RESEARCH AND DEVELOPMENT DIVISION

ASSESSMENT OF SLAUGHTER AND HIDE COLLECTION FACILITIES IN BOTSWANA

RESEARCH & DEVELOPMENT DIVISION

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1.0 Executive summary

The Local Enterprise Authority carried out the Situation Analysis of the Leather industry in Botswana in 2010 with the main objective being to establish the status of the leather industry in Botswana and identify available business opportunities both upstream and downstream in the leather value chain. The study found that almost all the slaughter facility based hides and skins are destined for the export market without any value addition through the BMC and hide collectors and exporters without any link with the local players downstream. The study also found out that the challenges experienced by the local leather value chain players centred on issues of poor skills, inadequacy of equipment and resources and non-penetration of the local leather market which is linked to production and quality issues.

The RDD has been commissioned by the LEA management to conduct the Assessment of slaughter and hide collection facilities study with the main objective being to establish the current status of the slaughter and hide collection facilities in Botswana. The study will provide information for the leather industry park which is envisaged to create more than 10 000 jobs and provide private sector activities in hides and skins collection, raw to finished leather tanneries, and the manufacturing of different leather products.

2.0 Overall objective

The primary objective of this study was to establish current status of the slaughter facilities and slaughter slabs in Botswana by examining their operations, infrastructure and equipment in relation to handling of hides and skins for the period 2015 to 2017.

2.1 Summary of findings

There are a total of 112 slaughter facilities in the country which include 17 abattoirs and 105 slaughter slabs. The abattoirs include the three BMC branches in Lobatse, Francistown and Maun, with a combined annual slaughter capacity of 252 000 cattle. The distribution of slaughter facilities, as shown in Table 1, indicates that the number of slaughter facilities in a district is proportional to the number of cattle in that district. The Central district, which has a total of 43 slaughter facilities, has a total cattle population of 718 465 and small stock population of 595 997 while the Kweneng district has 16 slaughter facilities. The smallest district in the country, the South East, has a cattle population of 5 515, with only 6 slaughter facilities.

Table1. The distribution of slaughter facilities by district

District	Central			Kweneng		Kgatleng		Southern			Kgalagadi			Gantsi	Southeast			north west			Northeast			Total
Type of slaug	Abatt	Slab	Collect	Slab	Collect	Slab	Collect	Abatt	Slab	Collect	Abatt	Slab	Collect	Slab	Abatt	Slab	Collect	Abattoir	Slab	Collect	Abattoir	Slab	Collect	
Council facilities interviewed	5							1										2						8
Private facilities interviewed	4	27		13		8		3	3		1	5		5	2	1		1			2			75
Total facilities interviewed	35 (42.2%)			13 (15.7)		8 (9.6%)		7 (8.4)			6 (7.2%)			5 (6%)	3 (3.6%)			4 (4.8%)			2 (2.4%)			83
Total facilities in the country	10	33	6	16	2	8	1	5	8	2	1	8	1	9	4	2	1	4	1	1	2	1	3	
Total cattle in 2015	718 465			217 694		69 292		211 703			90 600			150 279	5 515			240 695			39 907			1 744 150
Total small stock in 2015	595 997			194 058		63 182		227 723			100 404			48 317	17 553			128 909			71 529			144 7672

The slaughter facilities have a total staff compliment of 915 employees of whom 65.5% are Flaying staff as shown in Table 2. A total of 84% of the flaying staff were trained in-house while 5.6% received their training at the MITC. The MITC is the local training facility for slaughter facilities employees, however, none of the slaughter slabs staff were trained there.

Table 2. Distribution of staff by job category

	Abattoirs staff		Slaughter Slabs staff		
Job description	Male	Female	Male	Female	Total
Flaying	290	11	297	1	599 (65.5%)
Management	40	26	51	31	148 (16.2%)
Casual Labourers	39	2	18	0	59 (6.4%)
Cleaners	5	17	13	5	40 (4.4%)
Lairage	10	7	3	3	23 (2.5%)
Stunning	10	0	2	0	12 (1.3%)
Cutting	10	0	2	0	12 (1.3%)
Loading	12	0	0	0	12 (1.3%)
Office Assistant	5	2	0	3	10 (1.1%)
Total	421	65	386	43	915

Most of the abattoirs have the required infrastructure and equipment while some slaughter slabs did not have the necessary equipment. The flaying machines, which are used to minimize incisions on the hides and skins and subsequently increase their worth, are largely found in abattoirs except for one slaughter slab, which suggest that abattoirs are more likely to produce good quality hides and skins than slaughter slabs, Table 3 refers.

Table 3. Availability of Equipment in the Slaughter Facilities

Equipment	Abattoir	Slaughter Slab	Total
Hoist	21	61	82
	100%	98.4%	
Flaying Knives	21	62	83
	100%	100%	
Dehyder/flaying machines	13	1	14
	61.9%	1.6%	
Hide pullers	4	3	7
	19.0%	4.8%	
Hide washing facility	2	2	4
	9.5%	3.2%	
Chilling facilities	6	8	14
	28.6%	12.9%	
Knife sharpener	0	1	1
	0%	1.6%	
Sterilizing machine	0	5	5
	0%	8.1%	
Total	21	62	83

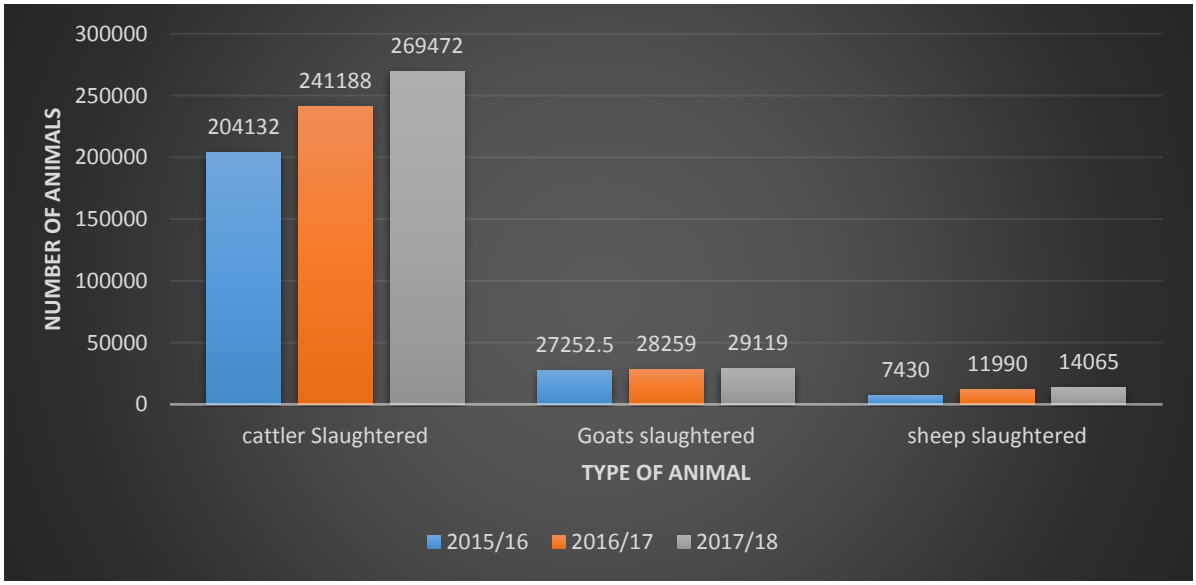
2.2 Annual slaughter output of slaughter facilities

The annual slaughter figures provided include the three BMC offices and all slaughter facilities in the country. They however, do not include non-facility based slaughters. It is evident from Figure 1 that the slaughtering of animals increases yearly mainly due to increasing demand for meat which is proportional to the increase in population. Also the

increase in the number of slaughter facilities encourages their utilisation for hygiene purposes, thereby discouraging home slaughter.

The number of cattle slaughtered increased by 18.2% and 11.7% respectively from 2015/16 financial year to 2016/17 financial year and 2016/17 to 2017/18 financial years. In the same period, the slaughtering's of goats increased by 3.6% and 3% respectively, while those of sheep increased by 61.4% and 71.3% respectively for the same period, Figure 1 refers.

Figure 1. Local annual slaughtering of animals between 2015 and 2018.



Source: (MOADFS, 2018)

2.3 Hides and skins Exporters Findings

All hides and skins buyers and exporters are required by law (Hides and Skins Act Cap 49:01) to possess a license entitling them to purchase and or export hides and skins unless it is for domestic use (MOADFS, 2018). The buyers' license is used to purchase hides and skins in specified districts and a buyer may have many licenses for different districts. The exporter's license allows one to buy hides and skins across the country and export them to the rest of the world. The licenses are renewable annually, depending on the compliance to the hides and skins export act. Exporters are required to possess four certificates, namely, quarantine, inspection, import and export when exporting. In addition, exporters are required to pay in advance an export levy of P16.00 per piece of hide and P1.50 per piece of skin.

2.4 Distribution of the hide and skin exporters in the country

There are currently 17 licensed hides and skins exporters in Botswana. However, 10 respondents were interviewed during the study resulting in a response rate of 58.8%. The distribution of respondents in Table 4 shows that 9 respondents were male while only one was female. The Central district had the highest number of respondents, six (6), followed by the South East district with 3 respondents and 1 in Kgalagadi.

Table 4. Demographic distribution of respondents

		Sex		
District	**Location**	**Male**	**Female**	**Total**
Central	Selebi Phikwe	1	1	**2**
	Mahalapye	2	-	**2**
	Palapye	2	-	**2**
South East	Mmokolodi	1	-	**1**
	Tlokweng	1	-	**1**
	Gaborone	1	-	**1**
Kgalagadi	Tsabong	1	-	**1**
Total		**9**	**1**	**10**

2.5 Market for hides and skins

2.5.1 Skins

According to the MOADFS (2018), small-stock was slaughtered at home for ceremonial purposes, and a result, there were no skins exports. It further revealed that the skins were used for local production of locally manufactured goods. The Ministry revealed that skins were priced at P1.50 per piece. However, during the study, it showed that small-stock was slaughtered at slaughter facilities, occasionally, at low (and unaccounted) numbers. In addition, until mid-2017, skins prices ranged between P20 and P10 as reported by 1 exporter in the Kgalagadi District. Another exporter in South East collected skins for free and sent them to the export market, although there were no quantities provided.

The country has a target of collecting 50 000 skins annually (MOADFS, 2018). However, in 2015/16 only 15,144 skins were collected. The skins collected increased to 25,285 in 2016/17 before decreasing to 20,898 in 2017/18. Kgalagadi recorded higher quantities of skins collected during the 3 year period. The Ministry associated fluctuations in skins collection to decline in local tanning, due to environmental concerns of the industry's generation of waste, and lack of allocated land for tanners.

2.5.2 Hides

The MOADFS showed that hides exports were 183,599 in 2015/16 valued at P2, 937, 584, and increased to 281,193 valued P3, 491,088 in 2016/17, before declining to 195,172 at a value of P3, 122,752, in 2017/18. The exports increased in 2016/17, both in quantities and value. This increase was attributed to growth in hide's global market, (MOADFS). It was also reported that one exporter expanded to the Chinese market during the same year, Table 22 refers.

Table 5. Hides Exports Quantities and Value (2015-2017)

Year	Quantity	Value (BWP)
2015/16	183,599	2,937,584
2016/17	218,193	3,491,088

2017/18	195,172	3,122,752

Source: MOADFS (annual reports 2015-17)

3.0 Opportunities in the leather sector

3.1. Setting up of slaughter facilities in the country. There is only one Abattoir in the Kgalagadi district, and the rest are very small slaughter slabs. There are no slaughter facilities in the Chobe district.

3.2. Hide collection centres in the various districts including the Chobe and Gantsi district which have no hide collection. The country's main hide and skin exporter, SM Loury is now collecting hides/skins on occasional basis and there is only 1 hide collector for both the Kgalagadi and Gantsi regions

3.3 Cold storage facilities across the country. Almost all the facilities do not have cold storage and the Leather Park requirement is that hides and skins should be chilled.

4.0 Conclusions

There are a total of 112 slaughter facilities in the country comprising of 17 abattoirs and 105 slaughter slabs. Most of the slaughter facilities are situated in the Central district, which is the largest district in terms of both size and the number of cattle. The core staff members for the slaughter facilities are the flaying staff, with a ratio of 1: 1.5 to other staff members. The trainings for the flaying staff was mostly done in-house, with only the government

Council abattoirs sending their flaying staff for training at the MITC. All the slaughter facilities were found to have the infrastructure and equipment, as stipulated by the Department of Veterinary Services, which does routine check-ups in all slaughter facilities to enforce compliance. However, in addition to the abattoirs, only one slab uses dehyders which are used to minimize incisions on the hides and subsequently increase the worthiness of hides and skins, which suggests that abattoirs are more likely to produce good quality hides and skins than slaughter slabs.

The BMC, with its three branches, is the largest slaughter facility in the country, with a slaughter capacity of 252 000 cattle per annum. The local slaughter facilities are mostly utilized by butcheries and individuals, with cattle being commonly slaughtered, while small stock slaughter quantities are low, mainly because of home slaughter. Statistics Botswana estimated that the total of 22 260 cattle and 56 119 small stock were attributed to home slaughter in 2015, however it is to be noted that these estimates are very conservative. Slaughtering of game animals occurs most in the Gantsi district, where slaughter facility managers own game farms.

Collection of hides and skins locally is not organized. There are no hide collectors in the western part of the country leading to loss of hides and skins unquantifiable. Some slaughter facilities throw away hides and skins due to lack of collectors/ exporters in their areas of operation. The number of small stock slaughtered in slaughter facilities is very low and the collection of the skins is also negligible. The cattle hides were collected by hide and skins exporters and exported mainly to South Africa until mid-2017 when the global hides and skins market collapsed, resulting in most of them being thrown away. Owing to this, most

hide and skins collectors are no longer collecting the small stock and game skins, while other collectors have ceased operations. Furthermore, the hides and skins producers are price takers from the collectors and exporters.

The Leather Industry Park, which is envisaged to create more than 10 000 jobs will revive the local leather sector with provision for hides and skins market. It is expected to provide private sector activities in hides and skins collection, raw to finished leather tanneries and the manufacturing of leather products.

5.0 Recommendations

1. LEA should lobby for the implementation of an organized market for hides and skins in Botswana.

2. LEA should facilitate the setting up of satellite collection centres for hides and skins in Botswana for the support the leather park project.

3. The LEA and MOADFSFDS should educate the public on the true value of hides and skins in monetary terms to incentivise collection.

4. The MOADFS and LEA should educate all value chain players on the benefits of chilling as an environmental friendly preservation method.

5. LEA in collaboration with MOADFSDFS should come up with strategies that will incentivize facility slaughtering of small stock.

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1.0 Introduction

1.1 Background

The Local Enterprise Authority carried the Situation Analysis of the Leather industry in Botswana in 2010 with the main objective being to establish the status of the leather industry in Botswana and identify available business opportunities both upstream and downstream in the leather value chain. The study found that almost all the slaughter facility based hides and skins are destined for the export market without any value addition through the BMC and hide collectors and exporters without any link with the local players downstream. The study also found out that the challenges experienced by the local leather value chain players centred on issues of poor skills, inadequacy of equipment and resources and non-penetration of the local leather market which is linked to production and quality issues.

The leather industry is directly linked to the meat industry as it uses the by-products of the industry. Botswana as a significant producer of beef therefore produces a high number of hides and skins. The Government has recognized that the beneficiation of the meat industry and it's by products such as leather have the potential to contribute to the economic diversification away from the mining sector.

The LEA has been tasked by the GoB to set up the Leather Industry Park Project in Lobatse. The Ministry of Investment, Trade and Industry has developed the Leather Park Industry strategy in 2012 and it has since completed the establishment of a special purpose vehicle that would own, build, operate and maintain the project. Moreover, the Environmental Impact Assessment and Environmental Management plan have been approved. According

to the Ministry, The Leather industry Park is expected to provide private sector activities in hides and skins collection, raw to finished leather tanneries, and the manufacturing of different leather products including shoes, belts and jackets. The Park, which is expected to create more than 10 000 jobs, is expected to start its operations in 2020.The Botswana leather output depends on the national kill. The national cattle herd is estimated to be around 2.6 million with most (80%) of the animal reared in communal land and 20% on ranches. The goats and sheep stood at 1.6 million and 220 000 respectively (Statistics Botswana, 2015). The communal cattle rearing system exposes animals' skins and hides to damages caused by owner and veterinary brands, horns, thorns, bushes and parasite infestations. In addition, though limited, some cattle are still used as draught power in some parts of rural Botswana which also damages their hides. However, an assessment by UNIDO (2000) identified that the quality of hides and skins are more dependent on abattoir performance than on animal origin. The hides from the Botswana Meat Commission were found to be of superior quality due to least flay damages as compared to other slaughter operations (municipal and private abattoirs). This therefore underlined the importance of hide removal techniques and handling from the carcass. The revised Livestock and Meat Industries Inspection Act of 2007 was introduced to regulate the slaughter facilities operations through setting minimum hygiene requirements for abattoirs to be licensed (GoB, 2006).

The Situation Analysis of the Leather Industry in Botswana study carried out by LEA in 2010 noted that a total of 217 478 cattle were slaughtered in 2010, with small stock slaughter estimated at 10 000 animals. (LEA, 2010). Globalization of the leather trade has led to extensive international supply of leather and various leather products. As only a small fraction of the leather and leather products are produced for the local markets, trade and

trade patterns are important elements for the development of the leather value chain (UNIDO, 2018).

Leather and leather products are among the most widely traded products worldwide, and they are based on a renewable and readily available resource. It is estimated that the international trade exceeds US$ 80 billion annually, and it is expected to continue growing alongside the increase in population and urbanization of developing and emerging countries (ITC, 2012). Bovine hides consistently represent about two thirds of the raw material used by the world leather industry, which makes them by far the most important raw material. (ibid). The APLF (2016) stated that, at full capacity, Botswana's leather industry has potential to create 10,000 jobs, fulfill local demand for leather and earn the country up to US$150 million in export earnings.

Production and supply of leather has gradually moved from industrialized to developing countries and emerging economies, which are now becoming major players in the trade. In fact, developing and emerging economies can now manage the whole supply chain on their own and are fast becoming the most important suppliers of value-added finished products. About 45% of footwear, for example, is made in China. (ITC, 2012).

Other developing countries and especially many least developed countries (LDCs) because of their large livestock, have a remarkable growth potential, but this remains largely untapped. This is mostly due to weaknesses in the technical know-how, access to information, visibility, quality management, marketing, investments and international industrial alliances (ITC, 2015). Botswana, experiences these same challenges and once attended to it has the

opportunity to export leather and leather products to markets like the US based on existing trade agreement like the African Growth and Opportunity Act (AGOA).

1.2 Rationale

The Leather Value Chain carried out by LEA in 2010 validated the notion that the country misses out on opportunities in the leather industry since value addition bypasses the local economy. In an effort to address this challenge and partly guided by the recommendations of the same study, LEA has been tasked by the Government of Botswana to implement the Leather Park project in Lobatse. The Leather Industry Park project will house an effluent treatment plant which has been the major bottleneck in the leather industry along with some of the value chain players including the tanners and leather product manufacturers. The main purpose of this study is to update the information pertaining to the value chain study conducted in 2010. The updated information will include, among others, the wholesale assessment of slaughter facilities, hide/skin collectors and exporters, and challenges encountered. The project will also stimulate and revive the leather sector by encouraging the existing and prospective SMMEs to take up downstream and upstream opportunities emanating from the development of the Park.

1.3 Structure of the report

This section introduces all chapters of the report in brief. Chapter 1 provides the introductory information on this study. It further covers the rationale for the study and its background. Chapter 2 covers the research purpose and methodology and approach

employed to carry out this study. Chapters 3 contain the findings for Assessment of slaughter facilities and chapter 4 covers the recommendations.

1.4 Research purpose and methods

Primary Objective

The primary objective of this study was to establish current status of the slaughter facilities and slaughter slabs in Botswana by examining their operations, infrastructure and equipment in relation to handling of hides and skins for the period 2015 to 2017.

1.4.1 Specific objectives

1.0 To establish the extent to which the slaughter facilities/slabs adhere to the Meat and Livestock Inspection Act.

2.0 To examine the handling of hides and skins in the slaughter facilities and slaughter slabs

3.0 To examine the storage facilities for the hides and skins post slaughter.

4.0 To establish volume of hides and skins exported.

5.0 To establish challenges faced by local slaughter facilities, hide collectors and exporters.

2.0 Methodology

2.1 Scope and units of the study

This study targeted slaughter facilities including the Botswana Meat Commission (BMC) abattoir, Slaughter slabs, municipalities, hide collectors and exporters. Other available

sources of information that were contacted include sources of secondary data like Statistics Botswana and the Ministry of Agricultural Development and Food Security as key stakeholders to the study.

2.2 Sample and data collection.

A complete enumeration of slaughter facilities/slabs, hide collectors and exporters was carried out. The lists of respondents were obtained from the Ministry of Agricultural Development and Food Security of Agriculture and the Innovation and Sector Support Division of the Local Enterprise Authority.

2.3 Data collection

Survey questionnaires were used to collect primary data and face to face interviews were conducted by the LEA Research team. A total of two (2) questionnaires targeting slaughter facilities/slabs and hide/skins collectors/exporters were used to collect data.

2.4 Data Management and Analysis

Primary data was captured in the Census and Survey Processing System (CsPro) programme and exported to the Statistical Package for Social Scientists (SPSS) programme for analysis. The data analysis included calculations of frequencies and other population parameters. Microsoft applications such as Word and Excel were used to generate tables and graphs.

2.5 Limitations of using secondary data

All research methods have limitations and it is important that such be acknowledged before so that the results are understood in the context of those limitations. Below are some the limitations associated with the research methods proposed in this study.

• Face-to-face interviews may introduce interviewer bias/effects where the interviewer may direct the respondent in a certain direction or line of answering the questions posed. This is usually addressed through training of enumerators. Its main advantage however is that it affords the interviewer a lot of extra information not verbally communicated which can be used to follow up and clarify some of the answers provided.

3.0 Findings

3.1 Location and ownership of slaughter facilities

The first slaughter facility in the country was the Botswana Meat Commission (BMC) facility in Lobatse, established by the government in 1965, to slaughter and market the country's beef exports. In the subsequent years, the BMC opened two more Branches, one in Francistown and the other in Maun. The BMC therefore, remains the main local slaughter company and by extension a significant source of raw hides in the country as it slaughters more than 50% of the national kill. The government has also established other slaughter facilities in different townships through district and town Councils, which are utilized by local communities for slaughtering cattle and small stock, for the promotion of hygiene and health issues in the meat industry. The country also has a significant number of privately owned slaughter facilities and slaughter slabs that provide the same services as the municipal facilities. The licensing and inspection of the slaughter facilities is done by the Ministry of Agricultural Development and Food Security through the department of veterinary services. This is done through the enforcement of the Livestock and Meat Industries Act of 2007.

There are currently a total of 112 slaughter facilities in the country and the team enumerated 83 facilities, resulting in a 74.1% response rate. There were 21 Abattoirs and 62 slaughter slabs. Of those enumerated, 8 were government abattoirs while 75 were privately owned. The distribution of the facilities in the country is as depicted in Annex 1. The Central district has the highest number of facilities, 42.2%, followed by Kweneng district with 15.7%. The North East district has the least number of slaughter facilities, 2.4%,

followed by North West and South East districts with 3.6% facilities apiece. There are no slaughter facilities in the Chobe district, Figure 1 refers.

Furthermore, Table 1 shows that the number of cattle in the district is proportional to the number of slaughter facilities in the district. The Central district, which had a livestock population of 718 465 and 595 997 for cattle and small stock respectively in 2015, has a total of 43 slaughter facilities followed by Kweneng district with 16 slaughter facilities. The Southern district has a total of 13 slaughter facilities and the total cattle population of 211 703. These facilities include the BMC in Lobatse, which is the largest slaughter facility in the country, with the slaughter capacity of 143 000 cattle per annum. The North West district has 5 slaughter facilities which include another branch of the BMC, with a slaughter capacity of 26 000 cattle per annum. One of the smallest districts in the country, the North East, with the total cattle population of 39 907 has 3 slaughter facilities which include the third branch of BMC with a slaughter capacity of 83 000 cattle per annum. However, it should be noted that the BMC buys cattle from local farmers and put them through feedlots, unlike other slaughter facilities where slaughtering is provided as a service, with a fee.

Table 1. The distribution of slaughter facilities by district

District	Central			Kweneng		Kgatleng		Southern			Kgalagadi			Gantsi	Southeast			north west			Northeast			Total
Type of slaughter facility	Abattoir	Slab	Collect	Slab		Slab	Collect	Abattoir	Slab	Collect	Abattoir	Slab	Collect	Slab	Abattoir	Slab	Collect	Abattoir	Slab	Collect	Abattoir	Slab	Collect	
Council facilities interviewed	5							1										2						8
Private facilities interviewed	4	27		13		8		3	3		1	5		5	2	1		1			2			75
Total facilities interviewed	35 (42.2%)			13 (15.7)		8 (9.6%)		7 (8.4)			6 (7.2%)			5 (6%)	3 (3.6%)			4 (4.8%)			2 (2.4%)			83
Total facilities in the country	10	33	6	16	2	8	1	5	8	2	1	8	1	9	4	2	1	4	1	1	2	1	3	
Total cattle in 2015	718 465			217 694		69 292		211 703			90 600			150 279	5 515			240 695			39 907			1 744 150
Total small stock in 2015	595 997			194 058		63 182		227 723			100 404			48 317	17 553			128 909			71 529			144 7672

3.1.1 Employment in the Slaughter facilities

The slaughter facilities have different job categories ranging from Management, responsible for the day to day running for the government facility; and owners of the facilities in case of private ownership. The Stunners are responsible for the slaughtering while the Flaying staff are responsible for the skinning of the animals. The facilities also have Cutters and Cleaners, responsible for cutting the carcasses after skinning and cleaning of the facilities pre and post slaughtering respectively. Other facilities engage casual labourers in times when the demand for slaughtering is high.

The slaughter facilities have a total staff compliment of 915 employees of whom 599 were Flaying staff, 148 were Management staff and 168 were other staff members. One important aspect of the local slaughter facilities business is that it is a male dominated profession, with the interviewed facilities employing 807 males and 108 females. Table 2 refers.

Table 1. Distribution of staff by job category

	Abattoirs staff		Slaughter Slabs staff		
Job description	Male	Female	Male	Female	Total
Flaying	290	11	297	1	599 (65.5%)
Management	40	26	51	31	148 (16.2%)
Casual Labourers	39	2	18	0	59 (6.4%)
Cleaners	5	17	13	5	40 (4.4%)
Lairage	10	7	3	3	23 (2.5%)
Stunning	10	0	2	0	12 (1.3%)
Cutting	10	0	2	0	12 (1.3%)
Loading	12	0	0	0	12 (1.3%)
Office Assistant	5	2	0	3	10 (1.1%)
Total	**421**	**65**	**386**	**43**	**915**

Handling of hides and skins is a delicate exercise since care should be taken along the whole slaughtering process to preserve their quality. The most important part, however, is the skinning process. A total of 84% of the local slaughter facilities flaying staff were trained in-house; that entails training offered by the owners' of the facilities. The Meat Inspection Training Centre (MITC) trained 5.6% of the flaying staff. Only 1.6% of the flaying staff received their training from another slaughter facility. None of the slaughter facilities staff were trained at the MITC, which is the main local training centre for slaughter facilities employees, Table 3 refers.

Table 2. Training facilities for slaughter facilities flaying staff

Provider	Abattoir staff	Slaughter Slab staff	Total
In-house training	195	268	463 (84%)
MITC	31	0	31 (5.6%)
Veterinary Services Inspectors	23	6	29 (5.3%)
Gervais in RSA	10	9	19 (3.4%)
Trained by another Abattoir	9	0	9 (1.6%)
Total	268	283	551

3.1.2 Equipment used in the slaughter facilities and their source

One of the principles of hygienic slaughtering is the lifting of the carcasses off the floor at the earliest possible stage to allow bleeding, skinning and all subsequent slaughtering and dressing procedures to be carried out with the carcass suspended on and moving along an overhead rail. Therefore, an ideal slaughter operations should have hoists which are used for lifting up the carcass and flaying knives or dehyders which are used for legging and skinning

of the carcass. It is also necessary for slaughter facilities to have dressing hooks which allows for easier movement along the overhead rails.

In the assessment of the slaughter facilities in the country it was realized that most of the abattoirs both privately and government owned most of the required equipment while the equipment is limited amongst the slaughter slabs, which are all privately owned. Moreover, dehyders or flaying machines which are used to minimize incisions on the hides and subsequently increase the worth of hides are largely found in abattoirs except for one slaughter slab, which suggests that abattoirs are more likely to produce good hide quality than slaughter slabs, Table 4 refers. Most of the slaughter facilities source their equipment locally and they augment that by buying from neighboring South Africa and as far as Italy. Generally the equipment is available throughout the country especially in urban centers. Importing equipment is common amongst the abattoirs as compared to the slaughter slabs.

Table 3. Availability of Equipment in the Slaughter Facilities

Equipment	Abattoir	Slaughter Slab	Total
Hoist	21	61	82
	100%	98.4%	
Flaying Knives	21	62	83
	100%	100%	
Dehyder/flaying machines	13	1	14
	61.9%	1.6%	
Hide pullers	4	3	7
	19.0%	4.8%	
Hide washing facility	2	2	4
	9.5%	3.2%	
Chilling facilities	6	8	14
	28.6%	12.9%	
Knife sharpener	0	1	1
	0%	1.6%	
Sterilizing machine	0	5	5
	0%	8.1%	
Total	**21**	**62**	**83**

3.2 Types of Animals Slaughtered

The main slaughter facility, the BMC, slaughters cattle only in all its three offices, while the private facilities slaughter cattle, sheep, goats and game animals, including ostrich. Across all facilities the minimum price of slaughtering a cow was P90.00 whilst the maximum was P490.00 which culminated into an average price of P226.47. Goats and sheep were slaughtered at a minimum price of P10.00 and a maximum of 180.00 per animal giving an

average price of P62.21. Most of the facilities that specialise in slaughtering game have game farms, therefore slaughtering is not charged. Only one facility is slaughtering ostrich and game for a fee and the prices were P400.00 and P200.00 per animal respectively.

3.2.1 Frequency of slaughtering Animals in Facilities

Most of the facilities were slaughtering animals four and five times a week followed by twice a week which was predominant amongst the slaughter slabs. The frequency of slaughtering animals was far apart in slaughter slabs than abattoirs mainly due to the capacity of slaughter slabs and less demand of the service in these facilities. Slaughtering of game was occasional most of the time and only reaches peak during hunting seasons.

Table 4. Frequency of slaughtering livestock

Frequency	Cattle		Small stock	
	Abattoir	Slaughter Slab	Abattoir	Slaughter Slab
Once a week	1	8	3	6
Twice a week	0	15	1	6
Three times a week	1	4	0	2
Four times a week	6	16	4	12
Five times a week	10	11	5	5
Seven times a week	2	1	1	0
Once a month	0	1	1	1
Twice a month	0	1	0	0
Total	20	57	15	32

3.2.2 Reasons for not slaughtering other animals

Annex 2 shows the reasons for not slaughtering other animals. It is noted from the table that slaughter facilities do not slaughter other animals mainly due to lack of supply for other

animals and that they are not licensed to slaughter other species. Some indicated that they do not have slaughter lines for other animals and there is low demand for other meats such as small stock meat hence reluctance to slaughter them. Moreover, some slaughter facilities did not slaughter pigs because of religious reasons and also indicated that they do not have the skills to slaughter game.

3.2.3 Utilisation of slaughter facility by the public

Predominantly slaughter facilities were utilised by other butcheries especially the slaughter slabs followed by those who were slaughtering to sell in their own butcheries, as shown in Table 6. Other users of the slaughter facilities were individuals mostly for ceremonial purposes and government departments during events. The arrangement for slaughtering is such that owners of the animals make bookings with slaughter facilities on stipulated dates. Across all facilities the minimum price of slaughtering a cow was P90.00 whilst the maximum was P490.00 which culminated into an average price of P226.47 for slaughtering a cow. Goats and sheep were slaughtered at a minimum price of P10.00 and a maximum of 180.00 per animal giving an average price of P62.21 for slaughtering a sheep or a goat. Ostriches and other game were slaughtered by one facility at actual prices of P400.00 and P200.00 per animal respectively.

Table 5. Utilisation of slaughter facility

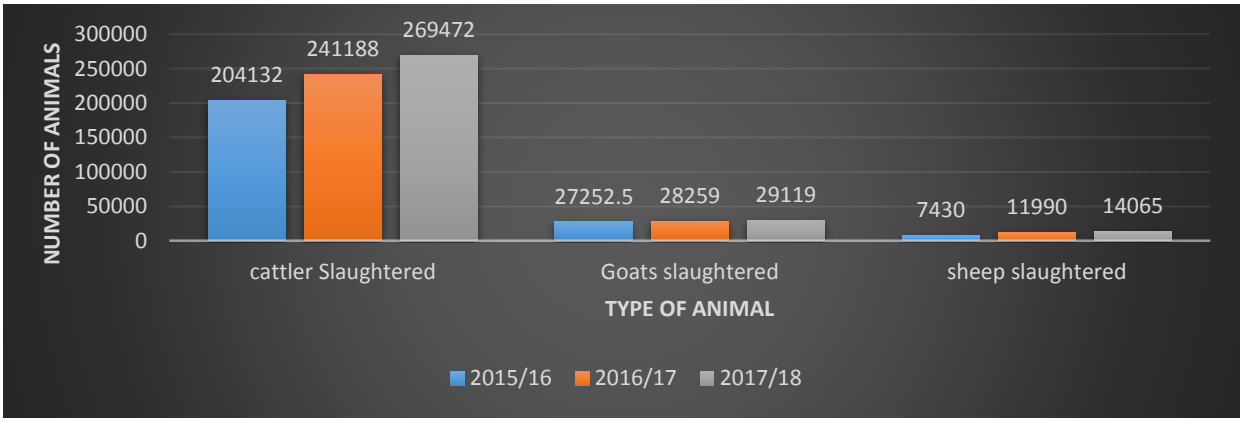
Users of slaughter facilities	Type of facility	
	Abattoir	Slaughter Slab
Other Butcheries	28	68
Own butchery	23	71
Individuals	29	47
Government including Parastatals	8	5
Own lodge	1	0

3.2.4 Annual slaughter output of slaughter facilities

The annual slaughter figures provided include the three BMC offices and all slaughter facilities in the country. They however, do not include non-facility based slaughters. It is evident from Figure 1 that the slaughtering of animals increases yearly mainly due to increasing demand for meat which is proportional to the increase in population. Also the increase in the number of slaughter facilities encourages their utilisation for hygiene purposes, thereby discouraging home slaughter.

The number of cattle slaughtered increased by 18.2% and 11.7% respectively from 2015/16 financial year to 2016/17 financial year and 2016/17 to 2017/18 financial years. In the same period, the slaughtering's of goats increased by 3.6% and 3% respectively, while those of sheep increased by 61.4% and 71.3% respectively for the same period, Figure 1 refers.

Figure 1. Local annual slaughtering of animals between 2015 and 2018.

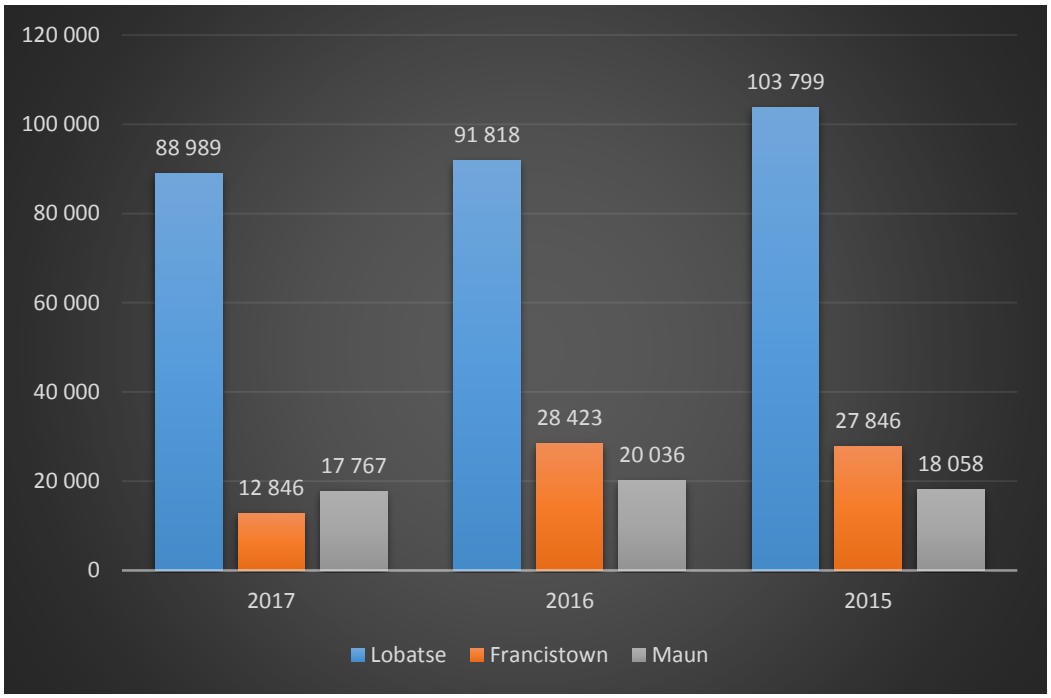


Source: MOADFS, 2018

3.2.5 Annual Slaughter output of the BMC.

The BMC slaughtered a total of 149 703 cattle in 2015, while in 2016 it slaughtered a total of 140 277 cattle. This number increased to 119 602 in 2017. The annual slaughter figures per BMC branch are as shown in Figure 2.

Figure 2. BMC annual slaughter figures for 2015-2017



Source: (BMC, 2018)

3.2.6 Slaughtering capacity of the local facilities

The slaughter facilities daily capacity for slaughtering animals is determined by the department of veterinary services and is guided by the size of the facility as well as the type of equipment used in the facility. Table 7 indicates that slaughter facilities have an installed capacity to slaughter a total of 2 343 cattle daily and are currently able to slaughter 1 495 cattle, while for small stock the capacity was 1 653 and were able to slaughter 402. It could be observed that in all types of animals, daily slaughter capacity was not met with cattle facilities registering 67% utilisation and small stock registering 24% utilisation. The main reason for not maximizing the facilities was the low supply of animals from farmers to

slaughter. The other reason was that there is low demand for meat in the market especially small stock meat which takes time to move on the slaughter facilities shelves.

Table 6. Installed daily slaughter capacity and average daily slaughter of animals

Type of facility	Measure	Cattle		Small Stock	
		Installed Capacity	Daily Slaughter	Installed Capacity	Daily Slaughter
Abattoir	Average Slaughter	90	59	139	32
	Total Slaughter	1795	1123	1385	286
Slaughter Slab	Average Slaughter	10	7	22	9
	Total Slaughter	548	372	268	116
All Slaughter Facilities	**Average Slaughter**	**30**	**20**	**75**	**18**
	Total Slaughter	**2343**	**1495**	**1653**	**402**

3.2.7 Preservation of hides by slaughter facilities

Most of the facilities indicated that they do not preserve hides and skins because they are either collected immediately after slaughter or thrown away due to lack of market. Salt is the

most common method of preservation used by both abattoirs and slaughter slabs while other preservation methods such as chilling and air drying are scarcely used, as shown in Table 8.

Table 7. Preservation method for hides and skins

Preservation Method	Abattoir	Slaughter Slab	Total
No preservation	22	49	71
Salting	8	20	28
Chilling	1	0	1
Air drying	1	0	1
Total	22	54	76

3.2.8 Types of hides and skins facilities and their capacity

The types of facilities for preservation of hides and skins found in the facilities were the fleshing areas, salting areas, collection rooms and the use of Jojo tanks. Most of the slaughter facilities that reported having fleshing areas were using 83% of the facilities followed by those who were using 45% of their salting areas. Furthermore, most of the collections rooms were not being used to their potential as only 35% of their capacity was used.

3.2.9 Investment in a cold room storage facility

Currently in government slaughtering facilities which are all abattoirs, the animals are brought in only for slaughtering and the hides and skins business is left to the animal owners and the hide collectors while in private set ups the hides and skins are owned by the slaughtering facilities. This explains the existing marginal willingness of government

facilities to invest in cold storages for hides and skins unlike in private facilities where willingness is prevalent especially amongst the abattoirs, as shown in Table 9.

Equally, government and private facilities were reluctant to invest in cold rooms mainly owing to the immediate collection of hides and skins after slaughter. Moreover the private facilities, both the abattoirs and the slaughter slabs further indicated that they throw away their hides and skins due to the fall in the prices of hides and skins hence not making it economically viable to invest in cold storages. In addition, some slaughter slabs cited lack of capital as the main limitation of not investing in slaughtering cold storages for hides and skins.

Table 8. Willingness to Invest in a Cold Storage

Ownership Status	Type of Facility	Yes	No	Total
Private	Abattoir	9	5	14
	Slaughter Slab	16	45	61
	Total	25	50	75
Government	Abattoir	4	4	8
	Total	4	4	8

3.2.10 Source of electricity for slaughter facilities

All of the government owned abattoirs solely rely on Botswana Power Corporation (BPC) for electricity while privately owned abattoirs augment electricity they get from BPC with generators especially during power outages. Although there is evidence that slaughter slabs use electricity from BPC together with generators and solar panels it is common for them to operate without electricity. Most of the slaughter slabs that reported using electricity from

BPC access electricity from owner's butcheries while stand-alone slaughter slabs operate without electricity, Table 10 refers.

Table 9.Source of Electricity by Facility

Ownership Status	Type of Facility	Source of Electricity				
		Botswana Power Corporation	Own generator	Solar Panel	No electricity	Total
Private	Abattoir	12	3	0	0	14
	Slaughter Slab	43	1	2	15	61
	Total	**55**	**4**	**2**	**15**	**75**
Government	Abattoir	8	-	-	-	8
	Total	**8**	**-**	**-**	**-**	**8**

3.2.11 Slaughter Facilities Selling arrangements of hides and skins

Post slaughtering of animals there were slaughter facilities who were able to sell cattle hides and those who did not have any selling arrangement. Conversely respondent's reported that they did not have any selling arrangement for small stock skins except for a negligible number in Tsabong. Respondents reported that they gave skins to hide collectors for free while others threw them away.

A total of 67.5% of respondents had some form of selling arrangement while 32.5% did not have any selling arrangement. Most of the respondents without selling arrangements were from the Central region while others were from Kgatleng, Ghanzi, Kweneng, North West and Kgalagadi, as shown in Annex 2. The only respondent in South East who was stock piling was in Gaborone and focusing on small stock which is currently not collected

countrywide. This shows that currently respondents from Southern, South East and North East Regions all had some form of selling arrangements. Kweneng also had majority of respondents who had selling arrangements than those who did not. Table 11 also indicates that among the abattoirs 77.3% had a selling arrangement while among slaughter slabs 63.9% had selling arrangements.

Table 10. Selling arrangement by type of facility

Type of facility	Have selling agreement	Does not have a selling agreement	Total
Abattoir	17 (77.3%)	5 (22.7%)	22
Slaughter Slab	39 (63.9%)	22 (36.1%)	61
Total	56 (67.5%)	27 (32.5%)	83

3.2.12 Slaughter Facilities with selling arrangements

Among respondents who had selling arrangements most of them (75%) collected hides and skins and sold to buyers. This was generally evident among private slaughter facilities. Conversely, government/municipality abattoirs did not sell hides/skins but gave them to livestock owners who had separate arrangements outside the slaughter facilities. Other slaughter facilities had collection and export establishments combined with the facilities thus collecting for themselves while facilities slaughtering game had hunters and leather tanners (vegetable/artisan) taking the hides/skins, Table 12 refers.

Table 11. Collection arrangements for Slaughter facilities

Collection arrangement	Private	Government	BMC	Total	Percentage
Slaughter facilities take hides/skins and sell to hide collectors.	40	0	2	42	75.0
Livestock owners take away their hides and skins and make their own arrangements.	2	6	0	8	14.3

Collected by slaughter facilities hides and skins wing.	4	0	0	4	7.1
Hunters/ tanners (vegetable/artisan) take the hide/skin (game).	2	0	0	2	3.6
Total	48	6	2	56	100.0

Deterioration of the skin starts within 5–6 hours after flaying; hence, there is a requirement for an effective preservative immediately (J. Kanagaraj, 2002). As indicated in Table 13, among the respondents who had collection arrangement with hide collectors about 66.7% reported that collectors collect hides and skins immediately after slaughtering without any preservation, 9.8% collected within 24 hours after slaughtering and 23.5% after more than 24 hours with salt used as a preservative. This shows that most hides and skins collected in Botswana are collected immediately in a fresh state leaving room for any form of preservation technique to be used by hide collectors.

Table 12. Frequency of hides/skins collection and preservation techniques used by Slaughter facilities before selling

Duration of collection	No preservation	Salting	Chilling	Total	Percentage
Immediately after slaughter.	31	2	1	34	66.7
Within 24 hours after slaughtering.	4	1	0	5	9.8
After 24 hours	0	12	0	12	23.5
Total	35	15	1	51	100.0

3.2.13 Facilities without selling arrangement for Hides/skins

About 32.5% of all respondents indicated that they did not have any selling arrangement of hides/skins. These respondents (84.6%) were throwing away their hides and skins while about 15.4% were stock piling for future selling when the market for hides/skins becomes stable again. Annex 3 shows specific villages where these respondents were from. Most of this are villages far from collection centres. However in all these villages there were once hide collectors who used to collect from these facilities but has since stopped collection because of the current low prices offered.

In estimating the total number of hides from facilities without selling arrangements; daily average slaughter capacity of the slaughter facilities and frequency of slaughter in a week were used .An assumption that there are four weeks in a month was also used. i.e. A facility that slaughters twice in a week with a daily average slaughter of 3 cattle will give 24 hides in a month;

Total number of hides in a month = Frequency of slaughter in a week x Average Daily Slaughter X 4

$$24 = 2 \times 3 \times 4$$

It was estimated that a total of 1,116 hides were thrown away monthly from these facilities while about 1,860 were being stockpiled for future selling when market for hides/skins stabilizes giving a total of 2,976 hides and skins, Table 14 refers.

Table 13. Monthly status of hides and skins in facilities without selling arrangements by region

Region	Thrown away	Salted and stock piled	Total hides
Central	940	100	1040
Kgatleng	48	0	48
Ghanzi	96	0	96
Kweneng	20	0	20
North West	0	1000	1000
Kgalagadi	12	760	772
Total	**1116**	**1860**	**2976**

3.3 Market for hides/skins

A total of 83.6% of the respondents reported that their hides/skins are bought by hide collectors, while 8.2% indicated that they have a hide collection wing and therefore supply themselves, as shown in Table 15. These hide collectors have export licence and act as middleman between slaughter facilities and export market. They mostly collect hides with few collecting game skins while small stock is collected for free or thrown away. For game, skins are sold to local leather tanners (vegetable/artisan) while one facility exported directly to the international market like Russia and Republic of South Africa (RSA).

Table 14. Market for hides and skins

Buyers	Cattle	Small stock	Game	Total	Percentage
Hide collectors	43	8	1	51	83.6
Self-Supply(Hide Collection Wing)	4	-	1	5	8.2
Individuals	1	1	1	3	4.9
Exports(RSA, Belgium)	-	-	1	1	1.6
Total	**48**	**8**	**5**	**61**	**100**

3.3.1 Prices for Hides and skins

The prices of hides and skins were mostly set by hide collectors as reported by 81.5% of respondents of the slaughter facilities. About 14.4% of slaughter facility respondents indicated that they set prices or negotiated prices with hide collectors. This shows that slaughter facilities are mostly price takers. Similarly, three pricing techniques were used by slaughter facilities being; price per hide/skin, per kg and Grading of hides and skins. Majority of slaughter facility respondents reported that they sell per hide/skin (67.7%) while about 18.5% of facilities sell per grade or per kilogram respectively. On average selling per grade attracted a better price than selling per hide/skin with majority of slaughter slabs selling per hide/skin while abattoirs sell per grade, Annex 5 refers.

The selling prices for the slaughter facilities hides/skins are as depicted in the Annex 6. It should however be noted that this figures were estimates based on recall by respondents and did not necessarily come from records. Prices for hides/skins have been fluctuating over years with most facilities selling cattle hides. As noted earlier currently goat's skins are offered free of charge to hide collectors or thrown away. Respondents were asked about the reasons for these price fluctuations and about 48.9% % reported that to be market forces i.e. if demand in international markets like China and Europe goes down the prices also drop while 40.0% did not know why the prices keeps on fluctuating as hide collectors did not give reasons. Others reported that it was as a result of increase in substitute products (synthetic leather, Table16 refers.

Table 15. Reasons for price fluctuations for hides and skins

Reasons for price fluctuations	Frequency	Percentage
Market forces (decline in demand from international markets like Europe, Chinese, world cup event)	21	48.89
Variations of the prices set by the hides and skins collectors without giving us reasons	18	40.00
Flooding the market with stock piled hides and skins	3	6.67
Increase in substitute products (synthetic leather)	1	2.22
Changing pricing methods from price per piece/hide/skin to grading.	1	2.22
Total	**45**	**100**

In analyzing prices of cattle hides over the years, across regions and type of facilities the study also found that there was variation in price settings. The study found that abattoirs were attracting a better price compared to slaughter facilities consistently over the years. This was be due to good skinning practices as the abattoirs mostly use dehyders/flaying machines to skin their cattle compared to slaughter facilities which mostly uses knives, Annex 6 refers. Across regions prices have been varying over the years with no specific district attaining higher prices than others consistently over the years, Table17 refers.

Table 16. Average prices of Cattle hides by region

Region	2015			2016			2017		
	Per KG	Per hide	Grade	Per KG	Per hide	Grade	Per KG	Per hide	Grade
Central		84.76			74.58			50.40	
Kgatleng			100.0			90.00			78.00
North East	11.89			12.35			11.35		
Ghanzi				8.00			4.400		
Kweneng		71.67	50.00		80.00	50.00		74.00	50.00
North West	10.00			8.25			7.00		
Kgalagadi	12.50	40.00		7.00	33.33		6.80	16.67	
Southern	6.60	45.00		7.35	90.00		9.53	65.00	
South East	9.00			8.00			6.30		
Total	**9.43**	**77.14**	**87.50**	**8.32**	**71.61**	**82.00**	**7.59**	**51.7143**	**70.00**

There were instances where hides and skins were rejected by hide collectors because of various reasons. Most of slaughter facilities who experienced rejects of hides and skins were because of knives cuts (57.1%). Other rejection parameters experienced in slaughter facility were bad branding of animals, hides and skins not salted correctly, hides and skins stored for a long time and small size of hides/skins, Annex 8 refers. Most of these rejected skins were sold at a lower price (34.1%), others thrown away to the municipality dumping sites (29.5%), Table18 refers.

Table 17. Disposable methods for rejected hides and skins

Disposable methods	Frequency	Percentage
Sell them at a lower price to hides/skins collectors	15	34.1
Burn hides/skins	13	29.5
Dumping site/landfill	11	25.0
Give individuals to feed their dogs	3	6.8
Collected for free by hides/skins collectors	2	4.5
Total	**44**	**100**

3.4 Challenges

This section discusses challenges that were mentioned to be faced by Slaughter facilities across the country. The main challenge in the slaughter facilities as reported by the respondents was that hide collectors are no longer collecting hides and skins from their facilities due to low demand of hides and skins in the international markets. Also emanating from the decrease in the demand of hides and skins by the markets the facilities

experienced reduction in the selling price so much that a lot of facilities resorted to throwing hides and skins away, or stock piling in anticipation that the price will normalize in the future. Moreover, the facilities indicated that they are fetching low prices from the markets because of poor quality hides and skins caused by bad rearing practices by farmers, Annex 9 refers.

Slaughter facilities were also reported to be experiencing high operational costs which includes high maintenance costs of the equipment, escalating water and electricity bills; and high costs of buying salt to preserve hides and skins. Government support was also cited to be lacking amongst the facilities as there are times when the veterinary officers are not available to carryout meat inspections which leads to delays in slaughtering of animals. Lack of skilled labour to handle hides and skins was also mentioned as a challenge that the slaughter facilities are experiencing. Due to this, facilities incur damaged hides and skins which realize low prices in the markets, Annex 9 refers.

3.4.1 Suggested Areas of Improvement

A total of 30.5% of the respondents indicated that government should speed up the setting up of the leather park so that all hides and skins can be collected at better prices, while 25.4% of the respondents indicated that government should setup reliable hide and skin collection points for all slaughter facilities. A total of 15.3% of the respondents reported that the government should focus on educating farmers on good rearing practices which will improve the quality of hides and skins. The other suggestions are as shown in Annex 10.

The areas suggested mainly centres around having an organised local market, standardising prices of hides and skins and impacting handling of hides and skins skills on slaughter facilities labourers.

3.5 Hides and skins Exporters Findings

All hides and skins buyers and exporters are required by law (Hides and Skins Act Cap 49:01) to possess a license entitling them to purchase and or export hides and skins unless it is for domestic use (MOADFS, 2018). The buyers' license is used to purchase hides and skins in specified districts and a buyer may have many licenses for different districts. The exporter's license allows one to buy hides and skins across the country and export them to the rest of the world. The licenses are renewable annually, depending on the compliance to the hides and skins export act. Exporters are required to possess four certificates, namely, quarantine, inspection, import and export when exporting. In addition, exporters are required to pay in advance an export levy of P16.00 per piece of hide and P1.50 per piece of skin.

3.5.1 Distribution of the hide and skin exporters in the country

There are currently 17 licensed hides and skins exporters in Botswana. However, 10 respondents were interviewed during the study resulting in a response rate of 55.6%. The distribution of respondents in Table 19 shows that 9 respondents were male while only one was female. The Central district had the highest number of respondents, six (6), followed by the South East district with 3 respondents and 1 in Kgalagadi.

Table 18. Demographic distribution of respondents

		Sex		
District	**Location**	**Male**	**Female**	**Total**
Central	Selebi Phikwe	1	1	**2**
	Mahalapye	2	-	**2**
	Palapye	2	-	**2**
South East	Mmokolodi	1	-	**1**
	Tlokweng	1	-	**1**
	Gaborone	1	-	**1**
Kgalagadi	Tsabong	1	-	**1**
Total		**9**	**1**	**10**

3.5.2 Employment in the hide and skins exporters facilities

Table 20 shows that exporters employed a total of 106 employees. The majority of the enterprises employed citizens on full time, part time and temporary basis adding to 105. Only 1 non-citizen was employed on a full-time basis. Temporary employees were mostly engaged during peak periods as lairage workers and to offload livestock into the pans.

Table 19. Employment in the enterprises

Employment status	Citizens	Non-citizens	Total
Full time	57	1	58
Part time	18	0	18
Temporary	30	0	30
Total	105	1	106

3.5.3 Equipment used in the exporters' facilities

All (10) exporters' salting areas on average had a capacity of 2891 hides and skins. Only 6 of them had the intension to expand to an average capacity of 1961 hides and skins. One exporter already collecting from most parts of south east (Mochudi, Molepolole, and Lobatse) expressed the intension to collect from other districts before the end of 2018, and these include, Palapye, Maun, Rakops and Jwaneng. None of the respondents reported having chilled vehicles and cold rooms.

Only 2 exporters expressed their willingness to procure cold storage in the future, although they did not know when, the size or capacity of the cold storage. Most exporters (7) were not willing to procure chilling facilities, specifically for hides and skins. The reasons were that there was no need to preserve hides and skins in chilled storage, and that the market does not require chilled hides and skins. Another exporter reported that the returns from hides and skins do not justify investing in cold storage, Annex 11 refers.

The most common equipment used by exporters was the motor vehicle. All the exporters reported that they owned motor vehicles. Other common equipment were spades, used to spread salt on the hides and skins cited by 9 respondents, hose pipe mentioned by 8 exporters, industrial gloves and wheel burrows, reported by 7 exporters each. The least common equipment used were the fleshing table and salt crusher which was mentioned by 1 respondent each. Table 21 refers.

Table 20. Equipment used in hides and skin enterprises

Equipment/tool	Number of Exporters
Motor vehicle	10
Spade/shovel	9
Hose pipe	8
Industrial gloves	7
Wheelbarrow	7
Fleshing knives	6
Weighing scale	5
Brushes	3
Fleshing table	1
Salt crusher	1

A total of 6 respondents indicated that they source electricity from Botswana Power Corporation, while 2 respondents indicated that they use solar panels in their facilities. On the other hand, 2 respondents do not use electricity in their facility.

3.5.4 Source of hides and skins

The recent collapse of local hide and skins market has left the hide and skin exporters with no choice but collect only small quantities which they can be only to sell. Some collectors were no longer collecting skins, preferring to collect hides as dictated by the market forces, thus forcing the slaughter facilities to dump the small stock skins leading mostly to the pollution of the environment. A total of 85.7% of the respondents reported that they collect more cattle hides than those of small stock and game.

All (10) exporters mainly source hides and skins from slaughter facilities. In addition, 5 owned and therefore sourced hides and skins from their own facilities. Some (3) also

collected hides from individuals while one indicated that they were supplied hides by another exporter. Table 22 refers.

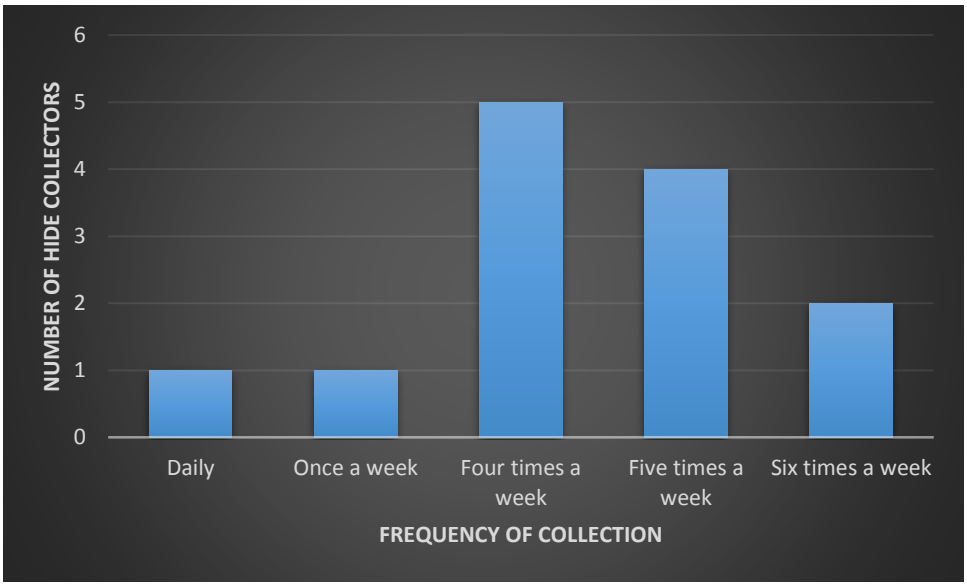
Table 21. Exporters' sources of hides and skins

Type	Individuals	Slaughter facilities	Other hides and skins collectors	Own slaughter facility
Cattle	3	10	1	4
Goats/sheep	-	1	-	1
Game	-	1	-	-
Total	3	12	1	5

3.5.5 Collection of hides and skins by hide and skin exporters

The collection of hides and skins should be done as frequent as possible to preserve their quality as they are more susceptible to bacterial infections. However, the modal collection of hides and skins for the respondents was four times a week, followed by five times a week. Only one respondent indicated that he collects hides and skins daily immediately after slaughter, Figure 3 refers.

Figure 3. Frequency of collection of hides and skins



3.5.6 Preservation of hides and skins by exporters

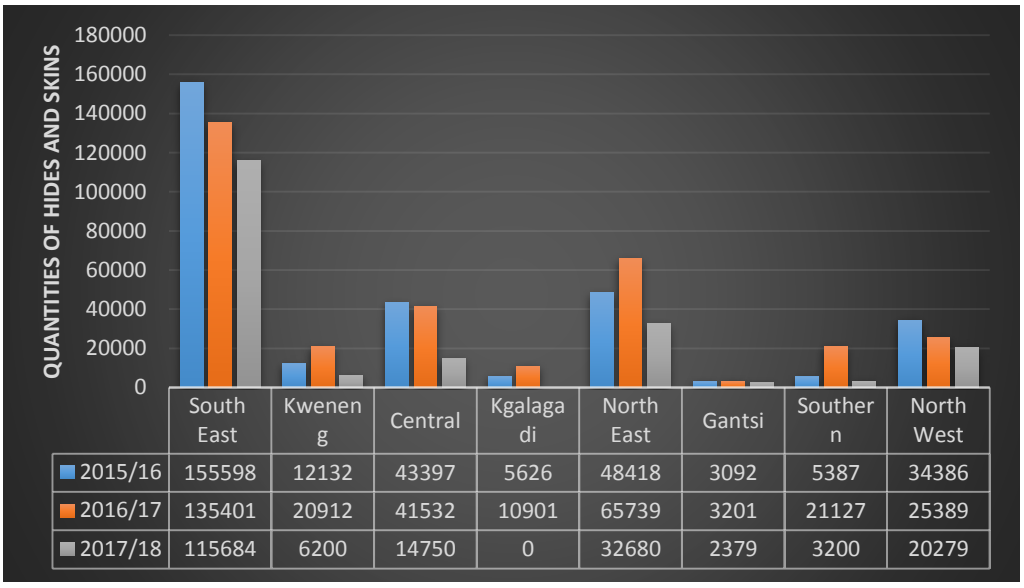
All 10 exporters indicated that they preserved hides and skins using salt, while 2 respondents reported that they collect hides and skins from the facilities and sold them immediately without any preservations. None of the respondents cited chilling as one of the methods they use for preservation of hides and skins. Also the hides and skins were normally preserved for a period ranging from one to six months, depending on the availability of the market. However, in the current situation of the hides and skins market collapse, some exporters have been keeping stock for a longer period.

3.5.7 Quantities of hides and skins collected per district

A total of 308 036 hides and skins were collected in 2015/16 financial year as compared to 313 716 hides and skins collected in 2016/17. In the 2017/18 financial year the total hides

and skins collected by hide exporters was 195 172. Information from Figure 4 indicates that a total of 816 924 hides and skins were collected between 2015/16 financial year and 2017/18 financial year. A total of 406,683 hides and skins were collected in the South East district between the aforementioned financial years, followed by North East district with 146,837 hides and skins, while a total of 99, 679 hides and skins were collected in the Central district for the same periods. The least collection of hides and skins occurred in the Gantsi district, registering a quantity of 8, 672 for the same periods. It should be noted that Kgatleng district collections were exported from South East district. The same scenario occurred in the Kgalagadi district for the 2017/18 financial year where their collections were exported from Southern district. The Chobe district does not collect hides and skins.

Figure 4. ***Distribution of hides and skins collected by district.***



	South East	Kwenen g	Central	Kgalaga di	North East	Gantsi	Souther n	North West
2015/16	155598	12132	43397	5626	48418	3092	5387	34386
2016/17	135401	20912	41532	10901	65739	3201	21127	25389
2017/18	115684	6200	14750	0	32680	2379	3200	20279

3.6 Market for hides and skins

3.6.1 Skins

According to the MOADFS (2018), small-stock was slaughtered at home for ceremonial purposes, and a result, there were no skins exports. It further revealed that the skins were used for local production of locally manufactured goods. The Ministry further revealed that skins were priced at P1.50 per piece. However, during the study, it showed that small-stock was slaughtered at slaughter facilities, occasionally, at low (and unaccounted) numbers. In addition, until mid-2017, skins prices ranged between P20 and P10 as reported by 1 exporter in the Kgalagadi District. Another exporter in South East collected skins for free and sent them to the export market, although there were no quantities provided.

The country has a target of collecting 50 000 skins annually (MOADFS, 2018). However, in 2015/16 only 15,144 skins were collected. The skins collected increased to 25,285 in 2016/17 before decreasing to 20,898 in 2017/18. Kgalagadi recorded higher quantities of skins collected during the 3 year period. The Ministry associated fluctuations in skins collection to decline in local tanning, due to environmental concerns of the industry's generation of waste, and lack of allocated land to tanners.

3.6.2 Hides

Most hides exporters (6) export to South Africa. Other countries of export include China, India, Pakistan, Portugal and Italy, each mentioned by 1 exporter each. In addition, 2 exporters reported that they had no export market, and instead sold the hides to other local exporters with secure export markets. Annex 12 refers.

3.6.3 Quantities of Hides Exported

The MOADFS showed that hides exports were 183,599 in 2015/16 valued at P2, 937, 584, and increased to 281,193 valued P3, 491,088 in 2016/17, before declining to 195,172 at a value of P3, 122,752, in 2017/18. The exports increased in 2016/17, both in quantities and value. This increase was attributed to growth in hide's global market, (MOADFS). It was also reported that one exporter expanded to the Chinese market during the same year, Table 23 refers.

Table 22. Hides Exports Quantities and Value (2015-2017)

Year	Quantity	Value (BWP)
2015/16	183,599	2,937,584
2016/17	218,193	3,491,088
2017/18	195,172	3,122,752

Source: MOADFS (annual reports 2015-17)

3.6.4 Reasons for the rejection of hides and skins in the market

Some exporters indicated that some hides were rejected by the export market, although quantities were not provided. The reasons for rejecting hides and skins were due to too many cuts, diseases, damages from insects and small hides and skins

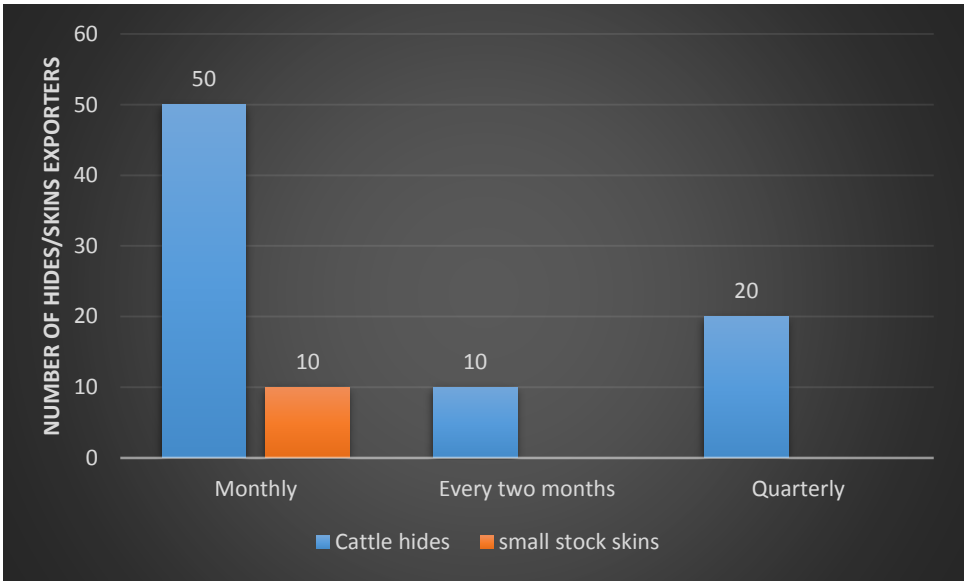
as shown in Annex 13. In addition poor branding also led to rejection of hides and skins. Some export market reportedly buy rejects of hides and skins at lower prices as mentioned by 5 exporters while some throw them away.

3.6.5 Frequency of export of hides and skins exporters

Most (5) exporters sell/export on monthly basis, 2 quarterly and one every two months. One exporter also reported that they export goat/sheep skins on monthly basis, while no one reported exporting game skins. One of the reason for selling on these frequencies was that they (5) had to wait for the correct numbers to export (1500 pieces per container). Another reason was that there was a low demand of hides in the market, as reported by 2 exporters. All (10) exporters reported that their markets required hides and skins preserved in salt.

A total of 5 respondents indicated that they sell export cattle hides on a monthly basis, while 2 respondents reported that they export cattle hides on a quarterly basis. One exporter also reported that he export goat/sheep hides on monthly basis, while no one reported exporting game skins, Figure 5refers. One of the reason for selling on these frequencies was that they had to wait for the correct numbers to export (1500 pieces per container). Another reason was that there was a low demand of hides and skins in the market. All the respondents reported that their markets required hides and skins preserved in salt.

Figure 5. Frequency of exporting hides and skins



3.6.6 Frequency of collection of hides and skins by exporters

Exporters (4) mostly collected hides and skins four times a week, from Tuesday to Friday. This was because a good part of Mondays were mostly spent getting police and veterinary permits for slaughter and as a result, there were no hides or skins to collected from slaughter facilities. However, 2 exporters indicated that they collected hides and skins every day. Three exporters collected 5 times a week (Monday to Friday), while one collected 6 times (Monday to Saturday). This was mostly due to the higher capacity of slaughter facilities and increased demand resulting in more frequent collection of hides and skins.

3.6.7 Pricing of Hides and Skins

As for setting the prices of hides, 6 exporters revealed that the export market set the price. This implies that hides exporters are price takers. Only 2 respondents indicated a possibility to negotiate prices with their export market.

In terms of rejected hides, 5 exporters revealed that the market bought them at a lower price. Other exporters (2) revealed that the market threw them away. Others (2) did not know what happens to rejects. It is likely that the export market do not throw away rejects of hides, but instead use them for secondary products like handbags, gloves and other small leather products.

3.6.8 Average selling prices of hides and skins

The average prices of hides exported over the years have been decreasing. Table 24 shows that grade I sold for P33.67 in 2015 and fell down to P20.88 in 2017. Grade II was P29.83 in 2015, and decreased to P12.50 in 2017. The same trend was seen in grade III. Rejects however saw a slight gain in prices, from P2.50 in 2015 to P3.75 in 2017. This continual decrease in prices of hides was realised, despite the fact that in 2016/17, the country's exports improved due to global demand and market diversification by some exporters.

Table 23. Average Prices of Hides and Skins

Year	Hides Grades Average prices			
	I	II	III	Rejects
2015	33.67	29.83	7.75	2.50
2016	29.33	25.50	6.25	2.50
2017	20.88	12.50	4.25	3.75

3.6.9 Planned Leather Industry Park

All the 10 exporters were aware of the planned Leather Industry Park in Lobatse. Most of them (6) anticipated that the Leather Industry Park was going to provide a reliable market for the hides and skins. The other exporters expressed joy because they will not incur the export levy, while others would incur less transport costs and also anticipated better prices. Annex14 refers.

3.6.10 Challenges encountered by slaughter facilities

The local hides and skins industry is mainly faced with difficulties in finding markets, mainly on pricing, as reported by 5 exporters. Other challenges were that salt was very expensive, which is used for preserving hides and skins, reported by 4 exporters. Another exporter mentioned that the high export levy was not used for the general benefit of the industry.

As a way of addressing difficulties in finding a market, one exporter resorted to not collecting hides and skins from other slaughter facilities to manage stockpiling, another mentioned that they negotiated cheaper prices from slaughter facilities so that they can sell cheaper to new export markets. It was also mentioned that salt is purchased in bulk to get discounts and reduce its expenses. In terms of poor rearing practices (poor branding and diseases), the exporters indicated feedlot of animals was key.

3.6.11 Suggestions for the hide and skins industry

It was suggested that slaughter facilities (especially slaughter slabs) should comply and use right equipment to minimize damage to hides and skins. These are contained in the Eighth Schedule of the Livestock and Meat Industries Act, Chapter 36:03. It was also suggested that the industry should have an organized local market and even form an association for lobbying purposes. One exporter suggested that government should reduce the hides export levy, explained in the Hides and Skins Export Act, Chapter 49:01. Other suggestions were that farmers should be encouraged to adhere to branding regulations, as found in the Branding of Cattle Act, Chapter 36:02. It was also suggested that setting up of the Leather Industry Park be sped up, and also MOADFS to coach farmers on proper livestock management to improve the quality of hides and skins, Annex 15 refers.

3.7 Business opportunities identified

These opportunities are based on the assumption that the Lobatse Leather Park will be operational

1.0 Setting up of slaughter facilities in the country. There is only one Abattoir in the Kgalagadi district, and the rest are very small slaughter slabs. There are no slaughter facilities in the Chobe district.

2.0 Hide collection centres in the various districts including the Chobe and Gantsi district which have no hide collection. The country's main hide and skin exporter, SM Loury is now collecting hides/skins on occasional basis and there is only 1 hide collector for both the Kgalagadi and Gantsi regions

3.0 Cold storage facilities across the country. Almost all the facilities do not have cold storage and the Leather Park requirement is that hides and skins should be chilled.

3.8 SWOT analysis

Strengths	Weakness
1. Effective disease control strategies 2. Centralised Slaughter Facilities around the country for Municipal Authorities and Private owners 3. Well established hides and skins extension services 4. Good quality hides from Botswana Meat Commission Abattoir (BMC)	1. No single authority with overall responsibility for hides and skins improvement 2. An infant leather association to represent the sector both domestically and internationally 3. No strong financial incentive to butchers and workers to raise quality 4. Very low collection of skins 5. No price incentives
Opportunities	**Threats**
1. Upgrading quality of raw hides 2. Establishment of an institutional framework for the leather sector 3. Improvement of quality of hides and skins produced in non-Botswana Meat Commission slaughter facilities	1. Animal disease outbreaks 2. Natural disasters such as drought

4. Implementation of grading and pricing policy	

3.9 Conclusions

There are a total of 112 slaughter facilities in the country comprising of 17 abattoirs and 105 slaughter slabs. Most of the slaughter facilities are situated in the Central district, which is the largest district in terms of both size and the number of cattle. The core staff members for the slaughter facilities are the flaying staff, with a ratio of 1: 1.5 to other staff members. The trainings for the flaying staff was mostly done in-house, with only the government Council abattoirs sending their flaying staff for training at the MITC. All the slaughter facilities were found to have the infrastructure and equipment, as stipulated by the Department of Veterinary Services, which does routine check-ups in all slaughter facilities to enforce compliance. However, in addition to the abattoirs, only one slab uses dehyders which are used to minimize incisions on the hides and subsequently increase the worthiness of hides and skins, which suggests that abattoirs are more likely to produce good quality hides and skins than slaughter slabs.

The BMC, with its three branches, is the largest slaughter facility in the country, with a slaughter capacity of 252 000 cattle per annum. The local slaughter facilities are mostly utilized by butcheries and individuals, with cattle being commonly slaughtered, while small

stock slaughter quantities are low, mainly because of home slaughter. Statistics Botswana estimated that the total of 22 260 cattle and 56 119 small stock were attributed to home slaughter in 2015 but it is to be noted that these estimates are too conservative. Slaughtering of game animals occurs most in the Gantsi district, where slaughter facility managers own game farms.

Collection of hides and skins locally is not organized. There are no hide collectors in the western part of the country leading to loss of hides and skins unquantifiable. Some slaughter facilities throw away hides and skins due to lack of collectors/ exporters in their areas of operation. The number of small stock slaughtered in slaughter facilities is very low and the collection of the skins is also negligible. The cattle hides were collected by hide and skins exporters and exported mainly to South Africa until mid-2017 when the global hides and skins market collapsed, resulting in most of them being thrown away. Owing to this, most hide and skins collectors are no longer collecting the small stock and game skins, while other collectors have ceased operations. Furthermore, the hides and skins producers are price takers from the collectors and exporters.

The Leather Industry Park, which is envisaged to create more than 10 000 jobs will revive the local leather sector with provision for hides and skins market. It is expected to provide private sector activities in hides and skins collection, raw to finished leather tanneries and the manufacturing of leather products.

4.0 Recommendations

1. LEA should lobby for the implementation of an organized market for hides and skins in Botswana.

2. LEA should facilitate the setting up of satellite collection centres for hides and skins in Botswana for the support the leather park project.

3. The LEA and MOADFS should educate the public on the true value of hides and skins in monetary terms to incentivise collection.

4. The MOADFS and LEA should educate all value chain players on the benefits of chilling as an environmental friendly preservation method.

5. LEA in collaboration with MOADFS should come up with strategies that will incentivize facility slaughtering of small stock.

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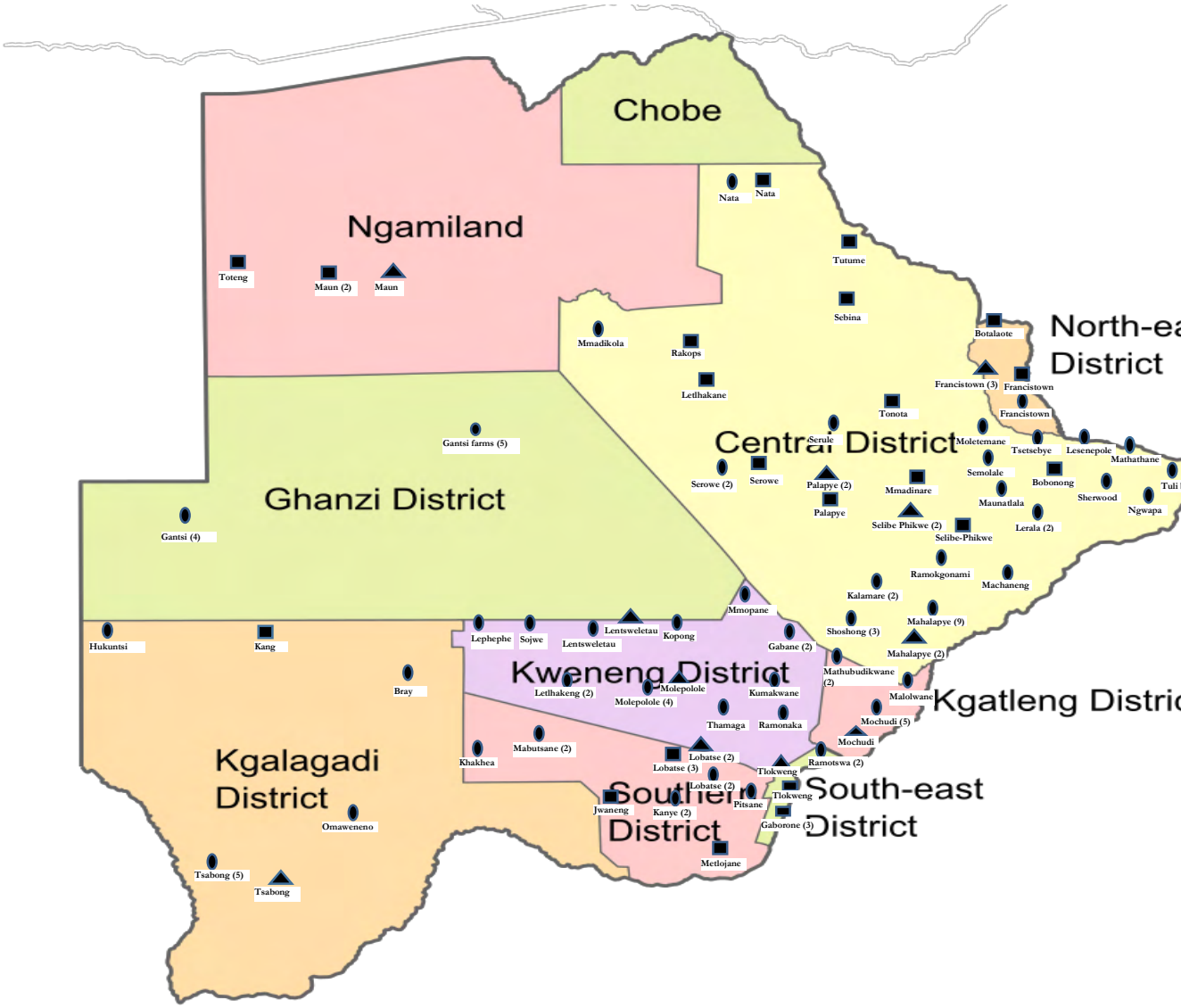
Annexes

Annex 1. Distribution of slaughter facilities in the country

Distribution of Slaughter facilities and hide collectors in Botswana



Key:

Slaughter slab:

Slaughter facility:

Hide/skin Collector:

Annex 2. Reasons for not slaughtering other animals

Reasons for not Slaughtering	Number	Percentage (%)
No/low supply for other animals	32	39.5
Not licensed to slaughter other species	29	35.8
No slaughter line for other animals	15	18.5
Low demand for small stock meat	10	12.3
Do not slaughter pigs for religious reasons	2	2.5
No skills to slaughter game animals	1	1.2

Annex 3. Slaughter facilities without selling arrangements

Place	Central	Kgatleng	Ghanzi	Kweneng	North West	Kgalagadi	South East	Total
Semolale	1	0	0	0	0	0	0	1
Moletemane	1	0	0	0	0	0	0	1
Mmathubukwane	0	2	0	0	0	0	0	2
Lephephe	0	0	0	1	0	0	0	1
Sojwe	0	0	0	1	0	0	0	1
Malolwane	0	1	0	0	0	0	0	1
Gaborone	0	0	0	0	0	0	1	1
Toteng	0	0	0	0	1	0	0	1
Sebina	1	0	0	0	0	0	0	1
Mahalapye	4	0	0	0	0	0	0	4
Shoshong	1	0	0	0	0	0	0	1
Sefhare	1	0	0	0	0	0	0	1
Lesenepole	1	0	0	0	0	0	0	1

Annex 4. Selling arrangement by type of facility

Region	Have selling Arrangement	Does not have a selling arrangement	Total
Central	23	15	38
Kgatleng	6	3	9
North East	1	0	1
Ghanzi	3	2	5
Kweneng	10	2	12
North West	2	1	3
Kgalagadi	3	3	6
Southern	5	0	5
South East	3	1	4
Total	**56**	**27**	**83**
Percent	**67.5**	**32.5**	**100**

Annex 5. Pricing techniques in the slaughter facilities

Pricing	Abattoir	Slaughter Slab	Total	%
Per hide/skin	7	37	44	67.7
Per kg	9	3	12	18.5
Hide/skin grading	0	12	12	18.5
Total	**16**	**49**	65	100.0

Annex 6. Prices of hides/skins by animal species (BWP)

Hides/skin type	Measure	2015			2016			2017		
		Per kg	Per hide/skin	Grading	Per kg	Per hide/skin	Grading	per kg	Per hide/skin	Grading
Cattle	Average	9.43	77.14	87.50	8.31	71.61	82.00	7.59	51.70	70.00
	Minimum	6.20	20.00	50.00	5.70	20.00	50.00	2.80	10.00	40.00
	Maximum	12.50	175.00	120.00	12.35	175.00	100.00	12.60	105.00	90.00
Goat/Sheep	Average	-	9.75	-	0.50	10.00	-	2.65	4.98	-
	Minimum	-	15.00	-	0.50	1.00	-	0.30	0.40	-
	Maximum	-	5.00	-	0.50	20.00	-	5.00	10.00	-
Game	Average	5.75	-	-	5.75	-	-	-	-	-
	Minimum	5.75	-	-	5.75	-	-	-	-	-
	Maximum	5.75	-	-	5.75	-	-	-	-	-

Annex 7. Average prices of Cattle hides by type of facility

Type of facility	2015			2016			2017		
	Grade	Per hide	Per KG	Grade	Per hide	Per KG	Grade	Per hide	Per KG
Abattoirs		80.00	8.36		80.00	8.36		80.00	8.38
Slaughter Slabs	87.50	77.04	8.00	82.00	71.33	8.00	82.00	49.06	4.40
Total	**87.50**	**77.14**	**8.32**	**82.00**	**71.61**	**8.32**	**82.00**	**51.71**	**7.59**

Annex 8. Rejection criterion for Hides and skins

Reasons for rejection	Frequency	Percentage
Knives cuts (Three or more cuts)	20	57.1
All hides are not collected by they are dumped	8	22.9
Hides are not rejected rather they are downgraded (sold at lower price)	2	5.7
Negligence by skinners	1	2.9
Bad branding of animals	1	2.9
Not correctly salted	1	2.9
Stored for a long time (dry skins)	1	2.9
Small size of the skin	1	2.9
Total	35	100

Annex 9. Challenges Faced by Slaughter Facilities

Challenges	Number of respondents	Percentage
No one is collecting hide and skins from our facility.	22	20.2
Low prices for hides and skins	13	11.9
High price fluctuations when we sell our hides and skins	9	8.3
Salt used for preserving hides is expensive	7	6.4
Low grades of hides and skins due to ticks, wounds and branding	7	6.4
Discontinue collection without prior notice	4	3.7
Operational costs are high (maintenance of equipment, water. Electricity etc.)	4	3.7
Cuts and holes reducing the price of leather.	4	3.7
Being price takers when we sell our hides and skins	3	2.8
Late collection of hides and skins from the facility	3	2.8
Unreliable/shortage of water supply within the village	3	2.8
Diseases such as measles, foot and mouth etc.	2	1.8
Shortage of salt	2	1.8
Hide collectors sometimes collect without paying	2	1.8
Farmers do not appreciate the value of hides and skins compared to meat which compromise on the quality.	2	1.8
Small quota for slaughter slabs	2	1.8
Low supply of animals	2	1.8
Sometimes veterinary officers are not available to carry out inspections	2	1.8
Unskilled labour	1	0.9
Breakdown of equipment	1	0.9
Expensive to transport hides to the collectors	1	0.9
Lack of storage facility	1	0.9
Lack of transparency in setting prices of hides and skins by hide collectors.	1	0.9
Individuals sells rotten hides and skins from ceremonials to the slaughter	1	0.9
Most hides and skins are coming from zero tooth animals which are small in size.	1	0.9
Lack of capital (to purchase and upgrade to hide pullers to minimise damage to hides and skins, improve facility).	1	0.9
Lack of grading and reverting to using price per hide by hide collectors is unfair.	1	0.9
Lack of equipment locally	1	0.9
Low utilisation of the facility	1	0.9
Competition with other slaughter facilities	1	0.9

Sewage takes long to be collected by the council	1	0.9
The process of taking animals to kgotla/police and veterinary for clearance is too long	1	0.9
Slaughter slabs are not allowed to export meat products	1	0.9
None	1	0.9

Annex 10. Suggested Areas of Improvement

Suggestions	Number	Percent (%)
Government to speed up setting up of the leather park (so that all hides and skins can be collected at better prices, mo	18	30.5
Have reliable collection points for all slaughter facilities	15	25.4
Standardised prices for hides and skins grades	6	10.2
Educate farmers on good rearing practices which will improve the quality of hides and skins (Enforce the law on good branding	9	15.3
Transparency in pricing of hides and skins	4	6.8
Inform stakeholders on the progress of the leather park (Use forums like the BTV Agric programme, President and MPs visits to constituencies)	2	3.4
Government to support slaughter facilities with salt, storage and transportation of hides and skins	2	3.4
School curriculum to include hides and skins education	1	1.7
All animals should be slaughtered at the slaughter facilities	1	1.7
The leather park should consider the production of tourism products	1	1.7
Total	**59**	**100**

Annex 11. Reasons for not willing to buy Cold Storage

Reasons for not willing to buy Cold Storage	Number of Respondents
No need for chilled vehicles and cold rooms to preserve/cure hides skins	3
Lack of funds to purchase equipment	1
The market does not require chilled hides and skins	1
Hides and skins returns does not justify investing in a cold room and vehicles	1
Already have chilled/cold room but not using it	1

Annex 12. Countries of Export of Hides

Destination Country	No. of Responses
South Africa	6
Italy	1
India	1
China	1
Pakistan	1
Portugal	1
No market	2

Annex 13. Reasons for Rejection of Hides

Reasons for Rejection	No. of Responses
Too many Cuts (more than 3) on the hide or skin	6
Hides and skins diseases	2
Poor Branding	2
Small hides and skins	1
Damages from insects	1

Annex 14. Anticipated benefits of the Leather Park

Benefits of the Leather Park	Number of respondents
Leather Park will provide a reliable market for hides and skins	6
Export levy will not be incurred due to presence of local market	2
No benefit	2
Transport costs will be reduced	1
Leather Park will bring better prices of hides and skins	1
Advice on how to handle hides and skins	1
An opportunity to run the tannery	1

Annex 15. Suggestions for Hides and Skins Industry

Suggestions for Hides and Skins Industry	No. of Responses
Should have proper slaughter facilities with the right equipment to minimize damaged skins and hides	2
Have an organized local market for the industry to develop	2
Slaughter facilities should have a set price for hides and skins to pay farmers to incentivize farmers to take care of animals	1
Reduce hides export levy	1
Proper feeding of animals to improve the quality of the hides and skins	1
Local buying prices should be equivalent to international prices	1
Government should speed up setting up of the leather park	1
Form an association for hides and skins for lobbying purposes	1
Encourage farmers to adhere to branding regulations	1
Coach farmers on proper livestock management to improve the quality of hides and skins	1