

Value chain analyses assist in informing policy dialogue and investment operations. They help the understanding of how agricultural development fits within market dynamics. They permit an assessment of the value chains' impact on smallholders and businesses.

The European Commission has developed the methodological framework for analysis. It aims to understand to what extent the value chain allows for inclusive growth and whether it is both socially and environmentally sustainable.

markets. Farmers traditionally practice mixed livestock farming systems. Cattle keepers' primary use of cattle is for individual savings, milk production and draught power. In the beef sector, there is no public incentive for long-term investment given the insecurity of land tenure and the deficiency of disease control systems leading to outbreaks.

The European Union intervention

Agriculture-based economic development is one of the focal sectors of cooperation between Zimbabwe and the European Union (EU) in the 2014/2020 National Indicative Programme (NIP). The EU supports the Zimbabwe Agriculture Growth Programme (ZAGP), which strengthens services for value chain (VC) development and invests directly into the development of high potential VCs including beef, poultry and animal feed. The ZAGP directly contributes to the implementation of the National Livestock Development Program (2014-2018) and the National Policy Implementation Matrix (September 2014).

The value chain context

Zimbabwe is a very important producer of beef cattle but faces severe challenges from climate fluctuations, which will likely increase the incidence of dry periods.

Due to the changing nature of the agricultural sector from large farms to smallholders following the land reform, there is a need to support farmers in enhancing their competitiveness and links to

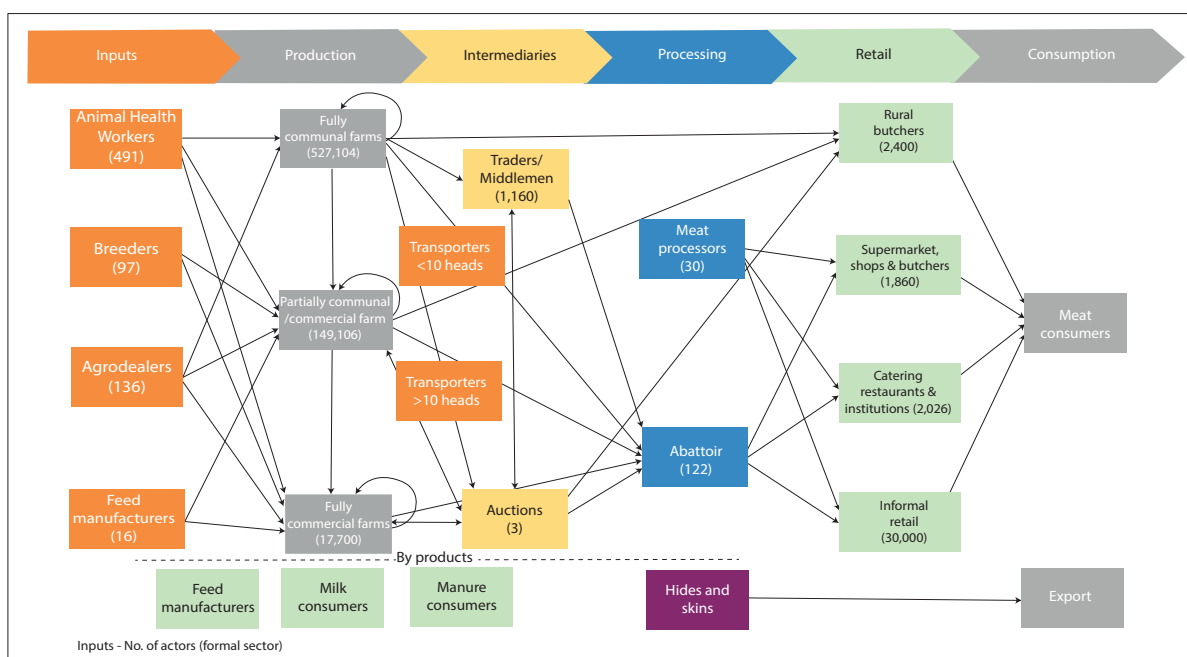


Figure 1 : The main flows of the beef value chain in Zimbabwe

Functional analysis

Historical background

The beef sector in Zimbabwe has gone through **various phases of development**. During the colonial and post-colonial period, the focus was on intensive commercial farming and the exploitation of market access opportunities. Then Zimbabwe underwent a period of **intensive land reform**, with the large-scale transfer of farm land from commercial (white) to small-scale (black) farmers with extensive resettlements. Various categories of 'new' (black) commercial farms have been developed pre-and post-land reform (11,000 households). During this period, the national disease control system failed and exports ended. Currently, Zimbabwe aims to reinstate centralised veterinary control to manage transboundary diseases such as foot and mouth disease (FMD) and re-access global beef markets.

Production decline

The current beef cattle herd is estimated at around **5.5 million heads**. The majority is farmed on a relatively small scale using a **(Fully) Communal farming system**, with emerging **Partially Communal/Commercial** and **(Fully) Commercial farmers** representing **22%** and **6% of the cattle population** respectively (Figure 1).

Off-take rates are regularly cited at **11% for commercial and 5% for communal farmers**. They are low and in decline for several reasons, economic uncertainty and the absence of suitable saving mechanisms in rural areas means that farmers have become used to using herd growth as a risk aversion strategy. Also farmers own cattle for reasons such as draught power for planting, retention of animals for cultural purposes (i.e., gifting and status), domestic milk production and as a source of organic fertilizer when other fertilizer is not available.

The **average animal size** has also fallen (reflecting a return to more traditional breeds), bringing the average carcass weight of animals slaughtered from **200kg/animal** to **167kg/animal**. This in turn reduces the amount of high grade meat available from each slaughtered animal.

Farmers selling cattle are facing high formal and informal levies, duties and rents; and endemic stock theft. A proportion of the national herd is informally slaughtered. These and other systemic **issues constrain production**, including: poor access to extension services and counselling; lack of resources for basic disease and parasite management; inadequate water supply for cattle in rural areas; and, inadequate animal nutrition missing, particularly licks and micro-nutrients.

Downstream actors in the value chain

Cattle leaving farms is either slaughtered locally for local use or transferred via middlemen or auctions to abattoirs. Traders play an important role in intermediating between abattoirs and farmers. Important recent changes in the sector include

the **decline of large scale abattoirs** and **the growth of in 'toll' slaughtering** where the abattoir does not take ownership of the animals. It is estimated that 62 medium to large abattoirs slaughter 70-75% of the national herd, but that there are over 160 abattoirs registered. **Abattoirs** in Zimbabwe are operating below their capacity and are facing a number of challenges with most sellers complaining of unfair prices. This is partly due to the grading system which does not take into account that fact that sellers have reverted to a traditional, small framed cattle as opposed to the larger framed commercially produced exotic animals that commanded a higher price due to its greater amount of high grade cuts. The price offered for the 5th quarter also sees farmers inadequately compensated for this relatively high value element. These factors coupled with the collapse of hide exports and the lack of domestic use of hides reduces the overall animal slaughter values.

Post slaughter meat is sold to **retailers, butchers, caterers** and **meat processors** (making sausages, burgers and pies for local sale). Most meat is sold as mixed meat pieces through urban butchers, retail outlets, restaurants and door-to-door meat and meat product traders. **Issues** in this element of the VC include: shortages and high costs of imported elements (e.g., packaging and casings), decline of demand from farm workers (although to some extent compensated by the increase of small scale mining operations in the country), and, the challenge of informality (risk of under-cutting of formal meat sales by illegal trade with lower food safety standards).

Governance and institutional frameworks

A full set of Government and non-government bodies are involved in the beef sector. Government structures still reflect the **national objective of veterinary control and export orientation**.

The Government of Zimbabwe has a **National Livestock Development Policy**, which aims to support integration of small-scale farmers into the formal market chain. Export sales and FMD control are the focus of the proposed "Command Livestock, Fisheries and Wildlife Program", aiming to return Zimbabwe to competitive export.

Macro-economic context

Zimbabwe is in a **critical macro-economic situation** that affects the beef actors and VC performance, with the following issues: serious inflationary pressure; lack of cash and foreign exchange as well as a range of different values for units of account; rent seeking; high cost of doing business and fall an communal farmers who trade livestock.

Economic instability in Zimbabwe discourages investment and limits demand of domestic beef products as consumers switch to cheaper meats such as chicken.

Economic analysis

Financial viability

All types of farms show profitability. They have widely **different business objectives:** Commercial and Partially Commercial farms are profit oriented; whilst Partially Communal and Communal farms aim to address other objectives such as: risk management, savings, social capital, status, milk production, and draught power, but look also for profit.

The estimated profit of farms ranges from Z\$103 (€90) per annum for a Communal farm, through Z\$2,150 (€1,871) for a Partially Commercial/Communal farm to Z\$29,052 (€25,275) for a Commercial farm. **Fully Communal and Partially Commercial/Communal farms have profit margins of 60% and 50% respectively, while Commercial farms achieve a profit margin of 30%. All other actors in the VC show strong profits in the range of 20-40%, particularly abattoirs.**

Impact on the national economy and viability within the global economy

Direct value added (VA) is generated mostly by producers (40%), followed by traders (32%) and processors (28%). Intermediate consumption (IC) accounts for 23% of the VC production. IC is composed of Imports (64%) and domestic goods and services (36%).

Growth is generated mostly by the actors operating within the VC (91%). **Total VA is Z\$ 427 million (€376 million).** This represents about **27% of total Agricultural GDP. The rate of integration into the economy is high (86%)** demonstrating limited dependence on imports.

The **contribution of the VC to public finances is modest,** at 0.5% of government earnings. **The beef VC adds to the trade deficit** with 3% of total annual imports (i.e., imported veterinary drugs and chemicals).

A **Domestic Resource Cost ratio (0.15) <1** shows that the value created by the VC, when measured in international prices, is greater than the domestic resources used in the VC. This indicates a **competitive advantage.**

Growth inclusiveness

Wages and farmers' incomes account for 42% of the net income of the whole VC. This suggests a high level of inclusiveness. Farmers retain 31% of the income created within the VC representing a high return on family labour across the different farming models (Figure 2).

Nevertheless, the wages are relatively small in the VC (11%) showing that the structure of the farming systems have normalised around family, rather than external labour models. However, wages are significant at the level of

commercial farms (28%) and catering establishments that include fast food chains, small restaurants and food outlets (also 28%) demonstrating the importance of the VC for the domestic consumption (Figure 3).

The number of **jobs estimated in the VC is 110,000.** The largest employing segments of the beef VC are caterers (34% of jobs), retail butchers (26%) and rural butchers (23%).

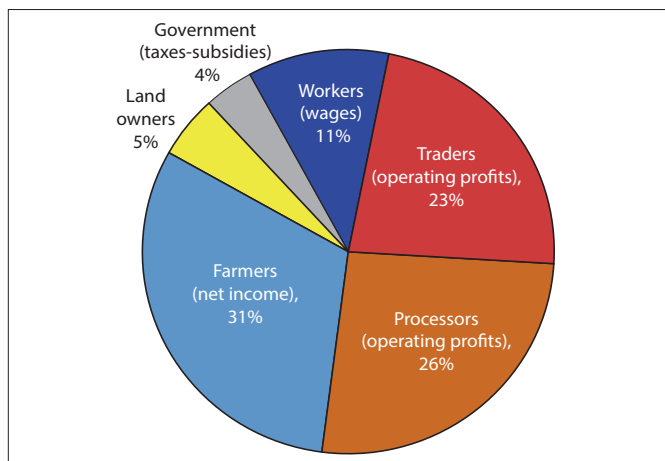


Figure 2 : Income distribution to VC actors

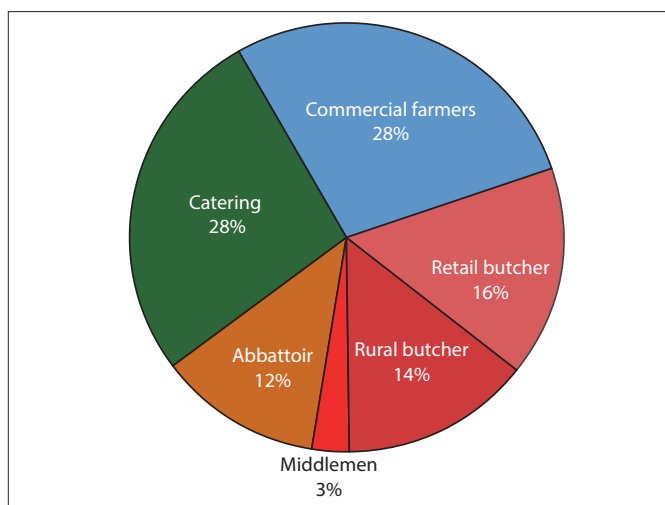


Figure 3 : Wages distribution at various stages of the VC

WHAT IS THE CONTRIBUTION OF THE VALUE CHAIN TO ECONOMIC GROWTH ?

All types of farmers and actors show strong profits, even though all are facing serious challenges (see the functional analysis). Traders and processors share a large proportion of the income (49%). Abattoirs drive the VC and are important for improving the access of small and medium scale producers to markets.

Given the high level of integration of the VC within the national economy and the high contribution to agricultural GDP, the beef VC is strongly contributing to economic growth. The VC is competitive within the global economy.

Social Analysis

	Major issues	Major risks (-) / benefits (+)	Mitigations measures
Working Conditions	Variable according to the segment of the VC.	(-) For informal workers, no respect of minimum wages and working hours. Safety risks for workers in vet drugs storehouse and small scale rural abattoirs. (+) Attractive jobs in large scale abattoirs.	Enforcement of the existing legislation.
Land and Water Rights	Lack of tenure rights limits access to credit, and contributes to unsecure access to grazing areas and water points.	(-) Limited investments on livestock and pasture. (-) Restoration of the FMD zoning without taking into account new land use and users might impact market access for some groups.	Donors' investment in resettlement areas, support for land securitization, water point rehabilitation and exploring alternatives to FMD zoning.
Gender Equality	Minor involvement of women in the beef VC (except milk and manure). Extension services focus on cattle, to the detriment of women's owned livestock (goats, poultry).	(-) Limited opportunities for women in beef VC development. (-) Risk of competition with small livestock.	Support to the acquisition of cattle by women and to women's participation in livestock committees. Support to small livestock.
Food and Nutrition Security	At farm level, cattle ownership is multifunctional. It is essential for food accessibility (manure, draught power,..) and resilience (savings). But livestock policies consider livestock mainly as a source of cash for farmers.	(+) Endurance to environmental shocks. (-) The main objectives of livestock policies being to improve supply to abattoirs, the risk is to encourage destocking, to change herd structure, and to affect livestock multifunctionality.	Support to farmers facing instability (climatic, financial ...).
Social Capital	Large scale abattoirs are well organized (Zimbabwe Abattoirs Association). But at farm level, there is a lack of horizontal organization, access to market information and to extension services. Lack of trustworthy relations in the VC.	(+) Cattle ownership gives status and enhances resilience. (-) Low bargaining power for small scale farmers (price, 5th quarter, grading ...).	Support to the establishment of a cattle producers association inside the Livestock and Meat Advisory Council (LMAC) and a market information system
Living Conditions	Access to health services is generally limited. Housing of farm workers is poor.	(+) Paying school fees is a key function of cattle ownership. (+) The beef VC contributes to improving access to health services for the large scale abattoirs workers.	Alleviate controls and taxes on herds' mobility.

IS THIS ECONOMIC GROWTH INCLUSIVE?

The beef VC is more inclusive than before the land reform and the transfer of farm land to small farmers. Communal farmers and partially communal farmers retain 33% of the net incomes of the VC. Cattle ownership contributes to reduce vulnerability, to food and nutrition security, and to school attendance. Nevertheless, the largest group of actors remains male farmers.

There is a risk that the beef VC development does not include the most vulnerable households (women headed households, households with no title deeds...). Extension services directed to livestock are focused on cattle health issues especially on FMD control and future international market access. The means to achieve these goals are lacking (in particular for the functioning of the dip tanks). There is a risk that investments in the restoration of a FMD fence contribute to restore a dualistic animal farming system with limited inclusiveness.

IS THE VALUE CHAIN SOCIALLY SUSTAINABLE?

Social sustainability in the beef VC is limited because of the lack of tenure rights and unsecure access to grazing areas and water points, low social capital and minor involvement and support of women in the VC.

Sustainability is threatened by different elements: lack of participation in decision making and low bargaining power for the small scale farmers, current policies/discourses focused on beef as a commodity and contributing to discredit cattle multi-functionality and farmers rationalities.

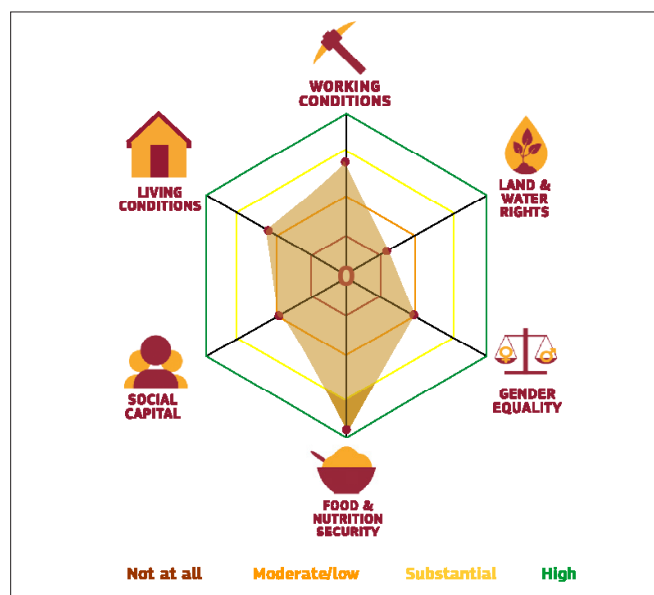


Figure 4: Social profile

Environmental analysis

Damages to human health

Global warming is the main contributor to damages on Human Health in the Zimbabwean beef VC. It can be considered that the Greenhouse Gas (GHG) emissions from Zimbabwean beef production systems are low in comparison to external LCA studies that measure that GHG emissions for beef production could range from around 15 to 75 kg eqCO₂ per kg carcass-equivalent. As a consequence, it can be concluded that **the VC has a low impacts on human health.**

Impacts on Ecosystem quality

The main impact of beef production onto the ecosystem quality derives from the large natural pasture areas used by **open grazing** communal production systems. Nevertheless, **it cannot be concluded that this practice is currently unsustainable** as it does not compete with other uses like

human food production. Moreover, management practices of the natural pasture areas by communal farmers are extensive with low animal density. Natural pasture areas management by commercial and commercial/communal farmers through **fencing** (both for veterinary control and for land management), **is more questionable from an environmental perspective** because fences can be unselective and may create physical barriers for many wildlife species.

Contribution to resource depletion

The main contribution to resource depletion in the VC is through **fossil energy use**. Fossil energy use from cradle-to-market reached 5.8MJ per kg eq carcass equivalent. In literature, values range from 5 (Brazil) to more than 30MJ. kg (Europe, United States). It can therefore be concluded that **the beef VC in Zimbabwe has less impact on resources depletion.**



Managing disease vectors is crucial for cattle farming. This picture shows a typical community dip tank for the control of ticks. © Ben Bennett

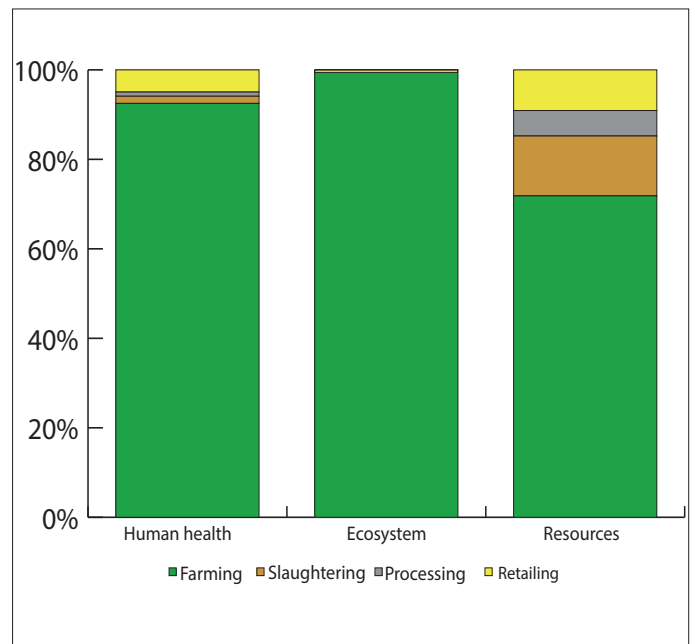


Figure 5: Contribution of the different stages to the three areas of protection

IS THE VALUE CHAIN ENVIRONMENTALLY SUSTAINABLE?

The Zimbabwean VC presents low environmental impacts on human health and resource depletion. Its potential impacts are currently low compared to many other beef VCs around the world. However, these low impacts are partly related to extensive and low-input management of communal production systems and may increase in the future as the VC develops. These impacts are low because: firstly, the communal production systems represent close to 60% of the beef (carcasses) production; secondly, the beef from communal farmers is mainly sent through a direct channel with only rural butchers as intermediate actors.

Main findings

Risk category	Comments	Relevant indicators	Probability
Price trends	Inflationary pressure in Zimbabwe is currently very high	Retail Price Index (%)	High
Price volatility	Potential for over and under supply caused by climate variability	Total animal slaughter (heads/year)	High
Logistics and infrastructure	Domestic infrastructure good but in decline	Length (km) and quality of the roads	Medium
Policies	Public livestock purchases at high prices distort domestic beef economy	Ratio of beef sales price per head vs border parity price	Medium
Social relations	Reduced livestock ownership in rural areas increases vulnerability and reduced resilience	No. of households with >5 head cattle	Medium
Food safety and phytosanitary	Unregulated veterinary disease	No. of outbreaks (tick borne diseases, FMD) incidents reported per year	High
Weather and climate change	Increased average temperature, reduced and variable rainfall	Rainfall and temperature statistics	High
Natural environment	Land degradation, pollution, forest clearance, water resources depletion, GHG emissions	Agricultural land occupation (ha), deforestation rates (ha/yr), water depletion (water use / water resources depletion), Annual livestock sector GHG emissions assessment	Medium

	Positive	Negative
Internal	<ul style="list-style-type: none"> STRENGTHS: Comparative advantage in beef production Existing infrastructure Low environmental impacts due to extensive management Cattle ownership and livestock management is an important source of climate resilience against the negative impacts of climate shock, particularly for communal farming systems 	<ul style="list-style-type: none"> WEAKNESSES: Inadequate access to capital Infrastructure mainly in former commercial areas Low level of cattle producers' organisations Failure to control animal diseases with high mortality
External	<ul style="list-style-type: none"> OPPORTUNITIES: High potential for intensification Processing and export of beef and beef products (hides) Strong potential for vertical integration 	<ul style="list-style-type: none"> THREATS: Failure to control trans-boundary disease threatens trade Wildlife predation Continued economic uncertainty discourages investment Low consumers' purchasing power

Some general recommendations:

Deepening the knowledge on the VC by filling in important information gaps, e.g. technological or management diagnosis at a specific stage of the chain: the national data set is weak and needs improving, especially for communal and non-livestock owning households.

Enhancing the development of the VC: market access can bring growth, but may come at the cost of those unable to benefit from it (e.g., communal farmers).

Avoid identified risks: environmental, economic, social risks are known and sound policies can avoid them.

Follow-up: The Zimbabwe beef VC analysis provides an empirical measure against which future investments in the sector can be measured.

Value Chain Analysis for Development (VCA4D) is a tool funded by the European Commission / DEVCO and is implemented in partnership with Agrinatura.

Agrinatura (<http://agrinatura-eu.eu>) is the European Alliance of Universities and Research Centers involved in agricultural research and capacity building for development.

The information and knowledge produced through the value chain studies are intended to support **the Delegations of the European Union** and their partners in improving policy dialogue, investing in value chains and better understanding the changes linked to their actions. VCA4D uses a systematic methodological framework for analysing value chains in agriculture, livestock, fishery, aquaculture and agroforestry. More information including reports and communication material can be found at: <https://europa.eu/capacity4dev/value-chain-analysis-for-development-vca4d>

This document is based on the report "Beef Value Chain Analysis in Zimbabwe" 2018, by Ben Bennett (NRI), Muriel Figue (CIRAD), Mathieu Vigne (CIRAD), Charles Chakoma (national expert) and Pamela Katic (NRI). Only the original report binds the authors.

