



**To create a Joint Special Economic Zone  
for trade, manufacturing and marketing of live  
animals, animal products, animal feed production  
and veterinary services between Arab Republic  
of Egypt and the Republic of Sudan**







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## ***Preface***

The livestock sector is considered as one of the key economic sectors that underpin the economic and social development in a number of Arab countries. It contributes significantly to the GDP, and in providing employment opportunities and decent livelihood for a large sector of the rural population. Moreover, it contributes to providing the raw materials for many industries, and to supporting export and hence foreign currency earnings. Therefore, The Arab Sustainable Agricultural Development Strategy for two the decades (2005- 2025) contains special programs for developing the livestock sector, and facilitating inter-Arab trade in live animals and animal products.

Within the context of strategy programs The Arab organization for Agricultural Development (AOAD) has issued the “Unified Arab Pilot Veterinary Quarantine Law which has been approved by the General assembly of AOAD under its resolution No. 11/32 GA 2012 dated April 2012, and thereafter by the Social and Economic Council of the League of Arab States under its resolution No. 1927, dated September 2012.

To further the efforts of enhancing and developing the inter-Arab livestock trade AOAD has prepared this study about establishing a Joint Special Economic Zone for trade, manufacturing and marketing of live animals, animal products, animal feed production and veterinary services between Arab Republic of Egypt and the Republic of Sudan. The study has been carried out in coordination with the Ministry of Agriculture and land reclamation of Arab Republic of Egypt, and the Ministry of Livestock and Fisheries of the Republic of Sudan, in collaboration with Stewart Routledge & Associates Consultant Company.

The main justification for the establishment of the Special Economic Zone (SEZ) is the large increase in the number of livestock herds in Sudan, and the increasing demand for meat and meat products in the Arab Republic of Egypt, beside the need for the transfer and exchange of experiences between the two countries, and to maximize the benefit of competitive advantages available in both countries in the field of animal production, processing of animal products, and other related activities.

One of the main objectives of the establishment of the (SEZ) is to provide advanced services in the areas of production, marketing and trade of livestock, meat and manufacturing of various animal products. It also facilitates the production and trade of feed, leather, animal production inputs, and veterinary supplies between the two countries.

The study reviews the situation of the trade of live animals, red meat and veterinary services between the two countries, beside introducing the Economic Free Zones, their advantages, and benefits. It also provides technical description of proposed (SEZ) in terms of its constructions, structures products, beside giving detailed account to its

managerial; institutional, and legal requirements, as well as its technical designs, and financial aspects including costs, benefits, revenues, and feasibility indicators.

While introducing this study, I would like to extend my thanks and gratitude to the ministries and relevant institutions of the Republic of Egypt and the Republic of Sudan for their cooperation in providing AOAD with the required data and information necessary for the preparation of the study. I would also like to extend my sincere thanks and appreciation to the team of experts of Stewart Routledge & Associates Consultant and of AOAD who contributed to the preparation and review this study, hoping that it will achieve its objectives in the enhancement of livestock and red meat inter-Arab trade, beside encouraging the private sector in both countries to invest in the various areas that the (SEZ) avails, such as production, marketing and trade of live animals and red meat, and the production and trade of feed and veterinary supplies.

**Dr. Tariq Moosa Al- Zadjali**  
**Director General**

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**ABBREVIATIONS**

<b>AFDB</b>	African Development Bank
<b>AOAD</b>	Arab Organization for Agricultural Development
<b>ARCS</b>	Animal Resources Services Company
<b>EPZ</b>	Export Processing Zones
<b>FMD</b>	Foot and Mouth Disease
<b>FTZ</b>	Free Trade Zone
<b>FZ</b>	Free Zone
<b>GAFI</b>	General Authority for Investment, Egypt
<b>GAFTA</b>	Greater Arab Free Trade Area
<b>GDAH</b>	Ref Page i/1 (should be 1)
<b>GOVS</b>	General Organization for Veterinary Services
<b>GTA</b>	Global Trade Atlas
<b>HS</b>	Hemorrhagic Septicemia
<b>IDB</b>	Islamic Development Bank
<b>IFAD</b>	International Fund for Agricultural Development
<b>IGAD</b>	Inter-Governmental Authority on Development
<b>LCG</b>	Least Cost of Gain
<b>LESP</b>	Livestock Epidemio-surveillance Project
<b>LSD</b>	Lumpy Skin Disease
<b>MARF</b>	Ministry of Animal Resources and Fisheries
<b>MoFNE</b>	Ministry of Finance and National Economy, Sudan
<b>MOI</b>	Ministry of Investment
<b>Mt, MT</b>	Metric tons
<b>NADS</b>	National Animal Disease Surveillance System
<b>OIE</b>	Organisation International des Epizooties (World Organisation for Animal Health)
<b>PAA</b>	ProAnd Associates
<b>PACE</b>	Pan African Control of Epizootics
<b>PACS</b>	Pan African Rinderpest Campaign
<b>SEZ</b>	Special Economic Zone
<b>SPS</b>	Sanitary and Phytosanitary Standards
<b>SRA</b>	STEWART ROUTLEDGE & Associates
<b>TADS</b>	Transboundary animal diseases
<b>TLU</b>	Tropical Livestock units
<b>TMR</b>	Total Mixed Ration
<b>VS</b>	Veterinary Services
<b>VSVRI</b>	Veterinary Serum and Vaccine Research Institute
<b>WTO</b>	World Trade Organization

# **PART I**

## **INTRODUCTION & BACKGROUND**

## EXECUTIVE SUMMARY

The study examines the feasibility and costs associated with the establishment of a Special Economic Zone for livestock in Asgait, at the border between Sudan and Egypt. The project team visited Sudan in January 2012 and a sub-delegation visited Cairo, Egypt three weeks later to obtain information about the respective markets, the features of the current trade and the potential for improved trade conditions between the two countries based on livestock, livestock products and ancillary services.

The SEZ initiative offers Sudanese livestock producers and traders a strong opportunity to promote their products into a market which is set to expand significantly in coming decades. In addition, the current shortfall in beef and sheep meat supply in the Egyptian market could be addressed while still adhering to Egypt's animal health requirements. Placing the SEZ in the border region between the two countries at Asgait would benefit the trade in meat and livestock between Sudan and Egypt, as this region is an important transport corridor with excellent access to the growing consumer markets throughout Egypt.

The Egyptian market for livestock and meat products is expected to grow in the coming decades due to population growth and rising per capita incomes. There is a chronic shortfall in meat supply on the part of the Egyptian livestock industry, which is largely geared towards dairy production, not beef production. Animal disease also hinders the productivity of the Egyptian cattle herd. An SEZ located near the Egyptian market could help to fill this gap in red meat supply, while also offering improved returns for Sudanese livestock producers and stakeholders.

Livestock coming through the SEZ must meet Egypt's import requirements. In prior years, outbreaks of animal disease have been attributed to imports of Sudanese cattle and the market has closed for extended periods. It is therefore essential that the SEZ be able to guarantee to Egypt's veterinary health authorities that the livestock and meat products entering the country are free from diseases and pose no threat to the domestic herd or to the Egyptian populace. The SEZ will be strongly underpinned by the proposed quarantine system which is operated by the Sudanese government's veterinary service and the ongoing involvement and approval of the Egyptian veterinary services representatives permanently stationed at the SEZ.

The SEZ will not own the livestock in the facility: this is the role of existing commercial interests in Sudan who have strong, traditional links to their supply sources and to their buyers in Egypt. These parties should be encouraged to use the SEZ as a means to safeguard their transactions by delivering clean, disease-free livestock and meat products to customers in the Egyptian market. Properly administered and promoted, Sudanese livestock sellers could be able to access a wider range of buyers through the SEZ facility.

Stock entering the SEZ must have passed quarantine inspection already: they are then placed in the live market for sale and export to Egypt or to be sent for processing through the SEZ's abattoir and deboning facility. Selected cattle can also be placed in the feedlot for fattening over an extended period and then marketed to high-end buyers. Products could also re-enter the Sudanese domestic market, subject to customs approval. The SEZ facility will include delegates from government agencies who are placed there to help overcome any commercial delays.

The estimated cost of constructing the SEZ precinct and the listed facilities is approximately \$US32.264 million. Annual operating costs are calculated to be in the order of \$US171.838 million at full development (Year 5+), comprising of fixed costs for the SEZ (incurred whether the site operates or not) of \$US11.43 million for salaries, wages, maintenance, motor vehicle expenses and depreciation. In addition there are estimated total operating costs of \$US160.407 million for the operation of the various enterprises making up the SEZ.



Revenue of the SEZ is expected to reach a total of \$US179.259 million at full development. The primary source of revenue for the SEZ will be the sales revenue earned by the various enterprises operating in the SEZ. In addition to this, all users and visitors will be charged an entrance fee. These charges have been designed to provide a margin of revenue over operating costs for all enterprises, and are calculated to provide the SEZ an Internal Rate of Return (IRR) on funds invested of approximately 20.4 percent.

The report provides a robust framework for the SEZ's constitution and operation, including organization and staffing arrangements, draft regulations and board membership. Operating in the border region between these two significant trading partners, the SEZ entity can help to streamline the trade and development of meat and livestock products, as well as associated products such as hides, skins and by-products, and to open other North African and Gulf markets for products from the SEZ enterprises.

## 1 INTRODUCTION

Almost the whole extent of North Africa, the Middle East and the Arabian Gulf area are in deficit in demand for live animals and for products of animal origin. Sudan is geographically and strategically well placed to supply these surrounding areas. Sudan, with a large livestock population, can be expected in the future to experience strong and sustainable demand for live animals and for products of animal origin, especially for quality processed products with considerable added value over the basic commodities.

There has been growing realization in recent years within Sudan of these factors and of the possibilities of Sudan providing at least a part of the shortfall of livestock products in the region. This Study examines the feasibility of establishing a Special Economic Zone (SEZ) and associated support services that will provide a platform from which to launch and grow the trade. The beneficiaries will not only be the people of Sudan but also those of the surrounding regions, and in particular Egypt. Incomes in Sudan will be raised, employment will be created and the quality of life should generally improve. In the surrounding regions, consumers will have access to increased quantities of hygienically-produced animal products.

An SEZ for livestock on the border between the two countries could be expected to:

- provide basic infrastructure and services necessary to facilitate trade with Egypt and other regional export destinations;
- support an integrated approach to livestock production, marketing and processing; and
- create synergies among other development projects in the country and the region and encourage complementary investment.

### 1.1 MAIN ISSUES IN THE MEAT AND LIVESTOCK TRADE IN NORTH AFRICA

The project team identified a number of important issues related to the trade in meat and livestock between Sudan and neighboring countries. These issues are summarized in the section below.

#### 1.1.1 Sudan could supply the Egyptian market's increased demand for meat

Demand for meat in Egypt is forecast to increase. Population growth and higher incomes in the next few decades will stimulate demand for protein products which the local Egyptian market cannot fully meet. Sudan is well situated to supply the market with livestock and meat products.

#### 1.1.2 Food security in Egypt is an emerging issue, particularly for red meat protein.

Egyptian consumers are unnerved by recent price increases for beef, and a secure source of safe meat imports could do much to improve this situation. If imported livestock and products can consistently meet existing Egyptian health requirements, then the trade can flourish, which will also benefit the Egyptian economy and society in a time of change and adaptation.

#### 1.1.3 The Egyptian market is sensitive to animal health status

The SEZ's approach and operations should be consistent with Egypt's formal requirements about animal health standards in order for SEZ products to obtain approval from the Egyptian veterinary, health and customs authorities. Animal health is a major issue for Egyptian health authorities, and earlier Foot and Mouth Disease (FMD) outbreaks mean that imports may attract increased scrutiny in the future. In the past, livestock from Libya, Somalia, Ethiopia and Sudan have been suspected in Egypt to be the source of animal disease outbreaks, and

Sudanese livestock were once banned in Egypt following an outbreak of Rift Valley Fever (RVF).

#### **1.1.4 Strong stakeholder interest in existing commerce flow**

Stakeholders (consolidators, agents, traders and other parties) in Sudan and Egypt are powerful groups with an interest in maintaining the status quo. This group controls the flow of livestock from the production zones towards the major marketing points in the centre and north of Sudan, en route to Egypt, Saudi Arabia and Jordan. The SEZ's operation should encourage and incorporate these stakeholders into the SEZ's operations, so that it facilitates export of their products to the Egyptian market and maximises buyers' satisfaction.

#### **1.1.5 Existing tariffs and duties are low or nil**

Trade barriers between Egypt and Sudan are already minimal or nil: there is no import tariff on livestock imports or meat imports and only a 15% tariff on leather and skin imports. Therefore, the SEZ should not be expected to deliver substantial advantages in terms of lower or nil tariffs. It should facilitate trade and reduce or eliminate the sub-national taxes and charges which currently are applicable to the livestock and meat trade in Sudan and which somewhat reduce competitiveness.

#### **1.1.6 Egyptian consumer preferences**

The Egyptian consumer market prefers freshly slaughtered beef products supplied by the domestic beef industry as well as by imports of slaughter cattle. There is also a market for chilled and frozen beef products from India and other suppliers.

#### **1.1.7 OIE standards are the basis of a successful SEZ**

The Organization International des Epizooties (OIE) – now the World Organization for Animal Health – is the international body for standards and procedures to minimize disease transmission risks whilst enabling trade flows. These standards form the basis of the recommendations in the study about animal health, because a successful SEZ will need to satisfy Egypt's import requirements and be delivered by the Sudanese national and state veterinary services.

## **1.2 AIMS AND OBJECTIVE OF THE STUDY**

The objective of the study is to assess the feasibility of a joint SEZ between Sudan and Egypt for livestock and livestock products. The aim of the Zone is to facilitate trade in livestock and livestock products, animal feed products and veterinary services between the two trading partners. The Zone is intended to deliver benefits to each of the national economies and their respective meat, livestock and associated industries; to encourage value-adding; to increase food security for each country; and to minimize disruptions to their respective livestock and meat trades.

The study was commissioned by the Arab Organization for Agricultural Development (AOAD). Two of its member-states, Sudan and Egypt, are longstanding trade partners which share common goals, including the fostering of stronger economic ties. The SEZ is to be for mutual benefit and involvement, emanating from the rich livestock resources of Sudan and providing affordable and safe meat products to the growing consumer market in Egypt.

The Zone's design, framework and operations should be developed in accordance with the existing legislative, regulatory, veterinary and commercial requirements of both countries.

### **1.3 STRUCTURE OF THE REPORT**

The report comprises two main sections. In Section I, background information to the project is provided. It reviews the major features of the two economies as well as current meat and livestock production and trade profiles. This section also presents an overview of the Sudanese livestock industry from production through processing and marketing. The Egyptian livestock market is also reviewed.

The report then examines the concept of an economic zone and the features, advantages and disadvantages of each main zone type. It then sets out the main features of the proposed SEZ particularly in regard to animal health.

Section II presents detailed financial and operational information about the proposed SEZ to indicate the size of the investment required. A set of draft regulatory arrangements is also presented. The report then provides a set of conclusions and recommendations.

### **1.4 DEFINITION OF THE SEZ**

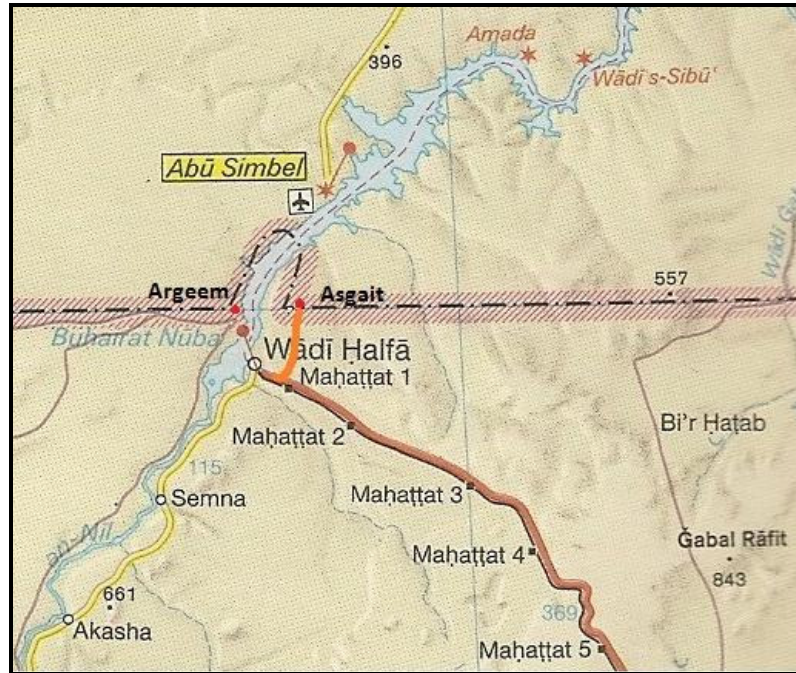
The SEZ is defined as being a physical area or precinct which incorporates a number of functions including livestock marshaling and inspection tasks; livestock feeding/fattening; abattoir and refrigeration; deboning; value-adding; manufacture of veterinary products; and other businesses related to the main activities at the site. The SEZ will require certain concessions from the Sudanese and Egyptian governments in order to streamline operations and to encourage better trade flow. It is proposed for the SEZ initially to be constructed and operated by a single entity, for example, a government agency or an international body. At a later date the SEZ's function could be leased out to a single private enterprise or a group of companies.

### **1.5 LOCATION FOR THE SEZ**

The suggested site for the SEZ is at Asgait on the Sudanese side of the border between the two countries; near the newly constructed Customs entry posts at Asgait (see Figure 1). Several important features recommend this site: it is positioned between the two countries for which the SEZ is chiefly intended; it is close to the quarantine station at Wadi Halfa; it is located on a paved road connecting the main cities of Sudan and Egypt; there are existing connections at Asgait to the Sudanese electricity network; and it is also the site of customs entry facilities for both countries.



Figure 1: Northern border region location for the SEZ



While Asgait is distant from the production zones in the western, southern and eastern areas of Sudan, it is well located on the main transport corridor that links the two countries and is already utilized by meat and livestock traders. In time, this will be an effective gateway for export opportunities to other Arab markets.

#### 1.5.1 Site visit, Sudan

A site visit to the central and northern regions was conducted in January 2012 in order to look at potential SEZ sites, surrounding facilities and infrastructure, as well as review transport and access issues which could affect the SEZ operation. The image at Figure 2 shows Asgait's newly constructed customs checkpoint.

Figure 2: Sudan-Egypt checkpoint at Asgait, Northern State (January 2012)



The site visit also included a stop at the Wadi Halfa Quarantine, constructed in 1973 and used until 1983 (when live cattle exports to Egypt ceased). Exports recommenced in March 2010 with 4,000 cattle sent that year and 20,026 cattle and 20,000 sheep in 2011.

No vaccinations are done at Wadi Halfa as it is considered an export quarantine centre, so all vaccinations are done further back along the supply chain at Kadero outside Khartoum or at other quarantine centers around Sudan. In 2010, the rail network was used for transporting cattle from Kadero to Wadi Halfa, as there is a rail spur into the quarantine area, however mortalities were excessive and since 2011 only road transport has been used. Transport time from Kadero to Wadi Halfa is included in the official 21 day quarantine period for Egypt.

On the completion of quarantine procedures, livestock are currently walked about 1.5 km from the quarantine to the port where they are loaded onto barges for transport across the Nile to Abu Simbel. Abu Simbel is the first major settlement inside Egypt on the journey from Sudan and is the nominal slaughterhouse for live cattle imports according to Egyptian regulations. Other livestock were observed in the area that the quarantine animals were being walked through on the way to the port.

The Wadi Halfa quarantine area is approximately 22 acres in area, and consists of an administration and laboratory building, 8 cattle pens 33 meters x 33 meters with plans for construction of more pens, seven sheep pens 33m x 33m and a fodder storage building. The facility is shown in the photographs at Figure 3. There is a total of 30 quarantine administration and laboratory staff and exporters supply their own feed and staff for looking after the livestock while in quarantine, feeding in half 44 gallon drums, with the quarantine providing water. At the time of inspection by the study team there were 585 head of cattle in five pens and no sheep. The existing road access to the quarantine requires some upgrading in addition to the provision of crushes and unloading ramps.

Figure 3: Part of quarantine facility at Wadi Halfa, 2012



## 2 BACKGROUND INFORMATION

### 2.1 SUDAN – POLITICAL AND ECONOMIC BACKGROUND

The Republic of Sudan (ROS) has an estimated population of 32 million inhabitants. The Nile River runs south-north through the centre of Sudan and is the water source for crop irrigation, towns' supply of drinking water and a vital vehicle for trade. A map is presented at Figure 4 and the key inside the maps' border shows state and international boundaries, main roads and main population centers.

Figure 4: Map of Sudan



Source: United Nations

Sudan comprises 15 states, based on the internal administrative boundaries established by the federal constitution of 1992. This document gives individual states considerable autonomy, including the ability, to impose their own taxes, some of which are levied on livestock movements. Regulatory and legal arrangements for an SEZ should seek to minimize the effect of taxes and charges on the export trade.

#### 2.1.1 Social demographics

Sudan's population has been growing for many years at an annual rate of about 2.5 per cent. About 70 per cent of people live in rural areas. The overall population density of 21 people/km<sup>2</sup> is low in relation to the resource potential and extremely low in some areas. Parts of the low rainfall savannah zone in the western part of the country, however, have high human population densities (and concomitant livestock densities) in relation to their potential. Total fertility rate is 4.8 children per woman. Life expectancy is 56 years. About 46 per cent of the population is under 15 years and the dependency ratio is almost 79 per cent.



Adult literacy is average for the region at about 59 per cent, with primary school enrolment at around 54 per cent. The Human Development Index is 0.512 and places Sudan in the class of Medium Human Development countries.

### 2.1.2 Economic outlook

Sudan like other countries has been affected by the global financial crisis of 2008. The secession of South Sudan has brought about a decline in its oil receipts; however, negotiations between the parties are currently occurring to normalize this trade. . Fiscal and external current account deficits have widened over the past five years and GDP growth has decelerated as in many other developing nations.

#### 2.1.2.1 National statistics

An analysis of Sudan's national statistics is shown at Table 1. It is estimated that agriculture contributes almost 45% of total GDP although the latest agriculture census data is now dated.

Table 1: Statistics on Sudan

Indicator	2000	2004	2010
Total population (million)	31.4	34.4	38.0 <sup>1</sup>
Population growth (annual per cent)	1.9	2.4	2.5
Life expectancy (years)		58.6	55.42
Fertility rate (births per woman)		4.4	4.84
Infant mortality rate (per 1000 live births)	65	63	68.07
Literacy rate, adult male (per cent of males 15 and above)	69.2		71.8
Literacy rate, adult female (per cent females 15 and above)	49.9		50.5
<b>Economy</b>			
GDP total (current \$US 10 <sup>9</sup> )	12.2	19.6	68.44
GDP growth (annual per cent)	6.5	6	5.1
Value added in agriculture (per cent of GDP)	41.2		44.6
Value added in industry (per cent of GDP)	18.5		45.3
Value added in services (per cent of GDP)	40.4		10.0
Exports of goods and services (per cent of GDP)	16	16.3	16.0
Imports of goods and services (per cent of GDP)	13.7	12.1	14.0
<b>Trade and finance</b>			
Trade in goods (per cent share of GDP)	27.6	28.3	32
Trade in goods (per cent share of goods GDP)	45.6		
High technology exports (per cent of manufactured exports)	3.8		
Net barter terms of trade) 1995 = 100)	100		
Foreign direct investment (net inflows \$US 10 <sup>9</sup> )	0.392	1.5	
Present value of debt (current \$US 10 <sup>9</sup> )			37.7

Source: World Bank World Development Indicators; CIA Fact book.

#### 2.1.2.2 Growth potential

Sudan is taking advantage of its many assets which include a rich agricultural and livestock resource base with considerable export potential, a dynamic private sector and the goodwill of a number of donors. Macroeconomic policy is basically sound and there is a keen interest among several donors and international investors in supporting investment projects within the country, including livestock. Unleashing this potential will require complementary investments in infrastructure, strengthening of institutions, reforms and technical assistance for improving governance, transparency and accountability in public affairs, together with a renewed focus on poverty reduction.

### **2.1.3 Government investment policies**

#### **2.1.3.1 Sudanese Government Investment Promotion Act 1990**

Sudan enacted an Investment Promotion Act in 1990. Amendments to the Act in 1993, 1996, 2000 and 2007 were designed to rationalize investment procedures and to provide incentives to private investors. The initial investment reforms were envisaged to deal with:

- establishment of a "one window" system of uniform facilities to provide the same opportunities for all investors;
- rationalization of fiscal exemptions;
- assurances against state expropriation of private investments;
- limiting new tax exemptions; and
- Redefining the overlapping licensing roles of the federal and state authorities.

The Investment Law is currently undergoing further review in 2012-2013 to further enhance investment opportunities.

The main impact of the investment reforms has been to provide consistent assurances about government support for private sector development. Investment reform combined with the privatization programme has provided some impetus to private sector investments in various sectors and especially in oil and oil-related investments. In addition there are investments in transport, pharmaceuticals and agro-processing.

#### **2.1.3.2 Tax policies**

Before reforms in 1998 the revenue system was quite complex. Recent reforms have raised the efficiency and yield of the tax system, particularly the introduction of unified systems for trade taxes and the value added tax (VAT). Federal revenues were equivalent to 16 per cent of GDP in 2010, compared to Kenya 24.2 per cent, Ethiopia 17.8 per cent, Tanzania 11.1 per cent and Uganda 10.8 percent.

### **2.1.4 Sanctions and potential investment in SEZ**

Existing international economic sanctions against Sudan include prohibitions on U.S. firms and individuals from conducting business transactions with the national government of Sudan or any individual or organizations associated with the national government or state-owned enterprises. These sanctions have had a minimal effect on Sudan's external trade, and would be unlikely to affect Sudan's exports of livestock and livestock products.

### **2.1.5 Sudan's international relations**

Oil development has resulted in changes in Sudan's trading partners and contributed to improved international relations. The Middle East continues to be important for Sudan's non-oil exports (especially livestock), but Asian countries, including China, are now its major export markets. Sudan has also intensified its efforts to build closer international ties with its trading partners, including a current application for membership of the World Trade Organization (WTO).

Relations with the Bretton Woods Institutions (World Bank and the International Monetary Fund (IMF)) have improved. Sudan is also a member country of the Nile Basin Initiative which seeks to improve coordination and management of Nile resources.

#### **2.1.5.1 International Fund for Agricultural Development**

Sudan has been a priority country for the International Fund for Agricultural Development (IFAD) for more than 20 years. IFAD has helped the rural poor in Sudan by funding a total of 14

projects for a loan amount of \$US186 million. A further \$US316 million has been contributed to the projects by the government, co-financiers and project participants.

### 2.1.6 Customs policies

Sudan is a member of the World Customs Organization (WCO). The Sudan Customs Service uses the Harmonized System Tariff for classifying goods. The primary functions of the Customs Service are:

- collection of duty and taxes including Valued Added Tax (VAT);
- the enforcement of prohibitions and restrictions; and
- Controlling movement of freight and transport at the points of entry.

The Customs Service is administered and controlled by the Ministry of Finance. The primary responsibility for the exemption process is the High Administrative Council (HAC) and the Ministries of the Exterior, Interior and Foreign Affairs.

## 2.2 EGYPT – POLITICAL AND ECONOMIC BACKGROUND

Occupying the northeast corner of the African continent, Egypt has a total land area of 99.5 million hectares of which 2.8 million hectares are regarded as arable. The country is bisected from north to south by the highly fertile Nile Valley, where most economic activity takes place (refer Figure 5). Since January 2011, the Egyptian Government has substantially increased social spending to address public concerns about funding for the public sector. Economic growth has slowed somewhat in the wake of the global financial crisis, thereby reducing government revenue. However efforts are being made to bolster tourism, manufacturing and construction which are all key to Egypt's economy.

Figure 5: Map of Egypt



Source: United Nations

## 2.2.1 Economic outlook

### 2.2.1.1 National statistics

During the second half of the past decade, Egypt has experienced a period of accelerated growth following reforms to stimulate investment and to counter concerns about youth unemployment and inflation. Economic activity has begun to recover in 2012-2013.

Table 2: Egypt - selected economic indicators, 2010/11–2012/2013

Indicator	2010/2011	2011/2012	2012/2013
Total population (million)	81.1		
Population growth (%)	1.92		
Life expectancy (years)	73		
Fertility rate (births per woman)	2.94		
Infant mortality rate (per 100 live births)	24.23		
Male literacy rate (% males 15+)	83		
Female literacy rate ((% female 15+))	59		
GDP (\$US millions)	218.9		
GDP Growth (%)	1.2	1.8	4.0
Inflation (%)	11.8	11.0	10.5
Agriculture (% of GDP)	13.7		
Fiscal balance (% GDP)	-10.3	-9.4	-9.0
Current Account (% GDP)	-2.3	-2.7	-2.5
Public Debt (% GDP)	76.2	76.6	75.5
External Debt (% GDP)	15.1	13.8	13.0
Value of Agricultural exports (\$US millions)	1,823		
Agricultural exports as a % of total exports	7.0		
Agricultural imports (\$US millions)	8,661		
Agricultural imports as a % of total imports	17.9		

Source: World Bank; P: Projected

## 2.2.2 Investment climate in Egypt

### 2.2.2.1 Overview

Egypt has made impressive progress in reforming its investment policies in recent years. Recent measures to ease restrictions have attracted more investment and will benefit the economy as a whole, according to a new OECD report. The government is consistently promoting foreign investment in numerous sectors, including livestock and agriculture.

Importantly, Egypt during the past 20 years has gone from being a high-tariff to a low-tariff country, with liberalization especially pronounced over the past 10 years with the simple average most-favored nation (MFN) tariff falling from 42.2% in 1991 to 17% in 2009.<sup>1</sup>

### 2.2.2.2 Investment promotion programs

The General Authority for Investment (GAFI) is the principal Government authority concerned with regulating and facilitating investment and stands ready to assist investors worldwide. GAFI has broadened its scope into a proactive investment promotion agency through its Research and Market Intelligence, Promotion and Facilitation and Investor Aftercare bodies.

<sup>1</sup>WTO, ITC, UNCTAD (2011) "2011 World Tariff Profiles," P.6



GAFI also represents Egypt's "One Stop Shop" for investment, easing the way for investors worldwide to take advantage of the opportunities in Egypt's emerging markets. GAFI makes emphasis on various investment opportunities that lie ahead in different sectors throughout the Egyptian economy.

### **2.2.3 Free zones**

There are a large number of public and private free zones in Egypt where business can be established to enjoy a lifetime exemption from all taxes and customs. These are discussed in more detail in 5.6.2 below.

### **2.2.4 Egypt's international relations**

Foreign policy is an essential component of Egypt's general state policy. Together with its traditional diplomatic and political functions, and given that development policy is considered a key objective, the Egyptian Foreign Ministry participates in the country's development efforts by trying to attract foreign investment, obtain economic assistance and facilitate technology transfers. Egyptian diplomacy also seeks to maintain strong bilateral and multilateral relationships, which is another essential goal of Egypt's general policy. To accomplish this, specialized departments for international cooperation have been established within the Foreign Ministry, which coordinates and cooperates with other Egyptian ministries and institutions working in those domains.

### **2.2.5 Trade agreements<sup>2</sup>**

Egypt is party to a number of preferential trade agreements. These include:

#### **2.2.5.1 Greater Arab Free Trade Area (GAFTA)**

The Greater Arab Free-Trade Area (GAFTA) programme, signed in 1997 to implement the Agreement on Facilitation and Development of Trade among Arab Countries<sup>3</sup>, entered into force on 1 January 1998. This agreement is considered to be the basis of Arab economic integration. It encompasses all members of the Arab League, and aims to create a comprehensive Arab free trade area. The principal entity responsible for implementing the programme is the Economic and Social Council of the Arab League. Currently, 22 members including Sudan and Egypt are implementing the programme.

#### **2.2.5.2 EU-Egypt Agreement**

The Agreement between Egypt and the European Union entered into force on 1 June 2004, replacing the 1977 Cooperation Agreement. This agreement is of particular importance for Egypt, as the European Union is an important trading partner and a major source of foreign direct investment. The agreement provides for the establishment of a free trade area within 15 years. Quantitative restrictions and other measures having equivalent effect on trade were abolished when the agreement entered into force. With the exception of a small number of products (including hides and skins), most Egyptian products are allowed into the EU free of customs duties.

#### **2.2.5.3 Agreements with Jordan, Morocco, and Tunisia**

In 2004, Egypt signed a free trade agreement with Jordan, Morocco, and Tunisia. The so-called Agadir Agreement committed the parties to removing substantially all tariffs on trade between them by 1 January 2005, and to intensify economic cooperation with regard to standards and customs procedures. The agreement also covers government procurement, financial services, contingency measures, intellectual property, and dispute settlement. The conclusion of this

<sup>2</sup>This section is drawn principally from the 2005 WTO Trade Policy Review of Egypt.

<sup>3</sup>This agreement dates from 27 February 1981.

agreement is considered to be a major step towards the objective of creating a Euro-Mediterranean free trade-zone.

#### **2.2.5.4 Common Market for Eastern and Southern Africa (COMESA)**

Egypt became a member of the 20-nation COMESA in June 1998.<sup>4</sup> Sudan is also a member of COMESA, which aims to deepen and expand the integration process for member countries by adopting general measures to liberalize trade. These include the removal of all tariff and non-tariff barriers and the adoption of a common external tariff; free movement of capital, labour and goods, and the right of establishment in the region; the adoption of a common set of standards, technical regulations, quality control procedures, certification systems, and sanitary and phytosanitary regulations; tax harmonization (including VAT and excise duties), and provisions on industrial cooperation in spheres such as company law, intellectual property and investment; implementation of a harmonized competition policy; and the establishment of a monetary union.<sup>5</sup>

#### **2.2.5.5 Agreements with Iraq, Lebanon, Libya and Syria**

Egypt has bilateral trade agreements with Syria and Libya (entry into force in 1991), Lebanon (1999), and Iraq (2001). The authorities indicate that preferences under these agreements will eventually be absorbed by GAFTA.

## **2.3 LIVESTOCK INDUSTRIES - POPULATION AND PRODUCT DATA**

### **2.3.1 Rangelands production in Sudan**

About 90 per cent of Sudanese livestock are raised in traditional pastoralist systems. These prevail in the western states of Darfur and Kordofan. In an "average" year it is estimated that 85 per cent of feed for livestock is derived from natural rangelands, 10 per cent from crop residues and by-products and the remainder from other sources including irrigated fodder and purchased concentrates. Variations in the timing and in the amount of rainfall result in very large fluctuations in the quantity and quality of natural range feed available from year to year. Similarly, crop areas and yields vary significantly from year to year in response to a range of factors, including rainfall. Much of the feed derived from crops is straw, stover and stubble of low nutritional value. Supplementation with high protein forages or other protein feeds is central to maintaining livestock productivity.

Rangelands occupy vast areas of Sudan. Range resources have deteriorated markedly over the years with a concomitant loss of livestock production potential. A number of interacting factors have contributed to this:

- a shift towards sedentarisation which is often linked to the permanent water points that were installed mostly during the 1970s. Households becoming sedentarised initially attempt to retain the same stock numbers but reduced mobility precludes access to the ever-changing availability and quality of rangeland feed;
- rainfed cropping (mechanized and traditional) has increased markedly, which has also reduced the rangeland area;
- rainfall has declined and become less reliable, particularly fragile areas in the north ; and
- stocking pressure on the remaining rangelands and particularly in the north has increased.

<sup>4</sup> Other members are Angola, Burundi, Comoros, Democratic Republic of the Congo, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia, and Zimbabwe. Lesotho, Mozambique, and Tanzania have withdrawn from COMESA.

<sup>5</sup> COMESA online information. Available at <http://www.comesa.org/obj.htm>.

Two decisions in the past resulted in far-reaching impacts on pastoralism and pastoral resources. These were the removal of the tribal administration system of lands and the Land Act of 1925 which assigned ownership of unregistered land to the state. The consequences were:

- a large influx of herds and farmers who had no traditional right of access to tribal land for grazing and traditional cultivation;
- intrusion of traditional and mechanized dry land farming; and
- pastoralists being pushed to marginal areas.

The net result of these effects is a "state of transition" in crucial rangeland areas, manifested in a reduction of more valuable rangeland components, including palatable and productive perennial grasses and tree fodder, and a general shift towards more annual grass species providing a shorter period of quality feed and lower overall productivity. Fire is estimated to destroy more than 30 per cent of the available feed every year.

### **2.3.2 Implications for rangelands production**

Most livestock in Sudan are husbanded in extensive systems characterised by mobility as a key part of the annual management programme. There are many sub-themes in this strategy but the 'baggara' cycle is exemplary. Each tribe or clan identifies an area in the central rain lands as its dar or homeland area. In the dar, the clan has a permanent settlement where on each of its seasonal movements it leaves family members and some types of animals. It also cultivates some small areas of subsistence crops. At the end of the long dry season around the end of June or early July, the main body of people and of animals prepare for the annual trek.

As the seasonal patterns approach with the rain the young grasses begin to grow. The cattle and sheep and some goats begin the slow movement northwards making use of this availability of feed. Over the next three months the grass is abundant, there is free water lying in pools over the earth's surface and the animals grow fat. As the seasonal patterns diminish, the grass and the water dry up. The herds begin the slow trek back to the dar where they can be expected to arrive in October. With luck and good rains, the millet and sorghum will have grown well and be ready to harvest. The livestock are kept in open camps around the dar area where they graze the surrounding feed and also make use of the stubbles and crop residues.

As these become exhausted, preparations are made for the next segment of the annual cycle. The families and retainers move to where there should be dry feed and some water either on the surface of the river, or at least accessible by the hand-digging of shallow wells. As even these resources become used up, the clan travels back to the north to the dar area. Now is the period of privation as there is little feed. Water may be at considerable depth and have to be hauled by bucket to the surface to provide for the animals. From April through June the weather patterns resumes and the grazing water cycle recommences.

Natural water systems have been modified to include many permanent water points and ponds fitted with pumps. These permanent water supplies benefit the animals and also the people who no longer need to lift it from great depth or trek daily with their animals in search of it. Permanent water has, however, also had a negative effect on the delicate balance of animal-feed-water, and many areas have water but no feed.

In the centre east of the country there have also been changes in traditional management patterns. Cattle and sheep now spend much of their time in the dry season on the crop residues provided by the irrigation schemes along the Nile. Water is abundant and accessible but feed can become short towards the end of the dry season, and farmers must get animals off their land to prepare the ground for the next season. Livestock then follow a similar trekking pattern to those in the west as they move with the rains and move again as the rains recede. In the north and east where camels predominate, there are similar but less stylized seasonal and annual cycles.

Rainfall here is even more erratic, feed is scarcer and long distances may have to be travelled in search of water.

### 2.3.3 Livestock populations in Sudan

Different sources vary in their estimates of Sudan's livestock numbers. Actual figures can be disputed but there is no doubt that Sudan has a large proportion of all African livestock. It is unclear how the secession of South Sudan will affect traditional livestock migratory routes, although currently there is no cross-border trade in livestock permitted.

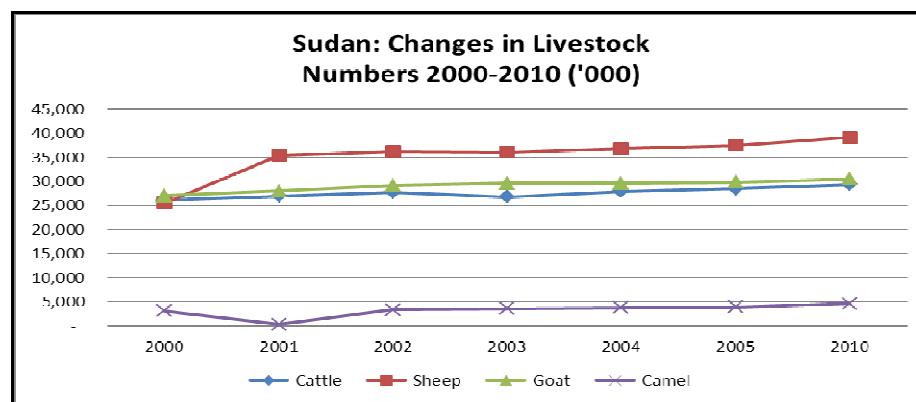
Table 3 uses data from the Ministry of Animal Resources and Fisheries (MARF) to show estimated livestock numbers for Sudan over the past decade. The table excludes livestock numbers from states which are now part of South Sudan.

MARF data suggests that during the period 2000-2010 there was a solid expansion of the Sudanese cattle herd, as well as small stock categories. Camel numbers increased significantly during this time.

Table 3: Estimated change in livestock numbers in Sudan, 2000-2010 ('000 head)

Year	Cattle	Sheep	Goat	Camel	Total
2000	26,068	35,528	27,022	3,108	81,727
2005	28,431	37,422	29,810	3,908	99,573
2010	29,358	39,137	30,452	4,623	103,570
<b>2000-2010 % Increase</b>	<b>12.6%</b>	<b>10.2%</b>	<b>12.7%</b>	<b>48.7%</b>	<b>26.7%</b>

Figure 6: Estimated changes in livestock numbers in Sudan, 2000-2010 ('000 head)



Source: MARF

Implied annual growth rates in animal numbers in the period 2005 to 2010 are therefore 10%-13% per cent for sheep, goats and cattle; and 48% for camels. Such sustained growth rates may be optimistic and do not allow for commercial and home consumption off take on top of natural mortality. If the MARF estimates of livestock numbers are accepted, however, Sudan is home to almost 104 million ruminant animals. (Using AOAD conversion factors<sup>6</sup>, this equates to approximately 40.90 million animal units.) Detailed numbers and percentages by state are presented at Table 4.

<sup>6</sup> The AOAD animal unit measurement is equivalent to one camel, 0.75 for cattle, 0.24 for sheep and 0.16 for goats.

Table 4: Distribution of livestock by state - numbers and percentages 2010

2010	Species & Number 2010					Species & Percentage 2010				
	Cattle	Sheep	Goat	Camel	Total	Cattle	Sheep	Goat	Camel	Total
North Kordofan	960,503	7,223,357	3,605,603	1,212,613	13,002,076	3.3%	18.5%	11.8%	26.2%	12.5%
South Kordofan	7,349,936	3,098,701	3,366,678	519,163	14,334,478	25.1%	7.9%	11.1%	11.2%	13.8%
North Darfur	668,176	3,760,104	2,888,827	578,337	7,895,444	2.3%	9.6%	9.5%	12.5%	7.6%
South Darfur	4,217,861	3,843,430	2,997,429	155,795	11,214,515	14.4%	9.8%	9.8%	3.4%	10.8%
West Darfur	4,050,817	3,905,925	4,387,541	417,919	12,762,202	13.8%	9.9%	14.4%	9.1%	12.3%
El Gedaref	1,044,025	2,135,239	1,055,616	334,705	4,569,585	3.6%	5.5%	3.5%	7.2%	4.4%
Kassala	960,503	2,020,665	1,668,134	674,496	5,323,798	3.3%	5.2%	5.5%	14.6%	5.1%
Red Sea	125,283	416,632	716,777	280,154	1,538,846	0.4%	1.1%	2.4%	6.1%	1.5%
Blue Nile	2,004,528	3,905,925	451,786	13,869	6,376,108	6.8%	9.9%	1.5%	0.30%	6.2%
Sennar	1,461,635	1,374,886	1,633,382	114,188	4,584,091	5.0%	3.5%	5.4%	2.5%	4.4%
Elgezira	2,463,899	2,473,753	2,137,297	120,660	7,195,609	8.4%	6.3%	7.1%	2.61%	6.0%
White Nile	3,466,163	2,551,871	2,549,987	34,673	8,602,694	11.8%	6.5%	8.4%	0.7%	8.3%
Northern	250,566	979,085	1,146,842	48,079	2,424,572	0.8%	2.5%	3.8%	1.1%	2.3%
River Nile	83,522	1,005,125	1,203,316	111,877	2,403,840	0.3%	2.6%	3.9%	2.4%	2.3%
Khartoum	250,566	442,672	642,927	6,472	1,342,637	0.8%	1.1%	2.11%	0.1%	1.3%
<b>Total for Republic of Sudan</b>	<b>29,357,983</b>	<b>39,137,370</b>	<b>30,452,142</b>	<b>4,623,000</b>	<b>103,570,495</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>

Source: SRA aggregation from MARF figures. N.B. Components may not add to totals due to rounding

### **2.3.4 Livestock distribution in Sudan**

Distribution and major stock routes could have some bearing on the operations of the SEZ. Many livestock are located in the west and centre of the country, and migratory routes are partly determined by climatic factors.

#### **2.3.4.1 Camels**

All camels are located in the northern states of Sudan. These animals dominate the livestock mix in North Kordofan (26 per cent of all Sudan's camels), South Kordofan (11 per cent), North Darfur (12 per cent) and Kassala (14 per cent).

#### **2.3.4.2 Cattle**

Some 70 per cent of Sudan's cattle are found in the northern states. The heaviest concentrations of cattle are in the central rain lands or 'baggara' belt with 28 per cent of all Sudan's cattle in South and West Darfur, almost 25 per cent in South Kordofan and 18 per cent in Blue Nile and White Nile States. These areas are ecologically the most propitious for cattle production, however, some are far from the main market outlets.

In the north the 'baggara' tribes occupy a belt of country encompassing the former Darfur, Kordofan and the White and Blue Nile provinces. As the name suggests the 'baggara' are mainly cattle owners but they also keep many sheep and goats. To the far north of this region, camels are a major livestock species, owned by the 'jumble' (camel) tribes who also own sheep and some goats.

The main stock routes run from the far west of Sudan eastwards to the population centres around Khartoum and east towards the export outlets on the Red Sea. Attempts have been made to set up export slaughterhouses in South Darfur, however, poor roads and lack of infrastructure have hampered these efforts.

#### **2.3.4.3 Sheep and goats**

About 75 per cent of sheep are located in the northern states. Because of the ecological and environmental adaptations of Sudanese sheep, they are well able to survive there. Thus North Kordofan (18 per cent of the Northern sheep population, but only 3 per cent of cattle) and North Darfur (9 per cent of the Northern sheep and under 2 per cent of cattle) are important sheep areas, as are El Gedaref, Blue Nile, El Gezira and White Nile States.

### **2.3.5 Livestock populations in Egypt**

Egypt's total cattle herd (including domesticated buffalo) decreased in 2009 and is estimated at about 8.4 million head of which approximately 46 percent are buffalo, compared to 9.2 million head in 2008. This reduction was mainly due to outbreaks of FMD, which is endemic in Egypt; Lumpy Skin Disease (LSD); and Bovine Ephemeral Fever (BEF or Three Day Fever). Many dairy farms were forced to slaughter dairy cows for beef as a result of the BEF outbreak during the late 2000's and this may continue. As a result of the sharp increase in beef prices, linked to the shortage in feeder cattle, many small holders also sold their females for beef at higher prices which further reduced total calf production. Based on the disease problems and high market demand for beef, there continues to be a downward trend in average slaughter weights.

Numbers of small stock (sheep and goats) are negligible in Egypt.



Cattle are maintained primarily for dairy production. This is one of the main reasons for exploring the feasibility of the SEZ, because the domestic cattle herd is not sufficient to meet demand from the Egyptian consumer market for beef, and the herd's projected growth is limited due to ongoing disease outbreaks. The bulk of the national herd is dispersed among many small holders; however, the number of modern dairy farms is steadily increasing. These new modern farms are scattered throughout the country with a heavy concentration in the northern region, where the climate is cooler and more suitable for raising imported cattle from U.S. and European Holstein stock. In addition, there are 200-300 feedlots of various sizes, normally feeding a total of about 350,000 buffalo and 450,000 cattle. The Cattleman's Bank and Cattle Insurance Fund assist these operations and are important, powerful stakeholders in the Egyptian market.

Egypt's domestic cattle industry suffers from disease problems which limit growth, including FMD (Types O and A have been endemic to Egypt, however a new type SAT 2 entered in 2012 and caused large losses), LSD and BEF. These diseases significantly impact live animal production rates and the calving rate.

Five year cattle slaughter and production statistics are set out in Table 5.

Table 5: Five-year cattle production statistics, Egypt 2008-2012

Year	Calf Slaughter		Cow Slaughter		Total Cattle Slaughter		Total Cattle Production	
	Number	Growth	Number	Growth	Number	Growth	Number	Growth
2008	110,000	(15.4%)	380,000	(10.6%)	1,595,000	(6.7%)	1,825,000	(8.2%)
2009	100,000	(9.1%)	390,000	2.6%	1,600,000	0.3%	1,822,000	(0.2%)
2010	90,000	(10.0%)	450,000	15.4%	1,590,000	(0.6%)	1,650,000	(9.4%)
2011	90,000	0.0%	300,000	(33.3%)	1,460,000	(8.9%)	1,710,000	3.6%
2012p	100,000	11.1%	300,000	0.0%	1,500,000	2.7%	1,740,000	1.8%

Source: USDA

## 2.4 SUDAN'S LIVE ANIMAL AND MEAT MARKET

The close proximity of the Gulf markets, and the existence of reliable air and sea transport links, is a major benefit to Sudan. In this high value market segment Sudan competes with Somalia (cattle), Ethiopia (cattle), Syria (live sheep and goats), Iran (live sheep), Romania (cattle) and Turkey although not with all these countries at the same time (because of political and animal health considerations) and not necessarily for the same product. The Export Supply Chain Assurance Systems (ESCAS) introduced by the Australian Government in 2012 on all live exports, may have a detrimental effect on Australian live export numbers to countries that have alternate sources of supply.

At present, Sudan livestock exports are unlikely to reach markets other than the Gulf markets. There is for example the issue of traceability, for which even producers in the countries of the EU have difficulty in meeting necessary requirements.

In addition increasing amounts of regulation, specifically the non-tariff barriers of the WTO parlance, are being introduced and enforced in the markets of the developed world. In the EU,

for example, regulations about the health status of animals; animal welfare conditions; and the standards of slaughter facilities in the supplying countries may be challenging for the Sudanese industry at present.

Table 6 below provides data on total livestock exports for Sudan in the period 2008-2010. The level of live camel exports are consistent, however, there is much variation in regard to live cattle and live sheep exports. Both these latter commodities are typically exported to Gulf markets and the west coast of Saudi Arabia.

Table 6: Sudan livestock & hide exports 2008-2010

Year	Live animals (number)				Hides & Skins (pieces)		
	Camel	Cattle	Goat	Sheep	Cattle	Goat	Sheep
2008	140,757	1,198	14,337	120,832	597,984	1,335,586	2,335,736
2009	154,477	19,265	104,630	1,510,996	508,224	838,098	1,355,488
2010	172,196	5,130	120,693	1,813,926	-	-	-

Source: Comtrade

Egypt is one of Sudan's major trading partners for livestock (particularly camels) and more recently for meat. The livestock trade with Egypt has a long historical base, with occasional border closures due to disease outbreaks in Sudan.

#### **2.4.1 Sudan's live camel exports**

Camels are an important component of the livestock/meat trade between the two countries. As indicated in

Table 7, exports average around 55,000 head per year. Statistics obtained from the quarantine office at Dongola indicate that exports are higher in the cooler months January to April as illustrated below in Figure 7. Virtually all camels on the 40 day Trek to Egypt come through Dongola (29 days to Dongola and 11 days to the border at Argeen, on the west bank of the Nile) where they are vaccinated for Haemorrhagic Septicaemia and Anthrax, and branded with a Q on the near shoulder. Quarantine at Dongola is for 21 days and traders are charged for livestock vaccination and certification. If camels already have vaccination papers, additional vaccinations are not required.

Table 7: Sudan Live Camel Exports to Egypt 2000-11 (head)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>Total:</b>	83,815	85,928	48,402	31,198	39,554	47,509	56,343	37,890	47,499	68,673	72,140	78,609

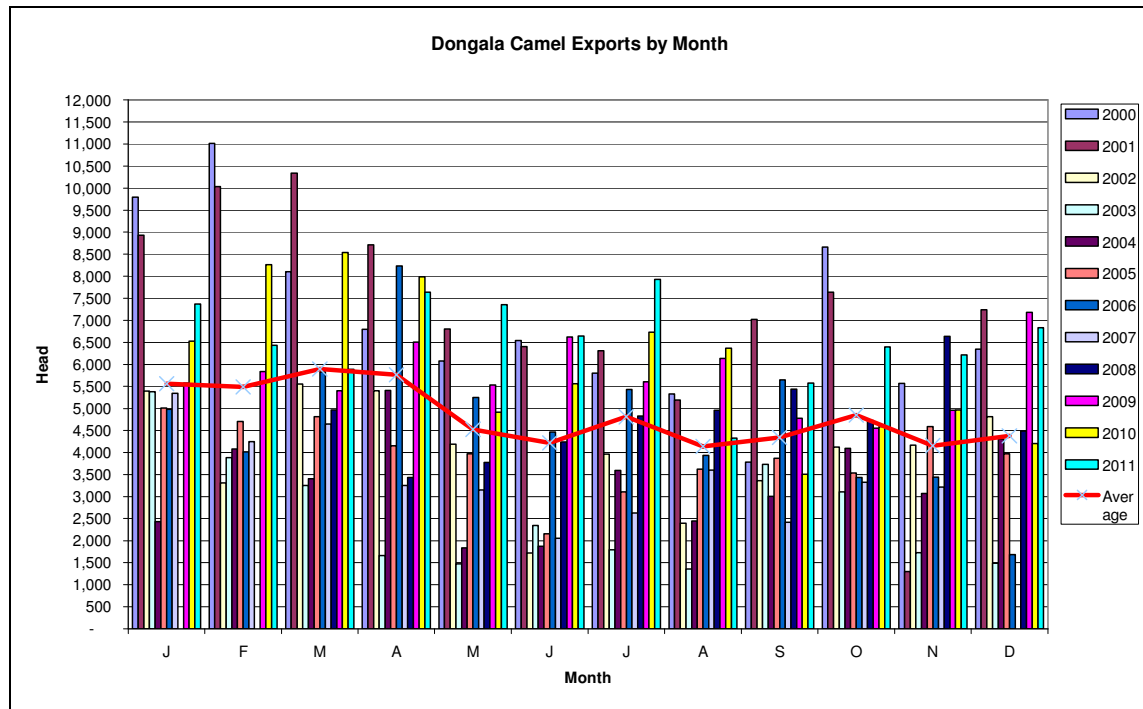
Source: Comtrade

Table 8: Sudan meat and livestock exports 2009-2011

	2009			2010			2011			TOTAL 2009-2011		
	Head	\$US '000	\$/head	Head	US '000	\$/head	Head	\$US '000	\$/head	Head	\$US '000	\$/head
<b>ANIMALS</b>												
Camels	88,036	47,342	537.76	160,290	29,182	182.06	127,236	38,104	299.48	375,562	114,628	305.22
Cattle	19,049	5,866	307.94	850	198	232.94	5,366	2,080	387.70	25,265	8,144	322.36
Sheep	1,632,512	181,314	111.06	1,833,338	164,072	89.49	1,334,125	223,196	167.30	4,799,975	568,582	118.46
Goats	95,563	4,445	46.51	130,561	5,089	38.98	116,687	7,378	63.23	342,811	16,912	49.33
<b>Total</b>	<b>1,835,160</b>	<b>\$238,967</b>		<b>2,125,039</b>	<b>\$198,541</b>	-	<b>1,583,414</b>	<b>\$270,759</b>	-	<b>5,543,613</b>	<b>\$708,267</b>	-
<b>MEAT</b>	<b>Tons</b>	<b>\$US '000</b>	<b>\$US/kg</b>	<b>Tons</b>	<b>\$US '000</b>	<b>\$US/kg</b>	<b>Tons</b>	<b>\$US '000</b>	<b>\$US/kg</b>	<b>Tons</b>	<b>\$US '000</b>	<b>\$US/kg</b>
Camel Meat	-	-	-	-	-	-	555	199	0.36	555	199	0.36
Beef	2	5	2.50	64	202	3.16	2,071	7,611	3.68	2,137	7,818	3.66
Mutton	1,749	9,191	5.26	9,593	38,712	4.04	5,655	20,529	3.63	16,997	68,432	4.03
Offal	-	-	-	-	-	-	53	28	0.53	53	28	0.53
<b>Total</b>	<b>1,751</b>	<b>9,196</b>	-	<b>9,657</b>	<b>38,914</b>	-	<b>8,334</b>	<b>28,368</b>	-	<b>19,742</b>	<b>76,478</b>	-

Source: Comtrade. Components may not add to totals due to rounding.

Figure 7: Live camel exports to Egypt 2000-2011 by month through Dongala



Source: Quarantine Office, Dongola

#### 2.4.2 Sudan's live cattle exports

Sudan's live cattle exports are mainly destined for Gulf markets including Saudi Arabia. Egypt requires all live animals imported from Sudan to be slaughtered promptly after arrival, nominally at the abattoir at Abu Simbel just inside the border for those coming from Sudan, which has a capacity of approximately 50 animals per day. Saudi Arabia imposes rigorous inspections on shipments of live animals, and will reject an entire shipment if one or two animals with unacceptable symptoms are discovered.

Sudan is a net exporter of live animals, meat and leather. The markets of the Middle East region are large and diverse. Demand is equally diverse for all classes and qualities of livestock products including live animals but different markets have different demands. There are varying figures available for exports of Sudan's livestock, meat, hides and skins. Table 9 shows MARF/ Animal Resources Services Company (ARCS) figures for these exports.

#### 2.4.3 Sudan's live sheep and goat exports

There appears to be low interest in the export of sheep or goats to Egypt from Sudan, although sheep were exported in 2011 as a gift from the executive government of Sudan. Sudan exports large quantities of small stock to the Gulf markets and to the Levant region.

Figure 8: Small stock at a rural market



The most important livestock export destinations for sheep are Saudi Arabia and Kuwait. For goats, Oman, UAE and Yemen consistently import the largest number, with the highest prices paid in Yemen and Saudi Arabia.

The Gulf markets normally import large quantities of live sheep from Australia and New Zealand but these are mostly for consumption by the large population of foreign labour. The same is true for much of the frozen lamb meat and mutton imports from Australasia.

Table 9: Live sheep &amp; goat exports 2009-2011 (all destinations)

	2009	2010	2011
Sheep (head)	1,632,512	1,833,338	1,334,125
Goats (head)	95,563	130,561	116,687

Source: Sudan Customs

#### 2.4.3.1 Supply for Hajj

The export of Sudanese male sheep to Saudi Arabia for the Hajj is a traditional market. Light weight male sheep are required for the Hajj festival in a market that at other times prefers heavier types. With an increasing population in Sudan and an improving economic outlook, the competition for supply will increase. Export numbers for the Hajj festival are included in the total figures shown above in Table 9 and were not available separately from Sudan Customs.

#### 2.4.4 Sudan's export meat trade

Sudan Customs data for meat exports was not available. Comtrade data indicates that sheep meat exports from Sudan are predominantly destined for Jordan and UAE. Total meat exports (predominantly sheep and goat meat) from Sudan were recorded of approximately \$8.4 million in 2006, nil exports in 2007, \$2 million in 2008 and \$8.6 million in 2009,<sup>7</sup> Jordan and the UAE are the main destinations. The Saudi Arabian market accounted for most meat exports from Sudan in 2006.

<sup>7</sup> UN Comtrade data, International Trade Centre, [www.trademap.org](http://www.trademap.org)

Meat exports to Egypt from Sudan are shown in Table 10 and comprise mainly fresh and chilled beef. More recent data may be forthcoming from Sudanese Customs. The Egyptian market also imports high volumes of frozen beef from several sources, increasingly being supplied by India and the Philippines. There is potential for more of Egypt's imports to be supplied from Sudan.

Table 10: Meat exports to Egypt from Sudan 2008-2010

		2008			2009			2010		
		Trade \$US	kg	\$US /kg	Trade \$US	Kg	\$US /kg	Trade \$US	kg	\$US kg
Beef	Fresh & Chilled	\$1,816	2,000	\$0.91	\$5,221	1,100	\$4.75	\$0	-	-
Beef	Frozen	\$0	-	-	\$0	-	-	\$0	-	-
Sheep Meat	Fresh, chilled or Chilled	\$0	-	-	\$0	-	-	\$0	-	-
Goat Meat	“ ”	\$0	-	-	\$0	-	-	\$0	-	-

Source: Comtrade

## 2.5 MANUFACTURING AND MARKETING OF MEAT IN SUDAN

As discussed above, red meat is extremely popular in the Sudanese diet in virtually all regions of the country. There are approximately eight major government-registered slaughterhouses located throughout Sudan which primarily supply meat products to the local consumer market. As well, there is informal slaughtering occurring in the smaller and larger regional centers, although there is little information about the size or turnover volume of this sector.

The large export abattoirs operate intermittently depending on orders from regional markets. Veterinary services are provided by the federal government department, and state health and veterinary officers are sometimes also in attendance at these plants).

Meat is typically distributed to the consumer market through a series of butcher shops and halls where small stock carcasses and deboned beef quarters or derivatives are on display. There may be refrigeration cabinets in use or the turnover may be such that these are not utilized. Modern supermarkets have extensive sheep, goat and beef items including offal for sale to consumers, usually sliced thinly or made into meatballs, roughly-cubed portions sold by weight, and also larger portions of meat which are suitable for wet cooking/stewing.

No branded beef or sheep meat programs or consumer advertising were observed in the Sudanese marketplace during the country visit

## 2.6 EGYPT'S LIVE ANIMAL AND MEAT MARKET

### 2.6.1 Live animal imports

Egypt imposes restrictions on live cattle imports from some EU countries due to the presence of BSE, particularly from Ireland, which used to be the major supplier of imported ready for slaughter cattle (it is the only European country able to meet the Egyptian veterinary regulations such as castrating of bulls). Imports from Ethiopia have also been suspended in previous years due to detection of FMD, LSD and Three Day Fever, which have been transferred to the Egyptian herd and caused severe losses for Egyptian farmers. The restrictions on Irish cattle encouraged importers to source slaughter cattle from other countries free of BSE, such as Australia, Brazil, Djibouti and

Uruguay. From January 2010 until May 2010, Egypt imported 63,510 head, compared to 23,281 for the same period in 2009, based on General Organization for Veterinary Services data. Imports increased due to the drop in local production and high prices.

Table 11 gives a summary of Egyptian livestock imports by supplying country for the period 2008-2010. The first observation is the great variation in total import levels and number of suppliers from year to year. Live cattle imports more than doubled in 2010 over 2009. Average per kilogram prices also rose sharply from \$US2.43 in 2008 to \$US3.03 in 2010. There was also significant change in the range of countries supplying live cattle to the market, with new suppliers like Hungary, Georgia and Croatia emerging during this period. Sheep imports also were inconsistent, with almost 2000 tonnes live weight imported in 2008 compared to nil imports in 2010. This data suggests that there is some volatility in the Egyptian live animal import market and upwards pressure on prices.

Table 11: Egyptian live animal imports by supplying country 2008-2010

Cattle	2008			2009			2010		
	Value \$US '000	Weight (tons)	Avg \$/kg	Value \$US '000	Weight (tons)	Avg \$/kg	Value \$US '000	Weight (tons)	Avg \$/kg
World	\$8,108	3,332	\$2.43	\$45,342	15,397	\$2.94	\$149,594	49,374	\$3.03
Australia	\$0	0	\$0.00	\$0	0	\$0.00	\$111,626	37,453	\$2.98
Croatia	\$0	0	\$0.00	\$14,267	4,897	\$2.91	\$6,499	2,256	\$2.88
Brazil	\$0	0	\$0.00	\$0	0	\$0.00	\$2,353	817	\$2.88
Djibouti	\$252	103	\$2.43	\$328	112	\$2.91	\$0	-	\$0.00
Ethiopia	\$0	0	\$0.00	\$0	0	\$0.00	\$6,566	2,280	\$2.88
Georgia	\$0	0	\$0.00	\$0	0	\$0.00	\$1,229	427	\$2.88
Germany	\$0	0	\$0.00	\$1,131	221	\$5.10	\$10,226	2,600	\$3.93
Hungary	\$603	248	\$2.43	\$0	0	\$0.00	\$2,241	778	\$2.88
Romania	\$1,611	662.3	\$2.43	\$0	0	\$0.00	\$0	-	\$0.00
Uruguay	\$5,640	2,318	\$2.43	\$21,124	7,251	\$2.91	\$5,778	2,006	\$2.88
USA	\$0	0	\$0.00	\$8,491	2,914	\$2.91	\$3,072	753	\$4.08
<b>Sheep</b>									
World	\$4,361	1,982.4	\$2.20	\$120,464	41.7	\$2.89	\$0	-	\$0.00
Uruguay	\$4,361	1,982.4	\$2.20	\$120,464	41.7	\$2.89	\$0	-	\$0.00
<b>Goats</b>									
World	-	-	-	-	-	-	-	-	-

Source: Comtrade. Components may not add to totals due to rounding.

### 2.6.2 Meat imports

Imports of frozen beef totaled about 126,000 tons in 2010 and are expected to increase as a result of short supply of locally produced meat coupled with a growing population. Brazil and other South American suppliers dominate the market and offer the type of young, lean meat products preferred by Egyptian consumers. Frozen buffalo meat from India is also prominent. In addition, some 70,000 tons of U.S. frozen beef livers were imported in 2010. Major sources of beef imports in 2009-2010 are shown in Table 12 and Brazilian imports clearly predominate.



Table 12: Beef imports from major suppliers( metric tons)

	2009	2010
TOTAL (of which):	224,000	126,000
Brazil	165,000	72,000
India	44,000	28,000
Argentina	501	7,000

Source: Global Trade Atlas/GOVS Cairo

Most frozen beef is imported into Egypt as boxed forequarters or hindquarters. Imports of high-quality U.S. beef grew during the 2000's due to the increased numbers of new international restaurant chains and the growth in tourism, rising to about 1,000 MT of high quality beef in 2009; however, this has since dissipated and the US now mainly supplies a range of lower end cuts. Brazilian and Indian beef are also widely used for the package tourism trade. A summary of 2008-2010 meat imports is set out in Table 13.

Table 13: Value of Egypt's meat imports 2008-2010

		2008			2009			2010		
		Trade (\$US '000)	Weight tons	\$US /kg	Trade (\$US '000)	Weight tons	\$US /kg	Trade (\$US '000)	Weight tons	\$US kg
Beef	Fresh & Chilled	465	1,234	\$3.75	314	89	3.54	1,228	50,617	0.02
Beef	Frozen	483,252	139,505	3.46	407,488	95,467	4.27	706,225	491,703	1.44
Sheep Meat	Fresh & Chilled	486	86	5.64	1,114	155	7.18	415	87	4.80
Sheep Meat	Frozen	8,320	3,349	2.48	6,110	1,157	5.28	13,427	11,596	1.16
Goat Meat	Fresh, Chilled & Frozen	0	-	-	0	-	-	0	-	-

Source: Comtrade

## 2.7 PROBLEMS AND TECHNICAL CONSTRAINTS WHICH HINDER THE DEVELOPMENT OF LIVESTOCK IN THE TWO COUNTRIES

### 2.7.1 Internal barriers to competitive trade and production

The practice of multiple taxes being applied to exports was traditionally widespread throughout Sudan. President Al-Bashir, however, banned the practices in 2011 and if this ban can be upheld, it will assist the competitiveness of the livestock supply chain. Similarly, there have been numerous taxes and transit fees levied on livestock traders and associated parties, mainly assessed by state governments. Different sources vary considerably but some studies suggested that taxes and fees constitute up to 27% of the cost of the exported animal and may go up to 40% if fodder is included. Most agree that there are over 20 types of taxes and fees between points of purchase and Port Sudan.<sup>8</sup> The national government has indicated its preference to see these charges abolished, which would assist the competitiveness of livestock entering the SEZ in northern Sudan.

Sudan's import tariffs have increased slightly since 2008,<sup>9</sup> though further liberalization is expected as part of the process of applying for entry to the WTO.

<sup>8</sup> Y. Akilu (2002), quoted in M.G. Desta, *The Regulatory Framework for Trade in IGAD Livestock Products*, IGAD Livestock Policy Institute Working Paper No. 07 – 08, November, 2007, p. 74

<sup>9</sup> World Bank (2010), "Sudan Trade-at-a-Glance," *World Trade Indicators 2009/10*

### **2.7.2 Opportunities and constraints on the Sudanese livestock industry**

Although cross-border trade in livestock with South Sudan has been suspended,<sup>10</sup> the border between the two countries is fairly porous, so movement of animals may not have entirely ceased. This may have an impact on livestock availability for slaughter further along the supply chain. In some areas of Sudan, development of the livestock industry is also hampered by inadequate access to agricultural inputs like fertilizers and medicines; prolonged dry spells and uneven rainfall distribution which reduce availability of crops; and poorly-resourced agricultural extension services.<sup>11</sup>

## **2.8 REVIEW THE OBLIGATIONS OF THE TWO COUNTRIES IN THE FRAMEWORK OF THE GATFA AND WTO WITH REGARD TO FREEDOM OF TRADE IN LIVE ANIMALS AND PRODUCTS**

GAFTA is unique among preferential trade areas in that it does not allow goods produced in free zones, even if they contain substantial domestic content, to qualify for national origin and, hence, preferential GAFTA tariff treatment. Such goods are instead designated as being of non-GAFTA origin and subjected to normal import duties. This is an important point with respect to the potential of a Sudanese livestock SEZ to export to other Arab countries.

This prohibition does not matter for sales to Egypt, which enter under COMESA trade preferences, which do not discriminate against products from free zones, but it does matter for sales to other Arab countries. The GCC countries have a maximum external tariff of 5%, which applies to most meat products, so the impact is not huge, but it could be significant for products exported from a Sudanese livestock/meat processing SEZ to Iraq or other GAFTA (but not GCC) countries. Iraq and Yemen both impose a 10% Most-Favored-Nation (MFN) import tariff on meat and live animals. Jordanian import duties on meat range from 5% to 23%, while Algeria imposes a uniform 30% tariff on all meat imports.

To the extent that a Sudanese livestock and meat SEZ aims to export to these markets, it will be important to structure the SEZ incentives in a way that does not violate the GAFTA provisions with respect to free zone exports.

### **2.8.1.1 Trade and tariff reform between Sudan and Egypt**

Reforms in trade policy have focused on removing restriction on imports and exports and on the retention of export earnings, abolishing state monopolies in the export of commodities and rationalizing taxes and tariffs. The government abolished export and import licensing and replaced the latter with a negative list in 1992. There are, however, restrictions on imports determined on the basis of security, religion (particularly alcohol) and public health. Export licensing has been replaced by administrative procedures.

Tariff bands were reduced from 13 in 1996 to four (comprising zero, 10 per cent, 25 per cent and 45 per cent rates) in 2002. Export duties have been abolished with the exception of a 15 per cent duty on the export of raw hides.

<sup>10</sup> "South Sudan Food Security Outlook October 2011 to March 2012," *Famine Early Warning Systems Network*, USAID, Washington, D.C., 2011, [www.fews.net/southsudan](http://www.fews.net/southsudan)

<sup>11</sup> Food and Agriculture Organization (Emergency Operations and Rehabilitation Division), *Plan of Action for North Sudan*, August 2012.

## **2.9 STUDYING AND FORECASTING SUPPLY AND DEMAND EXPECTED FOR MEAT, BY-PRODUCTS BETWEEN THE TWO COUNTRIES**

### **2.9.1 Market opportunities and trade preferences**

Egypt imports about \$1 billion worth of meat annually, excluding shipments of live animals, with India and Brazil currently the largest suppliers. Sudanese exports enter Egypt duty-free under COMESA trade preferences, and enter the GCC countries duty-free under GAFTA preferences. Other GAFTA countries also import substantial quantities of meat, especially Iraq (\$464 million in 2010), Jordan (\$280 million), Lebanon (\$193 million), and Yemen (\$160 million). This suggests that any strategy to increase Sudan's exports of meat and live animals should include not only Egypt as a target market, but also the GCC countries and other Arab countries at a later date.

To the extent that Sudan can increase its exports of boneless meat, which is without risk of disease, it can better overcome technical and non-tariff barriers in key export markets, as well as adding more value domestically than it does with live animal exports. But as long as internal taxes and tariffs continue to add as much as 40% to the cost of an animal, such measures will have limited impact.

### **2.9.2 Meat consumption in Egypt**

Red meat consumption in Egypt is composed primarily of locally produced fresh meat and some imported frozen meat. The average per capita consumption of red meat including variety meats is estimated at 8.5 kilograms per year, which is quite low compared to consumption levels in other countries. The lower consumption is mainly due to limited local production combined with lower per capita income. Fresh meat prices rose dramatically in 2010 from LE 50 (\$US9) per kg to LE 70 (\$12.50) in June and prices jumped to over LE 100 (\$17.50) during Ramadan in late August of that year. Price increases are largely driven by the continued depletion of the Egyptian herd: the prevailing consumption patterns show preference for beef over other types of meat (including poultry and lamb) and fresh meat over frozen.

However, since a great deal of beef is consumed in stew-like dishes, price is much more important than quality. As a result, the poorest segments of the population prefer to buy imported frozen red meat from India or South American suppliers. On the other hand, the more affluent segment of the population tends to think of imported frozen meat as an inferior product, due to its low price. The exception to this perception is the very limited amount of high quality frozen beef mainly imported from the US for use in hotels and restaurants.

There is virtually no data available on consumption of offal, although Egypt traditionally is a good international market for beef offal. With the growing demand for red meat protein in the expanding population base, it is assumed that a strong market for beef offal's will continue to exist. Popular items include beef livers, hearts and lungs.

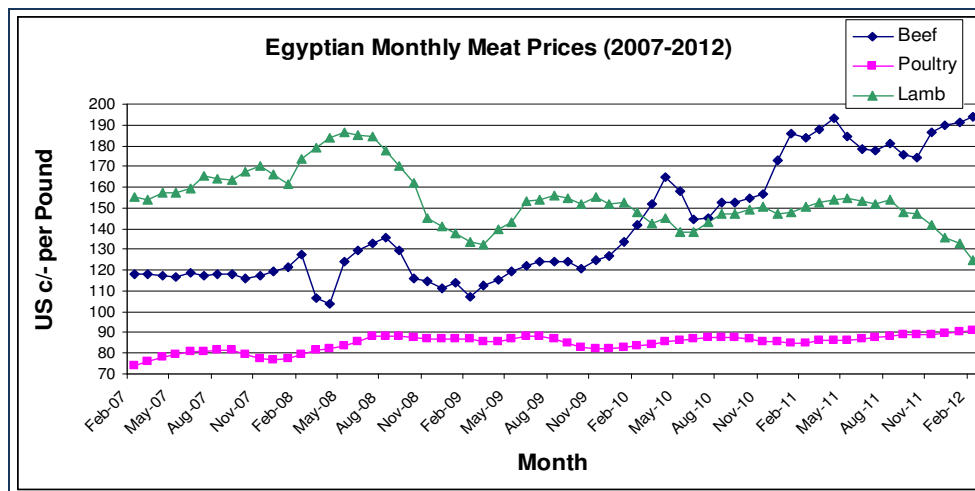
### **2.9.3 Egypt's domestic meat market**

Key determinants of local market demand for red meat are population growth and consumer purchasing power. Competition is provided by the comparative availability and price of white meat. Local urban demand appears to be adequately met at the present time. With continued growth in population and expected improvements in incomes and average standards of living this could quickly change.

Segmented marketing and product targeting will be relevant, specifically with regard to differentiated products, high priced quality cuts, prepared meats and processed products. Domestic beef prices are very strong, but local industry is not able to respond by increasing supply. Imported frozen beef and beef liver continue to be an important source of protein to the domestic market as well as for hotels for the tourism trade.

Figure 9 shows relatively stable poultry prices, a decrease in lamb prices and a significant increase in beef prices over the past three years. Beef is the preferred meat and availability of affordable, fresh, hygienic beef products is important to the populace.

Figure 9: Egypt - five-year monthly meat prices 2007-2012



Source: USDA

The Ministry of Agriculture and Land Reclamation has embarked on an effort to open new sources of import supply, while the private sector is reacting to strong domestic beef prices by increasing imports. The cattle inventories had been declining, primarily due to disease pressure, but recently also due to record high domestic beef prices, which have encouraged farmers to sell their dairy animals for slaughter.

Therefore, as indicated earlier in this report, there is good scope for the shortfall in Egypt's beef supply to be filled by an increased level of imports from the industry in neighboring Sudan, once the veterinary and commercial protocols and requirements are met.

#### 2.9.4 Observed meat supply in Sudan

The main determinant of meat supply in Sudan is the numbers of animals of each red meat species. Inter-year variations would partly be expected to be associated with climatic conditions and the consequent feed supply, but in general official data show a constant and somewhat high annual increase over a long period.

Annual off take rates are estimated by MARF at 20 per cent for cattle, 45 per cent for sheep and 40 per cent for goats. It should be noted that these rates are well in excess of most other estimates and would do credit to the best managed intensive livestock production enterprises anywhere in the world. The MARF estimates provide for an annual livestock turnoff supply as set out in

Table 14: Sudan estimated annual livestock supply(2010).

Species	Estimated Number per annum ('000)	Estimated Carcass Weights(tons)
Camels	242	863,000
Cattle	5,800	236,000
Sheep	19,700	131,000
Goats	16,400	37,000

Source: MARF

Summaries of the numbers of cattle and camels presented and sold at the Muweli Market and of sheep and goats at the Wad Medina Market are set out in Table 15. An average 32 percent of livestock sold as compared to numbers presented for sale indicate that there are significant sales being transacted outside of the official sale area in order to escape transaction taxes.

At Muweli Market sales of male cattle have increased 78%, female cattle have remained stable, and sales of camels have decreased 19% over the three years 2009-2011.

At Wad Medina Market sales of male sheep have decreased 75%, female sheep have decreased 32%, male goats remained stable, and female goats have increased 6% over the two years 2009-2010.

Table 15: Numbers marketed and clearance rates, Sudan, 2009-2011

	Numbers Offered			Numbers Sold			Percentage Sold Year on Year		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
<b>Muweli Market</b>									
<b>Camels</b>	30,570	18,410	15,528	10,242	6,925	8,337	33%	37%	54%
<b>Male Cattle</b>	101,847	123,044	228,281	38,901	44,942	69,435	38	36%	31%
<b>Female Cattle</b>	32,663	14,281	24,424	9,001	7,748	8,930	28	54%	36%
<b>Wad Medina Market</b>									
<b>Male Sheep</b>	32,300	17,897		12,456	3,090		38%	17%	Na
<b>Female Sheep</b>	19,000	17,324		5,641	3,839		29%	22%	Na
<b>Male Goats</b>	3,780	2,650		1,388	1,380		37%	52%	Na
<b>Female Goats</b>	4,357	5,632		2,064	2,184		47%	39%	Na
<b>TOTAL:</b>	<b>224,517</b>	<b>199,238</b>	<b>268,233</b>	<b>79,693</b>	<b>70,108</b>	<b>86,702</b>	<b>35.5%</b>	<b>32.3%</b>	<b>na</b>

Source: ARCS

An important factor that might be considered to have an influence on supply volume is price levels at producer and wholesale level. There was nothing observed during the market visit to suggest that producers are currently under pressure from falling market prices, other than in the short term, when there can be large changes in supply availability.

Off take rates from pastoral production systems are generally in the region of 8-10 percent for cattle and perhaps over 20 per cent for sheep and goats. Official Sudanese estimates of off take are well in excess of these norms. In view of this and of the fact that national flock and herd numbers and growth rates over time are also estimates, reliable predictions of future trends are difficult to establish. Future continued increase in off take will depend more on lowering the age of off take and in reducing animal mortality rates than through growth in livestock numbers. The effect will be a gradual change in herd and flock structure as non-productive older male animals are replaced by productive females. A reduction of the age at off take would mean growing the animals to heavier weights and fattening of increasing numbers of stock in feedlots. In addition, and very importantly, more ram lamb numbers suitable for the Hajj festival would be available for procurement. Price incentives and extension advice may be needed to help accelerate these changes.

### 2.9.5 Livestock availability in Sudan

Annual off take rates are estimated by MARF at 20 percent for cattle, 44 percent for sheep, 38 percent for goats and 16 percent for camels. Based on estimated livestock numbers discussed above, MARF off take estimates and data from ARCS and Customs, estimated livestock turn off and demand figures have been calculated by the project team and are set out in Table 16. This indicates that in 2010, Sudan had estimated surplus livestock numbers of 0.4 million camels, 0.5 million cattle, 3.0 million sheep and 1.8 million goats, which differs from the turnoff rate estimated by MARF.

Table 16: Estimated livestock supply-demand Sudan 2010<sup>12</sup>

	Camels	Cattle	Sheep	Goats	Total
2010 Livestock No's (MARF North Sudan)	4,623,000	29,357,983	39,137,370	30,452,142	103,570,495
MARF Off Take %	16.40%	19.90%	44.40%	38.50%	34.47%
Off Take Number (MARF Northern Sudan)	758,172	5,842,239	17,376,992	11,724,075	35,701,478
MARF Average Carcass Weight (kg)	<b>152.89</b>	<b>147.27</b>	<b>12.01</b>	<b>8.00</b>	
Tons Carcass Weight	115,919	860,384	208,648	93,793	1,278,743
Carcass to boneless meat conversion	70.20%	68.70%			
Average Meat Yield per head (kg)	107.33	101.17			
Boneless Meat (kg)	81,375	591,084			672,459
ARCS Domestic Consumption Data (%)	3%	69%	18%	10%	100%
2007 Domestic Consumption (kg/hd)	0.64	14.63	3.82	2.12	21.21
2010 Population (North Sudan)					6,086
Domestic Carcass Consumption (Tons)			140,445	78,025	218,471
Domestic Boneless Meat Consumption (Tons)	23,408	538,374			
Domestic Consumption Livestock Equivalent (hd)	218,089	5,321,258	11,696,845	9,753,157	26,989,349
2010 Export (Sudan Customs) (Tons)		64	9,593		9,657
2010 Export Livestock Equivalent (hd)	-	633	798,942	-	799,575
2010 Live Export (Sudan Customs) (hd)	172,196	5,130	1,813,926	120,693	2,111,945
<b>Livestock Surplus/(Deficit) head</b>	<b>367,887</b>	<b>515,218</b>	<b>3,067,279</b>	<b>1,850,225</b>	<b>5,800,609</b>
MARF Khartoum Abattoirs Slaughter (hd)	4,891	274,976	583,703	91,684	955,254
Khartoum Abattoirs Slaughter (Tons Carcass)	748	40,496	7,009	733	48,985
Khartoum Abattoirs Slaughter (Tons Boneless Meat)	525	27,820	0	0	28,345

Source: MARF data and SRA Estimates

Key determinants of local market demand for red meat are population growth and consumer purchasing power. Competition is provided by the comparative availability and price points of

<sup>12</sup>These figures are calculated on the basis that all cattle and camel meat sales are boneless meat cuts, and that all sheep and goat meat sales are bone in cuts. They also assume that the Khartoum abattoir slaughter figures are taken up in the domestic & export consumption, and do not represent additional production.

white meat. Local urban demand appears to be adequately met at the present time. The combination of increasing populations growth (due to returning Diaspora, improving health and nutrition conditions), increasing expenditure on red meat (due to increases in per capita incomes and improved living standards) and increasing numbers of foreign visitors (due to expanding business and travel opportunities), all indicate that the ensuing ten years may well see a rapid growth in the demand for red meat in Sudan.

#### **2.9.6 Sudan's livestock prices - domestic and export price comparison**

There have been significant increases in livestock prices in Sudan over the past three years and in most cases these have been higher than the increases in prices than for the previous three years 2006 to 2009.

A comparison of the average livestock market prices and the estimated bone in and boneless meat prices with export prices derived from Comtrade statistics show that current domestic prices are predominantly higher than Egyptian import prices for 2010. The main exception is the price per head for sheep being 50% higher; however this was for an average 76 kg sheep from Uruguay and the actual price per kilogram being 60% lower for considerably lighter Sudanese sheep.



Table 17: Domestic &amp; export price comparison

	Sudan Indicative Pricing (\$US)				2010 Egypt Import Pricing (\$US)				Percentage Differential (%)			
	Live per hd	Live per kg	Bone In Meat per kg	Boneless Meat per kg	Live per hd	Live per kg	Bone In Meat per kg	Boneless Meat per kg	Live per hd	Live per kg	Bone In Meat per kg	Boneless Meat per kg
<b>2011 Muwelih</b>												
Cattle	895.52	3.04	4.37	6.43	860.09	3.03	3.07	3.54	4.0	0.3	29.7	44.9
Camels	1,035.45	3.52	6.28	8.94	306.83				70.4			
<b>2011 Al Salam</b>												
Sheep	145.83	4.47	9.71		167.38	2.20	3.96	6.59	(14.8)	50.7	59.2	
Goats	52.24	3.28	7.46		38.98	2.46			25.4	25.0		

Source: USDA, Comtrade repor

## 2.10 VETERINARY SERVICES BETWEEN BOTH COUNTRIES

### 2.10.1 Sudanese veterinary services

#### 2.10.1.1 Disease surveillance and monitoring

The General Directorate of Animal Health (GDAH) is responsible, inter alia, for implementing a National Animal Disease Surveillance system (NADS). Sudan has developed a very good NADS over the years with the assistance of the EC-funded Pan African Rinderpest Campaign (PARC), the Pan African Control of Epizootics (PACE) project and latterly the ongoing Livestock Epidemio-surveillance Project (LESP).

The NADS comprises:

- An early warning and GIS unit. The early warning component utilizes trained field staff who can recognize and immediately report any suspected occurrence of a target disease (FMD, CBPP, SGP, PPR, RVF, LSD, and Anthrax) by mobile telephone (some 500 mobile phones have been distributed for this purpose throughout Sudan) or internet (many veterinary field offices have an internet-connected computer). Data are stored and reported using the database management system ARIS (Animal Resources Information System) developed by the Inter-African Bureau for Animal Resources (AU-IBAR). ARIS is web-based and used by State Animal Health Services to report disease data to the Federal GDAH. Data demonstrate that some 40% of emergency disease reports are, in fact, false alarms. This is excellent as it demonstrates that front line field staff do in fact rapidly identify and report unusual disease events.
- A Disease Investigation Unit that can rapidly respond to field reports using specially equipped mobile units (4-WD vehicle with in-built refrigerator and incubator, sample collection kits, tents, etc).
- An Information and Reports office and a Communications Office which are responsible for disseminating disease information, sensitizing veterinary staff and the public to the need for early detection and reporting of unusual disease events.
- A Disease Monitoring Unit responsible for compiling and analyzing the disease occurrence data emanating from field reports, the laboratory service, reports from neighboring states and so on in order to understand, analyze and report current disease patterns, and predict possible future patterns.

The OIE specifies a rapid and effective response as an essential element of an “early warning system.” The GDAH has developed and maintains very good working relations with the State Directorates (or equivalent) of Animal Health (SDAH). The SDAH is responsible for the disease containment / control / eradication response to an outbreak of an important disease and the GDAH assists in this and can provide material inputs if required.

Sudan currently has a National Animal Disease Surveillance system of the quality and scope required to effectively support the SEZ.

#### 2.10.1.2 Disease prevention and control

Federal disease control strategies are formulated by the GDAH in consultation with the SDAH. The Federal view takes precedence and the GDAH assists, advises, and provides training and material assistance to the SDAH to ensure uniform, coordinated and effective implementation and monitoring of these strategies.

Federal disease control strategies are currently being reviewed and revised with the assistance of a consultant provided through the LESP. The priorities here are to improve control and then eradicate PPR sheep, goat pox and CBPP, and then to embark on the FAO Progressive Control

Pathway for FMD Control, OIE's recognition pathway official Foot and Mouth Disease control programme. A control strategy will also be developed for Brucellosis. In the medium term the successful implementation of the revised animal disease control strategies will significantly reduce the disease risks to the SEZ and simplify and reduce the cost of biosecurity measures.

### 2.10.1.3 The Veterinary Research Institute

The Veterinary Research Institute (VRI) has three major responsibilities:

#### 2.10.1.4 Provision of a Veterinary Diagnostic Service

This provides diagnostic support for outbreak investigations and veterinary clinical services, and screens serum, and other samples as necessary, to fulfill the conditions for export of livestock and livestock products.

The tests used for important diseases, including the transboundary animal diseases (TADS), comply with the methods and standards specified in the OIE's Manual of Diagnostic Tests and Vaccines for Terrestrial Animals. Future plans for the diagnostic Centre are to increase the use of modern techniques such as enzyme-linked immunosorbent assays (ELISA) and polymerase chain reaction test (PCR) and to manufacture the required test kits in Sudan.

#### 2.10.1.5 Production of Animal Vaccines

Vaccine production data for 2011 are presented in Table 18 and include brucella antigen for use in the Rose Bengal Plate Test (RBT, a basic export screening test for Brucellosis). The research department is working towards increasing the range of vaccines produced in Sudan, including for infectious bronchitis, Gumboro disease, avian encephalomyelitis, enterotoxaemia, and contagious caprine pleuropneumonia (CCPP). Lumpy Skin Disease vaccines can now be produced at the VRI but will not be released for use until safety and efficacy trials have been completed.

Table 18: Doses of vaccines produced in 2011, by type

Vaccine	No. doses produced	Vaccine	No. doses produced
Haemorrhagic septicaemia	1,035,600	Anthrax	6,569,500
Blackquarter	5,136,600	Sheep and goat pox	11,531,600
Peste des petits ruminants (homologous)	13,596,100	Contagious Bovine Pleuropneumonia (CBPP)	1,871,100
Newcastle disease K	579,200	Newcastle disease lesota	2,000
Fowl pox	437,600	African horse sickness	2,220
Brucella abortus antigen	20,940		
		Grand total	51,109,606

Source: Dr Abdelgadir Ballal, Assistant DG, Vaccine Production, VRI. Personal communication

The VRI currently supplies vaccines on demand on a cost recovery plus basis to the GDAH and Epizootic Disease Control via the Veterinary Supply Company. The current price per dose (determined by the Ministry of Finance) for PPR vaccine, sheep and goat pox vaccine, and Anthrax vaccine is 0.24 Sudanese Pounds. Vaccines can be exported but only after permission has been granted by the Under Secretary of MoAR.

Future plans for the vaccine production centre include the development of new vaccines as required by the GDAH for domestic use and for export livestock (as specified by the veterinary authorities of the importing country), developing capability to meet the total domestic demand for vaccine, and to export vaccines. It should be noted that vaccine production must be increased substantially to support implementation of the new disease control strategies of the GDAH which,

for example, envisage the vaccination of 75% of small ruminants against PPR and Sheep and Goat Pox (SGP) - giving an initial requirement for some 52 million doses of each vaccine, and then some 14 million doses per year thereafter. The VRI produce vaccines to order and can increase production on demand.

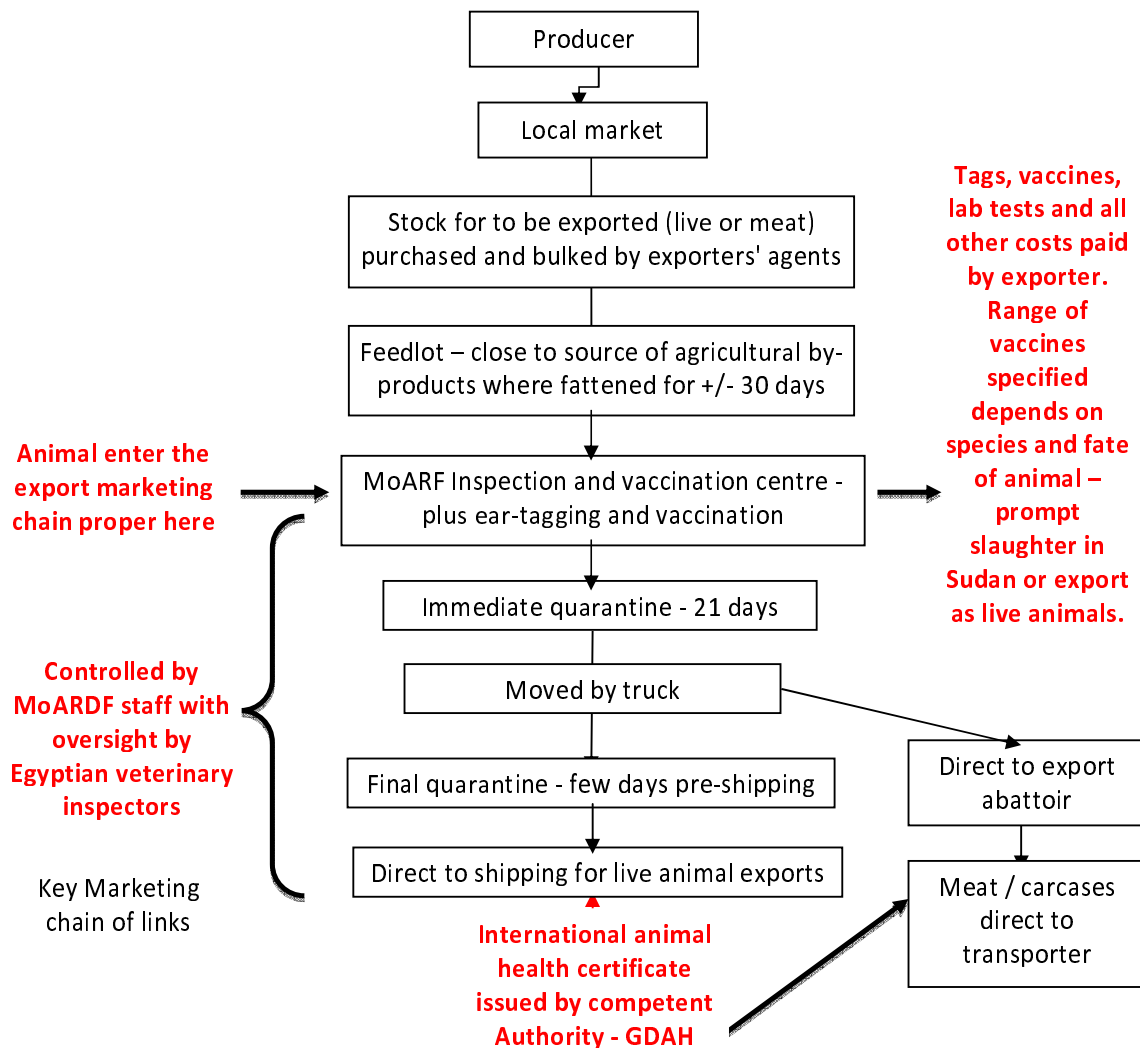
#### 2.10.1.6 Research

The research department concentrates on research and development required to produce a wider range of vaccines and also ELISA, and other, test kits. By virtue of its OIE-compliant test procedures and vaccine production methods the VRI can provide the SEZ with local support.

#### 2.10.2 General Directorate of Animal Quarantine and Meat Hygiene

This General Directorate of Quarantine and Meat Hygiene (GDAQ) is responsible for processing livestock for export (as live animals or products), a process involving initial inspection, vaccination (types depend on conditions imposed by the importing country), and identification of animals. Figure 10 below presents a simplified description of the export marketing chain for cattle for export to Egypt as live animals or meat / carcasses.

Figure 10: Sudan's Export marketing chain for live animal exports to Egypt (Source: SRA Analysis)



In the Inspection and Vaccination Centre (IVC), the first stage in the official export market chain, animals are:

- Inspected so that only apparently healthy animals proceed further along the chain
- Identified using numbered ear tags. Each of the seven inspection and vaccination centers uses ear tags of a specific color and uniquely numbered.
- Tested according to the conditions set by the importing country – generally this is restricted to serological testing for Brucellosis antibodies, reactors are removed, and;
  - Vaccinated – for animals destined for export as live animals. The vaccines used for each batch depend on the conditions set by the importing country. (Egypt cattle require FMD vaccination with a vaccine containing O Manisa, A, SAT 1 and SAT 2.)
  - The health certificate accompanying groups of animals leaving the inspection and vaccination centre includes number of animals in batch, species, tests carried out, vaccines used, color of ear tags, and ear tag serial numbers.

Systems and structures for inspection, identification, testing, and vaccination of export stock are in place. With targeted technical, material and financial support from the SEZ, these would be suitable for qualifying animals to enter the SEZ.

### **2.10.3 The Veterinary Supplies Corporation**

This body is responsible to the Minister, MoARF, for sourcing and supplying supplies (vaccines, equipment of all types) to the GDAH, VRI and GDAQ, utilizing funds from the Ministry of Finance. No vaccines are procured from Egypt and limited quantities of veterinary medicines have been imported from that country. During 2011 some 20,000 doses of camel pox vaccine, 200,000 doses of botulin toxoid, 2.5 million doses of RVF vaccine, and 15,000 doses of FMD vaccine (O, A, SAT 1+2) were imported from Europe, Jordan, India and other suppliers.

In 2011 the VSC imported veterinary equipment to the value of nearly \$US1,000,000. After the adoption of privatization in the 1990s all veterinary medicines can now be procured directly from private sector importers and traders (> 70 in number) by the GDAH. The VSC does not participate. Given the effects of privatization the future role of the VSC is likely to contract further. In response the corporation has invested in the Arab Company for Veterinary Medicine Production which will be established in Khartoum to produce acaricides, antibiotics, anthelmintics and trypanocides. Other investors include Arabic corporations, the Sudanese Industrial Bank and other domestic banks. The total capital is \$US33 million and in year 4 of production it is estimated that a domestic market share of 35% would be achieved, rising to 80% after 10 years. Currently no veterinary medicines are produced in Sudan.

### **2.10.4 Trade in goods and veterinary services between Egypt and Sudan**

Egypt accounted for only 6% of value of Sudan's imports in 2009 (CIA World Fact book, 2009) and with liberalization this trade is expected to increase. Given suitable specifications, price, delivery times, etc there is good potential for Egypt to supply:

- veterinary equipment such as surgical requirements;
- anthelmintic dosing guns;
- syringes and needles;
- veterinary drugs, as there are over 20 veterinary drug companies in Egypt. However if the planned Arabic Company for Production of Veterinary Medicines in Sudan goes ahead, the potential of sourcing these drugs from Egypt would be limited as the company aims to produce 80% of domestic requirements within 10 years; and
- possibly veterinary vaccines, but Sudan has potential to significantly increase domestic production to meet future requirements.

Egypt has experience and expertise in planning, establishment, disease control and operation of livestock fattening units, and in the formulation of rations largely based on crop by-products. There is therefore potential for Egypt to supply equipment, expertise and services to assist in expanding and improving the finishing of livestock in Sudan, in general and specifically for the SEZ. Overall, it is likely that a significant proportion of Sudan's imports of veterinary equipment (currently in the order of \$US 1 million per year) could originate in Egypt.

Given the size of Sudan's livestock populations, and the gradual expansion of veterinary clinical and other services, it is concluded that there is significant potential for Egypt to supply required goods and services.

Sudan's potential for the production of veterinary equipment and medicines is currently limited and it is unlikely that an export trade can develop for some years. However this may change when the Arab Company for Veterinary Medicine starts production in Khartoum.

## **2.11 EGYPTIAN VETERINARY SERVICES**

Under the Sanitary and Phytosanitary Agreement (SPS) an importing country cannot specify conditions for exporting countries that exceed the extent and intensity of its own national disease control policies. For example if disease X is present in an importing country and no control measures for the disease are currently being applied, then the importing country cannot impose restrictive conditions for disease X on exporting countries.

Given this, the Egyptian veterinary services were appraised with particular attention being paid to identifying the patterns of occurrence of trade-limiting diseases in Egypt and what disease preventive / control measures are in force.

### **2.11.1 Structure of Egyptian veterinary services**

The General Organization for Veterinary Services (GOVS) is the umbrella body of the Egyptian public veterinary services and comprises:

- Slaughterhouses and Public Health Central Administration\*
- Veterinary Quarantine and Inspection central Administration\*
- Preventive Medicine Central Administration\*
- Veterinary Drug Supply and Extension General Administration\*
- Animal Reproduction and Artificial Insemination General Administration
- Animal care and Treatments General Administration
- Egyptian Zoos and Wildlife Service's Central Administration

### **2.11.2 Overall competence**

In 2008 the OIE conducted a thorough evaluation of the competence and effectiveness of veterinary services using their Performance, Vision and Strategy (PVS) tool. Deficiencies were identified and an important objective of the GOVS is to correct these in preparation for a follow-up PVS assessment. A PVS Gap Analysis was conducted by OIE to assist the GOVS in this endeavour.

### **2.11.3 The status of relevant trade-limiting diseases in Egypt**

**Foot and Mouth Disease** is a notifiable<sup>13</sup> disease and types 'O' and 'A' are enzootically established in Egypt's livestock populations. Control is affected through mass vaccination of cattle and

<sup>13</sup> OIE definitions: 'Notifiable disease means a disease listed by the Veterinary Authority, and that, as soon as detected or suspected, should be brought to the attention of this Authority, in accordance with national regulations. Veterinary Authority means the Governmental Authority of an OIE Member, comprising veterinarians, other professionals and para-professionals, having the responsibility and competence for ensuring or supervising the implementation of animal health

buffaloes using a locally produced bivalent vaccine (types A and O). The aim is to cover animals in these populations every 6 months, and every 4 months in dairy units. Currently annual vaccination rates are well below these targets: cattle 33% and buffalo 46%.

Targeted surveillance is used to enable rapid identification of outbreaks and a typical response to FMD occurrence would be ring vaccination and a ban on movement of livestock and products. This cause's financial loss to producers as access to markets is lost: this and the meagre compensation paid by the state tend to reduce the willingness of producers to report the disease. Border controls, monitoring, screening and vaccination are further measures to control the disease and prevent introduction of the virus. Cattle imported for slaughter from Sudan must be vaccinated against FMD types O, A, SAT 1 and SAT 2.

Reference is made to the recent occurrence of FMD type SAT 2 in Egypt. This is the first time (at least for very many years) that SAT 2 has been detected in the country. This is a very serious development as (a) naïve local livestock populations have no immunity to this virus type and there are no significant stocks of SAT 2 vaccine in Egypt, (b) the clinical effects of SAT 2 are generally more serious than those of enzootically established types A and O (particularly on very young cattle), (c) failure to immediately implement very vigorous containment measures has seen the rapid spread of the disease: by 6<sup>th</sup> April 2012 it was reported in 26 of the 27 Governorates (initially in the lower Nile Delta), and (d) a real threat is posed to food security in the region.<sup>14</sup>

The virus must have been introduced into Egypt, most likely by an infected cloven-hoofed animal, less likely by fomite spread. Importantly for the SEZ, Sudan is amongst the neighboring countries of Egypt in which FMD type SAT 2 is present, however, Egypt has made previous imports from other countries with SAT 2. An important lesson must be drawn from this latest development: current measures aimed at minimizing the risk of introduction into Egyptian livestock populations of trade-limiting animal diseases are inadequate. Clearly this adds great weight to proposals to restrict beef imports to deboned chilled product which, if correctly applied, will reduce the disease risk to virtually zero.

**Rift Valley Fever** is a notifiable disease which is not currently present in Egypt. In an attempt to reduce the effects of introduction of the disease, the GOVS aims to vaccinate all ruminants twice per year with a locally produced inactivated vaccine. Vaccination coverage rates achieved in 2010 were buffalo 63%, cattle 82% and small ruminants 0%, i.e. well below the target of 200% per species.

**Lumpy Skin Disease** is present in Egypt. Control is affected through movement control inside Egypt, routine vaccination, treatment of clinical cases and control of arthropods. The vaccination policy is to cover all cattle and buffalo once per year with a locally produced live vaccine.

**Contagious Bovine Pleuropneumonia** is a notifiable disease and is not present in Egypt's livestock populations. It is a notifiable disease and ingress is prevented by strict border controls. Surveillance depends upon detection during post-mortem inspections in abattoirs.

**Peste des petits ruminants (PPR)** is a notifiable disease and not present in Egypt's small ruminant populations. Its introduction is prevented by border controls. Vaccination against the disease is forbidden and sero-surveillance is used as a surveillance tool.

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and welfare measures, international veterinary certification and other standards and recommendations in the Terrestrial Code in the whole territory.'

<sup>14</sup> FAO, press release, 22 March 2012.



**Brucellosis.** *Br melitensis* is present in small ruminants and maybe also cattle. Controls for *Br melitensis* include screening, targeted surveillance and a modified stamping out strategy (i.e. not implemented in full).

#### **2.11.3.1 Conclusions on disease occurrence, surveillance and control**

Although not implemented in full, Egypt's GOVS does have a suite of logical disease control and prevention strategies for each of the target diseases and additionally appropriate surveillance methods are used. It is concluded that Egypt is well justified in imposing strict conditions to:

- Minimize the risk of introduction of these disease agents into Egypt by slaughter stock imported from Sudan
- Minimize the risk of introduction (where applicable) of these disease agents in carcasses of animals slaughtered in Sudan.

#### **2.11.4 The Veterinary Epidemiology Unit**

This was established in 1993 and is currently developing a network in the Governorates and currently 15 of the 27 Governorates have been included. The national disease information system is based on the FAO system TAD info. This is web-based and thereby facilitates the flow of information between the Governorate offices and veterinary headquarters, and between veterinary headquarters and FAO. Reports to OIE are submitted using WAHID (the OIE World Animal Health Information Database).

The prime responsibility of the VEU is to monitor, investigate, describe and analyze the patterns of occurrence of animal diseases in Egyptian livestock populations and in so doing establish and maintain an animal disease database.

The VEU utilizes the following disease information chain: village (some 4,632) to district clinic (some 223) to governorate (27) where data are entered into TADinfo, thence to VEU, GOVS Headquarters.

VEU staff monitor regional disease patterns using data provided by OIE (emergency reports, follow-up and WAHID) and FAO (Empres bulletins).

The unit has trained staff, a disease database (TADinfo) and uses the in-built GIS system of TADinfo to create maps of disease distribution, livestock populations etc. The staff are very keen and interested.

The existence of an effective VEU in Egypt is important to the SEZ as the output of the unit, in terms of prompt and full reporting to the OIE would enables SEZ management to determine if restrictions and conditions imposed by the Egyptian veterinary authority on livestock and livestock products imported into Egypt are reasonable and based on scientific evidence. If anomalies are detected then these should be resolved by negotiation between the veterinary authorities of the two countries and if resolution cannot be achieved in this way then, as a final resort, an appeal can be lodged with the WTO.

It is recommended that the SEZ should work towards the export of de-boned beef in preference to live animals and carcasses. The prime advantage of this strategy is that it reduces to (almost) zero the risk of dissemination of animal disease agents from Sudan to Egypt. Animals infected with FMD virus at the time of slaughter (i.e. in incubation period, or symptomless carriers) are rendered FMD-safe as bones and lymph nodes (where FMD virus could persist) are removed and any virus in muscle tissue is killed by post-mortem fall in pH. Ante- and post-mortem inspections would eliminate risk of transmission of agents of CBPP, RVF, LSD, and pre-slaughter serological testing would minimize the risk of transmission of Brucellosis.

## 2.12 MARKETS AND MARKETING SYSTEMS IN SUDAN

### 2.12.1 Overview

Livestock are truly multipurpose animals in Sudan. They produce meat and milk in large quantities as well as providing other products including the hides and skins that are important for the export trade as well as domestic industry, and manure that helps to fertilize the fields or is used as household fuel. Although little used in Sudan to provide agricultural power, livestock also fulfill many local transport needs. Domestic animals constitute a major financial reserve for many pastoralists and farmers and for the nation as a whole. In parts of the country and for many communities they have important socio-cultural and ritual functions.

Livestock in Sudan are kept in pure systems in which crops are of low or no importance, or else in mixed systems that rely on both crops and livestock to guarantee household income and food security. Mixed crop-livestock systems include those in which livestock are associated with modern or traditional irrigated farming, mechanized and usually large scale dry land farming or traditional small scale dry land farming.

Sudan has age-old traditions of extensive livestock production. There is also potential for improved pasture land management including the introduction of new techniques and systems, such as grazing reserves and cooperatives or producer organizations, providing considerable opportunity for the livestock subsector.

### 2.12.2 Marketing systems

Further attention to mitigation of some production constraints would help the livestock subsector, for example, whole herd health and not just vaccination would reduce the effects of disease. Amelioration of these production constraints would also enable stock to make better use of the limited feed resources. Animal health and disease eradication and control programmes would assist in increasing livestock output. Internationally recognized quality assurance accreditation for the CVRL Vaccine Production Unit would also assist Sudan in its export drive.

Livestock genetic resources are not considered a primary or short term constraint to production of meat. Inadequate extension services, resulting in poor producer management skills for improved systems of production, limited access to information and new and appropriate technology, however, are factors that will potentially limit production in the future. There are inadequate technical packages for traditional producers and encouraging and beneficial research results are seldom transferred to the producers.

Much of the productive rangeland has been converted to marginal crop production especially due to the proliferation of mechanized farming schemes. Many of these cut across the traditional migration routes. The consequent decreased mobility of the pastoral herds and semi-sedentarisation of the herders, in addition to the increased stocking rate, have led to a severe degradation of the pasture land.

The major epidemic diseases have been contained, or at least their containment and eradication is possible. The Pan African Rinderpest Campaign (PARC) has shown what determination and good organization can achieve in the eradication of livestock disease. New diseases will undoubtedly appear and other existing ones will assume more importance. Provision of more clinical and consulting services to complement the mass campaigns is also needed. Continued vigilance should be prioritized.

The two major constraints to sheep and cattle production might be considered to be:

- seasonal variability in feed and water which may reduce reproduction rates, increase mortality and lower growth rates; and
- inadequate access to full animal health services in some places and at some times that further aggravates the productivity problems associated with the feed supply.

Sudan's road network is not fully developed especially in the west, where much of the livestock population is located. The rail network has had little investment in recent years. Locating abattoirs and other facilities closer to the source of livestock supply is problematic for this reason, so livestock are trekked eastwards and northwards along the traditional migrating routes. There are scheduled external air services to Middle East/Gulf countries and to Europe: small volumes of chilled beef are exported by air on these flights. International and regional maritime shipping services operate regularly into and out of Port Sudan, with cargo distributed by two major road networks to the west and south.

Great distances have to be covered between most of the major livestock producing areas in Sudan and the main centers of meat consumption. Purchase and aggregation of livestock in trekking or trucking consignments is mainly the activity of agents. These agents, who have strong affiliations with the pastoralists with whom they are dealing, work on behalf of traders who are mostly based in Khartoum. Purchases are largely seasonal with most buying and movement taking place during the rainy season out of necessity.

Livestock movement during the rains occurs towards the north over a three or four month period, generally from May through August. Once the rains are over, movement is back towards the south. Secondary markets established by the former Livestock and Meat Marketing Corporation (LMMC) were situated to cater for the seasonal movement north. Agents purchase both directly from pastoralists and also through attendance at primary market sites. The arrangement of acceptable financial agreements between buyer and seller is crucial to the success of procurement. A Livestock Traders' Association representative advised that funds are transferred to agents for livestock purchases. It is commonly held elsewhere that most purchase is done on deferred payment and livestock can pass through several hands before arriving at the terminal destination. It is probable that the reality is somewhere in between the two scenarios.

Purchases of sheep and goats for export follow the same procedures at primary level as those described above. At export-trader level, however, arrangements can take one of three forms:

- the Sudanese trader sells direct to a Saudi importer on a free-on-board (FOB) basis with terms as specified in the Letter of Credit;
- the Sudanese exporter acts as an agent for a Saudi importer; or
- the Sudanese trader and Saudi importer establish a joint venture.

Depending on the market destination, either for the export or domestic market, animals are subject to veterinary inspection, vaccination and quarantine according to government regulations. Movement after purchase may be by trekking, by truck or a combination of both.

Due to the restricted buying season, traders must plan strategically for the staggered delivery of livestock to their holding areas. They take whatever advantage they can of grazing and feeding opportunities on the way. Surrounding the cattle market in Omdurman, for example, is an area of some 25,000 acres which regularly holds 20,000 head of cattle on hard (concentrate and roughage) feed. These are usually owned by no more than 10 to 15 traders. Other herds are held elsewhere in the district and brought in as numbers are turned over. ARCS contributed to the development of this area and particularly in the provision of boreholes for water supply. In addition, an entrepreneur alongside has drilled his own bore and sells water. Large numbers of sheep and goats

are held and fed in a similar manner for the local market but at sites located at greater distances from Khartoum.

Cattle buyers are predominantly carcass wholesalers, while other traders may purchase store-conditioned animals to go back onto feed. In the case of the sheep and goat terminal market, small-time operators purchase many animals to turn over on what is termed the retail market. This is an informal market site where consumers can purchase on a daily basis to service individual requirements for home slaughter. Cattle slaughter is carried out at one of the licensed abattoirs, slaughterhouses or numerous slabs serving the three cities and their environs. Custom slaughter is provided by all facilities on a per head basis with the fifth quarter retained by the owner. Purchase of good quality animals would pose no problem to any buyer under present market conditions. It was stated that October is the pinch month for replenishment of trade-stock to put on feed.

#### **2.12.2.1 Traditional Low Input-Low Output Systems**

It has been said of pastoral nomadism and transhumance that they "are ecological adaptations to the rigours of a stern environment". Possibly nowhere on earth is the environment more harsh than in northern Sudan. Migration by pastoralists is a logical response to the all-pervading problem of finding sufficient nourishment for their animals and themselves. In this context a pastoral system can be defined as one that obtains more than 50 per cent of the total of its household revenue (including the value of home consumption plus income) or more than 20 per cent of human food energy from livestock or livestock products.

There is little integration of livestock and crops in this system in which stocking rates are very light. There are, however, some exceptions to the general pattern, notably where there are oases and where seasonal movement on to irrigated areas is possible.

Cattle are the main species. Herding units comprising groups of animals not necessarily belonging to one owner in South Darfur average 106 head and about 80 per cent of herds have 50-150 cattle. Only six per cent of herds have less than 50 cattle, 39 per cent contain 51-100 head, 39 per cent have 101-150 head, 14 per cent are in the range 151-200 head and two per cent are more than 200 head. Herd structure is related to the dual functions of milk and transport with males being 31 per cent and females 69 per cent of all animals. Males over 30 months old for pack use (for moving the camps and household goods) slightly outnumber those for breeding but very few animals are castrated. Males over 30 months are in the ratio 1:6 to females of the same age in more mobile herds and in the ratio 1:7 in sedentary herds.

Sheep and goats are each of similar importance. Sheep flocks in South Darfur average about 43 head and goat flocks are probably about the same. Common and shared use makes it difficult to define absolute ownership but goats in agro-pastoral systems are "owned" by women. Females account for more than three animals out of four in both species. In the South Darfur traditional system flock structure is related mainly to meat production with early off take of males for home consumption or for sale. In sheep females account for 78 per cent of the flock (breeding 56 per cent) and males 22 per cent (4 per cent older than 15 months). In South Darfur goat flock structures are related to milk and meat production and dominated by females especially in the age groups over six months. Some 47 per cent of the flock is under six months (26 per cent females, 21 per cent males), 12 per cent are 6-15 months (9 per cent females, 3 per cent males) and 41 per cent are older than 15 months.

Cattle are used mainly for milk and for transport with meat production in the accepted sense being a tertiary consideration at the household level. Sheep and goats produce mainly meat but milk and skins contribute to subsistence and to cash income. Manure from every species is used to return fertility to the land. Hides and skins are used for tents and as containers. Stubble fields

and fallow lands, in addition to crop residues and by-products, are major sources of feed for animals.

#### **2.12.2.2 Semi-Intensive and Intensive Systems**

Commercial milk and meat production systems have developed to some extent in areas favoured by ecology and proximity to the main markets. Breed types are usually based on imported dairy breeds crossed on the local Kenana and Butana breeds and artificial insemination is used wherever this is possible. In some areas the local breeds are used pure. Herd sizes are in the range 1-200 but most herds have between five and 10 cows.

Feedlots for finishing or reconditioning animals trekked or trucked in from the extensive production areas have developed around some urban areas but especially near the capital Khartoum and Omdurman. Cattle and sheep are the main species but there is some finishing of goats and camels. The official quarantine areas where animals are held before being certified for export can also be considered as part of this system. In most production units, animals are kept on an unenclosed open area that has very little to no infrastructure and both feed and water are supplied in used 220 litre oil drums split along the long axis. Feeding practices vary from unit to unit but usually include large quantities of sorghum stover, moderate amounts of cotton seed cake and occasional additions of sorghum grain, wheat bran and whole cotton seed. The fattening period varies considerably. For mature cattle, the most common class for this species, it is often in the range of 60-120 days. Younger growing animals are held for much longer. Under favorable conditions of feeding and climate compensatory and real weight gains of up to 2 kg per day are possible but increases in the range 1.00-1.25 kg are more usual. The fattening period for sheep, most of which are in the age range 15-24 months but with some younger and older animals, is in the range 40-90 days with daily gains of 200 g being achievable, although 125-150 g per day are more usual.

#### **2.12.2.3 Livestock Genetic Resources and Domestic Animal Diversity**

Sudan has one of the largest and most species-diverse arrays of domestic livestock in Africa. A common belief is that Sudanese livestock are of inherently low productivity. What is meant, however, is not "productivity", which implies an input-output function, but "production", which implies only an output function. It is further generally assumed that a root cause of low production is the poor genetic quality of Sudanese livestock and, concomitantly, the need for their improvement. Belief in the inadequacy of the farm animal genetic resources fails to take account of the systems in which they are bred and expected to produce. Sudan's livestock "breeds"<sup>15</sup> have adapted over thousands of years to these systems and to the harsh physical environment in which they operate. Their products (especially meat) are also, and certainly not surprisingly (in view of their long and close association with man) well suited to the taste preferences of regional customers. It would be difficult, even impossible, to find "designer" breeds to replace or improve them in the short or medium term.

#### **2.12.2.4 Livestock Marketing Practices in Sudan**

The main livestock production areas in the north of the country are situated 600-1200 km from the terminal markets. Migration patterns alternate in south-north and north-south directions. These movements bring the herders close to the primary markets during the wet season and further away in the dry season. The efficiency of the marketing system is correlated with the location of the production areas and the seasonality of supplies. These factors have resulted in the development of a unique internal livestock market system in Sudan.

<sup>15</sup> The term "breed" is used here in the conventional sense but it should be understood that most populations are broad type with very considerable variation within them.

The livestock markets of Sudan are dominated by brokers who may work as independent small scale traders ('jelaba') or as agents ('wakil') or sub-agents for the big traders. Brokers collect livestock from the scattered villages and nomad camps and sell them to another broker in the primary markets. The second broker may sell to a third broker in the same market or in a secondary market and this process goes on until the livestock are aggregated into larger groups at the terminal markets.

The final transaction in the terminal markets is also processed through brokers. Agents or sub-agents also organize the trekking of cattle to the terminal markets for the big traders. Livestock change hands a minimum of two and a maximum of six times between the point of purchase and the final point of sale. The market trade appears to be short of working capital and has cash flow problems throughout. This cash flow problem is a result of two main factors: too many traders and brokers operating in a confined market; and the time taken to complete a transaction between the points of purchase and the terminal markets. Since most livestock traders (including exporters) do not appear to have the financial means to tie up their capital for such a length of time, business is usually transacted through "trust" and payment is effected in 1-3 months, sometimes even longer in export cases, after a deal has been made.

This system also allows traders and exporters to pass most of the risk to producers, the last group to be paid in any chain, and some of the remainder to small scale traders. The trust system is built on personal relationships spanning two or three generations. The seasonality of supply has led to the purchasing of cattle in bulk and mostly under trust transactions. They are then kept in feedlots in the April-June period around the major market centers for the lean seasons. Livestock traders and wholesale butchery owners close to the terminal markets own many of these feedlots, however increasing numbers of grain farmers are becoming involved particularly in sugarcane producing areas.

Livestock supplies in Sudan peak in September to February following the rainy season. Supplies drop during the hot months of March through May or June as trekking becomes difficult due to the deteriorating body condition of the animals and the scarcity of pasture along the route. Feedlots fill the supply gap in the market (although prices increase during this time) mainly with fattened cattle and to some extent with sheep.

#### **2.12.2.5 Price realization**

The livestock price is currently established by negotiation with the buyer. The producer can be at a disadvantage, being commonly less aware of market developments in order to maximize returns. However, at least in some of the larger markets there can be significant numbers of buyers, making collusion between them more difficult. Almost all animals are sold on visual appraisal and by private negotiation. Agents or "middlemen" negotiate sales and purchase on behalf of both buyers and sellers in a system generally known as the "silent auction". A seller tells a broker his price range for the cattle or sheep he intends to sell. The broker sits with the buyer and negotiates the price in secret. A deal is closed when the broker agrees a price with the seller within the price range offered by the buyer. The purchase price is then known only to the buyer, the seller and the broker and kept secret from other parties. The broker does not guarantee payment as is normally the case in western countries. Prices and offers vary depending on whether the sale is for cash or deferred payment. Sale by weight and grade has yet to be adopted, although measures are being put in place for the method's introduction in certain markets. Inherent non-transparency makes the collection of regular and accurate market information difficult. It is clear, however, that market prices vary considerably for animals of the same species and class.

There are opportunities to improve the market feedback signals, as for example, paying producers on the basis of weight and grade. However, markets are not yet equipped with

facilities such as weigh scales and no formal live grading system is in operation. Most markets currently lack infrastructure such as pens and loading ramps. The silent auction system has outlived, and was indeed possibly the reason for the failure of, the attempts of the ex-LMMC to introduce an open auction system through the provision of weigh scales in the 11 major market centers that it constructed.

In summary marketing of livestock is therefore opaque, with the trader in particular in a position to exploit any weaknesses in the chain. A more transparent system would be likely in the future, as it has in the past, to meet resistance from such traders as it would weaken their bargaining position.

Most animals are "transported" by trekking overland from the main production areas to the main marketing areas in Khartoum. Animals are bought in largest quantities towards the end of the dry season and then slowly walked overland to their final destination. The journey may take up to three months but animals generally gain weight, or at least do not lose it, as the trekking season coincides with the rainy season.

Livestock transport by road did not appear to present a problem, with lorries capable of carrying animals of all types available in abundance and competitive back-load rates on offer for many destinations. Road transport costs for livestock between the major population centers can be negotiated, with examples of freight costs obtained by AOAD subsequent to the project team visit in the order of 130 SDG per head of cattle and 26 SDG per sheep or goat (ex Khartoum to Wadi Halfa quarantine).

Rail transport should not be a problem but it is not as well used as trekking or road transport. A World Bank project set up in the 1970s to assist LMMC provided engines and livestock transporters for "block trains" of 40 wagons. The wagons were double deck that could carry 25 cattle on the bottom deck only (the top deck was not high enough for cattle) or 200 sheep on the bottom deck and the top deck. The demise of LMMC in 1992 led to the abrupt end of this service and the block wagons are now used for general cargo by Sudan Railways. Even when in use, however, problems occurred every wet season with subsidence or erosion of the track.

#### **2.12.2.6 Quality control**

Meat from the slaughterhouse is sold wholesale to retailers and butchers usually in the form of sides or quarters for beef, and whole carcasses for sheep and goats. There are adequate ante- and post-mortem inspections to ensure that the meat that reaches the consumer is wholesome and free from disease causing organisms. All meat is inspected by qualified and certificated personnel and stamped with a municipality or government stamp to indicate inspection before it is released on the market. The indications are that the more sophisticated consumers will increasingly demand quality assurance in the not-too-distant future.

#### **2.12.2.7 Maximizing carcass value**

Under the current system and in the great majority of transactions, half or quarter carcasses for beef and whole carcasses for small ruminants are delivered to retailers or end users. There is clearly an opportunity, which is already being exploited by some supermarkets, to maximize value by direction of the appropriate cut to the best market. Therefore loin and hindquarters could be marketed at the discerning consumer and the top end of the food service sector, with cheaper cuts for everyday lower income family use are directed accordingly. The "Fifth quarter" production is maximized via sale to specialist buyers and dealers.

### **2.12.3 Camels**

Camels are normally classed as riding or pack (or "baggager") types but there are many intermediate or multipurpose varieties. Transport of people and goods is still a major function of Sudanese camels although they have a deserved reputation as milk animals. A specialist trade in



racing types, mainly for export, developed in the 1980s and 1990s. Meat has been considered as a by-product in the past but there has always been a thriving informal and formal export trade to Egypt for this purpose as well as formal, documented exports to other countries.

#### **2.12.4 Cattle**

The main cattle type in Sudan, and also the main export type, are the Short horned Zebu group. Smaller groups of cattle include the small Nuba Mountains type and the "Fellata" or large long-horned Um Bororo type found in small, but probably increasing, numbers in the extreme centre west of the country.

#### **2.12.5 Sheep**

There are two main types of sheep in Sudan. The most widespread and most used for export is the Sudan Desert type which predominates in the north. There are also smaller numbers of "Fellata". The Zaghawa sheep is a long-thin-tailed type found in Western Darfur.

Sudan Desert sheep are a large long-thin-tailed type (although the tail has varying amounts of fat at the base or farther down) that are justifiably renowned for their generally large size and their outstanding ability to survive and produce under harsh environmental conditions. They usually stand 80 cm or more at the withers with mature males weighing at least 60 kg and females as much as 50 kg.

#### **2.12.6 Goats**

Sudan Desert and Nubian are Sudan's main goat types. The Desert goat is distributed mainly in the dry areas usually to the north but it is found farther south in Darfur and western Kordofan. Sudan Desert goats are large and stand 65-85 cm at the withers: males weigh 40-60 kg at maturity and females about 35 kg. They are good producers of meat and milk. The Nubian is one of a group of goats common in the Middle East and extending eastward to India. They are also owned by settled agriculturalists on irrigation schemes along both White and Blue Niles south of Khartoum and along the main Nile north of Khartoum in flocks which average 2-10 goats.

## **2.13 LIVESTOCK PRICING IN SUDAN**

### **2.13.1 Slaughter Levels**

The following slaughter numbers were supplied by MARF for Khartoum Abattoirs, though it is unknown if these are for domestic, export or a combination of both. Based on MARF average carcass weights, an estimate of total carcass production is also set out in Table 19.

Table 19: slaughter numbers &amp; estimated carcass yield Khartoum abattoirs 2009-2011

Species		2009	2010	2011	Percent of 2011
Cattle		230,349	224,920	274,976	28.79
Sheep		827,331	682,083	583,703	61.10
Goats		69,597	80,640	91,684	9.60
Camels		5,023	5,105	4,891	0.51
Total		1,132,300	992,748	955,254	100.00
Meat Yield	Avg Carcass weight (kg)	2009	2010	2011	Percent of 2011
(tons)		2009	2010	2011	Percent of 2011
Beef	147.27	33,923	33,123	40,495	82.67
Mutton	12.01	9,933	8,189	7,008	14.31
Goat Meat	7.97	554	642	730	1.49
Camel Meat	152.89	767	780	747	1.53
<b>Total</b>		<b>45,180</b>	<b>42,737</b>	<b>48,983</b>	100.00

Source: SRA Analysis – components may not add to totals due to rounding.

### 2.13.2 Camel

A summary of average monthly per head camel prices at Muwelih Cattle Market, Omdurman for 2009-2011, obtained from ARCS is set out in Table 20 and

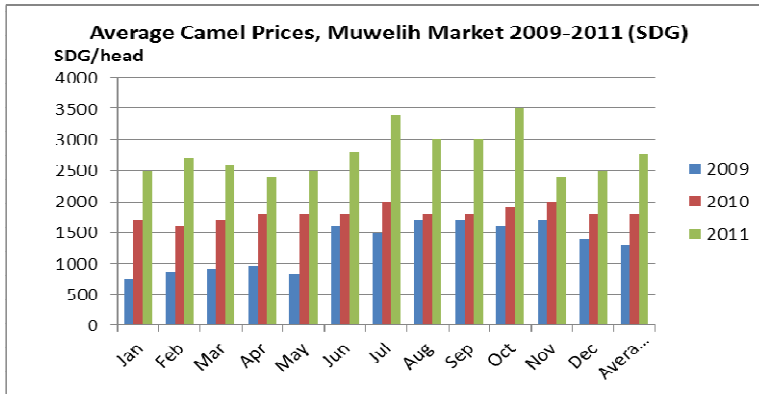
Figure 11.

Table 20: Average camel prices, Muwelih market 2009-2011, SDG/head liveweight

	2009	2010	2011
Jan	750	1,700	2,500
Feb	870	1,600	2,700
Mar	920	1,700	2,600
Apr	960	1,800	2,400
May	850	1,800	2,500
Jun	1,600	1,800	2,800
Jul	1,500	2,000	3,400
Aug	1,700	1,800	3,000
Sep	1,700	1,800	3,000
Oct	1,600	1,900	3,500
Nov	1,700	2,000	2,400
Dec	1,400	1,800	2,500
<b>Average</b>	<b>1,296</b>	<b>1,808</b>	<b>2,775</b>

Source: ARCS

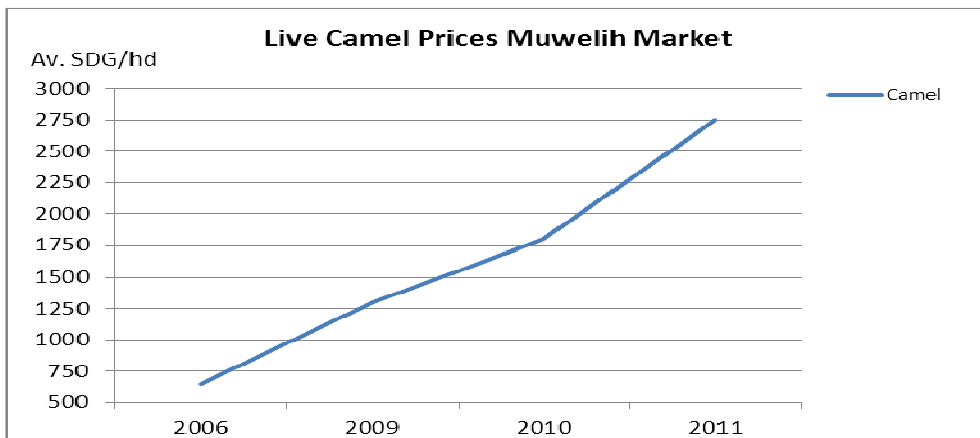
Figure 11: Average camel prices per head, Muwelih market 2009-2011 (SDG)



Source: ARCS

Figure 12 below shows there has been a marked increase in the average price per head for live camels at the Muwelih Market in the period 2009-2011 over those for 2006.

Figure 12: Average live camel prices Muwelih market 2006 and 2009-2011 (SDG)



Source: ARCS

Based on the live weights and dressing percentages supplied by MARF figures, estimated average per kg camel carcass and meat prices have been calculated for 2009-2010 and set out in Table 21.

Table 21: Average estimated camel carcass & meat prices 2009-2011 (SDG)

Average MALE	Camel SDG			Camel \$US		
	2009	2010	2011	2009	2010	2011
Avg Price/hd	1,296	1,808	2,775	\$483.52	\$674.75	\$1,035.45
Est Weight (kg)	294	294	294	294	294	294

<b>Average MALE</b>	<b>Camel SDG</b>			<b>Camel \$US</b>		
Avg Price Per kg Live	4.40	6.14	9.42	\$1.64	\$2.29	\$3.52
Dressing %	56%	56%	56%	56%	56%	56%
Est Carcass (kg)	164.91	164.91	164.91	164.91	164.91	164.91
Avg Per kg Ccs	7.86	10.97	16.83	\$2.93	\$4.09	\$6.28
Bone Out %	70%	70%	70%	70%	70%	70%
Est Meat (kg)	115.78	115.78	115.78	115.78	115.78	115.78
Avg Per kg meat	11.19	15.62	23.97	\$4.18	\$5.83	\$8.94

Source: SRA

### 2.13.3 Cattle

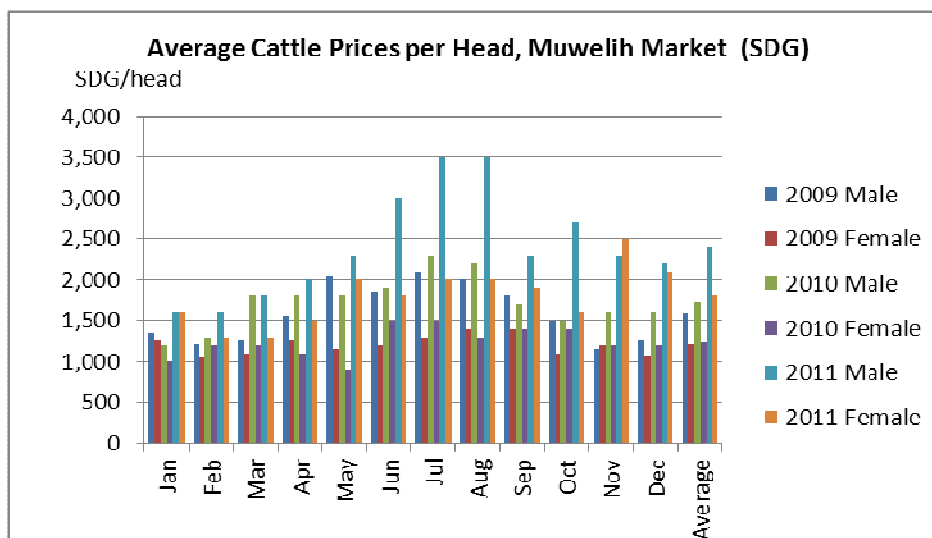
A summary of average monthly per head cattle prices at Muwelih Cattle Market, Omdurman for 2009-2011, obtained from ARCS are set out in Table 22 and Figure 13.

Table 22: Average cattle prices per head, Muwelih market 2009-2011 (SDG)

	2009		2010		2011	
	Male	Female	Male	Female	Male	Female
Jan	1,350	1,250	1,200	1,000	1,600	1,600
Feb	1,210	1,050	1,300	1,200	1,600	1,300
Mar	1,250	1,100	1,800	1,200	1,800	1,300
Apr	1,550	1,250	1,800	1,100	2,000	1,500
May	2,050	1,150	1,800	900	2,300	2,000
Jun	1,850	1,200	1,900	1,500	3,000	1,800
Jul	2,100	1,300	2,300	1,500	3,500	2,000
Aug	2,000	1,400	2,200	1,300	3,500	2,000
Sep	1,800	1,400	1,700	1,400	2,300	1,900
Oct	1,500	1,100	1,500	1,400	2,700	1,600
Nov	1,150	1,200	1,600	1,200	2,300	2,500
Dec	1,250	1,080	1,600	1,200	2,200	2,100
<b>Average</b>	<b>1,588</b>	<b>1,207</b>	<b>1,725</b>	<b>1,242</b>	<b>2,400</b>	<b>1,800</b>

Source: ARCS

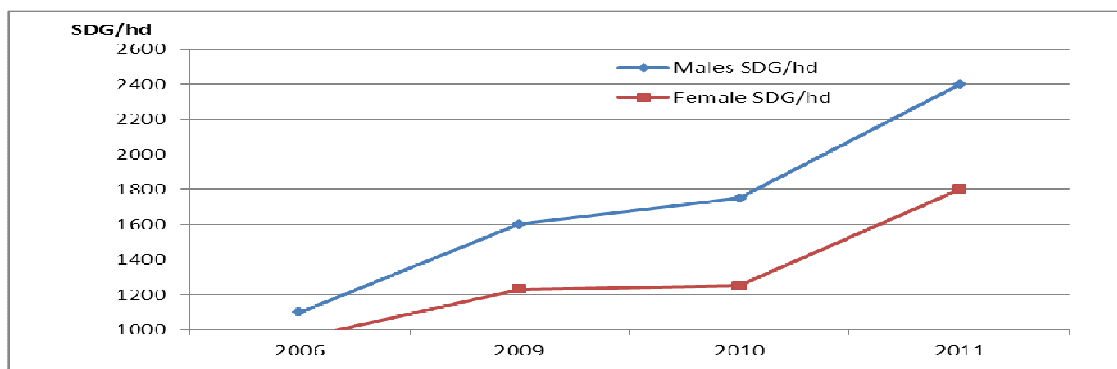
Figure 13: Average cattle prices per head, Muwelih market 2009-2011 (SDG)



Source: ARCS

The average price per head for live cattle at the Muwelih Market over the last three years and compared with those for 2006, (Figure 14) show that there has been a moderate increase in average prices per head of 30% for males and 8% for females, however there has been a 50% increase in the average prices per head over the past three years.

Figure 14: Average live cattle prices Muwelih market 2006 and 2009-2011 (SDG)



Source: ARCS

Based on the live weights and dressing percentages supplied by MARF figures, estimated average per kg cattle carcass and meat prices have been calculated for 2009-2011 as set out in Table 23.

Table 23: Average estimated cattle carcass and meat prices 2009-2011

	Cattle SDG			Cattle \$US		
	2009	2010	2011	2009	2010	2011
Avg Price/hd	1,588	1,725	2,400	\$592.66	\$643.66	\$895.52
Est Weight (kg)	295	295	295	295	295	295
Avg Price Per kg Live	5.39	5.86	8.15	\$2.01	\$2.19	\$3.04
Dressing %	48%	50%	52%	48%	50%	52%

	Cattle SDG			Cattle \$US		
	2009	2010	2011	2009	2010	2011
Est Carcass (kg)	141.38	147.27	147.27	141.38	147.27	153.16
Avg Per kg Ccs	11.23	11.71	16.30	\$4.19	\$4.37	\$5.85
Bone Out %	68%	68%	68%	68%	68%	68%
Est Meat (kg)	96.14	100.14	100.14	96.14	100.14	104.15
Avg Per kg meat	16.52	17.23	23.97	\$6.16	\$6.43	\$8.60
<b>Average FEMALE</b>	<b>Cattle SDG</b>			<b>Cattle \$US</b>		
	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
Avg Price/hd	1,207	1,242	1,800	\$450.25	\$463.31	\$671.64
Est Weight (kg)	236	236	236	236	236	236
Avg Price Per kg Live	5.12	5.27	7.64	\$1.91	\$1.97	\$2.85
Dressing %	46%	48%	50%	48%	50%	52%
Est Carcass (kg)	108.39	113.10	117.82	113.10	117.82	122.53
Avg Per kg Ccs	11.13	10.98	15.28	\$3.98	\$3.93	\$5.48
Bone Out %	68%	68%	68%	68%	68%	68%
Est Meat (kg)	73.71	76.91	80.11	76.91	80.11	83.32
Avg Per kg meat	16.37	16.14	22.47	\$5.85	\$5.78	\$8.06

Source: SRA/ARCS

### 2.13.4 Sheep & Goats

A summary of average monthly prices per head for sheep and goats at Wad Medani Market, obtained from ARCS, for 2009-2010 are as set out in Table 24 and

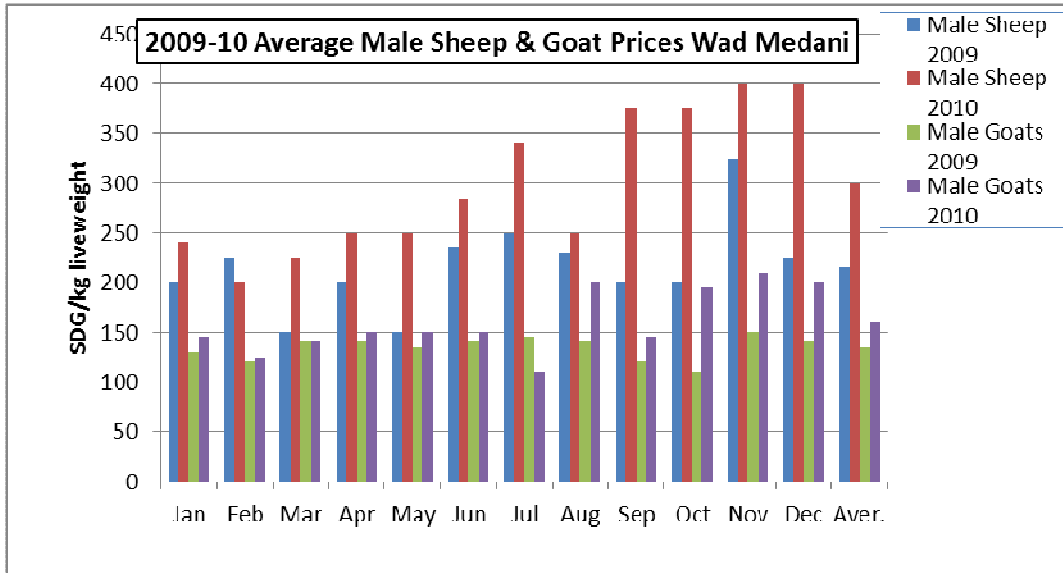
Figure 15.

Table 24: Average sheep &amp; goat prices per head, Wad Medani market 2009-2010 (SDG)

	Male Sheep		Male Goats	
	2009	2010	2009	2010
Jan	200	240	130	145
Feb	225	200	120	125
Mar	150	225	140	140
Apr	200	250	140	150
May	150	250	135	150
Jun	235	285	140	150
Jul	250	340	145	110
Aug	230	250	140	200
Sep	200	375	120	145
Oct	200	375	110	195
Nov	325	400	150	210
Dec	225	400	140	200
<b>Average</b>	<b>216</b>	<b>299</b>	<b>134</b>	<b>160</b>

Source: ARCS

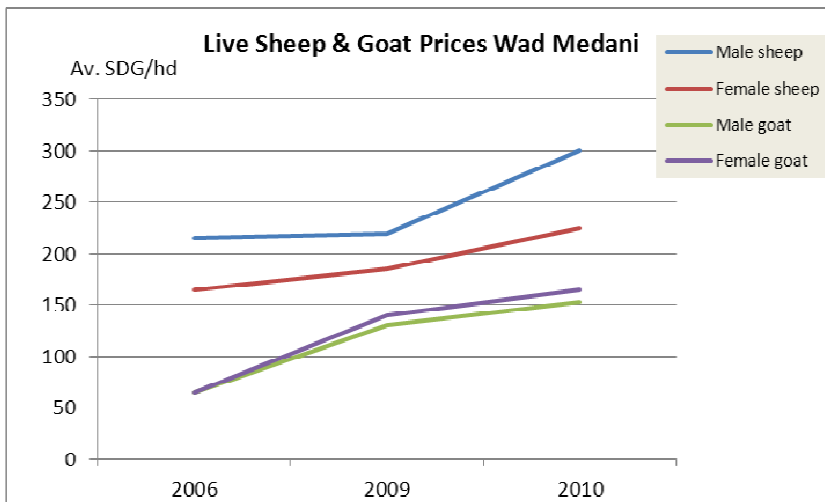
Figure 15: Average sheep &amp; goat prices per head, Wad Medani market 2009-2010



Source: ARCS

The average prices per head for live sheep and goats at the Wad Medani Market over the last three years and compared with those for 2006, (Figure 16) show that there have been moderate increases in average prices per head for sheep of 2% for males and 15% for females and significant increases in the average prices per head for goats of 96% for males and 100% for female. There have also been significant increases in the average prices per head between 2009 and 2010 for sheep of 39% for males and 22% for females and for goats of 16% for males and 22% for females. Because of the high sheep price there is an apparent trend to the slaughtering of goats for domestic consumption.

Figure 16: 2009-2011 Average sheep and goat prices Wad Medani market 2006 and 2009-2010



Based on the live weights and dressing percentages supplied by MARF figures, estimated average per kg cattle carcass and meat prices have been calculated for 2009-2010 as set out in Table 25 and Table 26.

Table 25: Average estimated sheep carcass & meat prices 2009-2010

Average MALE	Sheep SDG		Sheep USD	
	2009	2010	2009	2010
Avg Price/hd	216	299	\$80.53	\$111.63
Est Weight (kg)	25	25	25	25
Avg Price Per kg Live	8.64	11.97	\$3.22	\$4.47
Dressing %	46%	46%	46%	46%
Est Carcass (kg)	11.50	11.50	11.50	11.50
Avg Per kg Ccs	18.77	26.02	\$7.00	\$9.71
Average FEMALE	Sheep SDG		Sheep USD	
	2009	2010	2009	2010
Avg Price/hd	185	226	\$80.53	\$84.42
Est Weight (kg)	25	25	25	25
Avg Price Per kg Live	7.42	9.05	\$3.22	\$3.38
Dressing %	46%	46%	46%	46%
Est Carcass (kg)	11.50	11.50	11.50	11.50
Avg Per kg Ccs	16.13	19.68	\$7.00	\$7.34

Source: SRA/ARCS

### 2.13.5 Goat

Table 26: Average estimated goat carcass & meat prices 2009-2010

Average MALE	Goat SDG		Goat USD	
	2009	2010	2009	2010
Avg Price/hd	134	160	\$50.06	\$59.70
Est Weight (kg)	18	18	18	18
Avg Price Per kg Live	7.38	8.80	\$2.75	\$3.28
Dressing %	44%	44%	44%	44%
Est Carcass (kg)	8.00	8.00	8.00	8.00
Avg Per kg Ccs	16.77	20.00	\$6.26	\$7.46
Average FEMALE	Goat SDG		Goat USD	
	2009	2010	2009	2010
Avg Price/hd	140	171	\$52.18	\$63.74
Est. Weight (kg)	18	18	18	18
Avg Price Per kg Live	7.69	9.40	\$2.87	\$3.51
Dressing %	44%	44%	44%	44%
Est Carcass (kg)	8.00	8.00	8.00	8.00



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Avg Per kg Ccs	17.48	21.35		\$6.52	\$7.97
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Source: SRA/ARCS

### **3 LIVESTOCK DISEASE ISSUES RELATED TO TRADE**

#### **3.1 INTRODUCTION**

In the context of the proposed SEZ, protection systems across borders include systems designed to (a) protect livestock industries in countries that import livestock and livestock products from the SEZ, and (b) protect Sudan's own animal populations from cross-border movements of livestock from neighboring countries, as such incursions could threaten the domestic livestock population and jeopardize the basis of the trade between these two countries and other importing countries.

The Sanitary and Phytosanitary Agreement (SPS) of the WTO governs international trade in livestock and livestock products and aims to minimize this risk, whilst also enabling trade to take place. The SPS refers to standards and procedures, and the use of available scientific evidence to

conduct risk assessments, that will inform trade decision-making. A 'zero risk' approach is regarded as arbitrary, unscientific and incompatible with the goals of trade liberalization.<sup>16</sup>

The OIE is the international body that establishes standards and procedures to minimize disease transmission risks whilst also enabling trade flows. These standards and procedures, described in the OIE Terrestrial Animal Health Code, volumes 1 and 2 and the Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, form the basis of the recommendations presented in this report.

The integrity of the livestock health in the SEZ must be maintained, in order to protect and encourage the trade in livestock and livestock products between the two countries. The SEZ certification process will be rigorously controlled and supported by a robust identification system (electronic identification (EID) tags, readers and related databases) which assures traceability, and for livestock destined for Egypt this process would be overseen by Egyptian inspectors. This guarantee of assured quality will differentiate SEZ output and confer a competitive advantage.

The SEZ facility takes into account the potential risk to the livestock population from disease through unprocessed hides and skins: this risk will be greatly reduced by requiring all hides and skins leaving the SEZ to be fleshed and placed in brine before being transported.

### 3.2 MAJOR DISEASE RISKS TO THE LIVESTOCK TRADE

Figure 17 below demonstrates that, except for FMD, presumed to be enzootically established in Egypt<sup>17</sup>, Brucellosis (*Br melitensis*) and possibly LSD, the trade in livestock and livestock products from Sudan to Egypt carries the potential risk of introducing important disease agents that:

- Have not been officially reported as present in Egyptian livestock populations for more than 5 years (these diseases include Anthrax, Contagious Bovine Pleuropneumonia, PPR, FMD type SAT 1, and RVF.)
- Are already present in Egypt, but fresh introductions would greatly increase the weight of infection on the livestock population (these include FMD types O, A, and SAT 2 and possibly Lumpy Skin Disease and sheep and goat Pox). Here it is important to take note of the first reported occurrence of FMD type SAT 2 in Egypt as recently as February 2012. The source of this infection has not been officially identified.

Figure 17: Diseases of importance to trade in livestock and livestock products - Sudan and Egypt

DISEASE	SPECIES AFFECTED	STATUS IN SUDAN	STATUS IN EGYPT
Anthrax	Cattle, sheep, goats, buffalo, camels	Present (1 outbreak in 2010, nil 1 <sup>st</sup> half 2011)	Last reported 1974
Brucellosis	Cattle, sheep, goats, buffalo, camels	Br abortus present Br melitensis not reported	Br melitensis present
Contagious Bovine Pleuropneumonia	Cattle	Present (2 outbreaks 1 <sup>st</sup> half 2011)	Absent, last reported 1971
Foot and Mouth Disease	Cattle, sheep, goats, buffalo	Present (6 outbreaks 1 <sup>st</sup> half 2011), types A, O, SAT 1 and SAT 2	Present, last officially reported in 2010. Types 'O' and 'A' present. Type

<sup>16</sup> 'Mutual trust between Veterinary Services,' The Basis for Trade in Livestock and Livestock Products. FAO, 1998

<sup>17</sup> Reported for years 2008, 2009, 2010. Source OIE WAHID

DISEASE	SPECIES AFFECTED	STATUS IN SUDAN	STATUS IN EGYPT
		have been reported.	'A' was introduced into Egypt in 2006 by cattle imported from Ethiopia. In Feb 2012 first reported occurrence of FMD type SAT 2 was detected in Egypt. By 13 March had spread to 8 Governorates 18.
Lumpy Skin Disease	Cattle	Present (2 outbreaks 1 <sup>st</sup> half 2011)	Last officially reported in 2006, probably still present.
Peste des petits ruminants	Sheep and goats	Present (17 outbreaks 1 <sup>st</sup> half 2011)	Last officially reported in 1989
Rift Valley fever	Cattle, sheep, goats, camels	Last reported 2008	Last reported 1993
Sheep and goat pox	Sheep and goats	Present (14 outbreaks 1 <sup>st</sup> half 2011)	Last officially reported in 1999, possibly still present

Source: OIE World Animal Health Information Database (WAHID), Animal Resources Information System (ARIS) of AU-IBAR, FAO EMPRES Bulletins and discussions with staff of the State Veterinary Services of Sudan and Egypt.

## 4 FODDER PRODUCTION AND TRADING BETWEEN THE TWO COUNTRIES

Access to grazing and fodder are under stress and crop residues are important for fattening but overall there is very little trade between the two countries for fodder. It is used locally when it is available. In the inter-border area, where the location of the SEZ is proposed, there may be scope to develop the fodder trade for use by livestock in the holding areas.

Comtrade data for animal feed trade between Sudan and Egypt as shown in Table 27 does not reconcile easily, however, it is apparent there is little formal trade. In 2008 over 3000 tons was exported from Sudan to Egypt, at approximately \$US0.20/kg and there was also substantial trade recorded in 2010 from Egypt into Sudan with values estimated at \$US1.04/kg.

Table 27: Sudan and Egypt animal feed and fodder imports & exports 2008-2010

<sup>18</sup> Immediate notification report in OIE WAHID dated 13 March 2012.

	2008			2009			2010		
	Trade Value \$US	Net Weight (mt)	\$US per kg	Trade Value \$US	Net Weight (mt)	\$US per kg	Trade Value \$US	Net Weight (mt)	\$US per kg
<b><u>Egypt, Animal Feed</u></b>									
Export to Sudan	\$63,211	134.4	\$0.470	\$187,728	385.0	\$0.488	\$1,046,666	1,009.1	\$1.037
Import from Sudan	\$620,713	594.9	\$1.043	\$0	-	-	\$1,011,500	5,036.2	\$0.201
<b><u>Egypt, Hay &amp; Fodder</u></b>									
Export to Sudan	\$14,459	60.0	\$0.241	\$9,456	10.8	\$0.876	\$33,141	201.4	\$0.165
Import from Sudan	\$0	-	-	\$0	-	-	\$0	-	-
<b><u>Sudan, Animal Feed</u></b>									
Export to Egypt	\$735,118	3,626.8	\$0.203	\$208,465	361.0	\$0.577	\$0	-	-
Import from Egypt	\$20,757	50.00	\$0.415	\$19,348	50.0	\$0.387	\$0	-	-
<b><u>Sudan, Hay &amp; Fodder</u></b>									
Export to Egypt	\$37,500	125.0	\$0.300	\$208,465	361.0	\$0.577	na	na	na
Import from Egypt	\$0	-	-	\$0	-	-	na	na	na

Source: Comtrade in USDA report. Animal Feed is Feeding stuff for animals (not including unmilled cereals). Fodder is hay and fodder, green or dry.

#### 4.1 GREEN FODDER PRODUCTION

Fodder crops are grown throughout Sudan where conditions allow, including irrigated crops to feed dairy cattle, small ruminants and draught animals. A good part of the total crop is produced for sale to the local market and sold as green fodder. The most common crops are forage sorghum (especially the 70-day 'abusabeen' variety) and berseem with limited areas under maize, lablab and cowpeas. Sudan grass, buffel grass (African foxtail), Rhodes grass, elephant grass, para grass, panicum and clitoria have been used to establish irrigated pastures but this has been limited. Growing fodder crops between rows of fruit trees is practiced on a limited scale.

Dry matter yields of some of the main crops grown under irrigation are of the order of 6-10 tons per hectare for abusabeen, 8-10 tons for Sudan grass, 7-15 tons for maize, up to 27 tons for berseem, 6 tons for lubia (*Dolichos lablab*), 9 tons for *Phillipesara* and 6 tons for *Clitoria* as indicated in Table 28.

Table 28: Productivity of selected fodder crops in Sudan (MT/ha)

Crop	Dry Matter Yield MT/ ha
Abu 70	6.6 – 10
Maize	7.0 – 15
Lubia ( <i>Dolichos lablab</i> ) 6	7.0 – 15
Clitoria	6.2
Sudan grass	8.5 – 10
Berseem	26.8
Phillipsara	8.6

Source: Range and Pasture Administration, Sudan Fodder Resources, Administration Report (2005).

## 4.2 CONCENTRATED FEED PRODUCTION

Existing capacity in Khartoum for the production of concentrated livestock feed including compound rations could provide about 250,000 tons per year. Total national capacity is estimated at about 500,000 tons per year. Production, however, is only a fraction of this at an estimated 70,000 -80,000 tons per year, probably because many producers have little faith in some of the products. Feed mills in many of the larger towns also face operating difficulties. Some organizations and private enterprises continue to try and produce their own concentrates from local ingredients.

Table 29: Concentrate feed manufacturers and capacities (metric tons) in Sudan

Feed plant	Designed capacity	Utilized Capacity
Kenana Sugar Company Feed Factory (per day)	500	250
Babikir Company for Feeds (Omdurman) (per day)	30	30
Khartoum Central Feed Factory (Khartoum) (per day)	30	30

Source: USDA

Sorghum is virtually the only grain that is fed to livestock, although whole cotton seed is also sometimes used as a livestock feed. Variations in area and yield and the high prices obtained for human use on both the domestic and export markets make sorghum an expensive feed at any time. In recent years it has become even more expensive and its use as feed is further exacerbated by the price which can vary in the ratio of one to two.

Within a year or season, common salt is virtually the only mineral available in any quantity on a commercial basis. Animals in traditional extensive systems generally do not suffer from mineral deficiencies or imbalances as annual grazing management cycles usually include passage to areas where feed or water is known to have "curative" properties.

## 5 SPECIAL ECONOMIC ZONE

This section of the report discusses the concept of an Economic Zone and the advantages and disadvantages of introducing such an entity.

### 5.1 WHAT IS A SPECIAL ECONOMIC ZONE

The terms Free Trade Zone (FTZ), Free Zone (FZ), Export Processing Zone (EPZ), and Special Economic Zone (SEZ) are often used interchangeably. All are forms of an economic zone, which is used in this report as an umbrella designation.

An economic zone can be a Free Trade Zone or an Export Processing Zone, or it may incorporate certain common elements of each. An economic zone offers a range of benefits to investors and users, but it does not necessarily incorporate the export incentives, duty-free status, and minimum export requirements which are typical of an FTZ or EPZ.

It is defined as a geographically delimited area, administered by a single body, which can offer certain incentives or benefits – as well as different legal and regulatory conditions than those that obtain in the wider economy - to businesses that physically locate themselves within its boundaries. Over 130 countries around the world have economic zones of some kind, with an estimated 3,500 economic zones worldwide, directly employing more than 60 million people and exporting over \$600 billion annually.

## 5.2 PURPOSE OF AN ECONOMIC ZONE

The purpose of an economic zone is often to attract foreign direct investment (FDI) and to increase exports, but the essential objective of an economic zone is to create an environment where businesses can operate free of many of the administrative barriers and regulatory difficulties they would typically encounter in the national economy. These barriers and constraints can include difficulties in:

- registering companies and obtaining licenses;
- acquiring land;
- importing and exporting goods;
- dealing with tax authorities;
- hiring and dismissing workers;
- obtaining work permits and visas for expatriate staff; and
- resolving commercial disputes.

Other impediments include restrictions on foreign ownership and the risk of nationalization or expropriation. Properly designed, managed, and supervised, an economic zone can provide a substantial measure of protection against many of these risks.

Economic zones can also provide other important benefits. These can include:

- creation of jobs and increasing domestic value added production;
- transfer of foreign technology and know-how;
- increased access to export markets;
- increasing the ability of domestic companies to participate in export value chains;
- creation of competitive industry clusters by grouping together companies in a given industry with suppliers and service providers and by providing business facilitation and matchmaking services;
- physical security; and
- high quality infrastructure and reliability of utilities and public services.

## 5.3 TYPES OF ECONOMIC ZONES

Figure 18 below illustrates the range of economic zones, including:

- free trade zones (FTZs, also known as commercial free zones or free zones), which are enclosed duty-free areas, with warehousing, storage, and distribution facilities for trade, trans-shipment, and re-export operations;
- export processing zones (EPZs), which are industrial estates aimed primarily at attracting export-oriented investments in manufacturing industries; and
- special economic zones (SEZs), also called free ports, which are typically very large zones.

The SEZ typically hosts a wide range of industrial and service sectors and often includes on-site accommodation. There are also many kinds of specialized zones targeted at specific sectors or economic activities. Examples include science and technology parks, petrochemical zones, logistics parks and airport-based zones, as shown in Figure 18.

Figure 18: Types of economic zone

Type of Zone	Development Objective	Physical Detail	Eligible Activities	Markets	Examples
<b>Free Trade Zone (Commercial Free Zone)</b>	Support trade	Size < 50 hectares	Entrepot and trade-related activities	Domestic, re-export	Colon Free Zone, Panama
<b>“Pure” EPZ</b>	Export manufacturing	Size < 100 hectares; total area designated as EPZ	Manufacture and other processing	Mostly export	Karachi EPZ, Pakistan
<b>“Hybrid” EPZ</b>	Export manufacturing	Size < 100 hectares; only part of the area is designated as an EPZ	Manufacture and other processing	Export and domestic market	Lat Krabang Industrial Estate, Thailand
<b>Special Economic Zone</b>	Integrated development	Size > 10 km <sup>2</sup>	Multi-use	Domestic, internal and export markets	Aqaba Special Zone, Jordan ; Clark Freeport Zone
<b>Enterprise Communities and Empowerment Zones</b>	Revitalization of poor urban and rural areas	Size < 50 hectares Population < 200,000	Multi-use	Domestic	100 such zones in the U.S.
<b>Single Factory EPZ</b>	Export manufacturing	Designation for individual enterprises	Manufacture and other processing	Export market	Mauritius, Mexico, Madagascar, Togo.

Source: FIAS – World Bank/IFC, 2005; Koios Associates LLC, 2011-2012

### **Free Trade Zones**

Many zones that started out as free zones or free trade zones, and which still may be referred to as FZs or FTZs, have in fact evolved into special economic zones. Such is the case, for example, with the Jebel Ali Free Zone in Dubai, the first major zone development in the Gulf region.

### **Export Processing Zones**

Each development zone accommodates different kinds of economic activities and targets different kinds of investors. Many of these variations are oriented towards export-oriented manufacturing industries, especially factories set up by foreign investors. This model is often appropriate for countries with large pools of cheap labor, and can serve as a powerful engine of economic development, as seen in countries such as Mauritius, Madagascar, Thailand, Sri Lanka, Mexico and Pakistan. EPZs in these cases have brought substantial benefits through foreign direct investment, which has contributed technology, management and marketing know-how and market access to countries that previously had little of any of these.

The pure EPZ model may be less appropriate, however, for countries with a large domestic or regional market, adequate domestic capital resources, an existing industrial base, and relatively high income levels and labor costs. For such countries, there is less of a need to develop export-led manufacturing and economic growth. Such countries may instead need ways to encourage investment in underdeveloped regions, to increase domestic value added in manufacturing and service industries, to improve the skills base of their work force, and to become innovation-led economies.

### **Special Economic Zones**

SEZs are fundamentally different from traditional free zones. Instead of platforms designed exclusively to promote exports and attract FDI, and instead of enclaves rigidly isolated from the national economy, the SEZ is intended as a platform for diversified economic growth that is intended to spill over into the national economy.

As such, the kinds of benefits and incentives offered to investors in an SEZ are unlikely to involve specific export subsidies or incentives: instead they will offer a similar and common set of benefits to all investors. This is highly relevant to the SEZ under discussion in this report.

Some of the main features that distinguish SEZs from Free Zones and EPZ models are:

- **Larger size.** SEZs typically cover larger areas, and therefore offer more flexibility to firms in locating their plants and in the scope they provide for linkages among firms in a zone and between firms in a zone with firms outside the zone;
- **Broader range of permitted activities.** Companies located in an SEZ can typically undertake any legal activity including manufacturing, tourism, residential development, duty-free shopping, ICT manufacturing and services, warehousing, transshipment, re-packaging activities, business development services, and many others. Most zones allow individuals, whether foreigners or nationals, to reside in the zones, permanently or temporarily;
- **Duty-free privileges.** Most SEZs allow for all kinds of merchandise to be brought into the zone duty- and tax-free by registered enterprises or individual residents. Many SEZs have duty-free enclaves within a larger area that is not duty-free. Within the duty-free enclaves, enterprises are allowed to import any merchandise in any quantity duty- and tax-free, and are not limited to goods directly used in the manufacturing process as is the case for EPZs. Duty- and tax-free merchandise can be sold at retail or wholesale and sometimes may be consumed within the zone area. This is in contrast to EPZs or even commercial free zones that do not permit retail sales or on-site consumption of duty- and tax-free products;
- **Full access to the domestic market** on a duty-paid basis. EPZ enterprises are usually required to export at least 80 percent of their production. Most SEZs, by contrast, allow enterprises to sell any amount to the export market, local market or to consumers located temporarily or permanently within the Zone. Sales to the domestic customs territory are unrestricted so long as all applicable import duties, taxes and other charges are fully paid.

In summary, therefore, a special economic zone may offer concessions in regard to export duties and duties, but they will also offer the users in the zone a range of other benefits which minimize business difficulties and constraints and offer a streamlined and efficient environment in which to do business.

## **5.4 ADVANTAGES AND DISADVANTAGES OF AN SEZ**

### **5.4.1 Potential advantages**

Economic zones serve several important purposes and offer a number of advantages:

- **Controlled liberalization:** An economic zone can allow authorities to experiment with liberalized trade and investment policies in a controlled environment. When China established the Shenzhen Special Economic Zone in 1979 it was intended to be “an experimental ground for the practice of



market capitalism within a community guided by the ideals of ‘socialism with Chinese characteristics.’”<sup>19</sup> Many of the liberal reforms first introduced in Shenzhen were subsequently introduced into the wider economy, once the authorities felt it was safe to do so. Zones may offer benefits that may not be available to investors in general, such as 100% foreign ownership of companies.

- **Access to land:** In countries in which investors, especially foreign investors, have difficulty obtaining land, zones can offer land that is already zoned for purpose, either for sale or on long-term leasehold.
- **Infrastructure:** Zones may be endowed with superior infrastructure, such as access roads, water, and electricity. In countries with poor infrastructure, this can be a powerful attraction for investors.
- **Regulatory simplicity:** In many countries, complicated bureaucratic procedures, such as business registration and licensing, can deter investors. Zones often offer a simplified system, insulating investors from the bureaucracy and streamlining investment approvals.
- **Fiscal incentives:** Zones often offer special tax exemptions or deferments. They also often offer tax and duty exemptions on imported equipment and inputs, which can help make exports more cost-competitive (some zones may have a duty-free enclave within a wider zone that is not duty-exempt).

#### 5.4.2 Potential disadvantages

There are, however, potential drawbacks to an SEZ program. These include:

- **Potential disincentive to wider reform:** The best course for a government to take is to embark on economy-wide reforms that improve the overall business environment. To the extent that SEZs isolate reforms in an enclave, they may reduce pressure from the business community for more fundamental reform.
- **Uneven playing field:** If companies located in an SEZ receive benefits unavailable to other companies, it can create uneven competition and unfairly advantage SEZ companies vis-à-vis companies outside the SEZs.
- **Land speculation:** If the SEZ regulatory regime is not properly structured and administered, an SEZ can become a vehicle for land speculation, which may enrich a few investors while generating few, if any, benefits for the productive economy.
- **Misuse of SEZ incentives:** Many SEZ regimes contribute little, if anything, to the productive economy and instead are a way for importers to gain relief from high import tariffs on goods such as vehicles and consumer durables. Under such a regime SEZ companies import these goods duty-free and release them out of the zones once the purchaser has paid for the goods and the import duty. Though this helps importers manage cash flow, it creates few real economic benefits.
- **Disconnect from domestic economy:** An SEZ regime, if poorly conceived and governed, can isolate SEZ companies from their domestic counterparts. Instead of establishing supply chains that include domestic companies, SEZ tenants may operate in relative isolation from the domestic economy, importing all or most of their inputs and contributing nothing to higher domestic value added. Apart from the jobs they create, such SEZs produce few other economic or social benefits.

### 5.5 SEZ IN THE SUDANESE REGULATORY CONTEXT

Sudan’s “Law of free areas and markets” of 17 February 2009 governs the establishment and operation of free zones in Sudan, replacing the 1995 Free Zones Law. The law provides a standard set of tax and duty exemptions, as well as protection against expropriation, and free repatriation of profits and capital. The law also provides for a National Free Zones Council, which governs free zones and provides recommendations to the Council of Ministers on establishment of new zones and on policy and administrative dispositions, including modifications to incentives and privileges specified in the law. According to the law, the National Free Zones Council is supported by a Secretariat.

### 5.6 EXAMPLES OF SEZ

<sup>19</sup> “The spirit of enterprise fades: Capitalism in China,” *The Economist*, January 23, 2010.

As illustrated in Table 30, it is not uncommon for SEZs to contain an entire city, region or province of a country or, in the case of Singapore, Hong Kong, Macau and Gibraltar, an entire country.

Table 30: Examples of free ports/SEZs

Zone:	City States				Islands		Cities/Provinces				
	Singapore	Gibraltar	Hong Kong	Macau	Labuan, Malaysia	Batam, Indonesia	Shenzhen, China	Subic Bay, Philippines	Kaliningrad, Russia	Aqaba, Jordan	Howard, Panama
Size (km <sup>2</sup> )	693	6.5	1042	25	92	416	327	300	15000	375	1500
Date Established	1819	1830	1841	1887	1990	1978	1980	1992	1995	2000	2004

Source: FIAS/World Bank, unpublished report 2002

### 5.6.1 Existing free trade zones in Sudan

Sudan has two FTZs: a 26 km<sup>2</sup> zone at Garri (Al Gaili), 70 km north of Khartoum, and a 26 km<sup>2</sup> zone on the Red Sea, adjacent to the Port of Port Sudan and International Airport. Both of these are operated by the Sudanese Free Zones and Markets Co. Ltd discussed at Section 5.5 above.

Figure 19: The Sudan Free Zone at Red Sea Port



The zone at Garri, opened in 2007, is currently used by machinery and vehicle companies to assist with import and distribution of heavy and commercial vehicles. Approximately one-third of the total area is developed or occupied. Zone tenants consist mainly of domestic Sudanese companies, although there are a few foreign joint ventures and a very small number of wholly foreign enterprises located there. Foreign investment is mainly from China, India, Malaysia and other Arab countries. Export sales amount to less than 10% of total sales from the zone, and most of these go to other COMESA countries. The bulk of sales from the zone go into the Sudanese domestic economy. Limited value-added manufacturing or service activity takes place – only 5% of activity is in manufacturing, and as a consequence the benefits to the Sudanese economy are limited.

### 5.6.2 Free zones in Egypt

Egypt's General Authority for Investment (GAFI) governs the national free zones program. There are currently 10 public free zones and 250 private free zones in Egypt.

The public free zones each accommodate numerous companies, but private free zones are single companies or projects that have been granted the same investment incentives as public free zones. These zones are normally only allowed for the manufacture of product for export. Key features of Egypt's free zone regime include the following provisions:

- Free Zone Law is legislated in Law No. 8 of 1997;

- Each zone is established by a decree of Government;
- The Zone is supervised by GAFI;
- The zone is exempt from import duties and other Government taxes including VAT;
- The operating company is exempt from income tax in Egypt;
- Employees are subject to income tax in Egypt;
- All imports into and exports out of the zone are inspected and recorded by GAFI; and
- GAFI charges fees in the form of 1% of the value added in the zone.

Free-zones in Egypt are subject to, and must comply with, all international trade agreements (EU, COMESA, AGADIR etc) except those specifically with other Arab countries, the key aspect being that in the case of Arab countries, goods from free zones are taxed on entry. This requirement is currently under review and is expected to be removed in the near future. It is important to consider this as the provision can mean inputs such as feed and other products become more expensive when brought into the SEZ and can make the exported product more expensive. This is understood to be one of the reasons why the feedlot operation at the Sokhna SEZ on the Red Sea coast has vacated the free zone arrangement, as the import tax implications of buying feed from sources outside the zone made the finished product uncompetitive.

It is unlikely, however, that a livestock economic zone could be created under the Egyptian free zones regime. Following a World Bank/IFC strategic review of the free zones program in 2005, the Egyptian Government decided not to create any new public free zones, and has shown considerable reluctance to authorize new private free zones as well. Since private free zones are restricted to a single project, or company, it would be virtually impossible to create a livestock free zone to accommodate multiple projects such as an abattoir, meat processing, hide treatment, feedlot etc. Any livestock economic zone in Egypt would therefore have to be created under the Special Economic Zones Law No. 83 of 2002 or the Investment Zones Law No. 19 of 2007.

The Special Economic Zones Law No. 83 of 2002 is, in many ways, an improvement over the Free Zones Law. Its provisions include the following:

- A fixed tax on company profits of 10% for the life of the project. This is higher than the 0% profits tax on companies in the free zones, but in most cases preferable to the 10-year tax holiday granted to most other investments.
- Personal income taxes of 5% for all employees, foreign and Egyptian, of companies operating in the Zone. This contrasts with a one-year personal income tax exemption for foreigners employed by investors in the GAFI free zones, after which normal income tax rates apply.
- No service fees payable on goods entering or exiting the Zone, or on gross revenues. GAFI Public Free Zone investors, by contrast, must pay to GAFI a 1% service fee on the value of all goods entering or leaving a Zone, as well as a service fee equivalent to 1% of gross company revenues for service companies or 1% of value added for manufacturing companies. The Law on Special Economic Zones allows the Board of Directors of the Authority to levy administrative fees on Zone investors but does not specify the amount or basis for assessment;
- Normal free zone exemptions from Customs duties on imports, with sales to the domestic market subject to duties only on the value of imported components and materials;
- Freedom to engage freely in commercial transactions with other companies in the Zone without prior approval;
- No requirements for a minimum percentage of exports. SEZ companies can sell all their production on the local market, unless the SSEZ Board of Directors decrees otherwise.
- Egyptian certificates of origin for SEZ – based exporters, allowing them to make use of Egypt's preferential international trade agreements such as GAFTA.

To date, only one SEZ has been created under Law No. 83: the 20-sq.km. Northern Suez Special Economic Zone at Sokhna, which was legally established in 2003. Under law, SEZs are created by decree and are operated by autonomous state-owned corporate bodies. Sokhna SEZ is unique in

that it was conceived and developed as an adjunct to the privately operated Red Sea Port of Sokhna. No other SEZs have been licensed to date.

The Investment Zones regime created under Law No. 19 of 2007, with implementing regulations established by Prime Ministerial Decree 1675 of 2007, represents best international practice and takes account of both positive and negative lessons from the Free Zones and SEZ programs. It differs from previous regimes in that it:

- Mandates the private sector to develop, manage and promote the zones; and,
- Allows zones to be created for a much wider range of activities, including, in addition to manufacturing, education, scientific research, small and medium enterprises, transport and logistics, and tourism.

Distinctive features of the Investment Zones regime include:

- Zones tend to specialize in a single industry cluster, offering competitive costs for operation and marketing thanks to industrial integration;
- Streamlined review and approvals procedures for creation of new Investment Zones;
- Each zone is governed by a board of directors, which includes representatives of private management and national and local authorities, which exercises full and sole authority for licensing of companies to set up in the zone;
- No restrictions over projects' capital and legal form;
- Streamlined customs system for smoother importation and exportation for the projects at the zone;
- Goods manufactured within investment zones qualify for Egyptian origin with respect to preferential trade agreements with Arab and African countries
- Projects established in the investment zones have the right to sell into the local market.

A total of 13 investment zones have so far been created in Egypt, principally in the Cairo and Alexandria metropolitan areas, and concentrated in a wide range of activities that ranges from building materials and textiles and garments to nanotechnology and biotechnology. The speed with which multiple investment zones have been created in less than five years contrasts markedly with the slow pace of SEZ development and speaks to the greater flexibility and efficiency afforded by the investment zones regime.

## 5.7 SPECIALIZATION OF ZONES

Although the SEZ concept tends to favor integrated development across many different sectors, the concept is also flexible enough to allow for a higher degree of specialization than is normally the case for EPZs and FTZs. Many SEZs now specialize in science and technology, logistics, tourism, financial services or heavy industry. This ability to specialize illustrates the flexibility of the SEZ concept.

Agriculture zones are a relatively new concept. The Philippines, India, and Afghanistan have all created new agricultural SEZs within the past two to three years, so it is too early to determine how successful they will prove to be. Other, related kinds of zones include two leather industry SEZs in Turkey (Izmir Menemen Leather Zone and Istanbul Leather Zone), and the 100-hectare MIDC Leather SEZ in Maharashtra State, India. Livestock, dairy, and meat processing are among the major industries in the Kaliningrad Special Economic Zone in Russia, which houses about 70 meat processing plants, 11 dairy plants, and several mixed feed mills, as well as agricultural servicing, logistics, agrichemical provision, veterinary service, and cultivation of soy, rape and feed crops.<sup>20</sup> A new SEZ in Mombasa, Kenya, now under development, will include an agro-industrial zone incorporating activities such as blending and packaging of fertilizers, teas and coffees, and a consolidated meat and fish processing facility.

<sup>20</sup> "Invest in Kaliningrad" (2012), <http://economy.gov39.ru/en/investicionnye-vozmozhnosti-en/otraslevoi-obzor/selskoe/>

## 5.8 POTENTIAL ZONE BENEFITS AND INCENTIVES

Figure 20 illustrates the kind of incentives on offer in many economic zones internationally. Although incentive packages may not be identical, in general less generous benefits in one area may be compensated by more generous incentives in another.

The conclusion for the SEZ project is that the economic zones incentives package developed should be comparable to those offered by other economic zone regimes, especially in the COMESA and GAFTA region. The policy incentives outlined later in Figure 21 may be more attractive to investors than fiscal incentives.

Figure 20: Economic zone incentives

INCENTIVE TYPE	DESCRIPTION
<b>Fiscal/Taxes</b>	<ul style="list-style-type: none"> <li>• Tax exemptions, tax holidays or reduced tax rates on corporate profits</li> <li>• Exemption from VAT and/or property taxes</li> <li>• Reduced tax rates or exemptions on salaries paid to foreigners</li> </ul>
<b>Investment Conditions</b>	<ul style="list-style-type: none"> <li>• Unrestricted repatriation of capital</li> <li>• Unrestricted repatriation of profits</li> <li>• No limits on foreign participation in capital</li> <li>• Land ownership by foreigners</li> <li>• Equal treatment of domestic and foreign investors</li> </ul>
<b>Customs</b>	<ul style="list-style-type: none"> <li>• Exemption from all import duties</li> <li>• Exemption from all export levies and tariffs</li> <li>• Duty exemption for capital equipment</li> <li>• Duty exemptions for imported raw materials &amp; intermediate goods</li> </ul>
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>• Highest quality and guaranteed availability of water, electricity, sewerage, telecommunications and roads</li> <li>• Availability of serviced plots for sale or rent</li> <li>• Pre-built warehouse and factory buildings for rent or sale</li> <li>• Access to national and international transport</li> <li>• Deregulation of utilities, allowing for independent power projects and other private infrastructure operation</li> </ul>
<b>Labor</b>	<ul style="list-style-type: none"> <li>• No restrictions or reduced restrictions on work and residence permits for foreigners</li> <li>• Liberalized labor regulations for local staff (e.g., fewer restrictions on working hours)</li> </ul>
<b>Administration</b>	<ul style="list-style-type: none"> <li>• Streamlined and transparent procedures for company registration and investment project approval and licensing</li> <li>• "one-stop-shop" for investment approvals</li> <li>• Investors deal with zone administration and are insulated from contact with national and municipal regulatory and licensing authorities</li> <li>• Exemption from external health, tax, labor and safety inspections</li> </ul>
<b>Currency &amp; Foreign Exchange</b>	<ul style="list-style-type: none"> <li>• No foreign exchange controls</li> <li>• No foreign exchange surrender requirements</li> </ul>

Source: Koios Associates

Figure 21 shows the types of policy incentives that typically attract investment in an SEZ and lead to greater rates of usage and participation by commercial parties.

Figure 21: Typical SEZ policy incentives

- **Broader economic activity authorizations:** SEZs generally promote a broad range of economic activities, actively promoting synergies between investments in industry, agriculture, information technology, ports, airports, utilities, tourism, commercial, and residential development, promoting cluster-based development not possible in traditional free zones.
- **Policy liberalization:** SEZs generally grant full duty-free status , liberalized investment regimes, simple and non-discriminatory incentives, simplified labor regimes, streamlined approvals and administrative procedures, streamlined compliance and reporting requirements, dedicated dispute resolution mechanisms, best practice customs procedures and technologies, and full access to the domestic market on a duty-paid basis.
- **Deregulation of utilities:** Many SEZs deregulate telecommunications, power, and other utilities within the zone, offering enormous advantages to companies.
- **One-stop administration:** Successful SEZs are governed by streamlined, customer-oriented institutions with sufficient autonomy to promote, authorize, and regulate economic activity in the zone. Effective SEZ administrations are lean, and outsource or privatize a variety of public sector functions.

The livestock SEZ must be able to offer incentives to attract participation by entities and investment by other parties.

## 5.9 EFFECTS AN SEZ MAY HAVE ON CURRENT TRADE

The potential effects of an SEZ on livestock and livestock products trade are threefold:

1. Veterinary and disease control, leading to enhanced access to foreign markets for animals and meat;
2. Attraction of foreign investment in the livestock and livestock products sector, leading to improved technology and know-how, enhanced international market access, and increased competitiveness;
3. Lower costs, leading to increased international competitiveness.

With respect to veterinary and disease control dimensions, a properly structured and managed SEZ could contribute to control of the spread of disease, while also making it easier for agriculture and health officials from trading partners to inspect and certify handling facilities.

The protections, privileges, and incentives offered by Sudan's free zones law may help attract both domestic and foreign investment.

To the extent that the tax and duty exemptions afforded by the SEZ regime lower the cost of inputs such as capital equipment and imported raw materials, they will contribute to lowering the cost of

production and make output from the SEZ more competitive in export markets. Although the trade relations between Sudan and the Republic of South Sudan are still evolving, the ability of companies located in an SEZ to bring in inputs from South Sudan on a duty- and tax-free basis could be considerable. Sudan imposes import duties of between 15% and 24% on live animals and meat; 6% to 24% on most animal feed inputs, and 24% on hides, skins, and leather. Exporters of live animals as well as operators of abattoirs, tanneries, meat processors, and leather goods manufacturers located in an SEZ could benefit substantially if they could import freely from South Sudan, as well as from other neighboring countries such as Chad.

### **5.10 IMPROVED QUALITY AND SAFETY OF LIVE ANIMALS AND MEAT TRADED**

In the short term health status would be improved through more rigorous pre-selection, inspection, veterinary interventions and vaccination. This would also help to improve food safety.

In the medium term the SEZ should aim at improving the quality and acceptability of exported meat. Egyptian consumers prefer meat that is:

- pink to red in color and with white fat;
- derived from a young animal (less than 30 months of age); and
- not frozen.

To achieve this would require purchase of young animals from the Sudanese rangelands, finishing these on high energy rations in feedlots, and slaughtering before emergence of the third pair of incisor teeth. At a later stage it may be possible to purchase such animals from commercial breeders in the agricultural areas such as Gezira.

### **5.11 SEZ ACTIVITIES AND SERVICES**

The SEZ comprises the activities and services indicated at Table 35 below on page 91.

### **5.12 ANIMAL SPECIES AND PRODUCTS TO BE INCLUDED IN SEZ ACTIVITIES**

The SEZ will be open to the following species: camels, cattle, sheep and goats.

The bulk of the livestock processed through the SEZ holding facility will likely be camels and cattle and through the abattoir, cattle and small stock. As indicated earlier in the report, there is currently only minimal demand in Egypt for sheep and goats, however, this may alter in the future if beef supplies continue to remain tight and consumer demand for red meat protein continues to improve.

### **5.13 LIVESTOCK FACILITIES**

The facilities comprise a livestock holding area for camels, cattle, sheep and goats. Livestock can be sold and traded here. The preliminary plan allows for each species to be segregated.

The preliminary design for the livestock facilities is based on the principles in the Australian Model Codes of Practice-Welfare of Animals and National Guidelines for Feedlots.

#### **5.13.1 Livestock handling facilities and yards**

Fences, gates and lanes are designed to enable efficient movement of livestock and feeding and cleaning machinery. The design and arrangement of fences, gates and lanes will help to minimize ongoing livestock handling labor costs and injury of livestock and/or feedlot staff. The design features basic livestock handling, treating, loading and unloading facilities.

All livestock will be identified with ear tags and individually weighed on arrival in the feedlot. The number of stock discharged should be checked against the delivery docket, and the time that the

truck is unloaded and recorded. Different lines of stock by weight, sex and type, should be drafted into separate pens, with the number per pen being adjusted according to the average weight of the line. It is important that cattle be penned according to size, sex and weight.

Recommendations for construction in high temperature areas include pen orientation to west and east for maximum cooling and maximizing the air flow design. Pen and lane way surfaces will be compacted clay or gravel. A suitable pen slope is important for good drainage and minimal erosion from rainfall runoff. Extreme pen slope could lead to animals overcrowding on the down slope and being injured or smothered. A pen slope of 3% is considered optimal.

Stock should be handled quietly and given room to move in yards and laneways. Stock numbers per pen should be reduced on a regular basis to enable sufficient trough space per head as livestock grow. There is provision for shade in sections of the feedlot.

Pens will be kept clean, especially in any wet weather, to minimize effluent run off, and for animal welfare and feedlot performance. This should be done by manual scraping of pens and laneways and use of the Bobcat and trailers. A basic diagram of cattle and small stock pens is presented at Appendix 6.

#### **5.13.2 Livestock loading/unloading facilities**

Basic cattle handling, treating, loading and unloading facilities have been included in the proposed layout and budget.

Dual-purpose Livestock Lanes/Feed Roads will be constructed to withstand traffic volumes and wheel loadings, to provide reliable all-weather access to the feed troughs and to incorporate a substantial road base of compacted gravel.

#### **5.13.3 Animal inspection areas, marshalling and staging grounds**

Adverse climatic effects can sometimes be alleviated by studying the local climate, eg. prevailing winds, and taking advantage of the local topography. If shade is likely to be installed at the feedlot, either initially or at a later stage, a north-south orientation of rows of pens can generally make provision of shade structures easier.

Allowances for machinery and equipment are made for the feedlot and for the individual components of the livestock SEZ. This has been done with regard to minimizing disease risk and to enable different enterprises to co-locate, however, it certainly may be possible for enterprises in the live market to share access to the machinery.

#### **5.13.4 Equipment for livestock handling facilities**

Essential machinery for the livestock handling and feedlot areas include the following:

Item Description
Tub Grinder for breaking down straw and chopping forage, to improve utilization and minimize wastage
Tractor and Feed-out Wagon for mixing and feeding out the Total Mixed Rations (TMR)
Bobcat for cleaning pens
Front End Loader for handling feed
Weighbridge for weighing truckloads of animals and feed
Scales for weighing individual animals and a backup Generator.
Feed bunks for storage of forage and other feed ingredients



The following vehicles would assist the running of the facility:

1. Pickup Truck
2. Motor Lorry

## 5.14 VETERINARY ASPECTS

The emphasis of the health management programme from the time livestock first arrive in the feedlot will be constant surveillance, particularly after introduction, early detection of health problems and prompt appropriate treatment. All livestock should be closely inspected on arrival to assess health status and be treated as required. Once livestock are penned out, all animals should be checked daily and, in the case of new arrivals, twice daily inspections are advised for the first few weeks of environmental adjustment and feed adaptation.

Trained and experienced livestock handlers must walk through all pens looking for any signs of poor health or injury, using an established surveillance method. All livestock should be seen standing and moving. Surveillance should include water trough inspections and general features of the fencing and pen surface which may predispose livestock to injury.

Sick livestock are to be removed promptly to the hospital area for closer attention by animal health staff or the consulting veterinarian, who should have specialist skills in feedlot medicine. Signs of feeding disorders should be reported immediately to the Feedlot Manager.

Burial is the preferred method of carcass disposal for dead livestock; cremation should only be used where burial is not possible. Adequate arrangements must be made to handle this on an ongoing basis. Where sick or injured cattle have to be destroyed the methods should be consistent with those recommended in the Model Code of Practice for Welfare of Animals.

## 5.15 VETERINARY REQUIREMENTS FOR SUDANESE LIVESTOCK ENTERING THE SEZ

The SPS agreement recognizes that governments have the right to establish the level of protection they consider necessary – the ‘acceptable risk’. Thus the precise nature of the disease-risk reduction measures that must be taken by the SEZ should be determined by agreement with the Egyptian (and other) national authorities.<sup>21</sup>

Measures must be taken to screen / test / quarantine / exclude animals before they are admitted to the SEZ and these measures should be tailored by species, area of origin, and prevailing disease distribution. Thus the SEZ must establish and maintain close collaboration with the GDAH.

The diseases listed earlier in Figure 17 are of relevance to trade (and animal production). It is noted that Sudan’s livestock populations are infected by several production-limiting diseases, however, these tend to occur at a relatively low incidence and often at specified locations. Diseases in this category include: endoparasitosis (ubiquitous), tick-borne diseases (including theileriosis, babesiosis, anaplasmosis, heart water) which are limited to certain areas that are ecologically suitable for ticks (for example south central Sudan), Haemorrhagic Septicaemia, Blackleg, mange, Pasteurellosis, Trypanosomiasis (small pockets of tsetse-infestation in southwest Sudan, and some mechanical transmission of Trypanosomavivax), contagious caprine pleuropneumonia, and schistosomiasis. These diseases should be prioritized by Government and addressed to increase supplies of livestock and livestock products to domestic and export markets, including the SEZ.

<sup>21</sup> These standards and procedures are described in the OIE’s Terrestrial Animal Health Code (Volumes 1 and 2) and the Manual of Diagnostic Tests and Vaccines for Terrestrial Animals.

A competent veterinary service which has the confidence of the authorities in importing countries must be in place to guide and supervise this process, and to provide official certification of the disease status of livestock and products being exported from the SEZ. Currently, Egyptian authorities specify that Egyptian veterinary inspectors must oversee the export inspection, testing, identification, quarantine, and movement procedures undertaken in Sudan for livestock destined for Egypt. For meat and carcass exports to Egypt, this oversight would also include inspection and approval of abattoirs, ante- and post-mortem inspections, and identification and shipment of meat and carcasses.

### 5.16 OIE OBLIGATIONS FOR THE SEZ

The OIE considers an efficient and effective animal disease surveillance system is a basic requirement upon which to build disease control / preventive strategies; monitor the outcomes of these strategies; utilize OIE pathways for the control / eradication of important diseases; enable issuance of an international veterinary certificate attesting the disease-free status of an animal or product. These certificates are the heart of international trade in livestock and livestock products and are a key feature of the SEZ system. In addition, the SEZ will provide a record of regular and prompt animal disease reporting to OIE which is a prerequisite to official acceptance on disease-free zones and compartments. It is in fact recommended that the SEZ be designated as a disease-free compartment<sup>22</sup> because of the advantages this can deliver in a commercial and marketing sense.

### 5.17 IMPROVED DISEASE CONTROL

This is divided into two parts:

- reducing the risk of introducing diseases into the SEZ by incoming livestock; and
- reducing the adverse effects of clinical disease (a) during pre-entry inspection / vaccination / identification and quarantine, and (b) whilst animals are held in the SEZ pending export or slaughter or sale.

Cattle imported into Egypt for slaughter are subject to the following conditions:

- Male
- Greater than 250 kg live weight
- Less than 30 months of age
- Inspected, identified, tested (for Brucellosis and Foot and Mouth Disease), vaccinated (Anthrax, Haemorrhagic Septicaemia, Rift Valley Fever, Foot and Mouth Disease types 'A' and 'O')
- Quarantined for 21 days
- At international border moved directly to specified slaughterhouse for prompt slaughter.

#### 5.17.1 Reducing the risk of introducing disease into the SEZ by incoming stock

The aim of the following recommendations is to ensure that all animals meet the conditions specified by the importing country and enters the SEZ securely identified and documented and as free of disease as can reasonably be assured. In practice the veterinary authorities of importing country / countries must determine (in a scientific manner) if these procedures offer an

<sup>22</sup> Compartmentalisation is a procedure implemented by a Member (of the OIE) under the provisions of this chapter with a view to defining subpopulations of distinct health status within its territory for the purpose of disease control and/or international trade. Compartmentalisation applies to an animal subpopulation defined primarily by management and husbandry practices related to biosecurity. Good management including biosecurity plans plays an important role in the application of compartmentalisation. Adapted from Article 4.3.1 of the OIE Terrestrial Animal Code, 2011.

acceptable degree of risk. If so then they must be accepted. If not then negotiate, explain, and modify if essential.

#### 5.17.1.1 The Inspection and Vaccination Centre (IVC)

This would be based on slight modifications to the current system. The following are recommended:

- If necessary establish IVC's for the sole use of the SEZ
- Have SEZ employees directly supervise, even better carry out, all activities at the IVC. These would be monitored by staff of the MARDF as these staff must sign the International Animal Health Certificates with Egyptian inspectors having oversight.
- Continually monitor the information output diseases of the Disease Monitoring Unit, GDAH, regarding trade-limiting diseases in order to identify infected areas, change of status of an area from infected to disease-free (following successful control of outbreaks), and disease-free areas
- As far as possible use this information to advise exporters of areas from which livestock should be sources. At a minimum ensure that known infected populations are avoided.
- Ensure that animals presented to the IVC:
- Are free of ectoparasites – an initial check should have been made at the feedlot by the exporter and as required animals treated with, say, a pour-on preparation.
- Have been pre-selected for export to a specified country

At the IVC ensure that:

- Thorough inspections of livestock are conducted with the aim of excluding sick / unfit / thin and otherwise unsuitable animals. These animals cannot be allowed into the SEZ.
- Animals are identified with an SEZ-specific ear tags with integral EIDs . Read these and upload into database.
- Animals are vaccinated as specified in the import permit issued by veterinary authorities in the recipient country. If the latter is not known then cover with all vaccines specified by recipient countries. This would be simplified if all stock through the SEZ destined for Egypt.
- Animals are screened for disease as specified in the import permit issued by the veterinary authorities in the recipient country. This would be simplified if all stock are destined for Egypt.
- Ensure that a health certificate is issued by staff of the GDAH which includes tag numbers (print out produced on site), test findings, vaccines administered. Keep a record of vaccine batch numbers.
- Then move the livestock to official quarantine station – or SEZ-specific quarantine station.

#### 5.17.1.2 Quarantine<sup>23</sup>

The purpose of quarantine is keep animals in isolation from other livestock and where they can be observed for clinical signs of target diseases. In general the period of quarantine exceeds the incubation period of target diseases, but this is not always practical, as discussed in Table 31. This table also presents further details for the target diseases and indicates those diseases for which additional measures are required to minimize the risk of spread of disease agents from exporting to importing country. Detailed requirements are given in the OIE Terrestrial Animal Health Code.

<sup>23</sup> OIE definition 'A quarantine station means an establishment under the control of the Veterinary Authority where animals are maintained in isolation with no direct or indirect contact with other animals, to ensure that there is no transmission of specified pathogen(s) outside the establishment while the animals are undergoing observation for a specified length of time and, if appropriate, testing and treatment'.

Table 31: Selected details relevant to animal quarantine, by disease

Disease	Incubation period in days	Chronically infected carrier animals	Comments assuming a 21-day quarantine period
<b>Anthrax</b>	7	No	Quarantine alone should be effective <sup>24</sup>
<b>Brucellosis</b>	60	Yes (lifelong)	Need serological testing to identify carriers
<b>CBPP</b>	Up to 120	Yes (up to 1 year)	Need serology to identify carriers
<b>FMD</b>	14	Yes (up to a maximum of 3 years)	Complicated. Serology and probang test really required to identify carriers. Otherwise rely on vaccination to prevent clinical cases and slaughter soon after arrival. Do not allow into domestic markets / holdings etc. although this is up to the importing country
<b>LSD</b>	14 (up to 35)	No	Quarantine alone should be effective but could fail if longer than normal incubation period is manifested. Supplement with vaccination?
<b>PPR</b>	6	No	Quarantine alone should be effective
<b>RVF</b>	6	No	Quarantine alone should be effective
<b>SGP</b>	14	No	Quarantine alone should be effective

Source: SRA

### 5.17.2 Production of veterinary vaccines, medicines and equipment in Egypt

This is of relevance as one objective of the SEZ is to foster trade in veterinary vaccines, drugs, equipment etc. from Egypt to Sudan.

In Egypt, veterinary drugs are registered by a Ministry of Health committee that includes the Director, Veterinary Drug Supply and Extension General Administration.

Veterinary vaccines are registered by the Veterinary Drug Supply and Extension General Administration of the GOVS. This authority determines the prices of all veterinary vaccines, all imported veterinary drugs, and most locally produced veterinary drugs. It also controls the importation of veterinary drugs so that supply and demand are in equilibrium

### 5.17.3 Veterinary vaccines

Poultry vaccines predominate the market and more than 90% of domestic requirements are imported. There are two producers of veterinary vaccines in Egypt:

- The Veterinary Serum and Vaccine Research Institute (VSVRI) which is affiliated with the Agriculture Research Centre of the Ministry of Agriculture and Land Reclamation and the major producer of

<sup>24</sup> Egyptian Veterinary Authorities insist that livestock imported into that country be vaccinated against Anthrax. On scientific grounds this is unnecessary if animals have shown no signs of the disease during processing and have been quarantined for 21 days. Requires negotiation to reduce costs.

veterinary vaccines in Egypt. It produces vaccines on demand by the GOVS and also for the export market.

- Me-Vac, a private company established in 2011 which produces an ever-increasing range and quantity of veterinary vaccines.

It appears that there is potential for Sudan to source some Egyptian-produced veterinary vaccines that are not produced, or not produced in required quantity, in Sudan.

#### **5.17.4 Veterinary drugs**

There are many manufacturers of veterinary drugs in Egypt which produce antibiotics, anticoccidials, parasiticides and anthelmintics. In the past, product quality has been an issue in Sudan with veterinary drugs imported from Egypt. It will be necessary therefore for the SEZ, in collaboration with the VRI Sudan, to put in place a credible and effective quality assurance system.

#### **5.17.5 Veterinary equipment**

There are a few veterinary equipment manufacturers in Egypt. The majority of domestic demand is satisfied by imports.

#### **5.17.6 Conclusion on veterinary vaccines, drugs and equipment (veterinary requisites)**

It appears that if quality can be assured there is potential for Sudan to source some Egyptian-produced veterinary requisites that are not produced, or not produced in required quantity, in Sudan. There would however be little point in Egypt re-exporting veterinary requisites to Sudan.

### **5.18 QUARANTINE AND FACILITIES**

The SEZ is to be designated as a disease-free compartment and this will require agreement from the OIE which sets rigid criteria, including:

- physical or spatial barriers to give adequate separation from adjacent animal populations;
- adequate Infrastructure;
- approved biosecurity plan;
- traceability – all livestock must be identified and registered; and
- documentation of the compartment that should provide clear evidence that the biosecurity, surveillance, traceability and management practices defined for a compartment are effectively and consistently applied.

For the reasons given above there cannot be a quarantine station in the SEZ as, by definition, the disease incubation status of animals entering a quarantine station is not yet known.

The SEZ must only accept livestock which have been processed through quarantine and shown to present an acceptable disease risk (as defined by the importing country) of transferring disease agents to livestock and human populations of the importing country. If livestock of unknown disease status are introduced into the SEZ then the probability of occurrence of serious disease is greatly increased. This would have serious consequences:

- The SEZ would need to be depopulated, cleaned, disinfected and kept free of livestock for a specified period of time. This would seriously disrupt the SEZ livestock supply chain
- If the SEZ has been declared a disease-free compartment (see below) for the target diseases then this disease-free status would be lost. For Foot and Mouth Disease the disease-free status could not be reinstated until a period of 12 months' freedom from the disease agent has been proven to the satisfaction of the OIE. Again, this would be very disruptive and would erode credibility in the SEZ.

### **5.18.1 Veterinary inspection and treatment facilities**

The facilities include races and crushes to enable restraint, examination, sampling, and treatment. Using US feedlots as basis would expect 0.5% - 1.0 morbidity per week. The facilities will require drug stocks, veterinary medical equipment and laboratory consumables to enable ongoing monitoring and documentation of animal health.

### **5.18.2 Biosecurity requirements**

Given that the SEZ will hold processed (inspected, tested, vaccinated, identified) livestock of (more or less) known disease status and which present an acceptable risk to importing countries, it is essential that this status is rigorously maintained and that all potential sources of disease agents be prevented from entering the SEZ, and especially the livestock area. Target diseases for cattle would include Anthrax, Brucellosis, Contagious Bovine Pleuropneumonia, FMD, LSD, and RVF; other diseases could be included depending on the attitude of veterinary authorities of importing countries and regional disease patterns. Thus biosecurity procedures must include the following:

**Written protocol widely circulated and enforced.** In consultation with the Sudanese and Egyptian Veterinary Authorities, and taking the recommendations of the OIE into account, a biosecurity protocol would be agreed, widely publicized, included in all SEZ staff training programmes and rigorously enforced. The latter will require a highly disciplined environment.

**Segregated livestock area with gates.** It is important that livestock be kept in separate pens in a segregated area made secure with fences and gates in order to maintain their quarantine and animal health status and to minimize the chance of cross-infection from any disease that does enter the SEZ

**Control of movement of people, vehicles and goods.** As these are potential sources of infection they must be strictly controlled. Staff employed by the SEZ must not have contact with livestock outside the SEZ and they must shower and change into clean overalls at the entry point to the SEZ. Vehicles must be clean and pass through a disinfectant bath at the boundary of the SEZ. Goods must be inspected to ensure cleanliness.

**Consistently high levels of inspection of livestock and internal surveillance.** The purpose here is to promptly identify any cases of disease. Diseased animals must promptly be segregated, examined by the veterinarian, and if a target disease is suspected, appropriate clinical specimens must be obtained and laboratory-tested. Cases of non-target diseases should be treated, and as appropriate the affected animal(s) removed from the SEZ.

**Disease surveillance in surrounding area (10 km from borders).** The purpose of this is to rapidly identify any disease threats from the surrounding area. The Sudanese veterinary authorities should enhance disease surveillance in this surveillance area – this will require heightened public awareness, prompt reporting of disease occurrence by the public, establishment of reporting channels, prompt and thorough investigation of any reports of disease occurrence, and immediate action if a target disease is suspected.

**Disposal of carcasses etc.** Carcasses and other potentially hazardous material (eg faeces from sick animals) must be promptly removed, segregated and destroyed in line with prevailing legislation.

**Contingency plans.** These would be drawn up in consultation with Sudan's veterinary authorities of Sudan (and possibly with the consent of Sudanese authorities, the authorities representing Egypt) and would clearly detail all actions that must be taken in response to:

- occurrence of a target disease in the SEZ;
- occurrence of a target disease in the 10km surveillance zone; and

- any occurrence of a target disease in Sudanese livestock populations which may or may not impact on operation of the SEZ.

Contingency plans must take into account relevant standards and recommendations of the OIE. Periodically SEZ management should organize simulation exercises to determine the readiness and knowledge of staff and to identify deficiencies and inefficiencies in the contingency plans.

High standards of cleanliness and disinfection must be embedded in the routine work of animal handlers and all other staff working with livestock. Supervisors must carry out daily inspections to check on hygiene standards and immediately correct any deficiencies.

For many reasons, including biosecurity, it is important that batches of livestock be kept together in separate pens. When a given batch leaves the SEZ (for slaughter or export) the pen, including floors, rails, gates, feed troughs and water troughs must be thoroughly cleaned of all manure etc. and disinfected. A supervisor should check and sign off these works before any new animals are placed in the pen.

The use of EID ear tags, and scanning animals into and out of the SEZ will mean that up-to-date inventory of all animals in the SEZ is available at any point in time. All disease events and interventions must be recorded in the animal ID database, including date, animal ID number (scanned), signs, diagnosis and any treatment administered. These records will form part of the history of each animal and add value to the data generated during trace-back, and for assessing the efficiency of the SEZ livestock management. These data will assist in assuring meat quality as they will indicate drug withdrawal period and thus inform time of slaughter.

#### **5.18.3 Veterinary preventive medicine program**

It is important that measures be taken to safeguard the health of, and minimize the probability of transmission of disease agents to, all animals from the time that they enter the SEZ market chain until they are slaughtered in the SEZ abattoir or cross the international border into Egypt. The required strategies are described above and include:

- inspections and removal of sick or otherwise unsuitable stock;
- treatment with acaricides as necessary;
- vaccines as required by the importing country;
- quarantine, and isolation of SEZ livestock from surrounding livestock populations thereafter;
- high standards of health care, inspection and prompt and appropriate clinical treatments in the SEZ; and
- maintaining a surveillance area around the SEZ

#### **5.18.4 Import animal health protocols for live animals and meat for both countries**

There are few official imports of livestock into Sudan. The inward movement of cattle from northern Ethiopia (some tens of thousands of cattle per year) is recognised and regulated by an agreement between the veterinary services of the two countries. Thus animals are inspected on the Ethiopia side of the international border, vaccinated as required and corresponding animal health certificates issued.

The Sudanese veterinary services have increased the numbers of check points along the Ethiopian border to increase chances of intercepting groups of cattle being moved into Sudan and checking documentation, health etc.

There are believed to be very few inward movements of livestock from Libya, Chad, South Sudan and the Central African Republic. However vigilance is needed as FMD is enzootically established in these countries, and CBPP has been reported from Central African Republic, Chad, South Sudan as well as Ethiopia and Eritrea.

### **5.18.5 Other measures**

At least one experienced veterinarian should be employed to oversee clinical treatment, biosecurity, pre-admission activities, use output of disease monitoring unit to inform sourcing of livestock, liaise with GDAH etc. The veterinarian should be supported by 2 para-veterinary worker per 1000 VLUs in SEZ. There is also provision to staff the IVC and SEZ-specific quarantine station which must be monitored by MoARD staff who are responsible for signing the international animal health certificate that must accompany all export shipments.

### **5.18.6 Wadi Halfa quarantine**

Decentralization can seriously constrain effective control of transboundary animal diseases (TAD's) as the Federal Veterinary Services have national responsibility but little authority at the field / implementation level and the state veterinary services have authority at the field level but little real national responsibility. Lines of responsibility and authority are not coordinated and linked for the common good.

It is the task of the Federal Veterinary Services to formulate national TAD control/prevention policies, but the responsibility for implementation of these policies is usually devolved to States/Regional Governments. The state governments may each have their own priorities for use of animal health budgets (for example they may wish to appease small scale farmers – and voters – by providing free/subsidized veterinary clinical services at the expense of public good services such as TAD vaccination, disease surveillance, etc) or different ideas regarding disease control strategies, or different approaches to disease surveillance, information management etc.

Thus it can be difficult to agree upon and implement an effective nation-wide policy for TAD prevention and control.

A number of strategies have been developed to mitigate this federal – state challenge, including:

- Maintaining the direct nation-wide authority of the Federal Veterinary Services in a limited number of public good services such as the export certification process, veterinary public health inspections at export abattoirs, implementation of high-priority disease control programs (as was the case in many countries for Rinderpest eradication).
- Developing national disease control and disease surveillance strategies in close consultation with the veterinary departments at State level and in this way promoting cooperation and compliance.
- Promoting cooperation by the States in implementation of national disease control policies by provision of direct and targeted inputs (vaccines, finance, vehicle running costs etc) by the Federal Veterinary Service.
- Establishing excellent communications channels and information flows between the Federal and State Veterinary Services. This promotes understanding, increases the technical capacity of State Veterinary Service staff, and promotes the flow of disease occurrence data.
- Providing expert Federal-level field teams to assist the State Veterinary Services in investigating and identifying cause of, and managing containment of outbreaks of serious diseases.

Sudan has a federal system of government and utilizes a mixture of the strategies listed above to promote understanding and uniform implementation of nationwide disease control strategies and surveillance methods. This is proving successful.

Egypt in comparison has a centralised system of government and the central veterinary services has, through the Governorate veterinary services, direct authority over all veterinary staff and implementation of disease control and surveillance strategies.

The requirement for quarantining all livestock before they enter the SEZ has been discussed in the earlier sections 5.15 - 5.18 of this report. For the purposes of the SEZ, quarantining export livestock



is the responsibility of Sudan and must comply with the yet-to-be negotiated requirements for Egypt and other potential importing countries. The quarantine facility cannot be within the SEZ, but should be sufficiently close to the SEZ that animals transported from the quarantine to the SEZ are not exposed to any disease risk en route. There is an operational quarantine facility at Wadi Halfa from which livestock must be transported by (cleaned and disinfected) trucks to the SEZ at Asgait.

The Wadi Halfa quarantine station may require some expansion from the current capacity of 1,200 head of cattle. Current plans envisage increasing capacity for a further 1,000 head of cattle, and further increases would depend upon the rate at which animals pass through the SEZ and the precise requirements of importing countries, which are subject to negotiation. In principle the expanded facility could handle a maximum of 26,000 head of cattle per year (2,200 head per cycle, and 12 cycles per year, allowing one week for cleaning after destocking).

Some upgrading is required, for example construction of an access road, livestock handling facilities (races and crushes to facilitate examination of animals, collection of specimens etc), isolation pens, and more unloading ramps (depending on throughput).

An alternative to using the Wadi Halfa quarantine would be to construct a new quarantine facility closer to the SEZ. Precise location must take into account available resources of water, labour etc. and be sited a sufficient distance from the SEZ to exclude possibility of spread of a transboundary animal disease from the quarantine to the SEZ (at least 10 km, according to OIE Code 2011, Article 8.5.14).

## 5.19 SLAUGHTERHOUSE AND MEAT PROCESSING

The slaughterhouse and meat processing facility is designed to be appropriate for the setting and the scale of the anticipated throughput. The abattoir has a throughput level of approximately 180 head of cattle per day and approximately 400 head of small stock. An abattoir with this capacity is an efficient match for the scale of demand projected to emerge in the Egyptian market. The scale is compatible with the off take and seasonal availability of Sudanese livestock. Further, a plant of this scale is compatible with the labor pool, infrastructural, energy and transport characteristics of the region surrounding Asgait.

### 5.19.1 SEZ livestock holding and abattoir capacity

Estimated average monthly and annual livestock numbers for the SEZ livestock holding areas and the SEZ Feedlot are summarized in Table 32. These are based on historical live exports to Egypt and numbers for the economic operation of a feedlot of 4,500 head capacity and of an abattoir of approximately 180 cattle, 400 sheep and goats per day kill for 21 – 22 days per month.

Table 32: Monthly and annual SEZ livestock numbers

Livestock Numbers	Monthly	Annual	Detail
Feedlot Cattle	1,125	13,500	
Export Cattle	2,000	24,000	2011 Export 20,026 hd
Slaughter Cattle	3,780	45,360	180/day for 21 days/mth
<b>Total Cattle</b>	<b>6,905</b>	<b>82,860</b>	
Export Sheep	2,000	24,000	2011 Export 20,000 hd
Slaughter Sheep	4,200	50,400	200/day for 21 days/mth
<b>Total Sheep</b>	<b>6,200</b>	<b>74,400</b>	

Export Goats	1,000	12,000	
Slaughter Goats	4,200	50,400	200/day for 21 days/mth
<b>Total Goats</b>	<b>5,200</b>	<b>62,400</b>	
Export Camels	6,650	79,800	2011 Export 78,170 hd
Slaughter Camels	-	-	
<b>Total Camels</b>	<b>6,650</b>	<b>79,800</b>	

The abattoir will incorporate separate slaughter lines for cattle and small stock. Efficient and hygienic processing of livestock would likely be best conducted on a simple mechanized chain for cattle with table/bed dressing. For small stock, several fixed rails may be appropriate. Viscera will be handled through use of gut buggies rather than eviscera wash trays. Offal retrieved from the cattle and small stock belongs to the livestock owner, however the skins, hides and bones will be the property of the SEZ and will contribute somewhat to the entity's income stream.

After slaughter and dressing, beef bodies and small stock carcasses will be placed in chiller rooms for up to 18 hours. Beef bodies will then be quartered and deboned into primal cuts, or to buyer's order, cartoned and prepared for transport to market by refrigerated vehicle. Small stock carcasses will be deboned and cut into 3 – 4 primals and then handled in the same way as described above. Transport costs to market are to the buyer's account and the products are not released to buyer's agent until processing and chiller fees have been paid to the SEZ.

The key aims of the proposed layout are for the slaughter facility are as follows:

1. Ensure overall hygiene of equipment, perimeter, and building fabric.
2. Enable proper receipt and ante-mortem inspections to occur.
3. Provide for segregation and appropriate handling of sick, injured or diseased stock.
4. Ensure that livestock movement is terminal i.e. animals cannot re-enter the marketplace.
5. Gain control of the slaughter and dressing areas to enable separation of clean and dirty processes.
6. Provide for segregation and destruction of condemned materials.

The report presents a preliminary plan only for the meat processing facility. Formal layout, dimensions, elevations and other aspects are the subject of a separate exercise. A diagram of a layout for this part of the SEZ is presented at Appendix 3. The main component parts for the abattoir operation are presented in Table 33.

Table 33: Component parts for meat processing facility

Component	Comment
Livestock entry	Livestock coming from livestock holding yards enter complex here
Livestock Unloading	Takes livestock delivered by truck
Yards	Livestock kept here in groups awaiting slaughter; segregation of different owners' livestock arranged by labour or by pen; animal health inspection occurs here.

Component	Comment
Sticking area	Livestock are slaughtered and bled
Slaughter floor	Tasks including hide / skin removal, evisceration and inspection occur here along with head inspection, removal of paunch. Important to ensure carcass dressing tasks (hide removal, evisceration and removal of paunches) are kept separate from meat processing and offal retrieval tasks.
Offal room	Separate area for handling and packing of offals
Refrigeration room	For offals or other separately packed product
Boning area	Bovine carcasses boned out.
Rendering	Receives bone and fat from slaughter and boning tasks for processing into meat and bone meal and tallow and any other waste or condemned material.
Load out area	Product is loaded out to trucks for distribution to markets
Workshop	Area for maintenance and repair of equipment and machinery
Chillers	Beef sides/quarters and small stock carcasses are placed in refrigeration awaiting further processing or dispatch
Amenities	Change rooms and washing areas for abattoir staff

Allowance in the rendering department has been made for a continuous low temperature render vessel and pre-breaker to process mainly bones from the SEZ facility's boning room.

There is no provision for processed meats in the first stage as there will be no raw material generated for this purpose. The deboned product is being sold for distribution in Egypt and will be transported in chilled form along with offal's from the respective carcasses. Bone waste goes to rendering.

Hides and skins are important to the tanning operations throughout Sudan, particularly in the Khartoum vicinity. Hides exported from Sudan attract a 15% export tax but it is assumed that this would not apply for hides sent out of the SEZ. Further investigation with Sudan Customs may be required. The relatively small quantity of hides and skins however would make a tannery operation at the SEZ costly: a better alternative is salt pickling and brining for the skins and hides respectively. The skin and hide treatment area allowed for in the budget comprises a series of raceways (large vats in the shape of a figure 8) which serve to stabilize the material after fleshing occurs. Hides and skins are rinsed several times, then transported in brine-filled vats or stacked in a dry tower with large quantities of salt applied to the inside surfaces.

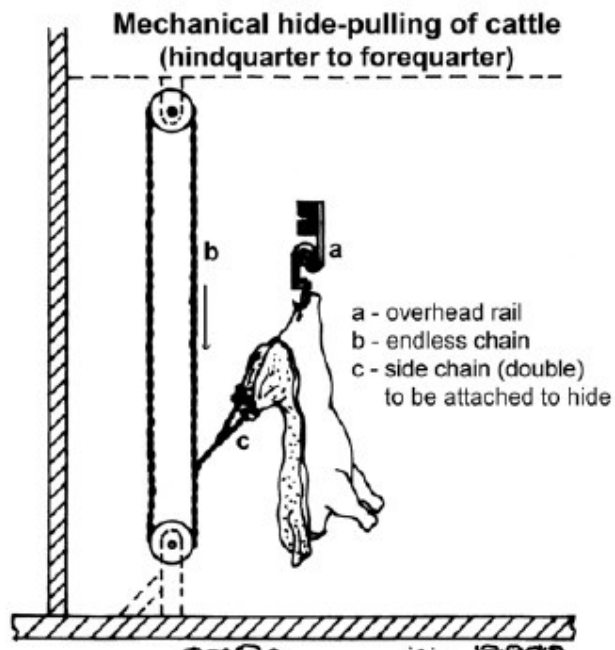
### 5.19.2 Recommended items for livestock slaughter facility

#### 5.19.2.1 Cattle slaughter

Item Description
Stunning Box

Item Description
Stunning Pistol
Rodding Tool and Sterilizer
Hock Cutter
Blood Collection Vessel
Electric Hoists
Change Over Station
Platforms Electric – Galvanized
Rail system Galvanized
Hooks and Shackles
Sterilizers / Hand Washes
Hygiene Equipment
Breastbone Saw
Splitting Saw
Head Wash Cabinet
Evisceration Hoist / Rail
Supports
Offal / Evisceration Vessels
Carcass Washing Cabinet
Chutes - Racks – Tables
Hooks Small Tools
Miscellaneous Equipment
Quartering Equipment
Mechanical Hide Puller (see illustration at Figure 22)

Figure 22: Illustration of mechanical hide puller for bovine animals



Source: Heinz

### 5.19.2.2 Small stock slaughter

Item Description
Stunning Box
Stunning Gun Electrical
Landing / Sticking Table
Blood Collection Vessel
Rail system Galvanized
Stands or Cradles for Skin Removal
Sterilizers / Hand Washes
Hygiene Equipment
Supports
Offal / Evisceration Vessels
Miscellaneous Equipment

Figure 23: Skinning cradles for small stock and bovine animals



Source: Heinz

## 5.20 WASTE AND OFFALS

There are several ways to handle manure from the livestock area and the feedlot. Manure and waste feed will be stockpiled and sold as soon as possible after cleaning from the yards. This should be composted and utilized as fertilizer on fodder production areas, or sold through the fodder market. Paunch contents can be dry-dumped at a remote site.

### 5.20.1 Recommended equipment

Item Description
Hygiene Equipment
Bins and troughs
Manure Spreader and cart

Source: SRA

## 5.21 MARKETING FACILITIES AND PROGRAM

The livestock holding area and marketing grounds are designed to facilitate interaction between buyers and sellers.

Figure 24: Examples for the livestock holding area in the SEZ





If livestock are being fed from open feed troughs, the pen width must be adequate to provide the required trough length for the number and size of animals being fed in the pen. Open feed troughs should preferably be located along the up-slope side of the pen and it is preferable for self-feeders to be filled from outside the pens to prevent any access problems.

## 5.22 FODDER

All diets formulated for use in the feedlots are to be nutritionally balanced and designed to provide sufficient nutrients and palatability for the production, maintenance and health of livestock and to ensure that digestive upsets are minimized.

Access to an adequate supply of good quality water is essential for the survival, welfare and performance of livestock. Adequate water trough space should be provided. The water requirement of a 250 kilogram animal during hot weather may be up to 50 litres per day in hot weather. Sheep will require up to 10 liters and goats up 8 liters. An individual shut-off valve should be provided for each trough to enable maintenance to proceed with minimal disruption to other areas of the feedlot, and to minimize pen flooding if the trough is damaged, or during cleaning.

Lower volume, shallow, narrow troughs are preferred to higher volume types to reduce the flushing volume generated during regular cleaning operations.

### 5.22.1 Lot feeding

Feed production should be based on Least Cost of Gain (LCG) rations maximizing Average Daily Gains (ADG) and Feed Conversion Ratios (FCR) performance by using Total Mixed Rations (TMR), utilizing available commercial concentrate feed, imported raw materials, agricultural by products and grain depending on the relative prices and nutritional values of the feeds available at the time. Storage facilities consisting of feed bunks and silos are to be constructed to enable the project to optimize the purchase and storage of suitably priced feed as and when available.

### 5.22.2 Rations formulations

Rations should be formulated for different categories of stock and the time that they have been in the feedlot. Percentage dry matter of the ration has a considerable impact on the tonnages fed, and as a result, trough space that is required in order to supply optimum dry matter per head per day. For the first 3 days after arrival (days 1-3) Ration A should consist of about 80% forage, for the second three days (days 4-6) Ration 2 forage is reduced to about 60% and for the next three days (days 7-9) Ration C forage is reduced to about 40%. If cattle are for slaughter or only

short feed they may continue on Ration C, whereas feeder cattle may go on to other rations which have a lower percentage of roughage, depending on the target market and ADG requirements. Rations should also be adjusted, depending on the availability and price of raw materials and manufactured concentrate feed at the time, to ensure Least Cost Rations (LCR) for Least Cost Gain (LCG).

### **5.22.3 Animal feed mill or total mixed ration (TMR)**

Feed mills are high capital cost and operating costs are also commensurately high at around USD60 per ton because of their high energy use. A more economical and nutrient-efficient approach is to use Total Mixed Ration for the livestock in the market area and in the feedlot. The term TMR is used to describe the practice of weighing and blending all the necessary feedstuffs such as forage, grains, protein supplements, minerals and vitamins into a complete ration which provides adequate nourishment to meet the needs of livestock.

Figure 25: Fodder production near Wadi Halfa



## **5.23 LIVE ANIMALS, MEAT, FODDER AND OTHER PRODUCTS TRANSPORTING**



Currently, cattle and sheep are trucked to the Wadi Halfa quarantine area. Transport by truck is the only feasible method to move them to the SEZ at Asgait: if the same vehicles are used they must be subject to rigorous and regular cleaning to ensure there is no potential for spread of disease.

Fodder brought for sale at the market will be transported by the buyer. Similarly, other input requirements are the responsibility of the individual enterprise.

## 5.24 INFRASTRUCTURE INCLUDING ROADS, RAILWAY, AIR, POWER, WATER SUPPLY

The site visit identified the presence of a main transport route northwards from Khartoum to the northern border region. Transport from Asgait to Egypt is more challenging, however, a new high-grade road is currently being constructed which will assist in transporting live animals and refrigerated material to the population centers along the Nile and towards Cairo. As noted above, the rail link to Wadi Halfa is currently not in use. There is no airfield nearby and airfreight costs would be prohibitive for the relatively small volumes being discussed for the SEZ. Transport by road is deemed to be the most time-efficient and cost-efficient.

It is assumed that utilities including water supply are connected to the site for the SEZ at Asgait. The facility will need power for machinery, refrigeration and lighting; water for process operations, amenities and accommodation; and natural gas for boiler operation. LPG will also be required for forklift operation and similar vehicles.

It is envisaged that the energy and water requirements for the facility will be in the order of those presented at Table 34. Of course any change to throughput levels would consequently impact on utility use, including water use.

Table 34: Estimated utilities use (per annum)

Utility	Uses	Estimated consumption p.a.
Water	Process use; cleaning; animals' use; accommodation; rinsing offals; rinsing paunches; amenities.	320-380 ML
Electricity	Operation of refrigeration facilities; lighting; power for slaughter chain potentially.	1310-1350 MJ
Natural Gas	Gas-fired boiler for hot water; for rendering plant.	45,000 -55,000 GJ

## 5.25 OFFICE FACILITIES FOR SEZ ADMINISTRATION AND GOVERNMENT DEPARTMENTS

Provision is made in the SEZ preliminary plan for office space for government officials (e.g. Customs, veterinary and animal health workers).

## 5.26 ACCOMMODATION FOR SEZ STAFF AND MANAGEMENT

Casual accommodation is provided in the preliminary plan, adjacent to the livestock market. This may accommodate approximately 70 people in prefabricated buildings with basic amenities, with self-catering for workers. The preliminary plan also allows on-site accommodation for up to three SEZ managers.

## 5.27 SEZ SITE SELECTION AND RELATION TO CUSTOMERS AND SERVICES AVAILABILITY

The proposed SEZ site is Asgait. It is well-removed from the quarantine at Wadi Halfa. It is situated on the main road travelling north to the Egyptian market. The border immigration post is adjacent.

## 5.28 SEZ SITE LAYOUT

The SEZ is based on offering and maintaining disease-free livestock. Animals may only enter from the Sudanese quarantine system, complete with papers and vaccination certificates. Livestock entering the SEZ will become part of an identification (ID) system and this ID track will follow them through to the market in Egypt. The ID system will identify the quarantine origin of the stock, the dates of entry and egress from the SEZ and ownership details. The map at **Error! Reference source not found.** shows terminal quarantine centers in Sudan as at 2007.

### 5.28.1 Overview of the SEZ facility

The SEZ signifies the commitment of the Sudanese government to mutually beneficial trade with Egypt through the provision of clean, disease-free meat and livestock to this growing market. The SEZ is a vehicle to guarantee the wholesomeness and security of supply of these items to the Egyptian market.

It is envisaged that initially the SEZ will be constructed and operated by a government or potentially an international body in order to substantially bolster trade with Egypt. At a future date, the facility may be leased to a private concern for operation. It is expected the Government of Sudan will maintain a long-term involvement in the facility through at least membership of the Board of Directors in order to ensure that relations with its major trading partner, Egypt, continue to be cordial and positive in regard to these products.

Financial aspects of the project discussed below treat the SEZ and its components as one entity including capital costs, revenue and operating expenses. Revenue will come from services provided (livestock marketing, cattle feedlotting, slaughter and deboning, fodder sales, sale of veterinary vaccines and medicines). The SEZ will not own the livestock: these will be bought and sold either prior to arrival at the SEZ using the traditional marketing systems referred to earlier in the report. Alternatively, it is expected that transactions will also be finalized between sellers and buyers from Egypt in the livestock holding area. Buyers are charged a weekly fee to enter the livestock holding area. Sellers pay a fee per head of livestock entering the livestock holding yard. Other enterprises charging fees to SEZ users are a fodder market, feedlot, abattoir/boning room, laboratory and veterinary products unit.

A list of the proposed SEZ facilities along with estimated capacities is shown at Table 35.

The rendering and vaccines production unit derive income from outside the SEZ through sale of products manufactured in the SEZ.

Livestock holding facility – livestock enter this area from approved quarantine facilities further back in the supply chain and approved by DVAH Sudan. From here livestock may be exported live to Egypt or processed through the abattoir, the carcasses chilled and either boned out or transported to markets in Egypt.

Feedlot – capacity for a small proportion of cattle, cleared through the quarantine centre, to be fattened in readiness for the Egyptian market. These may be exported live, but more likely will be processed and deboned through the SEZ abattoir facility.

Abattoir and boning room – Cattle and small stock are slaughtered in the SEZ abattoir. Carcasses are refrigerated in the chillers for the requisite time prior to either (a) quartering of beef carcasses and transporting to market; or (b) quartering and deboning of beef carcasses into primal, packaging and shipment to markets. In the case of small stock, carcasses are chilled and deboned.

Hide brining and skin pickling plant – in deference to the considerable existing investment in leather tanneries already in Sudan and Egypt, the SEZ will not restrict supply of raw material from

these facilities but will instead process these materials by brining for shipment back to Sudan or on to Egypt.

Veterinary vaccines manufacture centre – this unit will manufacture relevant vaccines for distribution to the livestock industry throughout Sudan. Potentially it could supplement the vaccine production needs of the GDAH as total vaccine production must be increased substantially to support implementation of the new disease control strategies being progressively undertaken by GDAH. This includes for example the vision for the vaccination of 75% of small ruminants against PPR and Sheep and Goat Pox (SGP) - giving an initial requirement for some 52 million doses of each vaccine, and then some 14 million doses per year thereafter.

Laboratory – will perform required tests for livestock in the SEZ as required by veterinary officials.

SEZ Administration Centre – oversees the general functioning of the SEZ precinct and revenue collection.

Fodder market – offers for sale fodder crops grown on irrigated pastures in the region

Veterinary products unit - makes vet services available to livestock owners.

### **5.28.2 Description of how the SEZ functions**

Live animals exported from Sudan to Egypt are required to go through the SEZ at Asgait, Sudan. Camels, cattle, sheep and goats can only be admitted to the SEZ if they have come from the Sudanese government quarantine facilities located at various points around Sudan. Livestock must be transported to the SEZ without coming in contact with other livestock that have not been vaccinated or passed veterinary inspection for the major diseases. There is no quarantine facility within the SEZ, as any disease outbreak there would compromise the health status of all animals in the SEZ.

Cost of transporting livestock to the SEZ is borne by the livestock owner's or buyer's account. Animals enter the SEZ through the Customs gate and receipt documentation is raised and held along with appropriate quarantine and vaccination certificates. Livestock not already sold prior to entering the SEZ are available for sale to Egyptian livestock buyers. Livestock are fed a total mixed ration (TMR) which is blended in the SEZ's feed area using components grown in neighboring irrigation areas and imported onto the SEZ. Buyers may select for their cattle to go into the beef feedlot which will provide concentrated superior feeding.

Feedlot cattle should be slaughtered at the SEZ facility rather than exported live to Egypt, or they will lose condition and body weight during transport. Hides and skins from the abattoir undergo preliminary processing in the brining/pickling plant. Offal byproducts are harvested, packaged and chilled then transported to market with the carcasses and cartooned meat products. Costs of transporting carcasses and cartooned product to the market are to the owner's account. Livestock and products are not released for export until all payment is approved for relevant charges and fees.

### **5.28.3 All facilities including staging areas**

The facilities incorporated in the physical site are listed at Table 35. The building dimensions are shown below in Table 38.

Table 35: List of SEZ facilities

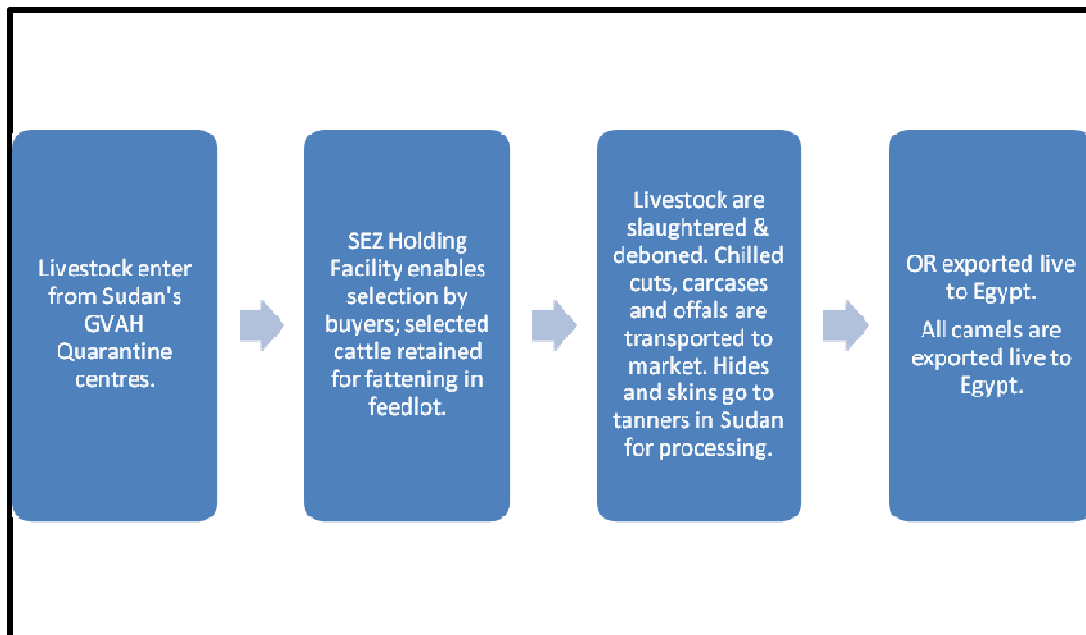
1	SEZ administration
2	Livestock holding facility (camels, cattle, sheep, goats)
3	Feedlot (cattle)
4	Abattoir (cattle, sheep, goats)

5	Hide brining and skin pickling facility
6	Rendering
7	Fodder market
8	Laboratory
9	Drug and vaccine production unit
10	Veterinary Products & Services

The diagram at

Figure indicates the process flow through the SEZ for all species of livestock.

Figure 26: Process flow for livestock through the SEZ



#### 5.28.4 **Power and water costing and availability**

The team's advice is that power, gas and water will be available in the Asgait vicinity upon completion of the border checkpoint currently being constructed. Costs of connection to the SEZ site will depend upon the exact location chosen for the SEZ and will require appropriate surveys. The capital expenditure budget provides broad estimates for the costs of connecting services within the SEZ.

#### 5.28.5 **Waste disposal**

Waste from the feedlot and abattoir will enter a simple wastewater treatment system using sedimentation ponds. It is assumed that evaporation rates in the precinct are high and that runoff will be a low order possibility. Disposal of inorganic waste including packaging will be either

through burial or municipal collection. A septic waste system will be used for accommodation quarters, amenities and communal facilities.

#### **5.28.6 Animal feed**

Livestock will be fed TMR and locally-produced fodder will also be sold through the SEZ's fodder market. (The team was advised feed material is grown in irrigation areas adjacent to Asgait and in the surrounding districts and the SEZ plan allows for this to be sold in the SEZ by those parties. Further, the governor of the region has stated that more land can be made available for fodder production in connection with the SEZ.)

It is estimated that the livestock capacity of the SEZ will require in the order of 19,000-20,000 metric tons of dry feed per annum as shown in

Table 36 (assuming 30 days' feeding for feedlot cattle and an average of 5 days for slaughter cattle, small stock and camels). This right-hand column in this table shows estimated feed requirements per annum for all species in the SEZ. The fodder market is sized to accommodate this order of volume per annum (see item 7 in Table 37).

Feed costs are incorporated in the SEZ operating costs reviewed later in the report.

Table 36: SEZ feed requirements for livestock in SEZ & feedlot (tons dry matter per annum)

	<b>Unit</b>	<b>Total</b>
<b>Feed Requirement Kg/hd/day</b>		
Feedlot Cattle	11.04	12,295
Export Cattle	10.00	1,200
Slaughter Cattle	10.00	2,268
<b>Total Cattle</b>		<b>15,762.55</b>
Export Sheep	0.75	90
Slaughter Sheep	0.75	189
<b>Total Sheep</b>		<b>279</b>
Export Goats	0.54	32
Slaughter Goats	0.54	136
<b>Total Goats</b>		<b>168</b>
Export Camels	8.25	3,292
Slaughter Camels	8.25	-
<b>Total Camels</b>		<b>3,292</b>
<b>Total Feed (MT)</b>		<b>19,501.78</b>

#### **5.28.7 Rest house to accommodate pastoralists**

The preliminary plan provides temporary accommodation in the form of rest houses for pastoralists travelling with livestock from areas outside the immediate SEZ region. It is envisaged this accommodation will be on a self-catering basis.

#### **5.28.8 Streamlined regulatory environment**

The SEZ administrative structure includes a government liaison officer tasked with ensuring operators at the SEZ have fast-track access to licensing and other regulatory requirements from each government, once these concessions are legislated by the respective governments.

## 6 SEZ STRUCTURE, ORGANIZATION, ESTABLISHMENT & OPERATION

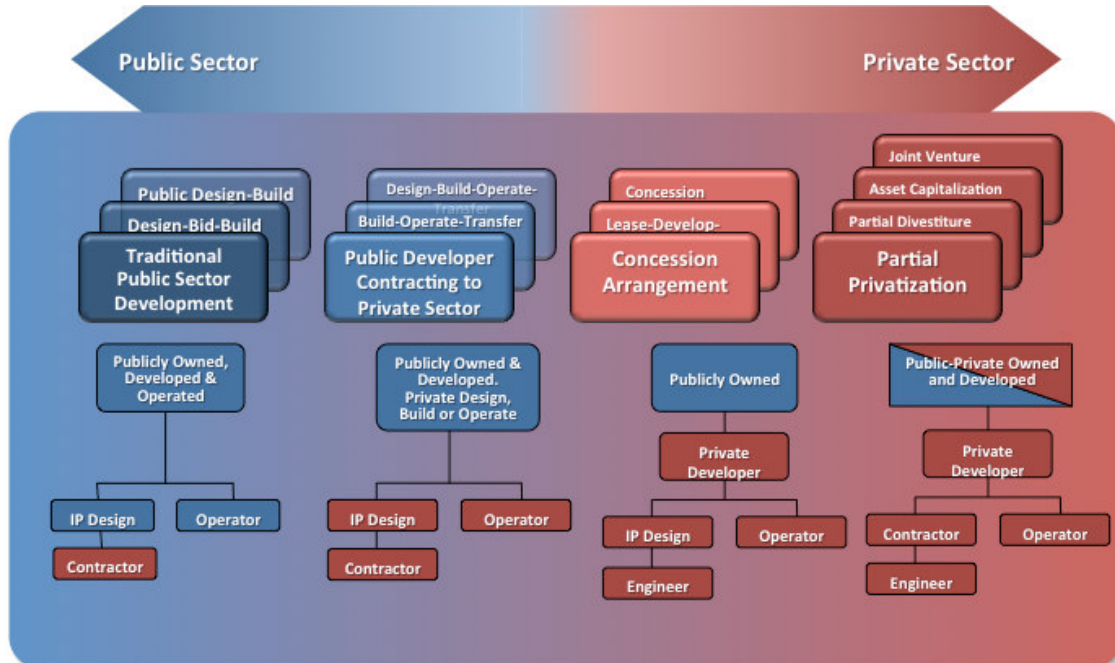
### 6.1 SEZ STRUCTURE WITH DEPARTMENTS

As the proposed SEZ will be located outside an existing Sudanese Free Trade Zone, it will be important for it to be constituted independently of the current SFZ monopoly.<sup>25</sup> This monopoly is not enshrined in the SEZ law, so this should not be a significant obstacle.

Best practice in SEZ development strongly indicates that private sector participation in the financing, operation, and management of an SEZ should be maximized to the greatest possible extent, under the oversight and governance of public entities.

In the current FDI climate, the relevant governments may wish to fund the bulk of the development cost, including both on-site and off-site infrastructure. It may also be possible to attract private companies to operate the zone on a management contract or concession basis. Figure illustrates the continuum of private sector involvement in SEZ development and operation, from a wholly publicly-owned and operated facility at the one end, through to a facility which is jointly owned and developed in a public-private consortium. It is likely that the eventual configuration for development of Sudan's livestock SEZ would be public ownership and development, but with substantial contracting to private companies for design, construction, and operation. It is critical to avoid in the long term having a single body that both regulates and operates zones.

Figure 27: Continuum of public and private participation in SEZ development and operation



Source: IFC

<sup>25</sup> The draft regulations shown at Appendix 2 suggest the new entity be termed the Sudan-Egypt Special Economic Zones Authority (SESEZA).

Evolving international practices in zone development and governance tend increasingly towards individual governance arrangements for each SEZ under the umbrella of a national governance framework. This allows greater participation by local government authorities and organizations in governance of zones in their local areas, while also involving private developers, operators, and tenants.

The recommended structure for the livestock SEZ would therefore be a Board of Directors under the authority of the National Council of Free Zones and Markets. This Board may include representatives of the Ministry of Finance, Ministry of Animal Resources and Fisheries, Ministry of Investment, Ministry of Agriculture, Ministry of Industry, and Ministry of Foreign Trade – although, for ease of decision-making, it could include one or two representatives of the National Council. The Board may also include, for the state in which the SEZ is located, the state Ministry of Agriculture, Livestock and Irrigation; the state Ministry of Finance, Economy, and Manpower; and the state Ministry of Physical Planning and Public Utilities. A representative or representatives of relevant Egyptian ministries could be included, at the discretion of the Sudanese authorities. In addition, the Board should include representatives of the local government and of any private developers and operators involved in the project, and AOAD. Possibly some livestock producers and traders should also be represented on the board.

The Board should operate with considerable autonomy and should exercise sole responsibility for reviewing and approving, consistent with the SEZ charter, applications by companies to establish operations in the zone.

This report indicates the Ministry of Investment as the ministry responsible for oversight of the SEZ. This is consistent with practices in many countries, including Egypt. Sudan's Free Zone Law, however, does not specify which minister or ministry should have that responsibility, instead referring only to "the Minister designated by the President." In the case of the Sudanese Free Zone and Markets Co. Ltd., the Ministry of Finance and National Economy plays a dominant role, accounting for four out of thirteen seats on the Board. This is also a possibility for the SEZ. Consideration may also be given to placing the SEZ under the responsibility of the Prime Minister. This can be an effective solution when there are numerous ministries with an interest in the project conflicting views, since the Prime Minister can more easily override other ministers' objections. This ultimately is a political decision.

Regardless of which ministry oversees it, the success of the SEZ will depend, to a large extent, on the creation and maintenance of productive working relationships between the SEZ authority and various branches of government. An SEZ is an enclave in which some of the normal rules, regulations, and procedures that govern business activity in a country are fully or partially suspended. This inevitably entails the cession to the SEZ authority of certain powers normally exercised by these other branches of government. Failure of SEZs to achieve their intended results can often be traced to conflict and a lack of effective cooperation between the SEZ authority and other parts of government.

Finance ministries and revenue authorities, for example, naturally resist policies likely to reduce public revenues, and it is almost certain that the fiscal incentives granted to SEZ operators and tenants will, at least in the short term, result in lost revenues. If the tax service refuses to recognize the tax-exempt status of the operator or tenants of an SEZ, it can try to collect taxes from them, even to the point of impounding physical assets pending payment. Although the SEZ must have a customs post either inside the SEZ or outside, adjacent to the gate, other national customs posts at air, sea, or land borders can still insist on performing their own inspections and placing their own assessments of duty payable. The Ministry of Finance at the policy level, and the customs and tax services at the operational level, need not only to be consulted, but also to be truly involved, in the development and operation of any SEZ. At a minimum, such a lack of cooperation creates a

substantial nuisance; at worst, the complete negation of many of the key benefits that accrue to SEZ operators and tenants.

The Ministry of Animal Resources will be an important stakeholder in the SEZ, given its responsibility for animal health and safety, and it is likely to have the power to override any concessions granted to the SEZ in respect of veterinary controls. Its cooperation is therefore essential. The Ministry of Agriculture could also be considered an important stakeholder, especially if feed crops are grown in the SEZ, though in any case the need of companies in the SEZ to purchase animal feed from foreign or domestic markets would place it under the Ministry's purview. The Sudanese Standards and Metrology Organization currently exercises responsibility for food safety, and would have a role to play in certification of meat for domestic consumption and, possibly for exported meat, though creation of a new food safety agency has also been discussed. The Ministry of Health, with its responsibility for nutrition policy, may also have a voice, as will the Ministry of Investment, Ministry of Industry, and Ministry of Foreign Trade. SEZs are sometimes granted partial exemptions from some provisions of the labor code. Whether or not this will occur in the planned livestock SEZ, the Ministry of Labor, Public Service & Human Resources Development has the right and responsibility to ensure conformity with applicable labor laws and regulations.

Depending on where it is located, the SEZ will almost certainly require construction or improvement of roads leading to the site, as well as adequate sources of water. If the SEZ includes a hide and skin processing, treatment and disposal of effluent will be a significant concern. The SEZ authorities will therefore need to establish effective working relationships with the Ministry of Transport, Roads and Bridges, the Ministry of Water Resources and Irrigation, and the Ministry of Environment and Physical Development.

In many countries, a frequent stumbling block for SEZ developers, operators, and tenants is the difficulty of obtaining all the permits, clearances, and approvals needed to construct a building. Sudan's federal system of government reserves substantial powers for state governments. Allocation of public lands and registration of public or private land transfers takes place at the state level, while building permits are the joint responsibility of state and municipal authorities. In Sudan, the various permits, inspections, and clearances – 16 in total - on average take 165 days, not including the 105 days required to get electricity, water, and sewerage connections. The various authorities involved include the state Land Authority, the Municipal Authority, the state Environment and Health Department, the municipal Fire Department, and the state Building Department.

Ideally, each of these authorities would delegate responsibility for activities involving the SEZ to the Board, but the experience of SEZ programs in other countries suggests that this rarely happens. Inclusion of all these Federal and State Ministries and other public authorities seat on the Board of Directors of the SEZ would nevertheless make it unwieldy: instead, regular consultations by the SEZ developer and Board with the cognizant Federal, state, and municipal authorities must take place. The timing and composition of these meetings may vary depending on the stage of development of the project and the specific issues that need to be resolved, but they are essential to the project's success. One mechanism to increase their effectiveness may be to form ad hoc committees, as outlined in the next section.

## **6.2 SEZ POLICIES, LEGAL AND COMMERCIAL REQUIREMENTS**

Regardless of ownership – the SEZ could be wholly government-owned or partially, via a public-private partnership – the SEZ should be constituted as a limited liability corporation under Sudan's Investment Encouragement Act of 1999 and its accompanying regulations. The Free Zones Act grants free zone developers, operators, and tenants virtually identical incentives to those specified in the Investment Act, and includes tax and duty exemptions, protections against expropriation, and free transfer of profits and capital.



The SEZ management will report to a Board of Directors, comprising both public and private sector representatives as described below in Section 6.5. If Egyptian public or private sector investors contribute to financing the zone, they could also be represented on the SEZ Board.

In addition to a Board of Directors, the Investment Law of 1999 provides for creation by the responsible Minister of a committee comprising both private and public interests, one purpose of which is to “co-ordinate between the Ministry and the concerned Ministries and the states in relation to the investment project.” It is recommended that the Board constitute such committees at different phases of the project cycle, to ensure that all principal stakeholders have a voice.

Although the SEZ is intended to facilitate cross-border trade in livestock and meat between Sudan and Egypt, it is recommended that it be located entirely in Sudan, and subject only to Sudanese law. Otherwise, if the SEZ were to straddle the frontier between the two countries, its legal structure would be substantially complicated, and new legislation might have to be passed in both Sudan and Egypt. This could delay the implementation of the project and create uncertainty for private investors, who might hesitate to operate in such ambiguous conditions.

### 6.3 ORGANIZATION STRUCTURE

An organogram for the SEZ is presented at Figure . This provides an overview of the proposed structure of SEZ day-to-day operations. Each of the proposed enterprises falls into one of the section headings with middle level management personnel. There is an SEZ maintenance area which can undertake repairs for the SEZ precinct and potentially for the enterprises with the area. The senior officers for these areas answer to the General Manager of the SEZ. The estimated number of workers in each of the enterprises and the SEZ administration is shown at Table 35.

### 6.4 SEZ STAFFING ORGANOGAM, PERSONNEL, QUALIFICATIONS AND EXPERIENCE REQUIRED

Figure 28: Organogram of SEZ administration

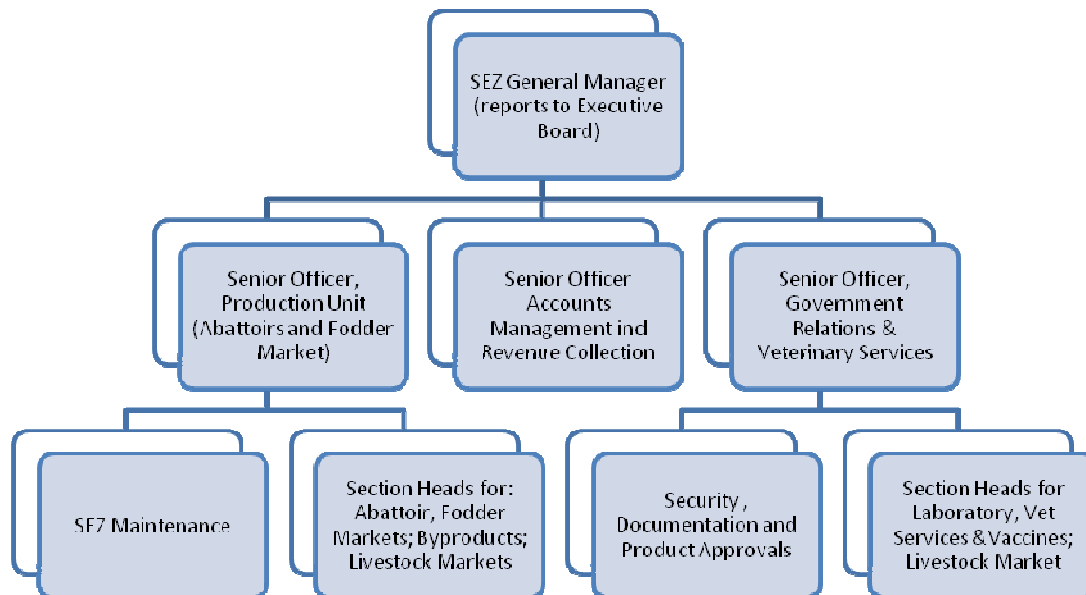


Figure 29: Suggested staffing qualifications and experience

Title	Role	Qualifications/ Experience
SEZ Board of Directors	To guide decision-making about the SEZ and its activities for the attainment of the entity's aims (see Article 5.10 section d).	Appointed by the relevant ministries of the Government of Egypt and the Government of Sudan.
SEZ General Manager	Operation of the SEZ. Reports to Executive Board	Private sector management experience with a tertiary degree in either finance or public policy.
Senior Officer, Production Unit (Abattoirs and Fodder Market)	Liaises with abattoir, meat processing and live animal enterprises	Management experience in an abattoir, meat processing facility, or similar
Senior Officer, Government Relations and Veterinary Services	Reports to GM, liaises with Sudan and Egypt government, also promotes SEZ, controls approval of livestock into and out of SEZ	Qualified veterinarian with regulatory and compliance experience.
Accountant	Reports to GM	Accounting and audit qualifications
Section Head, Abattoir	Oversee operation of abattoir, compliance with animal ID system, plant and animal hygiene and	Abattoir and processing experience; marketing of meat products.
Section Head for Feedlot & Fodder Market	Oversee operations at fodder market including consistent access to fodder supplies, cleanliness, feeding program for feedlot animals.	Feedlot management skills with experience in fodder acquisition and quality testing.
Section Heads for Laboratory, Vet Services & Vaccines.	Oversee operations in laboratory and other science facilities including vaccine program.	Veterinary qualification.
Section Head, Byproducts	Oversee byproducts processing, rendering facility operation and processing of hides and skins for sales back to tanners.	Skin or hide sales; trading experience.

## 6.5 SEZ BOARD STRUCTURE AND OPERATION PROCEDURES

The composition of the Board should reflect the mutual interests of the joint owners of the SEZ and should therefore include representatives of private investors (typically representing the developer and operator) and public sector stakeholders, representing Federal, state, and municipal officials serving *ex officio*. Based on the principal stakeholders mentioned above, the Board should have no fewer than 11 and no more than 15 members, at least five of whom must be from the private sector. Board members will be chosen by the Minister of Investment, and will serve for a term of three or four years. The Board will have the following powers:

- (1) To sue and be sued in such corporate name, and to adopt, alter, and use a corporate seal which shall be judicially noticed;
- (2) To adopt, amend, and repeal its by-laws;
- (3) to enter into, make, perform, and carry out contracts of any kind which are necessary to the realization of its legal purposes with any person, firm, or corporation, public or private;
- (4) to receive donations, grants, bequests, and assistance of all kinds from local and foreign governments and private sector entities and utilize the same;
- (5) to exercise oversight functions over the FTZs/SEZs established under the auspices of the Sudan FZ Law and its Regulations; and
- (6) to promulgate all necessary rules and perform any measures necessary to implement the Sudan FTZ/SEZ regime, provided they are consistent with the actual and implied intent of the FZ Law and these Regulations.

Other details about the operations procedures for the Board are set out in Appendix 2.

## 6.6 SEZ REGULATIONS AND LEGISLATION REQUIRED

No new legislation is required to establish the SEZ. The 2009 Law on Free Zones and Markets governs the establishment and operation of free zones in Sudan, replacing the 1995 Free Zones Law. The law provides a standard set of tax and duty exemptions, as well as protection against expropriation, and free repatriation of profits and capital. The law also provides for a National Free Zones Council, which governs free zones and provides recommendations to the Council of Ministers on establishment of new zones and on policy and administrative dispositions, including any modifications to incentives and privileges specified in the law. As discussed in Section 5.5 above, the extent to which the law has been fully implemented remains unclear.

There is substantial overlap between the Free Zones Law and the Investment Encouragement Act, particularly with respect to governance and incentives, though the Investment Encouragement Act contains greater detail on responsibilities, powers, and procedures. One of the few apparent differences between the two laws is that companies that benefit from incentives under the Investment Encouragement Act are subject to a 3% development tax, while free zone companies may not (this is ambiguous at best in the Free Zones Act).

Although no new legislation is required, there are no implementing regulations for either the Free Zones Law or the Investment Encouragement Act. The latter legislation explicitly gives the Council of Ministers authority to enact regulations:

*“The Council of Ministers, upon the recommendation of the Minister, may make such Regulations, as may be necessary for the implementation of this Act, and without prejudice to the generality of the foregoing such Regulations may include the following matters:-*

- (a) Specification of the type and size of such projects, which may be granted preference privileges.
- (b) Laying down safeguards for prevention of overlapping between federal, state and local investments.
- (c) Specification of the strategic and Non- strategic projects.
- (d) The procedure of application for granting the license privileges, and specifying the type and size thereof.

(e) Specifying the service fees.

(f) Safeguards and basis concerning control and follow-up of such projects as may be licensed under the provisions of this Act.”

The Free Zones Law grants the same power to the National Council of Free Zones and Markets. One advantage of the Free Zones Law is that it does not grant the responsible Minister discretionary power over the kind and duration of incentives given to individual projects. This helps ensure equal competition among all companies, while also reducing opportunities for corruption. It is recommended that the National Council adopt the draft set of regulations presented in Appendix 2 of this report.

## **6.7 TARIFFS, TAXES, FEES, INCLUDING CUSTOMS SYSTEMS, CHARGES**

Sudan and Egypt are both members of the COMESA Free Trade Area, which provides for duty-free trade for most goods, apart from a number of specially exempted items. None of these specially exempted items is in any way related to the trade in livestock, meat, and animal by-products. As stated earlier there are limited or nil benefits from a tariff perspective in the establishment of the SEZ as virtually all goods traded between the two countries are already at nil tariff.

Both the Free Zones Law and the Investment Encouragement Act provide substantial fiscal incentives to investors. In the case of the Free Zones Law, these incentives apply to both free zone developers and operators and free zone tenants. The Investment Encouragement Act offers a 10-year exemption from business taxes for “strategic” projects, and a five-year exemption for “non-strategic” ones. Agriculture and export-oriented production of any kind are considered strategic. The Act also grants duty exemptions on imports of capital equipment and raw materials. The responsible Minister may extend the exemptions beyond the limits stated in the law, and may grant other, unspecified, incentives.

It is important for an SEZ or a Free Zone to have proper entry and exit controls. Apart from proper fencing of the site, there should be a customs post at the gate of the zone, to record – and inspect, where necessary - all goods entering or leaving. For containerized export shipments, the customs agents seal the containers. In most instances, a zone developer will provide a building for customs operations, and will bear the cost of any overtime work by customs staff.

## **6.8 DISPUTE SETTLEMENT PROCEDURES**

Sudan is a party to the following international agreements:

- The Investment of Arab Capitals in Arab States Consolidated Agreement 1980;
- The Settlement of Investment Disputes between Arab States Agreement 1974;
- The Settlement of Investment Disputes between States and Citizens of Other States Agreement 1965; and,
- The Technical and Trade Cooperation between States Party to the Islamic Conference Organization General Agreement 1977.

These agreements provide a framework for disputes between private investors and the Federal or State governments. Additional dispute resolution provisions may be written into contracts between investors and public bodies in Sudan.

Procedures for dispute settlement are contained in Article 49 of the draft SEZ regulations attached at Appendix 2.

## **PART II**

### **FINANCIAL AND REGULATORY ASPECTS**

## 7 FINANCIAL SUMMARY

The project involves the establishment of an SEZ dedicated to the production, processing and marketing of livestock and livestock products from Sudan destined for Egypt, or other markets within the Middle East region. However two way trade of other goods is also planned such as veterinary medicines and vaccines. The SEZ will be established at the border with Egypt at Asgait with facilities, space and services capable of supporting a number of interrelated but commercially separate SEZ enterprises all operating within a designated, defined area.

While the nature and extent of enterprises permitted within the zone have no formal boundaries, for the purpose of this study the types of enterprise currently envisaged and the capacities of those enterprises are outlined in Table 37. As such, this matrix outlines a typical mix of enterprises and the necessary support resources that could fall within the SEZ, whether located at Asgait or elsewhere.

In planning the overall size, throughput and financial aspects of the various enterprises within the SEZ, the consultants have based their calculations on the likely level of the opportunity perceived for such enterprises in the medium term trade environment and the capacity of the local livestock population to supply the necessary resources to service that trade. In compiling the various five year projection tables, the fifth year has been set as the target and a factor applied to the previous four years to reflect a likely scale of development.

Table 37: Investment facility list

	Activity	Annual Production Capacity	Area (Ha)	Anticipated Personnel	Building Type
1	SEZ administration	Not Applicable	1.17	30	Prefabricated
2	Livestock holding facility - Camels Cattle Sheep Goats	79,800 head 69,360 head 74,400 head 62,400 head	10.00	25	Metal rail and cyclone meshing, concrete feed bunkers and water troughs
3	Feedlot – Cattle	4,500 head per Cycle or 3 cycles per annum = 13,500 head	3.23	24	Metal rail and cyclone meshing, concrete feed bunkers
4	Abattoir Cattle Sheep Goats	45,360 head 50,400 head 50,400 head	1.28	85	Concrete slab, Polyurethane insulated sandwich panels
5	Hide brining facility	45,000 hides			15
6	Rendering facility	Rendering raw material from 45,360 cattle and 100,800 small stock		Concrete slab, Polyurethane insulated sandwich panels	
7	Fodder market	23,000 ton	1.00	15	Concrete slab, meshing
8	Testing laboratory	Est. 4500 samples	0.10	6	Prefabricated
9	Drug & vaccine production unit	70,000 units	0.22	20	Prefabricated
10	Veterinary Products & Services	70,000 head			Prefabricated
	<b>Total</b>		<b>17.00</b>	<b>220</b>	

Approximate building dimensions for specific facilities are shown at Table 38.

Table 38: Approximate and nominal building dimensions (meters)

Site	approx. dimensions	
	Width	Length
Livestock market	360	225
Fodder market	360	22.5
Livestock Market Parking	90	288
Cattle Feedlot	90	256.5
Feedlot Feed Store	135	22.5
Byproducts	58.5	15.75
Lairage	31.5	31.5
Meat Processing	36	90
Office/Reception/Medical Lab	40.5	22.5
Employee Accommodation	45	22.5
Slaughterhouse Parking	31.5	67.5
Market Trader Accommodation	45	18
Accommodation parking	126	58.5
Waste Water Treatment	13.5	58.5
Gate House	9	9
SEZ Customs	9	9

N.B. Dimensions shown above are approximations only for the purposes of illustrating the SEZ facilities.

The SEZ facility will occupy an area equivalent to approximately 20 hectares. This will enable efficient movement of goods, livestock and services through the facility without incurring unwarranted expense for enclosing and fencing an area larger than the facilities require. There is no known optimum size for an SEZ: 20 hectares comprises the listed facilities plus a comfortable and practical buffer. The projected area for livestock holding facilities (see items 2 and 3 in Table 37) is mainly a function of throughput volume, using the Australian Model Code of Practice guidelines for feedlot space sheep and small stock (as quoted in Table 39).

Table 39: Areas for livestock holdings

Pen Space	Model Code of Practice M <sup>2</sup> /hd		Model Code of Practice M2 /hd	
	Cattle @	7.30	Sheep @	1.30

Source: Australian Model Code of Practice - Livestock Welfare Standards

The area allowed for the slaughter facility is compatible with similar facilities incorporating livestock holding areas, two slaughter areas, refrigeration services and waste disposal and other services.

Table 40: Approximate floor area required per carcass

Carcass Type	Approximate Floor Area (m <sup>2</sup> /carcass)
Beef	0.7-1.0
Small-stock (goats & sheep)	0.13-0.3

Source: PAA

## 7.1 SEZ CAPITAL INVESTMENT

The project represents an estimated total investment of **\$32.264 million** as indicated in Table 41.

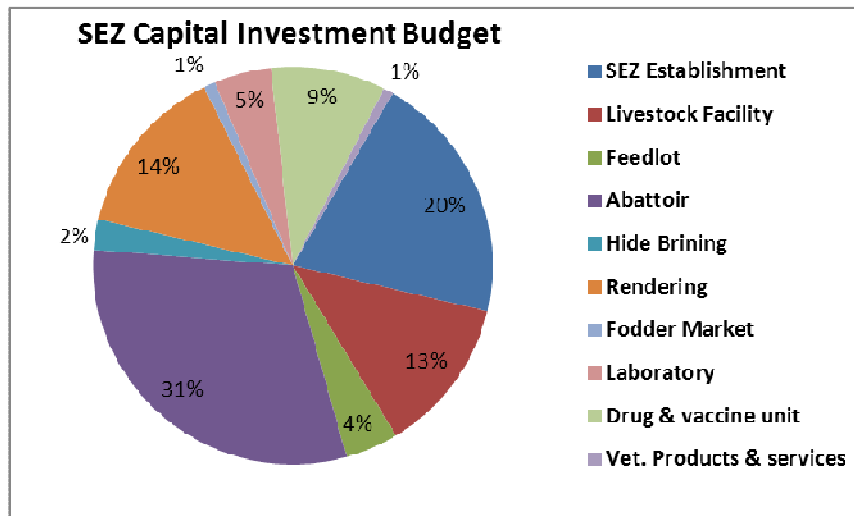
Table 41: SEZ and facilities capital expenditure budget (\$US)

FACILITIES	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL \$US
SEZ Establishment	3,270,000	2,000,000	1,300,000			6,570,000
Livestock Holding Facility	3,164,738	871,000	47,000	0	0	4,082,738
Feedlot	1,241,040	111,312	34,000	0	0	1,386,352
Abattoir	7,175,000	1,700,000	1,000,000			9,875,000
Hide Brining	700,000	100,000	0	0	0	800,000
Rendering	2,900,000	1,100,000	500,000	0	0	4,500,000
Fodder Market	300,000					300,000
Laboratory	1,500,000					1,500,000
Drug and vaccine production unit	3,000,000					3,000,000
Veterinary products and services	250,000					250,000
	<b>23,500,778</b>	<b>5,882,312</b>	<b>2,881,000</b>	<b>0</b>	<b>0</b>	<b>32,264,090</b>

The figure of \$32.264 million includes (a) establishment of the SEZ precinct and (b) the cost to construct and fit out appropriately the specified facilities. Establishment of the SEZ comprises the administrative process necessary for the investment environment as well as planning, building and equipping the administration services of the SEZ. Also included in this sum is the cost of necessary support to the Government of Sudan to establish an effective livestock identification program so that animals from all areas of the country can use the SEZ. A further breakdown of capital expenditure is shown at section 8.1 below. The overall capital expenditure budget is illustrated in the pie chart at Figure .

Locating the SEZ on the border region at Asgait would take advantage of the existence of major infrastructure such as access roads, water supply, natural gas line and electricity assuming (as the project team has been advised) these facilities are already in place or in the final stages of completion.

Figure 30: SEZ capital investment budget



NB Components may not add to total due to rounding.



## 7.2 SEZ REVENUE

Experience of SEZ and similar common trade precincts elsewhere in the world indicates that there are a number of revenue raising options available to the management authority, depending upon the nature of the businesses involved and the ownership of those businesses. A discussion of these options is provided below.

In most cases, the zone management authority provides a minimum of resources, generally restricted to a level site, security, electricity and water connections and the necessary regulatory services. All operating infrastructure is provided by the enterprise itself and all operating costs met by the enterprise. In such cases, SEZ revenue is raised by the application of a direct rental on the amount of space occupied by the business and any further services provided by the management authority. The revenue collected in this way is limited, but management investment and costs are also limited and the major cost will be simply the day to day administration of the precinct or SEZ.

In some cases, levies are also placed on the throughput of the enterprises. In a livestock based SEZ such as that envisaged here, such charges could be based on the expected number of animals, carcasses, hides and skins, tons of by-product etc purchased or produced by the enterprise. This is common practice in retail industrial parks and it provides a commercial opportunity for management to benefit directly from the success of the enterprises involved. The size of the charge would depend on the level of investment provided by the SEZ management.

Where the management authority is also the owner or investor in the operational aspects of the enterprises, as envisaged here, it is not appropriate to levy a separate charge on the various enterprises involved as the assets are already owned by the management authority and the revenue of the management authority is in fact the sum total of the enterprise revenues. In this case, it may be appropriate for the management authority to charge an entrance fee for all traders wishing to benefit from the facilities and services provided by the SEZ.

Allowing for a reasonable build-up period, the following annual revenue targets are expected to be achieved in the initial five years of project operations. Details of annual revenue are provided below in Table 42.

Table 42: SEZ annual revenue (\$US million)

Enterprise	Year 1	Year 2	Year 3	Year 4	Year 5
Livestock holding facility	9.144	12.801	14.630	16.459	18.288
Feedlot	4.500	6.300	7.200	8.100	9.000
Abattoir	50.022	70.031	80.035	90.040	100.044
Hide brining	2.500	3.500	4.000	4.500	5.000
Rendering	8.000	11.200	12.800	14.400	16.000
Fodder market	2.000	2.800	3.200	3.600	4.000
Laboratory	5.090	7.126	8.144	9.162	10.180
Drug & vaccine production	7.500	10.500	12.000	13.500	15.000
Veterinary products & services	0.800	1.120	1.280	1.440	1.600
Buyer entry fee	0.074	0.103	0.118	0.132	0.147
<b>Total</b>	<b>89.630</b>	<b>125.481</b>	<b>143.407</b>	<b>161.333</b>	<b>179.259</b>

## 7.3 SEZ OPERATING COSTS

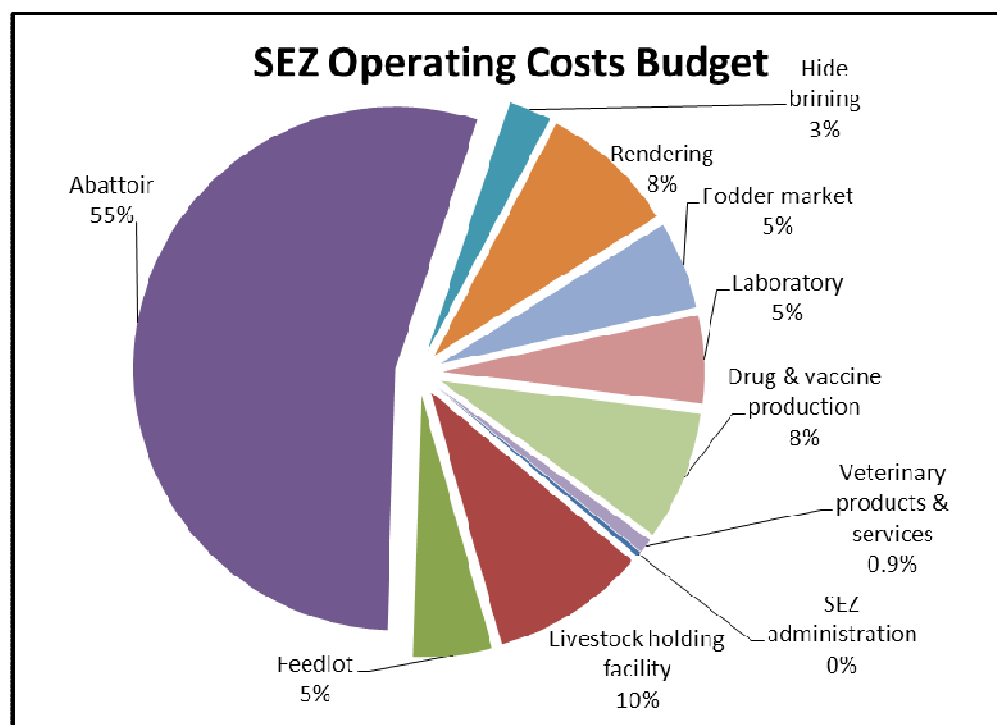
In the model adopted in this report, SEZ operating costs are made up of the cost of administering the SEZ, plus the cost of operating the individual enterprises. The former are largely made up of the management of the zone activities, maintenance of the public facilities, management of those facilities and whatever administrative process is required to regulate the performance of the individual enterprises, collect revenue and see to the smooth running and reporting of the SEZ.

In addition, the management authority would also be responsible for the entire cost of operating the individual enterprises including raw materials, inputs, administration, personnel, water, electricity and effluent disposal. Operating costs are expected to increase to a maximum of approximately \$172 million as shown in Table 43 below. A proportional breakdown of total operating costs is illustrated in the accompanying pie chart at Figure .

Table 43: SEZ annual operating costs (\$US million)

Enterprise	Year 1	Year 2	Year 3	Year 4	Year 5
SEZ administration	0.266	0.372	0.425	0.478	0.531
Livestock holding facility	8.280	11.848	13.540	15.233	16.925
Feedlot	4.298	6.017	6.876	7.736	8.595
Abattoir	48.436	67.811	77.498	87.185	96.872
Hide brining	2.411	3.376	3.858	4.341	4.677
Rendering	7.468	10.455	11.948	13.442	14.936
Fodder market	1.959	2.742	3.134	3.526	3.920
Laboratory	4.819	6.747	7.711	8.675	9.647
Drug & vaccine production	7.100	9.940	11.360	12.780	14.200
Veterinary products & services	0.765	1.070	1.223	1.376	1.535
<b>Total</b>	<b>85.802</b>	<b>120.378</b>	<b>137.573</b>	<b>154.772</b>	<b>171.838</b>

Figure 31: SEZ operating costs budget (Year 5)



NB Components may not add to total due to rounding.

### 7.3.1 Nominal SEZ operating costs – abattoir

Table 44 provides a breakdown of nominal and estimated operating costs for an abattoir. It should be noted that these are nominal only and could be expected to change substantially depending on the business model employed by the enterprise operator. Therefore this table and the

corresponding table below for the livestock holding facility are designed only to indicate possible operating costs for a facility.

Table 44: Breakdown of nominal operating costs – abattoir - 5 years \$US

OPERATING COSTS	Year 1		Year 2		Year 3		Year 4		Year 5	
	Units	Value	Units	Value	Units	Value	Units	Value	Units	Value
<b>Abattoir</b>										
Cattle purchase	22,680		31,752		36,288		40,824		45,360	
Sheep & goat purchase	50,400		70,560		80,640		90,720		100,800	
Livestock losses & shrinkage		4,883,760		6,837,264		7,814,016		8,790,768		9,767,520
Cost of sales		<b>45,581,760</b>		<b>63,814,464</b>		<b>72,930,816</b>		<b>82,047,168</b>		<b>91,163,520</b>
Administration		304,500		426,300		487,200		548,100		609,000
Community facilities		250,000		350,000		400,000		450,000		500,000
Electricity		250,000		350,000		400,000		450,000		500,000
Licences		75,000		105,000		120,000		135,000		150,000
Waste disposal		475,000		665,000		760,000		855,000		950,000
Water		149,940		209,916		239,904		269,892		299,880
SEZ costs		<b>1,504,440</b>		<b>2,106,216</b>		<b>2,407,104</b>		<b>2,707,992</b>		<b>3,008,880</b>
Administration		300,000		420,000		480,000		540,000		600,000
Audit		45,000		63,000		72,000		81,000		90,000
Communications		100,000		140,000		160,000		180,000		200,000
Depreciation		100,000		140,000		160,000		180,000		200,000
Fuel		42,500		59,500		68,000		76,500		85,000
Maintenance		150,000		210,000		240,000		270,000		300,000
Management		125,000		175,000		200,000		225,000		250,000
Packaging		100,000		140,000		160,000		180,000		200,000
Personnel		300,000		420,000		480,000		540,000		600,000
Travel		87,500		122,500		140,000		157,500		175,000
Indirect costs		<b>1,350,000</b>		<b>1,890,000</b>		<b>2,160,000</b>		<b>2,430,000</b>		<b>2,700,000</b>
sub total		<b>48,436,200</b>		<b>67,810,680</b>		<b>77,497,920</b>		<b>87,185,160</b>		<b>96,872,400</b>

Source: SRA

### 7.3.2 Nominal SEZ operating costs – livestock holding facility

Table 45 below provides a breakdown of nominal and estimated operating costs for a livestock holding facility at the SEZ. It should be noted that these are nominal only and could be expected to change substantially depending on the business model employed by the actual operator of the livestock facility, the number of livestock accepted and a range of other factors. Therefore this table and the corresponding table for the abattoir as shown above are designed to indicate possible operating costs for a facility.

Table 45: Breakdown of nominal operating costs – livestock holding facility - 5 years

OPERATING COSTS	Year 1		Year 2		Year 3		Year 4		Year 5	
	Units	Value	Units	Value	Units	Value	Units	Value	Units	Value
Livestock holding facility										
Feed camels	39,900	774,459	55,860	1,084,243	63,840	1,239,134	71,820	1,394,026	79,800	1,548,918
Feed cattle	34,680	873,936	48,552	1,223,510	55,488	1,398,298	62,424	1,573,085	69,360	1,747,872
Feed sheep	68,400	172,368	95,760	241,315	109,440	275,789	123,120	310,262	136,800	344,736
Wastage				254,907		291,322		327,737	10%	364,153
Livestock feed		<b>1,820,763</b>		<b>2,803,975</b>		<b>3,204,543</b>		<b>3,605,111</b>		<b>4,005,679</b>
Camel loss	37,500	2,137,500	52,500	2,992,500	60,000	3,420,000	67,500	3,847,500	75,000	4,275,000
Cattle loss	32,500	812,500	45,500	1,137,500	52,000	1,300,000	58,500	1,462,500	65,000	1,625,000
Sheep loss	60,000	600,000	84,000	840,000	96,000	960,000	108,000	1,080,000	120,000	1,200,000
Livestock loss		<b>3,550,000</b>		<b>4,970,000</b>		<b>5,680,000</b>		<b>0</b>		<b>7,100,000</b>
Cost of sales		<b>5,370,763</b>		<b>7,773,975</b>		<b>8,884,543</b>		<b>9,995,111</b>		<b>11,105,678</b>
Administration		304,700		426,580		487,520		548,460		609,400
Community facilities		250,000		350,000		400,000		450,000		500,000
Electricity		250,000		350,000		400,000		450,000		500,000
Licences		75,000		105,000		120,000		135,000		150,000
Waste disposal		480,000		672,000		768,000		864,000		960,000
Water		500,000		700,000		800,000		900,000		1,000,000
SEZ costs		<b>1,859,700</b>		<b>2,603,580</b>		<b>2,975,520</b>		<b>3,347,460</b>		<b>3,719,400</b>
Administration		150,000		210,000		240,000		270,000		300,000
Audit		45,000		63,000		72,000		81,000		90,000
Communications		200,000		280,000		320,000		360,000		400,000
Depreciation		42,500		59,500		68,000		76,500		85,000
Fuel		12,500		17,500		20,000		22,500		25,000
Maintenance		125,000		175,000		200,000		225,000		250,000
Management		100,000		140,000		160,000		180,000		200,000
Other		125,000		175,000		200,000		225,000		250,000
Personnel		150,000		210,000		240,000		270,000		300,000
Travel		100,000		140,000		160,000		180,000		200,000
Indirect costs		<b>1,050,000</b>		<b>1,470,000</b>		<b>1,680,000</b>		<b>1,890,000</b>		<b>2,100,000</b>
sub total		<b>8,280,463</b>		<b>11,847,555</b>		<b>13,540,063</b>		<b>15,232,571</b>		<b>16,925,078</b>

Source: SRA

## 7.4 FINANCIAL ANALYSIS

Analysis of SEZ cash flow over a period of 20 years indicates that the project is capable of generating an Internal Rate of Return (IRR) of 20.4 percent and a Net Present Value (NPV) of funds employed of \$32.2 million. Analysis of the individual enterprise cash flows indicates that all enterprises are financially sound, generating an IRR in the range of 20%-30% and a positive NPV of funds employed. Details of IRR and NPV are provided in Table 46 below.

Table 46: SEZ and enterprise financial parameters

ENTERPRISE	IRR (%)	NPV (\$US '000,000)
SEZ	20.4	32.200
Livestock Holding Facility	29.0	7.394
Feedlot	24.0	2.012
Abattoir	28.0	16.667
Hide Brining	26.0	1.523
Rendering	21.4	4.761
Fodder Market	22.0	0.380
Laboratory	29.0	2.895
Drug & Vaccine Production	22.0	3.751
Veterinary Products	22.0	0.314

NB Components may not add to total due to rounding.

#### 7.4.1 **Enterprise profitability**

The financial analysis outlined above indicates that all enterprises are profitable and as such would be an attractive investment both for public and private sector organizations. The underlying cost and revenue figures above have been based on a nominal set of cost and revenue data, deemed appropriate for each enterprise in this location. While the addition of SEZ administration and regulation costs has led to a lower IRR for the SEZ than for each of the SEZ enterprises, the opportunities offered by the SEZ are on a more permanent basis than the ad hoc nature of the trade at the present time and it is expected that entrepreneurs would recognize this and be prepared to invest in the various ventures that make up the SEZ facility. While the above estimates are based on generally expected industry returns, it should be recognized that such enterprises show varying degrees of profitability and, in the absence of a detailed feasibility study for each enterprise, the figures here should only be regarded as indicative.

#### 7.4.2 **SEZ profitability**

As indicated above, the profitability of the proposed enterprises is very good and, as such, the profitability of the SEZ which owns them is also very good. The IRR for the combined operation has been calculated as 20.4%, which is slightly lower than that registered by each of the individual enterprises. The reason for this is that in its current format, where the ownership of the SEZ itself and all of the enterprises within it are one and the same, any charge levied on the enterprises provide a financial return on the \$6.6 million invested in the SEZ administration and management facilities would be nothing more than a transfer payment between the SEZ and the enterprises and have no impact on overall viability. Whether or not the project is viable will depend upon the predetermined cut-off rate for investments of this kind and/or the interest rate at which funds are available for the development.

#### 7.4.3 **Break even point**

The nature of the proposed SEZ structure is such that almost the entire operating costs can be regarded as direct costs (92%) and as such the break-even point in the operation would be that point where income is equivalent to operating costs of \$108 million. Assuming the same mix of enterprises as discussed above, this point would be reached when throughput of these enterprises was 60 percent of the current budget, reflecting the low margins generally prevalent in livestock enterprises of this nature.

#### 7.4.4 **Payback period**

At the proposed rate of profitability, the project shows a payback-period of 6 years.

#### 7.4.5 **Net present value - (NPV)**

NPV of the project cash flow over a period of 20 years at 9% interest rate is \$32.2 million. The use of 9% as a basis for calculating NPV is nominal only based on team observations of interest rates available in Sudan at the time the fieldwork was undertaken. Should investment funds be available at 8% or less, the NPV would increase to in excess of \$38 million.

#### 7.4.6 **Sensitivity**

Sensitivity analysis has been undertaken to assess the impact of both positive and negative variations in key financial parameters of the project. The tested changes and their effects are set out in Table 47.

Table 47: Sensitivity

Variation Factor	Variation Percentage	Impact on IRR
Base Case		20.4%
Revenue increase	5%	42.2%
Revenue decrease	5%	negative
Cost increase	5%	negative
Cost decrease	5%	41.3%
Investment increase	5%	19.5%
Investment decrease	5%	21.4%

The above table indicates that the project is highly sensitive to small changes in operating costs and revenue which means that, as with all low margin/high volume industries, there are significant risks involved.

## 7.5 RISK ANALYSIS

The successful implementation of a large remote project of this nature will, from time to time, be challenged by a wide range of physical, financial and personal factors which have the potential to seriously impact upon the long term success of the project. While such a project can be affected by any number of such factors, those deemed most likely, their implications and the strategy to confront them are summarised in Table 48.

Table 48: Risk analysis

Factor	Level of Risk			Impact	Strategy
	High	Medium	Low		
Cost overrun		X		Cost increase	Tight budgetary control & oversight
Late completion	X			Sales missed	Tight project management
Lack of private sector interest			X	No revenue No business White elephant	Appropriate promotion campaign Good management Clear operational guidelines Early expressions of interest
Disease outbreak			X	Trade stops Animal losses Financial loss	Appropriate quarantine procedures Rapid animal health response Good quarantine support & training
Border control issues			X	Trade stops Financial cost Viability challenged	Good relations with Egypt Good relations with GOS Good public relations Keep clients informed
Power failures		X		Disrupted operations Financial loss Product loss	Good maintenance Alternative power sources Standby power
Lack of skilled labour	X			Low output Poor quality output Higher costs	Training programs Attractive conditions
Business failure by an SEZ operator		unknown		Disrupted operations Trade stoppages	Tight budgetary control & oversight Careful scrutiny of participants

Source: SRA

## 7.6 FINANCING SOURCES

Obtaining adequate funding for the development of the SEZ and for development of enterprises that may be located within the SEZ will be a critical factor for success. Obtaining funds from multilateral or bilateral donors to construct and commission the SEZ initiative is an option which should be carefully explored. Similarly, other public sector sources of financing could also be available. The Arab Fund for Economic and Social Development offers a variety of loans at concessional rates and grants, including funds for agricultural projects. In 2010 the Fund, for example, lent approximately \$US100 million on the White Nile sugar project in Sudan, following an earlier loan of approximately \$70 million in 2005. This second loan was offered at 2.5% with a 21-year maturity and a five-year grace period. The Fund typically contributes a relatively small portion of the total cost of a project. In the case of the White Nile sugar project, the two loans from the Arab Fund amounted to only 10.5% of a total investment of approximately \$US1 billion. The Fund can also invest as a minority shareholder in private sector projects in which at least 51% of the investment capital is owned by citizens of member states.

The OPIC Fund for International Development has a mandate similar to that of the Arab Fund, though with a wider geographic presence, and has funded agriculture projects in Sudan, including a loan of \$US25 million for the White Nile sugar project. Other public sources could include the Abu Dhabi Fund for Development, the Saudi Development Fund, and the Kuwaiti Fund for Arab Economic

Development, although establishing the SEZ in a location with better access to Gulf markets could increase their interest, since one motive for their investment in African agriculture is to secure food supplies for their domestic consumption.

Sudan has already attracted some large foreign investments in agriculture. These include the Saudi Al-Rajhi Group, which in 2008 negotiated a 40-year lease from the government for 40,000 hectares of land. This is small by the standards of some other deals. According to *The Economist*, "In Sudan alone, South Korea has signed deals for 690,000 hectares, the United Arab Emirates (UAE) for 400,000 hectares and Egypt has secured a similar deal to grow wheat. An official in Sudan says his country will set aside for Arab governments roughly one-fifth of the cultivated land in Africa's largest country (traditionally known as the breadbasket of the Arab world)."<sup>26</sup>

These investments, whether from Arab or Chinese, Korean or other sources, and whether public, private, or some kind of hybrid, are motivated mainly by their home countries' desire to ensure food security, so the placement of the SEZ in a viable location is an important factor. Additionally, large Egyptian investors could be interested in the venture. The Egyptian private equity firm Citadel Capital has invested in 500,000 acres (210,000 hectares) of farmland in two locations in Sudan. Another Egyptian firm, Beltone Private Equity, has entered into a partnership with Sudan's Kenana Sugar Company to set up Mahaseel Agriculture Investment Fund – with the Sudanese government as a minority co-investor - to invest \$1 billion in large scale agriculture projects in Sudan and Egypt, including the production and processing of crops and livestock in Sudan, and food processing and other agri-food businesses in Egypt. Similarly, the SEZ could develop as a joint enterprise between two, three or more countries with a common interest in food security, food affordability and value adding opportunities.

Large international meat companies, most of them based in South America, North America, and Australia, represent another potential source of investment. The international meat industry has undergone tremendous consolidation over the past 10 years, principally through acquisition of smaller companies by the major global players. These global companies have principally acquired large, established companies in countries that represent important new markets and/or sources of supply.

Though foreign investment will be important, domestic private Sudanese investment could also play an important role in the project. Dal Group, Sudan's largest private enterprise, has commenced a substantial investment programme in developing large-scale agriculture and livestock projects to supply the local market.

"Whilst many foreign investors are planning to export, we are concentrating on meeting the current needs of the Sudanese," says Mohamed Elshafie, spokesman for the company. Dal has already launched a number of agricultural projects in the northern suburbs of Khartoum, as well as in the far north of Sudan, and is planning further development in the coming years.<sup>27</sup>

For example, Sudan imports four million tons of powdered milk each year because it does not have enough cows to meet local demand, according to figures from the Ministry of Agriculture. The Dal Group's project is already operational with 3,000 dairy cattle, with plans to expand to 10,000 head over the coming years. The Dal dairy will help to meet this shortfall in supply to the local market.

Other potential sources of funding are set out in Table 49.

<sup>26</sup> The Economist, (2009) "Buying farmland abroad: Outsourcing's third wave," May 21, 2009

<sup>27</sup> B. Evans-Pritchard (2009), "Can Local Investors Beat Foreign Investment?" Inter-Press Service News Agency.

Table 49: Potential financing sources for the SEZ

GROUP	COMMENT
AAID	Arab Authority for Agriculture Investment and Development
ACOLID	Arab Company for Livestock development
AfDF	African Development Fund
AFESD	Arab Fund for Economic and Social Development
----	Arab National Funds
DFID	Department for Foreign Development of the UK Government
IFC	International Finance Corporation of the World Bank
IFAD	International Fund for Agricultural development
IDB	Islamic Development Bank
KLTTTC	Kuwait Livestock Transport and Trading Company
OFID	OPEC Fund for international Development
---	Saudi Arabian private companies in the livestock sector e.g. NADEC, Al Marai

Source: SRA

A combination of Sudanese and Egyptian private investment, combined with international-level agricultural expertise and complemented by concessional long-term public or quasi-public financing, is almost certain to be the key to successful development of the SEZ. Investment by the national government – and, preferably, jointly by the Sudanese and Egyptian governments - would also be seen as a favourable measure by the international finance community.



## 8 FINANCIAL DETAIL FOR SEZ

N.B. components may not add to totals due to rounding.

### 8.1 FULL CAPITAL INVESTMENT TABLE

FACILITIES	\$US'000					TOTAL
	Year 1	Year 2	Year 3	Year 4	Year 5	
<b>SEZ Administration</b>						
Fencing	123,000					123,000
Office	450,000					450,000
Medical centre	100,000	50,000				150,000
Residential	150,000	150,000	50,000			350,000
Roads	600,000	500,000	250,000			1,350,000
Utilities	1,000,000	300,000				1,300,000
Furniture	70,000					70,000
Communications	80,000					80,000
Motor vehicles	140,000					140,000
Weighbridge	60,000					60,000
Pre-project expenditure	497,000					497,000
Livestock identification		1,000,000	1,000,000			2,000,000
<b>sub total</b>	<b>3,270,000</b>	<b>2,000,000</b>	<b>1,300,000</b>			<b>6,570,000</b>
<b>Livestock holding facility</b>						
Civil works	175,777					175,777
Feeding facilities	888,961					888,961
Machinery	1,000,000	671,000				1,671,000
Vehicles	500,000	200,000	47,000			747,000
Buildings	600,000					600,000
<b>sub total</b>	<b>3,164,738</b>	<b>871,000</b>	<b>47,000</b>	<b>0</b>	<b>0</b>	<b>4,082,738</b>
<b>Feedlot</b>						
Civil works	71,000	4,312				75,312
Feeding facilities	330,040					330,040
Machinery	500,000	57,000				557,000
Vehicles	150,000	50,000	34,000			234,000
Buildings	190,000					190,000
<b>sub total</b>	<b>1,241,040</b>	<b>111,312</b>	<b>34,000</b>	<b>0</b>	<b>0</b>	<b>1,386,352</b>
<b>Abattoir</b>						
Yards	500,000					500,000
Kill floor	2,000,000					2,000,000
Chillers	1,000,000	1,000,000	1,000,000			3,000,000
Refrigeration	500,000	500,000				1,000,000
Amenities	200,000	200,000				400,000
Civil works	1,000,000					1,000,000
Design	1,975,000					1,975,000
<b>sub total</b>	<b>7,175,000</b>	<b>1,700,000</b>	<b>1,000,000</b>			<b>9,875,000</b>
<b>Hide Brining</b>						
Buildings	150,000					150,000
Processing equipment	220,000					220,000
Effluent disposal	165,000	100,000				265,000
Water reticulation	105,000					105,000
Motor vehicles	60,000					60,000
<b>sub total</b>	<b>700,000</b>	<b>100,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>800,000</b>

Capital Investment Table (continued -----&gt;) (\$US'000)

<b>Rendering</b>							
Vessels	2,000,000	1,000,000	500,000				3,500,000
Conveyors	100,000	100,000					200,000
Civil works	50,000						50,000
Design	750,000						750,000
<b>Sub total</b>	<b>2,900,000</b>	<b>1,100,000</b>	<b>500,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,500,000</b>
<b>Fodder Market</b>							
Buildings	50,000						50,000
Feed storage	147,000						147,000
Equipment	28,000						28,000
Motor vehicles	75,000						75,000
<b>Sub total</b>	<b>300,000</b>						<b>300,000</b>
<b>Laboratory</b>							
Equipment	1,225,000						
Buildings	160,000						
Water reticulation	35,000						
Electricity connection	25,000						
	25,000						
Motor vehicles	30,000						
<b>Sub total</b>	<b>1,500,000</b>						<b>1,500,000</b>
<b>Drug and vaccine production unit</b>							
Equipment	2,750,000						
Buildings	140,000						
Water reticulation	35,000						
Electricity connection	20,000						
Refrigeration	25,000						
Motor vehicles	30,000						
<b>Sub total</b>	<b>3,000,000</b>						<b>3,000,000</b>
<b>Veterinary products and services</b>							
Buildings	140,000						
Water reticulation	35,000						
Electricity connection	20,000						
Refrigeration	25,000						
Motor vehicles	30,000						
<b>Sub total</b>	<b>250,000</b>						<b>250,000</b>
<b>TOTAL INVESTMENT FOR CASH FLOW</b>	<b>23,500,778</b>	<b>5,882,312</b>	<b>2,881,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>32,264,090</b>

**8.2 OPERATING COSTS & REVENUE**

REVENUE	Year 1		Year 2		Year 3		Year 4		Year 5	
	Units	Value	Units	Value	Units	Value	Units	Value	Units	Value
<b>SEZ administration</b>										
SEZ entry - buyers	3,675	73,500	5,145	102,900	5,880	117,600	6,615	132,300	7,350	147,000
<b>sub total</b>		<b>73,500</b>		<b>102,900</b>		<b>117,600</b>		<b>132,300</b>		<b>147,000</b>
<b>Livestock holding facility</b>										
Holding Fees - Camels	39,900	4,867,800	55,860	6,814,920	63,840	7,788,480	71,820	8,762,040	79,800	9,735,600
Holding Fees - Cattle	34,680	2,566,320	48,552	3,592,848	55,488	4,106,112	62,424	4,619,376	69,360	5,132,640
Holding Fees - sheep & goats	68,400	1,710,000	95,760	2,394,000	109,440	2,736,000	123,120	3,078,000	136,800	3,420,000
<b>sub total</b>		<b>9,144,120</b>		<b>12,801,768</b>		<b>14,630,592</b>		<b>16,459,416</b>		<b>18,288,240</b>
<b>Feedlot</b>										
Cattle	2,250	4,500,000	3,150	6,300,000	3,600	7,200,000	4,050	8,100,000	4,500	9,000,000
<b>sub total</b>		<b>4,500,000</b>		<b>6,300,000</b>		<b>7,200,000</b>		<b>8,100,000</b>		<b>9,000,000</b>
<b>Abattoir</b>										
Beef carcasses and quarters	22,680	37,422,000	31,752	52,390,800	36,288	59,875,200	40,824	67,359,600	45,360	74,844,000
Sheep carcasses	25,200	6,300,000	35,280	8,820,000	40,320	10,080,000	45,360	11,340,000	50,400	12,600,000
Goat carcasses	25,200	6,300,000	35,280	8,820,000	40,320	10,080,000	45,360	11,340,000	50,400	12,600,000
<b>sub total</b>		<b>50,022,000</b>		<b>70,030,800</b>		<b>80,035,200</b>		<b>90,039,600</b>		<b>100,044,000</b>
<b>Hide Brining</b>										
Green cattle hides	22,680	1,372,140	31,752	1,920,996	36,288	2,195,424	40,824	2,469,852	45,360	2,744,280
Sheep skins	25,200	579,600	35,280	811,440	40,320	927,360	45,360	1,043,280	50,400	1,159,200
Goat skins	25,200	548,260	35,280	767,564	40,320	877,216	45,360	986,868	50,400	1,096,520
<b>sub total</b>		<b>2,500,000</b>		<b>3,500,000</b>		<b>4,000,000</b>		<b>4,500,000</b>		<b>5,000,000</b>
<b>Rendering</b>										
Tallow	554,400	3,050,260	776,160	4,270,364	887,040	4,880,416	997,920	5,490,468	1,108,800	6,100,520
Meatmeal	899,640	4,949,740	1,259,496	6,929,636	1,439,424	7,919,584	1,619,352	8,909,532	1,799,280	9,899,480
<b>sub total</b>		<b>8,000,000</b>		<b>11,200,000</b>		<b>12,800,000</b>		<b>14,400,000</b>		<b>16,000,000</b>

REVENUE	Year 1		Year 2		Year 3		Year 4		Year 5	
	Units	Value	Units	Value	Units	Value	Units	Value	Units	Value
<b>Fodder Market</b>										
Livestock feed	10,000	2,000,000	14,000	2,800,000	16,000	3,200,000	18,000	3,600,000	20,000	4,000,000
<b>sub total</b>		<b>2,000,000</b>		<b>2,800,000</b>		<b>3,200,000</b>		<b>3,600,000</b>		<b>4,000,000</b>
<b>Laboratory</b>										
Cattle	22,680	1,579,655	31,752	2,211,517	36,288	2,527,448	40,824	2,843,379	45,360	3,159,310
Sheep	25,200	1,755,172	35,280	2,457,241	40,320	2,808,276	45,360	3,159,310	50,400	3,510,345
Goats	25,200	1,755,172	35,280	2,457,241	40,320	2,808,276	45,360	3,159,310	50,400	3,510,345
<b>sub total</b>		<b>5,090,000</b>		<b>7,126,000</b>		<b>8,144,000</b>		<b>9,162,000</b>		<b>10,180,000</b>
<b>Drug/Vaccine production</b>										
Infectious bronchitis	1,500,000	4,500,000	2,100,000	6,300,000	2,400,000	7,200,000	2,700,000	8,100,000	3,000,000	9,000,000
Gumboro disease	1,000,000	3,000,000	1,400,000	4,200,000	1,600,000	4,800,000	1,800,000	5,400,000	2,000,000	6,000,000
<b>sub total</b>		<b>7,500,000</b>		<b>10,500,000</b>		<b>12,000,000</b>		<b>13,500,000</b>		<b>15,000,000</b>
<b>Veterinary products &amp; services</b>										
Products	73,080	434,600	102,312	608,440	116,928	695,360	131,544	782,280	146,160	869,200
Services	73,080	365,400	102,312	511,560	116,928	584,640	131,544	657,720	146,160	730,800
<b>sub total</b>		<b>800,000</b>		<b>1,120,000</b>		<b>1,280,000</b>		<b>1,440,000</b>		<b>1,600,000</b>
<b>sub total revenue</b>		<b>89,629,620</b>		<b>125,481,468</b>		<b>143,407,392</b>		<b>161,333,316</b>		<b>179,259,240</b>

OPERATING COSTS	Year 1		Year 2		Year 3		Year 4		Year 5	
	Units	Value	Units	Value	Units	Value	Units	Value	Units	Value
<b>SEZ administration</b>										
Administration	73,080	2,485	102,312	3,479	116,928	3,976	131,544	4,472	146,160	4,969
Communications	73,080	10,012	102,312	14,017	116,928	16,019	131,544	18,022	146,160	20,024
Depreciation	73,080	74,980	102,312	104,972	116,928	119,968	131,544	134,964	146,160	149,960
Medical supplies	73,080	1,023	102,312	1,432	116,928	1,637	131,544	1,842	146,160	2,046
Motor vehicle operating	73,080	5,993	102,312	8,390	116,928	9,588	131,544	10,787	146,160	11,985
Personnel	73,080	36,028	102,312	50,440	116,928	57,646	131,544	64,851	146,160	72,057
Repairs and maintenance	73,080	128,986	102,312	180,581	116,928	206,378	131,544	232,175	146,160	257,972
Travel	73,080	3,508	102,312	4,911	116,928	5,613	131,544	6,314	146,160	7,016
Utilities	73,080	2,485	102,312	3,479	116,928	3,976	131,544	4,472	146,160	4,969
<b>sub total</b>		<b>265,500</b>		<b>371,699</b>		<b>424,799</b>		<b>477,899</b>		<b>530,999</b>
		<b>13,275</b>		<b>18,585</b>		<b>21,240</b>		<b>23,895</b>		<b>26,550</b>
<b>Livestock holding facility</b>										
Cost of sales		<b>5,370,763</b>		<b>7,773,975</b>		<b>8,884,543</b>		<b>9,995,111</b>		<b>11,105,678</b>
SEZ costs		<b>1,859,700</b>		<b>2,603,580</b>		<b>2,975,520</b>		<b>3,347,460</b>		<b>3,719,400</b>
Indirect costs		<b>1,050,000</b>		<b>1,470,000</b>		<b>1,680,000</b>		<b>1,890,000</b>		<b>2,100,000</b>
<b>sub total</b>		<b>8,280,463</b>		<b>11,847,555</b>		<b>13,540,063</b>		<b>15,232,571</b>		<b>16,925,078</b>
<b>Feedlot</b>										
Cost of sales	2,250	1,968,750	3,150	2,756,250	3,600	3,150,000	4,050	3,543,750	4,500	3,937,500
SEZ costs	2,250	1,293,750	3,150	1,811,250	3,600	2,070,000	4,050	2,328,750	4,500	2,587,500
Indirect costs	2,250	1,035,000	3,150	1,449,000	3,600	1,656,000	4,050	1,863,000	4,500	2,070,000
<b>sub total</b>		<b>4,297,500</b>		<b>6,016,500</b>		<b>6,876,000</b>		<b>7,735,500</b>		<b>8,595,000</b>
<b>Abattoir</b>										
Cost of sales		<b>45,581,760</b>		<b>63,814,464</b>		<b>72,930,816</b>		<b>82,047,168</b>		<b>91,163,520</b>
SEZ costs		<b>1,504,440</b>		<b>2,106,216</b>		<b>2,407,104</b>		<b>2,707,992</b>		<b>3,008,880</b>
Indirect costs		<b>1,350,000</b>		<b>1,890,000</b>		<b>2,160,000</b>		<b>2,430,000</b>		<b>2,700,000</b>
<b>sub total</b>		<b>48,436,200</b>		<b>67,810,680</b>		<b>77,497,920</b>		<b>87,185,160</b>		<b>96,872,400</b>

OPERATING COSTS	Year 1		Year 2		Year 3		Year 4		Year 5	
	Units	Value	Units	Value	Units	Value	Units	Value	Units	Value
<b>Hide Brining</b>										
Cost of sales	73,080	1,096,200	102,312	1,534,680	116,928	1,753,920	131,544	1,973,160	146,160	2,192,400
SEZ costs	73,080	665,280	102,312	931,392	116,928	1,064,448	131,544	1,197,504	146,160	1,242,360
Indirect costs	73,080	650,000	102,312	910,000	116,928	1,040,000	131,544	1,170,000	146,160	1,242,360
sub total		<b>2,411,480</b>		<b>3,376,072</b>		<b>3,858,368</b>		<b>4,340,664</b>		<b>4,677,120</b>
<b>Rendering</b>										
Cost of sales	554,400	6,506,829	776,160	9,109,561	887,040	10,410,926	997,920	11,712,292	2,908,080	13,013,658
SEZ costs	899,640	461,160	1,259,496	645,624	1,439,424	737,856	1,619,352	830,088	2,908,080	921,861
Indirect costs		500,000		700,000		800,000		900,000	2,908,080	1,000,380
sub total		<b>7,467,989</b>		<b>10,455,185</b>		<b>11,948,782</b>		<b>13,442,380</b>		<b>14,935,899</b>
<b>Fodder Market</b>										
Cost of sales	10,000	1,840,000	14,000	2,576,000	16,000	2,944,000	18,000	3,312,000	20,000	3,680,000
SEZ costs	10,000	68,750	14,000	96,250	16,000	110,000	18,000	123,750	20,000	140,000
Indirect costs	10,000	50,000	14,000	70,000	16,000	80,000	18,000	90,000	20,000	100,000
sub total		<b>1,958,750</b>		<b>2,742,250</b>		<b>3,134,000</b>		<b>3,525,750</b>		<b>3,920,000</b>
<b>Laboratory</b>										
Cost of sales	73,080	4,311,720	102,312	6,036,408	116,928	6,898,752	131,544	7,761,096	146,160	8,623,440
SEZ costs	73,080	257,700	102,312	360,780	116,928	412,320	131,544	463,860	146,160	584,640
Indirect costs	73,080	250,000	102,312	350,000	116,928	400,000	131,544	450,000	146,160	438,480
sub total		<b>4,819,420</b>		<b>6,747,188</b>		<b>7,711,072</b>		<b>8,674,956</b>		<b>9,646,560</b>
<b>Drug/Vaccine production</b>										
Cost of sales	2,500,000	6,000,000	3,500,000	8,400,000	4,000,000	9,600,000	4,500,000	10,800,000	5,000,000	12,000,000
SEZ costs	2,500,000	600,000	3,500,000	840,000	4,000,000	960,000	4,500,000	1,080,000	5,000,000	1,200,000
Indirect costs	2,500,000	500,000	3,500,000	700,000	4,000,000	800,000	4,500,000	900,000	5,000,000	1,000,000
sub total		<b>7,100,000</b>		<b>9,940,000</b>		<b>11,360,000</b>		<b>12,780,000</b>		<b>14,200,000</b>

OPERATING COSTS	Year 1		Year 2		Year 3		Year 4		Year 5	
	Units	Value	Units	Value	Units	Value	Units	Value	Units	Value
<b>Veterinary products and services</b>										
Cost of sales	73,080	489,636	102,312	685,490	116,928	783,418	131,544	881,345	146,160	979,272
SEZ costs	73,080	150,000	102,312	210,000	116,928	240,000	131,544	270,000	146,160	306,936
Indirect costs	73,080	125,000	102,312	175,000	116,928	200,000	131,544	225,000	146,160	248,472
sub total		<b>764,636</b>		<b>1,070,490</b>		<b>1,223,418</b>		<b>1,376,345</b>		<b>1,534,680</b>
<b>sub total operating costs</b>		<b>85,801,937</b>		<b>120,377,619</b>		<b>137,574,422</b>		<b>154,771,225</b>		<b>171,837,736</b>
<b>Operating Margin</b>										
SEZ administration		-192,000		-268,799		-307,199		-345,599		-383,999
Livestock holding facility		863,657		954,213		1,090,529		1,226,845		1,363,162
Feedlot		202,500		283,500		324,000		364,500		405,000
Abattoir		1,585,800		2,220,120		2,537,280		2,854,440		3,171,600
Hide Brining		88,520		123,928		141,632		159,336		322,880
Rendering		532,011		744,816		851,218		957,620		1,064,101
Fodder Market		41,250		57,750		66,000		74,250		80,000
Laboratory		270,580		378,812		432,928		487,044		533,440
Drug/Vaccine production		400,000		560,000		640,000		720,000		800,000
Veterinary products & services		35,364		49,510		56,583		63,656		65,320
<b>sub total operating margin</b>	<b>3,827,683</b>	<b>3,827,683</b>		<b>5,103,849</b>		<b>5,832,970</b>		<b>6,562,092</b>		<b>7,421,505</b>

### 8.3 SEZ CASH FLOW

CASH FLOW SEZ	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Revenue		89,629,620	125,481,468	143,407,392	161,333,316	179,259,240	179,259,240
Investment	23,500,778	5,882,312	2,881,000				
Operating cost		85,801,937	120,377,619	137,574,422	154,771,225	171,837,736	171,837,736
Cash flow	-23,500,778	-2,054,629	2,222,849	5,832,970	6,562,092	7,421,505	7,421,505
Cumulative cash flow	-23,500,778	-25,555,407	-23,332,558	-17,499,588	-10,937,497	-3,515,992	3,905,513
IRR	20.4%						
NPV @ 9%	32,200,826						

CASH FLOW SEZ	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
Revenue	179,259,240	179,259,240	179,259,240	179,259,240	179,259,240	179,259,240	179,259,240
Investment							
Operating cost	171,837,736	171,837,736	171,837,736	171,837,736	171,837,736	171,837,736	171,837,736
Cash flow	7,421,505	7,421,505	7,421,505	7,421,505	7,421,505	7,421,505	7,421,505
Cumulative cash flow	11,327,017	18,748,522	26,170,026	33,591,531	41,013,035	48,434,540	55,856,044
IRR							
NPV @ 9%							

CASH FLOW SEZ	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Revenue	179,259,240	179,259,240	179,259,240	179,259,240	179,259,240	179,259,240	179,259,240
Investment							-32,264,090
Operating cost	171,837,736	171,837,736	171,837,736	171,837,736	171,837,736	171,837,736	171,837,736
Cash flow	7,421,505	7,421,505	7,421,505	7,421,505	7,421,505	7,421,505	39,685,595
Cumulative cash flow	63,277,549	70,699,053	78,120,558	85,542,062	92,963,567	100,385,072	140,070,666
IRR							
NPV @ 9%							



## 9 ENTERPRISE EVALUATION FOR SEZ

### 9.1 ENTERPRISE CASH FLOWS

CASHFLOW LIVESTOCK HD	Year0	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20		
Revenue		9,144,120	12,801,768	14,630,592	16,459,416	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	18,288,240	
Investment	3,164,738	871,000	47,000																			-4,082,738	
Operating cost		8,280,463	11,847,555	13,540,063	15,232,571	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078	16,925,078
Cash flow	-3,164,738	-7,343	907,213	1,090,529	1,226,845	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	1,363,162	5,445,900	
Cumulative cash flow	-3,164,738	-3,172,081	-2,264,868	-1,174,339	52,506	1,415,669	2,778,831	4,141,994	5,505,156	6,868,318	8,231,481	9,594,643	10,957,806	12,320,968	13,684,130	15,047,293	16,410,455	17,773,618	19,136,780	20,499,942	21,863,104	23,226,266	
IRR		29%																					
NPV @ 9%		7,393,796																					
<b>CASHFLOW FEEDLOT</b>	<b>Year0</b>	<b>Year1</b>	<b>Year2</b>	<b>Year3</b>	<b>Year4</b>	<b>Year5</b>	<b>Year6</b>	<b>Year7</b>	<b>Year8</b>	<b>Year9</b>	<b>Year10</b>	<b>Year11</b>	<b>Year12</b>	<b>Year13</b>	<b>Year14</b>	<b>Year15</b>	<b>Year16</b>	<b>Year17</b>	<b>Year18</b>	<b>Year19</b>	<b>Year20</b>		
Revenue		4,500,000	6,300,000	7,200,000	8,100,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	
Investment	1,241,040	111,312	34,000																			-1,386,352	
Operating cost		4,297,500	6,016,500	6,876,000	7,735,500	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	8,595,000	
Cash flow	-1,241,040	91,188	249,500	324,000	364,500	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	1,791,352	
Cumulative cash flow	-1,241,040	-1,149,852	-900,352	-576,352	-211,852	193,148	598,148	1,003,148	1,408,148	1,813,148	2,218,148	2,623,148	3,028,148	3,433,148	3,838,148	4,243,148	4,648,148	5,053,148	5,458,148	5,863,148	6,268,148	6,673,148	
IRR		24%																					
NPV @ 9%		2,012,265																					
<b>CASHFLOW ABATTOIR</b>	<b>Year0</b>	<b>Year1</b>	<b>Year2</b>	<b>Year3</b>	<b>Year4</b>	<b>Year5</b>	<b>Year6</b>	<b>Year7</b>	<b>Year8</b>	<b>Year9</b>	<b>Year10</b>	<b>Year11</b>	<b>Year12</b>	<b>Year13</b>	<b>Year14</b>	<b>Year15</b>	<b>Year16</b>	<b>Year17</b>	<b>Year18</b>	<b>Year19</b>	<b>Year20</b>		
Revenue		50,022,000	70,030,800	80,035,200	90,039,600	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	100,044,000	
Investment	7,175,000	1,700,000	1,000,000																			-9,875,000	
Operating cost		48,436,200	67,810,680	77,497,920	87,185,160	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	96,872,400	
Cash flow	-7,175,000	-114,200	1,220,120	2,537,280	2,854,440	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	3,171,600	13,046,600	
Cumulative cash flow	-7,175,000	-7,289,200	-6,069,080	-3,531,800	-677,360	2,494,240	5,665,840	8,837,440	12,009,040	15,180,640	18,352,240	21,523,840	24,695,440	27,867,040	31,038,640	34,210,240	37,381,840	40,553,440	43,725,040	46,896,640	50,068,240	53,239,840	
IRR		28%																					
NPV @ 9%		16,667,512																					

ENTERPRISE CASH FLOWS (CONTINUED)

CASHFLOW HIDEBRINING	Year0	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	
Revenue		2,500,000	3,500,000	4,000,000	4,500,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	
Investment	700,000	100,000																				-800,000
Operating cost		2,411,480	3,376,072	3,858,368	4,340,664	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120	4,677,120
Cash flow	-700,000	-11,480	123,928	141,632	159,336	322,880	322,880	322,880	322,880	322,880	322,880	322,880	322,880	322,880	322,880	322,880	322,880	322,880	322,880	322,880	322,880	1,122,880
Cumulative cash flow	-700,000	-711,480	-587,553	-445,921	-286,585	36,294	359,174	682,053	1,004,933	1,327,812	1,650,692	1,973,571	2,296,451	2,619,330	2,942,210	3,265,090	3,587,969	3,910,849	4,233,728	4,556,608	5,679,487	
IRR		26%																				
NPV @ 9%		1,523,068																				
CASHFLOW RENDERING	Year0	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	
Revenue		8,000,000	11,200,000	12,800,000	14,400,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000
Investment	2,900,000	1,100,000	500,000																			-4,500,000
Operating cost		7,467,989	10,455,185	11,948,782	13,442,380	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899	14,935,899
Cash flow	-2,900,000	-567,989	244,816	851,218	957,620	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	1,064,101	5,564,101
Cumulative cash flow	-2,900,000	-3,467,989	-3,223,173	-2,371,956	-1,414,335	-350,234	713,867	1,777,969	2,842,070	3,906,171	4,970,273	6,034,374	7,098,475	8,162,577	9,226,678	10,290,780	11,354,881	12,418,982	13,483,084	14,547,185	20,111,286	
IRR		21.4%																				
NPV @ 9%		4,761,386																				
CASHFLOW FODDER MARI	Year0	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	
Revenue		2,000,000	2,800,000	3,200,000	3,600,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
Investment	300,000																					-300,000
Operating cost		1,958,750	2,742,250	3,134,000	3,525,750	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000	3,920,000
Cash flow	-300,000	41,250	57,750	66,000	74,250	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	380,000
Cumulative cash flow	-300,000	-258,750	-201,000	-135,000	-60,750	19,250	99,250	179,250	259,250	339,250	419,250	499,250	579,250	659,250	739,250	819,250	899,250	979,250	1,059,250	1,139,250	1,519,250	
IRR		22%																				
NPV @ 9%		380,414																				

ENTERPRISE CASH FLOWS (CONTINUED)

CASH FLOW LABORATORY	Year0	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	
Revenue		5,090,000	7,126,000	8,144,000	9,162,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	10,180,000	
Investment	1,500,000																					-1,500,000
Operating cost		4,819,420	6,747,188	7,711,072	8,674,956	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560	9,646,560
Cash flow	-1,500,000	270,580	378,812	432,928	487,044	533,440	533,440	533,440	533,440	533,440	533,440	533,440	533,440	533,440	533,440	533,440	533,440	533,440	533,440	533,440	533,440	2,033,440
Cumulative cash flow	-1,500,000	-1,229,420	-850,607	-417,679	69,366	602,806	1,136,246	1,669,686	2,203,126	2,736,566	3,270,006	3,803,447	4,336,887	4,870,327	5,403,767	5,937,207	6,470,647	7,004,088	7,537,528	8,070,968	8,604,408	10,104,408
IRR		29%																				
NPV @9%		2,894,858																				
<b>CASH FLOW DRUG AND VACCINE PRODUCTION</b>																						
	Year0	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	
Revenue		7,500,000	10,500,000	12,000,000	13,500,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	
Investment	3,000,000																					-3,000,000
Operating cost		7,100,000	9,940,000	11,360,000	12,780,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000	14,200,000
Cash flow	-3,000,000	400,000	560,000	640,000	720,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	3,800,000
Cumulative cash flow	-3,000,000	-2,600,000	-2,040,000	-1,400,000	-680,000	120,000	920,000	1,720,000	2,520,000	3,320,000	4,120,000	4,920,000	5,720,000	6,520,000	7,320,000	8,120,000	8,920,000	9,720,000	10,520,000	11,320,000	12,120,000	15,120,000
IRR		22%																				
NPV @9%		3,751,312																				
<b>CASH FLOW VETERINARY SUPPLIES AND SERVICES</b>																						
	Year0	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	
Revenue		800,000	1,120,000	1,280,000	1,440,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	
Investment	250,000																					-250,000
Operating cost		764,636	1,070,490	1,223,418	1,376,345	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680	1,534,680
Cash flow	-250,000	35,364	49,510	56,583	63,656	65,320	65,320	65,320	65,320	65,320	65,320	65,320	65,320	65,320	65,320	65,320	65,320	65,320	65,320	65,320	65,320	315,320
Cumulative cash flow	-250,000	-214,636	-165,126	-108,543	-44,888	20,433	85,753	151,073	216,394	281,714	347,034	412,355	477,675	542,996	608,316	673,636	738,957	804,277	869,597	934,918	1,000,238	1,250,238
IRR		22%																				
NPV @9%		313,918																				

## 10 CONCLUSIONS AND RECOMMENDATIONS

The Final Report presents the following conclusions.

- 1 The presence of a large and growing consumer market in Egypt should be sufficient to encourage parties within Sudan and Egypt to seek out improved and more efficient methods of supplying consumers with better access to quality red meat – whether live, freshly-slaughtered or in chilled or frozen form.
- 2 The periodic closure of the Sudan-Egypt border to meat and livestock exports due to disease risk is a crucial factor which must be overcome if investors in either country are to feel confident about the trade's future.
- 3 The benefit of a Special Economic Zone for meat and livestock products will largely flow from overcoming the fear of disease disrupting the commercial trade, and disease risk management through effective quarantine systems, should be a cornerstone of the SEZ design and operation.
- 4 On the supply side, the potential disruption in available livestock numbers for Sudan and changes to cross-border trade with South Sudan indicate the need for a better understanding of herd numbers and distribution, in order to be able to make accurate decisions about the scope and extent of these types of facilities.
- 5 The established and close nature of the livestock and meat trade in Sudan – for domestic and export destinations – is such that livestock acquisition by the SEZ would be seen as highly disruptive and a threat to competition. This is the basis for recommending that the SEZ precinct offers services which traders, exporters and others use, for all livestock species and for live or processed product.
- 6 In addition, the volume of livestock that could potentially go through the SEZ may also encourage companies interested in manufacturing livestock products and vaccines within the SEZ.
- 7 The attractiveness of the SEZ to investors and operators will depend on the quality of the SEZ facilities, services constructed there and the potential number of animals passing through.
- 8 The SEZ will also facilitate trade of other related livestock associated goods such as veterinary medicines and vaccines, fodder and equipment.
- 9 The report states the estimated cost of constructing the SEZ precinct and the listed facilities is approximately \$US32.264 million. Annual operating costs are calculated to be in the order of \$US160.407 million at full development (Year 5+).
- 10 With the existence of low or nil tariffs and duties on livestock and meat products out of Sudan and into Egypt it appears there may be few savings to be made in this area for the SEZ and its occupants and traders. Instead, benefits will accrue from having access to good facilities, with strong animal quarantine support systems, in an environment which is accepted by the health and veterinary authorities in Egypt, which will mean little or no disruption in the event of a disease outbreak elsewhere in the country.
- 11 The SEZ's success will depend on the ability of the owning entity and related government offices to promote the concept to investors and users and to ensure that the businesses which take up the premises and construct the facilities are robust, dependable and committed to the efficiencies and synergies which the SEZ precinct offers.

## Appendix 1: Financial support detail

### Investment Items and Costs

Item	Unit	No.	Unit Price (\$US)	Value (\$US)
Fencing				123,000
Office	Metre	6,833	18	450,000
Medical centre	M <sup>2</sup>	300	1,500	150,000
Residential - House	M <sup>2</sup>	100	1,500	300,000
Quarters	M <sup>2</sup>	300	1,000	50,000
Roads	M <sup>2</sup>	200	250	1,350,000
Utilities	M <sup>2</sup>	114,500	11.80	1,300,000
Furniture	Estimate	1	1,300,000	70,000
Communications	Estimate	1	70,000	80,000
Motor vehicle – 4x4 Wagon	Estimate	1	80,000	50,000
Utility	Each	1	50,000	90,000
Weighbridge	Each	3	30,000	60,000
Pre-project expenditure	Each	1	60,000	497,000
Animal Identification Program	Estimate	1	497,000	2,000,000
<b>sub total</b>	Estimate	1	2,000,000	<b>6,570,000</b>

### Operating Cost Items

Item	Unit	No.	Unit Price (\$US)	Value (\$US)
Personnel – Management	Person	1	30,000	30,000
Technical	Person	10	15,000	150,000
Clerk	Person	4	12,000	48,000
Labour	person	15	2,000	30,000
Communications	Quarter	4	5,000	20,000
Administration	Year	1	5,000	5,000
Travel	Year	1	7,000	7,000
Motor vehicle operating	Km	30,000	0.4	12,000
Repairs & maintenance	Estimate	1	72,000	72,000
Utilities	Estimate	1	5,000	5,000
Medical supplies	Estimate	1	2,000	2,000
Depreciation - Fencing	%	3	123,000	4,000
Office	%	3	450,000	13,500
Medical centre	%	3	150,000	4,500

<b>Item</b>	<b>Unit</b>	<b>No.</b>	<b>Unit Price (\$US)</b>	<b>Value (\$US)</b>
Residential	%	5	350,000	17,500
Roads	%	1	1,350,000	13,500
Utilities	%	5	1,300,000	65,000
Furniture	%	10	70,000	7,000
Communications	%	10	80,000	8,000
Motor vehicle	%	10	140,000	14,000
Weighbridge	%	5	60,000	3,000
Pre-project expenditure	%	0	497,000	0
Animal Identification Program	%	0	2,000,000	0

## Appendix 2: Draft regulations for the SEZ

### **PROPOSED JOINT SUDAN-EGYPT SPECIAL ECONOMIC ZONE (SEZ) REGULATIONS**

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## **CHAPTER I: GENERAL PROVISIONS**

### **Article 1. Legal Authority**

(a) This Order will set forth the Implementing Regulations necessary to implement the provisions of Law No. 17/2/2009 of 2009 Concerning Free Zones and Markets. These Regulations may be cited as the Free Zone Regulations, 2012, or also referred to as the "Regulations."

(b) The Free Zones Law and these Regulations shall be the only law, regulations, or legally authoritative enactments defining and governing FTZ and Special Economic Zone (SEZ) entities and the Sudanese FZ/SEZ regime.

(c) All applications, certificates and other documents required within the framework of these regulations shall be written in both Arabic and English, and all applications, appeals, and other written materials may be submitted to the Sudan-Egypt Special Economic Zones Authority (SESEZA) in either Arabic or English; however, the original and official Arabic version of the Law and its Regulations shall be the legally binding text.

### **Article 2. Definitions**

(a) "FZ Law" or "SEZ Law" shall mean Law No. 17/2/2009 of 2009 establishing the Free Zone and Markets Regime in Sudan.

(b) "Minister" shall mean the Minister of Investment.

(c) "Authority or SESEZA" shall refer to the Sudan-Egypt Special Economic Zone Authority established by these regulations.

(d) "General Manager" shall refer to the General Manager of the SESEZA or to staff of the SESEZA authorized by the General Manager to exercise functions granted to him by these regulations.

(e) "Board" shall refer to the Board of Directors of the SESEZA.

(f) "FTZ entity or SEZ entities" shall refer to all FTZ/SEZ Developers, SEZ Operators, and SEZ Enterprises.

(g) "FTZ/SEZ Developer" shall refer to any party holding a valid FTZ/SEZ Developer Certificate.

(h) "FTZ/SEZ Operator" shall refer to any party holding a valid FTZ/SEZ Operator Certificate.

(i) "FTZ/SEZ Enterprise" shall refer to any party holding a valid FTZ/SEZ Enterprise Certificate.

(j) "National Customs Territory" shall refer to the territory under the jurisdiction of Sudanese Customs legislation.

(k) "Private entity" shall refer to an entity satisfying the requisite incorporation and legal status requirements permitting it to be designated as a FTZ/SEZ Developer, FTZ/SEZ Operator or FTZ/SEZ Enterprise, respectively, under the Free Zones and Markets Law.

## **CHAPTER II: STRUCTURE AND ACTIVITIES OF THE SUDAN-EGYPT ECONOMIC ZONE AUTHORITY**

### **Article 3. Establishment of the Sudan-Egypt Special Economic Zone Authority (SESEZA)**

(a) The SESEZA shall be a non-profit body vested with the powers of a corporation and operated according to commercial principles.

(b) The SESEZA shall be legally constituted and organized within thirty (30) days following the adoption of these Regulations as specified in Article 58.

**Article 4. Powers and Authorities of the Sudan-Egypt Special Economic Zone Authority**

(a) To carry out its functions under the FZ/SEZ Law, the SESEZA is vested with the following powers:

- (1) to succeed in its corporate name, to sue and be sued in such corporate name, and to adopt, alter, and use a corporate seal which shall be judicially noticed;
- (2) To adopt, amend, and repeal its by-laws;
- (3) to enter into, make, perform, and carry out contracts of any kind which are necessary to the realization of its legal purposes with any person, firm, or corporation, public or private;
- (4) to receive donations, grants, bequests, and assistance of all kinds from local and foreign governments and private sector entities and utilize the same;
- (5) to exercise oversight functions over the FTZs/SEZs established under the auspices of the Sudan FZ Law and its Regulations; and,
- (6) to promulgate all necessary rules and perform any measures necessary to implement the Sudan FTZ/SEZ regime, provided they are consistent with the actual and implied intent of the FZ Law and these Regulations.

(b) No member of the SESEZA's Board of Directors, SESEZA employee, or other representative of the Authority shall disclose to any person or persons any information acquired in the course of their duties regarding the finances, technological processes, business plans, or any other information of any FTZ/SEZ Developer, Operator, or Enterprise, unless required to do so by a court of law.

(c) Neither the Board of Directors, nor any of its members or employees of the SESEZA, shall be personally liable for an act which is done or purported to be done in good faith by such person, on the direction of the Authority, or in the performance or intended performance of any duty or exercise of any power under the FTZ Law or its Regulations.

**Article 5. Organizational Structure of the Sudan-Egypt Special Economic Zone Authority**

The SESEZA shall consist of the following:

- (1) a General Manager;
- (2) a Board of Directors; and,
- (3) additional staff as necessary to carry out its functions while satisfying the Authority's mandate to operate on a commercial basis.

**Article 6. Activities and Compensation of the Board of Directors**

(a) The Board shall have the following powers and duties:

- (1) supervise and coordinate the activities of the SESEZA in order to implement the Authority's responsibilities under the FZ Law and these Regulations;
- (2) select, hire, and if necessary fire, a General Manager for the SESEZA;
- (3) determine and adopt a compensation and benefit program for the General Manager and other employees of the SESEZA;
- (4) approve an annual budget authorizing expenditures for the SESEZA and to approve a general work program for the Authority;

- (5) select an accounting firm which will conduct an annual audit of the SESEZA's activities and accounts for submission to the Minister;
  - (6) approve and make available to the public an annual report on the SESEZA's activities;
  - (7) review and approve applications seeking designation for a FTZ/SEZ Developer, FTZ/SEZ Operator and a Proposed Zone Area, in accordance with these Regulations;
  - (8) review and adjust as necessary and as allowed by these Regulations the fees, penalties, and other charges assessed on FTZ/SEZ Developers, Operators and Enterprises;
  - (9) decide on any appeal submitted to it by FTZ/SEZ Developers, Operators or Enterprises; and,
  - (10) decide as necessary on other matters pertaining to the implementation of the FZ Law and these Regulations and to authorize the General Manager to carry out activities deemed essential to implementing the FZ Law and its Regulations.
- (b) The Board shall draft and adopt corporate by-laws governing all meetings and rules of procedure of the Board not addressed by the FZ Law or its Regulations, including but not limited to internal rules regarding voting procedures, members' absences and resignations, and the compilation and distribution of minutes for each meeting.
  - (c) The Board shall meet as often as its business requires, but it shall meet at least twice per year.
  - (d) The Board shall have public sector and private sector representatives, appointed by the Minister. FTZ/SEZ entities and their principals, agents and employees shall not be eligible to serve as members of the Board.
  - (e) Private sector members of the Board may be compensated for their expenses incurred in completion of their duties as Board members. Such compensation shall not exceed the sum of \$US[agreed nominal amount] per meeting, for a total not to exceed six (6) meetings per annum.<sup>2</sup> The amount of compensation may be adjusted upward but shall not be increased within two (2) years of its last increase. Public sector members of the Board of Directors shall serve as representatives of government, and as such, shall be ineligible for compensation.

***Article 7. Activities and Responsibilities of the General Manager***

- (a) The General Manager shall be appointed by the Board, and his conditions and terms of employment, including remuneration, shall be set by the Board.
- (b) The General Manager shall be the chief executive of the SESEZA and shall carry out the duties of the Authority in accordance with the overall direction of the Board.
- (c) The General Manager shall have the following duties:
  - (1) provide up-to-date information necessary for the formulation of appropriate decisions by the Board, and submit for the consideration of the Board such policies or measures as considered necessary to carry out the purposes of the FZ Law and its Regulations;
  - (2) prepare for the Board's approval annual work plans and budgets for the SESEZA;
  - (3) execute, administer, and implement the policies and measures approved by the Board;
  - (4) employ, administer, and dismiss personnel needed to operate the Authority;
  - (5) sign any agreements and contractual documents on behalf of the SESEZA;
  - (6) submit a quarterly report to the Board on the activities of the SESEZA and the progress of the Sudan FTZ program;

- (7) open and operate bank accounts in the name of the SESEZA;
- (8) represent the SESEZA in all meetings with third parties, whether public or private or domestic or foreign;
- (9) ensure that proper books of accounts are kept of all income and expenditure, assets and liabilities, and other transactions of the SESEZA;
- (10) review applications from potential FTZ/SEZ Developers and Operators and applications for the sale of FTZs/SEZs in accordance with these Regulations;
- (11) delegate part of his powers and functions on a temporary, as-needed basis to the SESEZA staff to serve in his absence; and,
- (12) exercise such other powers and functions as may be vested in him by the Board.
- (d) The General Manager shall participate in all Board of Directors' meetings
- (e) Should the Board of Directors find that the General Manager is failing to execute his duties as directed by these Regulations or Board directives, the Board may remove and replace the General Manager by majority vote without consultation of public or private entities or representatives of government.

***Article 8. Assessment of Fees and Other Charges***

- (a) The SESEZA shall cover its operating expenses from any one or all of the following sources:
- (1) annual contributions from FTZ/SEZ Developers and Operators;
  - (2) application fees, payable upon submission of an application to the SESEZA by a potential FTZ/SEZ Developer or Operator;
  - (3) other grants, fees and service charges as decided by the Board;
  - (4) annual contributions from the Government of Sudan as established by the Ministry of Investment; and,
  - (5) proceeds of fines and penalties assessed in accordance with Article 47 of these Regulations.
- (b) The annual contributions and application fees shall be assessed at the following rates:
- (1) Annual contributions shall be paid by the FTZ Developer or FTZ Operator of each FTZ at a rate of \$USX[to be agreed] per square meter of occupied under-roof space per FTZ Enterprise in the zone per year (\$USX/sq.m./year). The minimum assessment from any FTZ Developer or FTZ Operator per Enterprise shall be \$USX,000, regardless of the actual under-roof space occupied, and the maximum contribution of each FTZ Developer or FTZ Operator per Enterprise shall not exceed \$US10,000, regardless of the actual under-roof space occupied.<sup>28</sup>The contribution shall be assessed per zone, and the payment shall be made by the FTZ Developer or FTZ Operator, as determined by the contractual arrangements between the two parties.
  - (2) Application fees shall be assessed on each application at the rate of \$US5000 for FTZ Developers, \$US1,000 for FTZ Operators and \$US500 for FTZ Enterprises and service firms.<sup>29</sup>

<sup>28</sup>Alternatively, these fees may be assessed in Sudanese pounds. A maximum contribution is established so as not to unfairly discriminate against large firms. A typical FTZ/SEZ enterprise occupies 1,000 to 3,000 sq.m<sup>2</sup>, thus a minimum fee is set at \$US2000, rather than at a higher figure, so as not to penalize smaller FTZ/SEZ firms. For administrative simplicity, the assessment is applied only to the developer/operator, who then passes on the fee -- to the extent and in whatever form it chooses -- to individual enterprises.

<sup>29</sup> Application fees are a source of up-front funds for the SESEZA. These could be denominated in Sudanese Dinars and

Such fees may be assessed on a one-time basis only, payable at the time that the application is submitted for review, and shall be refundable if the application is rejected.

(3) Application fees for the sale of FTZ designation by one FTZ Developer or FTZ Operator to another FTZ Developer or FTZ Operator shall be \$US5,000.

(d) As necessary, the Board may periodically revise these fees and charges, provided that such revision does not occur at intervals of less than one (1) year.

***Article 9. Information Dissemination Requirements***

(a) Each FTZ/SEZ Developer or Operator, each FTZ/SEZ Enterprise, and Sudanese Customs shall provide the SESEZA with all the statistical information required for monitoring the performance of the Sudan FTZ program,<sup>30</sup> provided that such requests do not require the release of proprietary or financial information and are limited to the following:

(1) for FTZ/SEZ Developers or Operators: number of FTZ/SEZ firms per zone; number of employees per zone; total under-roof space constructed; total under-roof space occupied;

(2) for FTZ/SEZ Enterprises: exports by total value, quantity, type, and destination; numbers of employees; nationality of equity; inputs by value and source; under-roof space occupied; and,

(3) for Customs: total value of exports and imports per zone; destination and origin of exports and imports by zone.

(b) These data shall be collected on a quarterly basis and will be published publicly.

(c) All data provided for such statistical purposes shall be kept completely confidential and will be published by the SESEZA only in aggregate form.

(d) The SESEZA shall publish, on an annual basis, a report discussing the progress and developments of the Sudan SEZ program.

(e) The SESEZA shall be audited by an independent auditor on an annual basis and the results of this audit shall be made publicly available.

***CHAPTER III: PROCEDURES FOR DESIGNATING ECONOMIC ZONE DEVELOPERS***

***Article 10. Designation of Economic Zone Developers***

(a) All parties interested in receiving designation as a FTZ/SEZ Developer must submit a formal application to the SESEZA, accompanied by the correct application fee.

(b) Each FTZ/SEZ Developer must own, lease, or have an option to purchase or lease all the land within the Proposed Zone Area, and must hold a legally enforceable bona fide contract for such land. In the case of land that is to be leased, the Developer must have access to the land for a minimum of thirty (30) years.

(c) A completed FTZ/SEZ Developer application shall contain the following physical and engineering information:

(1) a physical master plan, showing facilities proposed, planned infrastructure, overall layout, precise geographic and physical location, and proposed security measures to ensure lawful operation in

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raised further.

However, a moderate fee should be assessed to FTZ/SEZ operators so as not to discriminate excessively against developers who do not wish to operate the zones, while covering some of the SESEZA's costs.

<sup>30</sup> The purpose of such information collection is to provide a consistent source of data on the program. Its collection is recommended because such data serve as a good promotional tool for the SEZ program.

accordance with Article 18 below;

(2) a copy of the pre-investment engineering or technical analysis to demonstrate that the site's soil conditions, hydrology, infrastructure availability, vegetation, and area land-use are compatible with the proposed type of zone development;

(3) a copy of the executed contract, in accordance with subsection (b) above, demonstrating that the Developer has full legal access and authority to the land comprising the proposed FTZ/SEZ;

(4) the services to be provided;

(5) the construction schedule, including the date on which the initial phase of zone development is expected to be operational, as defined in Article 14 below, and the planned implementation of subsequent phases of development planned for the proposed FTZ/SEZ area; and,

(6) demonstration that the Proposed Zone Area will proceed in accordance with the pertinent environmental, safety, and infrastructure requirements as specified in Articles 14-18 and Article 42 of these Regulations.

(d) The proposed Developer must also submit the following financial information to demonstrate that the Developer has sufficient financial means to complete the proposed construction and operation of the zone:

(1) proposed ownership and management structure;

(2) statement demonstrating that the Developer has previously completed projects of a similar size and nature, thereby indicating a capability to complete the proposed FTZ/SEZ project;

(3) credit references, including references provided by the lenders, if any, which will help to finance the proposed project;

(4) statement demonstrating the financial strength of the development consortium; and,

(5) statement of the proposed paid-up share capital and the proposed loan capital for the project.

(g) Each proposed Developer shall submit two (2) notarized copies of the Developer's application to the SESEZA, one (1) copy of which must be an original.<sup>31</sup> Upon the submission of two completed copies of the application form, the General Manager of the SESEZA shall review the application to determine that it is complete. If the application is complete, the General Manager will submit it to the Board for review. If the application is clearly not complete, the General Manager may return the application to the Developer.

#### ***Article 11. Review of the Developer Application***

(a) The Board will have thirty (30) days to review the Developer application to assess its veracity and ensure that the proposed Developer satisfies the requisite criteria to receive designation as a FTZ/SEZ Developer.

(b) In reviewing the application, the Board shall assess whether the proposed Developer satisfies the following criteria to receive designation:

<sup>31</sup> It is typical practice for most investment applications (including non-FTZ investments) worldwide to be notarized, including investments made in liberal investment climates such as Singapore and Panama. Under liberal investment regimes, such notarization can be completed in the investor's home country, by the Embassy's legal counsel (or appointed representative if there is no diplomatic representation in that country). (Under less liberal regimes, the investor must travel to the proposed country of investment to receive notarization.) Notarization provides a useful initial legal authorization of a document's authenticity; if, however, it is completely at odds with typical Sudanese legal practice, it can probably be eliminated.



(1) The financial information provided on the application and the credit references demonstrate that the Developer has sufficient financial means to complete the project. In particular, the minimum subscribed capital for the proposed project, or the cash resources committed by the Developer to the project, must be equivalent to at least 20 percent of the total estimated project cost for the first phase of proposed FTZ development.

(2) A criminal check does not reveal that the Developer has been convicted of a serious offence under the laws of the State of Sudan or another country.

(3) A bona fide contract, as defined in Article 10(b) above, accompanies the application.

(4) The Developer and any partners and participants are private entities.

(5) The Developer or the Developer's partners have previous experience in constructing projects of a similar size and nature.

(c) If the Board decides that the application is accurate and satisfies the criteria for designation as a developer, the SESEZA shall issue the Developer's Certificate designating the FTZ/SEZ Developer and the Proposed Zone Area as an FTZ or SEZ. The SESEZA shall also issue an Operator's Certificate to the Developer at this time. Upon receipt of the Developer's Certificate, the Developer may commence with construction or other measures necessary to begin the zone.

(d) If, however, the Board decides that the application is inaccurate or fails to satisfy the requisite criteria, the SESEZA shall notify the Developer in writing by special delivery mail that the application has failed to qualify for designation. This notification will state the specific reason(s) why the Developer has failed to qualify for FTZ or SEZ designation. The Authority must notify the potential Developer of any problems within thirty-five (35) calendar days following the submission of the application.

(e) Following receipt of the SESEZA's negative findings, a Developer may request a rehearing. This rehearing must be held within thirty (30) calendar days following the Developer's receipt of the SESEZA's written notification. Prior to the rehearing, the Developer shall resubmit the application to the SESEZA. The Developer may either amend the application or may resubmit the original application accompanied by a letter stating why the SESEZA's assessment of ineligibility was incorrect.

(f) The Board shall again review the application. If the Board decides that the application is now satisfactory, the SESEZA shall inform the Developer that the application has been approved and issue the Developer's Certificate designating the Developer and the Proposed Zone Area as a FTZ/SEZ. The SESEZA shall also issue an Operator's Certificate to the Developer at this time.

(g) If, however, the Board concludes that the application is still inaccurate or fails to satisfy the requisite criteria, it shall inform the Developer accordingly and the area selected by the Developer shall be open for designation and development as an FTZ/SEZ site by another Developer.

#### ***Article 12. Sale of an FTZ or SEZ to Another Developer***

(a) An FTZ/SEZ Developer may sell his interests and rights in a zone to another private entity. The proposed purchaser of the zone shall apply to the SESEZA in order to demonstrate he satisfies the requisite criteria needed to qualify as a Developer. The required information shall be identical to the required information submitted by the original Developer of the zone, as specified in Article 10(c).

(b) This application shall be submitted to the SESEZA, accompanied by the appropriate application fee.

(c) If the proposed purchaser intends to develop and operate the zone in accordance with a feasibility study and other information originally submitted by the Developer in his application for Developer



designation, the proposed purchaser must submit a copy of this original application and a notarized statement indicating this intent. If the new Developer intends to alter the development plans for the FTZ/SEZ in any fashion, these changes must be specified on the applicable portions of the Developer application.

(d) Approval of the application by the SESEZA shall be automatic if the proposed purchaser satisfies the criteria to be designated as a Developer as listed in Article 10(c) with the exception that the new Developer must have available 20 percent of the financing needed to complete any remaining development of the zone, rather than 20 percent of the total project's cost;

(e) The application review and rehearing procedures to be followed by the SESEZA for the resale of a FTZ to another Developer shall be the same as those used for the review of Developer applications as outlined in Article 11.

***Article 13. Designation of Economic Zone Zone/Special Economic Zone Operators***

(a) A Developer may contract with a private entity to serve as Operator of the FTZ/SEZ. In such cases, a sub-contract shall be signed between the Developer and the proposed Operator setting forth this business arrangement. The Developer may at any time during the construction or operation of the FTZ/SEZ choose to designate another entity to operate and manage the zone.

(b) Upon signing the sub-contract, the proposed Operator shall complete a FTZ/SEZ Operator's application and submit a notarized copy to the Developer. This application will contain the following information:

(1) the names, addresses, nationality, and other particulars of the proposed Operator and the Operator's management team;

(2) credit references for the proposed Operator and the Operator's management team;

(3) a statement describing the proposed Operator's previous experience in operating and managing projects of a similar nature; and,

(4) a statement that the Operator is a private entity as defined in the FTZ Law.

(c) Following receipt of the completed application, the Developer shall issue an FTZ/SEZ Operator Certificate to the proposed Operator. The Developer will be able to issue the Certificate by signing over to the proposed Operator the Operator's Certificate received by the Developer when the Developer's application was approved by the SESEZA.

(d) The Developer will then submit the notarized application, a copy of the sub-contract signed between the two parties, and the appropriate application fee, to the SESEZA for review.

(e) The General Manager of the SESEZA shall review the application within ten (10) calendar days following receipt of the application. Credit and criminal checks may be performed as part of this review. The SESEZA shall automatically approve the assignment of FTZ/SEZ Operations to the proposed Operator if this review indicates that the information provided on the application is substantially accurate. In this case, no further action or notification is required.

(f) If, however, this review reveals that the information provided is false, the proposed Operator is not a private entity as defined in these Regulations, or members of the proposed management team have been convicted of a serious offence under the laws of Sudan or another country, the SESEZA shall notify the Developer that the information provided is inaccurate and the application is refused. This notification must state the specific reason(s) why the application is refused, and must be sent to the Developer in writing and by special delivery mail within fifteen (15) calendar days of the issuance of the Operator's Certificate to the proposed Operator.

(g) Following receipt of the written notification from the SESEZA, the proposed Operator has the

right to a rehearing before the Board of Directors of the SESEZA within ten (10) calendar days. At the rehearing, the proposed Operator will explain why the information provided on the application is correct, and why the application should be approved.

(h) The Board of Directors shall rule on the proposed Operator's application. Any decision by the Board shall be final.

#### **CHAPTER IV: FTZ ADMINISTRATION AND MANAGEMENT**

##### **Article 14. Commencement of FTZ/SEZ Development**

(a) The FTZ/SEZ Developer shall be required to make an Economic Zone operational within two (2) years from the date on which the Developer's Certificate is received.<sup>32</sup> For these purposes "operational" shall mean the completion of site development work thus permitting the establishment of the first FTZ/SEZ Enterprise within the zone; however, it is not necessary that the zone have any tenants in order to be classified as "operational."

(b) When the Developer is unable to meet the commitment to operationalize the designated zone by the end of the two-year period, he may request that the SESEZA extend the development deadline by one (1) year. This request must be submitted in writing, and must explain why the zone will not be operational within the original two-year period. An extension may be granted for the following reasons:

(1) failure to develop owing to conditions equivalent to *force majeure*, including war, natural disasters, or civil unrest which make it impossible for work to proceed; or,

(2) failure to develop owing to normal and documented business delays such as loss of markets, difficulty in obtaining financing, and the like.

(c) The SESEZA has thirty (30) calendar days to review the request and issue an extension. If adequate reasons are submitted with the request explaining why the zone is not operational and demonstrating that an extension will allow the zone to become operational within the additional one year period, the SESEZA must issue the extension. An extension shall be issued automatically should the SESEZA fail to review the request within the 30-day deadline and issue a response.

(d) An extension shall be granted for one (1) year only. No further extensions may be granted.

(e) Should the site fail to become operational by the end of the two-year period, and should the developer fail to provide a written statement requesting an extension and stating a valid reason explaining the delay, the FTZ/SEZ designation for that site shall be canceled by the SESEZA.

(f) The SESEZA shall notify the Developer in writing of said cancellation. Following the cancellation, the Developer is no longer eligible for the benefits and incentives granted to FTZ/SEZ entities under the FZ Law.

(g) Subject to that cancellation, the proposed FTZ/SEZ area shall again be open to designation upon application from another FTZ/SEZ Developer.

##### **Article 15. Adoption of Internal Rules and Procedures**

(a) Each Developer or Operator shall adopt internal rules and procedures to govern activities within the FTZ/SEZ. These rules shall ensure compliance by FTZ/SEZ Enterprises with the customs, security, environmental, and any other requirements stated in the FZ Law, these Regulations or in any other applicable laws and regulations.

<sup>32</sup> Two years, with a possible one-year extension, is proposed in order to allow sufficient time for development (and allowing for any concomitant delays), while discouraging the holding of designations simply for speculative purposes.

(b) It shall be the Developer's or Operator's responsibility to ensure compliance with these internal rules and procedures.

**Article 16. Entry/Exit Procedures**

(a) Access to an FTZ/SEZ by any party shall be subject to presentation of a pass.

(b) All persons entering an FTZ/SEZ shall wear a visible badge of identification at all times. The color, content, and shape of this identification will vary among three types of users in order to allow easy differentiation by security forces. These three types of users are: permanent users, defined as personnel, working regularly within the zone; temporary users, such as repairmen or short-term employees; and visitors.

(c) Permanent users will retain a badge for use at all times when entering or working in a zone. This badge will be surrendered to FTZ/SEZ security forces upon a permanent worker's termination of employment.

(d) Temporary users and visitors shall wear a numbered badge provided by FTZ/SEZ security forces at the entrance to the zone. Such badges must be returned to the security services when exiting the zone.

**Article 17. External Maintenance Requirements**

(a) All Developers and Operators are expected to maintain the appearance of buildings, to see that all trash and refuse is regularly collected and disposed of, and to conduct and maintain routine landscaping.

(b) Each Developer or Operator must demonstrate, either in the internal rules and procedures, or in covenants contained in the leases to be signed by each tenant, that requirements and responsibilities have been established regarding external maintenance requirements. These requirements shall state zone rules regarding, *inter alia*, the types of permissible signs, maintenance requirements and responsibilities, building requirements; permissible architectural features and construction materials, policies regarding painting and other upkeep, and trash collection and disposal.

**Article 18. Physical Security and Construction Requirements**

(a) In order to guarantee the safety of persons and goods, each FTZ/SEZ must be constructed to satisfy the following requirements:

(1) A barrier at least three (3) meters high shall be built around the entire perimeter of the zone. This barrier may be composed of either metal fencing or masonry construction.

(2) An entrance and exit for persons and goods shall be located on the same segment of the barrier, and shall be guarded on a permanent basis.

(3) The offices provided for customs and security shall be located within, and at the entrance of, the zone in order to facilitate the inspection of in-coming and out-going persons and goods.

(4) All industrial and office buildings shall be constructed at least five (5) meters from the barrier.

(5) Entrances and roads within the zone shall be built in such a way as to facilitate the movement of vehicles, machines, persons, and customs and security forces.

(6) Adequate lighting, which must be operational at all times, shall be installed on a permanent basis throughout the zone and must illuminate the barrier surrounding the perimeter of the zone.

(b) Access into an FTZ/SEZ shall be controlled by the zone security forces, as hired by the Developer or Operator, and by the Customs agents assigned to that zone.

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**CHAPTER V: PROCEDURES FOR DESIGNATING ECONOMIC ZONE ZONE/SPECIAL ECONOMIC ZONE ENTERPRISES****Article 19. Establishment of Special Economic Zone Enterprises**

(a) In order to locate within a FTZ/SEZ, a private entity or entities must first submit to the Developer or Operator a completed FTZ/SEZ Enterprise application which must demonstrate that the proposed FTZ/SEZ Enterprise shall satisfy the following requirements:

(1) the Enterprise will not be involved in any fashion in the purchase, sale or storage of prohibited or illegal items, as specified in Article 43 of these Regulations;

(2) the Enterprise will not have a deleterious effect on the environment, as specified in Article 42 of these Regulations; and,

(3) the Enterprise satisfies the requisite incorporation and legal requirements, as specified in Article 41 of these Regulations.

(c) If the application demonstrates that the requirements cited in subsection (b) above are satisfied, the FTZ/SEZ Developer/Operator may choose to negotiate and enter into a contract for the rental or purchase of property with the proposed FTZ/SEZ Enterprise. No such contract may be signed, however, if the Enterprise application indicates that these conditions will be violated.

(d) Submission of a completed application does not obligate the Developer/Operator to rent or sell property within the FTZ/SEZ to the proposed Enterprise, nor does it automatically entitle the Enterprise to receive a Certificate. In the event that a contract is not signed between the Developer or Operator and the proposed FTZ Enterprise, no Certificate shall be issued.

(e) Any contract reached between the two parties must be legally enforceable under the Sudanese legal system.

(f) Once a bona fide contract is signed between the Developer/Operator and the Enterprise, the Developer shall issue a FTZ/SEZ Enterprise Certificate to the proposed Enterprise within one (1) day, legally establishing the entity as an FTZ/SEZ Enterprise. On the same day that the FTZ/SEZ Enterprise Certificate is issued, the Developer/Operator shall submit the completed application, accompanied by a copy of signed contract between the two parties and the appropriate application fee to the SESEZA. The SESEZA shall have ten (10) calendar days to review the application and assess its veracity.

(g) If, following the review, the SESEZA determines that the information is accurate, no further notification or certification is required, and the Enterprise is free to commence operations, subject to its contract with the Developer/Operator. Should the SESEZA determine that the information provided is substantially incorrect, however, the Authority shall notify the Developer/Operator of its findings in writing. This notification will state the specific reason(s) why the application has been found to be inaccurate.

(h) Following receipt of the SESEZA's negative findings, the FTZ Developer/Operator may request a rehearing, which must be held within ten (10) calendar days following the receipt of the written notification from the SESEZA. Prior to the rehearing, the application shall be resubmitted to the SESEZA. The FTZ Developer/Operator and the Enterprise may either amend the application or may resubmit the original application accompanied by a letter stating why the SESEZA's assessment of inaccuracy was incorrect.

(i) The General Manager of the SESEZA shall again review the application. If it is decided that the application is now satisfactory, he shall inform the Developer/Operator that the Enterprise application has been approved. Should the General Manager decide that the information provided on the information is inaccurate, the FTZ/SEZ Enterprise Certificate will be canceled and the Developer

shall be informed in writing accordingly.

(j) Any FTZ/SEZ Enterprise whose application is canceled may appeal the decision to the SESEZA Board of Directors. Any such request for an appeal must be submitted in writing to the Board of Directors, who may choose to review the General Manager's decision.

***Article 20. Modification of FTZ/SEZ Enterprise Activities***

(a) The FTZ/SEZ Enterprise Certificate shall state the types of activities that the Enterprise is authorized to undertake, as requested in the Enterprise's application for designation as a FTZ/SEZ Enterprise, and the Enterprise shall be restricted to those activities. The FTZ/SEZ Enterprise shall be entitled to change activities, subject to the prior written notification of the FTZ/SEZ Developer/Operator, who will report in writing any such changes to the SESEZA.

(b) Any FTZ/SEZ Enterprise wishing to substantially change its activities from those stated on its Certificate must complete a new FTZ/SEZ Enterprise application and resubmit it to the Developer. If these new activities conform to the requirements cited in Article 19(b) above, and if they do not violate the contract signed between the Developer/Operator and that Enterprise, the Developer/Operator shall modify that Enterprise's Certificate. Following the modification of the FTZ/SEZ Enterprise Certificate, the Developer/Operator shall submit the new Enterprise application to the SESEZA for review. Said review shall occur in accordance with provisions Article 19(f)-(j) above.

***Article 21. Establishment of Service Activities within FTZs/SEZs***

(a) FTZ Developers or Operators may lease property within an FTZ/SEZ to firms that will provide services solely to FTZ/SEZ entities within the zone. These service firms shall benefit from all incentives and privileges granted to FTZ/SEZ Enterprises under the Law.

(b) Any type of service activity shall be permitted within an FTZ/SEZ, providing that the company providing such services is established as a legally independent and private company<sup>33</sup> under applicable Sudanese law, and provides services solely to FTZ/SEZ entities operating within that same FTZ.

(c) In order to conduct such activities within a FTZ, all service firms shall enter into a legally enforceable bona fide business contract with the FTZ/SEZ Developer/Operator for that zone.

(d) Once a bona fide business contract has been signed between the Developer/Operator and the service firm, the service firm shall apply for and obtain a FTZ/SEZ Enterprise Certificate from the FTZ/SEZ Developer.<sup>34</sup> The FTZ/SEZ Developer/Operator shall submit this application, accompanied by a copy of the contract between the two parties and the appropriate application fee, to the SESEZA. The application shall be subject to the same review, approval, and rehearing procedures governing other FTZ/SEZ Enterprises as outlined in Article 19(f)-(j) above. (e) The FTZ/SEZ Enterprise Certificate issued to a service company will specify that the company is a service firm and will clearly identify the services to be provided by that company within the FTZ/SEZ. A service company shall benefit from all the incentives provided to FTZ/SEZ Enterprises for as long as said company holds a bona fide contract with the FTZ Developer/Operator and continues to provide services to other FTZ/SEZ Enterprises within the zone. A service company will cease to be eligible for FTZ incentives, however, immediately upon termination of its contract with the FTZ Developer/Operator or the

<sup>33</sup> Since these firms will be receiving FTZ incentives, they should be established as legally independent entities, with separate accounting records, from any parent or related companies operating in the Sudan National Customs territory, in order to reduce the potential for tax evasion by the parent company. The actual language used to describe such a company, obviously, must be adjusted to reflect Sudanese corporate law.

<sup>34</sup> Since these firms will receive FTZ incentives, they should have to formally apply for FTZ enterprise designation and be subject to final review and approval by the SESEZA.

cessation of its provision of services within the zone.

## **CHAPTER VI: CUSTOMS RULES AND PROCEDURES**

### **Article 22. Establishment of Customs Zone Offices within FTZs/SEZs**

(a) A Customs Zone Office shall be established within each Economic Zone Zone/Special Economic Zone. This Office shall have the following responsibilities:

- (1) enforcing physical security measures;
- (2) inspecting in-coming merchandise when it is unloaded at each FTZ/SEZ entity;
- (3) inspecting out-going merchandise when it is loaded at each FTZ/SEZ entity;
- (4) inspecting zone merchandise in the inventories of FTZ/SEZ entities;
- (5) maintaining records of merchandise entering and leaving the FTZ/SEZ; and,
- (6) preparing and submitting reports as required by these Regulations.

(b) The operational and equipment costs of the Customs Office in each FTZ/SEZ shall be covered by the Developer or Operator of that zone. Each FTZ/SEZ Developer or Operator will provide Customs agents with appropriate office facilities located within, and at the entrance of, the Zone. In order to expedite customs formalities, these office facilities shall be equipped with the equipment required for their operation, including computer terminals and printers appropriate for customs recordkeeping requirements, as well as telephone and facsimile machines.

(c) The salaries of Customs agents shall be paid by the Sudanese Customs Service during normal working hours.<sup>35</sup> All work conducted by Customs agents outside of normal working hours shall be paid for directly by the FTZ Developer/Operator.<sup>36</sup>

(d) FTZ/SEZ Developers, Operators, and Enterprises must permit Customs agents access to FTZ/SEZ facilities and accounting records to conduct merchandise examinations and inventory checks, to review records, and to carry out other lawful tasks. FTZ personnel will provide Customs agents with explanations of all records and operating procedures as needed; furnish special equipment necessary for conducting such inspections such as weighing equipment or protective clothing; and will cooperate with Customs agents to ensure the prompt completion of customs duties.

(e) Only the Customs agents assigned to the Customs Zone Office for that specific zone will have authority to access FTZ/SEZ entities' facilities and records.

### **Article 23. Customs Procedures to Facilitate FTZ/SEZ Operations**

(a) Except for exceptional circumstances, customs approvals, inspections and controls shall be carried out within twenty-four (24) hours from the time that the documents are received for processing by the competent Customs Office.

(b) Official documents forwarded to a Customs Office by facsimile, as well as photocopied documents, shall be valid for administrative purposes and must be processed in order to provide the

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<sup>35</sup>This follows the practice in many FTZ countries, including the Dominican Republic, Costa Rica, and Cameroon, where the government continues to pay Customs agents' salaries during normal working hours. In Togo, the developer is responsible for paying the entire salary of customs agents assigned to a zone; annual salaries in Togo are so low that this does not represent an excessive burden on the developer. This practice could also be adopted in Sudan, but should be consistent for all FZs and SEZs in the country.

<sup>36</sup>In most successful FTZs and SEZs, Customs agents are permanently available on a 24-hour basis.



requested service in time. However, the originals of such documents must be retained by the FTZ/SEZ entity and made available to Customs agents upon request.

***Article 24. Zone Physical Controls***

(a) Customs agents assigned to each Customs Zone Office shall be responsible for ensuring that the physical and security requirements listed in Article 18 above shall be maintained at all times.

(b) Customs agents shall be responsible for assuring that fenced FTZ/SEZ areas are protected against improper intrusion and unauthorized transfer of zone merchandise through:

- (1) the posting of security guards and/or Customs agents at strategic locations throughout the zone;
- (2) limited personnel access to zone facilities through controlled entrances and only with proper authority and reason; and,
- (3) the use of properly prepared and authorized documentation to enter or remove merchandise into or from each FTZ/SEZ facility.

***Article 25. Procedures Regarding Imports***

(a) The Customs Office of the port or airport where in-coming goods are unloaded shall grant authorization to transfer the goods from the point of entry to a FTZ/SEZ upon receipt of a properly prepared FTZ/SEZ entry declaration from the FTZ/SEZ entity or its agent.

(b) The FTZ/SEZ entry declaration for such transfer shall include detailed documentation stating clearly the origin, destination, identity, quantity and value of the goods concerned. This documentation shall consist of all normal international shipping documents and will include the following:

- (1) commercial invoice;
- (2) bill of lading (either an airbill or waybill);
- (3) packing list;
- (4) certificate of origin; and
- (5) any other commercial documentation which establishes the merchandise identity, quantity, owner, value, source, destination, and other associated information.

Pro-forma invoices or other documents will be accepted only in unusual situations and only for provisional use until the final, official documents are made available.

(c) The entry declaration and accompanying documentation may be submitted to the Customs Office at the point of entry either at the time of arrival of the goods, or when the supporting documentation becomes available. The Customs office at the point of entry will accept and process the entry declaration and supporting documentation as soon as it is received, even if submitted before the arrival of the goods, and customs policies and personnel shall encourage and support pre-arrival processing whenever possible.

(d) The Customs Office shall review the entry declaration to ascertain compliance with the provisions of the Customs Code and, in case of conformity, issue an attestation to the applicant for the immediate release of the goods. Such attestation shall amount to authorization for such goods to leave the port of entry and to be transferred to the zone. No other authorization shall be necessary. The Customs Office shall immediately place a customs seal on the merchandise container or package and release the goods without any inspection or verification for immediate transport, under customs escort, to the zone of destination under the authority of the consignee, owner, or designated agent.

(e) The deferral of merchandise inspection and examination at the port of arrival is a privilege provided by the government to all FTZ/SEZ entities that have not violated pertinent laws and regulations and have not otherwise demonstrated a lack of competency and trustworthiness. This privilege may be temporarily suspended for FTZ/SEZ entities that have been found to violate such laws and regulations in accordance with Article 32(f) below.

(f) Until the merchandise arrives at the FTZ/SEZ destination, the consignee or owner assumes all responsibilities for assuring the safety of the merchandise and will be required to pay all duty, import taxes, and any assessed fines and penalties on merchandise that does not arrive at the FTZ/SEZ. The owner or consignee, however, shall not be required to post a bond or guarantee for the goods during transit.

(g) A copy of the entry declaration will be presented to the Customs agent at the FTZ/SEZ to document the arrival of the merchandise at the FTZ/SEZ and to enable the entry of the goods into the Zone. The entry declaration shall be supported by detailed documentation establishing the identity, quantity, and origin of such goods.

(h) Upon the arrival of the goods at the designated FTZ/SEZ entity within the zone, the merchandise will be held until an agent from the Customs Zone Office authorizes the breaking of the customs seal and the opening of the container or package. The Customs agent shall examine and verify the goods as they are unloaded onto the premises of the FTZ entity concerned. This inspection shall verify that no prohibited articles or materials, as defined in Article 43 below, are included in the shipment, and that the accompanying documentation is in accordance with the actual goods being unloaded.

(i) Upon the entry of the goods into the zone of destination and following inspection and verification by the zone's Customs services, the Customs Zone Office shall prepare a report on the results of its verification to be forwarded to the Sudanese Customs Authority clearly showing the quantities received, surpluses, possible deficits, and consistency with the related commercial documents.

(j) Should any discrepancies be detected by Customs inspectors between the shipping documents and the content of the goods, the SESEZA must be notified of such discrepancies at this time.

#### ***Article 26. Procedures Regarding Exports***

(a) Prior to the loading and shipment of goods for export, the representative of the FTZ/SEZ entity shall submit to the Customs Zone Office an application for the transfer of goods from the zone for export. All transfers from the zone shall be reported and authorized on a copy of the applicable FTZ/SEZ declaration upon which the merchandise was originally entered into the zone.

(b) The Customs Zone Office shall immediately take the necessary steps to examine the goods to be transferred to ensure that no prohibited articles as defined in Article 43 are included, and to ensure that the merchandise corresponds to the accompanying documentation. This examination and loading shall take place at the premises of the FTZ/SEZ entity exporting the goods. Upon approval of the supervising Customs agent, the FTZ/SEZ entity may package or containerize the material in preparation for shipment.

(c) Following the packaging or containerizing of the material, the Customs agent shall affix seals on the packages or containers and allow the shipment to be transferred to the port or airport of shipping. The approved zone transfer declaration, bearing the stamp of Customs approval, shall be the only authority needed for the FTZ/SEZ entity to remove the merchandise from the zone and transfer it, under Customs escort, to the point of international embarkation.

(d) Until the merchandise arrives at the point of embarkation, the consignee or owner assumes all responsibilities for assuring the safety of the merchandise and will be required to pay all applicable duties, import taxes, and any assessed fines or penalties on merchandise that does not arrive at the point of embarkation. The owner or consignee, however, shall not be required to post a bond or guarantee for the goods during transit.



(e) Once the goods have exited the zone, the Customs Zone Office shall forward a detailed report to the Sudanese Customs Authority on each such transfer, indicating the description, quantities, and destination of the goods in question.

(f) FTZ/SEZ merchandise arriving at the point of embarkation shall be placed under constructive Customs custody pending loading on the exporting vessel. The Customs Office at that location shall ensure that the custom seals are unbroken. If the seals are unbroken, the Customs Office shall immediately authorize, under its supervision, the loading of the goods for export.

(g) The Customs Office at the point of embarkation shall not open the container or package or inspect FTZ/SEZ merchandise destined for export unless the customs seals are broken or otherwise show evidence of tampering.

(h) The deferral of merchandise inspection and examination at the point of embarkation is a privilege provided by the government to all FTZ/SEZ entities that have not violated pertinent laws and regulations, and who have not otherwise demonstrated a lack of competency and trustworthiness. This privilege may be temporarily suspended for FTZ/SEZ entities that have been found to violate such laws and regulations in accordance with Article 32(f) below.

(i) Upon the departure of such goods, the Customs Office that processed the shipment shall forward a copy of the declaration of export to the Sudan Customs Authority.

***Article 27. Procedures Governing the Export of Goods from FTZs/SEZs to the National Customs Territory***

(a) FTZ/SEZ goods and services sold to the national customs territory shall be considered as imports and assessed for all applicable custom duties and taxes as provided for in applicable legislation.

(b) Prior to the loading and shipment of goods for consumption in the national customs territory, the representative of the FTZ entity shall submit to the Customs Zone Office an application for the transfer of goods from the zone for export.

(c) The Customs Zone Office shall immediately take the necessary steps to examine the goods to be transferred and supervise the loading of such goods. This examination and loading shall take place at the premises of the FTZ entity exporting the goods. Upon approval of the supervising Customs agent, the FTZ entity may package or containerize the material in preparation for shipment. Goods destined for the national customs territory will not be sealed by Customs agents.

(d) Goods entering the national customs territory will be accompanied by the approved zone transfer declaration bearing the stamp of Customs approval, and an entry declaration for consumption prepared in accordance with the applicable regulations. At the time of entry of such goods into the national customs territory, Customs agents shall assess such taxes and duties as may be due.

(e) FTZ entities shall be able to sell damaged, sub-standard, or sample goods without restriction to the national customs territory, subject to the payment of all applicable taxes and duties and the provisions of Article 37 below, should a buyer be available for the purchase of such goods.

***Article 28. Procedures Governing the Temporary Entry of FTZ/SEZ Goods into the National Customs Territory***

(a) FTZ/SEZ entities shall be permitted to temporarily export duty-free FTZ goods into the national customs territory for maintenance and repairs or for exhibition at publicity events or for other promotional purposes. Such exports may be made in small quantities only, may not include samples of goods which are intended to be distributed as promotional items, and may not be exported for a period of longer than two (2) weeks.

(b) FTZ/SEZ entities wishing to export temporarily such goods must provide the Customs Zones

Office with a detailed list of such goods, including complete descriptions, sizes, and quantities to be exported. Customs shall inspect such temporary imports upon entry into Sudan from a FTZ/SEZ.

(c) Customs shall inspect such temporary imports upon their return to the FTZ/SEZ. Any discrepancy between these items and the list of goods originally submitted to Customs will be the responsibility of the FTZ/SEZ entity, and full duties and any other taxes shall be assessed on these missing items.

***Article 29. Procedures Governing the Import of Goods from the National Customs Territory to an FTZ/SEZ***

FTZ/SEZ entities shall keep separate accounting books for goods purchased from Domestic Sudanese businesses located within the national customs territory, and shall be able, at any time, to identify such goods held within and those transferred from the zone.

***Article 30. Procedures Governing the Transfer of Goods Between FTZs/SEZs***

(a) Zone merchandise may be transferred from one FTZ/SEZ to another on a permanent basis if documented with the proper transfer declaration and carried out in accordance with Customs review and approval procedures governing imports into an FTZ/SEZ as outlined in Article 25 above.

(b) Zone merchandise may be transferred from one FTZ/SEZ to another for temporary purposes such as, but not limited to, repair, equipment loans, or cleaning services. Temporary transfers must be supported by the appropriate declaration and will be subject to Customs review and approval procedures governing imports into an FTZ/SEZ as outlined in Article 25 above.

***Article 31. Recordkeeping Requirements.***

(a) FTZ/SEZ Developers, Operators, and Enterprises shall keep complete accounting and inventory records relating to transfer of merchandise, equipment, and materials to and from the FTZs.<sup>37</sup>

(b) The documents shall clearly show the identity of all goods exempt from custom duties and taxes, be they of local or foreign origin. The documents shall specify, in particular, if such goods have been received, shipped or stored; if they are manufactured within the zone concerned; if they have been damaged within the said zone, or if they have been lost or used within the zone. All records shall be kept on a current basis and will be made available to Customs agents for review and verification of actual inventory on-hand.

(c) The FTZ Developer or Operator, and each FTZ Enterprise within a zone shall submit to the Customs Zone Office, on a monthly basis, a complete report on the flow of goods, specifying:

- (1) the quantity and description of local or foreign goods that are available at the beginning of the month in question;
- (2) the quantity and description of local or foreign goods that are used within that period;
- (3) the quantity and value of goods imported;
- (4) the quantity and description of material consumed or wasted with appropriate segregation of waste into valuable and non-valuable waste;
- (5) the quantity and value of exports and the country of export; and,

<sup>37</sup>Despite the liberalized nature of customs operations in FTZs, SEZs it is still necessary to ensure that merchandise is truly entered into the zone and not improperly diverted into domestic commerce. Documentation on FTZ imports and exports is necessary to develop statistical information by which to measure the economic impact of zone operations, and to assess duties, taxes, and penalties when merchandise is missing or is transferred to the national customs territory. Since these records are usually computerized, it does not represent a burdensome requirement on FTZ entities.

(6) the stock of goods remaining at the end of the period.

(d) Each Customs Zone Office shall submit to the Sudanese Customs Authority on a monthly basis, a complete report on the movement of incoming and outgoing goods within their respective zones, and consistent with their customs registers, inspection reports and authorizations processed during that period. The report shall be submitted no later than fifteen (15) days after the end of the month in question.

(e) The Sudanese Customs Authority shall prepare on a quarterly basis a consolidated report, comparing the monthly reports of FTZ/SEZ Developers, Operators, and Enterprises with those submitted by the Customs Zone Offices, and prepare a summary report on FTZ/SEZ customs activities. This report shall be made available to the Minister no later than thirty (30) days after the end of the quarter in question.

***Article 32. Fines and Penalties for Violations of Customs Procedures***

(a) Irregularities recorded by Customs agents or reported by FTZ/SEZ entities may give rise to fines or penalties where they result from acts aimed at:

- (1) prejudicing illegally the amount of duties and taxes owed to the Government of Sudan;
- (2) introducing unauthorized goods and items into the FTZ or into the national customs territory; or
- (3) evading the provisions of the FTZ Law, these Regulations or other applicable legislation.

(b) FTZ/SEZ entities shall report to the Customs Zone Office all shortages, overages, damaged merchandise, or other discrepancies noticed during or after the unloading of goods. The presence of a Customs agent during the unloading process will not relieve the FTZ entity of this responsibility.

(c) The designated zone user will be responsible for all merchandise entered into its FTZ/SEZ facilities and will be liable for duty, import taxes, and any fines and penalties for any merchandise determined to be missing or discovered to have exited the zone without proper documentation and approvals.

(d) FTZ/SEZ entities shall not be penalized for discrepancies between actual available quantities and the quantities shown on the official documents if it can be shown that a shortage resulted from reasonable causes. If, however, Customs is not satisfied that relief from liability is warranted, the FTZ/SEZ entity will be responsible for payment of all appropriate import duties and taxes as if the merchandise had been imported into the national customs territory for consumption, plus any applicable fines and penalties.

(e) In any case, adequate adjustments shall be made to the books regarding discrepancies in the quantities of goods for which enterprises are to be subsequently accountable.

(f) Customs shall have the authority to apply a system of fines and penalties against violators for merchandise shortages. In the case of firms found guilty of multiple offenses, Customs may suspend for a period of up to one (1) year the privilege whereby merchandise inspection and examination is deferred at the port of arrival and port of departure as discussed in Articles 25(e) and 26(h) above. In the case of severe and repeated violations, Customs may request that the certificate of a FTZ/SEZ entity be canceled. Such request shall be forwarded to the SESEZA which shall decide on such cancellation in accordance with the violation procedures outlined in Article 47(f)-(g) below.

***CHAPTER VII: THE ECONOMIC ZONE/SPECIAL ECONOMIC ZONE REGIME***

***Article 33. Eligibility for Free Trade Zone/Special Economic Zone Benefits***

All FTZ /SEZ entities are entitled to the full range of benefits and incentives of the Sudan FTZ/SEZ Regime as established by the FZ Law and these Regulations. Any FTZ/SEZ entity possessing an FTZ/SEZ Developer Certificate, Operator Certificate, or Enterprise Certificate shall be defined as eligible for these benefits.

***Article 34. Tax and Duty Exemptions for FTZ/SEZ Entities***

- (a) All FTZ/SEZ<sup>38</sup> entities shall be entitled to 100 percent exemption from the payment of taxes and fees applicable within the national customs territory.
- (b) Goods and capital equipment imported to an FTZ/SEZ or exported from an FTZ/SEZ to a point outside the national customs territory shall be exempted from all Customs duties, levies and charges applicable within the national customs territories.
- (c) The above notwithstanding, FT/SEZ entities shall be subject to the service fees and charges mandated for FTZ/SEZ entities by the SESEZA.

***Article 35. Importation and Use of Vehicles by FTZ/SEZ Developers, Operators, & Enterprises<sup>39</sup>***

- (a) FTZ/SEZ Enterprises, Operators, and Developers may import free of all tax and duties any transportation equipment, with the exception of passenger and private cars and fuel used exclusively within the FTZ/SEZ, needed for use in FTZ/SEZ operations.
- (b) Each FTZ/SEZ Enterprise, Operator, and Developer may import duty- and tax-free a maximum of four (4) vehicles each year.
- (c) Any vehicle which will be used by a FTZ entity and which will of necessity travel temporarily outside of a FTZ shall bear a special identification plate or other marking to indicate that it is an FTZ/SEZ vehicle. This plate or marking must be displayed on the vehicle at all times.
- (d) All FTZ/SEZ vehicles must be registered with the proper authorities in a manner similar to that used for diplomatic vehicles in Sudan.
- (e) FTZ/SEZ vehicles may not be transferred to any person or entity outside the zone for a period of five (5) years following importation of the vehicle. This prohibition does not apply to the transfer, sale, or lease of vehicles to other FTZ/SEZ entities.
- (f) At the end of the five-year period following the importation of the vehicle, the vehicle may be sold to a non-FTZ/SEZ entity. Such sales will be treated as imports into the national customs territory, and as such, shall be subject to all applicable import duties, taxes, or other fees normally levied on such sales. At the time of sale, the special identification plate indicating that it is a FTZ vehicle shall be removed and resubmitted to the issuing authority.
- (g) Such vehicles may also be donated to educational, charitable, or other institutions. Payment of any duties and taxes before such vehicles may be imported to the national customs territory will be subject to pertinent Sudanese law or regulations governing donations of duty-free items to such institutions.

***Article 36. One Stop Center***

The FTZ/SEZ Developer/Operator, in cooperation with Customs and other relevant agencies, will establish a one-stop center for receiving all applications and declarations by FTZ Enterprises and

<sup>38</sup>These provisions are consistent with the exemptions and privileges enumerated in the 2009 FZ Law.

<sup>39</sup> Many SEZ/FTZ regimes limit the number of vehicles that can be imported by SEZ/FTZ entities and impose conditions on their resale into the national customs territory, to limit opportunities for fraud and misuse, especially because of the high duty rates vehicles typically attract.

issuing all certificates, permits and approvals at a central location. The Customs Office will be located within the one-stop center.

***Article 37. Rights and Obligations of FTZ/SEZ Developers and Operators***

(a) FTZ/SEZ Developers and Operators shall have the right to:

- (1) manage, operate and maintain an FTZ/SEZ in the designated area, including all infrastructure, buildings, warehouses, factory shells and other facilities and improvements necessary for its operation;
- (2) freely make investments and earn monies from such investments made in connection with operating the FTZ/SEZ;
- (3) sell, lease or sublet real property within the FTZ/SEZ, including land and buildings thereon, to FTZ/SEZ Enterprises;
- (4) impose and collect rents, service charges and other fees from FTZ/SEZ Enterprises;
- (5) provide and coordinate the provision of utility services such as water, electricity and other power, telecommunications, sewerage and other services to FTZ/SEZ Enterprises within the zone;
- (6) engage contractors and sub-contractors, agents and suppliers of services, for the performance of services in the FTZ/SEZ;
- (7) advertise and promote the FTZ/SEZ to prospective local and foreign investors, service providers and other businesses;
- (8) contract with public and private service providers for the provisions of infrastructure, utilities and other services;
- (9) freely assign partial or complete rights to the revenues of the FTZ/SEZ to a public or private entity, whether foreign or domestic;
- (10) freely receive debt financing from public and private entities, whether foreign or domestic, including the free issue of bonds and other securities;
- (11) adopt and apply rules within the FTZ/SEZ which promote its safe, successful and efficient operation in compliance with the FZ Law and these Regulations; and
- (12) enjoy all other rights, incentives and other benefits accorded to an FTZ/SEZ Developer, Operator or Enterprise under these Regulations without the need for any other licenses, approvals or authorizations.

(b) FTZ/SEZ Developers and Operators shall have the responsibility to:

- (1) comply with the FZ Law, these Regulations and other applicable legislation;
- (2) ensure that FTZ/SEZ Enterprises comply with the FZ Law, these Regulations and other applicable legislation;
- (3) maintain adequate security measures within the FTZ/SEZ, including adequate fencing and enclosures to separate the zone from the national customs territory;
- (4) provide facilities in the FTZ/SEZ for the Customs Office;
- (5) maintain adequate and proper financial records and accounts and other records relating to the operation of the FTZ/SEZ;

- (6) report to the Authority and specific government departments on FTZ/SEZ activities, performance and development on a regular basis; and
- (7) conduct other activities required of an FTZ/SEZ Developer and Operator by these Regulations.

***Article 38. Domestic Sales to Free Trade Zones/Special Economic Zones***

- (a) Sales by domestic Sudanese Businesses to entities within an FTZ/SEZ shall be treated as exports, and as such, shall receive the full benefits and incentives granted to exporters under Sudanese law.<sup>40</sup>
- (b) These sales shall be subject to the same conditions, procedures, and lines of administrative authority currently governing all non-FTZ exports from Sudan.

***Article 39. FTZ Sales to the National Customs Territory***

- (a) All sales to the local market within the national customs territory will be subject to the full range of duties and taxes affecting imports as provided for in Article 27.
- (b) For the purpose of assessing duties, the value of the merchandise upon importation into the national customs territory shall be calculated: i) in terms of the price paid or payable for the inputs of both foreign and domestic origin comprising the merchandise when they entered the zone, less international and domestic shipment and insurance costs; or ii) in terms of the customs value of the goods as entered into the national customs territory.<sup>41</sup>
- (c) All sales to the national customs territory shall be subject to the customs inspection and reporting requirements specified in Article 28.

***CHAPTER VIII: APPLICABLE PROVISIONS OF THE SUDANESE LEGAL CODE***

***Article 40. General Applicability of the Sudanese Legal Code***

As stated in Article 1, the FZ Law and these Regulations are the only applicable legal and authoritative enactments governing the activities, purpose, and operation of the FTZ/SEZ regime and FTZ/SEZ entities within Sudan. Notwithstanding that limitation, the following defined provisions of the Sudanese legal code shall apply to all FTZ/SEZ entities.

***Article 41. Legal and Incorporation Requirements***

All private entities, in order to be eligible to receive a FTZ/SEZ Developer, Operator or Enterprise Certificate, must satisfy the following specified legal and regulatory requirements for incorporated companies under the laws of Sudan.

***Article 42. Environmental Protection***

- (a) FTZ/SEZ Enterprises are forbidden to undertake any kind of industrial and commercial activities that may have a deleterious impact on the environment prohibited by Sudanese environmental legislation.
- (b) An FTZ/SEZ Certificate shall be automatically denied by a FTZ/SEZ Developer or Operator to any enterprise whose application demonstrates that its activities in any fashion will have such a

<sup>40</sup> This is to encourage backward linkages from the FTZs to Sudanese exporters located in the national customs territory.

<sup>41</sup> Using the first method, duty is assessed only on a product's components, rather than its final value -- i.e., duty is not assessed on the value added that occurs in the FTZ. This method of assessment gives FTZ firms a slight cost advantage over importers of similar products, who are assessed duty on the total value of the final product, not on the product's components. Using the second method eliminates this advantage, but is far simpler to administer and is also fairer with respect to competition with companies not located in the FTZ/SEZ.



deleterious environmental impact.

(c) An FTZ/SEZ Certificate may be issued subject to conditions relating to environmental protection, which shall be specified in the Certificate.

***Article 43. Prohibited and Illegal Substances***

(a) As specified in the FZ Law, FTZ/SEZ Enterprises are forbidden to utilize, produce, store, or take into an FTZ/SEZ the following prohibited goods and substances:

- (1) goods subject to international or local ban;
- (2) firearms, ammunition, and explosives, save as determined by the competent security and defense authorities;
- (3) toxic or hazardous materials as determined by the SESEZA and other competent authorities.

(b) An FTZ/SEZ Certificate shall be automatically denied by a Developer to any enterprise whose application demonstrates that its activities in any fashion will involve the above listed substances or any other items prohibited by the laws of Sudan or binding international conventions to which Sudan is a signatory.

***Article 44. Free Trade Zone/Special Economic Zone Labor Regulations***

(a) FTZ/SEZ Enterprises and Developers and Operators may freely negotiate and establish contracts of employment with their workers that specify their terms of employment. These negotiated terms of employment shall take legal precedence over existing or future provisions of the Sudan Labor Code and any related regulations.<sup>42</sup> Notwithstanding this precedence, any contract of employment between a FTZ/SEZ Enterprise, FTZ/SEZ Developer, or FTZ/SEZ Operator and their employees must include due regard to national provisions regarding minimum age requirements for the employment of children and minimum health and safety occupational standards, maximum weekly working hours, and overtime pay, where these provisions are in force.

***CHAPTER IX: ENFORCEMENT, DISPUTES, AND DISPUTES SETTLEMENT***

***Article 45. Enforcement***

(a) The SESEZA, through its General Manager and Board of Directors, shall be the only agency, institution, or regulatory body empowered to enforce the FZ Law and these Regulations, and to determine whether any violations of this Act and these Regulations has occurred. The Sudanese Customs service will assist the SESEZA in this role insofar as such enforcement may involve the import or export of goods, the documentation applicable to such goods, or the physical security of such goods.

(b) The SESEZA may, should it elect to do so, invite the assistance of other specialized agencies of the Government of Sudan to assist in the evaluation or determination of such violations, but these agencies may participate only in an advisory role, and only upon invitation from the SESEZA.

***Article 46. Right of the SESEZA to Investigate Possible Violations***

(a) The General Manager shall have the right to investigate possible violations of the FZ Law or these Regulations. These investigations may be made without prior notification; however, no FTZ/SEZ entity may be visited for investigatory purposes more than two (2) times per year without prior written notification. Upon such visits, the General Manager shall comply with internal company rules and

<sup>42</sup> These exemptions of SEZ/FTZ entities from certain provisions of domestic labor codes are often controversial, and many countries do not allow them.

procedures regarding safety and the protection of sensitive materials or processes.

(b) FTZ/SEZ entities that have previously been fined or warned following a violation, as discussed in Article 47, shall be subject to inspection without notification or limit for up to one (1) year from the date of the last violation.

(c) Any FTZ/SEZ entity that believes that the General Manager is conducting his investigations without justification, or with the intent of harassment, may complain in writing to the Board and request an inquiry.

***Article 47. Violations of the FZ Law or the FZ Regulations***

(a) All FTZ/SEZ entities are required to comply with the conditions and requirements of operation listed on their FTZ/SEZ Developer, Operator, or Enterprise Certificate. The violation of such conditions is grounds for the imposition of fines and/or the revocation of the Certificate.

(b) Any FTZ/SEZ entity found to be producing, storing, or utilizing any prohibited substances as defined in Article 43 shall automatically lose its FTZ/SEZ Certificate and all the benefits and incentives offered to FTZ/SEZ entities under the FTZ Law and these Regulations.

(c) Any FTZ/SEZ entity whose operations are found to violate environmental legislation or the conditions of the Certificate with respect to environmental protections as defined in Article 42 shall automatically lose its Certificate and all the benefits and incentives offered to FTZ/SEZ entities under the FZ Law and these Regulations.

(d) Any discrepancies detected by Customs agents between a FTZ/SEZ entity's imports, exports, or transfers and the accompanying documentation may be subject to a fine imposed by the SESEZA. The SESEZA shall have one (1) month from the time that Customs informs the SESEZA of such activity to take action.

(e) Any FTZ/SEZ entity that is found by the SESEZA to have violated any other provision of the FZ Law or these Regulations may be officially warned and may be fined by the General Manager of the SESEZA.

(f) Any FTZ/SEZ entity that has previously been warned and/or fined by the SESEZA for an offense of any type, and that is found to have committed continuing violations, may be liable for the permanent revocation of its Certificate.

(g) The Board shall have the exclusive power to revoke a Certificate belonging to an FTZ/SEZ entity. Any decision by the Board to revoke a certificate may be appealed by the FTZ/SEZ entity in accordance with the procedures contained in Article 49.

***Article 48. Violations by Foreign Nationals***

(a) All foreign nationals working for an FTZ/SEZ entity are expected to observe the requirements and conditions governing the employment of foreign nationals in Sudan. The work permit of any foreign national failing to observe these requirements may be revoked by the SESEZA, after proper notice and hearing.

(b) Should the SESEZA believe that a foreign national employed in an FTZ/SEZ has violated the terms of his work permit, the SESEZA shall notify the foreign national in writing of the alleged offense. The foreign national then has thirty (30) calendar days to respond and to explain in writing or in person why the alleged offense is untrue.

(c) Should the foreign national fail to satisfactorily demonstrate that the allegation is without merit, or should the foreign national fail to respond to the Authority's charges, the SESEZA may decide to revoke the foreign national's work permit. The SESEZA shall accordingly inform the ministry/agency responsible for issuing foreign national work permits of this ruling, and shall direct the employee's



permit to be revoked.

(d) Any foreign national whose work permit has been revoked shall be prohibited from continuing to work in an FTZ/SEZ or elsewhere in Sudan. The expulsion of such foreign nationals shall only take place in accordance with the provisions of the relevant Sudanese laws and regulations in force.

***Article 49. Disputes and Dispute Settlement***

(a) A dispute between an FTZ/SEZ entity or a foreign national and the SESEZA concerning a fine, revocation of a Certificate, revocation of a foreign national's work permit or any other such dispute may be appealed to the Board.

(b) In case the Board fails to resolve the dispute to mutual satisfaction, the FTZ/SEZ entity or foreign national may seek resolution through the Sudanese national court system.

(c) With the agreement of the parties, the dispute may also be submitted to local arbitration for resolution as provided for in Sudanese law.

(d) Parties may also refer disputes to international arbitration as provided in binding international conventions to which Sudan is a party.

(e) In the case of a dispute between FTZ/SEZ Developers, Operators, and/or Enterprises, resolution of such dispute shall be governed by the contractual agreements negotiated between the parties. Should such agreements fail to provide for dispute resolution, the parties to the dispute may seek resolution through local arbitration or through legal action in the courts of Sudan.

***CHAPTER X: MEASURES REGARDING THE BANKRUPTCY OR LIQUIDATION OF FTZ/SEZ DEVELOPERS, OPERATORS, AND ENTERPRISES***

***Article 50. Bankruptcy and Liquidation Measures***

(a) The bankruptcy or liquidation of FTZ/SEZ Developers, Operators, or Enterprises shall be carried out in accordance with the laws and regulations relating to bankruptcy and liquidations in force in Sudan.

(b) All liabilities incurred for reasons relating to bankruptcy and liquidation shall be governed by the appropriate provisions of Sudanese law.

***CHAPTER XI: PROTECTION OF PROPERTY AND OTHER RIGHTS***

***Article 51. Guarantee of Rights and Privileges***

(a) The rights and privileges granted to all FTZ/SEZ entities under the FZ Law may not be abridged in any fashion by any law or regulation or by the establishment of additional obligations, without the payment of prompt, adequate and effective compensation.

(b) Any FTZ/SEZ entity seeking redress for the abridgement of their rights and privileges shall do so in accordance with the rules and procedures governing the settlement of disputes as outlined in Article 49.

***Article 52. Protection of Property***

(a) All FTZ/SEZ entities have an absolute right to control of their properties. This right may not be usurped by the Government of Sudan for any reason, except where this is done in accordance with due process of law, in pursuance in good faith of a public purpose, without discrimination on the basis of nationality and against the payment of prompt, adequate and effective compensation.

(b) Should the investor decide that the compensation offered by the State of Sudan is not appropriate,

the investor has the right to appeal the decision in accordance with the dispute settlement guidelines established in Article 49.

(c) Compensation according to the above criteria shall not be due in case the investment is taken by Court order as a sanction against an investor who has violated the State's laws and regulations. Any disputes regarding claims for compensation in this case shall be settled in accordance with the provisions of Article 49.

## ***CHAPTER XII: MISCELLANEOUS PROVISIONS***

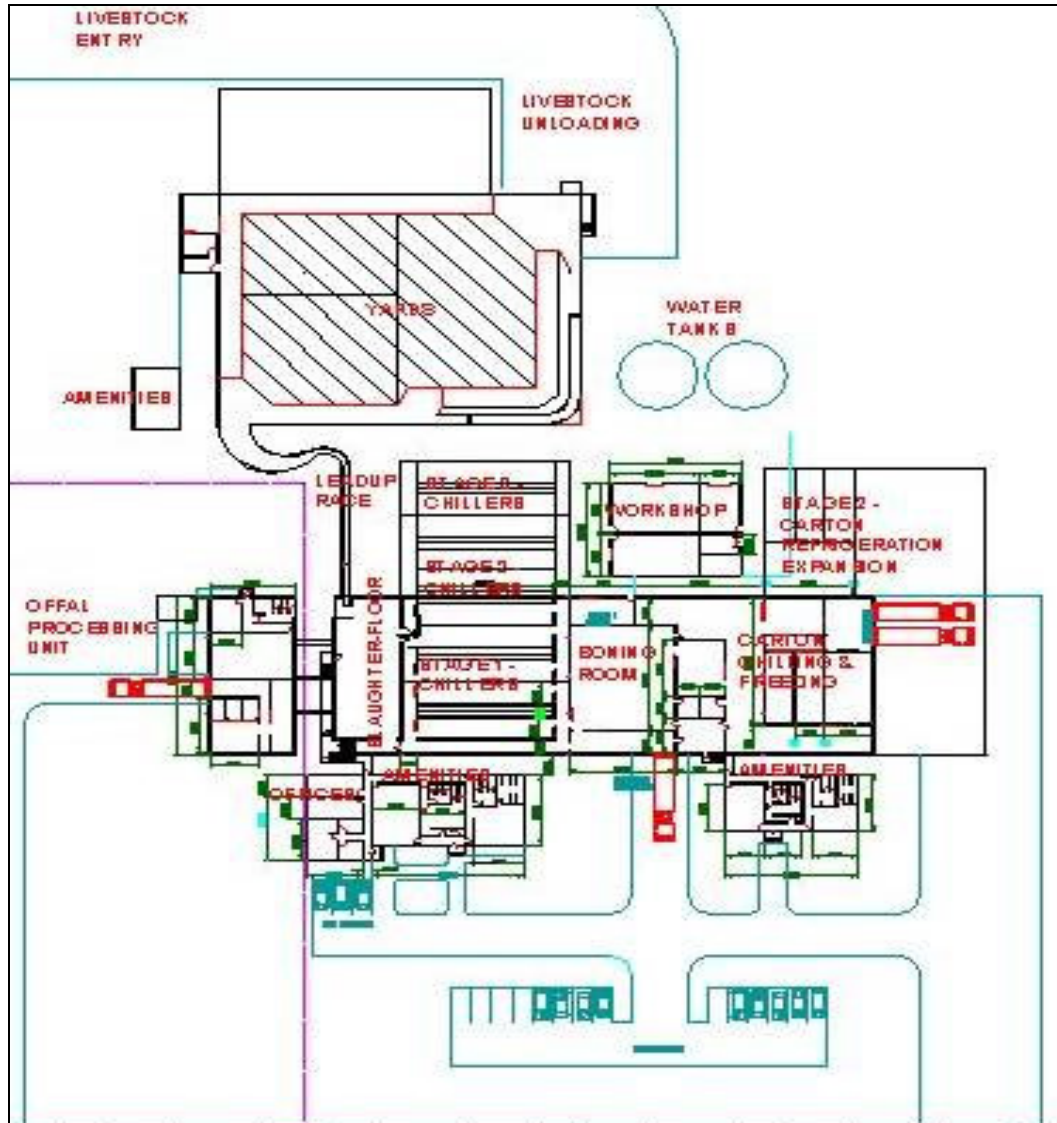
### ***Article 53. Issuance of SESEZA Decisions and Circulars***

As needed, decisions and circulars may be issued under these Regulations by the SESEZA in order to notify interested parties regarding the clarification, updating, or any other changes in procedures, rules, regulations and fines, or other matters pertinent to the operation of the Sudan FTZ/SEZ regime.

### ***Article 54. Date of Effectiveness of the FTZ/SEZ Regulations***

These Regulations shall take effect upon their issuance by the Minister of Commerce and Industry and their publication in the relevant Official Gazette of the Government of Sudan.

Appendix 3: Preliminary plan for SEZ meat processing facility



Note: Concept plan only. Drawing not to scale.

Diagram for Beef Processing Line

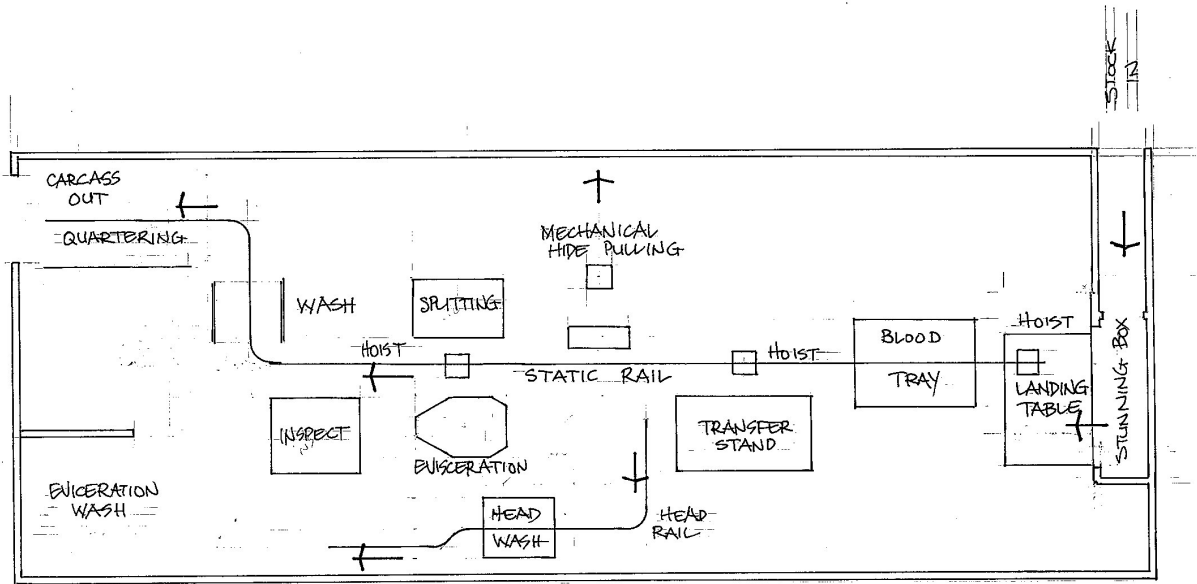
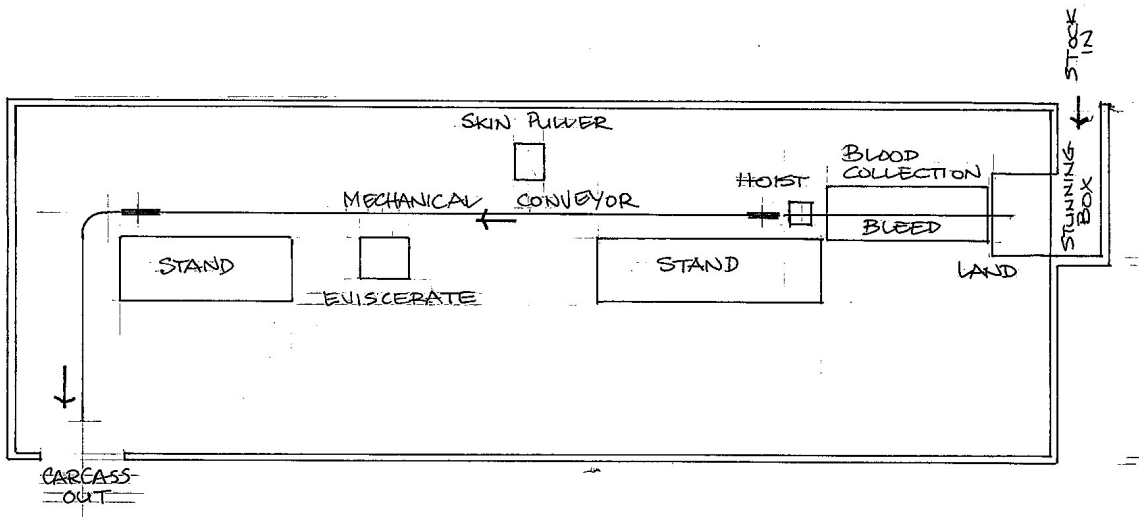


Diagram for Small stock Processing Line



Note: Concept plans only. Drawings not to scale.

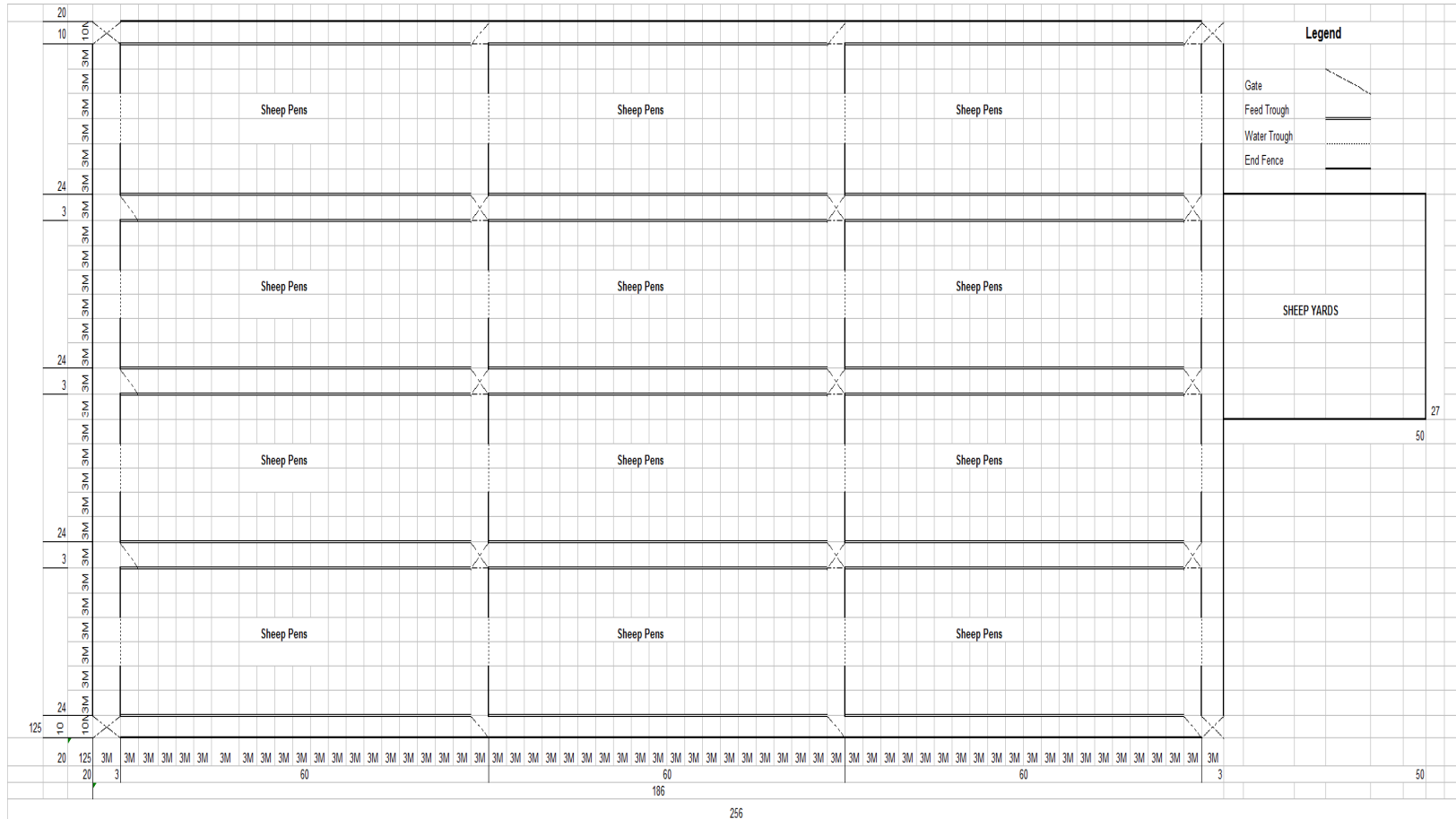
## Appendix 4: List of potential equipment suppliers

Potential suppliers of selected items for SEZ Facility		
<b>Veterinary testing and vaccine laboratory and equipment</b>	DRE Veterinary	<a href="http://www.dreveterinary.com">www.dreveterinary.com</a>
	Woodley Equipment Co. Ltd UK	<a href="http://www.woodleyequipment.com">http://www.woodleyequipment.com</a>
<b>Abattoir Equipment &amp; Machinery</b>	VDZ Trading Ltd Netherlands	<a href="http://www.vdzt.com">http://www.vdzt.com</a>
	Qingdao Jianhua Abattoir Equipment Co., Ltd (China)	<a href="http://abattoir.en.china.cn">http://abattoir.en.china.cn</a>
	Roussel Mecab SA (France)	<a href="http://www.roussel-mecab.com/">http://www.roussel-mecab.com/</a>
	Dantech Ltd UK	<a href="http://www.dantech.info">www.dantech.info</a>
<b>Conveyors</b>		
<b>Animal Identification System</b>	Allfex Group Ltd	<a href="http://www.allflex-group.com">http://www.allflex-group.com</a>
<b>Hide treatment -brine / pickle</b>		
<b>Livestock feeding</b>	Rotogrind Co (USA)	<a href="http://www.rotogrind.com">www.rotogrind.com</a>
	Kuhn-Knight Co Ltd (	<a href="http://www.kuhn.com">www.kuhn.com</a>
	Tractor Suppliers LTd	<a href="http://www.tractorhouse.com">www.tractorhouse.com</a>
	Dupps Co Ltd (USA)	<a href="http://www.dupps.com">www.dupps.com</a>
<b>Rendering system</b>	Rendertech Ltd (NZ)	<a href="http://www.rendertech.co.nz">www.rendertech.co.nz</a>
	ProAnd Associates (Australia)	<a href="http://www.proand.com.au">www.proand.com.au</a>
<b>Environmental design</b>	The Haarslev Group of Companies	<a href="http://www.haarslev.com/">http://www.haarslev.com/</a>

*N.B. No warranty is given or implied as to the veracity, pricing, availability or suitability of equipment or services provided by the companies shown in this list.*



Sheep SEZ layout





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