MINISTRY OF TRADE AND INDUSTRY
P.O.BOX 73, KIGALI

"RWANDA STRATEGY FOR RWANDA MEAT EXPORTS TO DRC"

Reference No STTA/2016/0016
DRAFT REPORT

Rwanda: Weaner at 7 months (150kgs)

Rwanda - after feedlotting at 18 months (350Kgs)

After feedlotting at 18 months (450Kgs)

CAMR Abattoir, Rubavu - slaughter capacity 200 cattle per day

Cross Border Trade Project, Rwanda

Rwanda Strategy for Meat Exports to DRC'

November 2016

Contract Ref No: PO/20141110 (STTA Ref: */2016/0016***)**

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Ministry of Trade and Industry (MINICOM), Rwanda

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Table of Contents

EXECUTIVE SUMMARY

I. INTRODUCTION

The just concluded Situational Analysis Study on Rwanda Livestock and Meat export to DRC (MINICOM: July 2016) revealed that Rwanda exports livestock rather than meat to DRC. The Rwanda Abattoirs Assessment Report (MINICOM: October 2016) reveals that there are at least 6 abattoirs with installed capacity to uptake livestock currently being exported to DRC.

Further analysis reveals strong case for reversing the livestock export to meat production for Rwanda domestic market as well as export to DRC and other regional and international markets. This situation calls for immediate action now through robust strategies.

This report documents the strong case for pursuit of strategies for conversion of livestock exports to meat production for domestic market and exports. It further proposes the strategies mapping them throughout the meat value chain and market system. The report further provides answers to the following salient concerns: -

- Complaints from the established abattoirs about shortage of livestock to meet their demand;
- Government's concern about lost opportunity to add value in the livestock industry - through production of value added meat, conversion of hides and skins to leather and leather products, and employment creation;
- Government agenda of increasing investment, share in intra-regional market for meat products, employment creation and poverty eradication through trade.

II COMPELLING CASES FOR CONVERSION DRC DISTINED LIVESTOCK EXPORTS TO DRC DESTINED MEAT EXPORTS

1) Rwanda livestock production is sufficient to cater for meat production

The current livestock population is commensurate with the projected figures that were foreseen as necessary for supporting a vibrant meat industry by MINAGRI (2012) - *'Report on Strategic and Investment Plan for the Meat Industry'.* According to this report, the meat industry was expected by 2017 to be producing meat for Rwanda domestic market as well as export. The reality today, is that despite the country having largely achieved the target of livestock production, the meat industry has not lived up to the expectations of MINAGRIC (2012). Contrary to these expectations, Rwanda is importing more meat today (2016) than it did in 2012. Further, Rwanda is also not exporting any meat and meat products, other than what is smuggled into DRC and other neighbouring countries through informal cross border trade.

The over 23 organized livestock markets throughout the country provide a ripe platform for harnessing livestock supply and redirecting the livestock to domestic abattoirs.

2) Evidence of huge livestock export to DRC

The evidence of huge monthly export of livestock to DRC is a compelling case to urgently reverse the trend of livestock exports to meat export to DRC. The magnitude of the livestock export to DRC is evidenced by the data from Rwanda livestock markets, were over 90% of livestock offered for sale are exported to DRC. These figures are as follows: cattle - 35,180 heads per month, sheep and goats - 36,670 heads per month and Pigs - 25,920 heads per month. The livestock exports is not only a huge business but has also been increasing in leaps and bounds as demonstrated by BNR ICBT and RRA Customs data on Rwanda livestock exports to DRC, which shows a 64% increase from RwF8billion in 2010 to RwF13billion by 2015.

3) **Abattoirs' installed capacity is sufficient to slaughter all livestock currently being exported to DRC**

Another compelling case for conversion of livestock exports to production for domestic and export market is existence of sufficient installed capacity to slaughter the livestock currently that is currently being exported to DRC. This study established that if, for instance, six abattoirs were to operate at fully capacity, they could slaughter up to 24,000 cattle per month. This fact was revealed through comprehensive audit of 6 abattoirs that were considered through a stakeholder driven process as frontline abattoirs to take on the challenge of converting livestock exports to meat production.

A key impediment that must be overcome is the business model that abattoirs are currently using - slaughter services instead of production of value added chilled and frozen meat and meat products. The abattoirs are also not able to withstand high prices offered by DRC livestock traders, a limitation which this study associated with lack of exposure to the opportunity in value added meat and meat products market where premium prices are fetched.

4) **Compelling domestic and DRC meat market potential**

The Rwanda domestic market for chilled and frozen meat products that are currently being imported from DRC sends strong signals for action now to convert livestock export to meat production for the domestic and export market. In 2014 Rwanda's imports of these products The increase in meat products import is experienced from 2014 where products valued at RwF28million were imported. This was followed by phenomenal increase in imports by 141% in 2015, where products valued at RwF68million were imported. In the 9months of 2016, the imports were even higher than 2015, having increased by 127% over the 2015 value to stand at RwF154 million. The increase in imports is driven by the demand in the fast growing hospitality industry in Rwanda, especially since 2014 that has coincided with Rwanda being marketed as a conferencing nation backed by Rwanda Air's efficient air transport solution.

The DRC market for chilled and frozen meat products, which in 2015 was supplied by imported meat to the tune of USD107m, is yet another strong call for action now in Rwanda converting livestock export to meat production targeting the DRC market. Rwanda's share in this next door lucrative meat is 0%! The products that abattoirs will need to focus on are chilled and frozen meat, which the study found to have insatiable demand in DRC.

5) **Rwanda Institutional capacity to ensure animal health and livestock production**

The success of the meat industry, as demonstrated by the success stories of meat exporting countries such as Namibia and Botswana revolves around animal health, food safety and livestock production. In any country, the Department of Veterinary Services (DVS) is the competent authority in the livestock and meat industry. Rwanda has a robust DVS, forming a strong case for the country to focus on meat production.

The department currently has 1560 Community Animal Health Workers (CAHWs), 416 Sector vets, 30 District Veterinary Officers (DVOs) and 20 Veterinary RAB Officers. According to the head of the department, the field extension officers have sufficient capacity to carry out extension services even with the growth and changes anticipated in the meat industry. There are however, strategic interventions that are needed to further strengthen DVS capacity as Rwanda moves into meat production.

III. RECOMMENDED STRATEGIES TOWARDS PRODUCTION OF MEAT FOR DOMESTIC HIGH-END MARKET AND F0R EXPORT AND DISTRIBUTION IN DRC

a) **Rwanda abattoirs business re-engineering to shift from slaughter service provision to production of vale added meat products**

If Rwanda abattoirs are to supply meat in the Rwanda hospitality industry and to the fast growing middle and upper income class, they need to embrace business model that moves away from slaughter services to production of value added meat and meat products. This requires abattoir sensitization and exposure to the target market meat products requirement.

For a start, **the Rwanda meat importers and abattoirs need to have strategic meeting to expose the abattoirs to this market requirement and steps towards these outlets sealing business deals to source meat from Rwanda abattoirs**. Similar meeting should also be facilitated between Rwanda abattoirs and DRC prospective meet importers and distributors who are currently importing and distributing meat from rest of the world that is consumed in DRC.

i) **Type of value added meat products for abattoirs to focus their production**
Rwanda abattoirs should embrace the idea of producing value added products as a business model and integrate the model in their business re-engineering, which will automatically lead to further investment in abattoir upgrading.

ii) **Rwanda abattoirs to offer competitive prices for livestock in order to guarantee constant supply**
The high profit margins in the Rwanda and DRC market are enough motivating factors for Rwanda abattoirs to divert livestock destined to DRC into their facilities for slaughter by offering higher prices for the animals than DRC livestock traders offer. The simulations done in this study demonstrate that this is feasible, giving abattoirs opportunity to earn profit margins of upto USD7 per Kg for some types of meat in Rwanda and DRC market.

b) Rwanda abattoir upgrade program

An abattoirs upgrade model aimed at supporting abattoirs business re-engineering is proposed. The model will have the following components.

Component 1: Meat products branding for target market
This components builds on abattoirs commitment to shift their current focus from slaughter services to production of value added meat and meat products. The proposed abattoirs meeting with Rwanda and DRC meat importers will be undertaken within the framework of this component. The outcome of this component will be meat brands that abattoirs in Rwanda will agree upon and which will be jointly traded in the domestic and international markets for purposes of enjoying economies of scale in marketing and distribution. Rwanda abattoirs should not be competitors in the domestic and international markets. Instead, they should be a strength for each other in production of meat in acceptable and sufficient quantity to meat the domestic and regional and international target market requirements.

Component 2: Abattoirs business model re-engineering
This component entails working with specific abattoirs to develop their cost production model aimed at ensuring that the end product guarantees the projected profit margins. The idea will be to ensure that abattoirs in Rwanda are moved to the most competitive production costs to ensure that their products are competitive in the domestic and international market. This intervention will build on the simulations in this study and specific abattoir level input. The exercise will also generate areas of meat production cost structure which may require policy makers attention to enhance the competitiveness of Rwanda meat industry.

Component 3: Upgrade of current abattoirs to export abattoir
This component builds on the outcome of component 1 and 2. It addresses glaring capacity gaps that were identified in the six front line abattoirs. For each of these abattoirs specific areas of focus in the abattoir upgrade were identified and have been list down in annex 4 of this report. Implementation of this component will require walking the road with the abattoirs providing technical support that enables them meet export abattoir standards.

c) **Upgrade of livestock markets**

The livestock markets that are scattered around the country lack basic infrastructure for animal holding. They also do not meet sanitary standards that are supportive of meat industry. These markets will continue to be a source of livestock ready for slaughter.

The revamped meat industry will require that livestock sourced from these markets be of acceptable quality. **It is therefore recommended that these markets be upgraded through provision of relevant infrastructure (sheds and sanitary facilities), environmental standards and animal health care services that befit animal holding grounds.**

d) **Feedlots - Encourage private sector investments in feedlots**

To maximize value addition in the meat value chain and assure abattoirs of constant supply of high quality livestock, private sector need to be encouraged to invest in feedlots. Policy incentives to ensure availability and affordability of quality fodder for use in feedlots are recommended. Experience in Namibia and Botswana show feedlots as critical factor in the success of the meat industry because it offers controlled environment, away from weather related risks, under which high quality livestock supply is assured.

e) **Livestock price information**

The Government, through independent regulator will need to provide livestock price information that encourages livestock production for meat industry as a well as competitive pricing of meat products across the industry.

f) **Modernization of meat distributorship channel**

A comprehensive modernization of the meat distributorship channel is recommended. The following instruments are proposed for use in the modernization of the distribution of meat products: -

i) Animal breeding and feeding guidelines
ii) Guidelines on meat hygiene and standards
iii) Abattoirs Good Manufacturing Practices (GMPs)
iv) Guidelines on meat cold chain
v) Meat Export Policy and Meat Act
vi) Meat Export and Import Quality Control Conditions
vii) Meat distribution centers
viii) Export abattoir licensing and inspection Guidelines
ix) Meat industry training strategy

IV. STRATEGIC INTERVENTIONS FOR SUPPORTIVE ENABLING BUSINESS ENVIRONMENT FOR THE MEAT INDUSTRY

1. Meat Industry Legal and Regulatory Framework

a) Meat industry Policy

The challenges that meat industry continues to face despite the authoritative MINAGRI (2012) Report on *'Strategic and Investment Plan to Strengthen Meat Industry in Rwanda'* point to key fundamentals that can only be explained by lack of a meat industry policy that could have been used to initiate necessary reforms to back implementation of the proposed strategies.

A meat industry policy is therefore proposed targeting all policy related constraints and challenges that are manifested in the inability of the industry to produce meat for domestic as well as export markets.

b) Meat Act

A dedicated meat industry law is needed to spur the industry's growth observing international best practice for purposes of the industry producing meat for Rwanda and Export market. The current legislation - *'Law n° 54/2008 of 10/09/2008 determining prevention and fight against contagious diseases for domestic animals in Rwanda'* and the following accompanying ministerial orders fall far below the acceptable standards of a meat industry law:

a) Ministerial Order nº 012//11.30 of 18/11/2010 on animal slaughtering, meat inspection
b) Ministerial Order n°013/11.30 of 18/11/2010 on transport and trade of meat

It is therefore recommended that a Meat Act be developed building on the provisions of the meat industry policy and taking on board international best practice standards to ensure Rwanda meat sells in the domestic as well regional and international markets.

c) Meat Regulations

The following regulations are deemed most critical in turning around Rwanda's meat industry to produce meat for domestic and export market.

i) Livestock movement, transport and animal welfare
ii) Safety and health inspection of meat animals, meat and by-products intended for human consumption;
iii) HACCP standards in the meat industry
iv) Abattoir Good Manufacturing Practices
v) Meat cold chain storage throughout the value chain to the consumer
vi) Standards on meat

Pursuant to the provision for these and any other regulations in the Meat Act, it is recommended that the Regulations be developed as a matter of priority.

2. Meat Industry Management

a) Meat Industry Regulator or Meat Board

The experiences in Namibia and Botswana show the critical role that an independent meat industry regulator plays. The primary role of the regulator is to promote the country as source of high quality meat and meat products, regulation of the meat industry to safeguard sanctity of the country's meat brands, facilitation of the exports of livestock, meat and processed meat products.

Establishment of an independent regulator mandate to implement the Meat Act and accompanying Regulations is there recommended. The composition of the Regulator will include all industry stakeholders - livestock farmers, abattoirs and slaughter houses and service providers in the meat industry.

b) Strengthening Department of Veterinary Services (DVS)

The capacity of DVS to support meat industry will need to be revamped along the following areas which were also underscored in MINAGRI (2012) Report on *'Strategic and Investment Plan to Strengthen Meat Industry in Rwanda'* as critical areas of intervention to equip the department with requisite capacity:

i) Strengthen DVSs in ensuring timely communication of animal diseases and zoonosis information
ii) Strengthen DVS efforts towards the development and implementation of scientifically based standards and guidelines
iii) Strengthen DVS system of prevention, control and eradication of animal diseases, including zoonosis
iv) Ensuring the scientific excellence of information and advice
v) Capacity building for national veterinary services

V. DRC MARKET SCAN AND MEAT EXPORT LOGISTICS

The DRC market scan revealed a market potential of USD107m that Rwanda should target. To exploit this potential a meat market link program is proposed comprising the following components under which specific interventions can be pursued.

Component 1: Buyer-Seller Events
As Rwanda commences production meat for export to DRC, it is recommended that a market link program be initiated targeting 10 cities in DRC with a population of 13million. Innovative Business to Business initiatives including Rwanda meat tasting events in these cities would need to be explored as a strategy of popularizing Rwanda meat brand.

Component 2: Meat Distribution Centers in select cities
Riding on existing networks of meat importers and traders in DRC promote development of Rwanda meat distribution centers through appointed dealers model through which meat from Rwanda will be distributed to the rest of DRC.

Component 3: Meat trade facilitation
Riding on the MOU between Rwanda and DRC, formalize meat export to DRC where Rwanda refrigerated vehicles should be allowed to deliver meat to Goma for distribution to designated Rwanda meat distribution centers in DRC by air, road and waterway networks.

1.0 INTRODUCTION

The just concluded Situational Analysis Study on Rwanda Livestock and Meat export to DRC (MINICOM: July 2016) revealed that Rwanda exports livestock rather than meat to DRC. The Rwanda Abattoirs Assessment Report (MINICOM: October 2016) reveals that there are at least 6 abattoirs with installed capacity to uptake livestock currently being exported to DRC. This situation calls for robust strategies to transform livestock exports to meat exports targeting impediments and challenges that have contributed to the current scenario.

This report, therefore, explores strategies that need to be pursued, building on the already installed capacity of abattoirs, to transform Rwanda from a livestock to a meat-exporting nation with DRC as the immediate target market. This quest is in line with the Government goal of exporting meat to DRC and other destinations, as articulated in the Rwanda meat industry strategy (MINAGRI; 2012[1]). It further provides answers to the following salient concerns: -

- Complaints from the established abattoirs about shortage of livestock to meet their demand;
- Government's concern about lost opportunity to add value in the livestock industry - through production of value added meat, conversion of hides and skins to leather and leather products, and employment creation;
- Government agenda of increasing investment, share in intra-regional market for meat products, employment creation and poverty eradication through trade.

The first and most important area that the report focuses on in **Section 2.0** is the compelling case for diversion of DRC destined livestock to Rwanda abattoirs. The facts that are brought out in this section underscore the urgency for the government and the private sector to move with speed to avert endless export of livestock at the expenses of the forgone opportunity of value addition.

Section 3.0 discusses meat industry strategies that need to be pursued in towards market based diversion of livestock exports destined to DRC to Rwanda Abattoirs. The section discusses strategies that will be applied to create effective demand for livestock in Rwanda Abattoirs as a result of new abattoirs business model that focus on production of value added meat and meat products.

Section 4.0 provides details on strategies that are required to create an enabling business environment through robust legal and regulatory framework. **Section 5.0** discusses DRC transport and logistics, demonstrating the feasibility of export of meat and meat products to DRC.

[1] *MINAGRI (2012): Strategic & Investment plan to strengthen meat industry in Rwanda*

2.0 COMPELLING CASE FOR DIVERSION OF DRC DESTINED LIVESTOCK TO RWANDA ABATTOIRS

2.1 Rwanda livestock production is sufficient to cater for meat production

Rwanda abattoirs that were surveyed during the Rwanda Meat export to DRC Situational Analysis study (MINICOM July 2016) gave shortage of livestock as a key factor to their optimal utilization of their installed capacity. This fact was further corroborated by findings of the abattoirs assessment study *(MINICOM: October 2016).*

Analysis of the Strategic and Investment Plan for Rwanda Meat Industry report (MINAGRI 2012) reveals that if targets for livestock production were met, then shortage of livestock would not be a deterrent factor to the country's meat industry development. The strategy recommended growth of livestock, commensurate with the meat industry projected growth as follows: projected growth of cattle, sheep, goat and pig at 2%, 6%, 102% and 109%. The table below provides statistics on target and actual production for cattle, goats, sheep and pigs.

Table 1: Projected Versus Actual livestock production by category of livestock (Figures in '000)

Livestock	**Growth Rate (2005-2011)**	Projected/ Actual	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**Growth Rate (2011-2017)**
Cattle	6.18%	Projected	1,444	1,135	1,132	1,133	1,139	1,150	1,166	2%
		Actual	1,143	1,135	1,132	1,165	1187			
		Diff	-301	0	0	32	48			
Sheep	-8.57%	Projected	631	636	643	650	657	664	671	6%
		Actual	829	807	798	631	646			
		Diff	198	171	155	-19	-11			
Goats	52.18%	Projected	2,532	2,732	3,032	3,432	3,932	4,132	5,120	102%
		Actual	2,971	2,673	2,702	2,532	2,706			
		Diff	439	-59	-330	-900	-1,226			
Pig	57.16%	Projected	717	807	907	1,017	1,147	1,327	1,485	109%
		Actual	707	807	1,011	1,015	1,492			
		Diff	-10	0	104	-2	345			

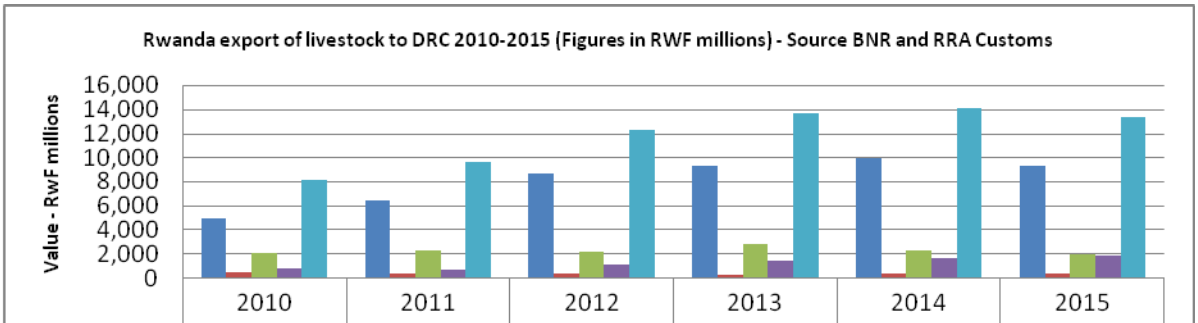
Source: Projected Data - Rwanda Meat Industry Strategy; Actual Data - RAB/ Animal Resource Extension

The analysis shows that livestock production largely met projected production targets. The only exception however is in sheep, where there was a shortfall of 19,000 heads against the projected figures in 2014 and goats, where the shortfall has been substantial rising from 59,000 heads in 2012 to 1.2m heads by 2015. Pig production recorded mixed performance, with 2015 recording 345,000 heads of pig higher.

The above analysis demonstrates that supply of livestock is largely available to meet the projected growth of meat industry. This is therefore a strong case to pursue the ambition of promoting meat production for the domestic and export market.

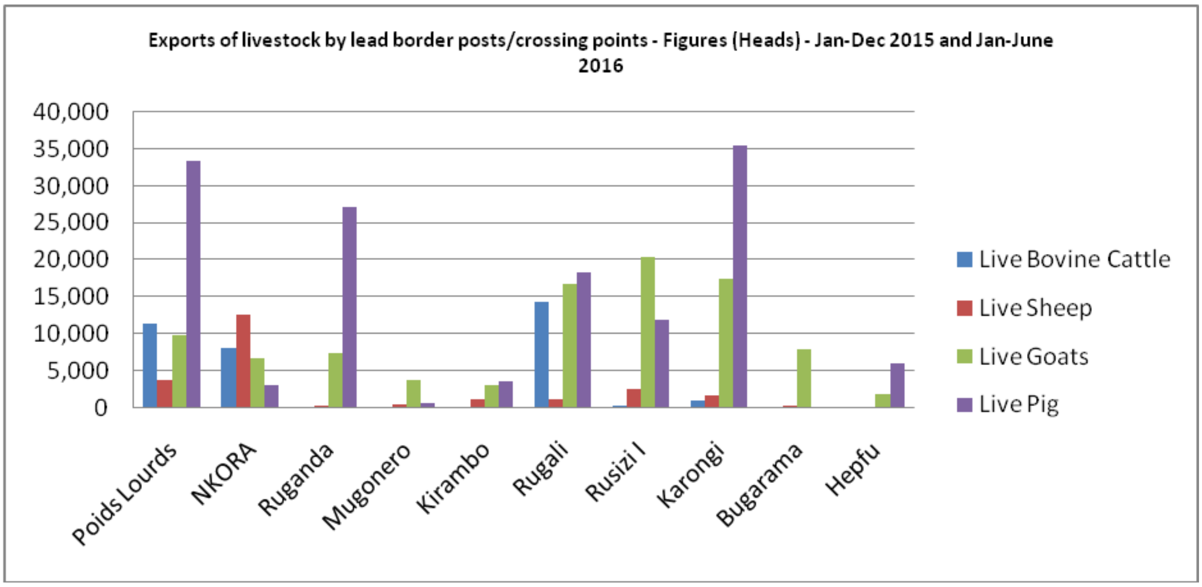
2.2 *Evidence of huge livestock export to DRC*

Analysis of livestock exports to DRC validates abattoirs assertion that livestock exports to DRC poses a challenge to Rwanda's vision of transforming the country to a meat producing and exporting nation. Rwanda livestock exports to DRC increased by 64% from RwF8billion in 2010 to RwF13billion by 2015.



	2010	2011	2012	2013	2014	2015
Cattle	4,931	6,388	8,656	9,296	9,973	9,310
Sheep	402	337	331	244	297	335
Goat	2,010	2,266	2,186	2,754	2,228	1,889
Pig	742	617	1,084	1,370	1,557	1,784
Total	8,085	9,608	12,257	13,664	14,055	13,318

Livestock exports to DRC take place across formal borders and informal crossing points. According to the bar chart below and using BNR ICBT data for the period Jan-Dec 2015 and Jan-June 2016, the lead borders/cross points for export of live cattle are Poids Lourds, Rugali and Nkora. The latter two are informal crossing points through which 63% of total live cattle exported to DRC during this period were exported.



Factors behind huge livestock export to DRC

a) Price differential

DRC livestock traders offer higher prices for livestock than Rwanda abattoirs. For a mature cattle weighing 385kg for instance, DRC traders offer USD484 compared by USD423 that Rwanda abattoirs are prepared to pay. Further analysis of Rwanda abattoirs reveals their inability to offer better prices being as a result of the business model that they are pursuing - provision of slaughter services to meat traders rather than production of branded meat products. Where meat is produced, it is for low-end market, usually dominated by meat on bone. Thus the business model is a key limitation to Rwanda abattoirs ability to offer competitive prices to divert livestock exports to the Rwanda abattoirs.

b) Lack of chilled or frozen meat products for transportation to distant cities in DRC

Interviews with DRC livestock traders indicated that livestock export to DRC is derived from demand for meat in DRC which Rwanda abattoirs are unable to meet. The meat from these abattoirs is hot carcass and therefore cannot be transported to cities that are as far as 1,000km where livestock are taken for slaughter instead. This fact was corroborated by meat traders in DRC who confirmed that chilled or frozen meat would be a solution to this challenge.

The above facts indicate a need for market based rather than export ban strategies towards diverting livestock exports from DRC to Rwanda abattoirs.

2.3 Evidence of a vibrant and organized livestock market throughout the county which provides an immediate opportunity for abattoirs

There are 84 livestock markets where an estimated 35,180 cattle goats and sheep and 29,920 pigs are sold every month, 36,670. DRC livestock traders come for their supplies from these markets. The markets are scattered around four provinces as detailed in the table below.

Table xx: Rwanda livestock markets

Province	Number of Livestock Markets	Livestock sold per month through the livestock markets		
		Cattle	Goats/Sheep	Pig
Northern province	14	3460	6900	120
Western Province	29	15,100	9,000	11,400
Southern Province	21	9,930	11,720	14,400
Eastern province	20	6,690	9,050	0
Total	**84**	**35,180**	**36,670**	**25,920**

Source: RAB Livestock

The Livestock sold in these markets are mature and ready for slaughter. **There is no link between Rwanda abattoirs and these markets.** Livestock is sold to the highest bidder, who happen, in most cases to be DRC livestock importers. Consultations with traders and regulators indicated that over 70% of the livestock from these markets is destined to DRC.

Strategic opportunity for Rwanda abattoirs to divert livestock from these markets to their own facilities instead of being exported to DRC is for them to offer competitive prices as DRC traders.

Rugali market for goats

Ruhango Market for Cows

2.4 *Abattoirs' installed capacity is sufficient to slaughter all livestock currently being exported to DRC*

Diversion of Rwanda livestock export from DRC to the Rwanda meat industry is dependent on the existent of export abattoirs with capacity to absorb the huge livestock population that is offered for sale every month.

According to information obtained from RAB, there are nine registered and operational abattoirs with a capacity of slaughtering 1,000 cattle per month as follows: KOADU, CAMR, Rugano, Rugari, Buranga, Nyamata, SATRA, Gakenke, Ruhango and SABAN. Besides these abattoirs, construction of the following two abattoirs is underway - and Ngoma. There are also plan to rehabilitate Rusizi abattoir into a modern abattoir.

During a stakeholder meeting that was held at the inception of the study, the following six abattoirs were given as abattoirs with export capability. The status of these abattoirs in terms of installed versus utilized capacity is as provided in the table below.

Table 2: Export Abattoirs Installed Versus Utilized Capacity

Name of abattoir	**Cattle: Slaughter capacity per day**			**Goats/Sheep: Slaughter capacity per day**		
	Installed	**Utilized**	**% utilized**	**Installed**	**Utilized**	**% utilized**
Rugano Meat Supply	100	20	20%	30	10	33%
Rugari Meat Processing	200	20	10%	150	10	7%
CAMR Abattoir	200	85	43%	150	30	20%
KOADU Abattoir	100	60	60%	100	0	0%
Saban Abattoir	400	130	33%	600	120	20%
Santra Slaughter House	100	70	70%	80	20	25%
Totals	**1,100**	**385**	**35%**	**1,110**	**190**	**17%**

Source: Abattoirs during Abattoirs Audit in September 2016

Analysis of installed versus utilized capacity of the six frontline abattoirs in tackling the challenge of livestock export to DRC demonstrate existent of domestic capacity for absorption of livestock that is currently being exported to DRC. Presently the abattoirs are only able to utilize 35% of the installed capacity of cattle and 17% of the installed capacity of goats and sheep. There is therefore scope for the Rwanda abattoirs to absorb livestock being exported to DRC. For instance, going by the statistics of cattle offered for sale every month through various livestock markets, where approximately 24,000 mature cattle are exported to DRC every month, if the six abattoirs are operating at full capacity and for 6 days a week, they would be able to absorb the entire herd. Their full capacity utilization per month is estimated at 24,000.

The only exception to Rwanda's abattoirs capability to handle the livestock export to DRC was in the case of pigs, where none of the six abattoirs had pig slaughter facilities.

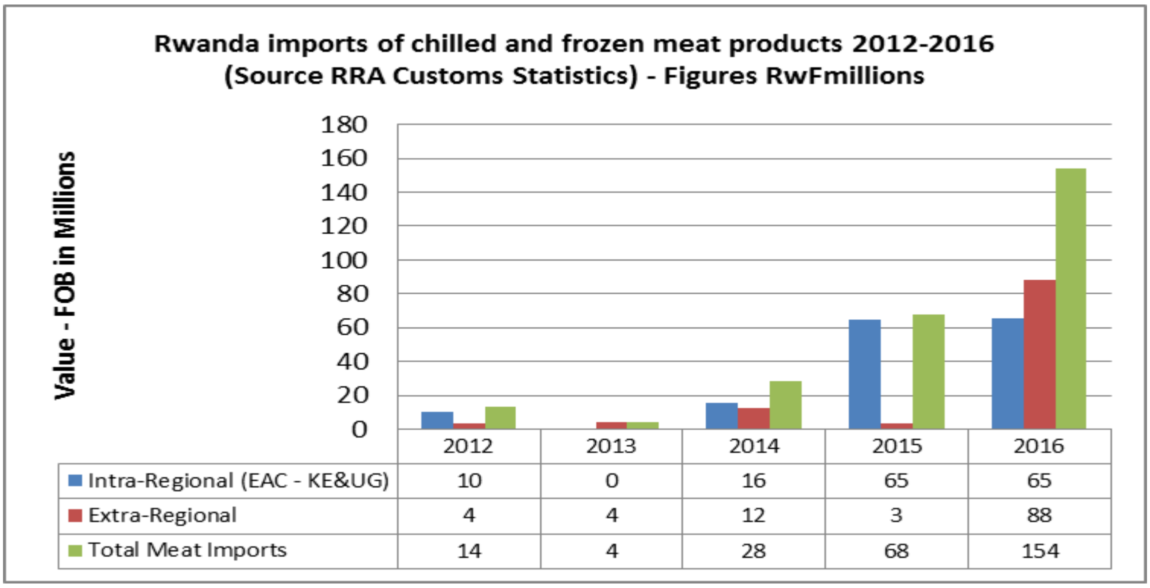
2.5 Compelling domestic and DRC meat market potential

The success of Botswana and Namibia meat industry in conversion of livestock to meat products lies in these countries' having identified market for the value added meat products. In both cases, EU and regional market was key motivating factor to focus on production of value added livestock products.

In the case of Rwanda, two markets have already been identified, which should form the basis for the immediate focus on transformation of the country from a livestock producing and exporting nation to a meat producing and exporting nation. These markets are the Rwanda domestic market and DRC.

a) Rwanda domestic market - middle income and hospitality industry

Analysis of Rwanda meat imports for the period 2012 to September 2016 reveal Rwanda as a significant market for chilled and frozen meat, which is currently being sourced from the region (EAC - Kenya and Uganda) and Rest of the World (mainly from South Africa, Belgium, Italy and UAE.



The increase in meat products import is experienced from 2014 where products valued at RwF28million were imported. This was followed by phenomenal increase in imports by 141% in 2015, where products valued at RwF68million were imported. In the 9months of 2016, the imports were even higher than 2015, having increased by 127% over the 2015 value to stand at RwF154 million. **As evidenced in Annex 2, the type of meat being imported is chilled or frozen**. The increase in imports is driven by the demand in the fast growing hospitality industry in Rwanda, especially since 2014 that has coincided with Rwanda being marketed as a conferencing nation backed by Rwanda Air's efficient air transport solution.

All the lead six abattoirs that were visited during this study were not producing the type of meat that is being imported. The only abattoir that is close to producing this type of meat, Rugari Meat Processors Limited, was not supplying the hospitality industry. This is primarily due to quality issues, because as discussed later in this report, Rwanda does not have an independent meat production and quality assurance regulator. The abattoirs have also not been accredited as export abattoirs and the audit that was done during this survey established that they do not meet the threshold of export abattoirs.

b) DRC market for meat products

As illustrated in the table below, the DRC meat market potential that is up for Rwanda to target is estimated at USD107m. The specific products for which the potential exists are detailed in the table. **These include: Fresh or chilled bovine cuts, Frozen bovine cuts, Frozen, boneless meat of bovine animals, Fresh or chilled cuts of sheep among others**. As evidenced Annex 3, the lead extra regional exporters of meat to DRC are South Africa, Botswana, USA, Netherlands, Germany, Turkey and India. This is a clear demonstration that with the right product, Rwanda has potential to increase her exports to DRC because of the distance advantage which her competitor countries do not have.

Table 3: DRC meat (bovine, sheep, goat and swine) market size and Rwanda's market share, 2015

Source of DRC imports of meat (cattle, goat, sheep and poultry)	Amount in USD (2015)	Products
Intra (COMESA/EAC) Imports	**3,872,124**	Fresh or chilled bovine cuts Frozen bovine cuts Frozen, boneless meat of bovine animals Fresh or chilled cuts of sheep Meat and edible offal, salted, in brine, dried or smoked,
Of which:		
Rest of COMESA and EAC Countries	*1,704,573*	
Rwanda	**2,673**[2]	
Extra Regional Imports	**107,046,167**	
Market size	**107,048,840**	
Rwanda's market share	0%	

[2] *This is data reported by BNR's ICBT data system. According to DRC formal data, Rwanda's export of meat to DRC in 2015 was zero (0).*

Source of DRC imports of meat (cattle, goat, sheep and poultry)	Amount in USD (2015)	Products
Rwanda's market potential	**107,046,167**	
Eastern DRC estimated market size (based on imports from Zambia, Tanzania, Rwanda (formal and informal), Uganda and Burundi)	1,794,051	
Rwanda (Formal and Informal)		
Eastern DRC estimated market potential	**1,791,378**	
Rwanda's market share in Eastern DRC	0.15%	

The strategic direction that Rwanda needs to take in targeting domestic as well as DRC market is to immediately start producing chilled and frozen meat products. The survey that was conducted in DRC during this study revealed demand for the following type of meat products: -

A. Beef Products:

1. Fresh (chilled/frozen) beef cuts as follows
    a. *Topside*
    b. *Silverside*
    c. *Top rump/croupillon*
    d. *Rump steak/ Viandedecoupee*
    e. *Striploin: Contrefilet*
    f. *Fillet, Fillet*
    g. *Boneless shin, Tibia desossee*
    h. *Ossubucco*
    i. *Meat on bone: Viande sur os*
    j. *Boneless beef; viandedesossee*
2. Beefsausages: saucisse de boeuf
3. Beef bacon: Lard de boeuf
4. Beef burgers: Burger de boeuf
5. Meat balls: Boulettes
6. Minced meat (lean mince or standard mince): Viandehachee

B. Lamb Products:

Fresh (chilled/frozen) Lamb cuts such as:

a. *Lamb leg: Gigot de l'agneau*
b. *Rack: grillee*
c. *Shank: Jarret*
d. *Loin: Fillet*
e. *Shoulder chop: Cotelette*
f. *Ribs: Travers*

C. Goat Products:

Fresh Goat cuts such as:

a. *Goatleg: Cuisse de la chevre*
b. *Rack: Grillee*
c. *Loin: filet de chevre*
d. *Shoulder: Cotelette*
e. *Ribs: entrecote*

D. Pork Products

1. Fresh (chilled/frozen) Pork cuts such as:
    a. *Shoulde :Epaule*
    b. *Loin (Rib, Loin chops, Tenderloin roasts, Pork loin roasts): Carcassecuit*
    c. *Porkleg (Ham): Cuisse de porc*
2. Bacon: Lard
3. Sausages: Saucisse
4. Ham: Jambon
5. Smoked products

With the exception of Rugari Meat Processors Limited, all abattoirs are not producing any of the above type of meat products. There is no value addition going on. As demonstrated in the abattoirs audit, the main limitations include: -

- Current business model – The other five audited abattoirs only offer slaughter services to meat traders and do not slaughter their own livestock for sale.
- Lack of knowledge of what the market demands,
- Lack of equipment, infrastructure and human resource capacity to add value to the meat products

The experience of Rugari Meat Processors Limited who currently producing the following products among others at its distribution outlets situated at Kigali town and near the border to DRC show that with focus, other Rwanda abattoirs can also produce value added meat products targeting domestic as well as DRC market:

A. Beef Products:

1. Fresh (chilled/frozen) beef cuts as follows
    a. *Topside*
    b. *Silverside*
    c. *Top rump/croupillon*
    d. *Rump steak/ Viandedecoupee*
    e. *Striploin: Contrefilet*
    f. *Fillet, Fillet*
    g. *Boneless shin, Tibia desossee*
    h. *Ossubucco*
    i. *Meat on bone: Viande sur os*
    j. *Boneless beef; viandedesossee*
2. Beef sausages: saucisse de boeuf
3. Minced meat: Viandehachee

B. Lamb Products:

Fresh (chilled/frozen) Lamb cuts such as:

a. *Lamb leg: Gigot de l'agneau*
b. *Rack: grillee*
c. *Shank: Jarret*
d. *Loin: Fillet*
e. *Shoulder chop: Cotelette*
f. *Ribs: Travers*

C. Goat Products:

Fresh Goat cuts such as:

a. *Goatleg: Cuisse de la chevre*
b. *Rack: Grillee*
c. *Loin: filet de chevre*
d. *Shoulder: Cotelette*

   e. *Ribs: entrecote*

D. Pork Products

1. Fresh (chilled/frozen) Pork cuts such as:
    a. *Shoulder:Epaule*
    b. *Loin (Rib, Loin chops, Tenderloin roasts, Pork loin roasts): Carcassecuit*
    c. *Porkleg (Ham): Cuisse de porc*
2. Bacon: Lard
3. Sausages: Saucisse
4. Ham: Jambon
5. Smoked sausages
6. Cooked bacon
7. Salamis

2.6 Rwanda Institutional capacity to ensure animal health and livestock production

The success of the meat industry, as demonstrated by the success stories of meat exporting countries such as Namibia and Botswana revolves around animal health, food safety and livestock production.

In any country, the Department of Veterinary Services (DVS) is the competent authority in the livestock and meat industry. Rwanda has a robust DVS, forming a strong case for the country to focus on meat production. The Department has three divisions namely:

a. Epidemiology Unit,
b. Laboratory Services,
c. Border control post and quarantine.

The department is responsible for animal disease control and prevention and offers field extension services through the following:

a. Monitoring, control and prevention of epizootics,
b. Clinical diagnosis and treatment of animals,
c. Provision of extension service on animal disease control and management,
d. Facilitation of livestock identification and meat traceability,
e. Enforcement of regulation related to animal health law, SPS and animal welfare from farm to livestock market and during transport to slaughterhouses.

The department currently has 1560 Community Animal Health Workers (CAHWs), 416 Sector vets, 30 District Veterinary Officers (DVOs) and 20 Veterinary RAB Officers. According to the head of the department, the field extension officers have sufficient capacity to carry out extension services even with the growth and changes anticipated in the meat industry.

The DVS also has a division for Meat Hygiene and Quality Control. This division has 7 officers at the National level and at the lower administrative structure there are 416 Sector Vets and 30 DVOs, who are in charge of extension services as well as meat hygiene and quality control. They are responsible for meat inspections during slaughter at the abattoirs and slaughterhouses across the country. There are only 4 officers who carry out supervision of meat processing plants across the country. This capacity is not enough. According to international best practice, each abattoir should have one independent veterinary officer. During the assessment of six abattoirs, it was noted that the abattoir management normally employ their own veterinary staff to carry out meat inspection services during slaughter. This is against the acceptable international standards.

3.0 STRATEGIES FOR REVERSING LIVESTOCK EXPORTS AND PROMOTING MEAT EXPORTS TO DRC

3.1 Rwanda abattoirs business re-engineering to shift from slaughter service provision to production of vale added meat products

3.1.1 Type of value added meat products for abattoirs to focus their production

The type of meat products that Rwanda hospitality industry and middle-income class demand are chilled and frozen meat products. The same applies in DRC. In both markets, Rwanda has a huge potential to capture, targeting to wrestle market out of the current exporting countries, most of which a based thousands of kilometers from Rwanda, in the case of the domestic market. The bulk of DRC competitors are also thousands of kilometers away from DRC compared to Rwanda, which shares a border with DRC.

The other impetus towards the shift in business model to production of value added meat products is the fact that over 90% of regionally and internationally traded meat is either chilled or frozen to guarantee long shelf life before being bought by end consumers. Chilling or freezing of meat is aimed at providing meat with storage life necessary to keep meat fresh until it reaches end consumer.

i) **Chilled meat**

Meat that is expected to reach end consumers within 1 to 9 weeks, according to international standards needs to be chilled soon after slaughter. The bulk of the meat that Rwanda targets to sell to Eastern DRC would fit in this category. According to international best practise, the goal in meat production should be to get the carcasses into coolers within 40 to 45 minutes after slaughter.

Primary chilling is completed when the warmest point of the carcass has reached a temperature of about 7°C (3°C for edible offal). With current technology these temperatures can be arrived at in 16–24 hours in small carcasses and in less than 48 hours in large carcasses (center of the hind leg).

Table 4: **Storage conditions for chilled animal products**

Type of product	Temperature (^{0}C)	Relative humidity (%)	Practical storage	Life
Beef	-1.5 to 0	90	3–5	weeks
Beef (10% CO_2)	-1.5 to -1	90–95	max. 9	weeks
Lamb	-1 to 0	90–95	10–15	days
Pork	-1.5 to 0	90–95	1–2	weeks
Veal	-1 to 0	90	1–3	weeks

From: Recommended conditions for cold storage of perishable products, International Institute of Refrigeration, Paris, 1972.

ii) **Frozen meat**

Meat products that are expected to reach end consumers within 2 to 24 months need to be frozen. As illustrated in the table below, freezing has the effect of giving meat products storage life ranging between 4 and 24months, depending on the freezing temperature that is preferred.

Table xxx: Practical storage life of frozen meat and meat products

Products	**Practical storage life in months**		
	-18 °C	**-25 °C**	**-30 °C**
Beef carcass	12	18	24
Roasts, steaks, packaged	12	18	24
Ground meat, packaged, (unsalted)	10	>12	>12
Veal carcass	9	12	24
Roasts, chops	9	10–12	12
Lamb carcass	9	12	24
Roasts, chops	10	12	24
Pork carcass	6	12	15
Roasts, chops	6	12	15
Ground sausage	6	10	
Bacon (green, unsmoked)	2–4	6	12
Offal, edible	4		

From: Recommendations for the processing and handling of frozen foods, International Institute of Refrigeration, Paris, 1972.

It is therefore recommended that Rwanda abattoirs shift their business model to start production of value added meat products targeting the Rwanda and DRC meat market. The focus should be on the following products, which the study found to have market in DRC.

A. Beef Products:

1. Fresh (chilled/frozen) beef cuts as follows
   - a. *Topside*
   - b. *Silverside*
   - c. *Top rump/croupillon*
   - d. *Rump steak/ Viandedecoupee*
   - e. *Striploin: Contrefilet*
   - f. *Fillet, Fillet*
   - g. *Boneless shin, Tibia desossee*
   - h. *Ossubucco*
   - i. *Meat on bone: Viande sur os*
   - j. *Boneless beef; viandedesossee*
2. Beef sausages: saucisse de boeuf
3. Minced meat: Viandehachee

B. Lamb Products:

Fresh (chilled/frozen) Lamb cuts such as:

- a. *Lamb leg: Gigot de l'agneau*
- b. *Rack: grillee*
- c. *Shank: Jarret*
- d. *Loin: Fillet*
- e. *Shoulder chop: Cotelette*
- f. *Ribs: Travers*

C. Goat Products:

Fresh Goat cuts such as:

a. *Goat leg: Cuisse de la chevre*
b. *Rack: Grillee*
c. *Loin: filet de chevre*
d. *Shoulder: Cotelette*
e. *Ribs: entrecote*

D. Pork Products

1. Fresh (chilled/frozen) Pork cuts such as:
   a. *Shoulder:Epaule*
   b. *Loin (Rib, Loin chops, Tenderloin roasts, Pork loin roasts): Carcassecuit*
   c. *Porkleg (Ham): Cuisse de porc*
2. Bacon: Lard
3. Sausages: Saucisse
4. Ham: Jambon
5. Smoked sausages
6. Cooked bacon
7. Salamis

3.1.2 Rwanda abattoirs to offer competitive prices for livestock in order to guarantee constant supply

i) Rwanda abattoirs should offer more competitive prices for mature livestock - cattle ready for slaughter

In order for Rwanda abattoirs to divert livestock supply from DRC livestock exports they need to offer more competitive prices. The abattoirs are currently offering USD423 for purchase of animals producing 200Kgs carcass weights. The DRC traders are offering USD 484 for the same animals.

Analysis of end market prices in both Rwanda and DRC show that it is possible for Rwanda abattoirs to offer more competitive prices after shifting the current business model to value added products business model. They will be targeting the high end local hospitality market allowing them to get premium prices which would enable them to match the current DRC livestock importer prices.

The production cost simulation in the table below demonstrates the feasibility of value added business model. The computations do not include the abattoirs operational costs, which in normal abattoir operations are covered through sales of the fifth quarter products of slaughter process (offal – Liver, lungs, smooth & rough tripes, kidney, heart, ox tail, hides and skins, hooves, head, etc.).

Table 5: Simulation on profitability of producing boneless beef from cattle purchased at competitive price

	Current	**Expected**
Live weight (Kgs)	385	385
Buying price (USD)	423	484[3]
Carcass weight @ 52% yield (Kgs)	200	200
Cost per Kg (Carcass) USD	2.12	2.42
Bone out yield per head (60%) kgs	120	120

[3] *This is the price currently being offered by DRC livestock importers.*

Cost per Kg of boneless beef (USD)	3.53	4.03

The target market for the meat products produced at a cost of USD 4.03 is the niche hospitality domestic market, which is currently importing meat from the region (Kenya) and DRC market where prices are very good as illustrated in the table below: -

Table 6: Measure of Rwanda Abattoir profitability after adopting value addition business model, based on feedlot animals ready for slaughter

(1)	**(2)**	**(3)**		(4)	
English	**Production cost Per Kg**	Target hospitality industry (Rwanda) meat prices and gross profit		Kinshasa: meat selling price and gross profit margin	
		Ex factory price (EAC) USD Per Kg[4]	Price margin USD Per Kg	Selling price USD Per Kg	Gross margin USD Per Kg
Beef rump steak	4	12	8	10	6
Beef fillet	4	14.5	10.5	15	11
Meat on bones beef	2.12	7.09	4.97	10	7.88
beef steak	4	10.5	6.5	12	8
Boneless meat	4	9.11	5.11	10	6

Source: Kinshasa prices are based on market survey in DRC done in the month of September 2016, and Kigali prices are the average of various beef cuts at the Kigali upmarket meat outlets that were collected in October 2016

The ex factory prices obtained from the region for the various meat products destined for import to Rwanda shows that the niche hospitality industry is importing meat products and paying much higher prices that are as high as the prices being fetched by the meat products at Kinshasa.

Further research from regional meat exporting countries reveals potential for higher profits for Rwanda based meat producers of the high-end market meat products that are currently being imported into Rwanda in large volumes. For instance, meat sausages fetch an ex-factory price in the regional producing country of between USD4 to USD6 per Kg. In-flight destined beef sausages fetch ex-factory prices of USD4.5 Kg upwards. This means that by the time these products reach Rwanda hospitality and upmarket outlets the prices are even higher. These findings indicate potential for the Rwanda abattoirs and meat products producers fetching even higher margins than the one computed in the above table.

The feasibility of reaping Kinshasa market profits is revealed by information gathered from meat traders that are currently exporting Rwanda originating meat to DRC from Goma. They are charged USD2 per Kg.

This figure could come down if economies of scale were to be exploited through airlifting huge volumes of meat to DRC through an arrangement such as the one that brokered by National Agriculture Export Board (NAEB) between Rwanda Air and Ethiopia Airline for export of agricultural produce to Congo Brazzaville: *"Rwandan exporters have reason to smile after*

[4] *This is the average of the following beef cuts at the Kigali upmarket meat outlets that were collected in October 2016: Beef ramp steak USD5.4 per Kg (or RwF4,500); Beef fillet - USD4.8per Kg (or RwF4,500); Meat on bone - USD4.2 per Kg (or RwF - USD4.2 per Kg (or RwF3,500); Beef steak USD5.4 per Kg (or RwF4,500); Boneless meat - USD4.8 per Kg (or RwF4,000).*

government reached a deal with Ethiopian Airlines to transport exports to Congo Brazzaville. According to the agreement between the Ethiopian flag carrier and Rwand Air, Rwanda Development Board and traders, at least 30 tonnes of Rwanda's exports to Brazzaville will be airlifted twice a week" - *Source:* http://allafrica.com/stories/201305070050.html *7th May 2013,*

ii) **Rwanda abattoirs to stimulate feedlot business to be assured of constant livestock supply**
Experience in Namibia and Botswana, the two successful meat exporting nations show the need for abattoirs to tap livestock source from feedlots ran by private operators or by themselves. The economics of the feedlot model and its necessity in Rwanda are discussed later as an area meriting support. The simulation in the table below demonstrates that once abattoirs adopted new business model of producing value added products, they have an opportunity to make some profits. This fact is demonstrated in the table below through simulation of two possible scenarios of feedlot models as follows: -

a) The Scenario 1 is where animals are weaned at 9 months. The animals are kept in a feedlot for 9 months.
b) Scenario 2 is where the animals are weaned at 7 months. The animals are kept in the feedlot for 11 months.

The daily weight gain is estimated at 0.6Kgs per day in both scenario 1 and 2. The grades obtained after the feedlotting is higher and the expected bone out yield will as well be higher. The yield estimates for the higher grades obtained after feedlotting will be at 65%. The higher bone out yield is due to the weight gained and muscling of the animal during the intensive feedlotting. The expected carcass yield is also higher and is estimated at 55%.

The cost of feedlotting per day based on current feedlotting practice in Rwanda is RwF11,000 or (or USD1.32 per day). There are prospects for the feeding cost to be reduced especially if the feedlots can grow their own feeds and only supplement it to keep the feeding costs at minimum while ensuring consistent weight gains.

Table 7: Scenario 1: Product of value added meat products based on livestock sourced from Feedlot operators

Possible	**USD**
Scenario 1	
Weaning after 9 months	
Live weight at weaning (Kgs)	200
Assuming cost of buying the weaners at 180,000RFw (USD)	218
Cost of feedlotting for 9 months @ a cost of 1100RFw[5] per day (USD)	359
Live weight at the end of feedlotting (Kgs)	350
Total cost of animal at slaughter (USD)	577
Carcass weight @ 55% yield (Kgs)	192.5
Cost per Kg (Carcass) USD	3.00
Bone out yield per head (65%) kgs	125
Cost per Kg of boneless beef (USD)	4.61
Scenario 2	
Weaning after 7 months	
Live weight at weaning (Kgs)	150
Assuming cost of buying the weaners at 120,000RFw (USD)	145

[5] This cost is based on the current (October 2016) of feedlot feeding in Rwanda obtained during this survey.

Possible	USD
Cost of feedlotting for 11 months @ a cost of 1100RFw per day (USD)	439
Live weight at the end of feedlotting (Kgs)	350
Total cost of animal at slaughter (USD)	584
Carcass weight @ 55% yield (Kgs)	192.5
Cost per Kg (Carcass) USD	3.03
Bone out yield per head (65%) kgs	125.1
Cost per Kg of boneless beef (USD)	4.67

The target market for the meat products produced at a cost of USD 4.67 is the niche hospitality domestic market, which is currently importing meat from the region (Kenya) and DRC market where prices are very good as illustrated in the table below: -

Table 8: Measure of Rwanda Abattoir profitability after adopting value addition business model, based on mature cattle ready for slaughter

(1)	(2)	(3)		(4)	
English	**Production cost Per Kg**	Target hospitality industry (Rwanda) meat prices and gross profit		Kinshasa: meat selling price and gross profit margin	
		Ex factory price (EAC) USD Per Kg	Price margin USD Per Kg	Selling price USD Per Kg	Gross margin USD Per Kg
Beef rump steak	5	12	7	10	5
Beef fillet	5	14.50	9.5	15	10
Meat on bones beef	3	7.09	4.09	10	7
beef steak	5	10.5	5.5	12	7
Boneless meat	5	9.11	4.11	10	5

Source: Kinshasa prices are based on market survey in DRC done in the month of September 2016, and Kigali prices are the average of various beef cuts at the Kigali upmarket meat outlets that were collected in October 2016

Just as argued above, feedlot sourced cattle would besides assuring abattoirs of quality animals enable them earning margins both in the niche domestic and DRC markets. The animals from the feedlots are of higher grades i.e. Prime grade and Choice grade. The import prices paid by the hospitality industry for the imported meat would justify local investors into the feedlot business to supply the local upgraded abattoirs with high quality animals that would compete with the imported meat products in terms of quality and cost.

3.2 Rwanda abattoir upgrade program

Immediate hope for Rwanda to slaughter livestock currently destined to DRC lies in the following six front line abattoirs that were subjected to rigorous audit to establish their preparedness: -

a. Rugano Meat Supply Limited
b. Rugari Meat Processing Limited
c. CAMR Abattoir (Rubavu)
d. KOADU Abattoir (Rubavu)
e. Saban Abattoir
f. Santra Slaughter House

Detailed analysis of the status of these abattoirs is contained in the 'Baseline Study on Rwanda Abattoirs - (*MINICOM October 2016*) conducted as part of the overall goal of developing strategy for meat export to DRC.

A comprehensive abattoir upgrade program is recommended to address the challenges and constraints that must be addressed as part of the strategy for developing national capacity for meat production. The program will have the following components, all informed by the challenges that were established in the abattoir's assessment report.

Component 1: Meat products branding for target market
Rwanda abattoirs need to focus on the production of meat products that have a revealed domestic and regional market demand. These are chilled and frozen meat products that suits specific market requirement. Abattoirs should work jointly to develop a common brand in order to enjoy economies of scale while selling the meat to the domestic and export market.

Component 2: Abattoirs business model re-engineering
Abattoirs will be required to re-engineer their business model to shift from slaughter service to value added production of meat. A business re-engineering model that has been developed under the meat export strategy study shows the feasibility of the model. The new abattoirs business model will not only enable abattoirs to offer more competitive prices for livestock than DRC livestock traders but also opens a new business horizon of feedlots that further assures constant supply of livestock to the abattoirs through local value added livestock fattening interventions.

Component 3: Upgrade of current abattoirs to export abattoir
Each abattoir will need to invest in the upgrade of its facilities to address the identified gaps between its current facilities and the recommended export abattoir standards. For each abattoir, refer annex 4 on the proposed investment plan based on the identified gaps.

Besides abattoir specific areas of improvement, there is need for attention on the following areas that are common for all the assessed abattoirs:

a) Inadequate water supplies to match the slaughter capacities. The abattoirs should have alternative water sources of clean and potable water sufficient for the abattoir operations.
b) Lack of independent Competent Authority to carry out meat inspection in the abattoirs. There is need for independence in meat inspection to ensure protection of the consumers.
c) Lack of regulation on meat carriers and meat transportation from the abattoirs. There is need for a regulation on meat transportation and implementation of the same to ensure food safety and prevention of cross contamination.
d) Lack of meat cold chain management leading to sale of hot carcasses from the abattoirs. The abattoirs should invest in cold chain facilities in order to capture the high-end local markets and the export meat markets.
e) Lack of implementation of Quality Management System or any other internationally recognised systems such as food safety management systems or HACCP. There is need for implementation of these standards in the abattoirs in order to guarantee food safety to the end consumer.
f) Lack of any form of laboratory analysis on products and processing lines. The abattoirs should have a way of monitoring the hygiene and sanitation of the processing plants using an objective and reliable method.
g) Inadequate waste management systems to cope with installed capacities. Adoption of cleaner production approach to minimise environmental impacts of meat processing.
h) Inappropriate location of abattoirs majority being located near residential areas.
i) Inadequate animal pens designs that minimise stress of animals. Animal welfare issues should be considered while designing the animal pens, for production of high quality meat products.
j) Lack of emergency slaughter and post mortem rooms within the abattoirs. The abattoirs should invest in these facilities.

k) Low standards of hygiene and sanitation observed during abattoir operations. The abattoirs should invest in the right facilities and training of personnel to ensure high standards of hygiene and sanitation are maintained at all levels of production.
l) General Infrastructure. The abattoirs should invest in the right infrastructure and equipment that supports production of high quality meat and meat products.
m) Inappropriate use of equipment and training needed for personnel. There is need for abattoirs to do capacity building of the operatives and ensure that the equipment are used appropriately as intended to build efficiency in the operations.
n) Lack of organized markets and marketing channels. The most important factor in the growth of any industry is marketing. There is need to explore non-traditional markets including export markets such as DR Congo, Congo Brazzaville and Gabon among others. Marketing structures need to be strengthened.
o) The abattoirs get their revenues by offering service slaughters to meat traders and charging a fee for the slaughter. The abattoirs should change their current business model and focus more on value addition of the meat and meat products produced at the facilities. These value addition activities would ensure that the abattoirs are producing products such as chilled or frozen meat cuts, packaged primal cuts, sausages, meatballs and burgers among others.

3.3 Upgrade of livestock markets

The livestock markets that are scattered around the country lack basic infrastructure for animal holding. The also do not meet sanitary standards that are supportive of meat industry. These markets will continue to be a source of livestock ready for slaughter.

The revamped meat industry will require that livestock sourced from these markets be of acceptable quality. **It is therefore recommended that these markets be upgraded through provision of relevant infrastructure (sheds and sanitary facilities), environmental standards and animal health care services that befit animal holding grounds.**

3.4 Feedlots - Encourage private sector investments in feedlots

Feedlots are enterprises, which concentrate on feeding animals for a period ranging between 3 and 9 months to gain adequate muscle and finish (fat deposit) for slaughter. During this period, animals are fed grain and other concentrates. The principal functions of feedlot operations are to assemble large numbers of sheep and goats, bulls, and pigs, often coming from different origins for production of meat products of acceptable standard for Rwandan high-end market as well as the export market.

As observed in MINAGRIC (2012) Strategic and Investment Plan for Rwanda Meat Industry fattening offers many advantages, including the following:
- Technically, it is quite simple and within the capabilities of small farmers to implement; moreover, the results are highly visible. This helps farmers to have confidence in the technique;
- Benefits can be realized within a short period of time unlike other animal production activities;
- Fattening generates cash income that is eagerly sought by farmers;
- Fattening is generally profitable because the value per kilogram of live weight increases as both weight and condition increase.

Modern fattening with by-products shall be the best practice. This system can be promoted with sugar processing by-products such as molasses and corn (grain and residue). Protein sources like oilseed cakes can be purchased and/or forage legumes can be grown.

A feedlot capacity building support program focusing on the following areas is recommended:

a) Selection of animals for fattening;
b) Management of finishing animals;
c) Health for fattening stocks;
d) Feeding finishing animals;
e) Record keeping;
f) Profit of fattening operation: feedlot operators need to keep a close watch on feedlot profit, which is a very sensitive measure of the efficiency of management. The factors affecting profit in a feedlot include: -
   i) The number of days spent in the feedlot, which is related to the initial weight of the animal on entering the feedlot and the growth rate of the animal;
   ii) Price of feed;
   iii) Feed efficiency;
   iv) The difference in price between starting and finished animals
   v) Other expenses which affect the profitability of feedlot include the following:
      - *Transport;*
      - *Interest on capital;*
      - *Labor costs;*
      - *Mortalities and veterinary costs; and*
      - *Pre-treatment costs (dipping, dosing, vaccination).*

This is the path that the Botswana meat industry followed as in USAID Pakistan Agribusiness Project (2012) from which the following text is derived for purposes of learning some lessons: -
'The Botswana government, through the Botswana Meat Commission (BMC), came up with very successful initiative to increase the value of livestock and at the same time increase the production per animal. Firstly, the BMC ***started with identifying the market for livestock products and worked backwards****. They believed that the market would pay a premium for that which is required by the consumer. Exporters and butcher"s will add value if the market dictates a certain product. Growers (feedlots) will purchase and feed cattle that maximize their profits when sold to the butcher and finally, the producer should produce a product that best fits the requirement of the finisher. The below illustration, adapted from an illustration given recently by Clive Marshall, procurement officer for the BMC, at the Zimbabwean beef school (Sept 2012), shows how wealth was created throughout the value chain creating feedlots in Botswana.*

"The BMC was able to incentivize the creation of private feedlots that would pay producers more money for their cattle per kilogram if they met certain weight requirements. Producers are able to share in the value being added in all sectors of the value chain by being trained to understand beef production principles".


Market for value added product
Demand for quantity, quality and regular supply
Increased feedlot capacity
Increase in demand and competition for feedlot cattle
Increase in live weight price
INCREASED WEALTH THROUGHOUT THE CHAIN

Feedlot Management - Experience from Botswana

"Critical to the whole enterprise was the establishment of a number of private feedlots. To run a feedlot business takes a very high level of management. One serious disease outbreak or problem with feed, for example, can result in enormous losses and the feedlot going bankrupt. The Feed master feedlot in Botswana is owned by John and Greg Smith. They believe that in a long-weaner system such as that in Botswana a feedlot needs at least between 1500- 3000 cattle per intake three times per year to be profitable. Most of the smaller feedlotters have gone out of business. Getting the financial model correct is critical as smaller feedlots can simply not build up the reserves that are required to ensure that the feedlot is economically viable in times when the prices are low or feed is scarce and expensive".

3.5 Livestock price information

Livestock price information is crucial in encouraging rearing of specific grades of livestock. The Botswana Meat Commission experience shows need for setting a pricing system that would be used for dissemination of the latest prices every week to producers. The pricing system favours cattle that are suited for feedlot.

Table 9 (adapted from USAID (2012). Example of the pricing system in Botswana which favours cattle suited to the feedlot sector (US dollar) Dentition (no. of teeth) category

Live weight	0&1	2	3&4	5&6	Full Mouth	Average Live weight
<240 kg	1.17	0.65	0.65	0.65	-	220
240.5-280	1.29	1.21	1.03	0.65	-	260
280.5-320	1.27	1.18	1.01	1.00	-	300
320.5-360	1.20	1.12	0.95	0.94	-	340
360.5-390	1.16	1.08	0.92	0.91	-	375

3.6 Modernization of meat distributorship channel

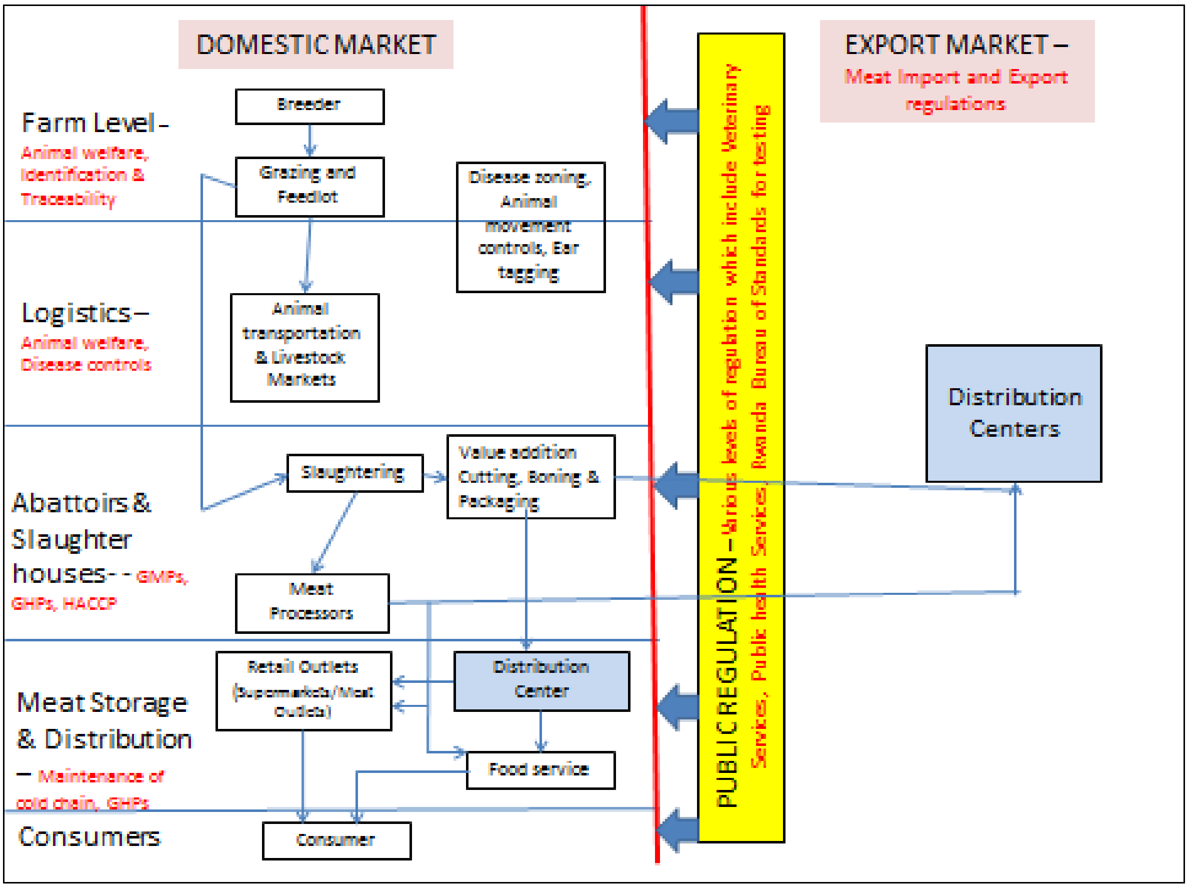
Current meat distributorship channels require complete overhaul to ensure a system that assures quality and food safety standards. The picture below shows an extreme case of the current scenario that justifies the reform.

Some of the meat exporters buying meat at the Abattoir to export to Congo

This picture which was taken in July 2016 during the meat industry situational analysis at one of the abattoirs along the Rwanda/DRC borders demonstrates the need for modernization of meat distribution channels to meet international standards.

A modern distribution channel, which is recommended in MINAGRI (2012) report, should include steps from the farmer to the consumer, with every step being guided by appropriate regulations that guarantee quality and food safety. The diagram below provides areas to be focused in the modernization of the distributorship channels.

Diagram 1: Proposed Meat Modernization Channel



According to the experience in Namibia and Botswana where the above system is working, modernization of the distribution channel require the following policy and legal instruments to be put in place and effected: -

1) **Animal breeding and feeding guidelines**
The success of the livestock sector is also dependent on a strong breeding and animal feeding industry. The reality is that the investment in animal genetics and improved feed interventions should be made to the producers with at least 30 or more animals whom would be keen to get involved in the meat value chain that is independent of the dairy industry. The fact that there is a strong demand for meat and associated products would make interventions in this industry viable.
Productivity of the meat industry relies heavily on the type of breed that is passed on to the farmers for meat industry livestock rearing. The knowledge of breeds should be made seamless, tying breeds to projected profitability in meat industry destined livestock. It is therefore recommended that animal breeding and feeding guidelines be developed.

2) **Guidelines on meat hygiene and standards**
The activities of the meat sector fall into three stages: slaughtering, meat cutting and further processing. Each stage involves completely different technical operations, which must not be viewed as separate and independent processes. There are significant interactions between the stages and shortcomings at one stage can have a serious negative impact on the product or process in a subsequent stage. They may influence technological, biochemical or microbiological aspects.

Improper slaughtering techniques such as faulty stunning, bleeding, skinning, evisceration and carcass splitting can damage parts of the carcass and certain by products and make them unsuitable for further use. Poor standards of hygiene during slaughtering or carcass handling result in high levels of microbial contamination in the meat, thus reducing the shelf life and adversely affecting the sensory properties of products fabricated from this raw material.

To avoid risks associated with meat handling processes at any of the three stages, it is recommended that 'Guidelines on meat hygiene and standards' be developed. The purpose of the guidelines will be to disseminate practical information on meat hygiene and meat technology to meat industry personnel, and to provide the necessary encouragement for improving production in the meat sector and reducing post-harvest losses.

The guidelines will comprise basic techniques in slaughtering, meat cutting and further processing and the respective hygienic regulations applicable to both the small-scale and the medium-sized meat plants. Adherence to these basic guidelines will contribute to the production and consumption of safe, good-quality meat and meat products.

It is important to underscore the fact that strict adherence to general hygienic rules in the meat industry will minimize food-borne diseases as well as promote Rwanda as a source of safe meat in the export market. The expected guidelines will therefore also play a useful role in the public health sector.

3) Abattoirs Good Manufacturing Practices (GMPs)

Efficient functioning of the meat distribution channel depends on the output from abattoirs. The findings from abattoirs assessment indicate that abattoirs in their current status are not ready to be integrated into the above meat distribution channel due numerous challenges as already discussed. Guidelines of Abattoir Good Manufacturing Practices are proposed to ensure that abattoirs play their role in the distribution channel. **This study has developed a model 'Abattoir GMPs' Guidelines to serve as a starting point for the industry**.

4) Guidelines on meat cold chain

International standards for meat processing require that meat from abattoirs and other meat processors be chilled or frozen immediately to avoid the meat going bad before reaching the intended consumers. Survey among meat traders and abattoirs revealed lack of knowledge and appreciation of the meat cold chain as a necessity in meat business.

Experience in Namibia and Botswana indicates the need for entrenching meat cold chain system in the meat industry legislation as a requirement for meat processors and traders motivated by need to preserve the quality of Rwanda meat.

To promote awareness and compliance with the meat cold chain requirements, it is recommended that guidelines on meat cold chain be developed. **This study has developed a model 'Meat Cold Chain Guide' to serve as a starting point for the industry**.

5) Meat Export Policy

Lesson from Namibia's meat industry's success demonstrates the impact of meat export policy in the ability of Namibia meat penetrating even the most sensitive markets such as the EU. Transformation of Rwanda into a meat-exporting nation requires that such a policy be put in place as an integral part of measures being undertaken to develop the industry targeting domestic and DRC and other potential regional and international markets.

Going by the experience in Namibia, the scope of the policy will include standards for export abattoirs, classification of meat for export, regulation on the export of meat, classification of bovine beef, sheep, goat and pig carcasses, and provision for appointment of independent assessor of abattoirs and meat processors carcass and meat classification systems.

6) Meat Export and Import Quality Control Conditions

Pursuant to the proposed meat industry Act, there is need for a regulation on 'Meat Export and Import Quality Control Conditions' to be developed. The regulation will be touching on meat export permits to assure importers of the quality of meat, packaging requirements, transport of meat and meat products, restriction on the exportation of meat and meat products, inspection of meat export consignments and meat import permits aimed at ensuring that the integrity of Rwanda's meat quality is not affected by uncontrolled meat imports.

7) Meat distribution centers

The success stories from Botswana and Namibia demonstrate need to have control of the meat distribution right up to retail to ensure that quality of meat is sustained throughout the logistics chain. Distribution centers are used as the point of dispatch. In Rwanda, this model of distribution center need to be adopted targeting the hospitability and up market meat outlets. The same model is recommended for meat exports.

An all-abattoir owned *'vehicle'* for marketing, distribution and export of meat and meat products is recommended, in order to capitalize **on the value of branding and economies of scale.** This model is what Namibia Meat Company (Meatco) has capitalized on to evolve very competitive meat brands that fetch premium prices in South Africa and the EU.

8) Export abattoir licensing and inspection Guidelines

Pursuant to the proposal for the legal framework to have specific provision on export abattoirs, its proposed that export abattoir licensing and inspection Guidelines be developed to guide the regulator and the private sector on the standards of export abattoirs.

9) Meat industry training strategy

The shift of abattoirs business model to the value addition model geared towards production of meat products for the high-end domestic market as well export market require skilled labour.

A meat industry training strategy is therefore needed. The aim of the strategy is to effectively target the needs of the industry and workers with an aim of supporting meat industry's productivity and workers career development.

Among the challenges that the training will be targeting include new technology in meat industry, meat processing and safety standards. The strategy will aim at upgrading skills of current employees in a range of essential meat industry skills requirements, which include quality assurance, meat safety, meat industry management, workplace assessment and training and information technology. The training needs to be targeted will include the following:

- Hygiene and safety standards;
- Quality assurance;
- Qualifications regarding meat processing;
- Meat inspection.

The training strategy should involve veterinarians, slaughterhouses' inspectors, butchers and retailers.

4.0 STRATEGIC INTERVENTIONS FOR SUPPORTIVE ENABLING BUSINESS ENVIRONMENT FOR THE MEAT INDUSTRY

4.1 Meat Industry Legal and Regulatory Framework

The success of meat industry exports lies squarely on the prevailing legal and regulatory framework that assures consumers of the quality and food safety standards of the meat and meat products. As a matter of fact, some countries require that before a given country exports meat to their market, they must undertake inspection of export facilities to ascertain the hygiene and the quality of the meat products at production level. A country is able to go through this rigour of the importing country only if it has a legal and regulatory system that guarantees the conditions that they would be interested in expecting before allow meat to be exported to their market.

Even without the rigour of importing country inspection, experience in Namibia and Botswana have demonstrated how a robust legal and regulatory framework has worked towards promoting the two countries as global source of high quality meat products.

These two countries therefore serve as a reference point on the meat industry legal and regulatory framework that Rwanda should be aspiring to have. MINAGRI (2012) Report on Strategic and Investment Plan for Rwanda Meat Industry already saw the need for strengthening the existing laws, regulations and decrees as existing in other countries. A review of the current legal and regulatory framework for the meat industry as availed by RAB shows that the laws that were in existent in 2012 are still the ones governing meat industry today.

The primary law is 'Law n° 54/2008 of 10/09/2008 determining prevention and fight against contagious diseases for domestic animals in Rwanda'. Pursuant to these laws, the following Ministerial Orders have been issued:

a) Ministerial Order nº 012//11.30 of 18/11/2010 on animal slaughtering, meat inspection
b) Ministerial Order n°013/11.30 of 18/11/2010 on transport and trade of meat

A critical review of the provisions of this legal framework reveals major deficiency in the context of meat export. The legal framework is designed more for meat traded internally and aims at guaranteeing consumer safety. The law is therefore weak and inadequate to promote production of meat for exports. It also has so many loopholes that have been exploited as revealed during the field survey, where abattoirs and the regulator complained of rampant illegal animal slaughter, which undercut genuine businesses in meat production.

The legal framework therefore needs to be overhauled. This exercise should be benchmarked against the success stories of Namibia, Botswana and Kenya, in view of the success of these countries in exportation of meat into the regional and international markets. A review of these countries legal framework shows that as a minimum the following should be included the Rwanda legal and regulatory framework: -

a) Meat Act

This is an overarching legislation for the industry which should as a minimum provide for: -

i) The establishment of a meat industry regulator or the Board to promote meat production
ii) Definition of livestock and meat as controlled products that are subject to regulation by the Board in order to guarantee meat safety and quality standards.
iii) Grading, composition, packing or marking of controlled products
iv) Meat cold chain value chain
v) Importation and export of controlled products

b) Regulations on:

vii) Livestock movement, transport and animal welfare

viii) Safety and health inspection of meat animals, meat and by-products intended for human consumption;

ix) HACCP standards in the meat industry

x) Abattoir Good Agricultural Practice including personnel requirements

xi) Meat cold chain storage throughout the value chain to the consumer

xii) Standards on meat:

- Transportation of meat by cold storage;
- Meat and sausage;
- Meat cutting.

4.2 Meat Industry Management, Legal and Regulatory Framework

4.2.1 Meat Industry Regulator or Meat Board

The experiences in Namibia and Botswana, and indeed in all countries that have succeeded in evolving meat industry for export show the critical role that an independent industry trade regulator plays. Their primary role is to promote the country as source of high quality meat and meat products, regulation of the meat industry to safeguard sanctity of the country's meat brands, facilitation of the exports of livestock, meat and processed meat products. The Board comprises representation from all industry stakeholders - livestock farmers, abattoirs and slaughter houses and service providers in the meat industry.

In Rwanda, although RAB has done commendable job in promoting livestock production and trade, the status of the meat industry point to the need for an independent body in keeping with the practice on the meat exporting success stories. Lack of effective implementation of the MINAGRI (2012) Strategic and Investment Plan for the Meat Industry, points to the need of a dedicated regulator. The need is further amplified by the fact that despite having capacity to produce meat for exports market, this capacity has not been utilized. Meat exports to DRC have remained informal with virtual lack of meat export quality and food safety control.

Rwanda therefore needs to establish an independent meat regulator or Meat Board. The Board will also need to work out self-sustaining funding mechanisms that could initially be matched by grants from development partners.

Namibia's Board serves as a bench mark that Rwanda can pursue in exploring this recommendation in view of the success of Namibia in production of meat products that fetch premium prices.

Box 1: Namibia Meat Board

The Meat Board of Namibia, founded in 1935, facilitates the export of livestock, meat and processed meat products to importing countries. All major stakeholders of the Namibian meat industry are represented on the Board. It is adequately equipped to assist the meat and livestock trade with relevant information, technical and administrative support.

The vision of the Meat Board of Namibia is to be an internationally recognized organization that promotes a profitable, vibrant, quality-driven Namibian meat industry in local and international markets.

The establishment of a Meat Board will ensure that all sectors of the Meat Value Chain are influenced positively to produce a higher quality of product. The Board, besides overseeing the upgrading of the abattoirs to the required export abattoir standards will encourage the private investors to establish Meat Retail Stores complete with cold chain infrastructure. This will help create the "pull through" effect that is required down the value chain. Viable retail stores will demand good product from the chain below i.e. from the abattoirs who in turn demand a good product from the suppliers of livestock products. Through this role, the Board will be promoting wealth creation throughout the value chain.

4.2.2 Strengthening DVS

As noted earlier, DVS capacity is a key opportunity for turning around the meat industry to start producing for export in the shortest time possible. The following areas, building from the recommendations of MINAGRI (2012) Report on Strategic and Investment Plan for Rwanda Meat Industry as well as consultations with the DVS during the study, have been identified for strengthening as a strategic response to building DVS capacity to support the production of meat for exports.

1. **Strengthen DVSs in ensuring timely communication of animal diseases and zoonosis information**
   The objective is to communicate timely and accurate animal disease information, including information on zoonosis, by making the best use of scientific data modelling, modern information technologies, and non-official information tracking systems:
   a) There are two main streams of communication of animal disease information: scientific information gathering, analysis and official communication, and public communication based on this scientific analysis;
   b) Communicating timely and accurate animal disease information, including information on zoonosis, should be one of the core functions of the Veterinary services. That requires processing and real-time operating of data on epidemiological monitoring conducted in the laboratory of veterinary services; Dissemination of the official information in a transparent, responsive and efficient manner.

   Implementation of a sanitary alert system based on epidemiological analysis of data in its information system and in cooperation with the bordering countries.

2. **Strengthen DVS efforts towards the development and implementation of scientifically based standards and guidelines**
   The objective is to develop scientifically based standards and guidelines on all matters concerning animal health, veterinary public health, animal welfare, diagnosis and control of diseases, assessment and relevant recognition of animal health status, and sanitary safety in animal production and international trade in animals and animal products.
   a) Developing scientifically based standards and guidelines for safe trade in animals and animal products;
   b) Developing animal production food safety standards complementary to the food safety standards;
   c) Improving public and private sector awareness of the importance of the national standards for animal health and veterinary public health and;
   d) Strengthening collaboration with relevant international and regional Organizations on technical and legal issues related to veterinary products, including legislation, registration and control and monitoring of use.

3. **Strengthen DVS system of prevention, control and eradication of animal diseases, including zoonosis**

The objective is to provide scientifically based recommendations on measures for the prevention, control and eradication of animal diseases including zoonosis, taking into account the economic, social and environmental impacts of such measures:

a) Develop, together with partner organizations at international and regional levels, common strategies concerning the control of transboundary diseases and their implications for trade;
b) Cooperation with OIE in developing and carrying out coordinated regional programmes for preventing, controlling and eradicating priority animal diseases;
c) With international and regional partners, address the animal and zoonotic disease risks of the smallholder farming sector, including communities in peri-urban areas;
d) Strengthen cooperation and information exchange in relation to border control.

4. Ensuring the scientific excellence of information and advice

The objective is to ensure the scientific excellence and timeliness of information and advice available to national Veterinary Services and to other interested parties in the country:

a) Meeting the scientific standards of OIE.
b) Specialization among scientist to incorporate new subjects such as climatology, ecology or entomology as well as an increased degree of interaction and interdisciplinary across diverse areas of science.
c) Encouraging comprehensive and continuing epidemiological studies to understand infection and disease transmission dynamics between wildlife, domestic animals and humans.
d) Encouraging research into inter-species pathogen transmission and migration patterns, in collaboration with the wildlife sector;
e) Encouraging research into the surveillance of antimicrobial resistance in pathogens and the possible causes leading to the development of antimicrobial resistance;
f) Strengthening opportunities for interaction between the public and private sectors in scientific research to meet animal health and welfare challenges.

5. Capacity building for national veterinary services

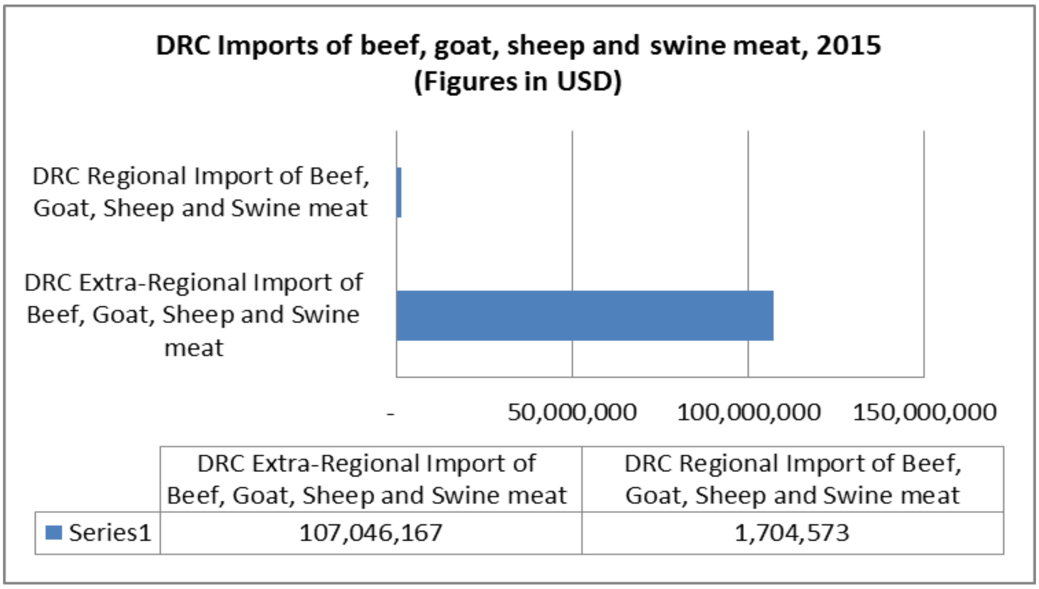
The objective is to strengthen the capacity of Veterinary Services to achieve the improvement of animal health, veterinary public health and animal welfare, while improving their ability to participate in the development of international standards and guidelines on these matters; and strengthen their ability to apply these standards and guidelines:

a) Strengthening the good governance of Members' Veterinary Services, including technical and management capacities and legislation;
b) Upgrading the laboratory of the Veterinary services to reach the level 3;
c) Implementing a laboratory of food analysis;
d) Develop surveillance capacity, including the development of tools and monitoring processes for use at national, regional and global level;
e) Encourage improved collaboration between the public health and animal health sectors and other competent ministries to improve preparedness for and response to potential natural or intentional infectious disease outbreaks;
f) Encourage and evaluate the initial and continuing education of veterinarians and veterinary para-professionals;
g) Working with veterinary statutory bodies for a better selection of, and the continuing education of, veterinarians and para-professionals.

5.0 DRC MARKET SCAN AND MEAT EXPORT LOGISTICS

5.1 DRC Market for Meat and Meat products

The DRC market for meat and meat products, going by the 2015 statistics stands at USD107million. All the meat products are either chilled or frozen. Analysis of the data shows that DRC relies on 98% of imports from rest of the world (Non COMESA and EAC countries), while 2% is sourced from the region. As evidenced in Annex 3, Rwanda is not among the regional countries that DRC imports the meat products from. The scenario is confirmed by Rwanda Revenue Authority data which shows that in 2015 Rwanda did not export any meat products to DRC..



The market potential that Rwanda is therefore targeting in DRC is estimated at USD107m. One of the secrets for Rwanda to capture this market is production of the products that the market requires. During this study the meat and meat products that are listed in section 2.5 of this report were confirmed as having demand in DRC.

5.2 Meat trade and potential for market link in DRC

Meat trade between Rwanda and DRC is currently done informally through traders who have established link with abattoirs for daily supplies of hot carcass meat for distribution in Goma and Rubavu. There are however two prominent traders who are distributing Rwanda meat on daily basis to Kinshasa. As evidenced in the annex xx, the volumes are small. The traders indicated that large volumes could be exported if meat supplied by abattoirs had long shelf life. Unfortunately, all abattoirs at the border concentrate on slaughter services and do not produce chilled or frozen meat that could with stand long haul to Kinshasa and other potential meat destination cities.

These traders form the starting point for Rwanda creating market link for meat distribution in DRC through meat distribution centers that are proposed in the modernization of meat distribution channels. A key weakness among all meat traders that will need to be addressed is lack of cold chain infrastructure. Education and awareness on necessity for investment in this infrastructure for purposes of being contracted by Rwanda abattoirs as official distributors of Rwanda meat will be needed. This will incentivize the traders to invest in such infrastructure for purposes of uptake of chilled or frozen meat from Rwanda.

The two traders that are currently airlifting Rwanda meat from Goma to Kinshasa could be approached to initiate process of meat distribution in Kinshasa and neighbouring cities. In such a case, Rwanda would deliver meat in Kinshasa meat distribution center from where these traders would supply their customs as well as help recruit other distributors who at the moment are distributing meat from rest of the world.

5.3 Target DRC destination cities

The market for DRC chilled and frozen products are in major cities. According to consumer life style, chilled and frozen meat and meat products are mainly consumed by high and middle income groups who reside in major urban centers. This fact was attested during the field survey in DRC where the following cities were identified as cities that chilled and frozen meat from Rwanda abattoirs and meat processors can be destined. Presently Rwanda exports meat to DRC informally mainly to Goma, from where some of the meat is dispatched by air to Kinshasa.

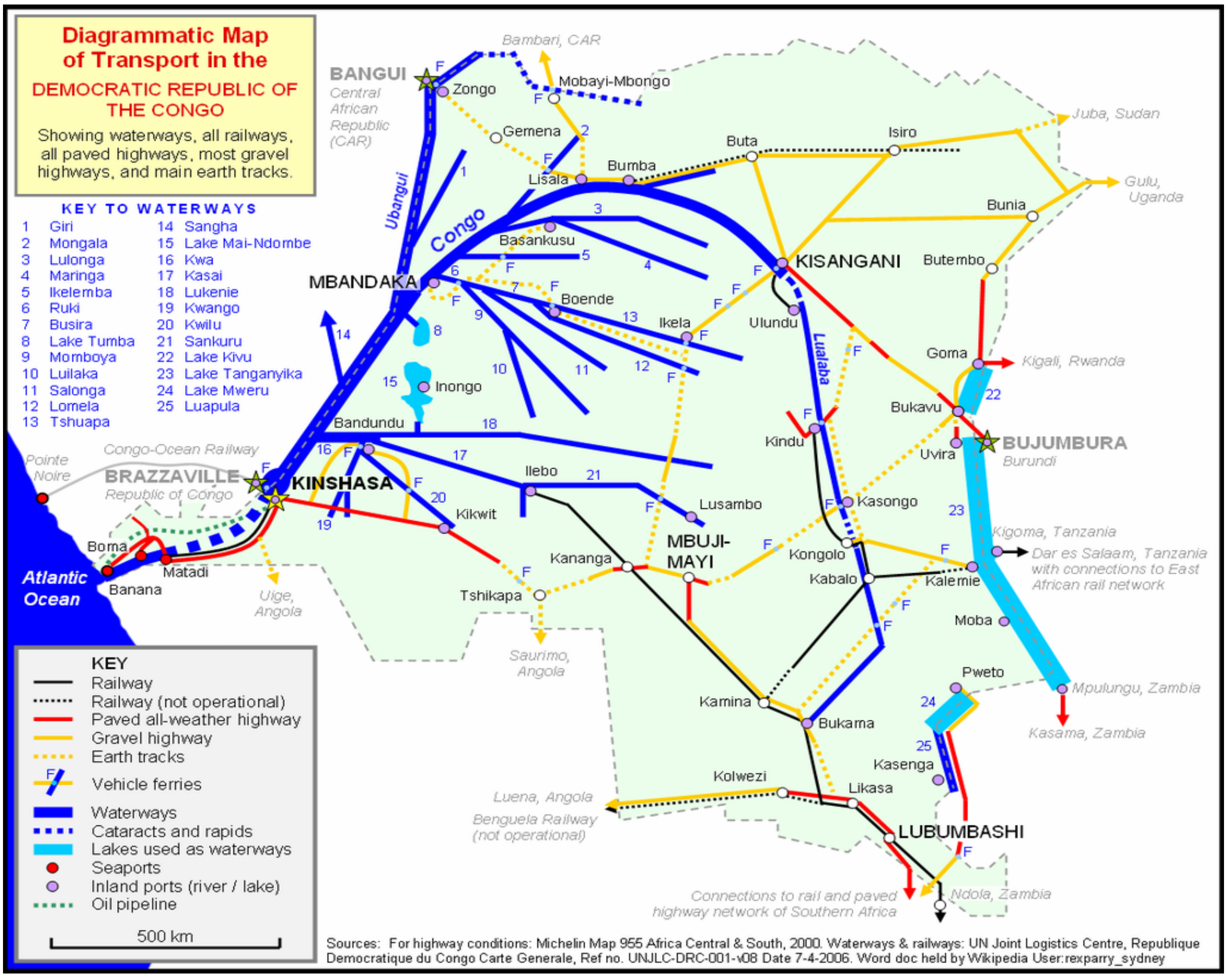
Table 9: DRC target destination cities for Rwanda chilled and frozen meat and meat products.

DRC Target City	Population
1) Kinshasa	7,785,965
2) Lubumbashi	1,373,770
3) Kisangani	539,158
4) Kananga	463,546
5) Mbuji-Mavi	874,761
6) Tshikipa	267,462
7) Likasi	422,414
8) Kolwezi	418,000
9) Bukavu	225,389
10) Goma	1,200,000

5.4 Logistics for distribution of Rwanda meat in DRC

5.4.1 Road and waterway transport logistics

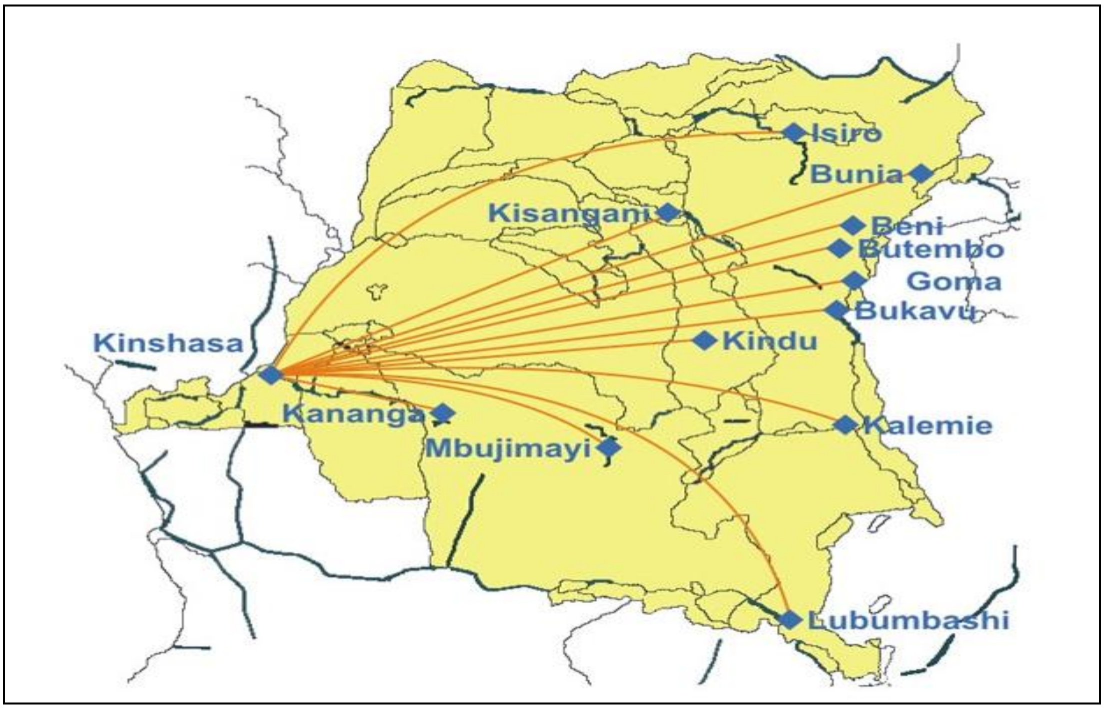
The map below shows road and waterway networks connecting the major target cities for Rwanda meat products. The status of the road and waterway networks is however not so good as most of the infrastructure is dilapidated with instances where road network, especially in Eastern DRC is earth paved with some areas being impassable during rainy seasons.



Consultation with Bollore Africa, one of the largest transport and logistic provider company in DRC revealed opportunity for exploiting DRC meat market potential through partnership with such companies that are transporting goods throughout DRC using these transport networks. Discussions with Bollore Africa which has subsidiaries in the following cities could be strategic in opening up DRC market for Rwanda meat and meat products. The company has subsidiaries in the following cities: Kinshasa, Lubumbashi, Bukavu, Kolwezi, Kisangani. The company offers transport, logistics and warehousing services.

5.4.2 Air transport logistics

An air transport logistics obtained from Serve Air, one of the leading private sector cargo airlines in DRC indicates that all major target DRC cities for Rwanda meat products have air connectivity. Air connectivity demonstrates feasibility of Rwanda meat being airlifted to any of the major cities through distributorship agreements. Already, meat from Rwanda is being exported to Kinshasa via Goma informally. This opportunity can be exploited through partnership arrangements build around meat distributorship centers in Goma and Kinshasa from where meat can be airlifted to other cities Rwanda meat distributorship partners.



Source: ServiceAir Cargo

5.4.2 *Prices of meat and meat products in DRC*

A market survey during this study revealed that DRC market offers lucrative prices for chilled and frozen meat and meat products, which ranged between USD10 and USD15 per Kilogram. As discussed in section 3.1.2, Rwanda meat would fetch healthy profit margins in DRC. Rwanda can play around with this huge profit margin to increase its share of DRC market for chilled and frozen meat.

Table 10: DRC prices of meat products and projected profit margin for Rwanda meat products

(1)	**(2)**	(4)	
English	**Production cost Per Kg**	**Kinshasa: meat selling price and gross profit margin**	
		Selling price USD Per Kg	Gross margin USD Per Kg
Beef rump steak	5	10	5
Beef fillet	5	15	10
Meat on bones beef	3	10	7
beef steak	5	12	7
Boneless meat	5	10	5

5.4.3 *Proposed Rwanda-DRC Market Link Model*

Logistics and distribution network are the single most important factor in determining the success of Rwanda's exports of meat to DRC. The success stories of meat exporting countries such as Namibia demonstrate need for having a command on the quality of distributorship to ensure that the standard is maintained for purposes of promoting the country's reputation as a source of high quality meat and meat products.

The concept of distributorship centers in select cities is proposed. For a start this could be Goma and Kinshasa, where chilled meat from Rwanda is transported directly for onward distribution to other cities by appointed distributors. To roll out these centers, Rwanda abattoirs or Rwanda meat Distributorship Company will enter into contracts with DRC local entrepreneurs once they meet conditions set out for meat distributorship center.

ANNEX 1: RWANDA LIVESTOCK MARKETS

ANNEX 1 RWANDA LIVESTOCK MARKETS							
PROVINCE	**DISTRICT**	**MARKET**	**SECTEUR**	**FREQUENCY OF MARKET DAYS**	**LIVESTOCK SOLD PER MONTH (Figures - Heads)**		
					Cattle sold per month	**Small animals sold per month (Figures - Heads)**	
						Goat/Sheep	**Pigs**
Northern	Gicumbi	1. Rutare	Rutare	Twice a month	180	0	0
		2. Mukarange	Mukarange	Twice a month	120	0	0
		3. Gaseke	Gaseke	Twice a week	0	300	0
	Bulera	4. Kivuye	Kivuye	Twice a week	0	250	0
		5. Rusumo	Butaro	Twice a week	120	1000	0
		6. Rugarama	Rugarama	Twice a week	0	200	0
		7. Gahunga	Gahunga	Once a week	0	150	0
		8. Mucaca	Rugengabari	Once a week	480	600	120
	Gakeknke	9. Kivuruga	Kivuruga	Once a week	600	0	0
		10. Gisiza	Muyongwe	Once a week	160	400	0
		11. Murambo	Janja	Once a week	400	0	0
		12. Rutabo	Coko	Once a week	0	400	0
	Rulindo	13. Base	Base	Once a week	800	2000	0
		14. Rusine	Rusine	Once a week	600	1600	0
Total Northern Province					**3460**	**6900**	**120**
Western	Rubavu	1. Kabumba	Bugeshi	Once a week	200	0	0
		2. Mbungangali	Gisenyi	Once a week	0	300	0
		3. Mahoko	Kanama	Twice a week	0	600	0
		4. Nyakiriba	Nyakiriba	Once a week	0	100	0
	Nyabihu	5. Kabumba		Once a week	0	0	0
		6. Mukamira	Bigogwe	Twice a week	4000	0	0
		7. Shyira		Once a week	0	0	0
	Ngororero	8. Kabaya	Gaseke	Once a week	800	2000	0

ANNEX 1 **RWANDA LIVESTOCK MARKETS**							
PROVINCE	**DISTRICT**	**MARKET**	**SECTEUR**	**FREQUENCY OF MARKET DAYS**	**LIVESTOCK SOLD PER MONTH (Figures - Heads)**		
					Cattle sold per month	**Small animals sold per month (Figures - Heads)**	
						Goat/Sheep	**Pigs**
		9. Nyange	Nyange	Once a week	800	0	0
		10. Gateba	Hindiro	Once a week	800	0	0
		11. Mutake	Kavumu	Once a week	800	600	0
		12. Ndaro	Ndaro	Once a week	400	0	0
	Rutsiro	13. Gisiza	Musasa	Once a week	0	0	0
		14. Rambura	Mukura	Once a week	320	0	0
		15. Nkora	Kigeyo	Twice a week	1760	0	2400
		16. Bwiza	Murunda	Once a week	0	800	0
	Karongi	17. Rugabano	Rugabano	Once a week	160	0	0
		18. Rubengera	Rubengera	Once a week	120	0	0
		19. Mukungu		Once a week	240	480	800
		20. Bwishyura	Bwishyura	Once a week	60	0	0
		21. Murambi	Murambi	Once a week	320	0	0
	Nyamasheke	22. Rugali	Macuba	Once a week	3200	1400	1600
		23. Bumazi	Ruharambuga	Once a week	800	0	0
		24. Vile	Cyato	Once a week	320	200	600
		25. Mugonero	Mahembe	Once a week	0	120	800
		26. Birembo	Macuba	Once a week	0	0	3200
		27. Ntendezi	Ntendezi	Once a week	0	0	2000
		28. Bushenge	Bushenge	Once a week	0	400	0
	Rusizi	29. Gihundwe	Gihundwe	Twice a week	0	2000	0
TOTAL Western Province					**15,100**	**9,000**	**11,400**
Southern	Nyamagabe	1. Gatare	Gatare	Once a week	1400	0	0
		2. Kaduha	Kaduha	Once a week	0	0	1200
		3. Ruhondo	Tare	Once a week	2200	400	4000

ANNEX 1 **RWANDA LIVESTOCK MARKETS**							
PROVINCE	**DISTRICT**	**MARKET**	**SECTEUR**	**FREQUENCY OF MARKET DAYS**	**LIVESTOCK SOLD PER MONTH (Figures - Heads)**		
					Cattle sold per month	**Small animals sold per month (Figures - Heads)**	
						Goat/Sheep	**Pigs**
		4. Musebeya	Musebeya	Once a week	0	480	0
		5. Miko	Mbazi	Once a week	0	320	0
	Nyaruguru	6. Cyahinda	Cyahinda	Once a week	0	800	200
		7. Kibeho	Ndago	Once a week	1000	0	0
		8. Uwinteko	Busanza	Once a week	480	520	200
	Huye	9. Karambi	Kigoma	Once a week	0	320	2000
		10. Rugogwe	Ruhashya	Once a week	600	800	1000
		11. Busoro	Gishamvu	Once a week	320	600	1400
	Gisagara	12. Save	Save	Twice a week	0	1200	2400
		13. Musha	Musha	Twice a week	0	2400	2000
	Ruhango	14. Ruhango	Ruhango	Once a week	2400	1600	0
		15. Buhanda	Kabagari	Once a week	140	800	0
	Muhanga	16. Misizi	Shyogwe		800	0	0
		17. Remera	Kiyunga		120	0	0
		18. Mbuyi	Rangi		320	0	0
		19. Ruhango	Rangi		0	480	0
	Kamonyi	20. Gacurabwenge	Taba	Samedi	0	0	0
		21. Manyana	Kayumbu	Twice/month	150	0	0
		All public market			0	1000	0
TOTAL Southern Province					**9,930**	**11,720**	**14,400**
Eastern	Bugesera	1. Mbyo	Mayange	Once a week	540	0	0
	Gatsibo	2. Rwikiniro	Rwembogo	Once a month	500	200	0
		3. Kabarore	Kabarole	Once a month	500	200	0
		4. Rwagitima	Rugarama	Once a week	0	2000	0
		5. Mugera	Gatsibo	Once a week	0	2000	0
	Kayonza	6. Kabarondo	Kabarondo	Once a week	0	1600	0

ANNEX 1
RWANDA LIVESTOCK MARKETS

PROVINCE	DISTRICT	MARKET	SECTEUR	FREQUENCY OF MARKET DAYS	LIVESTOCK SOLD PER MONTH (Figures - Heads)		
					Cattle sold per month	Small animals sold per month (Figures - Heads)	
						Goat/Sheep	Pigs
		7. Karubamba	Rukara	Once a week	0	800	0
		8. Buhabwa	Murundi	Once a month	450	200	0
		9. Nyawera	Mwiri	Once a month	350	250	0
	Kirehe	10. Bukora	Rusomo	Once a week	0	1200	0
		11. Kankobwa	Nyarubuye	Once a month	600	200	0
	Ngoma	12. Gituku		Once a month	250	200	0
	Nyagatare	13. Nyendo	Rwempasha	Once a month	400	0	0
		14. Rwimiyaga	Rwimiyaga	Once a month	500	200	0
		15. Ryabega	Nyagatare	Once a month	400	0	0
		16. Rutare	Rwempasha	Once a month	400	0	0
		17. Nshuli	Tabagwe	Once a month	400	0	0
		18. Rwabiharamba	Karangazi	Once a month	500	0	0
		19. Mbale	Karangazi	Once a month	500	0	0
		20. Nyakigando	Katabagemu	Once a month	400	0	0
TOTAL Eastern Province					**6,690**	**9,050**	**-**
TOTAL GENERAL					**35,180**	**36,670**	**25,920**

ANNEX 2: Rwanda Meat Products Imports (2015 and 2016 (Up to September)

Annex 2 (a): Rwanda Intra-Regional imports of meat products - 2015 & 2016, figures in RwF

HS Code	Product Description	2015 [Figures in RwF)	2016 [Figures in RwF)	Countries of Origin
02011000	,- Fresh or chilled Carcasses and half-carcasses	-	283,587	Kenya
02012000	,- Fresh or chilled boned bovine meat (Excl. carcasses)	18,974,476	-	Kenya
02013000	,- Fresh or chilled Boneless bovine meat	2,572,435	2,208,269	Kenya
02022000	,- Frozen boned bovine meat (excl. carcasses)	5,990,470	21,783,613	Kenya, Uganda
02023000	,- Frozen boneless bovine meat	18,266,182	6,014,557	Kenya
02031200	,-- Fresh or chilled boned hams, shoulders and cuts thereof of swine	-	3,421,754	Kenya
02031900	,-- Fresh or chilled swine meat, nes (unboned)	2,048,619	-	Kenya
02032200	,-- Frozen unboned hams, shoulders and cuts thereof of swine	4,622,618	5,798,851	Kenya
02032900	,-- Other Frozen swine meat, nes	1,161,969	4,474,318	Kenya
02041000	,- Carcasses and half-carcasses of lamb, fresh or chilled	2,015,891	3,081,199	Kenya
02042200	,-- Fresh or chilled boned meat of sheep	3,372,790	-	Kenya
02042300	,-- Fresh or chilled boneless meat of sheep	1,753,302	-	Kenya
02044200	,-- Frozen boned meat of sheep	3,858,537	18,218,319	Kenya
Total		64,637,289	65,284,467	Kenya

Source: RRA Customs Statistics

Annex 2 (b): Rwanda Extra-Regional imports of meat products - 2015 & 2016, figures in RwF

HS Code	Product Description	2015	2016	Countries of Origin
02011000	,- Fresh or chilled Carcasses and half-carcasses	-	-	
02012000	,- Fresh or chilled boned bovine meat (Excl. carcasses)	1,229,694	-	Belgium, Italy
02013000	,- Fresh or chilled Boneless bovine meat	81,341	6,506,877	S. Africa, Belgium
02022000	,- Frozen boned bovine meat (excl. carcasses)	582,882	44,949,227	S. Africa, UAE
02023000	,- Frozen boneless bovine meat	218,937	33,711,670	S. Africa, Belgium, China
02031200	,-- Fresh or chilled boned hams, shoulders and cuts thereof of swine	188,805	122,336	China, Belgium, France
02031900	,-- Fresh or chilled swine meat, nes (unboned)	29,383	74,444	Belgium, China
02032200	,-- Frozen unboned hams, shoulders and cuts thereof of swine	-	-	
02032900	,-- Other Frozen swine meat, nes	39,241	926,832	Belgium, Italy
02041000	,- Carcasses and half-carcasses of lamb, fresh or chilled	14,873	-	UAE
02042200	,-- Fresh or chilled boned meat of sheep	101,755	570,162	Belgium, S. Africa
02042300	,-- Fresh or chilled boneless meat of sheep	413,834	53,814	Belgium
02044200	,-- Frozen boned meat of sheep	112,593	114,559	Belgium, S. Africa
02044300	,-- Frozen boneless meat of sheep	176,400	-	S. Africa
02045000	,- Fresh, chilled or frozen goat meat	-	1,442,083	Belgium
Grand Total		3,189,738	88,472,004	

Source: RRA Customs Statistics

ANNEX 3: DRC Meat Products Imports (2015)

Annex 3 (a): DRC Imports from COMESA and EAC Region of Products of Rwanda's Export interest in the DRC market - 2015 (Based on COMSTAT Data Base			
HS	**Product description**	**Value in USD**	**Origin**
Meat (beef, goat and sheep meat, poultry meat, meat of swine)			
020130	Fresh or chilled bovine meat, boneless	22,240	Uganda
020210	Frozen bovine carcases and half-carcases	38,128	Zambia
020319	Fresh or chilled meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	142,650	Uganda
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	1,346,532	Uganda
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	11,473	Zambia
020430	Frozen lamb carcases and half-carcases	359	Zambia
020629	Frozen edible bovine offal (excl. tongues and livers)	81	Zambia
020690	Frozen edible offal of sheep, goats, horses, asses, mules and hinnies	143,110	Uganda
	Total Intra COMESA/EAC Imports	**1,704,573**	
	Imports from Rwanda	**Nil**	

Source: COMSTAT Data Base

Annex 3(b): DRC Imports from Rest of the World (Extra Regional) of Products of Rwanda's Export interest in the DRC market - 2015 (Based on COMSTAT Data Base			
HS	Product description	Value in USD	Origin
Meat (Beef, goat and sheep meat, poultry and turkey meat, pork and hum			
020110	Carcases or half-carcases of bovine animals, fresh or chilled	4	Netherlands
020120	Fresh or chilled bovine cuts, with bone in (excl. carcases and 1/2 carcases)	30,347	Botswana
020120	Fresh or chilled bovine cuts, with bone in (excl. carcases and 1/2 carcases)	836	Luxembourg
020120	Fresh or chilled bovine cuts, with bone in (excl. carcases and 1/2 carcases)	51	Netherlands
020120	Fresh or chilled bovine cuts, with bone in (excl. carcases and 1/2 carcases)	339,022	South Africa
020130	Fresh or chilled bovine meat, boneless	702	Luxembourg
020130	Fresh or chilled bovine meat, boneless	7	Netherlands
020130	Fresh or chilled bovine meat, boneless	662,409	South Africa
020210	Frozen bovine carcases and half-carcases	757,376	Italy
020220	Frozen bovine cuts, with bone in (excl. carcases and half-carcases)	13,831	Belgium
020220	Frozen bovine cuts, with bone in (excl. carcases and half-carcases)	122,989	Colombia
020220	Frozen bovine cuts, with bone in (excl. carcases and half-carcases)	102,480	Ireland
020220	Frozen bovine cuts, with bone in (excl. carcases and half-carcases)	184,221	South Africa
020220	Frozen bovine cuts, with bone in (excl. carcases and half-carcases)	328,198	Spain
020230	Frozen, boneless meat of bovine animals	167,798	Belgium
020230	Frozen, boneless meat of bovine animals	1,259,916	Botswana

Annex 3(b): DRC Imports from Rest of the World (Extra Regional) of Products of Rwanda's Export interest in the DRC market - 2015 (Based on COMSTAT Data Base			
HS	Product description	Value in USD	Origin
020230	Frozen, boneless meat of bovine animals	325,486	Brazil
020230	Frozen, boneless meat of bovine animals	75,511	France
020230	Frozen, boneless meat of bovine animals	117,119	Germany
020230	Frozen, boneless meat of bovine animals	14,764,992	India
020230	Frozen, boneless meat of bovine animals	255,977	Italy
020230	Frozen, boneless meat of bovine animals	160,888	Netherlands
020230	Frozen, boneless meat of bovine animals	2,485,571	South Africa
020312	Fresh or chilled hams, shoulders and cuts thereof of swine, with bone in	106,445	South Africa
020319	Fresh or chilled meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	1,386	Belgium
020319	Fresh or chilled meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	30,483	Italy
020319	Fresh or chilled meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	869	Portugal
020319	Fresh or chilled meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	482,299	South Africa
020321	Frozen carcases and half-carcases of swine	209,653	France
020321	Frozen carcases and half-carcases of swine	103,173	Germany

Annex 3(b): DRC Imports from Rest of the World (Extra Regional) of Products of Rwanda's Export interest in the DRC market - 2015 (Based on COMSTAT Data Base			
HS	Product description	Value in USD	Origin
020321	Frozen carcases and half-carcases of swine	66,323	Poland
020322	Frozen hams, shoulders and cuts thereof of swine, with bone in	1,118,709	Belgium
020322	Frozen hams, shoulders and cuts thereof of swine, with bone in	14,458	Brazil
020322	Frozen hams, shoulders and cuts thereof of swine, with bone in	6,965,048	Germany
020322	Frozen hams, shoulders and cuts thereof of swine, with bone in	2	Netherlands
020322	Frozen hams, shoulders and cuts thereof of swine, with bone in	44,365	Norway
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	4,260,269	Belgium
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	12,384	Botswana
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	3,232,271	Brazil
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	525,593	Canada
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	1,142,075	France
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	11,608,331	Germany
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders	40,889	Hungary

Annex 3(b): DRC Imports from Rest of the World (Extra Regional) of Products of Rwanda's Export interest in the DRC market - 2015 (Based on COMSTAT Data Base			
HS	Product description	Value in USD	Origin
	and cuts thereof, with bone in)		
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	355,813	Italy
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	4,243,626	Netherlands
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	782,808	Poland
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	1,285,605	South Africa
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	102,758	Spain
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	52,182	Sweden
020329	Frozen meat of swine (excl. carcases and half-carcases, and hams, shoulders and cuts thereof, with bone in)	506,035	United Kingdom
020422	Fresh or chilled cuts of sheep, with bone in (excl. carcases and half-carcases)	196	Belgium
020422	Fresh or chilled cuts of sheep, with bone in (excl. carcases and half-carcases)	1,074	Luxembourg
020422	Fresh or chilled cuts of sheep, with bone in (excl. carcases and half-carcases)	57,152	South Africa
020423	Fresh or chilled boneless cuts of sheep	167	South Africa

Annex 3(b): DRC Imports from Rest of the World (Extra Regional) of Products of Rwanda's Export interest in the DRC market - 2015 (Based on COMSTAT Data Base			
HS	Product description	Value in USD	Origin
020430	Frozen lamb carcases and half-carcases	7,878	South Africa
020441	Frozen sheep carcases and half-carcases (excl. lambs)	44,425	Italy
020441	Frozen sheep carcases and half-carcases (excl. lambs)	36,161	Netherlands
020442	Frozen cuts of sheep, with bone in (excl. carcases and half-carcases)	8,061	Italy
020442	Frozen cuts of sheep, with bone in (excl. carcases and half-carcases)	290	Luxembourg
020442	Frozen cuts of sheep, with bone in (excl. carcases and half-carcases)	244,484	Netherlands
020442	Frozen cuts of sheep, with bone in (excl. carcases and half-carcases)	226,002	South Africa
020442	Frozen cuts of sheep, with bone in (excl. carcases and half-carcases)	74,037	United Kingdom
020443	Frozen boneless cuts of sheep	37,811	Belgium
020443	Frozen boneless cuts of sheep	57,369	South Africa
020450	Fresh, chilled or frozen meat of goats	145,015	Australia
020450	Fresh, chilled or frozen meat of goats	76,318	Italy
020450	Fresh, chilled or frozen meat of goats	52,501	Netherlands
020610	Fresh or chilled edible offal of bovine animals	125	Luxembourg
020610	Fresh or chilled edible offal of bovine animals	51,685	South Africa
020621	Frozen edible bovine tongues	56,322	Brazil

Annex 3(b): DRC Imports from Rest of the World (Extra Regional) of Products of Rwanda's Export interest in the DRC market - 2015 (Based on COMSTAT Data Base			
HS	Product description	Value in USD	Origin
020621	Frozen edible bovine tongues	15,719	India
020621	Frozen edible bovine tongues	2	Netherlands
020621	Frozen edible bovine tongues	88,117	United Kingdom
020622	Frozen edible bovine livers	81,594	Canada
020622	Frozen edible bovine livers	394,284	India
020622	Frozen edible bovine livers	165,057	Ireland
020622	Frozen edible bovine livers	44,706	Netherlands
020622	Frozen edible bovine livers	16,689	South Africa
020629	Frozen edible bovine offal (excl. tongues and livers)	5,150,246	Argentina
020629	Frozen edible bovine offal (excl. tongues and livers)	132,801	Belgium
020629	Frozen edible bovine offal (excl. tongues and livers)	10,504,987	Brazil
020629	Frozen edible bovine offal (excl. tongues and livers)	27,905	Czech republic
020629	Frozen edible bovine offal (excl. tongues and livers)	165,158	France
020629	Frozen edible bovine offal (excl. tongues and livers)	1,892,158	India
020629	Frozen edible bovine offal (excl. tongues and livers)	94,613	Ireland
020629	Frozen edible bovine offal (excl. tongues and livers)	264	Luxembourg

Annex 3(b): DRC Imports from Rest of the World (Extra Regional) of Products of Rwanda's Export interest in the DRC market - 2015 (Based on COMSTAT Data Base			
HS	Product description	Value in USD	Origin
020629	Frozen edible bovine offal (excl. tongues and livers)	371,980	Netherlands
020629	Frozen edible bovine offal (excl. tongues and livers)	1,108,155	Paraguay
020629	Frozen edible bovine offal (excl. tongues and livers)	148,861	South Africa
020629	Frozen edible bovine offal (excl. tongues and livers)	454,865	Spain
020629	Frozen edible bovine offal (excl. tongues and livers)	7,040	Ukraine
020629	Frozen edible bovine offal (excl. tongues and livers)	187,073	United Kingdom
020630	Fresh or chilled edible offal of swine	69,835	Belgium
020630	Fresh or chilled edible offal of swine	185,255	Ireland
020630	Fresh or chilled edible offal of swine	90,231	Italy
020630	Fresh or chilled edible offal of swine	2,244	South Africa
020649	Edible offal of swine, frozen (excl. livers)	9,150,673	Belgium
020649	Edible offal of swine, frozen (excl. livers)	859,265	Brazil
020649	Edible offal of swine, frozen (excl. livers)	174,863	Chile
020649	Edible offal of swine, frozen (excl. livers)	24,565	Czech republic
020649	Edible offal of swine, frozen (excl. livers)	2,162,228	France
020649	Edible offal of swine, frozen (excl. livers)	6,726,227	Germany

Annex 3(b): DRC Imports from Rest of the World (Extra Regional) of Products of Rwanda's Export interest in the DRC market - 2015 (Based on COMSTAT Data Base			
HS	Product description	Value in USD	Origin
020649	Edible offal of swine, frozen (excl. livers)	263,113	Italy
020649	Edible offal of swine, frozen (excl. livers)	4,971,256	Netherlands
020649	Edible offal of swine, frozen (excl. livers)	195,560	Poland
020649	Edible offal of swine, frozen (excl. livers)	5,370	South Africa
020649	Edible offal of swine, frozen (excl. livers)	44,185	Spain
020649	Edible offal of swine, frozen (excl. livers)	170,896	Sweden
020649	Edible offal of swine, frozen (excl. livers)	49,647	United Kingdom
020680	Fresh or chilled edible offal of sheep, goats, horses, asses, mules and hinnies	13,004	South Africa
020690	Frozen edible offal of sheep, goats, horses, asses, mules and hinnies	208,820	South Africa
Total DRC Extra Imports		**107,046,167**	

Source: COMSTAT Data Base

ANNEX 4 - PROPOSED UPGRADING INVESTMENT PLANS FOR FRONT LINE ABATTOIRS

Annex 4(a): Rugano Meat Supply Limited - Proposed Investment Plan

No.	Investments required	Rationale for the investment
1	Horn and hoof cutter	To improve slaughter efficiency
2	Carcass washing facilities for example a wash cabinet	To ensure sufficient cleaning of carcasses is done
3	Carcass Quartering saw	To improve efficiency and avoid use of crude methods such as machetes
4	Saws sterilizing units	To prevent cross contamination between carcasses during splitting
5	Alternative water source e.g. sinking a borehole	To ensure sufficient and reliable supplies of water
6	Water heating facility	To ensure equipment sterilization is done
7	Wheel baths and Footbaths	To ensure maintenance of sanitary standards within and around the abattoir
8	Subdivisions of the animal pens	To prevent stress in animals for slaughter which lowers meat quality
9	Offloading ramp	To prevent injuries for slaughter animals
10	Meat cutting and packaging room with regulated temperature	To ensure maintenance of low temperatures during meat preparation
11	Stainless steel working benches and meat troughs	All food contact surfaces should be made of food grade material
12	Chopping boards	Made of food grade material
13	Band saws	For preparation of meat-on-bone cuts
14	Meat grinders	
15	Packaging machines	
16	Bowl chopper	Depending on products being produced
17	Sausage machine	
18	Smoking chambers	
19	Hands free operated hand washing sinks	To ensure maintenance of high hygiene levels
20	Knife sterilization units	For knives sterilizations in the cutting rooms
21	Simple in-house laboratory testing facilities	In-house quality assurance monitoring of sanitation standards
22	Additional chilling facilities	Adequate chilling facilities for the installed slaughter capacity and storage of the various products to be processed
23	Refrigerated meat trucks	To ensure maintenance of cold chain as products are transported to the market
24	Vermin proof all windows and vents	To prevent insects ingress
25	Ensure all lightings and glass fixtures are shatter proof	To control glass contamination in case of shatter
26	Provide lockers for staff at the changing rooms	To ensure safe custody of staff personal items and prevent carrying the same during processing
27	Online weighing of carcasses on the hook	To prevent over handling of carcasses that can lead to contamination

No.	Investments required	Rationale for the investment
28	Invest in a food safety management system e.g. HACCP	To guarantee food safety to the end consumer

Annex 4(b): Rugari Meat processors Limited - Proposed Investment Plan

No.	Investments required	Rationale for the investment
1	Automatic stunning gun	To ensure humane slaughter of cattle
2	Horn and hoof cutter	To improve slaughter efficiency
3	Carcass washing facilities for example a wash cabinet	To ensure sufficient cleaning of carcasses is done
4	Carcass Quartering saw	To improve efficiency and avoid use of crude methods such as machetes
5	Saws sterilizing units	To prevent cross contamination between carcasses during splitting
6	Alternative water source e.g. sinking a borehole	To ensure sufficient and reliable supplies of water
7	Water heating facility	To ensure equipment sterilization is done
8	Footbaths	To ensure maintenance of sanitary standards within the abattoir as staff walk in and out during processing
9	Hands free operated hand washing sinks	To ensure maintenance of high hygiene levels
10	Equipment sterilization units (Saws and Knives)	For equipment sterilizations during slaughter to prevent cross contamination
11	Simple in-house laboratory testing facilities	In-house quality assurance monitoring of sanitation standards
12	Additional chilling facilities	Adequate chilling facilities for the installed slaughter capacity and storage of the various products to be processed
13	Provide lockers for staff at the changing rooms	To ensure safe custody of staff personal items and prevent carrying the same during processing
14	Aprons washing cubicle	To ensure frequent cleaning of aprons during operations
15	Vermin proof all windows and vents	To prevent insects ingress
16	Ensure all lightings and glass fixtures are shatter proof	To control glass contamination in case of shatter
17	Stainless steel moving platforms for the splitting saw, brisket saw and the evisceration conveyor	Replace the stationary mild steel platforms as they can be a source of contamination
18	Online weighing of carcasses on the hook	To prevent over handling of carcasses that can lead to contamination
19	Invest in a food safety management system e.g. HACCP	To guarantee food safety to the end consumer

Annex 4(c): CAMR Abattoir - Proposed Investment Plan

No.	Investments required	Rationale for the investment
1	Horn and hoof cutter	To improve slaughter efficiency
2	Carcass washing facilities for example a wash cabinet	To ensure sufficient cleaning of carcasses is done
3	Carcass Quartering saw	To improve efficiency and avoid use of crude methods such as machetes
4	Equipment sterilizing units (for saws and knives)	To prevent cross contamination between carcasses during operations
5	Alternative water source e.g. sinking a borehole	To ensure sufficient and reliable supplies of water
6	Water heating facility	To ensure equipment sterilization is done
7	Wheel baths and Footbaths	To ensure maintenance of sanitary standards within and around the abattoir
8	Subdivisions of the animal pens	To prevent stress in animals for slaughter which lowers meat quality
9	Stainless steel moving platforms for the splitting saw, brisket saw and the evisceration conveyor	Replace the stationary mild steel platforms as they can be a source of contamination
10	Meat cutting and packaging room with regulated temperature	To ensure maintenance of low temperatures during meat preparation
11	Stainless steel working benches and meat troughs	All food contact surfaces should be made of food grade material
12	Chopping boards	Made of food grade material
13	Band saws	For preparation of meat-on-bone cuts
14	Meat grinders	
15	Packaging machines	
16	Bowl chopper	Depending on products being produced
17	Sausage machine	
18	Smoking chambers	
19	Hands free operated hand washing sinks	To ensure maintenance of high hygiene levels
20	Knife sterilization units	For knives sterilizations in the cutting rooms
21	Simple in-house laboratory testing facilities	In-house quality assurance monitoring of sanitation standards
22	Additional chilling facilities	Adequate chilling facilities for the installed slaughter capacity and storage of the various products to be processed
23	Refrigerated meat trucks	To ensure maintenance of cold chain as products are transported to the market
24	Vermin proof all windows and vents	To prevent insects ingress
25	Ensure all lightings and glass fixtures are shatter proof	To control glass contamination in case of shatter
26	Provide lockers for staff at the changing rooms	To ensure safe custody of staff personal items and prevent carrying the same during processing
27	Invest in a food safety management system e.g. HACCP	To guarantee food safety to the end consumer

Annex 4(d): KOADU Abattoir, Rubavu - Proposed Investment Plan

No.	Investments required	Rationale for the investment
1	Horn and hoof cutter	To improve slaughter efficiency
2	Carcass washing facilities for example a wash cabinet	To ensure sufficient cleaning of carcasses is done
3	Carcass Quartering saw	To improve efficiency and avoid use of crude methods such as machetes
4	Equipment sterilizing units (for saws and knives)	To prevent cross contamination between carcasses during operations
5	Alternative water source e.g. sinking a borehole	To ensure sufficient and reliable supplies of water
6	Water heating facility	To ensure equipment sterilization is done
7	Wheel baths and Footbaths	To ensure maintenance of sanitary standards within and around the abattoir
8	Subdivisions of the animal pens	To prevent stress in animals for slaughter which lowers meat quality
9	Stainless steel moving platforms for the splitting saw	Replace the stationary mild steel platforms as they can be a source of contamination
10	Stainless steel moving platforms for the brisket saw and a brisket saw	To improve efficiency and quality of carcass by avoiding use of machetes
11	Stainless steel moving platforms for the evisceration conveyor and a moving conveyor	To improve efficiency and ensure no cross contamination when carrying out evisceration procedure and the transfer of viscera to the cleaning area
12	Hands free operated hand washing sinks	To ensure maintenance of high hygiene levels
13	Simple in-house laboratory testing facilities	In-house quality assurance monitoring of sanitation standards
14	Additional chilling facilities	Adequate chilling facilities for the installed slaughter capacity and storage of the various products to be processed
15	Refrigerated meat trucks	To ensure maintenance of cold chain as products are transported to the market
16	Vermin proof all vents	To prevent insects ingress
17	Ensure all lightings and glass fixtures are shatter proof	To control glass contamination in case of shatter
18	Provide lockers for staff at the changing rooms	To ensure safe custody of staff personal items and prevent carrying the same during processing
19	Meat cutting and packaging room with regulated temperature	To ensure maintenance of low temperatures during meat preparation
20	Stainless steel working benches and meat troughs	All food contact surfaces should be made of food grade material
21	Chopping boards	Made of food grade material
22	Band saws	For preparation of meat-on-bone cuts
23	Meat grinders	
24	Packaging machines	
25	Bowl chopper	Depending on products being produced

No.	Investments required	Rationale for the investment
26	Sausage machine	
27	Smoking chambers	
28	Knife sterilization units	For knives sterilizations in the cutting rooms
29	Online weighing of carcasses on the hook	To prevent over handling of carcasses that can lead to contamination
30	Invest in a food safety management system e.g. HACCP	To guarantee food safety to the end consumer

Annex 4(e): SABAN Abattoir, Kigali - Proposed Investment Plan

No.	Investments required	Rationale for the investment
1	Carry out renovations of the existing abattoir as per recommendations of this report	To ensure products integrity during processing
2	Horn and hoof cutter	To improve slaughter efficiency
3	Carcass washing facilities for example a wash cabinet	To ensure sufficient cleaning of carcasses is done
4	Carcass Quartering saw	To improve efficiency and avoid use of crude methods such as machetes
5	Saws sterilizing units	To prevent cross contamination between carcasses during splitting
6	Apron washing cubicle	Provision for washing aprons during processing
7	Alternative water source e.g. sinking a borehole	To ensure sufficient and reliable supplies of water
8	Water heating facility	To ensure equipment sterilization is done
9	Wheel baths and Footbaths	To ensure maintenance of sanitary standards within and around the abattoir
10	Subdivisions of the animal pens	To prevent stress in animals for slaughter which lowers meat quality
11	Meat cutting and packaging room with regulated temperature	To ensure maintenance of low temperatures during meat preparation
12	Stainless steel working benches and meat troughs	All food contact surfaces should be made of food grade material
13	Chopping boards	Made of food grade material
14	Band saws	For preparation of meat-on-bone cuts
15	Meat grinders	
16	Packaging machines	
17	Bowl chopper	Depending on products being produced
18	Sausage machine	
19	Smoking chambers	
20	Additional hands free operated hand washing sinks	To ensure maintenance of high hygiene levels
21	Equipment sterilization units (For saws and knives)	To prevent cross contamination between carcasses
22	Simple in-house laboratory testing facilities	In-house quality assurance monitoring of sanitation standards
23	Additional chilling facilities	Adequate chilling facilities for the installed slaughter capacity and storage of the various products to be processed
24	Refrigerated meat trucks	To ensure maintenance of cold chain as products are transported to the market
25	Vermin proof all windows and vents	To prevent insects ingress
26	Ensure all lightings and glass fixtures are shatter proof	To control glass contamination in case of shatter
27	Provide lockers for staff at the changing rooms	To ensure safe custody of staff personal items and prevent carrying the same during processing

No.	Investments required	Rationale for the investment
28	Online weighing of carcasses on the hook	To prevent over handling of carcasses that can lead to contamination
29	Invest in a food safety management system e.g. HACCP	To guarantee food safety to the end consumer

Annex 4(e): SANTRA Slaughterhouse, Kigali - Proposed Investment Plan

No.	Investments required	Rationale for the investment
1	Carry out renovations of the existing abattoir as per recommendations of this report	To ensure products integrity during processing
2	Stunning box	To ensure Halal and humane slaughter of cattle
3	An automatic stunner	To ensure Halal and humane slaughter of cattle
4	Bleeding cradle	To prevent cross contamination when carcasses are bled on the floor
5	Stainless steel hooks	To prevent contamination of meat from rust. All food contact surfaces should be made of food grade materials
6	Dehider	To improve slaughter efficiency and improve quality of meat and hides
7	Stainless steel moving conveyors for Splitting saw and Brisket saw	All materials in the slaughter should be made of rust free materials
8	Brisket saw	To improve slaughter efficiency and quality of the cut
9	Splitting saw	To improve slaughter efficiency and quality of the cut
10	Stainless steel moving platform for the evisceration process	To prevent cross contamination during the evisceration process and transfer of the viscera for cleaning
11	Horn and hoof cutter	To improve slaughter efficiency
12	Carcass washing facilities for example a wash cabinet	To ensure sufficient cleaning of carcasses is done
13	Carcass Quartering saw	To improve efficiency and avoid use of crude methods such as machetes
14	Equipment sterilizing units (For saws and knives)	To prevent cross contamination between carcasses during splitting
15	Apron washing cubicle	Provision for washing aprons during processing
16	Alternative water source e.g. sinking a borehole	To ensure sufficient and reliable supplies of water
17	Water heating facility	To ensure equipment sterilization is done
18	Wheel baths and Footbaths	To ensure maintenance of sanitary standards within and around the abattoir
19	Subdivisions of the animal pens	To prevent stress in animals for slaughter which lowers meat quality
20	Hands free operated hand washing sinks	To ensure maintenance of high hygiene levels
21	Simple in-house laboratory testing facilities	In-house quality assurance monitoring of sanitation standards
22	Additional chilling facilities	Adequate chilling facilities for the installed slaughter capacity and storage of the various products to be processed
23	Refrigerated meat trucks	To ensure maintenance of cold chain as products are transported to the market
24	Vermin proof all windows and vents	To prevent insects ingress
25	Ensure all lightings and glass fixtures are	To control glass contamination in case of

No.	Investments required	Rationale for the investment
	shatter proof	shatter
26	Provide lockers for staff at the changing rooms	To ensure safe custody of staff personal items and prevent carrying the same during processing
27	Online weighing of carcasses on the hook	To prevent over handling of carcasses that can lead to contamination
28	Invest in a food safety management system e.g. HACCP	To guarantee food safety to the end consumer

ANNEX 5: KEY MEAT TRADERS WHO DISTRIBUTE RWANDA MEAT TO DRC CITIES

Name of Meat Dealer	Contacts	City located	Type of products and	volume the trader can distribute	Cities that the DRC meat trader can distribute the meat and means that will be used
Sandru	0783213520/ +243994066205	Rubavu	Fresh meat and sausage	4-5 carcass of beef per day, 20-25 carcass of pork per day	Goma, Kinshasa, Bukavu
Nsengiyumva Innocent	0786767172	Rubavu	Fresh meat	6-7 carcass of beef per day, 25-30 carcass of goat/sheep	Goma
Mukeshimana Evariste	0782794036	Rubavu	Fresh meat	3-5 carcass of beef per day, 15-20 carcass of goat/sheep	Goma
Shema Emmanuel	0784035005	Rubavu	Fresh meat sausage	2 carcass of beef per week and 25 ksgs of saussage	Kinshasa
Abuba	0784651219	Rubavu	Fresh meat	4-5 carcass of beef per day from Koadu	Goma
Jean Bati	0783065237	Rubavu	Fresh meat	4-5 carcass of beef per day from Koadu	Goma
Bizimungu	0785814719	Rubavu	Fresh meat	4-5 carcass of beef per day from Koadu	Goma
Nsengi	0786767172	Rubavu	Fresh meat	4-5 carcass of beef per day from Koadu	Goma
Yves	0788474594	Rubavu	Fresh meat	4-5 carcass of beef per day from Koadu	Goma
Karundi	0783418741	Rubavu	Fresh meat	4-5 carcass of beef per day from Koadu	Goma
Valens Ndagijimana	0783990824	Rubavu	Fresh meat	4-5 carcass of beef per day from Koadu	Goma