



Case Study: SPS Issues and Regional Trade in Livestock and Livestock Products in the SADC Region

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ACRONYMS

	Acceptable Level of Risk
ARC	Agriculture Research Council
ARC-OVI	Agriculture Research Council - Onderstepoort Veterinary Institute
BCPA	Botswana Cattle Producers Association
BMC	Botswana Meat Commission
BSE	Bovine spongiform encephalopathy
BTB	Bovine tuberculosis
CAADP	Comprehensive African Agriculture Development Programme
CAC	Codex Alimentarius Commission
CBPP	Contagious Bovine Pleuro Pneumonia
CBT	Commodity Based Trade
CCHF	Crimean-Congo Hemorrhagic fever
CDFVS	Chief Directorate Food & Veterinary Services
COMESA	Common Market for Eastern and Southern Africa
CVL	Central Veterinary Laboratory
DAHP	Department of Animal Health and Production (Botswana)
DVS	Directorate of Veterinary Services
EFSA	European Food Safety Authority
EU	European Union
FAN	Farm Assured Namibian Meat Scheme
FAO	Food and Agricultural Organization
FMD	Foot and mouth disease
GDP	Gross Domestic Product
HACCP	Hazard Analysis and Critical Control Points
HIV	Human immunodeficiency virus
HPNAI	Highly Pathogenic Notifiable Avian Influenza
HS	Harmonized System
LITS	Livestock Identification and Trace-back System
Meatco	Meat Corporation of Namibia
OIE	World Organization for Animal Health
OVI	Onderstepoort Veterinary Institute
PRINT	Promotion of Regional INTegration
SADC	Southern African Development Community
SARS	Severe acute respiratory syndrome
SAT	Southern African Territory (serotypes of foot and mouth disease)
SMC	Swaziland Meat Corporation
SMI	Swaziland Meat Industries
SNL	Swazi Nation Land
SOFA	State of Food and Agriculture
SPS	Sanitary and Phytosanitary
s-SA	sub-Saharan Africa
TAHC	Terrestrial Animal Health Code
TBT	Technical Barriers to Trade
UK	United Kingdom
USDA-APHIS	United States Department of Agriculture - Animal and Plant Health Inspection Service
USDA-FSIS	United States Department of Agriculture - Food Safety Inspection Service
VCF	Veterinary cordon fence
VCS	Veterinary Council of Swaziland
WAHID	World Animal Health Information Database
WTO	World Trade Organization

EXECUTIVE SUMMARY

The trade in animals and animal products in the Southern African Development Community (SADC) is reviewed in this study. The region suffers from significant challenges to such trade due to a number of factors which include:

- Endemic and trade limiting diseases in wildlife reservoirs
- Structural limitations in smallholder animal systems when it comes to production and disease control
- Significant limitations in policy, legislation, human capacity and infrastructure at a regional and national level
- Weak interactions between interest groups and limited involvement by the private sector in developing policy

The limiting factors are expressed in a number of ways including a relatively poor performance when it comes to interacting with the World Trade Organization (WTO) in respect of animal health notifications and the reporting requirements of and to the designated animal health organization, the International Organization for Animal Health, under the Sanitary and Phytosanitary Agreement.

Regional efforts to address these shortcomings have been underway for some years. SADC has, in theory, taken the lead in this regard with a number of regional programs in the field of animal health as well as in the development of a regional agreement to promote and underline the general aims of the WTO Sanitary and Phytosanitary Agreement. The net result is that there is actually little to show for these efforts in terms of increased trade in animals or animal products that can be attributed regionally led efforts. The first decade of the third millennium has seen the virtual exit of Zimbabwe as an exporter of beef and no significant changes in the internal trade in animals or animal products within SADC. The core exporting countries of Botswana, Namibia, South Africa and Swaziland are unlikely to be joined by other SADC member countries anytime soon.

In looking at the structural features of the four exporting countries, the role of strong producer associations is a significant feature in these countries involving themselves in such interactions as lobbying for their governments to certify compliance with destination market requirements, obtaining fair producer prices and developing new products (such as ratites and game meat). The effect of these associations and the resultant public-private partnerships has, arguably, been more significant in trade development than the non-commercial interactions between regional, national and donor communities alone. While SADC does pay lip service to the involvement of the private sector there is no strong evidence that this interaction has developed to any extent.

1. INTRODUCTION

1.1 Background to the Study

Presented here is a case study on Sanitary and Phytosanitary (SPS) issues and regional trade in animals and animal products in the Southern African Development Community (SADC). This study is part of a three part series which highlights areas where practical implementation of the SPS Annex can be put into operation in terms of technical, scientific and business interventions that would be most appropriate to deliver the goals of increased trade, food security and food safety.¹

This case study is structured as follows. The remainder of Section 1 provides an overview of SPS issues for animals and animal products in the World Trade Organization (WTO) SPS Annex on which the SADC SPS Annex is based and a review of global trade in this sector. Section 2 reviews global and regional livestock production and consumption. Section 3 provides a detailed examination of the state of SPS implementation in four selected SADC countries – Swaziland, Namibia, Botswana and South Africa. The review not only examines SPS legislation and implementation in each but also surveys production and marketing of livestock and livestock products in each. Section 4 reviews the conformance of SADC Member States to international standards for SPS in this sector. Section 5 examines specific SPS measure among the SADC Member States. Section 6 provides a brief summary and overall conclusions.

1.2 The WTO SPS Agreement and the World Organization for Animal Health (OIE)

The World Organization for Animal Health (OIE) in terms of the WTO Sanitary and Phytosanitary Agreement helps member countries to comply, in terms of trade in animals and animal products, with seven basic aims:

- The prevention of protectionism by proscribing the use of SPS measures as constraints to trade;
- Measures taken for food safety must have a sound scientific basis;
- To achieve harmonization, the agreement encourages the use of internationally agreed standards;
- Prohibition of importers from arbitrarily discriminating among suppliers from various regions or countries,
- An exporter's SPS standards need not be identical to the importer's, but should provide an equivalent and appropriate level of protection (equivalence),
- The agreement requires governments to use appropriate and transparent risk assessment procedures in setting up their standards,
- Governments are required to notify other countries of new or changed standards, and to set up avenues for providing information, and to allow scrutiny of standards.²

The SPS Agreement has been very successful in the first two provisions. In fact, international sanitary regulations are trade-facilitating in that they provide a fairly transparent standard and therefore clarify the necessary measures that exporters must put in place. In terms of the third provision, the SPS Agreement recognizes the OIE as the standard setting body for animal health.³

The OIE has two codes of practice providing for animal health and the safety of animal products in human consumption and use. These are the Terrestrial Animal Health Code

(TAHC) and the Aquatic Animal Health Code (AAHC) both of which are revised on a regular basis. Additionally there are provisions for meat safety in the Codex Alimentarius which is the joint responsibility of the Food and Agricultural Organization (FAO) and the World Health Organization (WHO). The main concern of the TAHC and AAHC codes is animal health. They aim at minimizing the introduction and spread of animal and zoonotic diseases through international trade in animals and animal products. These include standards for risk analysis and evaluation of national veterinary administrations, procedures for import and export of live animals, and recommendations applicable to specific diseases. The Code's appendices contain provisions for, among other things, animal identification/traceability and surveillance for specific diseases. The OIE also maintains recommendations for the structure and operations of national veterinary administrations and the certification of particular countries, zones, or regions as free of specific diseases (OIE) 2006).^{4;5}

1.3 Animal exports from Africa

Africa generally has reasonable potential for animal production as land and labor are cheap. However, as will be explored later in this report, there are significant challenges in terms of grazing quality (carrying capacity) and endemic animal diseases. With the dry climate in many places and limited water, animal production is often a better option than plant based farming. Through high and increasing world demand for meat cuts, especially beef, there are market opportunities in developed markets such as the European Union (EU) and the United States (US), as well as in newer markets such as Nigeria and China. Market access has, however, been problematic for much of developing Africa.

One difficulty is that many countries, particularly richer and well resourced ones, have an aversion to risk where this affects the health and wellbeing of their populations. Resolution of the problem requires strict policies to ensure that livestock, meat, crops, and derived foods are free of disease, and that veterinary drugs, hormones, additives, and pesticide residues are at or below scientifically permitted levels. These policies are the rational and predictable behavior of welfare maximizing governments whose electorates demand strict food standards. These standards are codified through legislation, developed standards and accompanying enforcement. In developing countries, in Africa in particular, where income effects are not so dominant, good governance is not as strongly established and the domestic markets do not lobby governments on the delivery of food safety to the extent that occurs in developed countries. Governments therefore have less incentive to enact and enforce good food safety laws, since both legislation and enforcement are troublesome and costly and deliver limited benefits in the perception of the electorate.

The result is that the international system of food safety regulations is dominated by developed countries and their domestic lobbies. Developed country standards tend to be those that are adopted by the WTO, the OIE, the Codex Alimentarius Commission (CAC), and other standard setting bodies. African countries with a comparative advantage in livestock and meat production also face SPS constraints they are, in fact, often unable to surmount.

These standards are generally based on sound scientific principles of food safety and human, animal, and plant health. Importantly they are subject to public review and comment in more developed countries with established principles and practice of good governance. Few cases are brought to the WTO by developing countries complaining of the use of SPS measures as a trade constraint.

Therefore the central assumption in this study is

“that developed countries’ sanitary standards are not a guise for protectionism but actually represent the rational behavior of a government that responds to the demands of its people for food safety.”

To summarize: animal producers in Africa that want to export to developed markets must simply comply with the sanitary regulations of the importing country. Cost of compliance is not insurmountable, nor does it necessarily negate comparative advantage. For example Namibia and Botswana have been successfully exporting beef products to developed markets in the EU for decades. On the other hand the better resourced South Africa appears to have largely exited from meat exports to the EU, with the exception of ratites (ostrich meat), arguably at a cost, in terms of the safety of domestic meat, to the South African consumer.

2. LIVESTOCK TRADE

Livestock production and trade in livestock and livestock products is rapidly growing increasing from 4% of production in the early 1980s to about 14% in 2007.⁶ Trends highlight growth patterns in both production and trade, for both developed and developing countries. So far, the biggest consumption increase has been recorded in developing countries, perhaps due to dietary changes as a result of income growth and urbanization. Whatever the reason the increase provides new market opportunities for livestock exporters in Southern Africa.

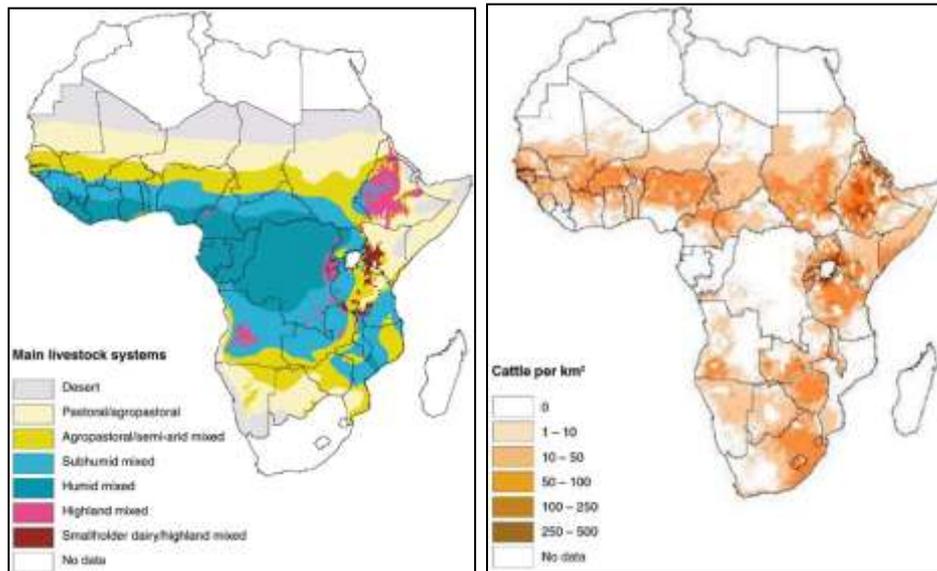
2.1 Livestock Production and Consumption

According to the Food and Agriculture Organization (FAO) State of Food and Agriculture (SOFA)⁷ consumption of milk per capita in the developing countries has almost doubled, meat consumption more than tripled and egg consumption increased by a factor of five.

Table 1: Livestock production World, developing countries and sub-Saharan Africa (s-SA) ('000,000 tonnes)

Livestock production	1997	2007
World	136.7	285.7
Average developing countries	48.1	175.1
Sub-Saharan Africa	5.5	9.3

Nevertheless despite these increases sub-Saharan Africa (s-SA) does lag behind the rest of the world in terms of overall gains – the average for developing countries registering a near four-fold increase on production between 1997 and 2007 as against a less than doubling in s-SA (Table 1).



Figures 1 and 2: Estimated distribution of ruminant production systems in sub-Saharan Africa (s-SA) (left) and estimated cattle population density in s-SA (right), 1994 (from Otte & Chilonda, 2002)⁸

However, there are limitations imposed by Africa’s climate and vegetation on livestock production. In fact the areas of greatest livestock density are the drier subtropical or high altitude regions of the continent (Figures 1 and 2). While high altitude and drier areas are associated with higher animal populations animal production is constrained by the sparse forage (Namibia and Botswana) or by unpalatable forage of low carrying capacity (e.g. the Zimbabwean and South African Highveld) as compared with temperate regions in other parts of the world. Often the carrying capacity of rangeland, which is in any case low by comparison with Europe or the Americas, is made worse by burning and selective overgrazing. Inherent difficulties also exist in terms of access to grazing land and purposes for which animals are kept. These issues are discussed in a little more detail in the sections below.

2.2 Intra Southern African Development Community (SADC) livestock production and Consumption

Table 2 presents the production levels of livestock and livestock products over a period of ten years and four years respectively in the world and sub Saharan Africa. As noted, growth in s-SA is relatively low compared to the other regions of the world and this trend is also reflected in data from SADC countries. In terms of tonnage, the largest producers in the region are South Africa, Zimbabwe, Tanzania, Angola and Zambia. Livestock products production is relatively stable as shown in Tables 2, and 3 as growth rates are marginal. Livestock includes of cattle, poultry, pigs, sheep and goats. The average meat consumption for sub Saharan Africa was 13.3kg’s per person per year in 2007.⁹

Table 2: Livestock production in Southern African Development Community (SADC) region (‘000 tonnes)

Area	1995	2006	Main products
World	206 853	285 700	
s-SA	7 129	9291	
Angola	112	140	Cattle+ Pigs
Botswana	74	56	Cattle
Lesotho	25	25	Cattle + Sheep
Malawi	47	59	Pigs, Poultry, Cattle, Sheep
Mauritius	24	40	Poultry
Mozambique	82	94	Cattle Poultry
Namibia	64	68	Cattle
South Africa	1397	2111	Cattle+ Poultry

Swaziland	19	21	Cattle
Zambia	112	129	Cattle + Poultry
Tanzania	341	346	Cattle, Sheep + Poultry
Zimbabwe	139	210	Cattle + Poultry

Table 3: Southern African Development Community (SADC) livestock production per product (millions of tonnes)

Product	2006	2007	2008	2009
Beef	1.25	1.28	1.33	1.39
Mutton	0.14	0.15	0.15	0.16
Goat meat	0.14	0.15	0.15	0.16
Pork	1.32	1.35	1.40	1.41
Poultry	1.83	1.88	1.95	2.04
Milk	4.44	4.55	4.65	4.75
Eggs	0.56	0.57	0.59	0.61
Wool*	2,400	2,460	2,525	2,600
Mohair*	400	410	420	430
Game meat**	700	720	750	750

Meat consumption includes beef, mutton, goat meat, pork and poultry.

* Production from the Kingdom of Lesotho (tonnes)

** Deer meat production from Mauritius (tonnes)

Source: Comprehensive African Agriculture Development Programme (CAADP) and FANR, 2009

While gains in the volume of meat trade have exceeded most other agricultural products, the total value of global livestock and meat trade since 1990 has grown slowly compared to overall agriculture trade volumes. The largest exporters in the world are Australia, Brazil, China, India and New Zealand. Africa accounts for only about 2% of global trade (Table 4).¹⁰

Table 4: World and sub-Saharan Africa (s-SA) trade in livestock (selected years)

	1980	2006
Global trade	Million tonnes	Million tonnes
Total	9.6	32.1
Pigs	2.6	10.4
Poultry	1.5	11.1
Bovine	4.3	9.2
Total trade-US millions	1997	2006
World	73 972.5	117 599.4
s-SA	1 329.4	2 299.0

Intra-SADC trade in livestock remains low. The main regional meat exporters are Namibia, Botswana, South Africa and Zimbabwe. The largest livestock producers such as South Africa are not necessarily the largest exporters and, in fact, South Africa is a net importer of livestock products. Although Zambia, Angola and Tanzania produce a significant amount of livestock and livestock products they are not significant exporters. Regional exports are mainly bovine meat, accounting for about 80% of total exports, followed by sheep and goats with poultry being negligible. Regional trade is discussed in more detail below in terms of the selected country studies but a general point is that exporters in the region primarily target the larger part of their exports at Europe or, regionally, to South Africa. Botswana exports 80% of its beef to Europe, its largest market; the balance is exported to other international and regional markets with South Africa getting the biggest share. Namibia exports about 36% of its livestock to South Africa, with the EU however being its largest market.¹¹ Trade with the EU has reduced the potential of intra-SADC trade as exporters like Namibia and Botswana seek first to fulfill their EU quotas before trading in the region.¹² However, trade with the EU has contributed to improvements in animal disease management, and animal production. Differences between trade and production patterns can be attributed mainly to animal disease management systems in the region. Therefore, countries like Tanzania with a potential in livestock trade fail to

penetrate South Africa market due to poor management of animal production and animal diseases. Swaziland irrespective of a relatively large cattle population continues to be a net importer of beef and beef products.

Table 5 compares intra-SADC Trade with SADC imports from the rest of the world. Whilst SADC imports less than 15,000,000 US\$ of frozen beef from other SADC member countries, it exports about 80,000,000 US\$ to the rest of the world, and still imports over 160,000,000 US\$. Whilst this seems somewhat irrational, it must be noted that regional trade, to South Africa and the rest of SADC, are not as high priced (and thus presumably of lower quality) as exports to Europe and elsewhere.

Table 5: Intra Southern African Development Community (SADC) Livestock Trade. (US\$ '000)

Product	Southern African Development Community (SADC)'s imports from Southern African Development Community (SADC)		Southern African Development Community (SADC)'s exports to world		Southern African Development Community (SADC)'s imports from world	
	2006	2008	2006	2008	2006	2008
Meat & edible offal of poultry meat	28317	46184	7739	14801	358119	524549
Meat of swine, fresh, chilled or frozen	8919	10739	7613	6558	83182	116137
Meat of bovine animals, frozen	13436	7309	82896	71289	168715	196908
Meat of bovine animals, fresh or chilled	2558	4818	88299	95451	8537	13068
Edible offal of red meat	1432	3116	4856	6557	42110	71596
Meat and edible meat offal nes	649	2991	42799	63529	3397	6970
Meat & edible meat offal	679	676	2940	4669	15555	37190
Meat of sheep or goats - fresh, chilled or frozen	2049	497	41679	45683	50903	60708
Pigs and poultry fat	381	367	9	86	855	1281
Meat of equines (fresh, chilled or frozen)	3	7		1014	3	1214

(Source ITC Trademap* some of the data may be aggregated)

3. SELECTED COUNTRY ANALYSIS

The following country analysis is of the meat exporting countries in SADC and illustrates some of the issues that have to be met in the export of animals and animal products

3.1 Swaziland

3.1.1 Introduction

Swaziland is one of the smaller countries in s-SA with an area of some 17,000 square kilometers, and a population of just under one million. Despite being classified as a lower middle-income country by the World Bank, a high level of poverty and of inequality exists. As a small, landlocked country bordering South Africa and Mozambique it is highly dependent on its neighbors South Africa and Mozambique for access to world markets.

The main agricultural and land based crops in the formal sector are sugar, which benefits from preferential access to the EU and US markets, maize, meat, dairy products, pineapples, citrus and timber. The industrial sector, produces goods based on agricultural and tree crops including sugar, milled maize, animal feeds based on maize and other grains, milk, other dairy products, canned fruit, beer, pulp and paper, and plastic packaging.¹³ Although animal rearing is a common activity in Swaziland the value of animal exports is tiny, accounting for only 1.5% of all SPS sensitive exports (Table 6).

Table 6: Live animal and meat exports from Swaziland (average 2002 to 2007)

Category	Value (US\$)	% of Total SPS sensitive trade
Live animals	1,408,631	>0.5
Meat and edible meat offal	3,895,156	1

3.1.2 Disease control services

Swaziland has two acts of relevance to animal health. These are the Animal Disease Act 7/1965 which provides for the prevention of disease amongst animals, defines the terms of a requirement for qualifications for 'recognition' of Veterinary Surgeon; and the designation of 'official'; in the context of the Stock Diseases Regulations, 1933 under the Act. There is also the Veterinary Surgeons Act 8 /1997 which provides for the establishment of a Veterinary Council of Swaziland (VCS), as well as the registration and control of Veterinary Surgeons. Currently in the last stages of public comment is The Veterinary Public Health Bill 2010 which details provisions for the slaughter of animals with the aim of 'facilitating advanced methods in primary production in the food chain of food of animals and should be passed by parliament later on this year.

The Department of Veterinary Services and Livestock Production within the Ministry of Agriculture and Cooperatives is the designated OIE contact point as well as the EU Competent Authority for the certification of animal and meat exports. The department's aims are to increase animal production primarily to reduce Swaziland's dependence on imported animals and animal products. Part of this effort is targeted at the control of ticks and tick-borne diseases, parasites and other diseases of economic importance as well as animal disease control and surveillance. Public health matters in other abattoirs and food processing establishments are under the responsibility of the Ministry of Health under the provisions of the Public Health Act, 5/1969.¹⁴

There is a Foot and Mouth Disease (FMD) controlled area along the border with Mozambique and part of the border with South Africa, facing the southern region of Mpumalanga province near the Kruger National Park (basically the southernmost extremity of the yellow buffer zone in Figure 6). The cordon is double fenced. Swaziland is free from FMD but maintains its controls along the FMD cordon area and its external borders. The Central Veterinary Laboratory (CVL) does not carry out any tests for the detection of FMD which are done at the Onderstepoort Veterinary Institute (OVI) in South Africa.

Recent animal health events include an outbreak of African horse sickness in January 2006 and more recently Rift Valley Fever at a dairy farm in Hhohho in June 2008 (OIE, 2009).¹⁵

3.1.3 Marketing

Cattle ownership in Swaziland is high with the ratio of cattle to land among the highest in Africa. About 80% of the country's cattle are owned by smallholders. Under the open-access grazing systems, cattle are able to graze on common pasture at no cost to the owners, with free government dipping and veterinary services. Traditional beliefs that cattle represent wealth continues to hinder livestock development as farmers are unwilling to sell animals for slaughter leading to overgrazing, land degradation and the reduction of small farm sustainability.

The Swaziland Meat Corporation (SMC) as owners of the Manzini beef export abattoir went under in 1988. The successor organization, Swaziland Meat Industries (SMI) took it over to 1989 but also went under in 1992 due to the same problems of cattle procurement.

A survey in November 1991 revealed that this was caused by the poor condition of the animals offered in the markets for slaughter rather than the unavailability of cattle. In the intervening years this situation has not really changed with the large numbers of cattle particularly on Swazi Nation Land (SNL) remaining a serious threat to the sustainability of the beef industry in Swaziland.

3.2 Namibia¹⁶

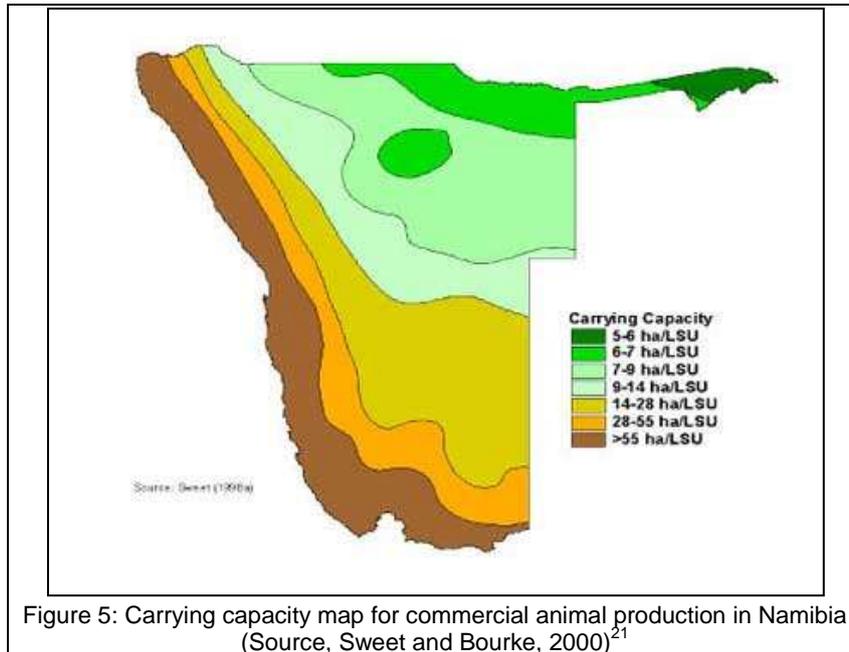
3.2.1 Introduction

Namibia, on the Atlantic coast of Southern Africa has the driest climate in s-SA, with a mean annual rainfall of less than 400 mm. Just under half of the total land area is under permanent pasture. The low rainfall limits farming in Namibia, in effect, to extensive livestock farming – primarily of cattle. Agriculture provides employment for over half the workforce (70% of the population if one counts subsistence farmers) though it only contributes about 10% to Gross Domestic Product (GDP). Livestock production is an important component of this sector being responsible for about seven percent of GDP and 80-90% of the value of commercial agricultural production. The national cattle herd size is over two million head. There are two cattle production systems in Namibia: commercial using freehold land and communal, based on the commons form of land use. Production is concentrated in the north and east of the country (Figures 3 and 4). The commercial sector is capital-intensive, and export oriented, and occupies 52 percent of the grazing land. Communal farmers utilize the remainder (Sweet and Burke 2000¹⁷). While the two sub-sectors maintain more or less equal holdings of cattle, commercial producers are the primary suppliers of beef production, providing 75-80 percent of annual off-take.

Namibia exports about 90 percent of its animal production (Table 7). A significant number of weaner calves, principally to South Africa form the bulk of cattle exports. Slaughtered cattle declined in the period 1994-2006, from about 149,833 to just fewer than 111,821 in 2006. Exports from 2001 to 2004 averaged over 24,000 metric tons annually. About half of this has been for South Africa (Meat Board of Namibia 2009)¹⁸. EU members are also major destinations for Namibian beef importing fresh, chilled, and frozen boneless cuts. The United Kingdom (UK) is by far Namibia's largest European customer, followed by Germany. In contrast, the number of small stock has dramatically increased in the same period more than doubling from 318,713 in 2002. Exports to the EU are subject to an annual beef export quota of 13,000 metric tons but this quota appears to remain unfilled.

Table 7: Marketing of total production of livestock in Namibia (source Meat Board of Namibia, 2009)

CATTLE	2002	2003	2004	2005	2006	2006 %	AVERAGE
EXPORT ABATTOIRS	149 833	143 885	139 162	141 348	111 821	35.19%	45 737
N C A*	24 499	17 776	9 401	16 283	21 170	6.66%	5 942
BUTCHERS	15 654	9 950	9 191	8 477	12 016	3.78%	3 686
R S A EXPORTS	148 350	150 601	144 573	210 945	172 790	54.37%	55 151
TOTAL CATTLE	338 336	322 212	302 327	377 053	317 797		110515
SMALL STOCK	2002	2003	2004	2005	2006	2006 %	AVERAGE
EXPORT ABATTOIRS	318 713	366 454	435 676	772 422	725 558	54.36%	523 765
BUTCHERS	45 414	23 155	38 427	23 715	74 101	5.55%	40 962
RSA EXPORTS	1149 149	1123 102	756 464	546 103	535 121	40.09%	821 988
TOTAL SMALL STOCK	1513 276	1512 711	1230 567	1342 240	1334 780	100%	1386 715
* NCA = Northern Communal Areas							
** Live Imports From RSA Included							



Consequences of the 'zoning' is the double problem of putting the most productive areas in Namibia on the 'wrong' side of the VCF (Figure 5) but also that a significant portion of the northern lands are, in fact, grazed communally by some of the poorest people in Namibia. The free zone south of the surveillance area (which is part of the VCF) is entirely free of FMD and has been so since 1965. DVS also manages the control of animal movement throughout Namibia which requires permits for any animal movement and is backed up by the police. Inspection and quarantine is required for animals moving from the infected zone to the buffer zone. Live cattle are not allowed to move from the buffer zone to the free zone, though slaughtered beef, after inspection, processing, and freezing, is permitted to move from the buffer zone to the free zone.

The DVS is major role player in the Farm Assured Namibian Meat Scheme (FAN Meat), the cornerstone of Namibia's animal traceability system which has its legal basis in the 2009 Traceability; Animal Identification Regulations (Government of Namibia, 2009)²². The regulations were initially a response to EU requirements in terms of the BSE outbreak in Europe in the 1990's.

3.2.3 Marketing

Two parastatals in Namibia are responsible for meat exports. These are the Meat Corporation of Namibia (Meatco) jointly owned by the government with private sector participation which runs the abattoirs and the Meat Board of Namibia which is a lobbying and marketing organization.²³ Two Meatco abattoirs in Windhoek and in Okahandja are the only EU certified abattoirs in Namibia. Meatco is currently the only exporter but it is technically not a state monopoly - there are no restrictions on others being set up. Given the existing investment, it seems possible that necessary upgrades to serve other lucrative markets with high safety standards such as the US, South Korea and Japan might be easy.

3.3 Botswana

3.3.1 Introduction

Botswana shares many of the climatic and production systems seen in Namibia and is well suited for cattle and livestock production (Figures 1 and 2). Animal production only accounts for about two percent to Botswana's GDP, but is nearly 90 percent of total agricultural GDP. It is widely quoted in various reports that 20-25 percent of households are believed to be involved in some way in the raising of cattle in Botswana though the original source of this data is uncertain. The national herd currently stands at 2.5 million though there are plans to increase this to 3.5 million in the next five years.²⁴ The Botswana Meat Commission (BCM) is solely responsible for the slaughter and marketing of all beef exports from Botswana. The national herd was already about 2.5 million in the mid-1990s, though the government-ordered slaughter of the entire herd in Botswana's north-west Kgamiland District in 1995 which reduced the number at that time by at least 200,000 (discussed in a little more detail below) and during this period droughts have also affected numbers.

As in Namibia, cattle farmers are classified as either commercial or communal. Commercial farmers are generally freehold landowners holding about 15 percent of the national herd. Communal farmers maintain the remaining 85 percent on unfenced rangelands on a 'commons' basis. Average communal herd size ranges from 10 to 15 cattle. In 2002, Botswana slaughtered over 154,000 cattle, and exported about 42 percent of its production at a value of over US\$ 66 million increasing to just over US\$ 112 million in 2007 (Table 8). Principal markets are South Africa and the EU. While Botswana's beef has successfully penetrated the EU market, like Namibia, the country has been unable to fill its annual beef export quota. Only 58% of the EU quota has been filled over the period 1977-2006 (Cabrera *et al* 2007). As is the case in Namibia the Botswana government has been critical in the several key areas in the beef industry including industrialization, disease control services and marketing.

Table 8: Exports of live animals and meat from Botswana from 2002 to 2007 (Source of the data; United Nations Comtrade database, DESA/UNSD, 2009²⁵)

Export item	Year	America	Europe	Africa	Asia	Total
Live animals	2002	38573	22962	240746	33393	337676
	2003	0	8798	32966	0	43767
	2004	2964	1977	6609	341	13895
	2005	0	36591	4280145	622	4319363
	2006	227	1193	800484	846	804756
	2007	5914	0	87757	397	96075
Average yearly exports of live animals		7946	11920	908118	5933	933918
Meat and edible offal	2002	0	64376518	2022328	0	66400848
	2003	0	63834725	669567	252	64506547
	2004	39690	41877142	9376272	0	51295108
	2005	334493	45206356	28603729	3691	74150274
	2006	110	42573862	38790338	399	81366715
	2007	0	63761059	48330703	590	112094359
Average yearly exports of meat and edible offal		62382	53604944	21298823	822	74966971

3.3.2 Disease control services

Veterinary services in Botswana are primarily the task of the Ministry of Agriculture (MoA). Within the MoA is the Department of Animal Health and Production (DAHP) with the direct responsibility for providing veterinary services. The DAHP is the designated EU Competent Authority and is responsible for, among other things, animal disease control, maintenance of Botswana's veterinary zones, as well as the Livestock Identification and Trace-back System (LITS) (Burger, 2004).²⁶ The main components of Botswana's veterinary services in certifying exports to the EU, in particular, are the disease zoning, vaccination and traceability system. Zoning has been achieved by means of a VCF (Figure 3). Vaccinations and traceability are in accordance with EU standards. Botswana is partitioned into six veterinary zones. Vaccinations for FMD, anthrax, and black leg (caused in most cases by the bacterium, *Clostridium chauvoei* - although *Clostridium septicum* or *Clostridium novyi* do occur) are regularly conducted in the "red" or infected zones. Approximately 150,000 cattle are vaccinated twice annually year, whilst another 30,000 or so in high-risk areas receive three. Buffer zones have been created to head off the presence or spread of FMD or other viruses. Figure 3 shows the country-wide system of VCF in Botswana. The first fence was erected in 1958 but the present system dates from the 60's 70's and 80's. These areas are patrolled for pro-active protection against disease outbreaks. The fences are continuously added to and modified to ensure continued disease control and surveillance. Movement of animals between fenced regions is authorized only at specific, supervised checkpoints.

An outbreak of CBPP cattle lung disease in the Ngamiland District in the mid 1990's led to vigorous action by the Botswana veterinary authorities. CBPP broke out in the Ngamiland District in Xaudum area, with the disease spreading rapidly due to uncontrollable movement of cattle in the district. The government of Botswana ultimately took a decision to eradicate all the cattle in 1996 to stop the disease spreading country wide and prevent the export of Botswana beef to the EU. The total number of cattle killed and buried is estimated at over 200,000 (Nkala, 2006).²⁷

Botswana's animal and meat traceability system, LITS, utilizes a centralized electronic database to report and record cattle movements throughout Botswana. LITS employs boluses that are inserted into each cow's reticulum (second stomach) and holds data such as owner's name, personal ID number, brand, brand position, sex, color, location, date of the bolus insertion etc. A radio reader is able to identify the signal each bolus emits and broadcast the data to district and central computer databases (Burger, 2004). LITS was initiated in 2000 in response to new EU regulations in response to the BSE outbreak i.e. the EU beef-labeling act (EU. 820/97 and 1760/2000) to maintain market access for Botswana. The system directly benefits Botswana as veterinary officials can now monitor a wide range of data which helps with treatment and the selection of breeding stock. The system is now used to locate lost or stolen cattle. LITS consolidated all previous tracking systems in Botswana and currently 85-90 percent of the national herd is covered by the system (Burger 2004).

3.3.3 Marketing

The BMC, a parastatal, is effectively the sole buyer of beef in Botswana. It is based in Lobatse and has complete responsibility for the slaughter and marketing of export beef. BMC is a state-owned monopoly which sets the price at which it buys cattle from domestic producers. It extracts a profit on the margin between that price plus operating costs and the resale price in foreign markets such as the EU or South Africa. In early 2006 the price-

setting mechanism was recently altered as part of efforts by USAID Southern Africa Global Competitiveness Hub (the Trade Hub). These changes led to BMC increased producer prices by an average 40 percent (USAID, 2007).²⁸

The price increases were achieved by the creation of the national cattle producers association, the Botswana Cattle Producers Association (BCPA), with the assistance of the Trade Hub to represent and promote their economic interests and appear to be paying off as exports dramatically increased in 2007 (Table 8). The BCPA continues to give cattle farmers a strong voice and is even looking to copy Namibia's example in obtaining a direct stake in the BMC similar to that of their Namibian counterparts in Meatco.

BMC has two EU approved abattoirs one each in Lobatse and Francistown. It has sales offices in South Africa, the UK, Germany, and the Netherlands, and Greece, as well as cold storage facilities in Johannesburg. Exports are shipped via Cape Town and Durban, South Africa, to ports in Tilbury, Bremerhaven, and Piraeus.

3.4 South Africa

3.4.1 Introduction

Although valuable in absolute terms in 2006 agriculture in South Africa accounted for only 4% of GDP and 11% of employment. The Karoo provides ideal conditions for livestock farming, especially sheep farming (for wool and mutton). Cattle farming is more popular amongst the indigenous people in the more well-watered eastern areas of South Africa. Ostrich farming is popular in the Oudtshoorn area of the Western Cape, along with extensive dairy farming in the Garden Route area along the coastal strip just to the south.

Examination of the United Nations Commodity Trade Statistics Database (COMTRADE) does not provide much detail on South African animal and meat exports. Sales to Europe are, in fact, primarily of ratites (ostrich meat) and have been growing steadily except for 2006 when there was a temporary ban due to an outbreak of avian influenza in South Africa (EU, 2006).²⁹ A market study produced in South Africa by the Department of Agriculture (now the Department of Agriculture Fisheries and Food), Directorate International Trade: sub-directorate Trade Research in 2008 surprisingly does not mention the issues in 2006 when exports to Europe fell dramatically, but instead focuses on the opportunities in that market (Magagane et al 2008).³⁰

However, there do exist opportunities for exports of meat to Asia, Africa and the Americas appear to be equally good (Table 9). The COMTRADE data at the HS 6 figure level appears to indicate that meat and live animal exports to Africa are of bovine animals and chilled beef while there is little data on Asian and American trade (COMTRADE does not have a Harmonized System [HS] code for ratites or game meat).

Table 9: Exports of live animals and meat from South Africa from 2002 to 2007 (Source of the data; United Nations Comtrade database, DESA/UNSD, 2009³¹)

Commodity	Year	America	Europe	Asia	Africa
Live animals	2002	11327219	860058	27356917	12516186
	2003	1834720	69589569	39166119	13683383
	2004	5723121	41917347	16625808	13446332
	2005	7844235	3846043	8995572	21363505
	2006	2125682	3016719	23478068	8564472
	2007	19775972	3767288	73297877	35698980
Average yearly exports of live animals		8105158	20499504	31486727	17545476
Meat and edible offal	2002	696938	1332028	25133414	17925627
	2003	1077358	3628253	3113710	59749742
	2004	422412	31189623	7930054	9162956
	2005	6415518	7333736	16106213	12101412
	2006	318841	1587972	9078593	90393244
	2007	375560	64195737	4570655	19372099
Average yearly exports of meat and edible offal		1551105	18211225	10988773	34784180

3.4.2 Disease and veterinary control services in South Africa

South Africa has, on paper, an excellent veterinary service which forms part of the Ministry of Agriculture and Fisheries, Chief Directorate Food & Veterinary Services (CDFVS) and pro-actively reports incidents and outbreaks to the OIE World Animal Health Information Database (WAHID). The website is fairly clear in terms of the major animal disease issues in South Africa such as endemic and control zones for FMD (Figure 6) [sourced from CDFVS, 2009].³² Legislative and organizational arrangements for imports into South Africa are summarized in Appendix 2.

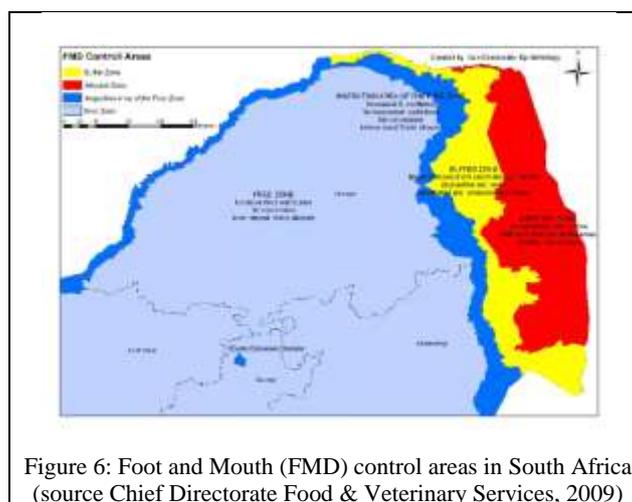


Figure 6: Foot and Mouth (FMD) control areas in South Africa (source Chief Directorate Food & Veterinary Services, 2009)

Support services for veterinarians in South Africa as well as regionally are provided by the Agriculture Research Council (ARC) at the ARC-Onderstepoort Veterinary Institute (ARC-OVI). The Institute provides a diagnostic service and produces vaccines against FMD and tick-borne diseases, specializing in the production of Southern African serotypes (SAT) of FMD viruses that are maintained by African buffalo (*Syncerus caffer*) in national parks as seen in Figure 6 though the laboratory is currently being renovated and is not in production. The ARC-OVI is also the collaborating centre for the OIE surveillance and control of animal diseases in Africa as well as the FAO for the emergency preparedness

for transboundary animal diseases for Africa. There are also six OIE reference laboratories at ARC-OVI for African horse sickness, bluetongue, lumpy skin disease, Rift valley fever, rabies and African swine fever (ARC, 2009)³³.

3.4.3 Marketing issues

Although South Africa is perceived as an animal producing country the fact is that it is a net importer of beef. In fact, half the country is very arid and the carrying capacity of the wetter areas is constrained by the unpalatable and low nutritional value of grasses over much of the country. Exports of beef are limited to neighboring countries with more distant marketing of ruminants to Europe, and of poultry to African and some Asian countries – primarily in the Middle East and Gulf. The HS codes are unclear in this regard and analysis is difficult.

South Africa has had issues with the EU in respect of Avian Influenza (EU, 2006) which led to the ban lasting several months in 2006 until the EU informed South Africa that it accepted the country's status as free from Highly Pathogenic Notifiable Avian Influenza (HPNAI). The exports of fresh ostrich meat resumed on 1 November 2006 using a new ostrich protocol which allowed for compartmentalization of the ostrich industry with testing within 28 days prior to slaughter, with negative results. The decision by the EU is the result of the successful eradication of the active outbreak of H5N2 in ostriches near Albertinia in the southern part of the Western Cape in July 2006.

Other problems with ostrich exports to the EU have related to the issue of residues. Although a residue control plan and competent laboratory network was in place, the overall residue control system was deemed dysfunctional as evidenced by an absence of any laboratory testing for several years with the result that South Africa could not guarantee that food of animal origin exported to the EU complied with EU residues limits. The net effect is that for ostriches, the guarantees given by the competent authority regarding freedom from treatment with hormonal growth promotants could not be trusted (EU, 2007a).³⁴ The deficiencies were remedied and notwithstanding the shortcomings in laboratory performance identified during the EU mission with regards to ostrich and wild game for meat production, the current residue control system in South Africa was deemed to provide guarantees at least equivalent to those provided by the Council Directive 96/23/EC. (EU, 2008)³⁵ Partially as a consequence of this issue the EU was asked by South Africa to delist it as a supplier of poultry, milk, honey, pork and beef (EU, 2008). It is important to note that the ostrich industry has taken the lead in EU compliance with the South African veterinary services providing a support and certification role.

4. CONFORMANCE TO INTERNATIONAL STANDARDS OF SPS MEASURES: OVERVIEW OF THE MANGEMENT OF ZOOSANITARY ISSUES IN THE SADC REGION

4.1 Introduction

Given that this study is not about development issues in general, it is nevertheless useful to put animal health into the context of the development of SADC as compared with equivalent regions. The specific context used in this study is the comparison of SADC with Australia and Brazil. These countries were chosen for comparison because they have some similarities with the SADC region. Both are geographically 'south' – and though not south in a development context do have similar dilemmas such as zoosanitary problems and market access. The geographical spread of both these countries is roughly equivalent

to that of SADC and as such they encompass roughly the same climatic spread from the humid tropics to subtropical winter rainfall regions equating to A (humid tropics), B (deserts) and C (subtropical) climates in the Köppen classification.

4.2 Regional animal health resources

The basic starting point is that all SADC countries, including the Seychelles since mid 2010, are members of the WTO and OIE. The principle differences between the SADC countries together with Australia and Brazil are outlined in Table 10. Firstly in terms of general resources as determined by population, SADC has 70 million more people than Brazil and 250 million more than Australia. However in human resource terms SADC lags considerably with only 80% more veterinary workers than Australia (which has only 8% of SADC's population). Similarly but less striking is the contrast with Brazil which has over four times as many veterinary workers as SADC with about 70% of the population size.

Table 10: Population, Gross Domestic Product (GDP) and prevalence of veterinary skills in Southern African Development Community (SADC) as compared with Brazil and Australia (data extracted from World Animal Health Information Database [WAHID])

SADC Member States	Population (in thousands)	GDP ('000)	Av. GDP ('000)	Veterinarians	Veterinarians per 1000 livestock units
Angola	18,021	83,383	4.63	386	0.66
Botswana	1,905	12,969	6.81	494	1.47
DRC	64,205	11,588	0.18	3703	-
Lesotho	2,017	1,622	0.8	132	0.83
Madagascar	19,111	8,970	0.47	863	0.82
Malawi	14,278	4,269	0.3	783	-
Mauritius	1,269	782	0.62	-	-
Mozambique	21,781	9,735	0.45	1754	8.08
Namibia	2,114	8,564	4.05	620	1.82
Seychelles	86	833	9.69	-	-
South Africa	48,687	276,764	5.68	3955	2.31
Swaziland	1,168	2,618	2.24	768	10.25
Tanzania	42,484	20,490	0.48	4430	216.2
Zambia	12,620	14,314	1.13	-	-
Zimbabwe *	12,463	3,000	0.24	-	-
SADC Total/Ave	262,209	459,901	1.75	17888	
Brazil	191,972	1,612,539	8.4	75042	3.44
Australia	21,374	1,015,217	47.5	10866	2.99

The lack of capacity and depth is perhaps even further masked by the nature of the data as WAHID does not distinguish the level of qualifications of the total veterinary and para-veterinary workers in each country. It is reasonable to speculate that the proportion of para-veterinarians in SADC is higher than in Australia or Brazil. A further problem is the poor level of remuneration and, despite the real need, limited work opportunities for veterinarians in Africa and is reflected in the proxy variable of relative GDPs which has led to a significant and ongoing brain drain from the region.³⁶

A slightly more in-depth look at the WAHID data (in Table 11) reveals further areas in which SADC lags behind its peer group. The table has been rearranged to grade countries by regularity of WAHID reporting and by least number of unreported and/or absent diseases and, for example, shows that the most compliant country in SADC, Lesotho, has 30 and 35 more unreported animal diseases than Brazil and Australia respectively. While many of the unreported diseases and pests are of aquatic animals it is worrisome that

countries with significant fisheries and EU competent authorities such as South Africa and Mozambique lag behind even Lesotho in their reporting.

Table 11: Basic status of Southern African Development Community (SADC) countries in respect of World Animal Health Organization (OIE) reporting standards compared with Australia and Brazil (data from 2008 World Animal Health Information Database [WAHID])

SADC Member States	OIE reporting history	Diseases present	Diseases absent	Unreported or possibly absent	Zoonosis cases	Zoonosis (per capita)
Lesotho	Regular	14	37	60	29	1.44E-005
Botswana	Regular	21	35	96	0	0.00E+000
South Africa	Regular	43	29	79	47	9.65E-007
Swaziland	Regular	19	23	109	0	0.00E+000
Angola	Regular	8	16	128	0	0.00E+000
Namibia	Regular	34	14	103	0	0.00E+000
Mozambique	Regular	23	11	115	13	5.97E-007
DRC	Regular	28	4	87	0	0.00E+000
Madagascar	partially incomplete	25	90	36	0	0.00E+000
Mauritius	partially incomplete	4	56	59	0	0.00E+000
Malawi	partially incomplete	17	19	82	4	2.80E-007
Tanzania	partially incomplete	18	7	93	0	0.00E+000
Seychelles	Never	-	-	-	0	0.00E+000
Zimbabwe	largely incomplete	19	27	67	0	0.00E+000
Zambia	Incomplete	18	15	102	21	1.66E-006
SADC Total/Ave	Incomplete	21	27	87	114	4.35E-007
Brazil	Regular	65	58	30	25009	1.30E-004
Australia	Regular	65	63	25	9116	4.26E-004

A significant issue in the WAHID reporting is that of zoonoses cases. These, in the best instance of Lesotho, are *three orders of magnitude below those for Brazil and Australia*. The low instance of reported zoonoses is worrisome as it potentially indicates a significant gap in food safety systems in SADC and improper linkages between cases of zoonoses and those responsible for veterinary and human public health.

4.3 Equivalence of SPS measures in the SADC Region

All countries in SADC are members of the OIE with the addition of the Seychelles as the last SADC country to join on May 5th, 2010. The most recent contact details for the SADC countries official delegates (OIE contact points) are reproduced from the OIE website in Appendix 1. The OIE was constituted on January 25th 1924 and thus predates the WTO SPS agreement by some 60 years. In terms of the Uruguay Round which established the WTO, the OIE became the recognized intergovernmental organization responsible for improving animal health worldwide. The OIE maintains permanent relations with 36 other international and regional organizations (such as the FAO) and has Regional and sub-regional Offices on every continent including one in Gaborone in Botswana.

Membership of the OIE is thus one of the requirements of compliance to the WTO SPS Agreement in terms of the specific requirements of trade in domestic animals and animal products. In terms of OIE membership and adherence to the detailed measures written into the terrestrial and AAHC and their supplementary documents, SADC countries are in general compliant. However when it comes to the implementation of specific provisions as well as general capacity SADC is not actually very compliant - as detailed in the previous section.

Critical in terms of compliance with the WTO SPS agreement is the full participation in submission of national animal pest and disease status into the OIE WAHIS/WAHID databases and, in fact, the general record of SADC is somewhat lackadaisical in this regard. There have been several workshops held in SADC to ensure that member countries report this information correctly – especially in terms of Rinderpest and FMD. Another important program is the submission of requests for Provision of Veterinary Services (PVS) Assessments in 13 out of 15 SADC Member States. The PVS assessment, which is a confidential document, aims at good governance of veterinary services, gap-analyses aimed at analyzing the needs and resources to improve national veterinary structures of SADC Member states.

4.4 Provision for adaptation to regional conditions, including pest or disease free areas and areas of low pest or disease prevalence

The presence of FMD north of the control areas in Namibia, Botswana and South Africa effectively precludes trade in most animals¹ and many animal products both within and from the FMD region. Given the fact that most countries and regions north of this line are trying in some way to control FMD, and the wording of the current provisions of the TAHC, this is not likely to change in the foreseeable future.

4.5 Do SPS measures meet international transparency requirements?

The requirement for transparency in SPS requirements is met in SADC countries through two mechanisms. These are (1) the requirement for disease status submission of national animal pest and disease status into the OIE WAHIS/WAHID databases on a quarterly basis and (2) trading partner information and assessments on a bilateral basis from, for example, the United States Department of Agriculture - Animal and Plant Health Inspection Service (USDA-APHIS) and United States Department of Agriculture – Food Safety Inspection Service (USDA-FSIS) and the EU European Food Safety Authority (EFSA).

In terms of the pest and disease status of SADC countries, only parts of Namibia, Botswana, South Africa and Swaziland are recognized as being FMD disease free and thus able to export meat. However, the European Food Safety Authority (EFSA) has put in place additional requirements in terms of, for example, traceability, age of slaughter animals, feed standards etc. in terms of BSE where EU requirements are somewhat higher than those of the TAHC of the OIE. EFSA requirements have been disputed in the past by other countries such as the United States without success so the likelihood of SADC countries challenging these is remote. However Namibia, Botswana and Swaziland have managed to comply with EFSA requirements. US requirements are somewhat more difficult for SADC. Namibia is the only country that is currently working on market access to the US with a series of visits from the USDA-FSIS. Issues being resolved mainly revolve around the analysis of residue samples, particularly of growth hormones and veterinary products. Since Namibia has been relying on South Africa for residue testing in the past and since South African laboratories and test methods are not recognized by the US this requires Namibia to set up its own certified testing facilities.

WTO transparency and notifications by SADC countries are shown in Table 12. Only five countries in SADC have passed the basic WTO transparency test of having set up a SPS enquiry point, a national notification authority and have sent SPS notifications to the WTO. However, only four SADC countries have submitted animal and meat product related

¹ Beef cattle, goats, sheep, and pigs

notifications and of these only two (Mauritius and South Africa) can make any claim to be comprehensive in their approach. By contrast, Brazil and Australia submitted 103 and 91 animal and animal product related notifications to the WTO respectively.

Table 12: World Trade Organization (WTO) transparency table for Southern African Development Community (SADC) member countries and WTO Sanitary and Phytosanitary (SPS) notifications made for animals and animal products as of 23 July 2010

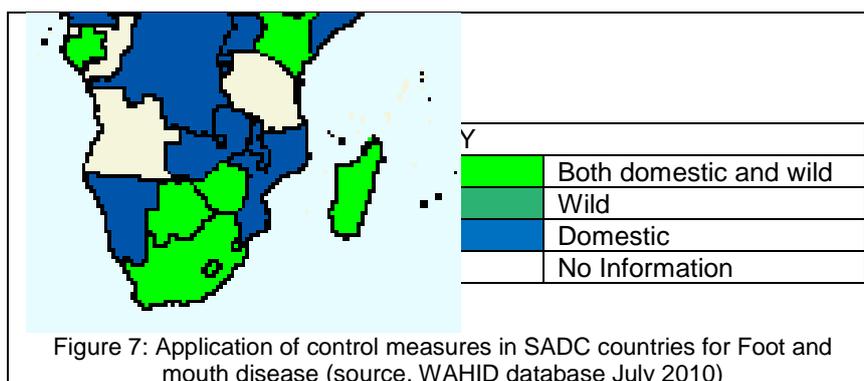
WTO Member	Has Notified SPS:		Has Notified SPS Measures	Notifications made (HS codes 01, 02, and 05)
	Enquiry Point	National Notification Authority*		
Angola	X	X		0
Botswana	X	X	X	0
Democratic Republic of the Congo	X	X		0
Lesotho				0
Madagascar	X	X	X	0
Malawi	X	X	X	1
Mozambique	X	X		0
Mauritius	X	X	X	9
Namibia	X	X		0
South Africa	X	X	X	6
Swaziland	X	X	X	1
Tanzania	X	X	X	0
Zambia	X	X	X	1
Zimbabwe	X	X		0

Note; Number of notifications by Brazil and Australia in the HS, 01, 02 and 05 categories were 103 and 91 respectively.

5. SPS MEASURES OF SADC MEMBER STATES

5.1 FMD Control Measures

A detailed study of the existing SPS measures for trade in animals and animal products is beyond the scope of this document. Therefore FMD is used, in the context of this study, as a proxy indicator for all regional SPS measures in respect to the workings of the SADC SPS Annex. Currently, the OIE recognizes countries to be in one of three disease states with regards to FMD - FMD present with or without vaccination, FMD free with vaccination, and FMD free without vaccination. Countries that are designated FMD free without vaccination have the greatest access to export markets, so many developed nations, including Canada, the US and the UK, currently have FMD free without vaccination status. Figure 7 shows the current situation in the SADC region for FMD. As can be seen, neither Tanzania nor Angola is regarded as providing sufficient information to the OIE on the status of FMD. There is currently an outbreak of FMD in Angola that is being managed and there were 23 FMD outbreaks recorded in Tanzania in 2009.



The information on Angola therefore is not sufficient to allow the country to engage in meat exports for the foreseeable future. In Tanzania, the FMD reservoirs represented by both the Maasai and Kagera Basin ecosystems and which are shared with Kenya and Rwanda/Uganda respectively also preclude that country from developing a meat export sector for the foreseeable future

Table 13: Organization of Epizootics (OIE) control measures for foot and mouth (FMD) as applied by Southern African Development Community (SADC) countries (extracted from the WAHID database on 22 July 2010)

Control Measure	Angola	Botswana	Congo (DR) (2008 data)	Lesotho	Madagascar	Malawi	Mauritius (no data)	Mozambique	Namibia	Seychelles (no data)	South Africa	Swaziland	Tanzania	Zimbabwe (2008 data)	Zambia
Notifiable	Y	Y	Y	Y	Y	Y	Na	Y	Y	Na	Y	Y		Y	Y
Precautions at borders	Y	Y	Y		Y	Y		Y	Y		Y	Y		Y	Y
Monitoring								Y						Y	Y
Screening	Y	Y	Y					Y							
General surveillance		Y	Y	Y		Y		Y			Y	Y		Y	Y
Targeted surveillance								Y			Y				
Movement control inside country		Y	Y			Y		Y	Y		Y	Y			Y
Stamping out															
Modified stamping out		Y	Y					Y							
Zoning		Y	Y			Y			Y		Y	Y		Y	
Vaccination prohibited	Y										Y	Y			
Routine vaccination		Y	Y			Y		Y	Y					Y	
Treatment															
Control of wildlife reservoirs		Y	Y								Y			Y	
Number of measures in place	4	9	9	2	2	6	0	8	6	0	8	6	0	7	5

Note; Country names highlighted in green have recognized EU Competent Authorities for meat exports to the EU. OIE control measures common to EU eligible exporters are highlighted in red

Table 13 summarizes the OIE designated control measures in place for FMD control in the SADC region. The measures that SADC beef exporting countries have in common are highlighted in red. These are that FMD is 1) notifiable 2) controlled in terms of imports, 3) animal and meat movement is controlled within the country and 4) that the country is zoned. Other measures that are invoked during a FMD outbreak are vaccination, and various types of 'stamping out' including the large scale slaughter and destruction of animals. In general SADC beef exporting countries have more control measures in place than non trading countries (7.3 measures as opposed to 5.4²) Almost all SADC countries

² In calculating this number Mauritius, the Seychelles and Tanzania are excluded and the DRC included.

have border controls for FMD. The exceptions are the Seychelles and Mauritius (which may have them but have not reported this to WAHID) and Tanzania which has, effectively, no FMD controls of any sort at all.³ Border controls relate to the procedures and documents required to move animals and animal products across international borders. An example of these is given for South Africa (Appendix 2). In practice, particularly in comparison to the requirements of the USA and EU, these requirements are not excessive and follow OIE and SPS Agreement guidelines. The South African Veterinary Services have worded their requirements very carefully. In particular the requirement is for the South African Veterinary Services to be able to trust statements and documentation produced by the exporting country.

5.2 Laboratory and testing facilities

In 2002 the International Atomic Agency and FAO⁴ conducted a study to assess the capacity and the management system of veterinary laboratories in the SADC region. The study revealed that more than eighty percent of available equipment was old and non-functional and that the calibration was not conducted. With the spread of Highly Pathogenic Avian Influenza, SADC member states have put in place integrated national action plan with focus on laboratory based surveillance system and for early detection of diseases though only five national laboratories in the region can test for the disease. Since 2007, regular training of laboratory personnel, equipment, reagent and consumables have been provided or procured by Member States. The training included detection of Contagious Bovine Pleuropneumonia, FMD, Avian Influenza, African swine fever, Newcastle Disease and Rabies.⁵

In addition, SADC Member States were equipped with Biosafety laboratories (BSL2 or BSL3) which can be used to diagnose highly contagious diseases. The situation of veterinary laboratories in terms of diagnostic capabilities and management system varies. However a number of veterinary laboratories are accredited or have embarked in the accreditation process according to ISO 17025 and a number of countries are capable of conducting various analysis using advanced techniques (Table 14). It is important to note that only five national veterinary laboratories test for FMD.

³ Mauritius has submitted WTO notifications in respect of FMD controls as a result of outbreaks and various parts of the world but has neglected to mention this fact in its WAHID reports.

⁴ IAEA/FAO expert mission report on capacity of SADC laboratories (April 2002)

⁵ Consultancy Series PRINT Report N°C001/2006

Table 14: Veterinary laboratories in the Southern African Development Community (SADC) region and types of testing conducted (World Animal Health organization [OIE] registered reference laboratories/diseases are highlighted in green).

Angola	Bovine anaplasmosis, Bovine babesiosis, Brucellosis (<i>Brucella abortus</i>), Trypanosomosis
Botswana	Foot and mouth disease
Madagascar	Rabies
Malawi	African swine fever, Bovine anaplasmosis, Bovine babesiosis, Bovine brucellosis, Brucellosis (<i>Brucella abortus</i>), Contagious bov. Pleuropneumonia, Heartwater, Highly path. avian influenza, Infec bursal disease (Gumboro), Lumpy skin disease, Marek's disease, Newcastle disease, Theileriosis, Trypanosomosis
Mauritius	African swine fever, Avian mycoplasmosis (<i>M. synoviae</i>), Bovine anaplasmosis, Classical swine fever, Contagious cap. Pleuropneumonia, Highly path. avian influenza, Infec bursal disease (Gumboro), Mycoplasmosis (<i>M. gallisepticum</i>), Newcastle disease, Rift Valley fever
Mozambique	African swine fever, Avian infect. Laryngotracheitis, Avian infectious bronchitis, Avian mycoplasmosis (<i>M. synoviae</i>), Bovine tuberculosis, Bovine viral diarrhea, Brucellosis (<i>Brucella abortus</i>), Brucellosis (<i>Brucella melitensis</i>), Caprine arthritis/encephalitis, Duck virus hepatitis, Infec bursal disease (Gumboro), Lumpy skin disease, Newcastle disease, Rabies
Namibia	Anthrax, Bluetongue, Bov. genital campylobacteriosis, Bovine brucellosis, Bovine spongiform encephalopathy, Cap/ovi brucel. (not <i>B. ovis</i>), Contagious bov. Pleuropneumonia, Dourine, Enzootic abortion (chlamydiosis), Enzootic bovine leukosis, Foot and mouth disease, Highly path. avian influenza, Inf. bov. rhinotracheit. (IBR/IPV), Malignant catarrhal fever, Newcastle disease, Ovine epididymitis (<i>B. ovis</i>), Rabies, Rift Valley fever, Salmonellosis (<i>S. abortusovis</i>)
South Africa	African horse sickness , African swine fever , Anthrax, Bluetongue , Bov. genital campylobacteriosis, Bovine anaplasmosis, Bovine babesiosis, Bovine viral diarrhea, Brucellosis (<i>Brucella abortus</i>), Brucellosis (<i>Brucella melitensis</i>), Classical swine fever, Contagious bov. Pleuropneumonia, Contagious cap. Pleuropneumonia, Dourine Enzootic abortion (chlamydiosis), Enzootic bovine leukosis, Equine infectious anaemia, Equine influenza, Equine piroplasmosis, Equine viral arteritis, Foot and mouth disease , Heartwater, Highly path. avian influenza, Inf. bov. rhinotracheit. (IBR/IPV), Leptospirosis, Low pathogenic avian influenza (poultry), Lumpy skin disease , Maedi-visna, Malignant catarrhal fever (Wildebeest only), Newcastle disease, Ovine epididymitis (<i>B. ovis</i>), Paratuberculosis, Q fever, Rabies , Rift Valley fever , Trichomonosis, Trypanosomosis
Swaziland	Brucellosis (<i>Brucella abortus</i>), Brucellosis (<i>Brucella melitensis</i>), Highly path. avian influenza, Newcastle disease, Rabies
Tanzania	African swine fever, Anthrax, Bovine brucellosis, Contagious bov. Pleuropneumonia, Foot and mouth disease, Highly path. avian influenza, Lumpy skin disease, Newcastle disease, Peste des petits ruminants, Rabies, Rinderpest, Theileriosis
Zambia	Contagious bov. Pleuropneumonia, Foot and mouth disease, Rabies, Theileriosis, Trypanosomosis

OIE reference laboratories are centers of expertise and standardization for designated diseases and are required to store and distribute reagents and biological reference products, develop new procedures, analyze and disseminate epizootiological data, place experts at the disposal for OIE, provide scientific and technical training, organize scientific meetings, perform and coordinate studies and to disseminate information in their area of expertise.³⁷

5.3 The role of SADC in promoting regional trade in animals and animal products³⁸

The Food, Agriculture and Natural Resources (FANR) Directorate is one of four directorates at the SADC Secretariat with the principle function of coordinating and harmonizing agricultural policies and programs in the SADC region, in line with priorities in the Regional Indicative Strategic Development Plan (RISDP). Within FANR is a livestock development program aimed at promoting efforts to address poor animal disease control and husbandry, lack of marketing infrastructure and information, lack of harmonized policy and strategy and inadequate capacity. Following centralized coordination of sectoral programs at the SADC Secretariat, the Livestock Sector Unit (LSU) of the FANR Directorate is the focal point for the coordination of livestock development related activities. Projects and programs, such as Promotion of Regional INTEgration (PRINT) in

the livestock sector of SADC,⁶ SADC FMD Program⁷ and SADC Trans-boundary Animal Diseases (TADs) project, theoretically addressing the above-mentioned constraints have been launched. These projects and programs are aimed at better coordination of the livestock sector of the region. The most visible activity is the Livestock Information Management System (LIMS) developed recently to facilitate sharing of information among SADC members. The SADC Trans-boundary animal diseases (TADs) project comprising rinderpest, CBPP, FMD, African swine fever, Newcastle disease (ND), avian influenza (AI), Rift valley fever and lumpy skin disease has yet to have a visible impact in terms of increased trade opportunities despite positive statements by FANR on their website.

In execution, the role of FANR and the SADC SPS Annex in promoting trade in the SADC region in beef products can be regarded as minimal. Most SADC countries lack the will and the means to comply with the TAHC requirements in terms of quarantine measures/requirements, inspection procedures, testing procedures, approval procedures, sampling procedures, certification and methods of risk assessment. Food safety laws in most SADC countries lag behind trading partner laws in the EU and USA, including food safety-related labeling and packaging requirements, processing/production/requirements.

Both SADC and the Common Market for Eastern and Southern Africa (COMESA) have begun to lobby the WTO and, more specifically, the OIE to look at alternatives to geographical freedoms from disease as a basis for trade in animals and animal products. The argument for the alternative is in essence the 'commoditization' of meat (also referred to as commodity based trade (CBT)) using rules that are applied by the CODEX Alimentarius Commission (CAC). The arguments and the response by the OIE is summarized in Appendix 3. Quite apart from the lack of capacity in the veterinary departments of SADC member countries to research the issues noted by the OIE, a further complication to the development of CBT are the large number of diseases in the wildlife of Africa (Appendix 4).

⁶ Commenced in 2005 and concluded in 2008

⁷ Concluded in 2009

6. CONCLUSIONS

The only significant trade in animal products within SADC is from Namibia and Botswana to South Africa. South Africa is net importer of animal products and in effect only Botswana and Namibia have both surpluses for export and can meet the necessary SPS requirements. The level of this trade is limited by the more lucrative markets in the EU, as compared with South Africa. Currently both Namibia and Botswana are, in fact, unable to fill their EU quotas. Swaziland also has access to the South African and EU markets but has structural problems in its beef industry which limit production and the country fails to meet its quotas. In the case of FMD alone, no other country in SADC meets the requirements of the OIE for beef exports.

The OIE has been very pro-active in promoting the harmonization of SPS regulations through programs to ensure that country disease reports are made regularly to the WAHID database, event notifications are made and through the use of the PVS tool to promote veterinary frameworks (policy, legislation, human capacity and infrastructure) to deliver on WTO SPS commitments by SADC countries. However on any measure the entire animal health structures in SADC do not compare in scope or pro-activeness with those of either Australia or Brazil (countries with similar climates and range of animal health issues) despite considerable investment by the EU, OIE, FAO and other donor partners. In parallel there seems limited scope for any increase in opportunities for trade within and from SADC that would derive from current programs. For example, while the SADC LIMS project is active in promoting discussions and information sharing among animal health specialists in the region, an examination of the content in the various discussions does not seem to contain much that would be of immediate practical benefit in terms of trade.

Regional successes can in fact be generally traced to instances of strong public-private partnerships, or failures - in the case of Zimbabwe, to their disappearance. Examples include the participation of the private sector commercial farmers in Namibia, the ostrich growers through their association in South Africa and the success of the newly created national cattle producers association in Botswana, the BCPA. Regional, government and donor led programs generally appear to lack commercial direction and cutting edge management if they do not engage with strong private sector partners.

APPENDIX 1: CONTACT DETAILS OF SADC OFFICIAL DELEGATES TO THE World Animal Health Organization (OIE) (JULY 2010)

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APPENDIX 2: DOCUMENTATION AND PROCEDURES REQUIRED FOR THE IMPORTATION OF MEAT AND ANIMAL PRODUCTS INTO SOUTH AFRICA³⁹

The Directorate Veterinary Services in South Africa administers the Animal Diseases Act No 35 of 1984. The Import Export Policy Unit of the Directorate Veterinary Services also administers the sections of the Meat Safety Act No 40 of 2000 and regulations that apply to the importation of meat. The importation of animals and animal products from individual countries is evaluated in accordance with these Acts, international standards and other requirements.

List of Approved Establishments

Frozen and chilled meat may only be imported from establishments (abattoirs and cutting plants) approved by the Director Veterinary Services of South Africa. The list is also available on the url link to Approved Establishments in the Veterinary Services website. The veterinary authorities in countries exporting meat to South Africa routinely inspect approved establishments. The Directorate is notified as soon as a plant no longer complies with the stipulated requirements. The listing of an establishment does not necessarily imply that the Directorate will allow the importation of a particular meat or meat product from that country. For example, the listing of an establishment as a red meat plant does not imply that the Directorate will allow the importation of beef, mutton and pork from that plant or country.

Listing of Additional Establishments

In order to obtain approval for an additional abattoir or cutting plant (in countries already exporting to South Africa) the owner or manager of the establishment must contact the veterinary administration in the country where it is situated. The relevant veterinary authorities will then inspect the establishment on behalf of the South African government. If the establishment complies with South African requirements, the veterinary administration (head office) sends confirmation to the South African Veterinary Services that the inspection has been completed. Meat may only be produced at the establishment for export to South Africa once the South African Veterinary Services have confirmed the approval in writing to the relevant veterinary administration.

Veterinary Import Permit

No animal or animal product (including samples) may be imported without obtaining a veterinary import permit from the South African Veterinary Services. The importer must be in possession of the veterinary import permit before the consignment departs from the country of origin. Import permits for animal products (e.g. meat) imported for commercial purposes are only issued to companies residing in South Africa or an agent in South Africa appointed by an international company. (The reason being the difficulty of initiating legal proceedings against foreign individuals or companies). Import requirements vary according to product and the animal health situation in individual countries.

Veterinary Health Certificate

A veterinary health certificate, which is in compliance with the conditions stipulated by the South African veterinary import permit, must be obtained from the veterinary authorities in the country of origin before the product is shipped. Imports via third countries are generally not accepted.

Ports of Entry

The veterinary import permit and the veterinary health certificate must be presented to the relevant authorities at the port of entry. Only original documents will be accepted. Meat must be inspected at one of following inspection sites stipulated on the import permit.

Importation from countries not exporting to South Africa at present

An application to import meat from countries not exporting to South Africa at present (or to import a particular product for the first time from a country exporting other animal products to South Africa) is evaluated in terms of the relevant legislation, international standards and other requirements. South Africa is an active member of an international network of veterinary administrations. Through these international contacts the South African Veterinary Services receive regular reports on the disease status of other countries. Disease reports are received from the OIE and by direct contact with the veterinary administrations in the exporting countries.

Trade is based on a series of requirements, which the importing country considers appropriate to prevent the entry of diseases. The regulating authority in the importing country always requires someone independent of commercial involvement in the exporting country to act as its agent to ensure that its import requirements are appropriate for the trade and that they are complied with when an export takes place. The Directorate of Veterinary Services specifies that this must be its equivalent government agency. In some circumstances it may be considered sufficient for the process to be audited by the government body. The draft conditions of trade are drawn up by the Directorate Veterinary Services and represent the Directorate's perceptions of the exporting country's animal health status. The conditions usually reflect the concerns of the South African agricultural industries and own livestock disease status. Because the industries perceptions are not always well-founded, considerable negotiation often takes place to try to reduce the requirements to the lowest level compatible with the maintenance of adequate agricultural security.

The animal disease situation in a country is first evaluated using OIE reports and other information available internationally. Depending on the outcome it is decided whether further consideration should be given to the importation of a product from a certain country. If the outcome is favorable the next step is usually to send a questionnaire to the veterinary administration. After the response to the questionnaire has been received and evaluated, the South African Veterinary Services decide whether an inspection visit to evaluate the animal disease situation, veterinary control and surveillance programs should be planned and budgeted for. The inspection of establishments can be done during the same visit, but will usually only be considered if the animal health situation appears to be favorable. Inspection visits are planned and budgeted for, each financial year (starting 1 April). It is usually very difficult to deviate from this schedule. Before planning an inspection visit our Directorate requires the following from the Chief Veterinary Officer of the prospective exporting country:

- 1 An official invitation
- 2 A day-by-day itinerary.
- 3 Confirmation that the establishments (abattoirs, cutting plants, etc) have been inspected and, in their opinion, could comply with our requirements [Meat Safety Act, 2000 (Act 40 of 2000) and the regulations promulgated there-under]

A major part of the risk analysis aims to confirm the reliability of statements made by the veterinary authority in the exporting country and by the industry organizations in that

country which requires a detailed knowledge of controls and procedures in the country of origin including:

- The legislative controls on import and export of animals and animal products.
- The state veterinary service.
- The laboratory service coverage (both private and state).
- The veterinary practitioner base and its interactions with the state services.
- The industry, its use of veterinarians and its interactions with the state veterinary service.
- Systems of disease notifications and exotic disease response procedures.

Knowledge of these factors allows an assessment to be made of the degree of disease surveillance in place in the exporting country. The requirements include that the exporting country must be free of certain diseases. All statements must be supported by documented surveillance information. The requirements on the veterinary health certificate vary according to the conditions in individual countries and are only agreed upon once the procedure described above has been completed.

APPENDIX 3: COMMODITY BASED TRADE (CBT)

Brief mention must be made of the issue of Commodity Based Trade (CBT). The argument is outlined in a series of papers (Thompson, et al., 2008, Thompson, 2009)⁴⁰ & ⁴¹ and has been accepted as policy for development in regional trade in meat by the African Union (AU) and both SADC the Common Market for Eastern and Southern Africa (COMESA). The starting point of the argument is the issues of the diseases, listed in Table 16 (in Appendix 4), that are both indigenous and endemic to Africa. Any effort to eradicate some of these diseases will require an attempt that will likely have severe consequences on some of Africa's ecosystems. The harm will potentially outweigh the benefits and will add to the increasing pressure on the African biosphere. Given that Botswana, for example, earns more from ecotourism than beef that country is likely to resist implementing programs that severely affect the former.

However there could be a good zoosanitary case made for the processing and export of de-boned beef from infected zones where the risk of disease transmission can be reduced to an Acceptable Level of Risk, (ALR) by incorporating best practice into a formal Hazard Analysis and Critical Control Points (HACCP) program to be operated by the meat packers in any infected zone. Though Thompson and his co-authors cite veterinary and animal science literature where the estimated risks of transmission of OIE notifiable diseases in matured, chilled and deboned beef to be vanishingly small, in practice this level has not been, nor is likely to be accepted in practice by countries such as the USA or trading blocs such as the EU.

There are two ways forward.

- To make a case to the EU, USA and other trading partners that require beef to originate from FMD free areas that de-boned beef from affected areas poses no additional ALR. The likelihood of this happening soon are vanishingly small
- A second and more likely scenario is that the introduction of best practice into abattoirs in areas with endemic diseases will, if acceptable to trading partners in the region, allow virtually risk free trade. The implementation of best practices could be applied, in a likely first stage to nearby markets in highly populated countries, such as South Africa, from more resourced countries such as Namibia. However such a change in importing practices will require fundamental changes in current practices (see Appendix 2 on current South African import requirements)

Though calculations of the effect of best practice on disease transmission of FMD through de-boned beef have been referred to in the paper by Thompson et al these appear not to have been tested in commercial practice. However the cited transmission rates are similar to those used by commercial food processors for its required HACCP appropriate level of protection (ALP) and it seems likely on the basis of the cited references that this could be achieved.

The position of the OIE on the issue is as follows;

“More specific guidance should be developed on mitigation measures that will provide adequate assurance that FMDV infected animals, particularly those in the early stages of infection and possibly incubating the disease, are not presented for slaughter at export

abattoirs in regions that are not officially FMD-free.8&42. More specific guidance should be developed on mitigation measures required at export abattoirs in regions that are not FMD-free. guidance should encompass both procedures to be followed and measures by which their implementation can be monitored.

- *The behavior and survival of FMD in bovine fat tissues.*
- *The amounts of residual bone marrow, lymph node and blood clot in DB.*
- *The effective oral dose of FMD for pigs.*

The relative contribution of “pre-slaughter” versus “at-abattoir” control measures aimed at reducing the likelihood of FMDV contamination of DB exported from zones that were not OIE free. A more detailed retrospective study from one or more countries where detailed records are available might be developed to analyze the likelihood that DB from infected animals were actually exported.” 43

Other diseases of interest to the OIE on which they believe need more clarity are listed in Table 15

Table 15: Other diseases besides FMD in beef that require research before the OIE will accept their elimination in traceability and slaughter procedures

Disease (Article)	issue
Rift Valley Fever (Article 8.11.11.)	risk associated with viraemic animals
bovine brucellosis (Article 11.3.6.)	beef as a safe commodity, trade of cattle for slaughter
Crimean-Congo Hemorrhagic fever (CCHF)	chapter development

⁸ There are several reasons cited for restricting export from countries using FMD vaccines. The most important is probably that routine blood tests, relying on antibodies, cannot distinguish between an infected and a vaccinated animal.

APPENDIX 4: WILDLIFE IN AFRICA AND ITS EFFECT ON TRADE

The presence of a diverse wildlife in Africa presents a unique combination of opportunities and problems (Table 16). Non agricultural opportunities include tourism, notably eco tourism whereby conservation of natural resources directly leads to income generation and employment opportunities. Conservation of wildlife in effect also conserves the associated pest and disease complex associated with the animals and provides opportunities for new human diseases and zoonoses.

Table 16: African wildlife species associated with diseases of economic importance in wildlife/livestock systems, their epidemiological role and World Animal Health Organization (OIE) status⁴⁴ (after Kock, 2002)⁴⁵

Wild animals concerned	Diseases	Epidemiological role	Predicted Mortality (wildlife)	OIE notifiable
Kudu, impala	Anthrax	Multiplier epidemic hosts	High	Yes
Buffalo	Brucellosis	Epidemic host	Low	Yes (three species)
Buffalo, kudu	BTB	Epidemic host	Moderate	Yes
Eland, buffalo, impala	Ticks and TBD's	Multiplier epidemic hosts	Low	Yes
Grazing ungulates	Internal parasites	Multiplier epidemic hosts	Low	Some are
Gerenuk others	Rift Valley fever	Epidemic host	High in epidemics	Yes
Buffalo, impala, kudu, wildebeest, sable	FMD	Epidemic host	Low	Yes
Eland, kudu, giraffe, impala, bushbuck, buffalo	Rinderpest	Epidemic host	High	Yes
Wild bovine, hippotragine, caprine species	MCF	Epidemic host	Negligible	No
Kudu	Rabies	Epidemic host	High	Yes
Eland, springbuck, lechwe, sitatunga	Heartwater	Epidemic host	None	Yes
Bushbuck and others	Trypanosomiasis	Multiplier epidemic hosts	None	Yes (Sura)
Gazelles, oryx, ibex	Peste des petits ruminants	Epidemic	Moderate	Yes
Important species specific associations				
Buffalo	BTB	Maintenance	Moderate	Yes
	Rinderpest	Multiplier epidemic hosts	High	Yes
	FMD	Maintenance	Negligible	Yes
	Corridor disease	Endemic host	None	No
Bushbuck	Bovine petechial fever	Endemic host	None	No
Warthog	ASF	Endemic host	None	Yes
Wildebeest	MCF	Endemic host	None	No

The increasing need for veterinary inputs into wildlife disease and human public health is necessary because of the increasing amount of human-wildlife-livestock interactions and the appearance of diseases that either start off in wildlife or are endemic in wildlife. An example is severe acute respiratory syndrome (SARS) which is thought to have originated in captive animals in the crowded inner-cities in China. Human immunodeficiency virus (HIV), West Nile virus, Ebola virus, and monkey pox are examples of diseases have 'jumped' the species barrier to humans from close contact with wildlife. These viruses are infamous due to severe effect on human health within Africa and beyond. There has also been an increase of wildlife-livestock interface diseases over recent years including bovine tuberculosis (BTB), rinderpest, anthrax, and foot and mouth disease,(FMD) (Bengis, 2002)⁴⁶

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