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## DELIVERABLE 5 – Case study reports: Botswana and Mozambique

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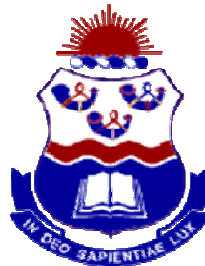


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### SADC/PRINT – VAIMS PROJECT

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## **A. Introduction**

As part of the VAIMS development, the toolkit had to be tested in order to modify and validate in the form of a participatory approach in two learning sites, i.e. Phase II. In the case of VAIMS, Botswana (BW) and Mozambique (Moz) were chosen initially out of four possible learning sites (i.e. Angola and Malawi were the other two). The two main reasons for choosing Botswana and Mozambique included:

- Logistical reasons given the locality of the consortium, both countries border all consortium members except ILRI, which has an office in Mozambique;
- Language issues, several consortium team members fluent in Portuguese, but none in French.

The first objective of Phase II (validation phase) is to test and modify and adapt the VAIMS toolkit to the specific needs and characteristics of the stakeholders (specifically small stock producers) in SADC Member States. A second objective is offering a forum for dialogue between stakeholders, particularly between private and public sectors. It is therefore important to understand that this report is NOT a full commodity analysis, rather a testing phase and therefore, one study area per country was chosen, i.e. Tsabong (BW) and Mabalane (Moz) in close consultation with various role-players in each country.

This case study report is presented in different sections. In the first two sections, the Tsabong and Mabalane field studies are discussed in terms of the producer, (livestock) trader, processor and retailer questionnaires surveyed and analyzed. In the case of fields-studies, processor and retailer surveys weren't limited to the study area, with the idea to try and trace the livestock and livestock products along the value chain to larger "more formal" markets within the respective countries, i.e. Gaborone and Maputo. It is important to note that these country reports are NOT a full analysis of the value chains and the results and data reported in limited to basic descriptive statistics. The reason for this is that trying to analyze detailed performance measures/indicators from these surveys is not of much use at this stage. The aim is therefore rather to learn from participatory approach, and therefore to modify and adapt the toolkit. In the third section, a general conclusion

with recommendations is provided to modify and adapt the VAIMS toolkit. In the final section, the actual content and structure of the different questionnaires are discussed.

**SADC/PRINT - VAIMS**

**B. Survey test I: Tsabong, Botswana**



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## Background to the Tsabong field study

After pre-testing the surveys in the Bloemfontein area in South Africa, the questionnaires were tested in the Tsabong region in Botswana. The main aim of the survey was to test the questionnaires specifically designed for producers, traders, processors and retailers involved in sheep and goat as well as beef production, processing, marketing and trade for its functionality within the SADC region, focusing mainly on small stock producers. A total of 85 producers, ranging from subsistence farmers to large scale producers were surveyed in Botswana. Villages surveyed include Maralaleng, Owemanenu, Khisa, Babong, Khuis Bokspits, Draaihoek and Middelpits (see Figure 1), contained in the first part of this document.



Illustration 1: A livestock producer being surveyed

The second part of this document reports on the analysis of the trader questionnaires, whereas the third part reports on the analysis of the processor questionnaire. The analysis of the retailer questionnaire is reported on in the fourth part of this document.

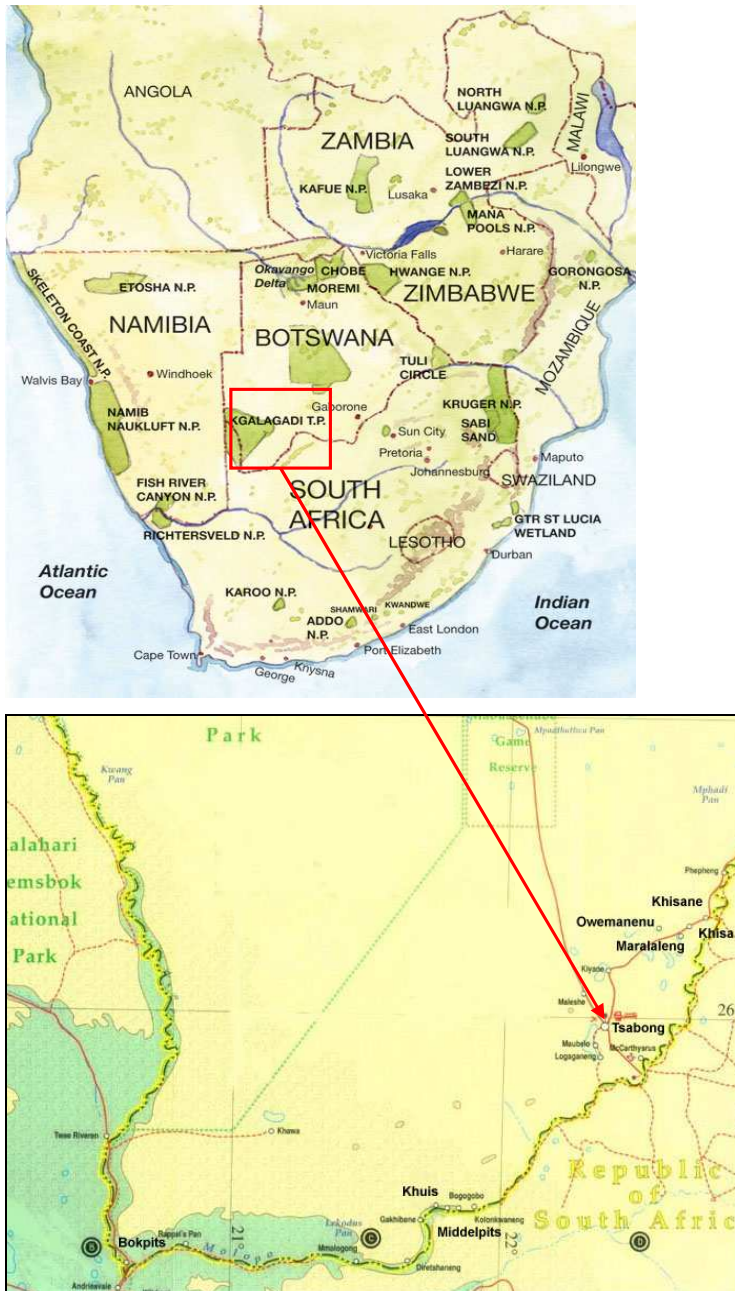


Figure 1: Map of survey area

## PART ONE: PRODUCER ANALYSIS

### 1.1 Introduction

This section of the document reports on the analysis of the 85 producer surveys conducted in Botswana. The analysis is presented in 8 sections namely, general household information, household assets and activities, detail of livestock operations, livestock purchases, livestock sales, cost of production, infrastructure and miscellaneous information.

### 1.2 General household information

This section describes the general household information gathered from the 85 producer respondents. The male: female ratio for producers surveyed is 70:30 per cent. Figure 2 shows the respondent's relationship to the household head and shows that the majority of the respondents interviewed (82%) headed their household with 9 and 7 per cent of the respondents being children and spouses of the household head respectively. The respondent's marital status is represented in Figure 3, indicating that nearly 60 per cent are married.

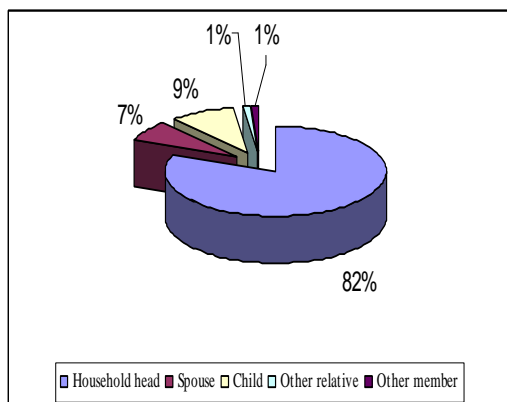


Figure 2: Respondents relationship to household head

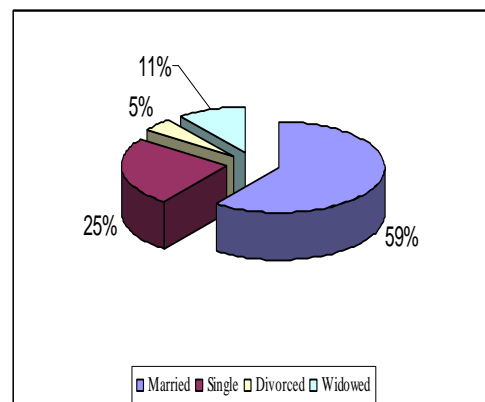


Figure 3: Marital status of the respondent

Figure 4 indicates that 59 per cent of the respondents' primary economic activity is farming while 26 per cent are part-time farmers.

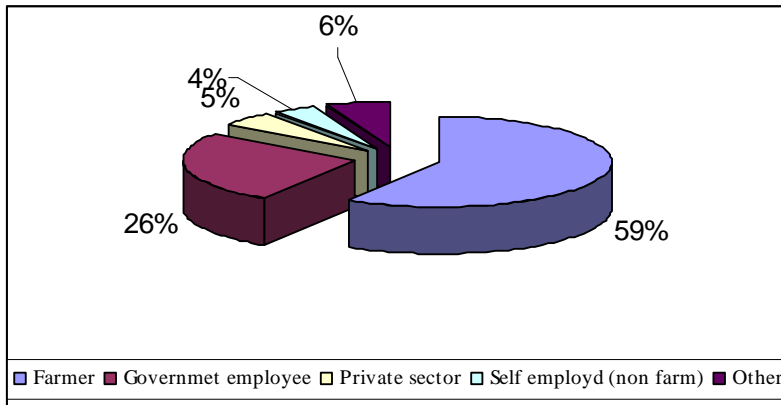


Figure 4: Primary employment/activity

From Table 1 the average age of the respondents is 51 years while the youngest and oldest respondents being 20 and 87 years respectively. The years of schooling ranged from 0 to 14 with an average of nearly 5 years, and the average time the respondents have been living in the respective villages is 38 years. On average, respondents have been engaged in farming activities for 25 years.

**Table 1: Respondent basic information**

	<b>n=85</b>		
	<b>Min</b>	<b>Ave</b>	<b>Max</b>
Age (years)	20	51	87
Years of schooling	0	4.7	14
Years in village	0	38	87
Years engaged in farming activities	2	25	70

### 1.3 Household assets and activities

Table 2 indicates the percentage of income generated by the respondents from various economic activities during the preceding 5 years. The main source of income during this 5 year period has been livestock production (66% during the current year) followed by off-farm employment at 14.8 per cent. Income generated from livestock production had an increasing trend compared to 5 years ago as did income generated from off-farm employment. Due to incomplete data capturing, i.e. respondents not knowing, the totals for the survey average doesn't add up to 100% as it should.

**Table 2: Percentage of income received from various economic activities**

<b>Activity</b>	<b>% today</b>	<b>% 1 years ago</b>	<b>% 5 years ago</b>
Livestock production	<b>66.01</b>	<b>63.76</b>	<b>46.41</b>
Crop production	1.24	1.00	0.53
Livestock trading	0.41	0.47	0.47
Crop trading	0.00	0.00	0.00
Off-farm employment	<b>14.81</b>	<b>11.47</b>	<b>5.65</b>
Own business (non-farm)	2.59	2.12	0.82
Remittances	6.94	6.59	7.12
Other	2.41	2.41	2.53
<b>TOTAL</b>	<b>94.41</b>	<b>87.82</b>	<b>63.53</b>

Of the 85 respondents interviewed, every respondent owns goats, 75 per cent indicated that they own cattle, 61 per cent own sheep, and 13 per cent own poultry. However, only 26 per cent of the respondents indicated that they have received some training in farming activities.



Table 3 indicates the number of employees the respondents employ as well as the wage rates. Only a few respondents formally employ people (on average less than one employee per respondent) as the majority of the respondents make use of family labour. Due to the fact that no provision was made for family labour on this questionnaire, it was added in the adjusted questionnaire.

**Table 3: Number of labourers employed and wage rates**

Type	Gender	Number of employees/respondent			Monthly wage rate (Pula/employee)		
		Min	Ave	Max	Min	Ave	Max
Full-time employees	Male	0	0.80	8	150	437	600
	Female	0	0.05	2	408	439	500
Part-time employees	Male	0	0.21	3.00	300	405	600
	Female	0	0	0	0	0	0

#### 1.4 Detail of livestock operations

Table 4 provides information on herd structures (cattle, sheep, and goats respectively) and dynamics in terms of animal numbers during the past 12 months, animals purchased, sold, born and losses (deaths) during the last 12 months as well as animals consumed at home. These are average numbers from the 85 respondents surveyed. Respondents own on average 81 head of cattle (important to note that individual respondent cattle numbers range from 0 to 1 500 animals) with only an average of 13 animals born during the last 12 months.

Cattle deaths are on average 4.7 animals per respondent. The average number of sheep owned by the respondents is 37 ranging between 0 and 538. In the case of sheep, deaths exceed births. Goat numbers ranges between 5 and 360 with an average of 81, respondents experience high losses of 16.9 animals on average with only 17.5 animals being born during the last 12 months. As for production, some animals are consumed at home, with the majority of surplus animals sold.

Producers make use of various cattle breeds within the region. These include Afrikaner, Bonsmara, Brahman, Santa Gertrudus, Simmentaller, Tswana and Boran, as well as a variety of crossbreeds. Sheep breeds included Dorper, Damara, Persi, Tswana, Van Rooyen, as well as a variety of crossbreeds while goats breeds are mainly the Tswana or Boerbok.

**Table 4: Cattle herd and sheep and goat flock: structure and dynamics**

	Stock this year	This time last year	Animals purchased in the last 12 months	Animals born in the last 12 months	Animals consumed at home in the last 12 months	Animals dead in the past 12 months	Animals sold in the past 12 months
<b>Cattle</b>							
Adult females	25.11	15.84	0.09		0.45	2.00	3.66
Young females	20.19	15.86	0.08		0.06	0.56	2.05
Breeding bulls	1.02	0.79	0.06		0.04	0.00	0.00
Calves	11.47	4.62	0.11	12.96	0.01	0.31	2.13
Castrated males	2.52	1.17	0.00		0.07	0.08	4.46
<b>TOTAL</b>	<b>81.48</b>	<b>37.57</b>	<b>0.34</b>		<b>0.79</b>	<b>4.71</b>	<b>13.25</b>
<b>Sheep</b>							
Adult females	14.62	13.32	0.13		0.80	1.85	2.29
Young females	7.36	6.47	0.31		0.08	0.53	0.76
Breeding rams	0.96	0.52	0.07		0.00	0.09	0.08
Lambs	5.76	2.79	0.00	5.82	0.02	0.60	2.00
Castrated males	1.49	0.89	0.00		0.35	0.13	0.35
<b>TOTAL</b>	<b>37.04</b>	<b>24.94</b>	<b>0.51</b>		<b>1.42</b>	<b>6.40</b>	<b>6.96</b>
<b>Goats</b>							
Adult females	39.01	35.21	0.85		1.13	10.24	4.78
Young females	10.92	12.86	0.13		0.06	0.84	2.78
Breeding rams	1.14	0.61	0.08		0.00	0.00	0.27
Kids	15.91	6.95	0.00	<b>17.52</b>	0.06	3.18	0.15
Castrated males	1.95	1.57	0.00		0.64	0.13	0.98
<b>TOTAL</b>	<b>81.11</b>	<b>59.55</b>	<b>1.06</b>		<b>1.95</b>	<b>16.86</b>	<b>11.33</b>

In Table 5 respondents indicate that the main reasons for animal losses during the preceding 12 months have been diseases and drought, while some animals were lost due to predators and stock theft.

**Table 5: Reasons for animal losses (%)**

Category	% Loss		
	Cattle	Sheep	Goats
Disease	40	50	42
Drought	26	29	34
Theft	14	8	9
Predators	19	13	14
Total	100	100	100

Illustration 2 indicates the poor grazing conditions during the latter part of November 2008 (due to late rains) in the Owemanenu region. On average 26, 29 and 34 per cent of cattle, sheep and goat losses respectively was due to drought (see Table 5).



Illustration 2: Grazing conditions in the Owemanenu region

## 1.5 Livestock purchases

The number of animals purchased, average prices paid, approximate live weight per animal as well as the transportation costs from the market per specie and animal category are shown in Table 6. It is evident that very few animal purchases were made by the respondents during the preceding 12 months. Purchases are spread out relatively even throughout the year although a slight increase is noticeable during the last six months from June. No contractual agreements are used for animal purchases.

**Table 6: Animal purchases over the last 12 months**

Category	Number of animals purchased	Average price per animal (Pula)	Approximate average weight of purchased animal (kg)	Transport cost from market (per load)
<b>Cattle</b>				
Calves	0.05	700	160	150
Heifers	0.11	1367	250	300
Steers	0.01	900	-	-
Bulls	0.02	3000	250	300
Cows	0.01	1200	-	-
<b>Sheep</b>				
Adult females	0.13	400	-	120
Young females	0.31	375	20	160
Breeding rams	0.04	1650	-	120
Lambs	0.00	-	-	-
Castrated males	0.00	-	-	-
<b>Goats</b>				
Adult females	0.56	413	-	135
Young females	0.47	333	20	-
Breeding rams	0.08	1475	-	225
Kids	0	-	-	-
Castrated males	0	-	-	-

Table 7 provides more detail on animal purchases information in terms of where the local farmers obtained purchase price information, from whom and where they purchase, the form of payment as well as the reason for purchasing cattle, sheep and goats respectively. For cattle, the price is negotiated by the buyer and seller in

most cases while sheep prices are fixed by the seller. For goats the respondents indicated that the selling price is either negotiated by the buyer and seller, or fixed by the seller. For cattle, sheep and goats, the main purchase market is other smallholder farmers and the main place of purchase is at the farm gate and the village market. In all cases the main form of payment is spot or cash payments while the main reasons for purchases is replacing animals that died and increasing herd sizes.

**Table 7: Purchase information**

	<b>Cattle</b>	<b>Sheep</b>	<b>Goats</b>
<b>Purchase price information (%)</b>			
Negotiated by buyer and seller	56	17	33
Fixed by buyer	22	-	11
Fixed by seller	11	82	33
Fixed by government	11	-	11
Third party	-	-	11
<b>Purchased from (%)</b>			
Government farm	-	14	36
Other smallholder farm	100	86	64
<b>Place of purchase (%)</b>			
Farm gate	38	67	18
Village market	50	-	45
Local sales pen	-	17	9
Local collection point	13	-	-
Local business centre	-	-	9
Regional auction	-	17	18
<b>Form of payment (%)</b>			
Spot cash payment	100	86	100
Exchange	-	14	-
<b>Reason for purchase (%)</b>			
Replace animal that died	25	50	11
Increase herd size	75	17	44
Breed improvements	-	33	44

Sheep and goat purchases are mostly made from the local village market and from other small farmers while the majority of cattle are bought from government farms. The way these markets are utilised has not changed significantly during the past 5 years. In terms of the transport costs from the market, buyers within close vicinity of the market usually drive animals on hoof to their final destination, otherwise cattle

are mostly transported by truck while smaller vehicles (pick-up vans and trailers) are mostly used for sheep and goats.

## 1.6 Livestock sales

In Table 8, the number of animals sold, average price received, approximate weight of the animal as well as the transportation cost to the market is given per species and category. As in the case of purchases, sales are spread out relatively even throughout the year, although a slight increase is noticeable in the last six months from June. Similarly to purchases, no formal contractual agreements are used for animal sales.

As explained earlier, a very limited number of animals are sold annually by the participants, with an average of 2.5 head of cattle, 1.2 sheep and 1.3 goats.

**Table 8: Animal sales over the last 12 months**

Category	Number of animals sold	Average price per animal (Pula)	Approximate average weight of sold animal (kg)	Transport cost to market (Pula per animal)
<b>Cattle</b>				
Calves	1.85	1482	234	70
Heifers	3.08	1650	284	630
Steers	6.35	1768	308	414
Bulls	0.02	2900	200	150
Cows	1.05	1773	318	150
<b>Sheep</b>				
Adult females	1.46	389	48	135
Young females	2.00	354	57	300
Breeding rams	0.00	800	-	-
Lambs	2.07	317	-	-
Castrated males	0.39	380	45	200
<b>Goats</b>				
Adult females	2.65	377	44	167
Young females	2.26	376	52	225
Breeding rams	0.05	517	-	-
Kids	0.33	367	100	-

Category	Number of animals sold	Average price per animal (Pula)	Approximate average weight of sold animal (kg)	Transport cost to market (Pula per animal)
Castrated males	1.31	430	49	89

Table 9 provides more detail on animal sales information in terms of where the local farmers obtained sales price information, to whom and where they sell, the form of payment as well as the reason for sales per cattle, sheep and goats respectively. Respondents indicated that for cattle the sales price is mainly fixed by the buyer and is primarily based on the live weight of the animals. In the case of sheep the sales price are negotiated between the buyer and seller while for goats the price is either negotiated by the buyer and seller or is some cases fixed by the buyer. For cattle, sheep and goats the main market utilised are the local butchers followed by individual traders (see Illustration 3).



Illustration 3: A typical butchery in Tsabong



The main selling point is the village market or the local collection point. On average 42 per cent of the cattle, 27 per cent of sheep and 47 per cent of goats are sold in these markets. Nearly all payments are made in cash while the main reason for animal sales is to cover household expenses and other business purposes.



Illustration 4: Local collection point for cattle

Transportation costs to the market are the responsibility of the seller and animals are mainly driven on hoof to the market but as distance to the market increases, trucks and smaller vehicles (pick-up vans and trailers) are used for transporting the animals. Transport costs from the market are the responsibility of the buyer and are therefore not captured in this (producer) questionnaire.



**Table 9: Sales information**

	<b>Cattle</b>	<b>Sheep</b>	<b>Goats</b>
<b>Sales price information (%)</b>			
Negotiated	25	68	47
Fixed by buyer	65	18	34
Fixed by seller	-	14	8
Fixed by government	8	-	-
Third party	-	-	3
Word of mouth	2	-	8
<b>Sold to (%)</b>			
Large private farm	15	-	-
Government farm	6	5	6
Other smallholder farm	10	9	6
Local butcher/abattoir	33	59	58
Individual trader/broker	19	27	28
Commercial slaughterhouse	12	-	-
Other	6	-	3
<b>Place of sales (%)</b>			
Farm gate	9	12	31
Village market	18	54	44
Local sales pen	7	-	-
Local collection point	43	23	15
Local business centre	21	12	10
Regional town	2	-	-
<b>Form of payment (%)</b>			
Contract	5	4	-
Spot cash payment	91	92	100
Exchange	2	4	-
Other	2	-	-
<b>Reason for sale (%)</b>			
Household expenses	56	54	50
Business	24	33	29
Culling	-	4	3
Other	20	8	18

Respondents were asked to specify the animal attributes buyers regard or value as important when buying animals. From Table 10 it is evident that buyers put the most emphasis on the condition of the animal as well as the measured weight of the animal.

**Table 10: Animal attributes preferred by buyers**

<b>Attribute</b>	<b>Average rank*</b>
Age	1.75
Sex	1.62
Breed	1.42
Weight (measured)	<b>2.05</b>
Weight (apparent)	1.54
Condition of animal	<b>2.32</b>
Free of disease	1.91
Specified use of feed or medicine	1.11
Pelt condition	1.20
Pelt colour	1.02
Time of delivery	0.94
Place of delivery	1.02
Advance payment	0.96

\*1=never, 2=sometimes, 3=always

### **1.7 Cost of production**

Table 11 represents the total annual production costs and expenses in Pula. According to the respondents the majority of the expenditure is allocated towards feeding expenses followed by animal health remedies including antibiotics. The animal health remedies is certainly not a true reflection of the actual costs, as some animal health services (for cattle specifically) are provided (free of charge) by the Botswana government. Respondents as well as enumerators had trouble in completing this particular section of the questionnaire due to its complexity and therefore this section is also changed in the adopted version of the questionnaire.

**Table 11: Total livestock production cost (Pula)**

<b>Item</b>	<b>Min</b>	<b>Ave</b>	<b>Max</b>
Feeding expenses	0	926.41	15000
Animal health, vaccines	0	464.73	9000
Antibiotics	0	4.88	110
Treatments (ticks, etc.)	0	7.96	196

## 1.8 Infrastructure

Respondents were asked to rank the quality/availability of infrastructure for their livestock activities from 1 to 9 (1=very poor; 9=excellent). From the results in Table 12 it is clear that animal handling facilities, water sources, buildings and sheds, machinery and other equipment are the major concerning factors regarding infrastructure.

**Table 12: Infrastructure ranking**

	1	2	3	4	5	6	7	8	9
<b>Category</b>	<b>%</b>								
Fences	26	2	4	2	2	7	15	15	28
Animal handling facilities	<b>30</b>	8	1	4	5	7	5	16	22
Water sources	<b>41</b>	7	1	5	7	2	9	9	19
Buildings/sheds	<b>44</b>	5	5	7	2	5	5	11	15
Vehicles	25	0	2	7	5	9	18	12	23
Machinery and other equipment	<b>44</b>	0	0	12	5	5	7	12	16
Animal feeding facilities and equipment	26	0	5	2	9	3	9	17	29

One of the major concerns frequently mentioned by respondents is the availability and quality of water. In many cases water has to be transported over long distances to the animals at great cost (see Illustration 5). In many other cases where water is closer available, producers need to buy drinking water for the animals from borehole owners in the area.



Illustration 5: A producer supplying water to animals.



Illustration 6: Animal holding facility "kraal"

## 1.9 Miscellaneous information

Miscellaneous information included is the sources and perceived reliability of information available to farmers, innovation and upgrading, business dynamics during recent years as well as other constraints to livestock farming activities.

Table 13 shows that the main sources of information available to the respondents on all the categories are the extension officer and other government services. According to the enumerators, respondents had trouble distinguishing between the extension officer and other government services and perceive them as the same.

**Table 13: Sources of information available on animal health issues and input usage**

Category	Extensi on officer	Newspap er	Governme nt	Thir d part y	Word of mout h	Non e	Othe r
	%						
Production practices	42	4	29	1	11	9	4
Input use	43	3	39	1	5	9	0
Animal health issues	54	0	37	1	4	4	0
Markets (physical)	14	9	24	13	21	17	1
Price	7	7	24	10	35	14	3
Product standards	19	2	40	3	6	29	0
Traceability	8	2	47	2	2	37	2
Risk management	11	0	49	2	4	35	0
Government services	21	3	48	2	6	18	2

Table 14 reflects the respondents' views regarding the reliability (1=not reliable, 9=very reliable) of information from the various sources summarised in Table 13. Respondents rated the reliability at the extreme, i.e. either not reliable (1 or 2) or very reliable (8 and 9).

**Table 14: Reliability of information (1=not reliable, 9=very reliable)**

Category	1	2	3	4	5	6	7	8	9
	%								
Production practices	25	5	4	4	7	3	4	21	27
Input use	18	9	3	6	9	7	9	18	22
Animal health issues	12	5	4	7	5	9	12	22	24
Markets (physical)	28	11	3	8	9	5	11	9	16
Price	37	19	5	5	3	3	6	6	16
Product standards	25	13	2	4	2	4	8	21	21
Traceability	26	9	2	2	5	2	2	14	37
Risk management	25	14	2	5	5	0	0	23	27
Government services	24	15	4	5	9	4	4	11	25

Table 15 indicates the respondent's attitude towards innovation and upgrading. Thirty respondents have established relationships with buyers because they offer the best prices while 21 respondents established relationships with buyers based on social ties. While two thirds (66 per cent) of respondents do not want to establish new relationships with buyers, leaving only one third that want to establish new relationships mainly in search of better prices.

In terms of buying arrangements, 20 respondents have established relationships with sellers based on price while 13 established relationships based on social ties (Table 14). Only 13 per cent of the respondents were interested in establishing new relationships with sellers to obtain better prices and more consistent markets, leaving the majority (87 %) of the respondents with no interest in establishing new relationships with sellers.

**Table 15: Livestock farmer's attitude towards innovation and upgrading**

Category	1	2	3	4	5	9
How have you established relationships with buyers? <sup>1</sup>	21	30	3	2	3	1
Have you tried establishing new relationships with other buyers? <sup>2</sup>	34%	66%	-	-	-	-
If yes, why? <sup>3</sup>	14	4	2	0	0	0
How have you established relationships with sellers? <sup>1</sup>	13	20	3	0	2	0
Have you tried establishing new relationships with other sellers? <sup>2</sup>	13%	87%	-	-	-	-
If yes, why? <sup>3</sup>	2	2	1	0	0	0

<sup>1</sup>1=social ties, 2=offer best price, 3=convenience, 4=long term arrangement, 5=association, 9=other

<sup>2</sup>1=yes, 2=no

<sup>3</sup>1=want better price, 2=want more consistent market, 3=want new markets, 9=other

Respondents were asked whether they aim to apply certain future strategies (Table 16). Fifty four per cent of the respondents said that they would like to have more animals in their herd/flock while 59 per cent indicated that they aim for more productive animals.

**Table 16: Livestock production practises for the future**

Category	Yes	No
	%	
More animals in herd/flock	54	46
Higher productivity of animals	59	41
Greater use of technology (breeding, AI, etc)	16	84
Diversification of herd (raising of other types of animals)	30	70
Diversification of business activities (raising feed, slaughter for business purposes)	28	72
Specialization of livestock activities (e.g., breeding for larger farmers)	26	74

In Table 17, respondents rank the strategies in Table 16 according to their importance. Respondents indicated that increases in herd numbers as well as increases in the productivity of their animals are the highest priority in terms of future strategies.



**Table 17: Importance of future strategies as perceived by livestock farmers  
(1=not at all, 9=very important)**

	1	2	3	4	5	6	7	8	9
<b>Category</b>	<b>%</b>								
More animals in herd/flock	4	1	1	1	3	4	1	9	<b>74</b>
Higher productivity of animals	5	5	0	0	0	5	5	14	<b>68</b>
Greater use of technology (breeding, AI, etc)	9	0	7	7	2	6	4	15	<b>50</b>
Diversification of herd (raising of other types of animals)	16	2	2	4	2	4	8	6	<b>55</b>
Diversification of business activities (raising feed, slaughter for business purposes)	17	0	7	0	7	4	7	4	<b>54</b>
Specialization of livestock activities (e.g., breeding for larger farmers)	16	2	7	2	5	9	5	5	<b>49</b>

Respondents rank the constraints in Table 18 from 1 (not important) to 9 (very important). From Table 18 it is evident that respondents regard high input costs as one of the most important constraints while low sales prices, limited knowledge of new market opportunities, government policy and inadequate access to credit were also mentioned as important constraints. This is evident from Table 19, where the average rank given to the respective constraints by the 85 respondents is summarized.

**Table 18: Main constraints to livestock production (count)**

	1	2	3	4	5	6	7	8	9
<b>Constraint</b>	<b>%</b>								
Low sales prices for products	8	1	0	1	0	1	5	14	<b>69</b>
High input costs (e.g. feed)	3	1	1	0	1	3	4	13	<b>74</b>
Poor access to markets	16	1	1	4	1	4	4	11	<b>56</b>
Limited knowledge of new market opportunities	13	4	6	6	3	3	8	10	<b>49</b>
Inadequate access to credit	8	4	4	4	7	5	10	11	<b>47</b>
Low productivity of animals	13	10	6	6	8	4	10	7	<b>38</b>
Animal diseases	18	15	5	4	6	3	6	5	<b>39</b>
High variability in prices	19	7	4	1	6	4	7	19	<b>33</b>
Poor support from extension services	14	4	4	1	10	6	6	8	<b>45</b>
Government policy	14	4	1	6	6	6	4	11	<b>48</b>



**Table 19: Main constraints to livestock production (average rank)**

<b>Constraint</b>	<b>Ave. rank</b>
Low sales prices for products	7.19
High input costs (e.g. feed)	7.40
Poor access to markets	5.95
Limited knowledge of new market opportunities	5.62
Inadequate access to credit	5.89
Low productivity of animals	5.07
Animal diseases	5.24
High variability in prices	4.94
Poor support from extension services	5.86
Government policy	5.53

### **1.10 Conclusions and general observations from the producer questionnaire**

A number of aspects became apparent during the analysis, namely,

- Only 59 per cent of the producer respondents indicated that their main source of income are derived from farming, and thus 41 per cent of the respondents interviewed are part-time farmers.
- The main source of income derived from farming activities in the Tsabong region of Botswana is livestock farming (66%).

Farmers in this region mostly keep animals for the selling of surpluses in order to cover household expenses (despite the fact that the actual off takes are limited) and to a lesser extent for household consumption.

Another influential factor is that the majority of the farming activities in the region take place on communally owned land with little or no fences. Animals roam freely to a large extent and this has a big negative impact on important livestock management practices such as:

- Pasture management and stocking rates – this lack in management has a severe negative impact on herd numbers in times of drought and limit risk management alternatives. Respondents indicated that 26, 29 and 34 per cent of cattle, sheep and goat losses respectively was due to drought
- Predator/theft control – predators played a major role in animal losses. More that 15 per cent of animal losses was due to predators while more

than 10 per cent of animal losses are linked to theft. These losses can be more controllable or limited by proper fences.

- Disease – the single most important reason for animal losses (44%) was due to diseases. By regulating animal movements, and separating and treating sick animals, these numbers can also be improved. This however is difficult within unfenced communal areas. Animal losses due to disease can also be linked to government inoculation programs that are mainly restricted to cattle and the limited availability and efficiency of extension personnel.
- Herd management practises – including breeding seasons, breeding programs linked to improving productivity etc.

An important constraint not captured by the test questionnaire is the availability and quality of drinking water for the animals. Producers, especially in times of drought, have trouble in supplying their animals with good quality drinking water on a regular basis. In a lot of cases these farmers/animals must travel great distances to adequate water sources due to a limited number of boreholes. This problem also added to the high animal mortality rates.

Other important constraints faced by farmers in the region include:

- Feed availability and affordability.
- Limited marketing options/opportunities (for small stock markets are limited to local butchers and/or traders).
- Limited knowledge regarding price information.
- Limited access to bigger markets due to long distances to Gaborone.
- Infrastructure (transportation and cost thereof)

## **PART TWO: TRADER ANALYSIS**

### **2.1 Introduction**

During the survey period only one trader (mainly specialising in cattle trading) could be found and was interviewed. The reason for this is that traders are not located in the villages itself and only visit the villages periodically to do business. This is a valuable lesson learnt for future surveys. It is therefore recommended that traders be identified well in advance in order to make appointments for the survey.

This section of the report will focus on the trader interviewed as well as findings from producers in terms of the functioning of traders in the region.

### **2.2 General functioning of small stock traders**

Small stock traders visit the various villages in the region periodically, depending on demand, to collect sheep and goats. Traders mainly come from the bigger markets in Gaborone which is situated nearly 600 km away. Producers indicated that 27 per cent of sheep and 28 per cent of goats are sold to traders. These sales takes place at a local collection point, or village market in the form of a cash payment. The price of the animal sold is negotiated by the buyer and the seller. According to the producers surveyed, the most important physical attributes the traders look for when buying small stock is firstly the condition of the animal and secondly the weight of the animal.

The mode of transport used by traders depends on the number of animals transported but mainly consists of a small bakkies/pick-up truck and trailer.

### 2.3 General functioning of cattle traders

There are only 5 cattle traders active in the Tsabong region, jointly responsible for nearly 20 per cent of the cattle sales in the region. Cattle traders will typically advertise/market the date of a sale at the local Gotla (tribal chief's office) and producers with animals ready for sale will bring their animals to a local collection point.

There is no competition in terms of buyers/traders at this market as other traders are not allowed to participate; traders indicated the reason for this is that producers will "fight" with traders for better prices. Traders select cattle in terms of age (preferable younger animals) and physical condition. Animals have to be in good condition to survive the 10 hour truck trip to the markets in Gaborone. (Illustration 7)



Illustration 7: A traders loading cattle from a local collection point in Khisa.

Producers are paid according to measured weight on a spot cash basis. There is a price difference for various weight categories depending on current market demand. At the time of the survey a premium was paid for heavier animals for direct slaughter (these animals are ready to be slaughtered with no additional feeding in feedlots

required) due to a high demand for meat followed on a FMD outbreak approximately two weeks prior to the survey date. Table 20 shows the price premium as on 26 November 2008. As most of the animals are going straight to the abattoir in Gaborone operated by the Botswana Meat Commission (BMC) prices paid by traders are directly linked to the BMC carcass prices (discounted for transport cost). Table 20 implies that an animal with a live weight of 250 kg will realise a price of 1 375 Pula while an animal of weighing 300 kg will realise a price of 1 920 Pula, this is a price premium of 545 Pula based on 0.9 Pula per kilogram live weight.

**Table 20: Animal prices.**

Live weight (kg)	Price (Pula/kg)
<250	5.50
>250	6.40

In this market cattle producers are also price takers (73% of producers indicated that cattle prices are fixed by buyers) and there is limited or no competition between traders on the day of sale. Because of these factors this is not a popular market with producers (only 19% of producers indicated that they sell in this market) but there aren't always alternatives available for producers in need of cash.

The main constraint indicated by traders is the high transportation costs to Gaborone.

The respondent employs 10 males receiving an average salary of 608 Pula per month.

## 2.4 **Conclusions and general observations**

Traders usually operate between the bigger markets of Gaborone and the smaller villages like, in this case, Tsabong. Depending on the demand for animals in these bigger markets, traders will visit the smaller villages to purchase livestock (in the case of Tsabong mainly cattle) in order to re-sell them. The major constraint in the case of small stock traders, as well as to producers selling to traders is the distance (nearly 600 km) between Tsabong and Gaborone and subsequently the high costs of transportation.

## **PART THREE: PROCESSOR ANALYSIS**

### **3.1 Introduction**

Processors interviewed in the Tsabong region consisted of two butchers. These processors/butcherries in the Tsabong area also act as retailers. Despite the fact that they do sell produce directly to final consumers, their information was captured on the processor survey.

### **3.2 General functioning of the processors in Tsabong**

This section will report the results for two processors/butchers interviewed in Tsabong.

Although the processing sector within Tsabong is highly competitive with more than 6 butcherries operating in town. There is very little diversification in terms of the final meat products they sell and it mainly consists of whole carcasses (predominately sheep and goats) primary chilled cuts of cattle, sheep and goat and in some cases sausages (Illustration 9).

In both cases, respondents have been involved in processing for 5 years, had no schooling and no training in processing activities; they are involved in livestock production and thus backwardly integrated into the value chain.

These butcherries are financially involved in and own slaughtering facilities, cutting facilities (Illustration 10), cold storage facilities (illustration 8), and transportation as well as retail outlet facilities for the end product.





Illustration 8: Typical cold storage facility



Illustration 9: Variety of products available in a typical butchery in Tsabong





Illustration 10: Cutting facilities in a butchery

Processors have the ability to hold a small number of animals (depending on the species) for a short period (usually not exceeding one day) prior to slaughter. Apart from slaughtering animals for their own outlet, processors also slaughter animals for a fee (Table 21)

**Table 21: Slaughtering fees charged by processors.**

<b>Specie</b>	<b>Slaughtering fee per head (Pula)</b>
Cattle	170
Sheep	30
Goats	30

Processors make use of permanent labour with an average of 5 male labourers earning a monthly salary of 730 pula and 1 female labourer earning 660 Pula per month (Table 22)

**Table 22: Permanent employment.**

<b>Gender</b>	<b>Average number</b>	<b>Wage rate (Pula/month)</b>
Male	5	730
Female	1	660

None of the processors operates under a brand name and in both cases the processors indicated that they are not satisfied with buying arrangements while they are completely satisfied with their selling arrangements.

### 3.3 Livestock purchases

All animal purchases for all species are made from smallholder farms in the region and either takes place at farm gate or at the village market with the use of spot cash payments. The purchased price of animals is negotiated by the buyer and the seller. None of the processors make use of contracts when purchasing animals. Table 23 represents the average purchase price per animal and per specie as well as the average live weight per animal and the purchase price per kilogram indicated by the processors.

**Table 23: Animal purchase prices**

<b>Specie</b>	<b>Average price per animal</b>	<b>Average weight of purchased animal</b>	<b>Purchase Pula/kg</b>
Cattle	2500	250	10
Sheep	550	30	18
Goats	550	30	18

Respondents indicated that purchases are highest in the months of April, September and December but also indicated that the last third of every month is more important in terms of purchases mainly because this is the time that the producers are most cash strapped. Another interesting observation in terms of purchases is that it seems to increase just before holiday seasons and before the start of the new school term as producers need money for school fees and other necessities for their children.

Table 24 summarizes the attributes preferred by the processors when buying animals. Respondents were asked to rank their preference of the attributes from 1 (not at all) to 5 (always). From Table 24 it is evident that processors places emphasis on the apparent weight of the animal as well as the physical condition of the animals.

**Table 24: Preferred attributes by processors when buying animals**

<b>Attribute</b>	<b>Average rank</b>
Age	1
Sex	1
Breed	2
Weight (measured)	3
Weight (apparent)	5
Condition of animal	5
Free of disease	3
Specified use of feed or medicine	3
Pelt condition	3
Pelt colour	1
Time of delivery	1
Place of delivery	1
Advance payment	1

### 3.4 Processing activities and meat sales

Processors have the ability to slaughter cattle, sheep as well as goats at the same facility and the average slaughtering capacity is depicted in Table 25 which also indicates the current number of animals being slaughtered daily as well as the operating hours per week.

**Table 25: Current operating capacity (average).**

<b>Specie</b>	<b>Slaughtering capacity (head)</b>	<b>Current number of slaughtering (head)</b>	<b>Operating hours per week</b>
Cattle	3	2	60
Sheep	9	7	60
Goats	7.5	5.5	60

According to processors, animals are inspected before slaughter and meat is inspected prior to sale. This is done by health inspection officers appointed by government at no cost to the processor. These inspections however, are very erratic and processors can be in operation for months without being inspected. According

to the processors surveyed, rejections based on post-mortem inspections of carcasses are less than 1 per cent.

In Table 26 the average prices (as in November 2008) for the different species processed can be seen, these prices are set by the processors. Interesting to note is that there is no difference in the price of sheep and goat while the price of beef tend to be lower compared to sheep and goats. The majority of the meat sales are made to final consumers in the village from the retail outlet (See Illustrations 9&10).

**Table 26: Animal sales prices**

<b>Specie</b>	<b>Meat (Pula per kg)</b>	<b>Offal (Pula per kg)</b>
Cattle	23.38	10.95
Sheep	32.48	10.95
Goats	32.48	10.95

### **3.5 Cost of production**

The total monthly production costs for the processors interviewed are shown in Table 27. Like in the case of the producer questionnaire, both enumerators and respondents had trouble interpreting the complexity in which the question was presented. According to Table 27, the major production costs contributors to processors are housing cost (rental) and labour cost.

**Table 27: Monthly production cost**

<b>Category</b>	<b>Total monthly cost (Pula)</b>
Labour costs	2250
Electricity	1050
Packaging costs	600
Housing costs (rental)	4250
Transportation	750

### 3.6 Miscellaneous information

Miscellaneous information included the sources of information available to farmers as well as the reliability thereof, business dynamics during recent years as well as other constraints to livestock processing activities.

Table 28 indicates the different sources of information available for different categories given by the respondents from which it is clear that the only available information is regarding input use and animal health issues provided by the extension officers.

**Table 28: Sources of information available on animal health issues and input usage**

Category	Extension officer	No source	Other
Production practices		X	
Input use	X		
Animal health issues	X		
Markets (physical)		X	
Price		X	X
Product standards		X	
Traceability		X	
Risk management		X	
Government services		X	

Processors were asked to rank the way their business changed during the past 5 years in terms of the options in Table 29 from 1 (not applicable) to 9 (very applicable). According to Table 29 the most important changes was the expansion of processing capacity and the diversification of business activities (slaughter for business purposes).

**Table 29: Business changes during the past 5 years**

Option	Average rank
Expansion of processing capacity	8.0
Expansion of animals purchased/processed	5.0
Improved technology	5.0
Diversification in products produced (boneless cuts, e.g.)	5.0

<b>Option</b>	<b>Average rank</b>
Diversification of business activities (raising feed, slaughter for business purposes)	7.5
Specialization of processing activities (e.g., dedicated supplier to supermarket)	5.0

Respondents rank the constraints in Table 30 from 1 (not important) to 9 (very important). From Table 30 it is evident that respondents see the limited outlet for sales (small market) as well as the competition from other processors as the main constraints.

**Table 30: Main constraints to livestock processors (average rank)**

Constraint	Average rank
<b>Limited outlets for sales</b>	<b>9.0</b>
<b>Competition from other processors</b>	<b>9.0</b>
High input costs for meat	5.5
High energy costs	5.5
Consumer demand (unwilling to pay high prices)	5.5
High variability in prices	5.0
High variability in sales prices	5.0
Behavior of livestock traders	5.0
Access to infrastructure	5.0
Poor support from extension services	4.5
Low access to credit	4.0
Consumer demand (quantity)	4.0
Limited knowledge of new market opportunities	3.0
Low sales prices for products	2.0
Government policy	1.0
Low Storage capacity	1.0
Poor access to markets	1.0
Animal diseases	1.0
High transport costs	0.5
Poor knowledge of sales opportunities	0.5
Poor knowledge of market prices	0.5
Behavior of slaughter operators	0.5
Low productivity of animals	0.5
Distribution arrangements	0.5
Others	0.0

### **3.7 Conclusions and general observations**

In Tsabong, the butcheries facilitated processing as well as the retailing functions. There is very little diversification in terms of the final meat products they sell and it mainly consists of whole carcasses (mainly in the case of sheep and goats) primary chilled cuts of cattle, sheep and goat and in some cases sausages. Value added is therefore restricted to cutting the carcass into smaller pieces and to a very limited extent the making of sausages.

The majority of processors are vertically (backwards) integrated into livestock production. The main market utilised for animal procurement is the local smallholder farmers while their main selling market is the local village market. There is a lot of competition within this sector of the value chain.

## PART FOUR: RETAILER ANALYSIS

### 4.1 Introduction

Despite the fact that the processors surveyed above also sells directly to consumers, i.e. also acts as retailers, their surveys were only treated as processors. In addition three formal retail outlets were surveyed in Gaborone, in order to trace the livestock products from Tsabong to the biggest market in Botswana, namely Gaborone. After testing these surveys (i.e. the separate processor and retailer questionnaires), the adjusted set of surveys were merged for the processor and retailer, due to this very situation that value chain players are often integrated and it would therefore be a waste of resources to have two separate questionnaires.

This section therefore reports on the surveys conducted under three formal retail outlets in Gaborone during 26 to 28 November 2008.

### 4.2 Meat purchases

The majority of meat purchases by retailers for all species are made from abattoirs at the abattoir gate in the form of cash payments. The purchased price of animals is either negotiated by the buyer and the seller or made by a third party (in the case of beef the BMC). None of the retailers uses contracts when purchasing meat. Table 31 summarizes the average purchase price per species.

**Table 31: Meat purchase prices**

<b>Species</b>	<b>Average price (Pula per kg)</b>
Cattle	17.20
Sheep	30.50
Goats	27



Respondents indicate that the most important purchase months include October, November and December for all species while May, June, July and August are the least important purchase months.

Table 32 indicates the attributes preferred by the retailers when purchasing meat. Respondents were asked to rank their preference of the attributes from 1 (not at all) to 9 (always). From Table 32 it is evident that retailers places emphasis on fat content of the carcass as well as the colour of the carcass/meat.

**Table 32: Preferred attributes by retailers when buying meat**

<b>Attribute</b>	<b>Average rank</b>
Size of carcass	5.7
Grading	5.3
Age	5.7
Fat content	<b>6.3</b>
Colour of the carcass/meat	<b>6.3</b>
Whether it is matured	2.7
Packaging (e.g. vacuum packaged)	0.7

### **4.3 Processing activities and meat sales**

All respondents interviewed indicate that their processing deliver a number of products

- Quarters
- Frozen de-boned meat
- Fresh de-boned meat
- Cured or dried products
- Raw sausages
- Canned meat products
- Ready to eat snacks

Meat products are, depending on the product, vacuum packed, packaged in sealed plastic bags and packaged in polystyrene and plastic packaging. Meat is inspected prior to sale and the meat inspection costs are the responsibility of the retailer. The

majority of the beef, sheep and goat meat are sold to the final consumer as cash transactions. Table 33 indicates the current one time average storage capacity for the various different species at the retailers.

**Table 33: Current storage capacity.**

<b>Specie</b>	<b>Kg</b>
Cattle	6250
Sheep	2500
Goats	2500

Table 34 shows the importance of the attributes buyers look for when buying meat products according to the retailers surveyed. From this table buyers see the disease status, the colour of the product, the packaging as well as the perceived healthiness of the product as very important when purchasing meat products.

**Table 34: Preferred attributes by buyers**

<b>Attribute</b>	<b>Not important</b>	<b>Very important</b>
Age of animal	X	
Sex	X	
Breed	X	
Weight (measured)	X	
Weight (apparent)	X	
Condition of animal	X	
Free of disease		X
Specified use of feed or medicine	X	
Time of delivery	X	
Place of delivery	X	
Colour of product		X
Packaging		X
Brand	X	
Time since slaughter	X	
Origin of animal (place it came from)	X	
Perceived healthiness of the product		X
Organic or low-input production	X	

#### **4.4 Cost of production**

The total monthly production cost for the retailers interviewed is shown in Table 35. Like in the case of the producer and processor questionnaire, this question is rather

complex and are changed in the adapted set of questionnaires. According to Table 35, the major production cost contributors to retailers land cost (rental) and packaging cost.

**Table 35: Monthly production costs**

<b>Input</b>	<b>Average monthly cost (Pula)</b>
Labour costs	1133
Electricity	9400
Packaging costs	77500
Land costs (rental)	90000
Certification costs	2500
Transportation	4000
Other consumables (knives, blades, sharpeners etc)	43333
Other	667

#### **4.5 Miscellaneous information**

Retailers were asked to rank the way their business changed during the past 5 years in terms of the options in Table 36 from 1 (not applicable) to 9 (very applicable). From the data summarized in Table 36 the most important changes were the expansion of processing capacity, expansion of meat processed, diversification into products produced (boneless cuts, e.g.) and the specialization of processing activities.

**Table 36: Business changes during the past 5 years**

<b>Option</b>	<b>Average rank</b>
Expansion of processing capacity	4.5
Expansion of meat processed	4.5
Improved technology	2.0
Diversification in products produced (boneless cuts, e.g.)	4.5
Diversification of business activities (e.g., slaughter for business purposes)	2.0
Specialization of processing activities (e.g., dedicated supplier to supermarket)	4.5

Respondents rank the constraints in Table 37 from 1 (not important) to 9 (very important). From Table 37 it is evident that respondents see the low productivity of animals as well as animal diseases and competition from other retailers as the main constraints.

**Table 37: Main constraints to retailer (average rank)**

<b>Constraint</b>	<b>Average rank</b>
Low sales prices for products	4.3
Limited outlets for sales	4.0
High input costs for meat	7.3
Limited knowledge of new market opportunities	7.0
Low access to credit	2.7
High variability in prices	7.3
Government policy	3.3
High variability in sales prices	7.3
High transport costs	2.7
Low Storage capacity	5.3
Poor access to markets	6.0
Poor knowledge of sales opportunities	2.0
Poor knowledge of market prices	1.7
Behavior of livestock traders	2.0
Behavior of slaughter operators	6.0
Low productivity of animals	<b>8.7</b>
Access to infrastructure	3.7
Animal diseases	<b>8.0</b>
Poor support from extension services	7.5
Distribution arrangements	5.3
High energy costs	7.0
Consumer demand (quantity)	4.3
Consumer demand (unwilling to pay high prices)	5.7
Competition from other retailers	<b>8.0</b>

#### **4.6 Conclusions and general observations**

After the testing of the processor and retailer questionnaires, the adjusted set of questionnaires were merged for the processor and retailer, due to the fact that value chain actors are often integrated and it would therefore be a waste of resources to

have two separate questionnaires. Some more specific and general comments regarding the questionnaires are discussed in the combined conclusion of this report.

**SADC/PRINT - VAIMS**

**C. Survey test II: Mabalane, Mozambique**



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## Background to the Mabalane field study

After pre-testing in Bloemfontein and in Botswana, the questionnaires were also tested in the Mabalane district; in the Gaza Province as well as Maputo and Matola in Mozambique (see Figure 1). The main aim of the survey was to test the questionnaires specifically designed for producers, traders, processors and retailers involved in beef, sheep and goat production, processing, marketing and trade for its functionality within the SADC region, focused on small stock producers. A total of 86 producers were surveyed in Mozambique. Villages surveyed include Mabalane, Chokwé, Lioude and Xai-Xai.

The first part of this document reports the analysis of these producers.



Illustration 1: Producers being surveyed

The second part of this document reports on the analysis of the trader questionnaires; whereas the third part of the document reports on the analysis of the processor questionnaire. The fourth and last part of the document report on the analysis of the retailer questionnaire.



Figure 1: Map of survey area  
**PART ONE: PRODUCER ANALYSIS**

## 1.1 Introduction

This section of the document reports on the analysis of the 86 producer surveys conducted in the Mabalane district in Mozambique, and are analyzed in 8 sections including: general household information, household assets and activities, detail of livestock operations, livestock purchases, livestock sales, cost of production, infrastructure and miscellaneous information.

## 1.2 General household information

This section describes the general household information gathered from the 86 producer respondents in Mabalane, Mozambique. The male:female ratio for producers surveyed is 41:59 per cent. Figure 2 shows the respondent's relationship to the household head and shows that the majority of the respondents interviewed (49%) headed their household with 40 per cent and 6 per cent of the respondents being spouses and other relatives, respectively. The respondent's marital status is represented in Figure 3, indicating that nearly 50 per cent are living together while 28 per cent are married and 22 per cent are widowed.

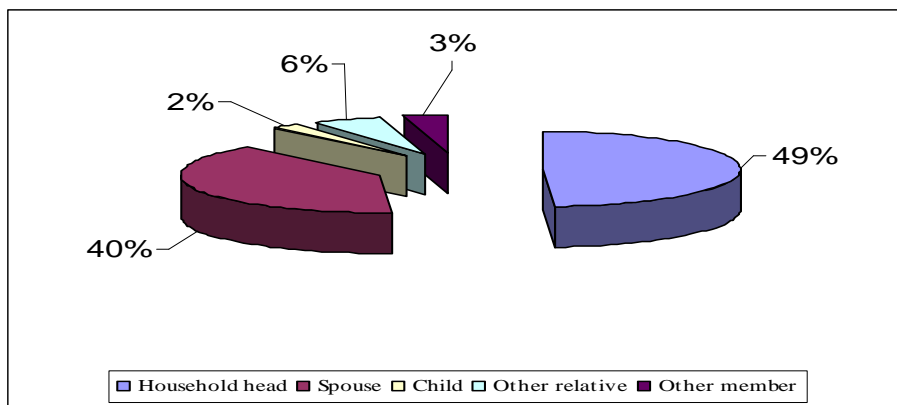


Figure 2: Respondents relationship to household head

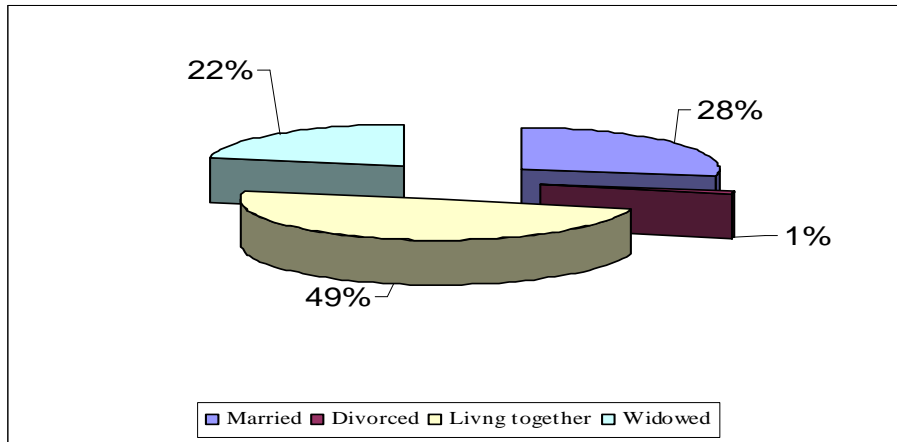


Figure 3: Marital status of the respondents

Figure 4 indicates that almost all the respondents surveyed are mainly involved in full time farming.

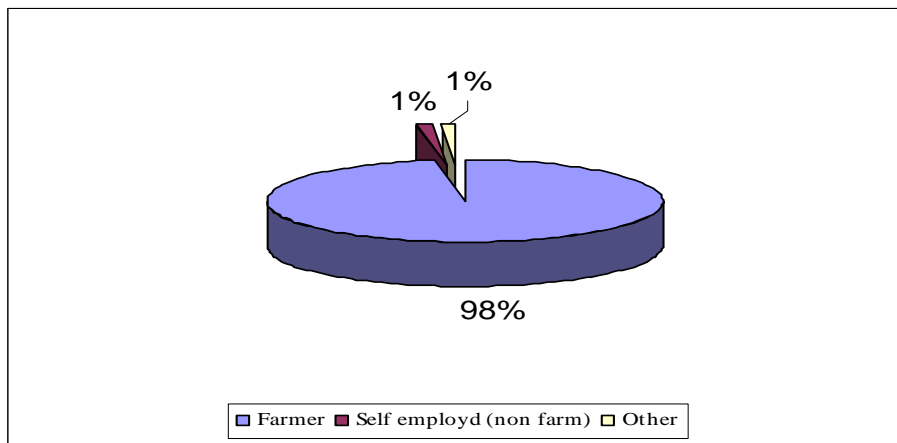


Figure 4: Primary activity

From Table 1, the average age of the respondents is 44 years while the youngest and oldest respondents are 20 and 75 years, respectively. The years of schooling averaged at only 2 years, while the average time the respondents have been living in the respective villages is 31 years with an average time involved in farming activities is 29 years. This profile characterises poorly educated farmers, with long farming experience in the study area.

Table 1: Respondent basic information

n=86		
Min	Ave	Max

Age (years)	20	44	75
Years of schooling	0	2	12
Years in village	2	31	69
Years engaged in farming activities	3	29	70

### 1.3 Household assets and activities

Table 2 indicates the percentage of income generated by the respondents from various activities during the preceding 5 years. The main source of income during this 5 year period has been crop production (52% during the current year) followed by livestock production, currently representing only 16 per cent of the total household income. Income generated from livestock production had an increasing trend compared to 5 years ago but it is slightly lower when compared to a year ago.

**Table 2: Percentage of income received from various economic activities**

<b>Activity</b>	<b>% today</b>	<b>% 1 years ago</b>	<b>% 5 years ago</b>
Livestock production	16.08	17.44	14.56
Crop production	<b>52.47</b>	<b>56.16</b>	<b>55.60</b>
Livestock trading	3.31	3.37	3.17
Crop trading	8.63	8.75	8.69
Off-farm employment	1.76	1.87	3.03
Own business (non-farm)	8.42	8.13	7.02
Remittances	0.92	0.57	0.45
Other	2.50	2.15	2.50
<b>TOTAL</b>	<b>94.08</b>	<b>98.44</b>	<b>95.03</b>

Of the 86 respondents interviewed, 91 per cent indicated that they own cattle, 5 per cent own sheep, 83 per cent own goats and 58 per cent own poultry. However, only 37 per cent of the respondents indicated that they have received some training in farming activities (at a very basic level)





Illustration 2: Maize and vegetable crops planted in the same field in Mabalane

Table 3 indicates the number of employees in the employ of the respondents as well as the wage rates. Only a few (5.8%) respondents formally employ people as the majority of the respondents make use of family labour.

**Table 3: Number of labourers employed and wage rates**

Type	Gender	Number of employees/respondent			Monthly wage rate(Mt/employee)		
		Min	Ave	Max	Min	Ave	Max
Full-time employees	Male	0	0.04	1			
	Female	0	0.01	1			
Part-time employees	Male	0	0.07	5	1050	1050	1050
	Female	0	0.31	10	900	1013	1050



## 1.4 Detail of livestock operations

Table 4 provides information on herd/flock structures (cattle, sheep, and goats respectively) and dynamics in terms of animal numbers during the past 12 months, animals purchased, sold, born and losses (deaths) during the last 12 months as well as animals consumed at home. These are average numbers from the 86 respondents surveyed. Respondents own on average 9 head of cattle (important to note that individual cattle numbers ranged from 0 to 50 animals) with only an average of 0.94 animals born during the last 12 months.

Cattle deaths are relatively high, on average 2.36 animals per respondent. The average number of sheep owned by the respondents is less than one, with numbers ranging between 0 and 22. In the case of sheep, animal deaths also exceed animal births. Goat numbers range between 0 and 27 with an average of 6 animals. Respondents experience high losses of 2.5 animals on average with only 1.06 animals being born during the last 12 months.

Cattle are mostly used for purposes of providing traction or draught power and selling of surpluses with very little home consumption, while sheep and goats are mostly used for selling of surplus and to a lesser extent home consumption. There is no diversification in terms of the breeds used within the region; all respondents indicated that they use the Landim (indigenous “Nguni” breed) breed of cattle, sheep and goats. There is however diversification in terms of farming practises with more than 91 per cent of the respondents indicating that they own cattle, 5 per cent owns sheep and 83 per cent owns goats.

**Table 4: Cattle herd and sheep and goat flock structure and dynamics**

	Average stock numbers this year	Average stock numbers this time last year	Animals purchased in the last 12 months	Animals born in the last 12 months	Animals consumed at home in the last 12 months	Animals dead in the past 12 months	Animals sold in the past 12 months
<b>Cattle</b>							
Adult females	3.28	3.49	0.12		0.01	0.27	0.27
Young females	1.66	1.45	0.05		0.00	0.07	0.08
Breeding bulls	1.43	1.56	0.07		0.01	0.16	0.24
Calves	1.74	0.88	0.00	0.94	0.01	0.17	0.03
Castrated males	0.93	0.97	0.01		0.00	0.03	0.15
<b>TOTAL</b>	<b>9.05</b>	<b>8.35</b>	<b>0.24</b>		<b>0.03</b>	<b>2.36</b>	<b>0.78</b>
<b>Sheep</b>							
Adult females	0.19	0.24	0.00		0.00	0.05	0.02
Young females	0.19	0.19	0.00		0.00	0.02	0.00
Breeding rams	0.07	0.09	0.00		0.02	0.01	0.00
Lambs	0.09	0.07	0.00	0.05	0.00	0.05	0.01
Castrated males	0.00	0.00	0.00		0.00	0.00	0.00
<b>TOTAL</b>	<b>0.53</b>	<b>0.59</b>	<b>0.00</b>		<b>0.02</b>	<b>0.13</b>	<b>0.03</b>
<b>Goats</b>							
Adult females	2.97	3.33	0.21		0.17	0.81	0.12
Young females	1.09	1.17	0.09		0.02	0.35	0.02
Breeding rams	0.86	0.87	0.01		0.29	0.27	0.07
Kids	0.97	0.83	0.00	1.06	0.00	0.63	0.06
Castrated males	0.02	0.03	0.00		0.00	0.02	0.01
<b>TOTAL</b>	<b>5.77</b>	<b>4.98</b>	<b>0.30</b>		<b>0.49</b>	<b>2.47</b>	<b>0.71</b>

In Table 5 respondents indicated that the main reasons for animal losses during the preceding 12 months have been diseases and drought, while some animals were lost due predators and stock theft.

**Table 5: Reasons for animal losses (%)**

Category	Cattle	Sheep	Goats
Disease	78	100	80
Drought	15	0	2
Theft	5	0	14

Wild animals	3	0	4
Total	100	100	100

Illustration 3 indicates the typical condition of the animals, in mid December, in the middle of the rainy season.



Illustration 3: Landim (Nguni) cow with a calf - photo taken mid December 2008.

### 1.5 Livestock transactions: purchases

In Table 6, the number of animals purchased, the average prices paid, the approximate weight per animal as well as the transportation costs from the market is depicted. From Table 6 it is evident that very few animal purchases were made by the respondents. Cattle and sheep purchases are spread out relatively even throughout the year while goat purchases mainly took place during January, October and December. No contract agreements are used for animal purchases.

**Table 6: Animal purchases over the past 12 months.**

	Number of animals purchased	Average price per animal (Mt)	Approximate average weight of purchased animal (kg)	Transport cost from market (Mt per head)
<b>Cattle</b>				
Calves	0.00	-	-	-
Heifers	0.07	8000	230	-
Steers	0.01	6000	-	-
Bulls	0.01	1300	-	-
Cows	0.05	5333	190	-
<b>Sheep</b>				
Adult females	-	-	-	-
Young females	-	-	-	-
Breeding rams	0.01	1300	-	-
Lambs	-	-	-	-
Castrated males	-	-	-	-
<b>Goats</b>				
Adult females	0.21	479	19	-
Young females	0.03	850	19	-
Breeding rams	0.05	500	12	2000
Kids	-	-	-	-
Castrated males	-	-	-	-

Table 7 provides more detail on animal purchase information in terms of where the local farmers obtained purchase price information, from whom and where they purchase, the form of payment as well as the reason for purchase of cattle, sheep and goats. For cattle and goats the price is negotiated by the buyer and seller in most cases while sheep prices are either fixed by the seller or negotiated between the buyer and the seller. For cattle and goats, the main source market is other smallholder farmers and the main place of purchase is at the farm gate. In all cases the main form of payment is spot cash payments while the main reason for purchases is to increase herd sizes.

**Table 7: Purchase information**

	<b>Cattle</b>	<b>Sheep</b>	<b>Goats</b>
<b>Purchase price information (%)</b>			
Negotiated by buyer and seller	92	100	100
Fixed by buyer	8	-	-
<b>Purchased from (%)</b>			
Large private farm	13	-	7
Other smallholder farm	75	100	71
Individual trader/broker	13	-	21
<b>Place of purchase (%)</b>			
Farm gate	88	100	93
Village market	12	-	7
<b>Form of payment (%)</b>			
Spot cash payment	100	100	100
<b>Reason for purchase (%)</b>			
To replace animals that died	13	100	17
To increase herd size	75	-	75
For genetic improvement	13	-	8

The way these markets are utilised has not changed significantly during the past 5 years. In terms of the transport cost from the market, buyers within close vicinity of the market usually drive animals on hoof to their final destination, otherwise cattle are mostly transported by truck while smaller vehicles (pick-up vans and trailers) are utilised for sheep and goats.

## **1.6 Livestock transactions: sales**

In Table 8, the number of animals sold, average price received, approximate weight of the animal as well as the transportation costs to the market are given. Animal sales are spread out relatively even throughout the year. No formal contractual agreements are used for animal purchases.

**Table 8: Animal sales over the last 12 months**

	Number of animals sold	Average price per animal (Mt)	Approximate average weight of sold animal (kg)	Transport cost to market (per animal)
<b>Cattle</b>				
Calves	0.01	7000	-	-
Heifers	0.05	3750	-	1000
Steers	0.09	7625	230	1000
Bulls	0.20	5943	226	1000
Cows	0.20	5600	181	1000
<b>Sheep</b>				
Adult females	0.01	-	-	0
Young females	0.02	500	30	0
Breeding rams	0.00	-	-	0
Lambs	0.00	-	-	0
Castrated males	0.00	-	-	0
<b>Goats</b>				
Adult females	0.02	450	11	0
Young females	0.13	625	14	0
Breeding rams	0.30	500	13	0
Kids	0.00	-	-	0
Castrated males	0.00	-	-	0

Table 9 provides more detail on animal sales in terms of where the local farmers obtained sales price information, to whom and where they sell, the form of payment as well as the reason for sales for cattle, sheep and goats respectively.

Respondents indicate that for cattle, sheep and goats the sales prices are usually negotiated between the buyer and seller. For cattle, sheep and goats the main markets utilised are the local butchers and the main selling point is at the farm gate. All payments are made in the form of spot cash payments, while the main reason for animal sales is to cover urgent household expenses and for other business purposes.



Illustration 4: Loading of goats onto a train at the Mabalane station.

As the majority of the sales occur at the farm gate, the producer has very little transportation costs because the buyer is responsible for transporting the animals from the point of sale. For short distances, animals are driven on hoof, while for longer distances small vehicles or trucks (in the case of cattle) are utilised for animal transportation.

**Table 9: Sales information**

	<b>Cattle</b>	<b>Sheep</b>	<b>Goats</b>
<b>Sales price information (%)</b>			
Negotiated by buyer and seller	92	50	50
Fixed by seller	4		17
Word of mouth	4	50	33
<b>Sold to (%)</b>			
Large private farm	4		
Other smallholder farm	19		17
Local butcher/abattoir	77	100	83
<b>Place of sales (%)</b>			
Farm gate	88	67	100
Village market	4	33	
Local business centre	8		

	<b>Cattle</b>	<b>Sheep</b>	<b>Goats</b>
<b>Form of payment (%)</b>			
Spot cash payment	100	100	100
<b>Reason for sale (%)</b>			
Household expenses	89	100	83
Business			17
Other	11		

Respondents were asked to indicate what animal attributes buyers see as important when buying animals (from 1 (not important) to 9 (very important)). From Table 10 it is evident that buyers put the most emphasis on the age, sex and condition of the animal as well as the measured weight of the animal.

**Table 10: Animal attributes preferred by buyers**

<b>Attribute</b>	<b>Average rank*</b>
Age	<b>2.71</b>
Sex	<b>1.41</b>
Breed	0.92
Weight (measured)	<b>2.27</b>
Weight (apparent)	1.42
Condition of animal	<b>1.85</b>
Free of disease	1.70
Specified use of feed or medicine	0.53
Pelt condition	1.17
Pelt colour	0.40
Time of delivery	0.45
Place of delivery	0.45
Advance payment	0.44

\*1=never, 2=sometimes, 3=always

## **1.7 Cost of production**

Table 11 depicts the livestock production costs and expenses (total costs) per year. According to the respondents, the majority of the expenditure is allocated towards animal health issues i.e. antibiotics and treatments. Respondents as well as enumerators had trouble in completing this particular section of the questionnaire



due to its complexity and therefore the reliability of the captured data is questionable. This aspect was addressed in the revised format of the questionnaire.

**Table 11: Total livestock production cost (Mt)**

Item	Min	Average	Max
Feeding expenses	0	0.26	22
Animal health expenses, treatments (ticks, etc.)	0	9.30	500
Antibiotics	0	12.50	300

## 1.8 Infrastructure

Respondents were asked to rank the quality/availability of infrastructure for their livestock activities from 1 to 9 (1=very poor; 9=excellent). From the results in Table 12 it is clear that the availability of vehicles, machinery and equipment, buildings/sheds, animal feeding facilities, animal handling facilities and fences are the major concerning factors regarding livestock infrastructure.

**Table 12: Infrastructure ranking**

	1	2	3	4	5	6	7	8	9
Category	%								
Fences	58	3	0	1	4	1	3	1	28
Animal handling facilities	49	3	3	4	3	12	9	7	9
Water sources	4	4	1	3	6	13	9	21	39
Buildings/sheds	89	2	4	0	0	2	0	2	2
Vehicles	100	0	0	0	0	0	0	0	0
Machinery and other equipment	98	0	0	0	0	0	0	0	2
Animal feeding facilities and equipment	88	8	0	0	2	0	0	0	2

## 1.9 Miscellaneous information

Miscellaneous information includes the sources of information available to farmers as well as the reliability thereof, innovation and upgrading, business dynamics during recent/past years as well as other constraints to livestock farming activities.

Table 13 shows that the main sources of information available to the respondents on animal health issues and usage of inputs are the government extension officer. Respondents had very little or no information available on the remaining categories considered.

**Table 13: Sources of information available on animal health issues and input usage**

	Extension officer	Newspaper	Government	Third party	Word of mouth	None	Other
Category	%						
Production practices	1	0	0	2	9	42	46
Input use	42	0	6	2	2	36	12
Animal health issues	68	0	21	0	0	8	3
Markets (physical)	6	0	0	3	0	76	15
Price	8	0	0	6	20	54	12
Product standards	2	0	4	9	2	58	24
Traceability	3	0	25	0	0	65	8
Risk management	5	0	2	2	0	83	7
Government services	44	0	22	0	0	34	0

Table 14 reflects the respondents' views regarding the reliability (1=not reliable, 9=very reliable) of information from the various sources in Table 13. From Table 14 it is evident that respondents rate the reliability of on physical markets and risk management very unfavourable while information on production practices and animal health issues received better scores.

**Table 14: Reliability of information (1=not reliable, 9=very reliable)**

Category	1	2	3	4	5	6	7	8	9
	%								
Production practices	0	4	6	2	21	2	11	9	45
Input use	11	9	7	9	12	2	14	2	35
Animal health issues	5	2	2	0	2	11	11	23	45
Markets (physical)	56	22	0	0	11	0	6	0	6
Price	31	9	6	3	3	6	6	3	34
Product standards	27	10	27	10	7	0	3	3	13
Traceability	45	10	7	0	3	3	7	3	21
Risk management	57	4	4	7	4	4	4	11	7
Government services	9	0	0	3	0	3	12	45	27

Table 15 indicates the respondent's attitude to innovation and upgrading. Twenty two 22 respondents have established relationships with buyers based on social ties, while 97 per cent of respondents do not want or do not see any need to establish new relationships with buyers.

In terms of buying arrangements, 19 respondents have established relationships with sellers based on social ties while 4 established relationships based on better prices (Table 15). None of the respondents had any interest in establishing new relationships with sellers.

**Table 15: Livestock farmer's attitude towards innovation and upgrading**

Category	1	2	3	4	5	9
How have you established relationships with buyers? <sup>1</sup>	22	5	6	0	0	4
Have you tried established new relationships with other buyers? <sup>2</sup>	3%	97%	-	-	-	-
If yes, why? <sup>3</sup>	0	0	0	0	0	0
How have you established relationships with sellers? <sup>1</sup>	19	4	1	0	0	2
Have you tried established new relationships with other sellers? <sup>2</sup>	0%	100%	-	-	-	-
If yes, why? <sup>3</sup>	0	0	0	0	0	0

<sup>1</sup>1=social ties, 2=offer best price, 3=convenience, 4=long term arrangement, 5=association, 9=other

<sup>2</sup>1=yes, 2=no

<sup>3</sup>1=want better price, 2=want more consistent market, 3=want new markets, 9=other

Respondents were asked about future production (herd expansion, productivity, use of technologies, diversification as well as specialization) strategies (Table 16). Sixty four per cent of the respondents said that they would like to have more animals in their herd/flock and 64 per cent indicated that they aim for more productive animals.

**Table 16: Livestock production practises for the future**

	Yes	No
Category	%	
More animals in herd/flock	64	36
Higher productivity of animals	64	36
Greater use of technology (breeding, AI, etc)	50	50
Diversification of herd (raising of other types of animals)	21	79
Diversification of business activities (raising feed, slaughter for business purposes)	16	84
Specialization of livestock activities (e.g., breeding for larger farmers)	15	85

In Table 17, respondents ranked the strategies listed in Table 16 according to their importance. Respondents indicated that increases in herd numbers as well as increases in the productivity of their animals are the biggest priorities in terms of future strategies. These are important to consider under the local communal grazing practises. The impact of overstocking and overgrazing on animal production efficiency cannot be underestimated in contemplating these broad farming objectives.

**Table 17: Importance of future strategies as perceived by livestock farmers  
(1=not at all, 9=very important)**

	1	2	3	4	5	6	7	8	9
Category	%								
More animals in herd/flock	24	0	4	4	0	0	8	20	40
Higher productivity of animals	26	9	0	0	0	4	4	22	35
Greater use of technology (breeding, AI, etc)	28	0	0	0	17	22	11	6	17
Diversification of herd (raising of other types of animals)	44	11	0	0	0	0	22	11	11
Diversification of business activities (raising feed, slaughter for business purposes)	67	17	0	0	0	17	0	0	0
Specialization of livestock activities (e.g., breeding for larger farmers)	83	17	0	0	0	0	0	0	0

Respondents rank the constraints to their livestock farming activities (see Table 18) from 1 (not important) to 9 (very important). From Table 18 it is evident that respondents see animal diseases and the low productivity of their animals as the biggest constraints to their livestock farming activities. These results are in line with those presented on Table 5, where respondents indicated that 78 per cent, 100 per cent and 80 per cent of animal losses during the last 12 months for cattle, sheep and goats respectively were due to animal diseases. This is further reflected in Table 19, where the higher average rank for the main constraint was given to animal diseases (4.20) amongst different farming constraints given by the 86 respondents.

**Table 18: Main constraints to livestock production (count)**

	1	2	3	4	5	6	7	8	9
Constraint	%								
Low sales prices for products	28	8	8	8	5	10	0	0	35
High input costs (e.g. feed)	23	3	10	6	19	3	3	6	26
Poor access to markets	43	8	5	5	3	0	3	3	33
Limited knowledge of new market opportunities	33	6	6	6	8	14	6	6	17
Low access to credit	31	0	3	3	5	3	13	8	36
Low productivity of animals	29	0	5	3	8	3	3	5	45
Animal diseases	6	0	4	4	12	2	2	10	59
High variability in prices	47	11	11	0	8	8	3	3	8

	1	2	3	4	5	6	7	8	9
Constraint	%								
Poor support from extension services	29	2	7	2	7	12	5	7	27
Government policy	42	0	12	6	3	9	6	6	15

**Table 19: Main constraints to livestock production (average rank)**

Constraint	Ave. rank
Low sales prices for products	2.30
High input costs (e.g. feed)	1.83
Poor access to markets	2.02
Limited knowledge of new market opportunities	1.85
Low access to credit	2.56
Low productivity of animals	2.53
Animal diseases	<b>4.20</b>
High variability in prices	1.30
Poor support from extension services	2.43
Government policy	1.53

### 1.10 Conclusion and general observations

A number of aspects became apparent during preliminary test of this questionnaire in Mabalane, Mozambique. Almost all the small-scale farmers (98%) indicated that their main source of income is derived from farming activities. The main source of income derived from farming activities in the Mabalane region of Mozambique in general is crop farming (52%). Currently livestock production represents only 16 per cent of the income generated.

Farmers in this region mostly keep animals as “a bank on hooves” which are mainly sold to meet urgent cash needs, for social, status or cultural reasons. Cattle are used by almost all crop farmers for draught power to plough crop lands. Crop-livestock farming are strongly integrated within this region. The value of livestock within the predominantly crop farming structures should not be underestimated and points towards important complementarities.

The majority of the livestock farming activities in the region take place on communally owned land with little or no fences. These are structural impediments in the way of more productive animal husbandry. Animals roaming freely or almost uncontrolled, with no definitive breeding season impede stock control and consequently has a big negative impact on important livestock management practices such as:

- Veld management– this lack in management has a severe negative impact on animal body condition and productivity. Respondents indicate that 15 and 2 per cent of cattle and goat losses respectively was due to drought
- Animal diseases – the main reason for animal losses (86%) was due to diseases. Poorly nourished animals are more susceptible to infectious diseases. By controlling animal movement, and separating and treating sick animals, these losses can be minimised and stock sales can also be improved. This however is difficult within unfenced communal grazing areas. Animal losses due to disease can also be linked to uncontrolled breeding as difficult calving was a considerable cause of losses. The inadequate governmental veterinary support services also contributed to huge losses in potential production.
- Predator/theft control – predators played a lesser role in animal losses. Only 2 per cent of animal losses were due to predators while more than 6 per cent of animal losses are linked to theft. Nevertheless these numbers could be reduced by proper fences.
- Modern herd management practises – including breeding seasons, breeding programs that can be linked to improving productivity etc. are difficult to implement on communal grazing areas with no animal movement control.

An important constraint not captured by the test questionnaire is the availability and quality of drinking water for the animals. Producers, especially in times of drought, have trouble in supplying their animals with good quality drinking water on a regular basis. In a lot of cases these farmers/animals must travel great distances to adequate water sources due to a limited number of boreholes available in the area.

There is a considerable reduction in grazing time, overgrazing of the area on the way to, or near to water sources and unnecessary wastage of energy due to trekking over long distances. These realities also contribute to the high animal mortality rates.

Other important constraints faced by farmers in the region include, inter alia:

- Lack of proper training in livestock production and husbandry.
- Feed availability and affordability.
- Limited marketing options/opportunities (for small stock, markets are limited to local butchers and/or traders).
- Limited knowledge regarding price information.
- Limited access to bigger markets due to long distances to big markets in Xai-Xai and Maputo.
- Infrastructure (transportation and cost thereof)



## **PART TWO: TRADER ANALYSIS**

### **2.1 Introduction**

The only two local traders in the Mabalane district were interviewed, one of the traders only specialised in cattle trading while the other trade in both cattle and goats..

This part of the document will report the analysis of same.

### **2.2 General demographic information**

Both traders (one 30 year old male and one 32 year old female) interviewed headed their respective household. The average size of their households is 14 people. Both have 7 years of schooling and have been living in their respective villages for 25 years on average.

Livestock trading is their primary activity and they have on average 10 years of experience in the business. None of these businesses is registered as commercial entities. Both respondents employ two males with an average remuneration of 1300 Meticaï per month.

### **2.3 Livestock purchases**

Both traders interviewed indicate that they are satisfied with their buying arrangements. Table 20 provides information on the number of animals purchased, the average price per animal, the approximate average weight of the animal as well as the transport cost per animal. The purchase price (for both cattle and goats) is negotiated between the buyer and the seller. All purchases are made from smallholder farmers; the transaction takes place at farm gate in the form of spot cash payments.

These traders have the capacity to hold on average 7 animals per month prior to resale if necessary and do also, on occasion slaughter animals before re-sale.

**Table 20: Animals purchased during the last 12 months.**

	<b>Number of animals purchased</b>	<b>Average price per animal (Mt)</b>	<b>Approximate average weight of purchased animal (kg)</b>	<b>Transport cost from market (per animal)</b>
<b>Cattle</b>				
Calves	-	-	-	-
Heifers	1	7500	240	1000
Steers	-	-	-	-
Bulls	26	11250	310	1000
Cows	17	7000	230	1000
<b>TOTAL</b>	<b>44</b>	<b>25750</b>	<b>260</b>	<b>3000</b>
<b>Goats</b>				
Adult female	200	-	25	-
Young female	-	-	-	-
Breeding rams	424	-	30	-
Kids	-	-	-	-
Others	-	-	-	-
<b>TOTAL</b>	<b>624</b>	<b>-</b>	<b>27.5</b>	<b>-</b>

As regards monthly transacting the most important buying months according to the respondents are August, October, November and December. The least important or worst months, for animal purchases, are between January and April. Traders indicate that they frequently share information regarding market prices, as well as market information and locations of available animals with one another. Traders do not make use of brokers or middlemen for purchases and animals are transported with bakkies/pick-up trucks.

Respondents were asked to indicate which animal attributes they see as important when buying animals 1 (not at all) to 9 (always). The results are summarized in Table 21. From this table it is clear that traders select animals according to apparent weight as well as the sex of the animal. Traders also clearly prefer heavy (large) female animals with a healthy appearance (good body and pelt condition)

**Table 21: Animal attributes preferred by traders**

<b>Attribute</b>	<b>Average rank</b>
Age	1.5
Sex	<b>8.5</b>
Breed	4
Weight (measured)	1
Weight (apparent)	<b>9</b>
Condition of animal	4
Free of disease	4
Specified use of feed or medicine	1
Pelt condition	3.5
Pelt colour	1
Time of delivery	1
Place of delivery	1
Advance payment	1

#### **2.4 Livestock sales**

Both traders interviewed indicate that they are satisfied with their selling arrangements. Table 22 provides information on the number of animals sold, the average price per animal, the approximate average weight of the animal as well as the transport cost per animal. In both the case of cattle and goats, the purchase price is negotiated between the buyer and the seller. All cattle sales (breeding animals) are made to other smallholder farmers at a village market based on a spot cash payment while, goats are mainly sold to commercial abattoirs

**Table 22: Animals sales during the past 12 months.**

	<b>Number of animals sold</b>	<b>Average price per animal (LC)</b>	<b>Approximate average weight of sold animal (kg)</b>	<b>Transport cost from market (per load)</b>
<i>Cattle</i>				
Calves	-	-	-	-
Heifers	2	-	-	-
Steers	0	-	-	-
Bulls	15.5	14000	200	500
Cows	13	9000	200	500
<b>TOTAL</b>	<b>48</b>	<b>-</b>	<b>160</b>	<b>1050</b>
<i>Goats</i>				
Adult female	-	-	-	-
Young female	200	-	-	-
Breeding rams	-	-	-	-
Kids	424	-	-	-
Others	-	-	-	-
<b>TOTAL</b>	<b>624</b>	<b>-</b>	<b>-</b>	<b>-</b>

The most important months for livestock sales as indicated by the respondents are, July, August, October and December, while the least import months for animal sales are January and February. The traders do not use brokers or middlemen for sales and do not sell animals on a contractual basis.

Respondents were asked to indicate what animal attributes their clients (buyers) see as important when buying animals 1 (not at all) to 9 (always). The feedback is summarized in Table 23 indicating that the apparent weight as well as the breed is the most important attributes the trader's buyer considers. From Table 23, it is also clear that the buyers are not very demanding, however, the sex of the animal as well as the condition (pelt and body condition) is important. It also surfaced that there are two types of buyers. In the first instance those buying cattle for breeding purposes and who are interested in young females and/or males of a specific breed – in this case Landim (Nguni). Secondly, those interested in buying goats for slaughtering purposes prefer large female animals in good physical condition.

**Table 23: Animal attributes preferred by buyers**

<b>Attribute</b>	<b>Average rate</b>
Age	0.5
Sex	2.5
Breed	<b>4.0</b>
Weight (measured)	0.5
Weight (apparent)	<b>4.5</b>
Condition of animal	3.5
Free of disease	3.0
Specified use of feed or medicine	0.5
Pelt condition	3.5
Pelt colour	0.5
Time of delivery	0.5
Place of delivery	0.5
Advance payment	0.5

## **2.5 Miscellaneous information**

Miscellaneous information included the sources of information available to farmers as well as the reliability thereof, business dynamics during recent years as well as the main constraints to livestock trading activities.

Table 24 revealed the different sources of information available for different categories as depicted from the respondents. It is clear that the only available information source regarding production practices and animal health issues are the local extension officers while information regarding markets is gained via word of mouth.

From Table 24, it is very clear that information on input use, prices, product standards, traceability and risk management is totally absent. This provides for opportunities to the local extension services to easily and quickly expand their services to cover these information needs and consequently become more relevant to the local livestock industry.

**Table 24: Sources of information available on animal health issues and input usage**

Category	Extension officer	Government	Word of mouth	No source
Production practices	X			
Input use				X
Animal health issues	X			
Markets (physical)			X	
Price				X
Product standards				X
Traceability				X
Risk management				X
Government services		X		

Traders were asked to rank business changes experienced during the past 5 years in terms of the options in Table 25 from 1 (not applicable) to 9 (very applicable). Data summarized in Table 25 indicates that the most important changes was diversification of business activities (producing feed, slaughter for business purposes) and productivity enhancement of animals

**Table 25: Business changes during the past 5 years**

Option	Average rank
More animals in herd/flock	4.0
Higher productivity of animals	<b>4.5</b>
Greater use of technology (breeding, AI, etc)	1.0
Diversification of herd (raising of other types of animals	0.5
Diversification of business activities (producing feed, slaughter for business purposes)	<b>5.0</b>
Specialization of livestock activities (e.g., breeding for larger farmers)	0.5
Other	0.5

Traders rank the constraints from 1 (not important) to 9 (very important), summarized in Table 26. From this it is evident that respondents see the poor access to credit as the main constraint to their business activity. Poor access to markets and knowledge of sales opportunities and new markets as well as infrastructure also ranked relatively high as constraints.

**Table 26: Main constraints to livestock traders (average rank)**

<b>Constraint</b>	<b>Average rank</b>
Low sales prices for products	1
Variability in sales prices	3
Poor knowledge of market prices	1
High input costs (e.g. feed)	1
Poor access to markets	6
Poor knowledge of sales opportunities	5
Poor access to credit	<b>9</b>
Limited knowledge of new market opportunities	5
Access to infrastructure	4
Behavior of livestock traders	3
High transport costs	2
Low productivity of animals	1
Animal diseases	3
Poor support from extension services	1
Government policy	1

## **2.6 Conclusions and general observations**

The demand for animals in Mabalane is a derived demand. Traders usually operate between the bigger markets of Maputo and Chokwé and the smaller villages like, in this case, Mabalane. Depending on the demand for animals in these bigger markets, traders will visit the smaller villages to purchase livestock in order to re-sell them. The major constraint in the case of small stock traders, as well as to producers selling to traders is the distance between Mabalane and the bigger markets.

## **PART THREE: PROCESSOR ANALYSIS**

### **3.1 Introduction**

Three processors were interviewed, one in Maputo and two in the Chokwé region.

### **3.2. General information**

On average, these respondents have been involved in processing activities for 5 years, had 11 years of schooling but no formal training in meat processing activities.

These processors are financially involved in and own slaughtering facilities, cutting facilities, cold storage facilities, and transportation as well as retail outlets delivering towards the final consumer.

These processors have the capacity to hold between 25 and 300 animals (depending on the species) prior to slaughter. Apart from slaughtering animals for their own outlet, one of the processors also slaughters animals at fee (custom slaughtering).

These processors produce a wide array of beef products ranging from whole carcasses, frozen and fresh de-boned meat, cured or dried products, raw and cured sausages and ready to eat snacks. For sheep and goat meat the products are limited to carcasses, frozen de-boned meat and fresh de-boned meat.

Processors make use of permanent labour with an average of 16 male labourers and 2 female labourers earning an average monthly salary of 2000 Meticaís (Table 27)



**Table 27: Permanent employment.**

<b>Gender</b>	<b>Average number</b>	<b>Wage rate (Mt/month)</b>
Male	16	2000
Female	2	2000

All the respondents indicate that they are operating as a commercial entity, although none of them sells products under a company brand name. In all cases the processors indicate that they are not satisfied with buying arrangements while they are completely satisfied with their selling arrangements.

### 3.3 Livestock purchases

The majority of animal purchases for all species are made from large private farms in the region and to a lesser extent from individual traders and occasionally from small scale farmers. The purchase price of animals is negotiated between the buyer (processor) and the seller. None of the processors makes use of contractual arrangements when purchasing animals. Table 28 depicts the average purchase price per animal as well as the average live weight per animal and the purchase price per kilogram as indicated by the processors for cattle. No purchase price data for sheep and goats were provided by the processors to enumerators, as these tend to vary considerably, following a seasonal change in demand (prices are higher at the end of the year compared to the beginning of the year).

**Table 28: Animal purchase prices**

<b>Specie</b>	<b>Average price per animal (Mt)</b>	<b>Average weight of purchased animal/kg</b>	<b>Purchase Mt/kg</b>
Cattle	14000	200	70
Sheep	-	-	-
Goats	-	-	-

Respondents indicated that purchases are highest in the months of November and December while the least important months for purchases are January to April

Table 29 summarizes the attributes preferred by the processors when buying animals. Respondents were asked to rank their preference of the attributes from 1 (not at all) to 5 (always). From Table 29 it is evident that processors place a high value on the physical condition as well as the apparent weight of the animal. Judging from the low ranking of other quality attributes in Table 29 like the age of the animal, the disease status and breed, it seems that this is a unsophisticated market from a consumer point of view.

**Table 29: Preferred attributes by processors when buying animals**

<b>Attributes</b>	<b>Average rating</b>
Age	0.50
Sex	1.00
Breed	0.50
Weight (measured)	1.00
Weight (apparent)	<b>2.00</b>
Condition of animal	<b>3.00</b>
Free of disease	0.50
Specified use of feed or medicine	0.50
Pelt condition	1.00
Pelt colour	1.00
Time of delivery	1.00
Place of delivery	1.00
Advance payment	1.00

### **3.4 Processing activities and meat sales**

Processors have the ability to slaughter cattle, sheep as well as goats at the same facility and the average slaughtering capacity is depicted in Table 30. This also indicates the current number of animals being slaughtered daily as well as the operating hours per week.

**Table 30: Current operating capacity (average).**

<b>Specie</b>	<b>Slaughtering capacity (head)</b>	<b>Current number of slaughtering (head)</b>	<b>Operating hours per week</b>
Cattle	50	35	40
Sheep	55	40	40
Goats	75	75	40

According to processors the live animals are inspected before slaughter and the meat is inspected immediately after slaughtering and again just prior to sale. This is done by health inspection officers appointed by government at a cost to the processor. Processors guess rejections based on post-mortem inspections of carcasses at less than 1 per cent and consider these as insignificant.

Processors also indicate that the most important month of sale is December while the least important month for sales is January.

### **3.5 Miscellaneous information**

Respondents rank the constraints to their business in Table 31 from 1 (not important) to 9 (very important). From this summary it is evident that respondents see the high input cost of meat as the main constraint. This is in line of expectation from one of the poorest countries in the world. Competition and the behaviour of other processors as well as poor knowledge of market prices were the other constraints to be considered.

**Table 31: Main constraints to livestock processors (average rank)**

<b>Constraint</b>	<b>Rank</b>
Low sales prices for products	3.0
Limited outlets for sales	0.5
High input costs for meat	<b>5.0</b>
Limited knowledge of new market opportunities	0.5
Low access to credit	0.0
High variability in prices	1.0
Government policy	0.5
High variability in sales prices	1.0
High transport costs	0.5

<b>Constraint</b>	<b>Rank</b>
Low Storage capacity	0.5
Poor access to markets	0.5
Poor knowledge of sales opportunities	0.5
Poor knowledge of market prices	3.0
Behavior of livestock traders	3.0
Behavior of slaughter operators	3.0
Low productivity of animals	1.5
Access to infrastructure	0.5
Animal diseases	1.5
Poor support from extension services	0.0
Distribution arrangements	0.5
High energy costs	1.5
Consumer demand (quantity)	0.5
Consumer demand (unwilling to pay high prices)	0.5
Competition from other processors	3.0

### **3.6 Conclusions and general observations**

The questionnaire proved to be very efficient to gather the most relevant information on the meat processors in the study area. With the exception of the Lionde meat processors (Industria de carnes do Lionde) which is a relatively large processor (the largest in Mozambique) the others are relatively small processors. Processing is done at a very basic level and is restricted mainly to cutting the carcasses and to a small scale deboning, mincing the meat and producing fresh sausages. The market is not very sophisticated and therefore processors have limited value adding opportunities. Most of the smaller processors are also retailers and sell directly to the public. In rural areas, different meat cuts tend to have very similar prices.

## PART FOUR: RETAILER ANALYSIS

### 4.1. Introduction

Three retailers in Maputo were interviewed for purposes of testing the retailer questionnaire. Only two of these retailers are registered as commercial entities. These retailers do not have their own slaughtering facilities and therefore there is no apparent backward integration.

### 4.2. Meat purchases

The majority of the meat purchases for all species considered are made from abattoirs at the abattoir gate, using spot cash payments. None of the retailers make use of contracts when purchasing meat. Table 32 depicts the average purchase price per kg for the three species.

**Table 32: Meat purchase prices**

<b>Specie</b>	<b>Average price (MT per kg)</b>
Cattle	89.25
Sheep	-
Goats	113

Respondents indicate that the most important month for purchases is December for all species (mainly during the festive season of Christmas and New Years) while January and February are the worst purchase months (just after the festive season).

Table 33 summarized the attributes preferred by the retailers when purchasing meat. Respondents were asked to rank their preference of the attributes from 1 (not at all) to 9 (always). From Table 33 it is evident that retailers place emphasis on the age of the animal, the fat content of the carcass as well as the colour of the carcass/meat. In general retailers prefer young animals, with a moderate amount of yellow coloured fat in the carcass.

**Table 33: Preferred attributes by retailers when buying meat**

<b>Attribute</b>	<b>Average rank</b>
Size of carcass	3.0
Grading	1.0
Age	<b>6.0</b>
Fat content	<b>4.5</b>
Colour of the carcass/meat	<b>4.5</b>
Whether it is matured	0.0
Packaging (e.g. vacuum packaged)	3.0

### **4.3 Processing activities and meat sales**

All respondents interviewed indicate that they further process meat into a number of products, namely:

- Quarters
- Frozen de-boned meat
- Fresh de-boned meat
- Cured or dried products
- Raw sausages

Meat products are, depending on the product, vacuum packed, packaged in sealed plastic bags and packaged in polystyrene and plastic packaging. Meat is inspected prior to sale and the meat inspection costs are the responsibility of the retailer. The majority of the beef, sheep and goat meat are sold to the final consumer on a spot cash transaction basis.

**Table 34: Meat sales prices**

<b>Product</b>	<b>Average price (MT per kg)</b>
Frozen de-boned beef	100
Raw sausages	160
Frozen de-boned goat meat	134

Respondents indicate that December is the best month for sales, while the worst months are January and February.

Table 35 shows the relative importance of the different attributes buyers consider when buying meat products and according to the retailers surveyed. The most important attribute considered by buyers are directly related to the tenderness of the meat, packaging, and the perceived healthiness of the product. These results indicate a poorly developed market with little consumer preferences and as such provide for retailers being able to do business easily where price seems to be the most important factor affecting demand.

**Table 35: Preferred attributes by buyers**

<b>Attribute</b>	<b>Not important</b>	<b>Very important</b>
Age of animal		X
Sex	X	
Breed		X
Weight (measured)		X
Weight (apparent)		X
Condition of animal		X
Free of disease		X
Specified use of feed or medicine	X	
Time of delivery		X
Place of delivery	X	
Colour of product	X	
Packaging		X
Brand	X	
Time since slaughter	X	
Origin of animal (place it came from)	X	
Perceived healthiness of the product		X
Organic or low-input production	X	

#### 4.4. Cost of production

Like in the case of the producer questionnaire, both enumerators and respondents had trouble interpreting the complexity of the question presented which resulted in the validity of the data captured being questioned. This aspect has subsequently been addressed in the revised questionnaire.

#### 4.5 Miscellaneous information

Retailers were asked to rank the way their businesses changed during the past 5 years in terms of the options in Table 36, from 1 (not applicable) to 5 (very applicable). According to Table 36 the most important changes were the expansion of processing capacity and diversification in products produced (e.g. boneless cuts) to address specific markets (niche markets like supermarkets)

**Table 36: Business changes during the past 5 years**

Option	Average rank
Expansion of processing capacity	1.0
Expansion of meat processed	<b>3.0</b>
Improved technology	2.0
Diversification in products produced (boneless cuts, e.g.)	<b>3.0</b>
Diversification of business activities (e.g., slaughter for business purposes)	0.5
Specialization of processing activities (e.g., dedicated supplier to supermarket)	<b>3.5</b>

The respondents rank the constraints in Table 37 from 1 (not important) to 9 (very important) from where it is evident that respondents see the low sales prices for products and high energy costs as the main constraints.

**Table 37: Main constraints to retailer (average rank)**

Constraint	Average rank
Low sales prices for products	<b>3.3</b>
Limited outlets for sales	1.7



High input costs for meat	2.0
Limited knowledge of new market opportunities	1.7
Low access to credit	1.0
High variability in prices	2.0
Government policy	0.7
High variability in sales prices	2.0
High transport costs	2.0
Low Storage capacity	2.7
Poor access to markets	2.0
Poor knowledge of sales opportunities	1.7
Poor knowledge of market prices	2.3
Behavior of livestock traders	1.7
Behavior of slaughter operators	2.0
Low productivity of animals	2.0
Access to infrastructure	2.0
Animal diseases	2.0
Poor support from extension services	2.0
Distribution arrangements	1.7
High energy costs	<b>3.0</b>
Consumer demand (quantity)	2.3
Consumer demand (unwilling to pay high prices)	1.7
Competition from other retailers	0.3

#### **4.6 Conclusions and general observations**

Valuable experience gathered during the testing of the processor and retailer questionnaires, resulted in adjusting the set of questionnaires. These changes include the merging of the questionnaires for the processor and retailer due to the fact that value chain actors are often integrated and it would therefore be a waste of resources to have two separate questionnaires

## **D. Overall conclusions and recommendations**

This section encapsulates comments and suggestions on the modification and adaptation of the questionnaires tested in Botswana and Mozambique. Each questionnaire is discussed individually and changes implemented. The adapted/modified versions of the questionnaire are then the final VAIMS questionnaire that is printable from the VAIMS toolkit (see VAIMS handbook for more detail).

### **D1. Issues regarding the producer questionnaire**

A number of limitations/problems were identified during the testing of the producer questionnaires in the Tsabong region in Botswana and the Mabalane region in Mozambique. These can be summarized as follows:

- In the case of the Mabalane region it became apparent that the main focus of the livestock activities is on cattle and there is only a small number of small-stock in the region and therefore farmers are less inclined to sell those animals. It is therefore suggested that some research regarding livestock activities should be conducted prior to the survey, in order to ensure that the selected area is adequate for the study.
- In the case of Mabalane, very little livestock purchasing and selling activities took place as livestock is primarily kept as “a bank on hooves” and for prestigious reasons, which should also be included in the questionnaire.
- Another concern is that the questionnaire takes too long to be completed, depending on the enumerator it took between 30 and 90 minutes and therefore all unnecessary questions as well as repeated questions should be identified and eliminated.
- Question 2.2 regarding the provision of total household income, from all members of the household should be excluded as this was in many cases a sensitive issue.

- The use of family labour should be included in question 2.4 relating to number of people employed because is it a common practice. Questions regarding remuneration should cater for monthly wages instead of the daily wage rate as employees are paid on a monthly basis. Payments in kind should also be catered for.
- The option of communal land ownership should be added to the codes in question 2.5 on land ownership.
- Table 3.1 in SECTION 3 (DETAIL OF LIVESTOCK OPERATIONS) regarding herd dynamics should balance (add-up).
- Questions regarding livestock purchases and sales (SECTIONS 4 and 5) should be combined/compressed into a single table format to avoid unnecessary repetition and shorten interview time.
- An option for indicating the best and worst month for animal purchases and sales should be added.
- The production cost table in SECTION 6 should be simplified as respondents are not able to provide the detail in terms of physical units and costs per units. They could however indicate a total for specified cost categories over a specified time.
- Animal health should be one heading and not be sub-divided into antibiotics and treatments as this creates confusion.
- Water and fuel costs should be added to the list in the production cost table while costs associated with animal purchases should be excluded as this area is covered in a another section.
- Quality attributes specified as important by all levels of the value chain should be as uniform as possible in order to make them comparable through the different actors in the chain.
- In question 8.1 (where information regarding the source and reliability of information is required) the options in terms of the codes should be elaborated or changed as respondents were confused by the choice between extension officers and government.
- Question 8.4 on chain governance should be moved or combined with SECTION 3 as this question is concerned with price

determination in the different markets and will fit better in SECTION 3.

- Questions regarding constraints should be limited to 5 options which the respondent must rank from 1 to 5 in order of importance
- A question on major sources or factors of risk should be included.

## **D2. Issues regarding the trader questionnaire**

A number of limitations/problems were identified during the testing of the producer questionnaires in the Tsabong region in Botswana and the Mabalane region in Mozambique. These include the following:

- The questionnaire should have a clear definition of what a “trader” is as it can be misinterpreted in some cases.
- Like in the case of the producer questionnaire the trader questionnaire takes too long to be completed, depending on the enumerator it took between 30 and 90 minutes therefore all unnecessary questions as well as repeated questions should be identified and eliminated.
- Question 2.2 (regarding the provision of total household income, from all members of the household) should be excluded as this was in many cases a sensitive issue.
- The use of family labour should be included in question 2.4 with reference to the number of people employed as is customary; the question should rather capture the monthly wage rate instead of the daily wage rate as employees are paid on a monthly basis, and should also include payments in kind.
- The option of communal land ownership should be added to the codes in question 2.5 on land ownership.
- The codes on “purchase from” and “sold to” for SECTION 3 (livestock purchases) and SECTION 4 (livestock sales) should be changed to include all possible markets available and also to better fit the options in the producer questionnaire. This is also applicable

to “where do you obtain price information”, “purchase from/sold to” as well as “where purchased/sold”

- The production cost table in SECTION 6 should be simplified as respondents are not able to provide the detail in terms of physical units and costs per units. They could however indicate a total cost over a specified time.
- Animal health should be one heading and not be sub-divided into antibiotics and treatments as this creates confusion.
- Insurance and inspection costs should be added while spares’ cost should include repairs and maintenance costs also.
- In question 7.1 (where information regarding the source and reliability of information is required) the options in terms of the codes should be elaborated on or changed as respondents were confused by the choice between extension officers and government.
- Question 7.6 on chain governance should be moved to or combined with SECTION 4 & 5 as this question is concerned with price determination in the different markets and will fit better in SECTION 4 & 5.
- Questions regarding constraints should be limited to 5 option which the respondent must rank from 1 to 5 in order of importance

### **D3. Issues regarding the processor questionnaire**

A number of limitations/problems were identified during the testing of the producer questionnaires in the Tsabong region in Botswana and the Mabalane region in Mozambique. These can be summarized as follows:

- In Chokwé, Mozambique most meat is sold and cooked on the premises, consumers buy a portion of meat to cook it on an open fire on site at the back of the butchery.

- Question 1.3 regarding total income from all processing activities should be excluded as this a sensitive issue in these regions (it can be calculated using SECTION 5 (meat sales))
- The holding time of animals in question 1.11.1 should be changed to the number of days, animals rarely remain on site for longer than one day prior to slaughter.
- In question 1.12.2, where the fee charged for slaughtering animals is asked, it should be expanded to specify the type of animal as it differs between species.
- The use of family labour should be included in question 1.13 in order to relate to the number of people employed as is customary; the question should rather capture the monthly wage rate instead of the daily wage rate as employees are paid on a monthly basis, and should also include payments in kind.
- Question 1.14 relates to the types of products produced which is only a yes no question and should be excluded as this data is captured in SECTION 5 (meat sales)
- In SECTION 3 processors can give accurate numbers regarding purchases and sales of animals as they keep detailed records. Like in the case of the producer survey, purchase and sales information can be compressed to prevent repetition and thereby to be more time efficient. This section should also include the option of meat purchases.
- Questions 4.5 (What is your slaughter capacity per day) and 4.6 (How. many animals do you slaughter on average per day) are a possible repetition and therefore confusing to the respondent and need to be revised.
- Question 4.10 and 4.15:codes should be changes as it is not a yes/no response question
- As in the case of the producer survey, the production cost table should be simplified to capture total monthly expenses. It should also include feed expenses, water and other utilities as well as inspection costs.

- Questions regarding constraints should be limited to 5 options which the respondent must rank from 1 to 5 in order of importance

#### **D4. Issues regarding the retailer questionnaire**

A number of limitations/problems were identified during the testing of the producer questionnaires in the Tsabong region in Botswana and the Mabalane region in Mozambique. These can be summarized as follows:

- It is suggested that the personal questions in section 1.6 should be rephrased to be more business orientated.
- In question 1.9.1, where the fee charged for slaughtering animals is asked, should be expanded to specify the type of animal as it differs between species and should also specify for the type of cost required.
- The use of family labour should be included in question 1.13 allowing for monthly payment and payments in kind because it is customary in that region.
- Question 1.11 related to the types of products as only a yes no question should be excluded as this data is captured in SECTION 5 (meat sales)
- The product categories in SECTION 3 (MEAT PURCHASES) should be revised to provide for a better fit with the previous sections in the chain,
- Sections 3 and 5 need to be revised as these tables are just too complicated to complete in a survey like this, simply too tedious.
- The average distance traveled for meat purchasers in question 3.5.1 should make provision for different types of meat – also applicable at question 3.7 pertaining to the quality attributes required at purchase.
- Question 4.2 can be deleted as this is a “yes/no” response question already captured in SECTION 5 (meat sales)



- Inspection costs in question 4.9 are in most cases included in the slaughter fee, and therefore not separately available.
- As in the case of the producer survey, the production cost table should be simplified to capture total monthly expenses as well as to include feed expenses, water and other utilities as well as inspection costs.
- Questions regarding constraints should be limited to 5 options which the respondent must rank from 1 to 5 in order of importance