in employment creation in Zambia. It further provides environmental services through conservation and improvement of both plant and animal biological and genetic diversity. About 60 per cent of the population in the country is classified as 'agriculture population'; they depend on agriculture for their livelihoods and are therefore actively involved in agriculture (PRSP, 2000). Despite Zambia's huge potential within the agricultural sector (including livestock, and the natural resources sectors), its performance in terms of food production is not satisfactory and the country remains food insecure and must depend periodically on imports. About 97.4 per cent of households grow crops while 67 per cent keep poultry, as opposed to only 29 per cent that raise other livestock (PRSP, 2000). In terms of production of major staples, the country is divided into the arid southern half, which is a maize production area, and the northern half with higher rainfall, dominated by cassava production. Figure 1.1 below graphically presents the major agricultural systems in Zambia today.

Figure 1.1: Geographic distribution of crop production[7]



Source: FAO 1997

The total land area of the country is 75,185,000 hectares, of which agricultural land is 21 per cent. However, planted area is as little as 12 per cent (IDL, 2002). The sector comprises about 85 per cent small-scale farmers who utilise about 75 per cent of the cultivated land and about 15 per cent commercial farmers who utilise the remaining 25 per cent (FAOSTAT, 2007). The soil map of Zambia has 19 soil series, ten of which are suitable for crops and these cover 70 per cent of the country. About 40 per cent of agricultural land is under pasture (IDL, 2002). Shifting cultivation has the largest portion in agricultural land, especially in the northern region. The categories of agricultural land use are given in Table 1.1 below.

Table 1.1: Agricultural land classification

Categories	Land ('000) hectares	Percentage
Shifting axe/hoe cultivation	7,809	48
Semi permanent ox/tractor cultivation	834	5
Fishing, semi permanent hoe cultivation	333	2
Semi permanent hoe/ox cultivation	2,314	14
Semi-commercial farms / ranches	2,613	16
Private commercial farms / ranches	1,238	8
Government agricultural project	1,212	7
Total	16,353	100

Source: GRZ (2003): Land Use Map of Zambia

Zambia's agriculture consists of crops, livestock, wildlife, fisheries and forestry. Crops have the greatest composition of agriculture value added, exceeding 60 per cent of total agricultural value added (IDL, 2002). Livestock ranks second at 15 per cent while wildlife and fisheries are about 6 per cent each with forestry accounting for the balance. The country's main cash crops are sugar, groundnuts, tobacco, cotton and coffee, with cut flowers and other fresh vegetables becoming important exports for a small number of producers around Lusaka. Horticulture and floriculture have long been regarded as highly promising Non Traditional Export (NTE) sectors. Since they are highly labour intensive, they are believed to be among the sectors for the government's Poverty Reduction Programmes (PRPs) in agriculture. The two sectors in the NTE sector are almost 100 per cent export-focused. The floricultural sector employs nearly 4,000 people from 22 flower farms (mostly cut flowers) located within Lusaka. Zambia currently produces more than 60 varieties of cut flowers (roses). The Netherlands has been the biggest market for Zambia's roses, accounting for more than 70 per cent of exports. Other important markets are the United Kingdom, Germany and South Africa (OECD, 2007).

Zambia borders eight other countries, which provides many opportunities for cross border trade. The Democratic Republic of the Congo is the major destination for Zambia's food exports while there is a two-way trade flow of agricultural goods with South Africa and Zimbabwe with net imports into Zambia. The share of external agricultural trade in GDP has gradually improved while the share of agricultural imports has risen from 2.73 per cent in 1979/81 to 4.9 per cent in 2002 (FAOSTAT, 2003). A more dramatic improvement has been in the share of agricultural exports, which has grown from 0.24 per cent of GDP in 1979/80 to 2.9 per cent in 2002 (FAOSTAT, 2003). Even if the share of agricultural exports is still modest it has increased by more than tenfold (FAOSTAT, 2003). Another notable development is the increase in diversity of externally traded items. The share of top four agricultural imports has fallen from 65.3 per cent in 1979/81 to 46 per cent in

2002, while the share of top four export products has fallen from 93 per cent in 1979/89 to 29.6 per cent in 2002 (FAOSTAT, 2003).
The bulk of agricultural imports and exports are crop products. Maize, the country's major staple crop ranks high among imports due to periodic crop failures. Except for maize, the country is self sufficient in major livestock feed ingredients, soybeans and cotton cake. Even though the quantity of livestock products exported has increased – particularly hides and skins - its share of agricultural products has actually fallen from 3.5 per cent of agricultural exports to 1.47 per cent in 2002 (FAOSTAT, 2003) due to difficulties in improving livestock production (Mukumbuta & Sherchand, 2006). Zambia's net value of agricultural trade is largely negative as illustrated in Table 1.2 below.

Table 1.2 Net value of agricultural trade (1979 – 2002)

Country	Total Net Trade Value (US$ million)				Agricultural Net Trade Value (US$ million)			
	1979-1981	1989-1991	1999-2001	2002	1979-1981	1989-1991	1999-2001	2002
Zambia	275	429	260	230	-93	-22	17	-73
Zimbabwe	111	-252	216	660	447	614	790	354
South Africa	5552	5890	1293	456	-19	-19	-2	-34
Botswana	-224	32	803	646	-18	-128	-258	-224
Malawi	-136	-210	-122	-208	200	120	40	115
Mozambique	-451	-730	-788	-673	-3	-6	-5	-3
Namibia	-154	-44	-157	-300	57	-175	-168	-254

Source: FAOSTAT (2003) Table C.5 Total Net Trade Value and Net Agricultural Trade Value (Exports - Imports)

1.1.1 Livestock production

In Zambia, the main commercial livestock areas are the Southern province, Central province, Lusaka province, Copperbelt province and the Eastern province. The commercial sector uses exotic breeds such as Afrikaner, Boran, Hereford, Friesian and Jersey; while in the traditional sector, the main breeds are Zebu and Sanga types such as Tonga, Ngoni and Barotse. The ruminant livestock subsector, which consists of cattle, was estimated at 2.6 million in 2006 according to FAOSTAT (2003); sheep and goats, comprising both traditional and commercial activities, contributes about 35 per cent to the national agricultural output. Some years ago, Zambia exported beef to neighbouring countries. Exports of animal products were US$1.4 million in 1995, US$4.4 million in 1999 and US$3.1 million in 2001 (FAOSTAT, 2003). Traditional activities account for 83 per cent, 64 per cent and 97 per cent of cattle, sheep and goat production respectively. The traditional component of the livestock subsector is characterized by high mortality rates (over 15 per cent in some areas), slow growth rates and low reproductive efficiency (Aregheore, 1994).

In Zambia, the per capita consumption of meat is only 2.4kg per annum, about half the average for Africa as a whole. The per capita consumption of chickens is equally low at less than 2kg per person per year[8] compared to fish, which is estimated at 5.6kg per capita per year. By international comparisons, these consumption levels are extremely low (CSO, 2004). The estimated marketable meat is approximately US$380 million but the slaughter off-take is only 7 per cent, of which 75 per cent is sold at a value of some US$25 million (CSO, 2004). Consumer prices of livestock are much higher than in some other Southern African Development Community (SADC) countries (Aregheore, 1994).

Livestock is a source food through provision of high value protein. Oxen are used for draught power in ploughing and organic manure. Livestock also serve as a store of wealth and a measure of prestige. Households sell livestock to meet immediate needs during stress times of drought and crop failures; livestock help to stabilise food supplies through income from sales thereby providing access to food through cash purchases or barter. Livestock are beneficial in that seasonality is not an issue as with crops, since it is possible to produce livestock throughout the year. Table 1.3 shows the regional distribution of beef and chicken production. It shows that poultry production is concentrated in Lusaka. The tendency for commercial producers to concentrate around Lusaka province is largely explained by the proximity to the high income market, as well as to producers of day old chicks who are responsible for a large measure of integration with processing. The processors require chickens to be within a short time drive of the plant so the birds do not lose weight on the way to the processing plant.

Table 1.3: Distribution of beef and chicken slaughters in 2002 by sector with percentage (%) of slaughter from the farm sectors in the provinces.

Province	Commercial sector			Traditional sector	
	Commercial beef	Traditional beef	Chicken	Beef	Chicken
Central	22.8	47.10	1.44	6.4	15.2
Copperbelt	21.78	7.20	3.40	1.2	7.91
Eastern	4.96	10.45	0.34	16.6	16.7
Lusaka	27.90	1.22	93.53	2.7	1.97
Northern	5.88	5.59	0.95	16.16	12.5
Southern	16.61	26.18	0.31	23.36	26.1
Western	-	2.22	-	28.55	8.12
Total	99.93	99.96	99.97	94.97	88.5

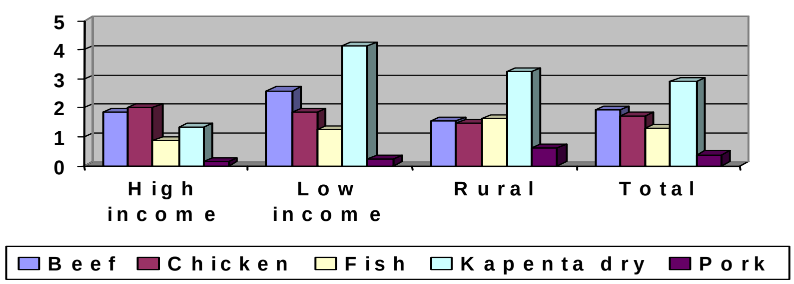
Source: CSO (2004). Agricultural and Pastoral Production. Large-scale Agricultural Holdings

[8] An industry observer is known to have said that a South African consumes a chicken a day, a Zimbabwean half a chicken a day and a Zambian half a chicken a week.

1.2 Important agrifood subsectors

Agricultural activities range from intensive crop production and mixed farming in summer rainfall areas to cattle ranching, poultry and goat farming. Maize, the country's major staple crop, ranks first in the agrifood sector comprising of both large and small millers. Non traditional exports are the most important cash crops. According to CSO (2000), beef is a major source of animal protein in Zambia. It is second to poultry among the high income category, but second to fish among the low income consumers. Figure 1.2 illustrates the consumption of animal proteins obtained from household budget surveys. As of 2004, dry fish (Kapenta) is the leading sources of animal protein; but beef unlike chicken is more popular across all socio-economic classifications.

Figure 1.2: Consumption of Animal Major Proteins by Socio-economic Category (CSO)



Source: CSO, 2004

The focus of this study is to evaluate the implications and opportunities for small-scale producers and small and medium enterprises in Zambia's beef and chickens subsectors in the face of the restructuring of food processing and retailing industry. The study focuses on beef (traditional and commercial farms) and chickens (broilers). The study seeks to establish how producers and processors take advantage of the opportunities and face the challenges of restructuring markets. The research captures several unique socio-economic dynamics taking place in the country. It is important to understand how small-scale producers access restructured food markets in Zambia. In addition to the general question outlined in the C1 component; this report seeks answers to the following questions:

- What is the observed evolution and level of maturity in the beef and chicken markets in Zambia since the liberalization of the economy in 1991, given the current and past duality in these subsectors?
- How can the market restructuring process in Zambia be characterised?
- What changes have occurred in supermarkets' procurement systems?

- Besides examining the influence of the restructuring beef subsector on small farmers, the study will also examine, in general view, what the role of Zambian beef is in the transforming retail industry at regional level beyond Zambia.
- What is the effect of economic (and agricultural) policy reforms in Zambia on the structure and conduct of the selected food markets and farmers' participation, especially emerging smallholder farmers?
- What are the different types of farmers in the beef and poultry industry in Zambia and how and to what extent have they been affected by market restructuring?
- Does market restructuring drive their exclusion/inclusion and is it influenced by policy factors? What mix between policy and private strategy drivers actually explains exclusion and/or inclusion in different periods?
- What are the main determinants of exclusion for the different farmer types? Is there any discrimination based on equity in addition to those based on efficiency?

1.3 Research Hypotheses

Many small Zambian farmers were historically included in the markets through the Cold Storage Board of Zambia (CSBZ) that provided cold chain marketing infrastructure for livestock farmers. For a time, these changes contributed to the rapid expansion of agriculture markets such as had never been seen in the history of the country. However, following policy reforms in areas such as market liberalisation and privatisation of most public enterprises, smallholder farmers were excluded from markets. With the removal of government participation, their exclusion from restructured markets continues as a result of the restructuring of these markets and the low level of competitiveness these farmers are departing from. Based upon these circumstances a number of research hypotheses have been established. These are as follows:

- The different poultry and beef marketing channels have restructured to different extents in terms of concentration and consolidation levels.
- Low government participation reduces smallholder participation in the beef and poultry markets.
- Privatisation of beef and poultry markets is leading to exclusion of small-scale farmers.
- The entry of FDI's such as Shoprite has resulted in the exclusion of smallholder farmers.
- Vertical integration and the establishment of value chains results in the exclusion of smallholder beef and poultry farmers.

- Increased food quality and safety standards have triggered exclusion of smallholder farmers.
- The distance (transport cost) between small-scale farmers and possible market channels critically affects smallholder farmers' inclusion into restructured chains.
- Poor infrastructure and institutions lead to slow growth of the beef and poultry subsector.
- Low beef and poultry consumption per capita has constrained the potential growth of the beef and poultry sector of Zambia.
- Persistent droughts and diseases have restricted the participation of smallholder farmers.

1.4 Organization of the report

This report is organized into two main sections. The first section discusses the dynamic in the beef and poultry subsectors at national level. This section covers overall national food market restructuring, including the food subsector restructuring. The second component focuses on the changes in production and marketing systems of the Zambian beef and chicken subsector at local level[9].

[9] District and village levels.

2.0 Determinants of change in beef and broiler markets

2.1 Overall national food market restructuring

2.1.1 The public sector

At independence in 1964, the public sector accounted for 14 per cent of the economy. By 1972, the public sector was 80 per cent of the economy (IDL, 2002). Zambia's economic policies were based on monopolistic public institutions characterised by official price controls and determination, centralised delivery of support services, public sector dominance of agricultural businesses and extensive subsidies. This public sector controlled system undermined the ability of farmers to adequately respond to changing market conditions and led to farmer-dependence on government, a lax attitude towards loan repayments, a limited understanding of market functioning, increased dependence on relief and an almost complete absence of local commercial networks and rural enterprises (DFID, 2003). Since 1973, Zambia has experienced deterioration in the terms of trade, collapsing copper prices, soaring oil prices, lack of capital investment and significant internal mismanagement. The situation was further aggravated by drought. Hoping that the shocks were temporary, Zambia incurred huge amounts of external debt and by the end of the 1980s, the debt exceeded US$6 billion (DFID, 2003).

To correct the declining economic performance, the government adopted an economic reform programme aimed at reducing the government's direct involvement in the economy by providing enterprises with greater freedom and stronger incentives, and stimulating entrepreneurial activity by promoting business efficiency. The government sought to open the economy to allow domestic firms to compete internationally and adopted an improved and more modern regulatory framework by passing new laws on trade and investment, liberalisation, privatisation and deregulation. As a result of these measures, new institutions such as the Privatisation Agency, the Zambia Competition Commission and other regulatory bodies were established, and existing ones, such as the Investment Centre and the Central Bank of Zambia, were reformed. Overall, these measures resulted in: a reduction of red tape and bureaucracy by removing all foreign licensing requirements; privatisation; adoption of anti-inflation measures such as tightening of the money supply; removing exchange rate restrictions, and removing agricultural input and food subsidies (FAO, 2003).

Public sector restructuring resulted in redefinition of the roles of the public and private sectors in national livestock management policy and regulation to provide relative institutional capacities and comparative advantages of the public and private sector. With the lack of public sector financial capacity or physical resources to provide a comprehensive range of livestock services to the farming community, a reallocation of responsibilities became inevitable. These changes have far-reaching implications on farmer behaviour, particularly smallholder farmers. To start with, introduction of pay-as-you-go services for disease control services, particularly treatment and dipping, is at once encouraging smallholder farmers to consider livestock as a business in which they would be required to make significant investment expenditures and at the same time necessitate planned livestock sales. This is in contrast to the situation before when the majority of sales were 'problem' sales. But cost recovery provision of veterinary services has also reduced access by smallholders to livestock disease management services. This has caused increased vulnerability of smallholder livestock to diseases and sales of infected animals. A number of smallholder cattle farmers have responded to the rising direct costs of rearing cattle and cattle diseases control by reducing their herds, improving quality and fencing off through creation of private properties where possible, either for night grazing or for purposes of isolation from others who may not invest as much in disease prevention[10].

2.1.2 Institutions

Another development arising from public sector restructuring of veterinary services and animal production is the establishment of the Livestock Development Trust (LDT) in 2003, in a bid to commercialise some government-owned livestock breeding and training units. To this effect, LDT was created with the help of the Netherlands government. Its projected activities to 2008 envisage providing marketing of produce on behalf of farmers, promoting community livestock projects and disseminating information aimed at promoting improved technologies for smallholders. Some of its strategies include: mobilizing rural financial services for livestock farmers; promoting livestock product processing; value-adding technologies and undertaking pasture development and range management; as well as fostering market linkages and strategic partnerships between the private sector and public sector[11].

However, very little progress has gone towards the implementation of the mandate to establish the quasi-governmental LDT. Similarly, the district focus and orientation of government expenditure towards sub-national administration has yet to gain significant ground. Policies to contract private services for disease control and commercialisation of animal health services have been associated with lowered access by smallholders to these services and spread of animal diseases.

[10] Field observations from a visit to Namwala district in August 2006 and discussions with various farmers and government officials.
[11] Personal communication with Dr. Imakando Director of Livestock Development Trust, undated.

2.1.3 Foreign direct investment

During the copper boom period, a significant proportion of the mining surplus was invested locally in import substitution industries. Much of the foreign investment during this period was destined towards the creation of state enterprises as minority interests.

Initially, direct investment inflows increased from 1995 for privatisation rather than the creation of new production premises. These investments did not cause any meaningful increase in employment and growth. In fact, they shed labour and in some instances caused asset stripping by new owners through relocation of plant equipments to neighbouring countries and South Africa where the investment climate was believed to be better (WIR, 2000). Some of this was responsible for privatisation of the wholesale and food sector, including the establishment of fast food outlets and supermarket chains. Foreign direct investments fell from a high point in 1997 to US$72 million in 2001 and steadily crept upwards to US$334 million in 2004 (FAO, 2005). It is only the post 2001 direct investment inflows that substantially helped to establish new production premises and hence employment generation and incomes. However, in terms of accumulated foreign direct inflows, Zambia's gross investment has historically been dominated by foreigners, at 52 per cent of gross domestic product (WIR, 2000).

2.1.4 Import penetration

Zambia is an oil importing country and foreign exchange supplies are essential to economic growth to finance oil, capital, intermediate goods and food imports. Imports are crucial to the development of the economy. Import penetration, the proportion of imports in domestic output, remains high, at about 33 per cent per annum (FAO, 2005). Zambia imports virtually all of its mining and transport equipment and oil, and a substantial proportion of its raw materials and final goods.
In a study carried out in 1994 to evaluate the performance of private enterprises in Zambia, the World Bank observed that competition from imports was the third most important business constraint faced by Zambian industry. Industries have great difficulty in competing in the export as well as import sectors (World Bank, 1994). However, Zambia is self sufficient in beef production, while high transport costs due to its landlocked position help insulate the economy from imported poultry products. This reduces the level of import competition in the meat market.

2.1.5 Determinants of food market restructuring

Since 1991 the Zambian government has implemented economic and structural reforms to improve economic growth. Changes of policy from a controlled economy to free market economy in the 1990s allowed many private firms to invest there.

Under the Structural Adjustment Programme, the government embarked on a radical programme of open trade and industrial policy reform in 1992. Most licensing and quantitative restrictions on imports and exports were eliminated. This meant that Zambian producers were exposed to competition from imported products from other countries (Emongor et al, 2004**)**.

The Privatisation Act was passed in 1993, clearing the way for privatisation of parastatals. A total of 257 State-owned enterprises (SOEs) had been privatised by early 2002 out of the working portfolio of 280 SOEs. Dissolving the marketing parastatals involved in agricultural marketing left a major void in agricultural markets. Farmers suddenly received lower prices than previously and in some cases even sold agricultural produce below the cost of production as more traders/agents became involved (Emongor et al, 2004).

Policies to encourage foreign investors to invest in Zambia were also implemented. The Zambia Investment Centre (ZIC) was created under the Investment Act of 1991 as part of the government's strategy for economic reform. As an autonomous organization, it promotes local and foreign investment in Zambia (Haantuba, 2003). Since 1998, South African companies have made substantial investments in Zambia amounting to about US$239 million, some 19 per cent of total investments in Zambia. This has made South Africa one of the largest investors in Zambia. The favourable policies for foreign direct investment have helped firms like Shoprite to establish and expand within the country (Haantuba, 2003).

Therefore, policies pursued by the government are a major driver in the changes that are taking place in the agricultural sector and the economy as whole. Other drivers of change are a direct consequence of liberalisation and FDI's includes increased competition and changes in consumer behaviour. Demand is increasingly being met through large supermarket chains that run parallel with traditional food markets. Because of increased competition, there has been a shift from having many suppliers acting individually to a few suppliers working in collaboration through creating supply chains or through vertical integration (Emongor et al, 2004). The continued consolidation at all levels of agriculture has resulted in players getting less but bigger. The tendency has been to form a value chain that will compete with other supply chains (Haantuba, 2003). Given such changes the challenge is to ensure coordinated logistics at all levels in the chain including procurement, transportation, information flow and integration of all activities within the value chain as well as to make certain that it "out competes" other supply chains.

2.2 Restructuring of the beef and poultry subsector at national level

Cattle have played a very important role in the livelihoods of households in Zambia and Southern and Western provinces in particular. Cattle marketing has undergone important changes in the past 15 years, notably the change from state controlled abattoirs and cold storages to private controlled facilities. Most public facilities have been acquired by the private sector or are on lease to them. Besides purchase or lease, significant new investment in infrastructure has enabled the beef sector to operate at a very different level to that of a few years ago.

All the council abattoirs are still operational in order to service the traditional market. They are merely used as slaughter facilities where required inspections can be carried out by government inspectors (e.g. Ndola Central Abattoir). They are essentially facilities for enabling producers or traders to meet with wholesalers, butchery owners, other retailers and other bulk buyers (e.g. households). In small towns like Mazabuka and Senanga, the volume of animals going through the council abattoirs has decreased from 15/day to five (5) per week. The emergence of supermarkets and the diminished buying power of the population in small towns has meant that some local butcheries (e.g. in Senanga) have closed down. In their place, butcheries operated by proxies of the slaughter house operations have taken their place[12].

There have been several cattle disease outbreaks since 1991. The 1997 outbreak of Contagious Bovine Pleural Pneumonia (CBPP) led to a ban in movement of live animals from the Western province which still stands today. The latest outbreak in Western province, again of the CBPP, was in 2001, while Namwala is also still under stock movement ban slapped upon it in June 2006 following confirmation of Foot and Mouth Disease (FMD) in the area. An outbreak of CBPP has reached the Southern province too and as of July 2007, the ban on livestock movement was extended to there. This means the main sources of cattle can no longer export live animals until the CBPP is brought under control. The 2001 outbreak in Western province led to an increase in off-take as whole herds were sold in some cases in order to reduce losses to the farmer. The restrictions concerning stock movement following disease outbreaks have translated into incentives to build slaughter houses in source areas. In the Western province in particular, the current use of refrigerated trucks by processors is significantly different from 15 years ago when the majority of cattle left the province live in large open trucks. From only one abattoir in 1991, the Province now has six companies operating ten abattoirs/slaughter houses.

The livelihood impact of this loss is considerable, particularly on the net worth of families and their ability to cultivate, as well as restricting access to external lucrative

[12] Focus group interview, Senanga

markets (MAFF, 2001). This negative impact on livelihoods leads to an even more heightened need to sell under distress. This vicious circle has led some observers to caution that the numbers of livestock in the Western province are in a continuous decline[13]. Changes in the national beef and chicken industry arose from government economic restructuring often referred to as the structural adjustment programme. Data for the formal analysis of market concentration and performance are not available. The last census of establishments was undertaken in 1980. Anecdotal information shows that the market structure has somewhat changed over the period since then because a number of establishments have closed down. On the other hand a few sectors that were dominated by a monopoly now enjoy a reasonable degree of competition because of privatisation and market liberalisation.

2.2.1 Beef market channel

The beef market was controlled by the Cold Storage Board of Zambia and a few private butchery owners. At that time, there were selected cattle buying stockyards throughout the cattle farming areas. The state-owned beef processor went to individual commercial farmers to buy on request. Traditional cattle were bought with cash on the spot at selected stockyards on appointed days. The buyers were considerably knowledgeable in livestock and therefore knew what they were buying. Only animals suitable for slaughter were bought. At every sales yard, there was a dip tank and/or spray race and veterinary assistants would carry out ante-mortem inspections, pregnancy diagnosis, supervise dipping and issue stock movement permits prior to loading. Wherever there ran a railway, there was also a weekly cattle train. This system minimised the spread of livestock diseases.

The system for regular sale of cattle at designated sales yards collapsed well before 1991 and the market opened up to abuse and profit margins. In general, the beef sector was relatively liberalized and not as tightly controlled as the crop subsector. In the post liberalisation era, veterinary assistants are no longer available at the point of purchase. Instead, animals have to be taken to the veterinary office for inspection before they can be taken for slaughter. Individual private buyers (without any licensing or certification and with minimal knowledge of slaughter quality cattle), negotiate with individual farmers for the price. Many such purchases are 'problem' sales and therefore farmers are unable to obtain reasonable returns for their animals. In some cases, farmers may not have sufficient market information. This enables the traders to have a substantial advantage in this area. Even though private buyers play an important role in assembling the right number of animals, they have also earned themselves a tag for unscrupulous behaviour. When done with buying, they march

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[13] Mr Mooto, Manager at Star Beef abattoir, July 2006.

the cattle on hoof to the nearest point of embarkation by road[14]. At that point, they may group up with other buyers if none has enough to make up a load for transportation to the abattoir. It does not matter where the nearest abattoir is; the trader decides where to sell.

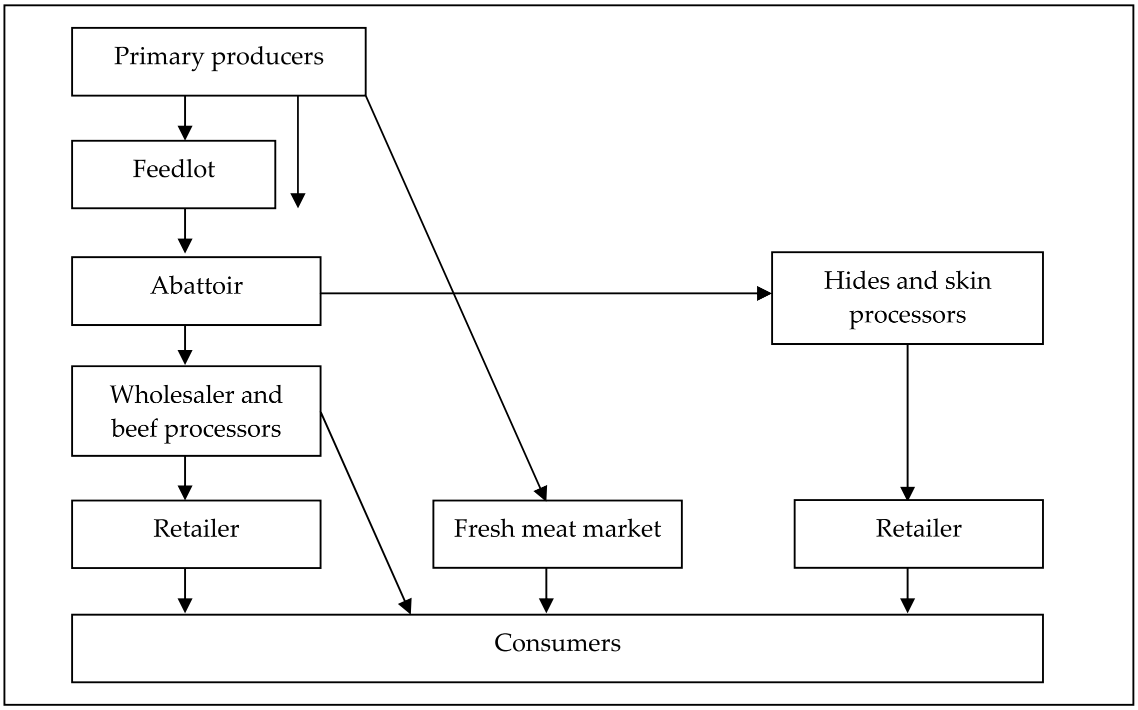
The current system of buying cattle is a regression. It is no longer possible to trace the animals to their original owners. Sometimes cattle are moved without proper examination. There are cases of animals with ticks and pregnancies reaching the abattoir. At the abattoir, cattle are re-inspected for suitability and once slaughtered are paid for at prices set by the abattoir. If for any reason the animals are condemned, the abattoir confiscates the animal without any consideration. Furthermore, the system works against farmers lacking their own transportation. Previously, transportation from the farming area was paid for by the abattoir. Now, abattoirs wait for traders and farmers to bring forward their animals for slaughter before they will pay.

There is also an informal beef market. This market is dominated by individual traders with access to motorised transport. According to the law, beef should not be transported in a vehicle that is used to transport persons or other goods. However, traders with pick-ups slaughter up to five animals for sale at township fresh meat markets. The prices are generally lower than ex-abattoir prices, but they are often as much as what the trader can get through the abattoir. This channel is an avenue for cattle not suitable for slaughter, or even sick animals as they are sold without regard for veterinary controls. There is a lucrative cold storage space business at most informal township markets. And this goes on in full view of the police, local authorities and public health officials who run the township markets and police sentry points at most market entrances. Such behaviour has long-term implications on communicable diseases between livestock and humans. But it also has a bearing on competition. Competition requires rules; there are seemingly no rules yet in beef marketing in the post liberalisation era in Zambia.

From the abattoir, the beef finds its way to the independent butchery or supermarket as sides. Cutting and apportioning according to cuts is often borne by the retailer. There are no independent meat packers in Zambia.

[14] There is no longer a train service for cattle due to periodic bans on movements and insufficient weekly volumes.

Figure 2.1: The beef sector value chain



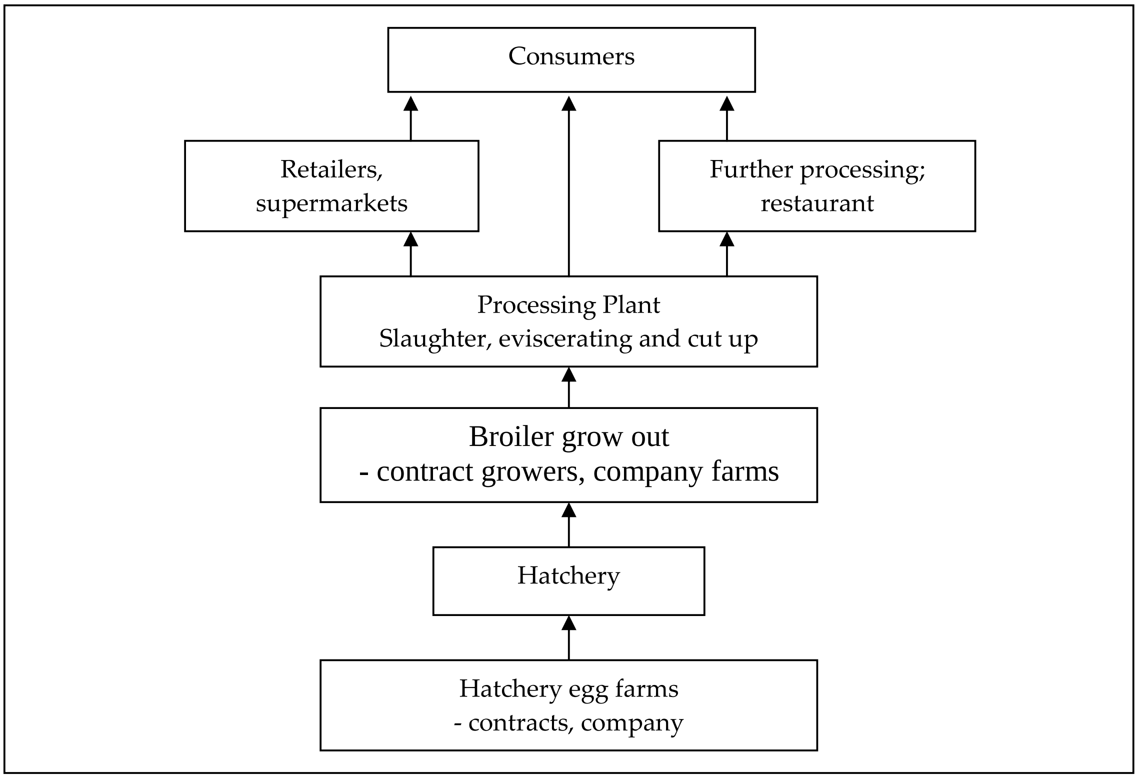
Source: Adopted From Final Report of Food Pricing Monitoring Committee, NDA (2003:174).

2.2.2 Broiler chicken market channel

The poultry industry consists of three distinctly separate branches, namely the day-old chicken supply industry, the egg industry and the broiler industry. The broiler industry is defined as all the processes and actions revolving around the production, processing, marketing and consumption of chicken meat in Zambia, while broilers are defined as meat-type chicken strains that are raised specifically for the production of meat (Strauss, 2003).

The broiler day-old chicken market is dominated by Hybrid Poultry Limited (HPL) which sells 36 per cent of national market to commercial producers while the Crest Breeders International (CBI) sells another 12 per cent to the same segment. The rest of the broilers (52 per cent) are sold nationwide through the traditional market. Whereas the commercial producers and the processor are linked to the dynamic market, either whole or in parts, smallholders sell whole chickens either dressed or alive in the traditional chain. Figure 2.2 illustrates a supply chain for broilers in Zambia.

Figure 2.2: The broiler value chain



Source: ZAMBEEF 2004

The entry of supermarkets and fast food chains in the Zambian urban consumer market created a huge demand for dressed chickens. The existence of excess breeding capacity encouraged breeders to engage in outgrowing broiler business. The growers have also seen the advantages of producing at a fee of K1,500 per bird grown for a ready market[15] (anecdotal). At the same time, processors are this way able to achieve better utilisation of processing capacities through large quantities of chickens from growers at a time. Table 2.1 presents the broiler value chain and stakeholders' margins.

[15] From informal discussions with farmers.

Table 2.1: Broiler chicken value chain and stakeholders' margins

Chain actor	Chain partner	Price / kg*	Whole bird	Margin	Percentage profit
Independent grower	Finished broiler	7,500	12,000	0	0
Wholesale	Township market	10,000	16,000	2,000	16.7
Market trader	Consumer	11,250	18,000	2,000	12.5
Contract grower	Processor	8,438	13,500	1,500	11.1
Wholesale	Retail	9,600	15,360	1,860	13.8
Retail	Consumer	11,500	18,400	3,040	19.7

*For 1.6 kg in kwachas; 1USD = 4,000ZMK

Source: Pudenda from interviews with actors.

The emergent trends are as follows:

- With respect to the broiler chicken, producers of day-old chicks are promoting broiler contract farming. Contracts are usually of shorter duration of one to three years.
- Broiler contract growers insist that the grower should be within a 50km radius of the processing plant. Since processing plants are located in Lusaka province, with only one in Central province, the tendency is therefore to position oneself as close as possible to the high income Lusaka processing plant. More than 90 per cent of the market is controlled by two producers of day-old chicks. ZAMCHICKEN, owned by ZAMBEEF is emerging as a serious competitor to Hybrid Poultry and Crest Breeders.
- The chicken market is characterised by smaller chickens as consumers, largely, fast food chains, prefer tender chicken. Producers will tend to sell either at six weeks or younger than eight weeks.
- With respect to beef, the tendency is for large-scale ranches to associate themselves with slaughterhouses, either by actually owning one or by close association. The traditional sector is a buyer's market. Otherwise, independent cattle buyers develop a working relationship with slaughterhouses or butchers. In many respects these are unsalaried agents of slaughterhouses.
- On the other hand, producers of beef cattle under the traditional sector will tend to reduce the herd size in order to improve management and also wherever possible adopt more intensive operations, e.g. through fencing and night grazing, as opposed to the situation before where cattle were left to roam around during the day and closed up at night.

2.2.3 Levels of processing in the chain

1. Stage 1: This stage comprises the slaughter of cattle and dressing sides or quarters which are then transported and sold wholesale to retailers or second stage processors. Most of the abattoirs in the source districts end at this stage

and load the products in refrigerated trucks for transport to the central processing units.
2. Stage 2: This stage in processing produces cuts such as topside, steak, mince and raw sausages, i.e. products the consumers may buy and prepare on their own premises.
3. Stage 3: This stage produces ready-to-eat products such as pressed tongue, biltong or garlic polony.

All three stages may take place at one facility (e.g. PAMA and Majoru). Apparently the contract that ZAMBEEF has with Shoprite is restricted to second stage products. Third stage processors may sell their products in Shoprite.

2.2.4 The Zambia Bureau of Standards' grades of beef

Zambia has five grades for standardizing negotiations in the beef trade as shown in the table below.

Table 2.2: Zambia Bureau of Standards: beef grades

Beef grade	Specification	Capacities required
1. Prime beef	Meat from an animal that weighs 200kg at less than 22 months of age	Feedlot
2. Choice	Body covered in white fat	Feedlot or other finishing options
3. Standard	White fat covers some part of the body	Range with supplemental feeding
4. Commercial	Very little fat. Mainly for production (sausages, etc.)	Natural pasture
5. Utility	Scrap, used only as pet food	Natural pastures, no veterinary care

Source: ZAMBEEF, 2004

Often only points two, three and four are used. Most of the small-scale producer cattle are graded commercially and receive the lowest price without any attempt at careful grading. Yet it is the case that during certain periods of the year the local cattle also gain weight to go beyond commercial grade. Thus cattle bought during the "fat" period are sold at a loss to the producer and are of great incentive to the abattoirs as they will be able to sell the carcass at a graded price to retailers. The ZAMBEEF abattoir in Namwala district pointed out that the standard grading system is the source of existing arguments and encouraged income seeking among some graders.

2.2.5 ZAMBEEF PLC

The most important changes in the subsector are illustrated by Zambezi Ranching and Cropping (ZRC) and ZAMBEEF. In 1973, Zambezi Ranching and Cropping

(ZRC) were running 24,000 cattle on ten farms. In early 1990s ZRC controlled 92,000ha of land and 23,000 cattle held in eleven farming blocks between Livingstone and Mazabuka in Southern province. Zambezi Ranching and Cropping sought to safeguard its beef market in the country by moving downstream from beef production to butchery by acquiring a 50 per cent shareholding in ZAMBEEF in 1996. ZAMBEEF was formed in 1994 by the owner of Kyundu Ranch. Kyundu Ranch was one of the ranches to which ZRC sent its animals for finishing before 1995 (MacMillan 2005).

In 2003-2005, ZAMBEEF became a wholly owned subsidiary of ZRC PLC which was already quoted on the Lusaka Stock Exchange (LUSE). Later in 2003, ZRC was converted into a private company and removed from LUSE and instead converted ZAMBEEF into a public company as it had better brand name recognition than its holding company ZRC. Presently, ZAMBEEF supplies beef to Shoprite outlets in the country and in Nigeria as well as its own 82 outlets. The company sources its animals from all farmers in the country and has abattoirs in Western, Eastern, Southern and Central provinces. The Central province abattoir at Chisamba is the headquarters for handling meat processing from the provincial abattoirs whose main function is to deliver carcasses to the Chisamba plant.

ZAMBEEF Products PLC is one of the most successful agribusinesses in Zambia and is a major player in the Zambian economy (MacMillan 2005). The company has an annual turnover in excess of K200 billion (approx 50 million USD). It is the largest meat company in Zambia, slaughtering 60,000 heads of cattle per year and the largest feedlot operator of quality cattle in Zambia, producing 12,000 top quality grain fed animals per year. It produces high quality beef which has earned the company and the country at large an enviable reputation in the region for quality beef. It is also renowned as the largest chicken producer in Zambia, processing around 3.5 million chickens per annum; the largest milk producer, milking 900 cows per day and producing 8 million litres of milk per annum. It also processes 60,000 hides per annum through its tannery mainly for export to Europe, China and the Far East and generates US$1.2 million in foreign exchange per annum (ZAMBEEF, 2004).

The company has diversified and is now: the major producer of industrial footwear for the local and regional market; a major egg producer currently producing in excess of 20 million eggs per annum: growing wheat, maize, lucerne and soya beans with a total of 2,500 hectares of irrigated crops (39 centre pivots) and a further 1,500 hectares of dry land crops making ZAMBEEF (i.e. ZRC) one of the largest cropping operations in Africa. ZAMBEEF sells high quality meat and processed meat products through its 82 outlets nationwide. It also sells chicken and chips in its seven fast food restaurants called ZAMCHICKS Inns. To supply its feedlot, ZAMBEEF produces 120 tonnes of stock feed per day in its stock feed plant for the dairy, chicken and beef operations, making the company self sufficient in stock feed. The company employs

1,438 full time workers throughout Zambia with a larger concentration in the rural areas. In addition, a large number of seasonal workers are employed; the company's payroll is approximately Kl4 billion per annum. It is one of the largest transporters in Zambia with a fleet in excess of 200 trucks, refrigerated vehicles and tractors and a reinvestment of K35.6 billion in capital expenditure in 2005.

2.2.6 ZAMZAM

ZAMZAM was established in 2000. The main source of animals is Senanga District in Western province. The cattle are bought largely through traders and rarely directly from farmers in Senanga. They are slaughtered and the carcasses brought to Lusaka, the headquarters of ZAMZAM. From the Lusaka office ZAMZAM sends the meat to Ndola and Kitwe. The Lusaka office and Ndola branch process the beef into sausages, minced meat, etc. The company has only one abattoir in Senanga. When there is a shortage, they may buy cattle from the Ndola central abattoir.

The investors are from Somalia and established ZAMZAM themselves. It has been wholly owned by the present owners since its inception in 2000. The Ndola branch may receive fifty carcasses per trip. Interestingly enough, a substantially large amount like this may take only about two hours to dispose of. The meat may be pre-ordered by the retailers who can collect their orders as soon as the carcasses arrive.

The main buyer of meat from ZAMZAM in Ndola are Quicksave – vegetables and meat specialists (not really a supermarket), small butcheries, restaurants and households for home consumption and meat processors such as PAMA (if they have run out of meat themselves). Therefore, there are probable points of collaboration between the various players in the subsector. This sale to processors underlines firstly the wholesaler role of the ZAMZAM and secondly the high demand for processed meat in the Copperbelt. In Ndola alone, there are three other major processors besides ZAMZAM (i.e. ZAMBEEF, Kachema and PAMA). ZAMZAM delivers to the buyer if more than five carcasses are purchased. Thus the large customers who regularly buy ten carcasses or more get free delivery using the company's own trucks. The Ndola Branch produces polony, Vienna sausages, and minced meat. The demand varies during the year, being low in the period January to April and high in July to December period.

There is no abattoir operating today that meets the Hazard Analysis and Critical Control Practices (HACCP) standards. The only one that did was mired in financial problems following the collapse of the bank owned by one of the shareholders, and is now closed. Another abattoir which had the potential to meet HACCP and export beef is located in Livingstone in a former Fiat Assembly plant. This plant has also closed due to failure to pay producers. It exported goat meat to Saudi Arabia.

2.2.7 Majoru Lusaka

Between the dynamic market ZAMBEEF and the traditional market ZAMZAM, there are other processors that try to reduce the dominance of ZAMBEEF. Best Beef, King Quality, Master Butcheries, Majoru, Galuania and PAMA supply the traditional family butcheries, other supermarkets in the country and special niche markets. Majoru is an example of a processor that has found a niche in the third stage processed products. The company supplies high quality second and third stage processed products to tourist centres, supermarkets and convenience stores.

Majoru was established in 1984 and used to rear animals for slaughter but due to diseases and management demands, the company has chosen to specialize in third stage processing and rely on supply of animals for slaughter from established farms and large volume first stage processors. The main clients are the tourism lodges in various locations, especially the far flung ones such as in the Mfuwe (600km) catering for international tourists. They are able to supply Mfuwe operators every week. Besides the tourist centres, they also supply products to supermarkets, export to the Democratic Republic of Congo anvil mine staff and sell directly to individuals at their shop at the processing plant. By far the largest customers are the tourist lodges accounting for 60 per cent of their business.

Majoru supplies all supermarkets except Shoprite. The processor delivers to the supermarkets based largely on verbal contracts. In SPAR supermarket, Majoru has specific space for their products. Sales have increased via this route by employing a dedicated sales person who would immediately order more products as they ran out. Majoru get their cattle from farms, the furthest of which is about 400km away in Kalomo, Alexwill Farm. Other suppliers are Maize Research Institute (MRI) seed in Mazabuka (150km), Chongwe and Best Beef. Best Beef is also a processor with its own feedlot and was a vital supplier when there was an outbreak of FMD in the Southern province - the principal source. The FMD led to a total ban on stock movement. Best Beef was able to supply carcasses to Majoru. The company slaughters or requires twenty herds of cattle per day. The suppliers to Majoru are either paid within seven days or as late as two weeks. The company has acquired new machinery from Germany and has increased employees from 32 in 2000 to 85 in 2006. "Quality products of international standards" are the key to success for the company.

2.2.8 Local Mazabuka

The restructuring in the subsector at the local level can be illustrated by Mazabuka district. Before 1997, there were only two butcheries in the district town. These were run by commercial farmers who sold cattle from their own ranches. The arrival of supermarkets, especially Shoprite, changed the character of beef retailing. From 1997 until now, there have been only three outlets that have come to replace the traditional butcheries. Firstly, Shoprite was established in the town as part of the chain. Shoprite has a meat section selling various cuts and processed products such as sausages. Konkola Hypermarket, a local supermarket, took the cue and established a supermarket complete with a second stage processing unit. Konkola Hypermarket has gone further into third stage processing and now produces ready-to-eat products such as polony from beef and chickens. The third stage processing unit is complete with cooking and vacuum sealing units. The Konkola Hypermarket packaging, however, had very little labelling. The latest entry in Mazabuka district is PAMA meat established two years ago from Zimbabwean commercial farmers of Greek descent. They purchased a former ZRC farm and are set to compete with ZAMBEEF and other large processors. They have established a large capacity abattoir in Mazabuka and acquired an outlet in the central business area of the district. Besides the abattoir at the farm, PAMA has a second and third stage processing unit producing a variety of products that enter the market. They cannot sell their meat to Shoprite or Konkola Hypermarket because Shoprite has contracts with ZAMBEEF and Hypermarket Nkonkola has its own processing unit.

These changes have decreased the activities at the local council slaughter house. Before 1997, fifteen animals per day were slaughtered in this slaughter house compared to five per week now. The council slaughter house is now largely used by the traditional channel operators. In contrast, PAMA handles twenty animals per day. The farm has a feed lot and buys animals largely from commercial farmers. The animals from commercial farms are put through the feedlot while those from the smallholders are slaughtered directly. This is because the health status of the traditional cattle is not guaranteed to be at an acceptable level. In the near future, a separate feedlot area will be developed to cater for traditional cattle. Currently traditional cattle accounts for 10 per cent of the slaughter at PAMA (see table 2.2).

PAMA has, in two years of existence, established outlets in major towns as far away as Solwezi and Chipata which are some 600km to 700km from the abattoir. The leading beef company, ZAMBEEF, buys at K6,500 per kg for carcasses about 600km from Lusaka while PAMA pays between K8,000 and K12,000 per kg. Despite these prices, small scale producers (from others districts in Southern province), still truck their animals to the Copperbelt and Lusaka. There is price competition at the retail level too. PAMA sells its beef at K14,000 per kg compared to K18,000 per kg in Nkonkola Hypermarket.

The production restructuring is seen in the increased number of feedlots. This is prompted by the poor condition of livestock from the traditional sector. Some commercial producers have taken advantage of the possible improvement in quality and profits by fattening smallholder cattle before processing. The marketing has seen the market share of ZAMBEEF increase to the level that that this company basically sets the price, especially of animals provided by the small producers from distant provinces.

3.0 Methodology for module two study

3.1 Introduction

In the livestock industry in Zambia, the beef subsector currently shows significant restructuring characterised by high levels of concentration and consolidation with few companies with abattoirs and refrigerated trucks that are able to transport carcasses to the market from the districts of Mongu/Senanga and Namwala. When live animals are transported, cattle buyers usually share a truck to transport their animals to Lusaka. Cattle buyers in Lusaka and the Copperbelt have increased both as a result of an increase in urban population and the resultant increase in butcheries. Participation in the livestock[16] trade is restricted by two main factors. Firstly, the abattoirs in the provinces do not offer third party slaughters. Secondly there are not many refrigerated trucks that could be hired by prospective cattle/carcass traders. As a result of the ban on the movement of live animals (especially from the Western province), the process of change from transporting live animals to trucking carcasses was very rapid. Cattle producers will only reap positive profits when the number of transporters increases.

Even without the restrictions on movement of live animals, the rising cost of transport would probably force farmers to transport carcasses as opposed to live animals, since more carcasses can be transported per given volume of truck. The cost of transport per animal would be smaller in carcasses than in live animals. Cattle production in the traditional sector has not changed significantly over the past years. In Namwala, producers have acquired better breeds resulting in better carcass weight (150kg) compared to Mongu (120kg), and in a shorter period to market weight (three years in Namwala compared to five years in Mongu). The outbreak of diseases, especially CBPP in Western province, is a reflection of policy failures (i.e. privatisation, which led to a declining level of government involvement in animal health care, disease and control). In the case of CBPP, such policy has been catastrophic because by retrenching the workers who guarded the cordon line between Zambia and Angola, the disease entered without hindrance. With the 2001 outbreak, the disease spread to all parts of the Western province. The Zambian Government has begun constructing the 700km fence[17]. The above factors have interacted to influence the direction and speed of restructuring in the two target areas. The influence of the stock movement ban has been felt more in the Western province where it has been imposed since 1997. In Southern province, the bans have been imposed for shorter periods. The current, mostly FMD-induced ban in Southern province was limited to the Namwala district but has since been imposed on the whole province due to CBPP.

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[16] I.e. carcasses.

[17] Local Press, 9 May 2007.

3.2 Selection of study sites

Mongu-Senanga and Namwala were chosen as the main centre of investigation on the basis of the following points:

1. Recent establishment (2005) of an abattoir in Namwala where none had previously existed.
2. Expansion of the number of abattoirs in Mongu and Senanga spurred by stock movement restrictions imposed since 1997. This transformed the beef subsector by limiting who could transport carcasses to the market, while the market for beef increased.
3. Both sites have the highest number of livestock in the provinces.
4. Besides the two sites, the other districts that supply the abattoirs in the target districts would also be captured in the investigation.
5. Both sites have had a long history of supplying cattle to the market dating as far back as 1901 in the case of Mongu.

Figure 3.1: Map of Zambia showing study sites

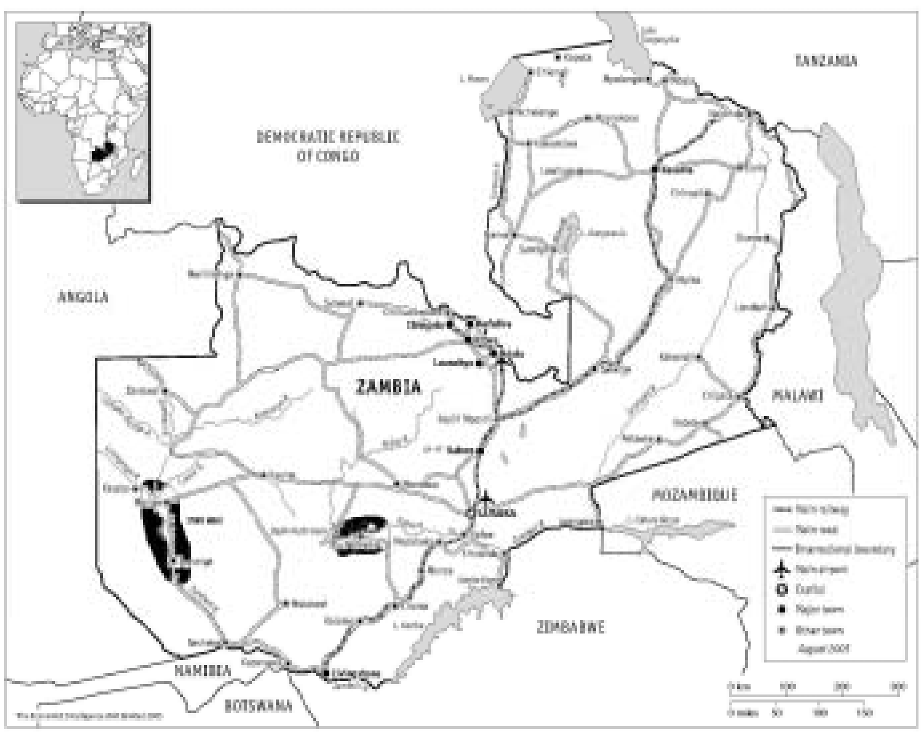
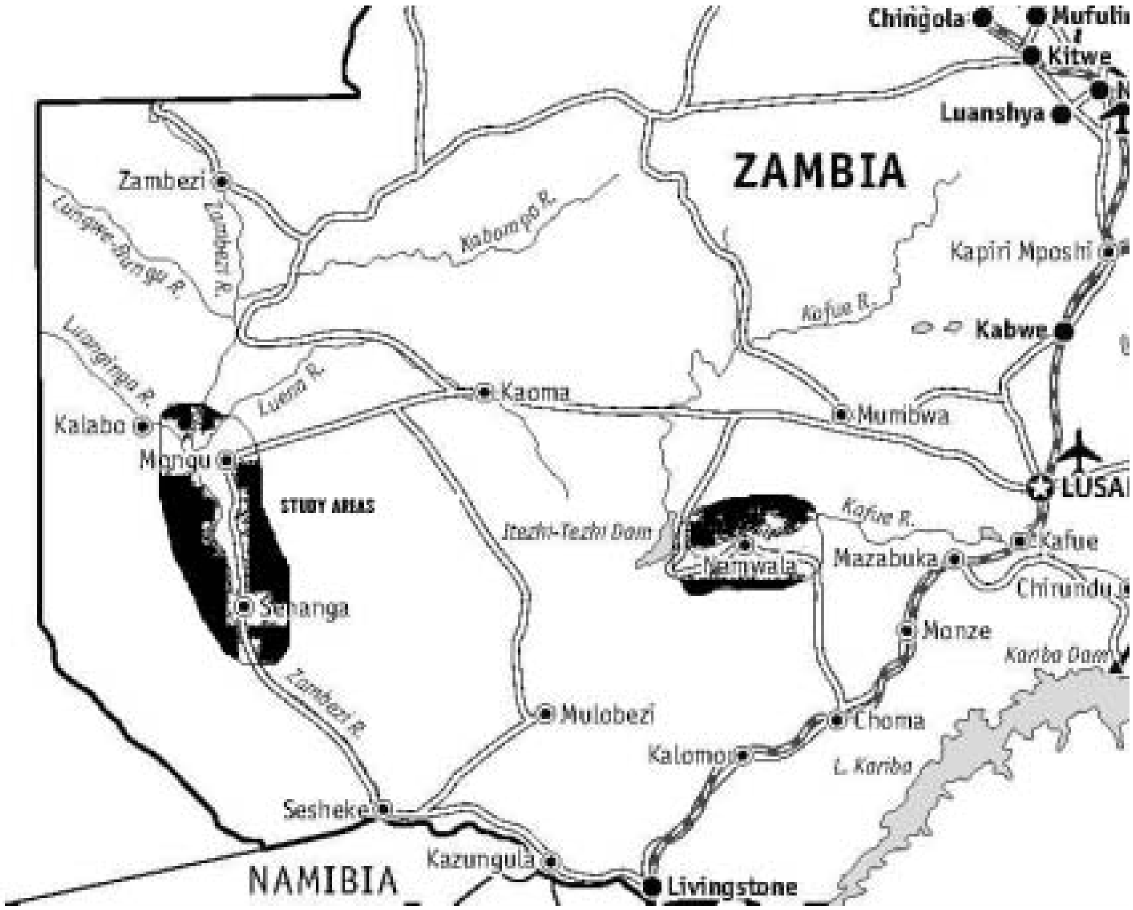


Figure 3.2: Close up of study sites



3.3 Methods of surveys

The focus group and key information interviews were used in both sites. Groups were accessed through key informants in the districts who were able to indicate who in the district was closely involved in the beef sector. In Mongu, a focus group meeting took place with the group involved in the Herd Health Management Scheme facilitated by USAID funded PROFIT programme. The scheme centres on private provision of veterinary care for the community members. In Namwala the operational Manager at Kemble Meat in Lusaka alerted us to a meeting of producers and government officials in Namwala (500km). The Namwala meeting was precipitated by the perceived low prices farmers get for their cattle. The procedure included drawing partial budgets by both the producers and the government. The relevant topics were discussed – in particular to establish the basis for deciding whether a producer sold to a trader, took the animals Lusaka or Ndola, or sold them directly to the abattoir in Namwala. Key informant interviews with local leaders and agricultural personnel and direct observation were used at both sites. Interviews were held with operators of processing plants and other institutions aligned to the beef subsector.

4.0. Module two results

4.1 Study sites (general local and village information)

a. Mongu

Mongu town is both the headquarters of Western province and Barotse Royal Establishment (BRE). Lealer, the summer capital and Limulunga, the winter capital are both located in the district. Mongu is the economic, political, cultural, social and administrative hub of the province. Mongu district is situated between the southern latitudes 14º 37′ and 15º 49′ and the eastern longitudes 22º 49′ and 24º 7′. It covers an area of 10,075 square kilometres. The district shares boundaries with the following districts: Kalabo to the west, Kaoma to the east, Lukulu to the north and Senanga to the south.

Administrative structures

There are two parallel administrative structures in the district: the political and administrative structure of both central and local government; and the traditional structure of the BRE. There are three tarred trunk roads, namely: Mongu-Senanga, Mongu-Lusaka and Mongu-Limulunga and two un-tarred ones, which are Namushakende-Nalikwanda and Mongu-Kalabo (more like tracks). All three tarred roads require maintenance and are slowly dilapidating. The Mongu-Lusaka road is currently being repaired and the benefits of this are already accruing to the local residents. Travelling time has reduced by four to five hours. This will have trickle down effects on the district's economy.

Telecommunication

Telephone communication in the district is restricted mainly to the townships and surrounding areas. Communication radios are used in rural areas. These are especially common in (Rural) Health Centres and in some Catholic Church parishes. ZAMTEL exchange capacity is 1,000 and the total number of working lines is 979. Two of the three cellular phone companies are servicing Mongu.

Radio and television

There is a local radio station, Lyambai Radio, which opened in 2000 with support from the Norwegian government and covers a radius of 50km within the district. There are plans to expand coverage to the entire province. Local people can also tune in to Zambia National Broadcasting Corporation (ZNBC), Radio 1 and 2 and television. Rural communities can tune in to the radio but face financial constraints to buying batteries regularly. Radios that do not require use of batteries are desirable for most rural communities in the district.

b. Namwala

Namwala is 400km from Lusaka. Part of the road is gravel, with only the last 60km stretch tarred. The centre has access to fixed telephone lines and one cellular provider. Because of the distance and difficult road, traders in consumer goods have better margins than those in Mongu where the wholesale prices are similar to those in Lusaka. Producers have access to the Kafue flats where their animals graze. The flooding regime is no longer natural as it is controlled by the needs of the Itezhi Tezhi dam.

4.2 Production

4.2.1 Production trends

In 1920, the average weight of cattle for slaughter was 204kg. In 1956 with good beef breeds such as Sussex and Afrikaner the weight was 544kg in five years (Macmillan, 2003). Commercial farmers then aimed to reach this weight in four years. Today a similar weight of 450-500kg is reached in two to three years by commercial farmers. The minimum for a steer to enter the feedlot is 450kg live weight (Macmillan, 2003). These improvements are evident more in the Namwala producers than in the Mongu ones.

Management of commercial cattle production

Before the oxen are sold, they are given a period of rest of about twelve months to allow them to pass through the rainy season to get the most of good nutrition. At the end of this period, the animals are sold. This practice signals the possibility of supplemental feeding of cattle designated for sale/slaughter in Western province. However, this attention to improvement of quality is not rewarded as all carcasses are sold at a single price of K6,500/kg in Mongu. This lack of price differential is a disincentive to the few who might be inclined to improve the quality of their beef animals. Processors do not provide any extension service aimed at assisting farmers to produce better animals.

Small producers sell animals for the four reasons below:

1. Culling to redeem scrap value (programmed action)
2. Selling to meet pressing problems (stressed action)
3. Selling to acquire long term assets (programmed action)
4. Selling to share the estate of a deceased relative (stressed action)

The production of beef in the Western province is speculated to be going down as the total number of animals is falling. The regulation prohibiting the sale of young productive heifers is no longer being enforced in the face of the pressures to sell exerted on the producers. There is an urgent need to educate farmers on how to be more productive. In order to improve the beef subsector in Western province the producers need to be organised and change their attitude to take beef as a business. For instance, the weight of an animal at two and a half years of age can be increased by de-worming and other health care and nutrition practices. Supplemental feeding should be encouraged for cattle bound for sale as they are sold per kilogramme and not simply by head number.

The animals in Western province yield 42 per cent beef from a live animal (MAFF, 2000). The time taken to reach 400kg live weight is five years for local animals compared to two to five years for Boran breed. Thus, improvements in productivity can and have been achieved in local breeds through cross-breeding. Namwala animals, especially around the Maala area, have been transformed and generally fetch higher prices than cattle in Mongu. The high price of Namwala cattle compared to those from Mongu has been in existence since the mid 1980s. Some cattle traders relocated from Namwala to Mongu to benefit from higher margins obtained in Mongu. These margins have been different between locations and between time periods in the same location.

Animals lose weight during the cold season May to July; they are too thin to be sold during this period. In the rainy season, the animals are not with the owners (Mongu) and consequently the tendency to sell may be low. However, no distance, however great, could prevent the owners from liquidating their assets to meet pressing problems. In the period of May to July, the households are well supplied with food as these are months when the crops are harvested. Except in poor seasons or crop failure, the pressure to sell an animal to access the staple grain is lowest during this period. Furthermore, fish (a substitute to beef) is available on the market and consequently butcheries may take three to four days to dispose of a carcass.

4.2.2 Production services (input service)

Extension services

Information on livestock management comes from a variety of sources including an NGO (HODI in Namwala) and a donor supported programme (PROFIT in Mongu). Others include the Ministry of Agriculture, Feed Manufacturers and the Commodity Associations of the Zambia National Farmers' Union (ZNFU) and through publications of the ZNFU and other organizations. Generally, the national extension system is deemed inadequate. Mongu district through the ZNFU has livestock associations at the district level which are affiliated to the District Farmers Association.

Compared to ten years ago, there has been an increase in the number of veterinary service providers in Mongu. Examples are LADT, KEPA Zambia, Star Beef, Fremag plus others totalling five to ten outlets in Mongu town alone. The Veterinary Department estimates a total of 78,000 animals in Mongu district. Private veterinary services began appearing in 1987/88. There are six processors operating ten abattoirs and slaughter houses in Western province. There is a livestock development programme funded by Highly Indebted Poor Countries (HIPC) funds in which the Department of Agriculture supplies improved breed bulls for crossing with local cattle. Each bull is given to a group of fifteen producers. However, the coverage of the programme is very limited. Calf mortality is high and worm infestations account for 23 per cent of calf deaths. The private veterinary outlets stock de-worming preparations. These need sustained extension support from the Department of Agriculture. Liver flukes are a serious problem in cattle from Western province; 80 per cent of livers are condemned due to flukes. The government offer vaccinations for listed diseases: CBPP, Anthrax, black leg (BL), Haemorrhagic Septicaemia (HS) and Black Quarter (BQ). The farmers are recommended to de-worm at least twice or three times a year.

Support institutions and programmes

(a) Boran bull breeding programme.
(b) Market Linkages Facilitation Trust (MALIFA) (SNV) is a monthly newsletter showing prices prevailing at different centres. The magazine is criticized as being centred on office bound readers, not producers.
(c) Lyambai Agricultural Development (LADT) bull exchange. This trust has closed down due to management problems.
(d) BRE has set up a demonstration ranch.
(e) LDT provides vaccinations against listed diseases on the contract from GRZ.
(f) PROFIT is reviving community livestock workers to provide animal husbandry support.

PROFIT is a USAID funded programme operating in Mongu in the area of animal health care. The programme is supporting the linking of small-scale producers to veterinary service providers. The producers enter into written contract with private vet providers to access consultation and medication over a period for an agreed amount per animal. PROFIT will calculate the cost of veterinary care and use it to argue for improved pricing from the abattoirs. 33 per cent of the cattle population is expected to be in the scheme by end of the programme which runs from June 2006 to 2010.

The veterinary **Herd Health Management Scheme** was designed on the basis of initial assessments that indicated that communities had problem with access to drugs. The assessment also identified private veterinarians who could be linked to small producers. The veterinarians will provide animal husbandry advice. Three groups are operational in Mongu, namely: Kaande, Sinumuyambi and Lealui-Siwito. The groups are coordinated by a community livestock worker who is a member of the community.

Mongu District Farmer Association (MDFA) is an affiliate of the Zambia National Farmers Union. MDFA is an implementing partner for some crop-based activities of Concern Worldwide. The Association does not have cattle-based activities but has members who are participating in the PROFIT scheme.

The opinion of MDFA members regarding the beef sector is that

1. The price offered by the processors is too low.
2. Producers have to wait too long before they receive payment for animals they have sold, meaning:
    a. The waiting period incurs subsistence costs to the farmer.
    b. There is need to find grazing grounds for the animals while the producer waits for their animals to be slaughtered.
3. Producers are powerless over the price they get for their offal and skin.

4.2.3 Production constraints

Diseases

National cattle population has not significantly exceeded three million as proposed by the Livestock Development Plan[18] as diseases periodically claim up to 25 per cent of the cattle. The 2004 Living Conditions Monitoring Survey (LCMS) reported a cattle population of 1.8 million in 2002. Threats to increasing cattle population are diseases and distress sales during crop failures caused by drought. Mortality from 'corridor' disease has been high in both Eastern and Southern provinces due to traditional livestock management practices. The difficulty of controlling corridor disease intensified due to inadequate support to livestock health extension services. Foot and Mouth disease, lump skin and worm infestation are very detrimental to livestock productivity. Only more efficient farmers that are able to vaccinate, treat and dip their cattle remain in business.

Contagious bovine pleuro-pneumonia (CBPP) is endemic in Angola and the Western limits of Zambia, but is also present in the Northern province, possibly because of uncontrolled cattle movements across the borders with Tanzania. A ban on the movement of live animals from Northern and Western provinces has so far prevented the disease from reaching Central and Copperbelt provinces, but it has entered North-Western and Southern provinces due to illegal movement of animals by traders using un-patrolled routes to major towns.

Anthrax is also prevalent in Western province and a number of cattle deaths (and some human fatalities from eating infected meat) are reported each year. Foot-and-mouth disease is prevalent in Eastern, Northern and Southern provinces, and cases of African Swine ever are a regular occurrence in Eastern province. For example inter-provincial trade in beef was banned for eight months from January until September 2003 and from October 2004 to March 2005[19].

To increase the herd, there is need for re-stocking programmes. These are not familiar to farmers in Western province. It is important to increase the price offered to farmers so that investments in animal husbandry can offer acceptable returns. A member of PROFIT was planning to leave the **Herd Health Management Scheme** because the investment in health care for an animal that takes five to ten years to market could not be recovered at current into-abattoir prices in Western province (K6,500/kg)

The producers expect a mutual beneficial partnership with the abattoirs. The processors could supply:

- Breeding stock, e.g. bulls to improve productivity of local cattle along lines such as body confirmation
- Literature/extension to producers
- Sale of drugs to producers
- Training centres on cattle management

[19] Field survey, July-August 2006.

4.3 Marketing

In their study "Opportunities for Western province: An agro-economic reconnaissance study", Maimbo et al (1996) state that the most immediate effects of the market reforms were the total collapse of the Western Province Cooperative Union (WPCU) and in its wake the disruption of many agricultural services provided by other state-owned companies. WPCU held a monopoly position in agricultural input supply, crop procurement and marketing, but also played an active role in many other sectors such as cattle marketing, supply of consumer goods and agroprocessing. Together with a number of other government supported agencies, WPCU became a major provider for transportation and crop storage facilities and was one of the primary agencies dealing with farmer organizations at village level. Because the cooperative union was so omnipresent, it left a vacuum after its collapse. Ten years ago the economy of the province and Zambia in general was still in a state of transition.

The price discovery process had not been finalized yet and input/output markets were still far from being transparent. The rural economy was still trying to adapt itself to the policy changes. Moreover, the adaptation process was confounded by successive years of drought, which affected the economic decision-making of the rural households. Readjusting to the new reality had just begun at the time Maimbo et al 1996 published their report. The authors pointed out that Western province lacked the "enabling environment for economic development". For example, road infrastructure was poor and the province lacked good market infrastructure and information. There were no strong producer and trader organizations, nor were there any financial facilities. These deficiencies are still true today. However, even the strongest critic of the first fifteen years of liberalization would concede that the government policies taught all to fend for themselves. The unfortunate condition was the absence of any support to tread new ground for most households. This scenario of dismantling was repeated in each province as cooperatives were established top down in each district.

4.3.1 Marketing channels

Producers sell their animals through middlemen. Middlemen play a very important role but are not recognized by any particular programme. The Provincial Livestock Officer (PLO) estimates that 70 per cent to 95 per cent of animals reaching the abattoirs in Mongu/Senanga and Namwala do so through cattle traders.

Traders do not have established channels, but will tend to sell whenever they find an attractive market. Similarly, farmers may sell to any trader though consistent traders tend to be more relied upon and may be asked for credit. Commercial farmers may also decide which processor they want to sell to and maintain that relationship overtime for mutual benefit. Location determines market access because certain locations may only move carcasses. Moving carcasses requires investments that may be barriers for participation. A cold truck and access to slaughter facility are key requirements. Thus, for livestock from Namwala, those entering the ZAMBEEF abattoir enter the dynamic channel while cattle that leave the district may or may not enter this channel. Cattle going to the Copperbelt end up at Ndola Central abattoir or other council-owned but privately operated facilities. These abattoirs essentially serve to connect the sellers and buyers as they do not have cold rooms. Most of the buyers are traditional family butcheries run by retired/retrenched personnel.

Possible factors determining which processor a producer/trader will choose in Mongu are:

- ZAMBEEF offers food assistance when a producer is delayed by the sale process.
- Star Beef does not delay payment; it pays cash on the day of the sale.
- A producer may choose selling directly from the local butcheries for K10,000 - 11,000/kg compared to the K6,500/kg at the abattoir. However, the carcass may take a number of days to sell. The butcheries may be risky due to delayed or non payment.
- Producers/traders will prefer to sell in Mongu because it is secure while in Lusaka they are exposed to conmen (traditional market).
- Within Mongu, the processors do not slaughter animals for third parties nor do they sell on wholesale to butcheries here except to supply their own business or supermarkets on contract.

ZAMBEEF contributes to the food requirements of the producer by giving them green offal (1 kg/day) while waiting for their animals to be slaughtered. The queues for slaughter are particularly long during January when waiting time can reach up to two weeks as producers liquidate assets to meet school fees. During the waiting period, the producer cares for the animals, herding them and bringing them to the abattoir kraal at night until they are slaughtered. The rise in selling rates is influenced by (i) the improved grazing as the cattle return to the owners in the plains in September; (ii) the need to acquire farm inputs such as fertilizer in November or December. Delays in payment may spell doom for the maize that was in the field during this period.

Traditional

Turn Pike- Slaughter Slab

Turn pike along the Lusaka-Chirundu road is roughly 40km from Lusaka. The operation of this slab is an example of many slabs. However due to its proximity to the city of Lusaka and the source of cattle, it presents opportunities and volumes that other slabs do not have. Farmers bring their animals to the slab for sale. They come from long distances within Mazabuka district and beyond. The procurement for this processing facility is mediated through traders. A farmer will drive his animals to the site whereby the traders will buy the animals on cash basis. Cash purchases are the most important advantage this slab has to offer for smallholders. Like most other transactions, the smallholders sell when they have a pressing need; finding a buyer who pays on the spot is the preferred "contract" for them. The trader then hands the animal to his agents who slaughter it and sell the meat to consumers, mostly from Lusaka. There are about fifteen traders who employ about three assistants each. The slab has a residential veterinary and a police outpost. The veterinary assistant carries out the ante and post mortem inspection. The ante inspection rejects clinical abnormalities such as rabies and TB.

4.3.2 Marketing incentives

Before the opening of the ZAMBEEF abattoir in Namwala in January 2005, all cattle were trucked to Lusaka (Kembe) and the Copperbelt. The current trend (since 2005) has been that the cattle traders take their animals to Lusaka/Copperbelt while producers sold at the abattoir.

As in other districts, farmers in Namwala feel they are losing out on the marketing of their animals in that the skin is lost to the abattoir when an animal is condemned. Since June 2006, the ZAMBEEF abattoir in Namwala has been paying different prices for carcasses weighing 130kg and above and those below. The current rates (August 2006) are K8,000 per kg and K7,000 per kg respectively. The prices can be seen to change quite often: before June 2006 the price of into-abattoir was K6,500/kg, in June the 130kg cut-off point was introduced at which time K6,500 per kg were paid for animals weighing less than 130kg while those above received K7,500 per kg. The official grading system is not implemented.

Noticeable changes in farm practice in Namwala are that: (i) farmers began fencing off their lands; (ii) there has been an observed reduction in numbers of cattle to achieve a manageable herd; (iii) there is increased use of veterinary care and; (iv) cattle breeds have improved through cross breeding to such an extent that today a large proportion of cattle in Namwala are crossbreds.

4.3.3 Market institutions

The principal market institution is the abattoir; which declares payment terms. Other important institutions include the Veterinary Department for stock movement permits, health inspector, the police, the local council and the transporters. All these collaborate in working with cattle producers, but farmers do not see the benefit of the levies each one of them charges.

The Road to the Abattoir

The first step is to obtain a stock movement permit from the Department of Veterinary Services. The police will also issue a clearance certificate at about K6,000 per inspection. Once slaughtered, the charge for health inspection is also levied. The council also levies a change of K2,500 per head (ZAMBEEF 2006).

The police do not normally issue a receipt for the clearance certificate. The offal (red, green, hooves and head – skin) are bought as a set for K50,000 in Mongu. The farmers feel they are robbed, especially of the skins. In all cases, farmers have complained about the uncertain value they get for their cattle hides. In 2005, ZAMBEEF reported earning of US$1.8 million from hides alone (ZAMBEEF, 2006).

There are several steps that are taken when a farmer is selling his /her cattle to traders:

- Firstly, the kraal owner has to issue a letter certifying that the cattle came from his herd. This letter contains traceable identification attributes such as a National Registration Card number (the official identify document owned by every Zambian above 16 years of age), village of origin, Induna under which the buyer falls and district. This letter is attached to the stock movement permit.
- On the day of slaughter, the farmer is obliged to see the animal prodded into the slaughter house.
- The auction systems may be helpful to farmers as it would remove the need to wait for up to two weeks for one’s turn to slaughter. Producers may prefer to sell their animals on live weight basis simply to avoid seeing their animals being slaughtered. However, the processors insist they do not buy live animals but rather the carcasses. The producer has to pay for every step until the carcass is weighed and the producer paid.

Supply chain relationships

The abattoirs do not have any written contracts with the traders or producers. Doing so would commit them to a price while setting a spot price is more advantageous to them. Most of the cattle that enter the slaughter houses are brought in by the traders, the processor may, at most, know the names the traders who bring animals to the abattoir frequently[20]. Farmers have lost money through processors who promise to pay them after they have sold the carcasses in Lusaka or Copperbelt. Thus, often it is the producers who extend credit to the abattoir. As shown elsewhere, only the cattle trader is cited as being a possible source of short term credit for the producer against the future sale of cattle from the herd.

The susceptibility of the small producers to the cattle buyer stems more from vulnerability to seasonal availability of food, unexpected health needs and other unexpected cash needs. At the processor level it may be the processor who is indebted to the producers. There are no programmes or activities that the processor extends to the producers other than raffles to win a bull to encourage farmers sell frequently[21].

Marketing infrastructure

The districts may have the following slaughter facilities:

- Slaughter slab: an open slab where cattle producers/traders may slaughter and sell meat to customers
- Slaughter house: has paddocks in which animals may be kept as they move towards the slaughtering area. It has hooks and other equipment.
- Abattoir: large specialized handling facility. The carcass may be moved through the processing line automatically or manually.

Infrastructure in Western province

Mongu is the provincial headquarters and receives cattle for slaughter from Kalabo (60km) and Lukulu. Kalabo is not accessible during the flood season December-August. With the completion of the all-weather road to Kalabo, the number of animals reaching Mongu from Kalabo are expected to increase. Kalabo is also near the border with Angola. With stability spreading in Angola, that market may capture more Kalabo cattle than is the case now. It is suspected that the diminished slaughters at the abattoirs in Mongu could be partly explained by traders preferring to sell to Angola.

Western province has seven abattoirs. There are four abattoirs in Mongu district, namely ZAMBEEF (formerly the Cold Storage Board), Star Beef (2005), Aluyi which is struggling and Kembe which has been in Senanga since 1998 but has built a facility in Mongu near Limulunga (i.e. on BRE land) that has yet to open (July 2006). To these we add the slabs where the butcheries slaughter their animals. ZAMBEEF took

[20] Manager Zambeef, Mongu
[21] Manager Zambeef, Namwala

over the operations of the Zambia Cold Storage Board plant in Mongu from the cattle traders who initially bought it at privatization. The company has an abattoir in Shangombo district too but that is not operating now since the price offered by ZAMBEEF in Shangombo was too low and the producers are willing to walk to Senanga district for slightly better prices.

Star Beef was established in June 2005 and transports carcasses to Lusaka from their Mongu abattoir. Aluyi was established in 2004 with capacity to slaughter 20-30 cattle per day. It pays cash for cattle. However since January 2006, it has not been fully operational due to logistical problems. The company does not have a reliable cold truck to supply its customers in Lusaka and Copperbelt. The customers are not tied to the Aluyi as suppliers and therefore competitors may supply them at the slightest delay.

Senanga district also has four abattoirs/slaughter houses. ZAMZAM is the main source of beef for the company. Its headquarters are in Lusaka and it has branches in Ndola. Selushimbo was operated by Kembe, but is currently not operating because it was not able to pay farmers on time. Twikatane operated for five or six years in Senanga but has since closed down due to (suspected) competitive pressure/tactics[22]. Lastly, ZAMBEEF has run an abattoir since 2005, which was originally run by Western Beef whose owner has since fled without paying for the cattle he got from the producers.

The total volume of abattoir slaughters is estimated at 45,000 animals per year. In 1999 the volume was 35,000 animals. Assuming a village level slaughter of five to ten animals per year, the province slaughters approximately 50,000 animals per year[23]. In 2005, the price in Mongu ranged from K5,500 to K7,500 per kg. The 45,000 animals per year translate into roughly 10 per cent offtake from the estimated 450,000 cattle in the province. National cattle population growth rate is low at 3.4 per cent per annum (GRZ, 2000).

Infrastructure in Southern province

The abattoirs in Southern province range from a slab to big abattoirs with possibilities for exporting meat.

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[22] Mr Mooto and Mr Wakung'uma, Manager Starbeef and Aluyi respectively, Mongu.

[23] Mr Mututwa, Provincial Livestock Officer, Mongu.

Table 4.1 Slaughter facilities in Southern province

District	Facilities	Status	Grade
Monze	Derrick Howes	Private	abattoir/slaughter house
	Council		slaughter house
Namwala	ZAMBEEF	Private	Abattoir
Itezhi-Tezhi	Council	Local Council	Slab
Choma	Chobro	Private	Abattoir
	Council		Slab
Kalomo	Agro-Development	Private	Abattoir
Livingstone	Fiat	Private	Abattoir
Kazungula	n/a		n/a
Sinazongwe	Council	Local Council	Slab
Gwembe	n/a		n/a
Mazabuka	Council	Local Council	slaughter house
	Magoye	Local Council	Slab
	Konkola	Private	Slab
	PAMA	Private	Abattoir

In Mazabuka there are two private slaughter facilities, namely the slab belonging to Konkola supermarket, and a modern abattoir run by PAMA Meats Ltd. PAMA was established in 2004 from Zimbabwe, and has outlets in Mazabuka, Lusaka and Ndola. The Konkola slab handles about twenty animals per week while the PAMA slaughter house handles sixty to a hundred animals per week and supplies the traditional local butcheries. It is essentially a facility for use by butchery owners to slaughter and carry the carcasses to their retail premises. The slaughter slab at Magoye provides avenue for slaughter and sale of beef from the local community. Approximately 50 per cent of the carcasses from the slab go to Lusaka for sale. The slab handles ten animals per week. Namwala has one abattoir and slabs from which the local butchers prepare their carcasses. The abattoir in Livingstone is closed for now. It used to export goat meat to Saudi Arabia. The rest of the facilities are shown in the table above.

Stock movement permits are issued on the strength of abattoir assurance forms indicating that the animals in transit are heading for slaughter and not for breeding. Most of the cattle from the local farmers go for sale in the Copperbelt.

ZAMBEEF Namwala Abattoir

Namwala is 154km from the nearest significant competitor Choma. The other abattoirs in Kalomo (170km) and Monze (150km) operate at a much smaller rate. The available labour and production technology at the Namwala abattoir allows over a hundred animals to be slaughtered per day. The abattoir can hold 157 carcasses in the cold rooms. The cold room is necessary to chill the beef before it is transported to Lusaka for subsequent processing or sale to retailers. By far the majority (90 per cent) of the cattle that reaches the abattoir in Namwala does so via the traders. The abattoir receives animals from Kalomo, Choma and Monze districts. Each of these districts has an abattoir. There are two other abattoirs within 150km of this abattoir. The biggest competitor is Chobro, which is based in Choma. Chobro processes and sells beef products to Lusaka from their Choma plant.

The tendency is not to grade the cattle from small producers delivered to abattoirs situated within the province. The general practice has been to buy the carcass at the lowest price to low quality of the carcass. ZAMBEEF Namwala has adopted an undocumented grading system as a way of capturing a higher proportion of good quality animals to counter competition from the traders. The abattoir has had to introduce a grading system based on weight of animals to encourage the traders to sell good quality animals to the abattoir. A cursory examination of available data (one page each from 15 August 2006, vs. 15 August 2005) would lend support to the assertion that more good quality animals are now entering the local abattoir than before. For example, on 15 August 2005, 34 per cent of the cattle slaughtered weighed less than 130kg. On 15 August 2006, the figure had fallen to 28 per cent. The abattoir opened on 21 June 2005.

Prior to this change (effected in June 2006), traders preferred to sell good quality animals to Lusaka and Ndola, and the poorer quality to the local abattoir. Without the price incentive, it was desirable for the farmer to get the scrap value of the poor animal while getting a good price for graded animals in Lusaka, or a price higher than Namwala in Ndola. The weight system divided the animal into:

(a) Animals weighing >130kg dressed weight receive K8,000/kg
(b) Animals weighing <130kg dressed weight receive K7,000/kg

The average carcass weight for animals sold in Namwala is 155kg. Thus, an animal carcass of 130kg is considered to be a poorly kept animal. The problem arises in that some steers may be less than 130kg but of much better quality meat. The abattoir argued that the breeds kept today weigh more that 130kg, even for a twelve-month-old animal.

The abattoir in Namwala has not had problems of payment. Once farmers have sold their animals, the documentation is faxed to head office, who then issue an instruction to pay and transfer the money to the Namwala branch of the bank. The delays in payment have come from disruption in telecommunication between Namwala and the headquarters or the absence of cash at the local bank.

4.3.4 Marketing constraints

The small producer is often exposed to restrictions in stock movement. In the Southern province, FMD has prompted restrictions in stock movement on several occasions in the last five years. ZAMBEEF took advantage of this and set up an abattoir in Namwala in June 2005 to avoid disruption in supply of beef to its central processing plant in Chisamba. During the stock movement ban ZAMBEEF could still move carcasses to the market using refrigerated trucks. This risk of closure has contributed significantly towards the growth of slaughter houses in cattle producing districts and provinces. Before 1997, there was only the ZAMBEEF abattoir in Mongu. But since then, six other processors have opened up. Similarly, despite Namwala having been an important source of cattle for a long time (98,000 heads in 2006) (ZAMBEEF, 2006), there was no abattoir in the district until ZAMBEEF established one in June 2005. In the early years of the cattle trade, animals were moved to slaughter houses in trucks outside the province. The Cold Storage Board of Zambia, which was the principal buyer at that time, contracted selected farmers to fatten cattle bought from the small producers before the animals were put through the slaughter house.

The ban on stock movement from Western province effected since 1997 has remove/reduced the possibilities/options for sale of live animals and opened other options in transporting carcasses to the markets in Lusaka and Ndola. There is discontent at the inability to transport live animals to other markets. The barriers to entry are the lack of refrigerated cold trucks and the access to a slaughter facility. While these barriers are yet to be overcome, the companies that have the required assets to obtain and transport carcasses will flourish at the expense of those excluded. There is lingering suspicion that the stock movement ban is imposed to protect the interest of the abattoirs.

Collusion between the Veterinary Department and ZAMBEEF is suspected in, for example, the opening of the ZAMBEEF retail outlet butchery in Mongu on the same day as the stock movement ban was announced and that no butchery should, consequently, sell any beef in the district. Some conservative locals are of the opinion that the liberalization policy has not benefited the local producers; it is exploitative and exposes the locals to increasing poverty[24]. The Ministry of Trade, Commerce and Industry has no representation in the province. That means infringements to good industrial practice go unpunished as the bigger companies set their own rules. The unaffected feel strongly that the liberalization policy, especially in trade, has distorted the playing field against the small players (though this does not address the inability to organize and form strong cooperatives).

[24] Concerned citizens.

4.4 Implications

1. There is need for the provision of extension services and organizing support for community involvement in production and price determination.
2. There are options for domestication of processing, of meat, hides, horns, etc:
   - Aluyi abattoir strongly feels that for them to compete they need to carry out the bulk of the processing in Mongu and transport processed meat products into Lusaka and Copperbelt.
   - The domestication of the processing will increase employment for local population.
3. The present marketing and price setting calls for the development of improved feeding for cattle.
4. Until the price paid by the abattoirs can cover the cost of veterinary care for the average weight of 120kg in Western province, not much improvement will come from health intervention.
5. Government should invest in the control of BQ, etc to enable farmers to continue the programme of prevention and subsequent control within five years. This is in order to give the producers a fresh start.

5.0 Conclusions and recommendations

The livestock value chains in Zambia are characterised by lots of instability, emanating from different issues. Among these factors are the issues of unstable currency, privatisation, inconsistent government support of parastatals, HIV and oligopolistic markets.

There are two main forms of beef supply chains. On one hand there are informal supply chains characterised by informal buyers, such as butcheries, and on the other hand there are formal supply chains mainly from meat processors and supermarket chains. The formal supply chains are characterised by high levels of concentration with a few players controlling the bulk of business.

This situation works against both producers and consumers as these middlemen are squeezing the margins which farmers are supposed to get for their animals. The consumers do not benefit either; there is tacit collusion or price fixing among these players on the retail price of beef.

The supply chain relationship between farmers and the markets is very weak for all the supply chains and the relationships are characterised by an arm's length relationship between the farmers and the processors/markets. Despite coordinating production, most processors and supermarkets do not give smallholder farmers contracts and transactions are based on spot pricing. Producers are therefore under threat of price risks and thus returns are significantly reduced and unstable.

Consequently buyers are not in a position to provide related support, especially finance and/or equipment. Government support is inadequate in terms of extension; this emanated from privatisation of the Cold Storage Company which used to provide these services to farmers. Its privatisation has led to an institutional vacuum in terms of coordinating animal husbandry programmes, especially for smallholder farmers. Subsequently, there has been a reduction in animal movement controls as a result of low financial support received by the Veterinary Department.

The principal exporters of cattle from the provinces are abattoir operators. The local people are no longer able to export cattle due to the stock movement ban precipitated by the outbreak of CBPP in 1997. The ban is expected to stay in place until 2011. To make the transition from exporters of live animals to exporters of carcasses, or better processed meat products, the farmers lack organization and capital.

There is little hope for smallholder beef and poultry producers; the industry is buyer-driven, too risky and prone to recurrent droughts and monopolies. There is a need for deliberate public sector policies and private business strategies to change the course of cattle production for cattle farmers in Zambia.

The following measures can be recommended:

- It is important to increase the participation of the local people in the trade by overcoming the two most significant barriers, namely: slaughter facilities and cold trucks. The greatest needs for small producers are extension, financing and marketing.
- Improve the levels of veterinary services and support required.
- The stakeholders experienced an increase in stock theft. It is suggested that all cattle buyers be registered.
- Find innovative ways to foster a cooperative spirit among the producers in Zambia so they could earn more from their produce. It is the best option for survival of the producers.
- Encourage the separation of hides from offal set so that producers could fetch a better total value from components of the animal.
- Encourage abattoirs to offer their facilities for third parties to slaughter their animals.
- Establishment of a leather processing industry could help create employment in the provinces.
- Government needs to take cognisance of their role to provide a more competitive environment and also take account of the power relationships of stakeholders in the value chain.

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Regoverning Markets

Regoverning Markets is a multi-partner collaborative research programme analysing the growing concentration in the processing and retail sectors of national and regional agrifood systems and its impacts on rural livelihoods and communities in middle- and low-income countries. The aim of the programme is to provide strategic advice and guidance to the public sector, agrifood chain actors, civil society organizations and development agencies on approaches that can anticipate and manage the impacts of the dynamic changes in local and regional markets. The programme is funded by the UK Department for International Development (DFID), the International Development Research Centre (IDRC), ICCO, Cordaid, the Canadian International Development Agency (CIDA), and the US Agency for International Development (USAID).

Agrifood Sector Studies

These studies look at specific agrifood sectors within a country or region. Research studies have been carried out in China, India, Indonesia, Mexico, South Africa, Turkey, Poland and Zambia covering the horticulture, dairy and meat sectors.
Part A describes the observed market restructuring along the chains.
Part B explores the determinants of small-scale farmer inclusion in emerging modern markets. Using quantitative survey techniques, they explore the impacts on marketing choices of farmers, and implications for rural development.

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