

LIVESTOCK EXPORT ZONE STUDY

1ST SEPTEMBER TO 13TH OCTOBER 2003

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African Union
Interafrican Bureau for Animal Resources
Community-based Animal Health and Epidemiology Unit
Food & Agriculture Organisation of the United Nations
European Commission

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African Union (AU)

Interafrican Bureau for Animal Resources (IBAR)

Community-based Animal Health and Participatory Epidemiology (CAPE) Unit

Food And Agriculture Organization of the United Nations (FAO)

European Commission (EC)

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Definitions & Glossary

Abattoir: *the premises used for the slaughter of animals for human consumption and approved by the veterinary administration for export.*

Animal: *bird, bee or mammal.*

Bone in meat: *meat that is still attached to the bone.*

Commodity: *products of animal origin, such as semen embryos/ova, biological products and pathological material intended for human consumption, animal feeding, pharmaceutical, surgical or agricultural use.*

Compartment: *one or more establishments under a common bio-security management system containing an animal sub-population with a distinct health status on a specific disease for which required surveillance, control and bio-security measures have been applied for international trade*

Deboned meat: *meat that is free of bones and major lymph nodes*

Establishment: *premises where animals are kept.*

Export system: *a system where measures are in place to satisfy all the requirements of a particular importer or set of importers, for a particular commodity or range of commodities that are not fulfilled within the country. The objective is to ensure supply of the commodities of pre-determined quality and reduce the risk of importation of human and animal pathogens to an appropriate level of risk.*

F₀ Value: *the measure of the amount of heat that will result from a specific thermal process. The F₀ value of 3 is the equivalent lethal effect of 121 degrees centigrade, applied for three minutes. This F₀ value of 3 is applied to canned meat products to achieve heat treatment to destroy *Clostridium botulinum* and its toxins.*

Holding compartment: *a facility under the control of the veterinary authority where a sub-population of animals is maintained in isolation, with no direct or indirect contact with other animals, and vaccinated against specific diseases and held for a specified time so that they all achieve the same disease status.*

Livestock: *domesticated animals used for human consumption or trade.*

Notifiable disease: *a disease listed by the veterinary administration, and must be brought to their attention soon as is detected or suspected.*

OIE Code: *the Terrestrial Animal Health Code*

OIE General Session: *the annual conference for delegates of all member countries of the OIE that is held in Paris.*

OIE List A Disease: *the list of transmissible diseases that have the potential for serious and rapid spread, irrespective of national borders. These diseases have major socio-economic or public health consequence and are of major importance in the international trade of animals and animal products. (It has been proposed that the OIE List A Diseases will be reclassified within the OIE Listed Diseases from May 2004).*

OIE Listed Diseases: *the list of diseases agreed by the OIE International Committee. These diseases have the potential for international spread or significant spread within naive populations, or have significant zoonotic potential or could be described as emerging diseases, and are of major importance in the international trade of animals and animal products. (It has been proposed that the OIE Listed Diseases as defined become operational after May 2004).*

OIE Manual: *the OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals.*

Pathogen: *a disease producing organism or agent.*

Para-veterinary: *allied to the veterinary profession.*

Quarantine station: *a facility under the control of the veterinary authority where a group of animals is maintained in isolation, with no direct or indirect contact with other animals, to be observed for a specified length of time and, if appropriate, testing and treatment.*

Risk: *the likelihood of the occurrence and the likely magnitude of the consequence of an adverse incident to animal or human health in the importing country during a specified period.*

Risk analysis: *hazard identification, risk assessment, management and communication. These terms are defined in the OIE Code 2003 Chapter 1.3.1, Article 1.3.1.3.*

Surveillance: *investigation of a given population or sub-population to detect the presence of a pathogenic agent or disease; the frequency and type of surveillance is determined by the epidemiology of the pathogenic agent or disease and the desired outputs.*

Transboundary animal diseases: *contagious animal diseases that may rapidly spread across international boundaries*

Transhumance: *the seasonal movement of livestock to regions of different climate and may involve the livestock crossing into another country.*

Vaccination: *the successful immunization of susceptible animals through the administration of vaccine comprising antigens appropriate to the disease to be prevented.*

Veterinary administration: *the governmental veterinary service that is authorized to implement animal health measures and international veterinary certification that OIE recommends, and also to supervise or audit their application in a country.*

Veterinary authority: *a veterinary service, under the veterinary administration that is directly responsible for the application of animal health measures in a specified area of the country. It may also have the responsibility for issuing or supervising the issuing of international veterinary certificates in that area.*

Veterinary para-professional: *a person who is authorized by the veterinary statutory body to carry out certain designated tasks (depending on the category of veterinary para-professional) in a country, delegated under the responsibility and direction of a veterinarian. The veterinary statutory body, depending on qualifications and training and according to need, defines the tasks authorized for each category of veterinary para-professionals.*

Veterinary services: *the veterinary administration, all the veterinary authorities and persons authorized, registered or licensed by the veterinary statutory body.*

Veterinary statutory body: *an autonomous authority regulating veterinarians and veterinary para-professionals.*

Zone: *a clearly defined part of country containing an animal sub-population with a distinct health status on a specific disease that requires surveillance, control and bio-security measures have been applied for the purposes of international trade.*

Zoonotic: *a disease that that can be transmitted from animals to humans.*

Currency Equivalent

1 USD = 8.6 Eth. Birr

1 USD = 179.5 DJF.

1 USD = 76.7 KSH.

1 USD = 1 965.0 USH

Acronyms

AGOA	African Growth Opportunity Act
AU	African Union
AU/IBAR	African Union/Interafrican Bureau for Animal Resources
BSE	Bovine spongiform encephalopathy
CAPE	Community Based Animal Health and Participatory Epidemiology
CRS	Catholic Relief Services
DRC	Democratic Republic of Congo
CIF	Cost, Insurance and Freight
C&F	Cost and Freight
CTA	Centre for Agricultural and Rural Development
DFID	Department for International Development (UK)
DJF	Djibouti Frank
EAC	East African Community
EBAS	European Business Assistance Scheme
ECOWAS	Economic Community of West African States
EMPRES	Emergency Prevention Systems
ETB	Ethiopian Birr
EU	European Union
EXCELEX	Support to Livestock Export in the Horn of Africa
FAO	Food and Agricultural Organization
FAOSTAT	Food and Agricultural Organizations Statistics
FITCA	Farming in Tsetse Controlled Areas
FMD	Foot-and-Mouth Disease
FOB	Free on Board
FOREX	Foreign Exchange
FVO	Food and Veterinary Office
GDP	Gross Domestic Product
GoE	Government of Ethiopia
IGAD	Intergovernmental Authority of Development
J P 15	Joint Programme 15 (for the control of rinderpest)
ILRI	International Livestock Research Institute
KSH	Kenyan Shilling
LDC	Less Developed Countries
LICs	Low Income Countries
LLP	Livestock and Livestock Products
LMA	Livestock Marketing Authority
MAAIF	Ministry of Agriculture, Animal Industries and Fisheries
MOTI	Ministry of Trade and Industry
NGO	Non Governmental Organization

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OIE	Office International des Epizooties (World Organization for Animal Health)
PACE	Pan African Programme for the Control of Epizootics
PARC	Pan African Rinderpest Control
PARC-VAC	Participatory Community-based Vaccination and Animal Health Project
PLP	Pastoral Livelihoods Program
SADC	Southern African Development Community
SWOT	Strengths, Weaknesses, Opportunities and Threats
ToR	Terms of Reference
UAE	United Arab Emirates
UFFE	Uganda National Farmers' Federation
USAID	US Agency for International Development
USD	United States Dollar
USH	Ugandan Shilling
WTO/SPS	World Trade Organization / Sanitary and Phytosanitary Agreement

Executive Summary

This document reports the findings of a study on the possibility of establishing export zones to promote exports of livestock and livestock products from countries in eastern Africa that are participating in the Pan African Programme for the Control of Epizootics (PACE). Apart from investigations into this subject through reference to relevant publications/documents and discussion with knowledgeable individuals, the consultants visited Uganda and Ethiopia as case study countries. A regional workshop was held in Nairobi in October 2003 to discuss the conclusions of the study and to obtain preliminary feedback on the recommendations.

Livestock resource in eastern African is estimated at 119.8 million cattle, 86.8 million sheep, 93.3 million goats and 10.7 million camels (FAO, 2001). These figures account for 36 to 75% of the domestic animal population in the continent.

Trade data analysis indicates that countries of eastern Africa are net exporters of chilled and fresh meat from sheep and goats. The annual net export of meat was 12.76 thousand metric tons between 1997 and 2001, accounting for 0.6% of total regional meat production and 15.4% of Africa's total meat exports. During the same period, the region, on average, exported 2.55 million sheep, 0.83 million goats, 70 770 camels and 33 310 cattle through formal trade channels.

Despite the substantial demand for live animals from the Gulf States, export to those markets was impeded between 1998 and 2000 as a result of stringent animal health requirements and repeated bans on the import of livestock. The resulting decline in the export of live animals (camels excepted) from eastern African between 1997 and 2001 amounted to 8.9% for sheep, 12% for goats and 53% for cattle.

However, untapped livestock resources, proximity to strategic Middle East markets, demand for livestock and fresh meat regionally and preference for products from organically raised livestock provides an opportunity for the region to develop its export industry as long as the constraints imposed because of animal diseases can be removed. Unfortunately, international standards governing trade in animals and animal products continue to rise due to growing consumer demands, mainly in developed countries. These demands are becoming increasingly difficult for developing countries to meet and innovative approaches to addressing these problems are required urgently.

Export zones as proposed by the PACE Epidemiology Unit prior to the commencement of the study were considered to differ from 'disease-free zones' as defined by the OIE's Terrestrial Animal Health Code (the Code) in two respects. First, disease-free zones as defined by the Code apply to individual diseases while the concept of an export zone covers all major animal diseases that have an impact on trade within a particular zone.

Secondly, it was considered that within export zones it would not be essential that the zone itself be free of trade-sensitive diseases; rather the totality of risk reduction measures applied within the zone would reduce the risk of exporting the dangerous pathogens potentially present to a level below internationally agreed norms. The 'production export systems' enable livestock to be bred and raised in a bio-secure, but not necessarily infection-free production system.

Further, evaluation of how commodities from markets outside an export zone could access export markets resulted in the

development of the concept of 'export systems' where production systems comprising a number of premises could be segregated from adjacent production systems by compartmentalization. In this non-geographic approach, the production system in question could be separated from other systems where risk reduction measures do not comply with international standards. These systems were named 'market export systems' and are based on the idea that different commodities require different risk reduction measures to ensure their safety as export products. Some commodities, such as tinned meat pose little risk of transmitting pathogens irrespective of the infection status of the animals from which the meat was derived or even the infection status of the locality from which the donor animals were sourced. Conversely, live animals for export may need to be vaccinated against important diseases and held in quarantine accompanied by extensive testing prior to export.

Thus, to a large extent, the specific safety measures that need to be implemented to minimize the risks of transmission of diseases through trade in livestock and livestock products depends on the commodity to be traded and the associated disease risks inherent to that product. The consultants concluded that a holistic approach was required to minimize disease risks brought about by trade in livestock and livestock products. This should involve greater investment into the livestock sector, especially in marketing infrastructure, strengthening of national veterinary services and the private sector through producer, trader and processing organizations.

It is also recommended that AU/IBAR should be assisted in acquiring the capacity to play a leading role in coordinating and performing national audits to ensure that continental standards are developed, implemented and maintained. The OIE should also be involved and initiate further studies that would evaluate measures required to render various livestock commodities safer for international trade.

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Part One
Marketing Component

1. *Introduction*

A country or zone that is free from the Office International des Epizooties (OIE) List A diseases is difficult to achieve in Africa thus export zones have been proposed as the alternative for promoting safer trade in livestock and livestock products. This study assesses Africa's trade in livestock and livestock products by comparing:

- > the global livestock trade;
- > livestock resources and potential markets for eastern Africa;
- > cost benefit analysis of export in the region;
- > the scope for establishing livestock export zones; and
- > regional and continental animal health services.

To ensure safe trade in animal and animal products, the African Union/Interafrican Bureau for Animal Resources (AU/IBAR) initiated a study to evaluate how the concept of export zones could promote trade. For case study, the consultants interviewed key persons working in the livestock sector including development workers, policy makers, processors, producers, traders, transporters and researchers in Ethiopia and Uganda. The visits to the two countries and AU/IBAR in Kenya culminated in workshops that enriched the information gathered and also helped reach a consensus on the approaches to use in establishing the export zones.

2. Overview of the Eastern African Countries

2.1. General Information

The study covers Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, Sudan, Tanzania and Uganda in eastern Africa. About 40% of these countries are landlocked and depend on neighboring countries' ports to conduct international trade.

The countries occupy about 620.92 million ha, accounting for 21% of Africa's landmass. In 2002, the population of eastern Africa was estimated to be 215.6 million people representing 26.5% of the continent's inhabitants and 3.5% of the world population. The annual population growth estimate ranges between 1.27% in Kenya and 3.43% in Somalia. The population living below the poverty line, by country, (World Fact Book, 2002) lies between 35% in Uganda and 70% in Burundi.

The economy of the region is basically agricultural, accounting for over 50% of the Gross Domestic Product (GDP), 85% of employment and 90% of the export earning in most of these countries. The annual export earnings in 2002 was between USD 26 million in Burundi accounting for between 0.7% of the GDP and USD 2 100 million in Kenya accounting for 6.6% of the same.

Based on commitment to promote the export industry and an enabling political environment, Ethiopia and Uganda were selected to participate in the case studies.

2.2. Livestock Resource Base and Its Contribution to the Economy

2.2.1. Resource Base

Statistics from the Food and Agricultural Organisation of the United Nations (FAO) indicate that eastern Africa coun-

tries owned, in million heads, 119.8 cattle, 86.8 sheep, 93.3 goats and 10.7 camels in 2001. Livestock resources in the region account for 36 to 74% of the continent's total livestock population (Table 2.1).

Table 2.1. Livestock Population of Eastern Africa (million heads) (2001)

Resource	Number (%)	Africa (%)	The World
Cattle	119.8	51	8.8
Sheep	86.8	36	8.4
Goats	93.3	43	12.7
Camels	10.7	74	57.7

Source: FAOSTAT Database

Ethiopia and Sudan are the leading livestock producers in the region, accounting for 61.5% of the cattle, 60% of the shoats and 33% of livestock resources.

2.2.2. Economic Contributions

The livestock sub-sector plays a substantial role in the economies of many developing countries. It serves as a source of draught power, eggs, fuel, manure, meat, milk, organic fertilizer, supplementary cash income and means of transport. Pastoral communities rely on milk for food and perceive livestock as accumulated wealth and a living bank.

Livestock also provide foreign exchange and raw material for agro-processing industries. According to figures released by the Ethiopian Export Promotion Agency in 2002, livestock accounts for 12% of the country's total export earnings. The resource also contributes to 16% of the GDP in Ethiopia and 7% to Uganda.

3. Objectives of the Study, Sources of data and Collection methods

3.1. Objectives

This paper focuses on:

- > determining technical requirements for establishing livestock export zones;
- > assessing the economic viability of establishing the export zones;
- > assessing trade potentials in livestock and meat;
- > identifying strategic export markets; and
- > reviewing trade opportunities and threats.

3.2 Methods and Sources of Collecting Data

Guided by the concept paper, primary and secondary information was gathered and used as data sources for the study. Key stakeholders and collaborators in the industry were then identified to assist in collecting primary information. To facilitate personal interview, structured questionnaires were used during individual country visits. In addition, published and unpublished literature, reports, research findings and the Internet were widely used as secondary information sources.

Case studies of Ethiopia and Uganda and discussions at AU/IBAR culminated in workshops where the preliminary findings were discussed and recommendations made. The following tasks were accomplished.

3.2.1. Inception Briefings

The consultants held discussions on the concept of the proposed study with AU/IBAR executives and technical officers. This session was followed by intensive consultations with AU/IBAR senior staff on the study design and

the methodology.

3.2.2. The Ugandan Case Study

The consultants met government officials and representatives of the private sector in Uganda. Pertinent primary and secondary information on the development of the country's livestock industry, marketing structures and the export industry was gathered and possibilities of establishing livestock export zones explored. These activities were followed by a workshop.

A one-day field trip was also made to assess the facilities of a commercial beef ranch for future development plans and the possibilities of going into the export market. One of the larger abattoirs in Kampala was also visited and information on the urban meat market gathered.

3.2.3. The Ethiopian Case Study

A case study was undertaken in Ethiopia in September 2003 and information was collected from the Community Based Animal Health and Participatory Epidemiology (CAPE) Unit in the country. Livestock development, animal health and the export industry were discussed with government officials, researchers and the private sector representatives in Ethiopia.

As part of the field information assessments, a visit was made to some facilities owned by ELFORA Agro-industries Private Limited Company including:

- > the small ruminants holding ground in Afar Region;
- > Kuriftu and Wonji quarantine feedlots; and
- > The Debre Zeit Export Abattoir.

The Debre Zeit Abattoir, owned by HELIMEX, and the National Animal Health Research Institute, Sebeta were also visited. To complete the study in Ethiopia, a two-day workshop was conducted from 23 to 24 September 2003. Forty-one representatives of such establishment as AU/IBAR, governmental organizations, international agencies, non-

governmental organizations (NGOs), private export operators and research organizations attended the workshop.

Professionals presented six technical papers on animal health, export certification, export policies and quarantine. These papers complemented Gavin Thompson's concept note and the presentations by the two consultants.

3.2.4. Consensus Building and Designing the Report

After the workshop in Ethiopia, desk research was finalized at AU/IBAR headquarters. Literature and research findings from the two countries were reviewed on 6 and 7 October 2003 and papers that were presented at the Nairobi workshop produced. Sixty-five chief veterinary officers from eastern Africa and representatives of regional international organizations and NGOs attended the workshop. Suggestions and recommendations made during the workshop have been incorporated into this document.

4. *Livestock and Meat Trade*

4.1. Structure of Domestic Markets

Marketing of animals by pastoralists and small traditional producers is fundamentally a function of the basic need for clothing, food grains and health care. It is also a measure to minimize risks during drought, among other social needs.

Various studies indicate that livestock marketing structure follows four tiers, namely, bush or village, primary, secondary and tertiary or terminal markets. These tiers involve long marketing chains, leading to increased costs and low returns for the primary producer.

4.2. Features

Marketing livestock and livestock products is different from that of other agricultural commodities. Transporting livestock to markets and other final destinations is delicate and expensive. Animals could lose weight in transit or suffer injuries due to unsuitable means of transport. They are also exposed to disease-causing pathogens. Livestock products are perishable, demanding for elaborate packing and high transport and storage costs.

4.3. World Trade Situation

Livestock and livestock products account for about one-sixth of the value of all agricultural trade worldwide. Meat exports constitute about half of the total value of trade in livestock and livestock products with bovine, pig and poultry meat as the three main types (Martin Upton, 2001). Developed countries account for more than three-quarters of worldwide trade in livestock and livestock products. They are also the net exporters of all livestock products to the developing countries.

Martin (2001) indicates that developing countries, including the low income countries (LICs) and less developed countries (LDCs), are net importers of livestock and livestock products. Dairy produce is the largest item contributing to the total net imports. LICs are sole exporters of live cattle from LDCs but not of bovine meat, hides and skins and live sheep and goats. The LDCs are net importers of bovine meat but export live cattle, goats, sheep and hides and skins. Sahelian Africa is the net exporter of livestock in the LDC, with smaller contributions from Cambodia and Laos.

Table 4.1 shows that the value of the world trade in livestock amounted to over USD 89 billion with an annual average of USD 17.85 billion over 1997 and 2001. The share of the developed world accounted for 75% of the total trade, 80% of export and 70% of import.

Similarly, Table 4.2 indicates that the value of world trade in meat amounted to over USD 331.6 billion with an annual average of USD 66.32 billion. This is four-fold the value of livestock trade. Of the traded value, the share of the developed world accounted for 79% of total trade, 83% of export and 70% of import.

Table 4.1. World Livestock Trade Value (billion USD (1997-2001))

Region	Export	Import	Total	Trade Share (%)
World	44.19	45.04	89.23	100.00
Developed countries	35.23	31.50	66.73	74.78
Developing countries	8.96	13.54	22.50	25.22
Africa	2.30	3.37	5.67	6.35

Source: FAOSTAT Database (<http://apps.org/default.htm>)

Table 4.2. Value of World Meat Trade: 1997-2001 (in billion USD)

Region	Export	Import	Total	Trade Share (%)
World	222.77	108.83	331.6	100.00
Developed countries	186.09	76.23	262.32	79.11
Developing countries	36.68	32.6	69.28	20.89
Africa	1.32	3.21	4.53	1.37

Source: FAOSTAT Database (<http://apps.org/default.htm>)

4.4. Africa's Trade Performance

Africa has an enormous potential for increasing livestock production and exports. The continent accounts for 2 to 3% of the world trade value in animal and animal products with an estimate of USD 3 billion (Emmanuel et al, 2003). Statistics from the same source reveal that Africa exports about USD 1 billion worth of animal and animal products but spends three times this amount to import the same products. The continent's ability to increase exports is limited by constraints in domestic production and international trade barriers.

Table 4.1 indicates that the value of Africa's livestock trade amounted to USD 5.67 billion with annual average of USD 1.13 billion. The continent's world trade value share accounted for 6.35% of the total trade, 5.2% of the export and 7.5% of the import. Despite its low share in overall trade value, Africa spent one and a half-fold more on imports than it earned from exports.

Africa's share of world meat trade value accounted for much below that of livestock trade. During the period under review, the continent had a share value of 1.37% of total trade, 0.6% of export and 2.9% of import (Table 4.2). Simi-

lar to livestock trade, the expenditure on imports was 2.4-fold that of the exports.

Between 1997 and 2001, Africa produced 10.70 million metric tons of meat, exported 99.44 thousand and imported 642.03 thousand metric ton of the produce. Due to low domestic production, the domestic supply has not satisfied the demand. Deficit between demand and supply is thus met through imports. The net imports amounted to 542.6 thousand metric tons, five-fold of the total exports (Table 4.3). The continent's exports accounted for only 0.6% of the production. Comparing the two periods, 1997 and 2001:

- > production grew by...11.4%;
- > imports declined by ...2.7%; and
- > export increased by...0.5%.

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Year	Production (million tons)	Exports '000 tons	Imports '000 tons	Trade balance '000 tons
1997	10.15	94.02	601.16	-507.15
1998	10.38	108.30	572.40	-464.10
1999	10.71	108.77	664.86	-556.09
2000	11.05	91.58	786.61	-695.03
2001	11.31	94.53	585.13	-490.60
Total	53.60	497.20	3210.16	-2713.00
Average	10.70	99.40	642.03	-542.60

Source: computed from FAOSTAT Database (<http://apps.fao.org/default.htm>)

Although the continent had been a net importer of meat each year during the period under discussion (Table 4.3), seven countries had a net export of 52.46 thousand metric tons of meat (Table 4.4).

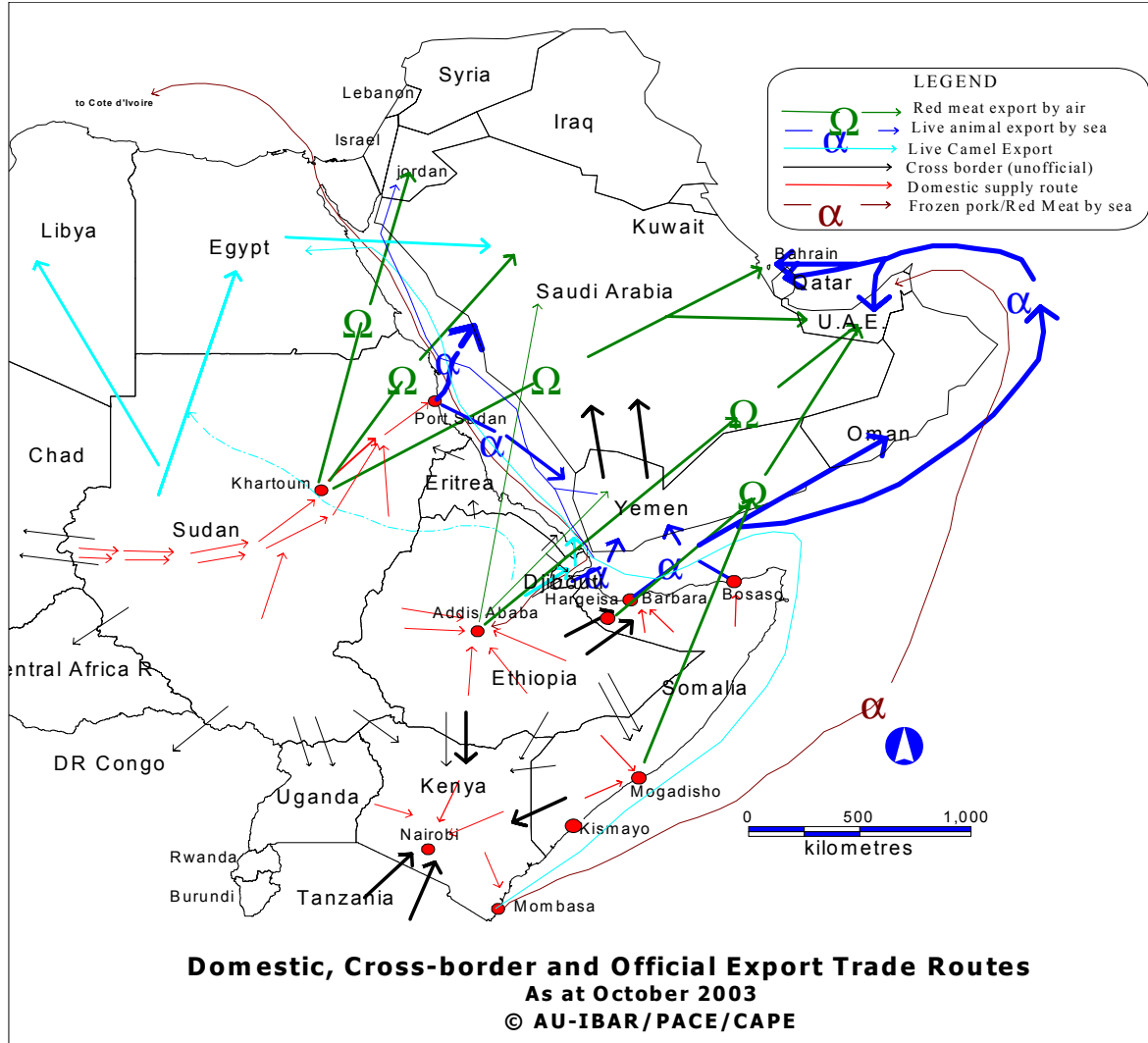
Table 4.4. Net Meat Exporting Countries of Africa (thousand tons)

Countries	Unit	Exports	Imports	Net
Botswana	'000 tons	18.39	3.16	15.22
Sudan	"	12.46	0.33	12.13
Namibia	"	24.82	13.34	11.67
Zimbabwe	"	11.55	0.43	11.24
Ethiopia	"	1.53	0.03	1.50
Kenya	"	1.06	0.40	0.66
Madagascar	"	0.15	0.11	0.04

Source: Computed from FAOSTAT Database

4.5 Trade Performance of Eastern Africa

Fig 4.1. Trade Performance of Eastern Africa



4.5.1. Meat

Unlike the rest of the continent, eastern Africa is a net exporter of chilled and fresh meat of small stock. Between 1997 and 2001, the annual net export of meat was 12.76 thousand metric tons, (Table 4.5) accounting for some 0.6% of the total regional meat production and 15.4% of Africa's total meat export.

Table 4.5. Annual Net Meat Export of Eastern Africa (1997-2201)

Particulars	Units	Quantity (tons)
Production	Million	2.44
Export	Thousand	15.46
Import	Thousand	2.70
Net export	Thousand	12.76

Source: Computed from FAOSTAT Database

Comparing the 2001 performance with that of 1997, the following observation was made:

- > production increased by...13.4%;
- > import declined by...24.4%; and
- > export declined by...37.1% (Table 4.6).

Table 4.6. Meat Production and the Growth of Traded Quantity

Particulars	Unit	1997	2001	Growth (%)
Production	Million tons	2.3	2.6	13.4
Imports	Thousand tons	3.4	2.6	-24.4
Exports	“	20.6	12.9	-37.1

Source: Computed from FAOSTAT Database

4.5.2. Dairy Products

Although the region is a net exporter of meat, there is a substantial gap between domestic supply and demand for milk and milk products. During 1997 to 2001, the annual net import of dairy products to the region was 25.25 thousand metric tons (Table 4.7).

Table 4.7. Annual Average Quantities of Traded Dairy Products of Eastern Africa (1997-2001)

Particulars	Units (tons)	Quantity
Production	Million	12.23
Imports	Thousand	24.55
Exports	Thousand	2.24
Net Imports	Thousand	22.31

Source: Computed from FAOSTAT Database

4.5.3. Livestock Export

Most countries in eastern Africa (60%) can access the Middle East market, especially the Gulf States where there is substantial demand for live animals, through the Red Sea and the Indian Ocean. FAO trade figures indicate that between 1997 and 2001, the region exported the following livestock through formal trade channels:

- > sheep...2.55 million;
- > goats...0.83 million;
- > camels...70.77 thousand; and
- > cattle...33.31 thousand heads.

Despite substantial demand for live animals in the Gulf States between 1998 and 2000, stringent health requirements and repeated import bans impeded export to these markets. Export of live animals from eastern Africa, except for camels (13%), also declined in 2001 compared to 1997 (Table 4.8) by the following percentages:

- > sheep...8.9%;
- > goats...12.0%; and
- > cattle...53.0%.

Table 4.8. Growth of Livestock Export

Particulars	Units (Heads)	1997	2001	Growth (%)
Sheep	Million	2.92	2.65	-8.9
Goats	Thousand	1.17	1.03	-12.0
Camels	“	86.00	96.40	53.0
Cattle	“	42.60	20.16	-52.9

Source: Computed from FAOSTAT Database

Among the eastern Africa countries, Sudan is the leading exporter of sheep, Somalia in goats and camels and Djibouti in cattle (Table 4.9).

Table 4.9. Leading Live Animals and Meat Exporting Eastern African Countries (1997-2001)

Livestock	Units (heads)	Quantity	Country
Sheep	Millions	1.42	Sudan
Goats	Millions	0.80	Somalia
Camels	Thousands	39.40	Somalia
Cattle	“	22.00	Djibouti
Meat	Thousand tons	12.10	Sudan

Source: Computed from FAOSTAT Database

heads (King et al, 2002) and 43% of these enter through informal channels.

Livestock trade in the region is also characterized by informal trade between neighboring countries and the inflow stocks are used for the following purposes:

- > domestic consumption in Kenya and Uganda;
- > re-export and domestic consumption in Somalia; and
- > re-export in Djibouti.

The Agriconsortium study of 2003 indicates that Kenya's supply of red meat from domestic cattle, camels and shoats falls well short of demand. Traditional livestock trade with neighboring countries, especially Ethiopia, Somalia, Sudan and Tanzania permanently augments the situation. The quantities vary depending on demand, maintaining the supply and demand balance and keeping the prices constant.

Informal livestock trade affects Ethiopia substantially. A large number of livestock and livestock products valued at over Ethiopian Birr (ETB) 917 million informally flow to the neighboring countries annually (LMA, 2001). The Livestock Marketing Authority (LMA) figures give the estimate of the annual informal cross border trade as:

- > cattle...325,800 heads;
- > shoat...1150, 000 heads;
- > skins...300,000 pieces; and
- > hides...150, 000 pieces.

Southern Sudan is an alternative source of cattle to Kenya, the Democratic Republic of Congo (DRC) and Uganda. The annual flow of cattle to Uganda is estimated at 10 500

5. SWOT Analysis of Livestock Export

The field studies in Ethiopia and Uganda and the overall consensus building process in Nairobi culminated in three workshops that analyzed the strengths, weaknesses, opportunities and threats (SWOT) of livestock and meat export. The findings are indicated below in figs 5.1 and 5.2.

Fig 5.1 Strengths and weaknesses

Strengths	Weaknesses
<ul style="list-style-type: none"> > well-established indigenous livestock farming culture; > low production costs; and > traditional communication systems. 	<ul style="list-style-type: none"> > absence of market-oriented livestock production systems; > inadequate information on resource and lack of animal identification systems; > inadequate animal health management systems; > inadequate and under-developed market infrastructure; > lack of appropriate means of transport and infrastructure; > disorganized marketing systems (pricing, information, grading, market extension etc); > poor publicity and market intelligence; > excess bureaucracy on export documentation procedures; > few and disorganized private export industry operators; > inadequate knowledge of international trade procedures; > weak strategic linkages between the procedures and export operators; > disinterest in the industry by governments and the private sector; > multiple- taxation (high taxes) on livestock and live stock products; > low efforts by governments in encouraging regional trade; and > limited access to credit and insurance services.

Fig 5.2 Opportunities and threats

Opportunities	Threats
<ul style="list-style-type: none"> > availability of untapped resources; > proximity to the strategic Middle East markets; > high demand for livestock and fresh meat regionally and in the Middle East; > consumer preferences for organic livestock and livestock products; and > enabling development and export policies and strategies, especially in Ethiopia and Uganda. 	<ul style="list-style-type: none"> > prevalence of transboundary diseases of economic importance; > threats from natural disasters including recurrent droughts and floods; > substantial informal trade; > dependency on neighboring countries' sea ports especially for land locked countries; > scarcity of capital; > stringent health requirements; > frequent trade bans; > stiff competition; > imbalanced terms of trade; > changing market preferences; > food scares; and > lobbying by animal welfare movements.

5.1. Critical Issues

During the workshops, critical issues that need the attention of the governments and other players were identified and prioritized as:

- > inadequate animal health management systems;
- > inappropriate transport and related infrastructure;
- > lack of market-oriented production and organized marketing systems;
- > limited efforts in formalizing trade with neighboring countries;
- > excessive bureaucracy in export documentation procedures; and
- > difficulty in acquiring land for livestock production.

20

5.2. Proposed Actions

After analyzing the critical issues, the following actions by governments and players in the private sector were recommended:

- > improving animal health management systems;
- > establishing veterinary service structure in

- conformity with OIE guidelines;
- > increasing resource allocations for the producers;
- > developing communication networks, market infrastructure and transportation system by:
 - constructing and expanding market infrastructure;
 - promoting modern and appropriate means of transport;
 - regulating the mode of transport;
 - initiating and strengthening co-operation between exporters in the use of air carriers to transport meat; and
 - reviewing airport services, by governments and liberalizing cargo handling.
- > promoting and encouraging the setting up of commercial farms and organized marketing systems by:
 - recommending appropriate measures to improve marketing systems;
 - creating awareness among producers on the importance of commercial farms and facilitating the supply of inputs for the same;
 - establishing and promoting marketing co-operatives; and

- encouraging vertical integration between producers and export operators.
- promoting regional (inter-African) trade through governments;

AU/IBAR should encourage the strengthening of relationships between regional organizations and member countries in promoting and facilitating regional trade by:

- > establishing a one stop export documentation centre; and
- > creating a transparent and efficient acquisition system of public land.

6. Potential Export Markets for Eastern Africa

Considering proximity, stage of development of the livestock industry, market preferences for the products and the size of the market, Africa and the Middle East have been identified as potential markets for livestock and meat export from eastern Africa.

6.1. African Markets

6.1.1. Features

Based on secondary information collected during the three workshops and the discussions held during information gathering in Ethiopia, Kenya (Nairobi) and Uganda, the African markets were found to be characterized by:

- > tariffs and non-tariffs trade barriers;
- > informal cross border trade;

- > reluctance by traders to formalize dealings;
- > use of convertible currencies; and
- > preference for low-cost frozen beef and offals in central and western Africa.

6.1.2. African Market Size

Between 1997 and 2001, Africa's annual gross meat import was about 642 000 tons and net meat import 543 000 tons (Table 4.3). The continent's annual expenditure on importing livestock and meat during the same period was USD 670 and 640 million (Tables 4.1 and 4.2).

6.1.3. Focused Markets

Considering population sizes, purchasing power and level of meat imports, Algeria, Angola, Benin, Côte d'Ivoire, the DRC, Egypt, Gabon, Mauritius and South Africa are considered to be potential markets for eastern Africa's meat exports (Table 6.1). These countries imported, annually, an average of 527 000 tons of meat (1997-2001). This quantity accounted for 82% of the total meat imported to the continent.

Table 6.1. Major Meat Importing African countries

Region	Countries	Population (millions)	Per Capita Income ('000 USD)*	Import Quantity ('000 tons)
1. N. Africa	1.1. Algeria	32.82	5,300	15.4
	1.2. Egypt	74.72	3,900	150.3
2. W. Africa	2.1. Benin	7.04	1,070	36.1
	2.2. Côte d'Ivoire	16.96	1,500	17.4
	2.3. Gabon	1.32	5,700	23.7
3. C. Africa	3.1. DRC	56.63	610	23.9
	3.2. CAR	2.95	900	18.2
4. S. Africa	4.1. Angola	10.77	1,600	56.7
	4.2. Mauritius	1.21	11,000	16.0
	4.3. S Africa	42.77	10,000	169.2

Source: Extracted from CIA World Fact Book (<http://www.cia.gov/cia/publications/factbook>) and FAOSTAT Database

Note: * is purchasing power parity

Besides the potential of the 10 meat-importing countries, there is substantial demand for live animals in Kenya, Djibouti and Uganda. These countries, to some degree, balance their demand and supply gaps mainly through informal trade from the neighboring countries.

Although there is substantial demand for livestock and meat in Africa, inefficient transport systems, steep tariffs, informal trade and inadequate publicity hinder trade between countries.

6.2. The Middle East Markets

The Middle East markets refer to the Gulf States comprising Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE) and other countries including Iran, Iraq, Jordan, Syria and Yemen.

Livestock trade in the region is driven by demand from the Gulf States that collectively import about 71% of cattle and shoats. Animals are procured from as far as Australia, Jordan, Iran, Iraq, New Zealand, Pakistan, Sudan, Syria, Turkey and Yemen (Bourn, 2003).

6.2.1. Features

Exporters' views, literature reviews and personal observations indicate that the Middle East markets depict the following features:

- buyers' markets that are dominated by influential personalities;
- personal relationships and close follow-up;
- stringent health requirements with possibilities of rejections of livestock and livestock products at ports of destinations;
- frequent import bans;
- a high demand for quality products at competitive prices;
- high preference for credit sales even though risky;
- less preference for letter of credit or advance payment as mode of transaction;
- preference for Boran steers and Sudanese Black

head, Somali Blackhead and Awash breeds of sheep; and

- preference for 8 to 12 kg and 5 and 7.5 kg fresh sheep and goat carcasses.

6.2.2. Market Size

Between 1991 and 2001, the Middle East imported substantial numbers of livestock and amounts of meat valued at USD 1.94 billion annually. The expenditure on meat accounted for 65% and 31% for shoats (Table 6.2).

Table 6.2. Livestock and Meat Import to the Middle East by Quantities and Values (1991-2001))

Commodities	Units (head)	Quantities	Values (million USD)
Shoats	Million	12.66	609.08
Cattle	'000	159.96	61.89
Camels	"	29.02	8.02
Meat	'000 tons	831.66	1 261.15
Total			1 940.14

Source: Computed from FAOSTAT Database

6.2.3. Major Markets

The Middle East countries differ in population size and *per capita* income. These differences are attributed to the livestock resources they domestically possess and the magnitude of imports. As indicated in Table 6.3, major markets in the Middle East, in descending order of volume of trade are:

- Oman, Kuwait, Saudi Arabia and the UAE for shoats;
- Jordan, Saudi Arabia, Syria and Yemen for cattle;
- Saudi Arabia for camels; and
- Iran, Kuwait, Saudi Arabia and UAE for meat.

Saudi Arabia is the largest market for livestock and meat accounting for 42% of shoats, 96% of camels and 42% of meat imports to the region (Tables 6.2 and 6.3), because of its large population and being a centre of Islamic pilgrimage. However, the market access is unpredictable because of stringent health requirements, import bans or rejections

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at the port of delivery. Currently, except in Sudan, livestock and beef import from eastern Africa to Saudi Arabia is banned.

Citing the Ethiopian situation, lack of efficient air transport limit export of fresh and chilled small stock meat to Saudi Arabia, UAE and other countries.

Table 6.3. Annual Livestock and Meat Import by Country (1991-2001)

Countries	Population (million)	Per capita income USD*	Shoats millions	Cattle '000	Camel	Meat '000
Bahrain	0.67	14,000	0.39	1.94	41	22.2
Kuwait	2.18	15,000	1.89	3.82	248	65.7
Oman	2.81	8,300	1.17	0.15	-	56.7
Qatar	0.82	21,500	0.54	0.57	950	23.7
Saudi Arabia	24.29	10,500	5.28	15.65	27,779	346.2
UAE	2.48	22,000	1.43	7.72	-	149.5
Iraq	24.68	2,400	0.002	-	-	11.2
Iran	68.28	7,000	0.001	1.14	-	84.4
Jordan	5.46	4,300	0.53	24.08	-	38.9
Syria	17.59	3,500	1.04	23.56	-	1.6
Yemen	19.35	840	0.39	81.33	-	31.4

Source: Extracted from CIA World Fact Book (<http://www.cia.gov/cia/publications/factbook>) and FAOSTAT Database.

Note:* is purchasing power parity

7. Requirements for Livestock and Meat Export and the Current Situations in Ethiopia and Uganda

For a commodity to compete well in the export market there must be comparative advantage, surplus production and demand for the product in the international market. The Ethiopian review of livestock export from the region indicates that the following factors are key to the performance of the livestock export market:

- > poor linkages between the pastoral production system, the main source of livestock and livestock products for export, and other production systems including national terminal markets;
- > failure of the domestic markets to absorb the products because of personal preferences and low purchasing power;
- > higher export prices than domestic market prices; and
- > availability of substitutes to domestic products through imports.

7.1. Requirements

Sustainable and competitive trade in livestock requires:

- > sound bilateral relations (trade protocol, animal health protocol) between the trading partners;
- > good proximity to the markets;
- > a well-developed market infrastructure;
- > a well-organized marketing system;
- > market-oriented production systems;
- > efficient inland and sea transport; and
- > well-equipped port facilities.

The procedure also demands government's commitment to:

- > developing market infrastructure;
- > providing animal and public health delivery and quality control;
- > providing efficient export services;
- > liberalizing trade, foreign exchange control and payment methods;
- > facilitating the training of export operators and producers; and
- > improving land tenure systems and related issues.

In comparison to other enterprises, return on investment in the livestock industry is long-term due to the long production cycle. Developing the export industry of the sub-sector, therefore, depends on the willingness and ability of the private sector to meet the following requirements:

- > participating in the industry;
- > meeting the requirements of the importers;
- > maintaining a sustainable and reliable supply; and
- > supplying quality products at competitive prices.

7.2. The Current Situation

7.2.1. Export Operators

According to unpublished data of the National Bank of Ethiopia, from September 1998 to June 2002, there were six to 40 meat and livestock exporters with the average number of 19 firms per year. However, only five meat-exporting and one livestock-exporting firms are licensed.

Table 7.1. Livestock and Meat Export Facilities of Ethiopia

Firms/Export Abattoirs	Small stock dressing capacities (No.)	Meat processing & canning facilities	Holding Area (ha)	Ranches (ha)
ELFORA	1 500	5	3018.0	8000
Hashim	1 350	-	1.5	-
Luna	1 500	-	3.5	-
Mwashi	1 650	-	3.0	-
Modjo/Safi	1 600	-	2.0	-

7.2.2. Export Facilities

In Ethiopia, there are five slaughterhouses and five meat processing and canning plants handling meat for export (Table 7.1). These slaughterhouses are located along the Addis Ababa -Metahara road, within a range of 45 to 200 km away from the city. The facilities can handle 7 600 shoats; two of them can cater for 200 heads of cattle daily for 300 days each year.

ELFORA owns five meat-processing plants, located in different regions of the country. Although the plants have facilities for processing products, such as frozen beef and canned items including corned beef, corned mutton, goulash, fowl madams, minced beef and stewed steak, they are not operating fully due to high packing costs and lack of markets for the products.

Unlike Ethiopia, the Ugandan livestock and meat export industry is not developed. There are neither export abattoirs nor known exporting firms. Uganda is basically a net importer of livestock and meat. The domestic demand for meat is partially met through formal and informal imports of livestock from Southern Sudan. However, the country is currently reviving and rehabilitating its ranches, but the cost of developing commercial beef production could be higher than for Ethiopia.

7.2.3. The Policy Environment

The Government of Uganda has developed a strategy for diversifying and promoting production, and processing and marketing selected strategic export commodities. Included

in the strategy document are livestock and livestock products including meat (beef, goat meat and mutton), milk, hides and skins and leather products. Promoting these products for export is intended to assist in alleviating poverty in the long term (King, 2002).

Like the case of Uganda, the Government of Ethiopia has also designed an export development strategy that mainly focuses on creating favorable conditions in improving the competitiveness of the economy in the world market and generating a sufficient amount of foreign exchange to support economic development.

In its export-led industrialization strategy of 2002, the Government of Ethiopia has given due attention to promoting the production, processing and exporting of labor-intensive agriculture-based commodities. In this category, livestock, hides and skins meat and leather products are among the priority export commodities.

In both countries, the governments' are committed to developing the export industry through investment and export incentives and preferential market access, such as the African Growth and Opportunity Act (AGOA) and the European Business Assistance Scheme (EBAS) among others measures.

8. Cost Benefit Analysis and Scope of Establishing Livestock Export Zones

8.1. Current Cost Structure of Export Operations

To analyze the cost benefit of exporting commodities through export zones, it is necessary to examine the existing cost structures of meat and live animal export enterprises. Of the two countries under review, only Ethiopia is currently exporting livestock and meat.

8.1.1. Fresh Meat Export

In computing the current cost structure of meat, the following data collected from export abattoirs and relevant sources have been used. They include:

- > daily throughputs of 1500 heads of shoats for the abattoir under review;
- > average live weight of 18 kg per goat;
- > dressing percentage (42%);
- > average purchase price of ETB. 5 per kg live weight at the gate of the abattoirs;
- > average free on board (FOB) cost of fresh and chilled carcass of USD 2 200 per ton being exported to Jeddah and Dubai from the Addis Ababa Airport; and
- > Cost of skin at ETB. 11, green offal at ETB. 2.5 and head at ETB. 0.15 per unit.

Cost analysis of exporting shoat meat from Ethiopia (Table 8.1) indicates that the expenses including variables and documentation cost per shipment and ton of shoat meat at Addis Ababa Airport amounts to EBR. 154 385.5 and 13 614.24.

Based on the current average FOB, the cost of USD 2200 per ton of fresh shoat meat at the Addis Ababa Airport yields a profit of USD 620.24 to the exporter before profit tax and USD 434.17 after tax with a profit margin of 28.19 and 19.74% as indicated below.

- > export earnings...USD 2 200.00;
- > less costs...USD 1 579.76;
- > profit before tax...USD 620.24;
- > less profit tax (30%)...USD 186.07;
- > net profit...USD 434.17;
- > profit margin before tax (%)...28.19; and
- > profit margin after tax (%)...19.74.

In addition to the export earnings, the exporting firm will also earn extra revenue by selling the animal heads, green offal, and the skins. (Table 8.2).

Table 8.1 . Existing Cost Structure of the Export of Shoat Meat From Ethiopia

Cost	Components Unit Costs	Cost per Shipment
1. Variable Costs		
Purchase price	90.00	135 000.00
Feed	0.583	874.50
Dressing & transport to airport	11.00	16 500.00
Meat inspection	1.00	1 500.00
Sub-total	102.583	153 874.50
2. Documentation		
Authentication		162.00
Sanitary inspection		120.00
Halal certification		50.00
Certificate of origin		40.00
Transit services		35.00
Bank permit		20.00
Health certificate		10.00
Customs stamps		2.00
Entry permit		72.00
Sub total		511.00
Total costs		15 4385.50
Carcass weight		11 340.0 0
Costs per ton (Birr)		13 614.24
Cost Per ton (USD)		1 579.76

Source: - Extracted and computed from the data collected from the exporters

8.1.2. Live Animal Export

Ethiopia's legal livestock export is insignificant compared to the livestock resource the country has and the magnitude of informal trade. The cost structure computed in this study is based on recent export of 8200 sheep destined for the Middle East through Djibouti. The figures used are sourced from the exporting firm, Shifer Asefa General Import-Export and other previous studies.

Table 8.2. Income from Abattoir By-products

Particulars	Unit	Quantity	Unit value (Birr/unit)	Total value (Birr)
Skin	Pcs	1 500	11.00	16 500
Green offal's	"	1 500	2.50	3 750
Head	"	1 500	0.15	225
Total				20 475

Source: Export Abattoirs, Sept. 2003.

The total cost at Djibouti port is USD 28.94 per head (Table8.3). At the FOB Djibouti price of USD 30 per head, the profit is USD 1.06 before the tax and 0.74 after tax per sheep. Thus, the profit margins are 3.5% before taxation and 2.5%

after taxation, making it too low to sustain the business. However, the FAO database indicates that the cost and freight (C&F) for shoats in Saudi Arabia in 2001 was USD 60 while the average of 1991 to 2001 was USD 56. In Yemen, C&F was USD 30 and the average of 1991 to 2001 was USD 50. Based on these figures, it is possible for Ethiopian exporters to sell their products for as high as USD 40 and above FOB Djibouti provided they have the capacity to negotiate and get necessary market information.

8.2. Cost Benefit Analysis through Export Zones

8.2.1. The Ethiopian Situation

As discussed in Section 8.1, the cost benefit analysis of the export of fresh shoaat meat indicates that there is substan-

tial profit margin to sustain the export operations. Export cost benefit analysis of live shoats, however, indicated a low profit margin due to high cost of operations, partly attributed to the cost incurred at the port of discharge. Thus, Ethiopia's comparative advantage lies in small stock meat rather than live animals.

The cost benefit analysis, covers only shoats because beef export and legal export of bovine animals do not qualify as the main export business in the country. Although a company like ELFORA has holding areas, ranches and feedlots, the facilities are not in use due to lack of markets for legal cattle export. If such exports become competitive and the facilities are renovated, they can be used as export zones.

Table 8.3. Ethiopian Live Animals (sheep) Export Cost Structure

Cost components	Per head	Per shipment (8200)
1. Variable Costs		
Avg. purchase Price	123.00	1 008 600
Transport to holding area	5.00	41 000
Feed	15.00	123 000
Vaccination and inspection	5.00	41 000
Labor	9.00	73 800
Transport to Djibouti	16.00	131 200
Sub-Total (Ethiopia)	173.00	1 418 600
Unloading At Djibouti	2.40	19 680
Holding area services	9.62	78 884
Feed	1.93	15 826
Water	0.03	246
Labor	0.07	574
Port fees	8.60	70 520
Taxes for export	38.46	315 372
Health certificate	9.62	78 884
Loading	2.88	23 616
Sub-total (Djibouti)	73.61	603 602

Table 8.3. (cont'd)

Cost components	Per head	Per shipment (8200)
2. Documentation (Eth.)		
Authentication		162
Certificate of origin		40
Health certificate		825
Entry permit		450
Transit services		4 940
Customs declaration		2
Bank advisory services		20
Sub-total		6 439
Grand total		2 028 641
Av. Cost/head (Birr)		247.39
Av. Cost (USD)		28.94

The Ministry of Agriculture in Ethiopia is currently constructing three quarantine stations in Afar, Dire Dawa and Nazareth through the National Livestock Development project. A detailed study is required to assess the viability of cattle export to the Middle East markets, through privately managed quarantine facilities, such as ELFORA or government-owned concerns. Harmonizing trade with neighboring countries that import large number of animals from Ethiopia through informal channels could also improve the viability of exporting cattle.

8.2.2. The Ugandan Situation

Except for occasional and small quantities of beef export to the DRC, Uganda does not export meat or livestock. Export facilities, such as standard abattoirs are lacking although the government is interested in promoting the export of livestock and meat as part of its poverty reduction strategy.

Taking account of the government's intentions and the enabling policy environments, prospect of exporting meat and live goats including the cost of air lifting live goats to Dubai were assessed. The freight charge, estimated at USD 107 to 132 for each goat, was prohibitive. Export of live animals from Uganda to the Middle East is, therefore, not viable because of distance from the seaports, high trans-

port costs and strong competition from Somalia and Sudan.

When assessing the viability of exporting chilled and fresh goat meat to Dubai, the following factors were considered:

- current average wholesale price (USh 500/Kg) at the gates of domestic abattoirs in Kampala;
- handling charges of USD 0.073/Kg at Entebbe airport;
 - passenger air freight of USD 0.95 per kg;
 - the availability of a 5 ton capacity on airliners; and
 - an average CIF value of USD 2500 per ton at the destination (Table 8.4).

Table 8.4. Cost Analysis of the Ugandan Goat Meat Export (in USD)

Cost Components	Costs per Kg	Costs per consignment
1. Variable Costs		
Whole sale goats' meat price	1.272	6 360.000
Transport to airport	0.050	250.000
Handling and palliating costs	0.073	365.000
Airfreight	0.950	4 750.000
Sub-total	2.345	11 725.000
2. Documentation		
Certificate of origin		0.763
Health certificate		12.722
Transit services & customs declaration		40.712
Entry permits		8.355
Halal certificate		0.763
Sub-total		63.315
Grand total		1 788.315
Costs/ton		2 357.663

The cost-benefit analysis for exporting goat meat predicts a net profit of USD 142 per ton with a profit margin of 5.7%. If the income from the sales of by-products is added to the export earning, the profit margin will increase to USD 259 per ton and the profit margin to 10.36% (Table 8.5). The analysis of beef export, however, reveals an assumed wholesale price of US\$ 2000/Kg of beef at the gates of abattoirs in Kampala.

Other costs remaining constant in the export of beef and goat meat, charges at the port of destination amounts to USD 2154 per ton. At the CIF selling price of USD 2 021 per ton based on the 2001 figures, the business incurs a loss of 6.6% even when proceeds from the sale of by-products are included (Table 8.5). The high cost of freight (40%) and low CIF value of beef are the contributing factors.

Uganda is currently reviving its commercial ranches and there is room for production of quality beef. If markets are assessed in detail, production is improved, a competitive transport system is introduced and efficient export abattoirs are constructed, the country could export beef to

African markets and the Middle East.

There is potential for exporting fresh goat meat to the Middle East. However, the profitability of the operation will depend on the efficiency of the domestic marketing systems, competitiveness of export abattoirs and freight charges.

8.3. Scope for Establishing Export Zones

As discussed in Section 7.2.2, there are substantial private investments in export facilities in Ethiopia. The government and the private sector are willing to invest on additional facilities, such as holding grounds and quarantine stations (Table 8.6). This initiative will improve the country's comparative advantage, making it competitive in the export markets.

The cost benefit analysis (Section 8.1) indicates that Ethiopia can exploit its shoaat resource by exporting fresh meat. Investing on facilities in the export zones, such as quarantine stations to meet the demand of importers will be rewarding. The country could also export live sheep if port

facilities are suitable; port service charges are affordable and freight and other costs are competitive. Legal export of live cattle from Ethiopia is currently non-existent.

The Ugandan export in goat meat could be competitive if export facilities, such as abattoirs are developed and the airfreight charges become competitive. Under the existing circumstances, beef export to the Middle East is not viable (Table 8.5). There are no private or public export facilities in the country. The government should provide such facilities, initially, or strongly encourage the private sector to contribute to the initiative.

Table 8.5. Cost Benefit Analysis of Ugandan Meat Export Operations to Dubai (in USD)

Statements	Goats meat	Beef
CIF Value per ton	2500.00	2021
Less costs at destinations	2357.66	2154
Profit	142.34	(133)
Profit margin (%)	5.70	6.6
Sales of skin/hides	76.00	71.24
Green offal's	40.71	3.50
Total net profit	259.05	(58.26)
Profit Margin including by product sales	10.36	(7.48)

Table 8.6. Comparisons of the Ethiopian and Ugandan Situations on Development of Export Zones

Situations	Ethiopia	Uganda
policy environment	enabling	enabling
government's commitment to promoting export	very strong	very strong
private investment in export facilities	substantial	not observed, but there is a feasibility study for an abattoir
willingness of the private sector to establish holding grounds/quarantine stations	strong	not observed
state-run quarantine stations establishment	in the pipeline	not observed
government intentions to establish disease free zones	strong	strong

9. Outstanding Issues

Sustainable livestock and meat export from eastern Africa depends on the interest by governments and other concerned bodies to overcome the following sensitive issues:

- > allocation and management of land for livestock production;
- > availability of capital;
- > development of infrastructure and export facilities;
- > harmonization of informal trade between neighboring countries; and
- > standardization of such export interventions as the Red Sea Livestock Trade Commission, Support to Livestock Export in the Horn of Africa (EXCELEX) and individual country approach to developing quarantine stations.

10. General Recommendations and the Way Forward

The consultants recommended that governments should encourage or develop the following:

- > market infrastructure, transport and communication networks;
- > the establishment of commercial farms, organized marketing systems and vertical integration between producers and export operators;
- > regional livestock trade between neighboring countries to lower the impact of informal trade;
- > transparency and efficiency by the private export operators in the acquisition of public land;
- > adequate credit facilities and efficient export service deliveries; and
- > detailed market study to link African countries with the potential livestock markets of the Middle East.

Part Two
Animal Health Component

11. Introduction

Animal disease has remained the biggest constraint to the trade of animals and animal products within and from Africa. It is also the largest constraint to efficient animal production, which is an important consideration for the regular supply of product to sustain exports.

Certification for freedom from additional health hazards, such as bovine spongiform encephalopathy (BSE) and drug and chemical residues in livestock products are now frequently included in trade protocols to further guarantee food safety. Animal welfare issues are also important.

Absolute country or zone freedom from OIE List A Diseases is difficult to achieve in most countries in Africa and the development of export zones was proposed to minimize the risks of transmission of animal disease through the trade in livestock and livestock products. In April 2003, Dr G Thomson, of the African Union/Interafrican Bureau for Animal Resources (AU/IBAR) presented the initial concept for developing export zones. This led to the recruitment of the two consultants to further investigate the proposal in anticipation that it would enable developing countries to deploy their resources to assist in controlling animal diseases in the export zones and also readily participate in the international trade of livestock and livestock products.

Globalization is also increasing the competition for trade in livestock and livestock products, especially those derived from countries outside the continent, many of which have highly developed livestock industries and also receive subsidies. However, accessibility to export markets depends on bilateral trade agreements that are supported by availability of suitable products for export.

These trade protocols should be made in terms of the World

Trade Organisation/Sanitary and Phytosanitary Measures Agreement (WTO/SPS) Agreement that stipulates:

- > Member countries have the right to establish the level of health protection they deem necessary;
- > The measures imposed are scientifically justifiable and are applied only to the extent necessary to protect human or animal health;
- > The measures should not unjustifiably discriminate between national and foreign products, or among foreign suppliers;
- > The measures should be based on international standards to facilitate harmonization of certification;
- > If the measures are not based on international standards they should be established on the results of a scientific risk analysis;
- > The process should be transparent; and
- > Exporting countries should provide importing countries with equivalent measures of safety if they cannot fulfill the importing countries exact conditions for import.

Trade in livestock and livestock products will flow more freely if there is mutual recognition of standards and when the importing country is satisfied that foreign animals and products do not jeopardize the health and safety of its people or the national livestock industry.

In the future, with increasing human populations, growing urbanization and greater domestic demands, fewer African countries will have excess livestock or livestock products to export. The comparative advantages for each country in livestock production and trade should be considered and exploited.

12. *Animal Health Issues*

12.1 Effect of Animal Disease on Livestock Trade

Many World Organisation for Animal Health (OIE) List A Diseases that occur in Africa are a major constraint to trade in animals and animal products. This predicament has prevented most African countries from participating in livestock and livestock product markets of the developed world and free intra-Africa trade, the vision of the African Union/ Interafrican Bureau for Animal Resources (AU/IBAR). As international trade becomes more liberalized with the removal of duties, subsidies and tariffs, animal diseases will have an increasing significance as a barrier to trade in animals and animal products.

12.2 OIE Guidelines

The international guidelines for safe trade in animal and animal products are specified in the OIE Terrestrial Animal Health Code. These guidelines, established and ratified by the 164 OIE member countries, assume that the importing country is free of the particular disease or diseases that are considered as risks. These guidelines specify that such products must originate from countries or specified geographical areas of a country (zone) that are free from the major animal diseases, capable of causing economic losses or human disease.

The Conference of the OIE Regional Commission for Africa is held every two years. For member countries to have a greater influence in modifying international standards for trade in animals and animal products during the OIE General Session, it is important that these meetings take place at least twice a year. Frequent meetings enable African members to develop a better understanding and a common and unified approach to issues to be debated at the OIE

General Sessions.

Some of these meetings are best held regionally to discuss relevant trade and animal disease control requirements. The current low frequency of such meetings in Africa is not satisfactory. The commitments by various donors and organizations during the World Trade Organization (WTO) Ministerial Conference in Doha, Qatar, in November 2001, to strengthen veterinary services in developing countries should be honored. The activities should include sponsoring chief veterinary officers to attend regional and international meetings that define standards for trading in livestock and livestock products.

12.3 OIE Disease Free Zones

To promote trade in animals and animal products in countries where specific zones are infected with a specific disease, the OIE has developed the concept of disease free zones. The zones, developed for particular diseases, must meet the following requirements:

- The zone must be demarcated from the rest of the country by an appropriate natural, artificial or legal barriers;
- Livestock within the zone must be identified;
- Adequate disease surveillance must be observed within the zone to enable detection of specific diseases;
- Specimens collected from suspected diseased animals must be tested at approved diagnostic laboratories using methods that are specified in the OIE Manual;
- The zone must contain unvaccinated livestock that are susceptible to the specific disease, except in the case of foot-and-mouth-disease (FMD);
- There must be adequate livestock movement controls into the zone to prevent introduction of disease;
- The integrity of the zone must be ensured through appropriate legislation; and
- Transparency in reporting any changes to the disease situation or integrity of the zone is necessary.

The criteria for establishing disease free zones cannot be isolated from the need for a competent veterinary service.

Such services, complemented by adequate resources, is fundamental to detecting and controlling threats from major animal disease. It also ensures that the integrity of the disease free zone is protected and is offering credible certification and safe trade in animal and animal products.

It is difficult to achieve disease free zones in Africa, considering the large number of OIE List A Diseases that occur in the continent. For East Africa and especially Ethiopia and Uganda, the following OIE List A Diseases are still widely endemic:

- foot-and-mouth disease (Sat 1,2,3, A, O types)
- contagious bovine pleuropneumonia
- peste des petits ruminants
- lumpy skin disease
- sheep and goat pox
- African swine fever
- African horse sickness
- blue tongue
- Newcastle disease
- Rift Valley fever (considered a high risk for Middle East markets although not officially recorded in Ethiopia)

Rinderpest, although no longer endemic throughout the region, still remains a risk because of the persisting reservoir of infection in the Somali pastoral ecosystem. Ethiopia and Uganda are provisionally rinderpest free zones, although efforts to eradicate the disease began decades ago with the multinational joint project (JP 15 campaign) under the aegis of the Organization of African Unity that was initiated in 1965. The Participatory Community-based Vaccination and Animal Health Project (PARC-VAC) of 1986 to 1999 and the Pan African Programme for the Control of Epizootics (PACE), launched in 1999, followed the JP15 campaign. In spite of these protracted interventions, Ethiopia and Uganda have not achieved complete international rinderpest free status, highlighting the difficulty of such status for just a single disease.

East Africa has several other important zoonotic diseases that can affect trade in animals and animal products. These

are:

- anthrax;
- tuberculosis;
- brucellosis; and
- cysticercosis.

Owing to the weak veterinary services in many African countries and such problems as unrestricted cross border movement of unidentified livestock, it is increasingly difficult for veterinary personnel to certify that exported livestock or livestock products are free from the OIE List A Diseases. Large wildlife populations also compound the difficulties in disease control.

The consultants proposed that export zones would negate the necessity for disease free zones, and that export zones would provide access to global markets for livestock and livestock products. However, competent veterinary services are essential for ensuring the safety of livestock and livestock products for export.

12.4 Exports from Southern Africa

Several countries in southern Africa have successfully developed export zones for production of deboned beef and other livestock produce for the Europe and other developed countries markets that meet the high consumer demands and veterinary standards. Botswana, Namibia, Swaziland, South Africa and Zimbabwe have competent veterinary services and competitive livestock industries. Veterinary services are supported by:

- reliable infrastructure;
- adequate operational budgets; and
- appropriate legislation, providing the overall ability to control animal diseases and to satisfy importers' certification requirements.

Cattle inside these countries are identified and official veterinary movement permits control their movement. Disease surveillance systems are efficient and are supported by well-equipped diagnostic laboratories. The countries have only one significant OIE List A Disease that is important

to importers of meat; the foot-and-mouth disease. Problems associated with controlling this disease in southern Africa are minimal compared to eastern Africa because there are only three virus types of foot-and mouth disease in the south compared to the five types that are active in East Africa. Moreover, migration by pastoralists is a rare phenomenon in southern Africa while it is a widespread practice in the semi arid areas of the sub-regions in East Africa.

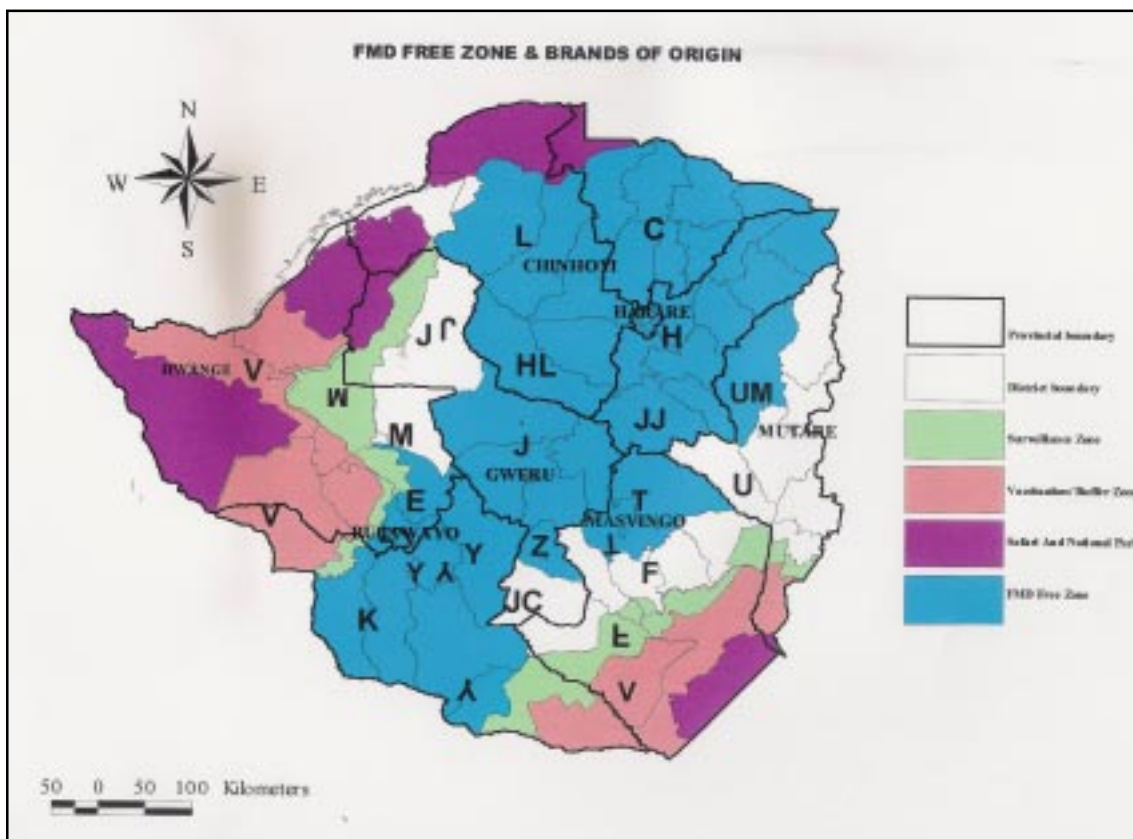
In southern Africa the major wildlife areas have been demarcated by appropriate fencing, preventing the mixing of livestock and wild buffalo. This separation has minimized the chances of transmitting foot-and-mouth disease. Zimbabwe, for example, created various zones, countrywide, of foot-and-mouth disease risk from 1984 to 2002 by introducing permanent identification of cattle by zone of origin and restricting their movement.

Officials of the European Union Food and Veterinary Office (FVO) audit the systems for exporting deboned beef to Europe from southern African countries to ensure that importer standards are maintained. Such audits have been useful in identifying and rectifying weaknesses. This system has been highly successful and no major diseases have been transmitted through this trade that has been ongoing for decades. Self-evaluations and audit systems, conducted by AU/IBAR, should be considered for African countries that export livestock and livestock products.

12.5 East African Export Zone Observations / Proposals

To promote safe trade in livestock and livestock products, the consultants evaluated some export establishments, disease surveillance systems, veterinary services and other related issues. Based on this analysis they made recommen-

Fig 12.1. Foot-and-mouth free zones and brand of origin



dations for improving safety in trading in livestock and livestock products from East Africa. The consultants' recommendations were developed after wide consultation with senior members of the Ugandan and Ethiopian livestock industries, government officials and staff of AU/IBAR. The recommendations were further debated and refined through well-attended workshops in Addis Ababa, Kampala and Nairobi. The participants at these workshops included representatives from the public and private livestock sectors.

The workshops endorsed the views of the consultants and did not generate any major new initiatives. They, however, provided an important forum for validating the original concept of establishing export zones and improving the participants' understanding of the issues. The workshops highlighted that export zones were not disease free zones and that they required investment, adequate infrastructure and competent veterinary services if they were to stimulate trade in livestock and livestock products. It was recognized that if the private sector is to play any meaningful role in the development of the proposed export zones, as specified in the concept presentation by Dr G Thomson, then that sector would have to become more organized in all areas. Producers, processors and traders would need to invest in livestock and market development.

There were other recent initiatives to promote trade in livestock between East Africa and the Middle East, as proposed by the Red Sea Trade Commission and the Support to Livestock Export in the Horn of Africa project of the Food and Agriculture Organisation of the United Nation (FAO-EXCELEX). Although these two private initiatives are beneficial for trade, certification must remain under the government's authority for greater co-ordination of the various initiatives on trade in livestock and livestock products to the Middle East from East Africa and to speed progress and thereby boost trade.

The study proposed two systems that would enhance safer trade in livestock and livestock products from East Africa to specific markets within and outside Africa. These sys-

tems would minimize the risks of transmission of the OIE List A Diseases through the trade in livestock and livestock products. The consultants decided to use the term 'system' rather than 'zone' to avoid any confusion of an export zone with a disease free zone. A system would also better describe the various components and procedures required for the export of livestock and livestock products that would not be possible to achieve by using the term 'zone'.

During the course of the workshops a definition of an export system was developed as follows:

An export system is one where measures are in place to satisfy all the requirements of a particular importer or set of importers, for a particular commodity or range of commodities that are not fulfilled within the country. The objective is to ensure supply of the commodities of pre-determined quality and reduce the risk of importation of human and animal pathogens to an appropriate level of risk.

The two export systems proposed were as follows:

Production Export System

A closed zone or compartment (zone / compartment as specified by the OIE Terrestrial Animal Health Code) of livestock production for export of livestock and livestock products. The minimum requirements for a successful system are:

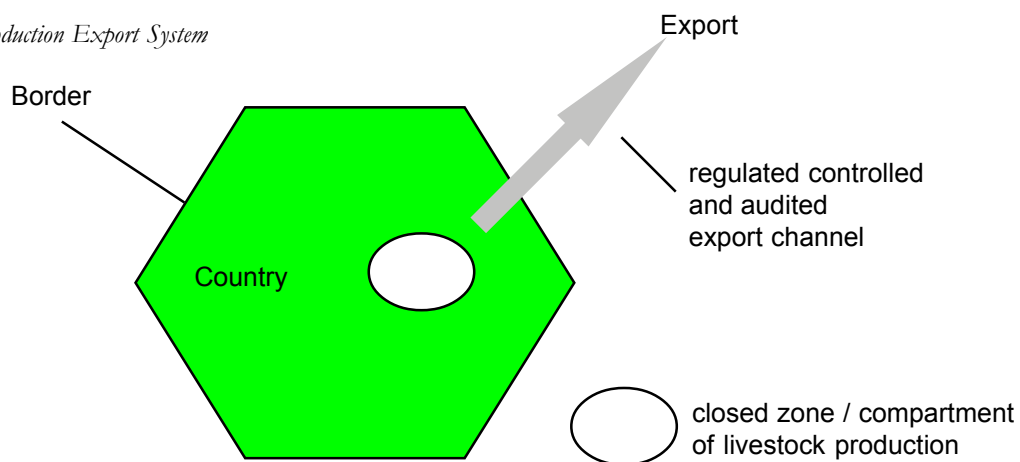
- closed bio-secure zone or compartment of livestock production demarcated by a livestock barrier;
- introduction of livestock into the zone or compartment to be done by testing and quarantine;
- all livestock within the zone or compartment to be permanently identified;
- livestock within the zone or compartment to be vaccinated to protect them from specific OIE List A Diseases that are considered to be a major risk;
- livestock within the zone or compartment to be treated with anthelmintics and acaricides to improve production;
- intensified animal disease surveillance within the zone or compartment;

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- > zone or compartment under official veterinary supervision;
 - > maintenance of records of all vaccinations, treatments and livestock entries and exits of the zone or compartment;
 - > diseases and deaths of animals within the zone or compartment to be investigated and recorded by official veterinary services;
 - > drugs and vaccines administered to be registered, subjected to quality controls and recorded;
 - > diagnostic tests done at approved registered laboratory in accordance with the OIE Manual;
 - livestock to be processed at abattoirs approved and registered for export, by the veterinary administration or AU/IBAR regional auditors;
 - > livestock or meat from the zone should be supervised up to place of export;
 - > an adequate size and number of closed bio-secure zone or compartments are required to sustain market demands and viability;
 - > zone or compartment of livestock production must be protected from wildlife;
 - > welfare of livestock must be taken into account during production through to place of export; and
 - > stock feed that enters the zone or compartment should be controlled to minimize the risk of transmitting such diseases as bovine spongiform encephalopathy (BSE) and chemical or drug contaminants entering the food chain.
- All the above requirements should be built into a quality assurance scheme, approved and audited by the importing country, the national veterinary services and AU/IBAR should also audit them regularly.

Fig 12.2. Production Export System



Market Export System

A system of bio-secure multi-staged holding compartments and quarantine stations for export of livestock and livestock products.

The degree to which the various procedures are imposed depends on the commodity to be traded. The minimum requirements for a successful system are as follows:

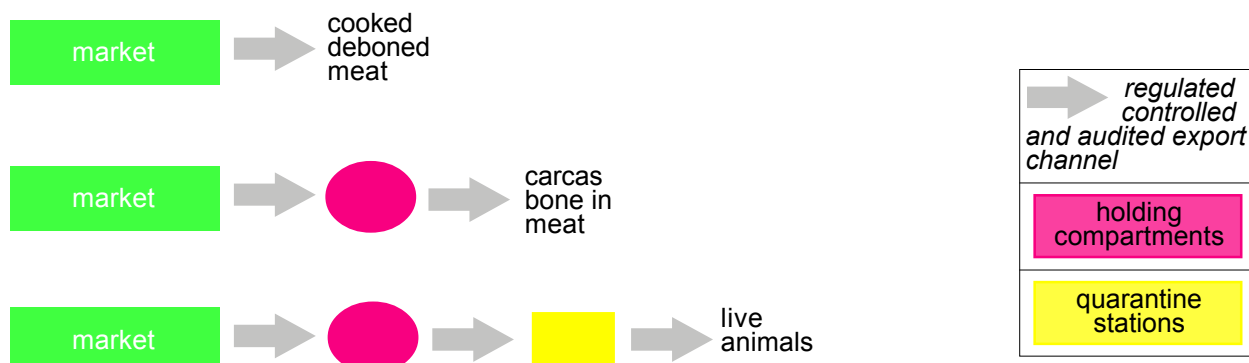
- > livestock to be purchased from various markets;
- > livestock purchased must originate from identified low disease risk areas;
- > livestock must be inspected and transported to a pre-quarantine holding compartment where such treatments as dosing or dipping and vaccinations are done;
- > all out system must be followed in the holding compartment, to prevent spread of infectious disease to the quarantine station;
- > within the holding compartment, all livestock must be brought to the same disease status by vaccination;
- > livestock must be identified by ear tag or other permanent means on entry to the holding compartment or at time of purchase;
- > livestock must be transported and isolated in prescribed quarantine station after completion of a specified time in holding compartment;
- > quarantine of livestock to follow an all in, all out principle;
- > an adequate size and number of holding and

quarantine stations are required for viability of the enterprise;

- > holding compartments and quarantine stations must be registered by the veterinary administration and under official veterinary supervision;
- > livestock disease and deaths within the system must be investigated and recorded by the official veterinary service;
- > specimens to be analyzed by registered laboratories using diagnostic tests as specified in the OIE Manual;
- > drugs and vaccines administered must be registered and recorded;
- > livestock movements to, from and within the system must be controlled, veterinary permits issued and recorded;
- > livestock movements to and from and within the system should be by motorized transport;
- > appropriate infrastructure must be in place to ensure isolation and good animal welfare;
- > livestock to be processed at abattoirs approved and registered for export by the veterinary administration; and
- > holding compartments and quarantine stations to be protected from wildlife.

These two export systems, the production export system and market export system were compared at a workshop held in Kampala, Uganda and Addis Ababa, Ethiopia and a strengths, weakness, opportunities and threats (SWOT) analysis completed (see Annex 3).

Fig 12.3. Market Export System



12.6. The Influence of Commodities and Processing on Safe Trade

Export of Meat

The commodity to be exported has a major influence on the measures that are necessary to minimize the risks of disease transmission through trade in the product. Measures that may be considered to reduce the transmission of diseases through meat are;

- > heat treatment;
- > maturation and deboning and removal of lymph nodes;
- > irradiation;
- > salting;
- > drying;
- > pickling;
- > smoking; and
- > immunization of livestock.

Heat Treatment of Meat

It is well accepted that cooking meat to a f_0 value of 3 (121 degrees centigrade for three minutes) will inactivate most pathogens BSE. Therefore, if cooked (canned) meat is to be exported, it is acceptable for livestock to move directly from the market to the export abattoir for subsequent slaughter and processing.

Fig 12.4. Heat treatment of meat



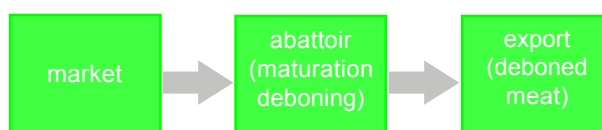
Maturation and Deboning

Other techniques, such as maturation of carcasses at plus two for 24 hours immediately after slaughter and deboning of meat, with removal of the major lymph glands, will also reduce the risks of transmitting disease through meat. This process lowers the pH of the meat to below six so that most viruses, including for foot-and-mouth disease, are inactivated.

This process has proved highly successful in minimizing the risks of any foot-and-mouth transmission through the

export of matured deboned meat from South America and southern Africa in spite of the enormous quantities of beef exported over a prolonged period. The maturation of carcasses and the deboning of meat and removal of the lymph glands should expand the market accessibility of the product.

Fig 12.5. The maturation of carcasses and the deboning of meat and removal of the lymph glands



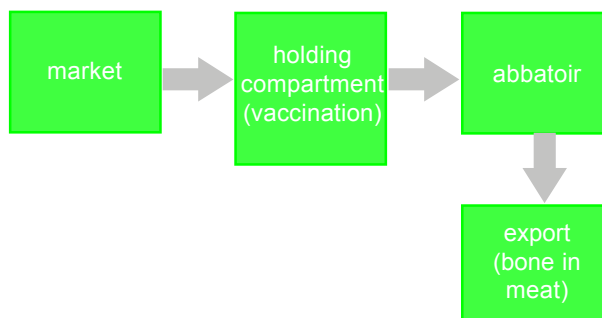
Irradiation, Salting, Drying, Pickling and Smoking

Irradiation, salting, drying, pickling and smoking minimize the risks of transmitting pathogens through meat. However, the methods require further test to verify their efficacy and appropriateness.

Vaccination of Livestock

As the foot-and-mouth virus is known to survive within the bone marrow of infected animals after slaughter, additional safeguards must be implemented if bone in meat is to be safely exported. These safeguards involve the placing of livestock in pre-slaughter holding compartments where they can be vaccinated against foot-and-mouth and other major diseases. Once vaccinated, the livestock can proceed to an export abattoir for slaughter and subsequent export in the form of bone in meat (carcass meat).

Fig. 12.6. Vaccination to safeguard against foot-and-mouth disease



Export of Milk

The transmission of animal disease through milk can be minimized through processing measures such as:

- > pasteurization;
- > sterilization;
- > fermentation; and
- > drying (powdered milk).

Processing of livestock products not only minimizes disease risks but generally adds value to the product, which should be an incentive to the manufacturer and would bring into the country additional foreign currency.

The OIE Scientific Commission should establish an *ad hoc* group to further evaluate the various measures that could make trade of diverse livestock commodities safe, through various processing techniques, in spite of numerous disease risks in the live animal.

Export of Live Animals for Subsequent Slaughter

The following measures or their combinations would minimize the transmission of animal diseases through the export of live animals:

- > purchase of animals from identified low disease risk areas;
- > identification of animals to ensure traceability and good record keeping;
- > livestock movement control by official veterinary permit;
- > inspection / testing / treatments;
- > vaccination; and
- > quarantine.

Low Disease Risk Areas

If the livestock are not produced and reared in a closed bio-secure compartment of known disease status, but purchased at an open market, then the livestock must originate from known low disease risk areas. This requires a competent veterinary service with good disease surveillance and diagnostic capabilities. Livestock identification and movement control systems must be efficient to ensure animals

do originate from specified areas.

Inspection, Vaccination and Quarantine

The livestock purchased from the market should be processed through a multi staged holding compartment and quarantine station system where they can be inspected, vaccinated and quarantined for observation before export.

The bringing together of large numbers of livestock for export, from various sources of unknown disease history, is a high risk for disease transmission, especially when there are a number of OIE List A Diseases endemic in the region. Developing numerous holding compartments and quarantine stations of appropriate size would minimize these risks. Thorough clinical examination of all animals at point of purchase, at the time of entry into and exit from the holding compartments and quarantine stations are necessary. Inspection personnel must be suitably trained to identify the clinical symptoms of the diseases that are a potential risk to livestock or human health. Appropriate training programmes must be in place to ensure inspection personnel always have the relevant skills to detect the clinical signs of livestock disease.

To minimize risks of disease transmission further, through the export of livestock intended for slaughter, it is strongly recommended that the livestock be vaccinated to protect them against OIE List A Diseases of concern to the importer. This vaccination procedure should be carried out in the holding compartment, before the livestock enter the quarantine station. To minimize financial losses, owing to possible disease outbreaks before animals are fully immunized and protected through vaccination, numerous holding compartments need to be constructed to serve individual quarantine stations.

To further minimize transmission of animal disease through holding compartments, before animals are fully immunized, it is recommended that the holding compartments are operated as an all in, all out closed system and not as a first in first out 'rolling' continuous system as currently practiced.

Manufacturers' recommendations should be followed when administering all vaccines, but inactivated vaccines could be administered simultaneously. The Middle East markets demand importation of the entire male livestock and the modified live Smithburn Rift Valley fever vaccine is recommended for cattle, sheep and goats because it offers superior immunity than the inactivated vaccines. The Middle East also requires that live animals are tested free of brucellosis before importation.

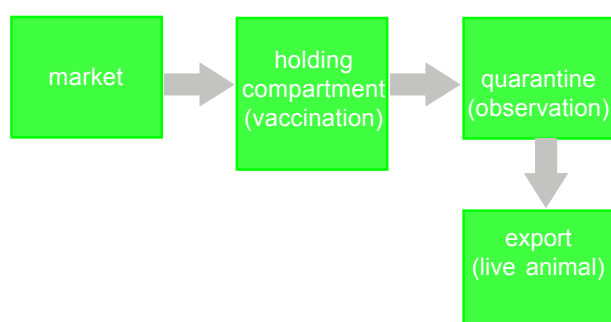
It is proposed that livestock is retained in the holding compartment for a minimum of 21 days to achieve a protective immune response post vaccination.

When livestock are fully immunized against the prevalent OIE List A Diseases of concern to the importer, they can be released with increased safety into the quarantine station for the 30 day period that is longer than the incubation period of most OIE List A Diseases.

Any quarantine station should operate on an all in, all out enclosed system and not as a 'rolling' quarantine i.e. first in, first out with continuous through put as currently practiced. It is unsafe to sub-divide an individual quarantine establishment into various sections by partitions to facilitate the 'rolling' system of first in, first out. Quarantine stations must be isolated and animals closed all in, all out systems.

Appropriate stock proof fencing should enclose the holding compartments and the quarantine stations.

Fig. 12.7. A multi-staged holding compartment and quarantine station system for export of live animals



12.7. Quality of Vaccines

The vaccines and drugs used must be manufactured to acceptable international standards and registered for use by an appropriate authority. The registration process must ensure that the vaccines conform to international quality assured standards. Vaccines must also be relevant to protect livestock against local strains of any particular disease. This is important in the control of foot-and-mouth disease, where vaccines should be manufactured using national or regional types of virus to protect livestock against the most likely risks of infection. The efficacy of vaccines requires regular monitoring.

Livestock to be vaccinated should be in good condition to enable them to achieve an improved immune response to the vaccine.

12.8. Strengthening of Veterinary Services

Within the two countries visited, Uganda and Ethiopia, and in eastern Africa in general, there is an urgent need to strengthen the capacities of national veterinary services to minimize livestock production losses owing to transboundary animal diseases. These countries would have a greater ability to supply growing domestic demands for livestock, meat and milk and to export excess product. Good control of the OIE List A Diseases within a country would also minimize the possibility of disease transmission through the trade of livestock and livestock products within the region.

The credibility of veterinary certification, which is a government responsibility, would also be greatly amplified if the veterinary services were strengthened. This would increase trustworthiness and greater market access. Accurate knowledge of the epidemiology of the OIE List A Disease within any particular country would be established by implementing improved disease surveillance and diagnostics procedures.

The national veterinary services were evaluated as specified within the OIE Terrestrial Animal Health Code, chapters 1.3.3. and 1.3.4. to strengthen it. This items covered were:

- > organization, structure and authority of the veterinary services;
- > human resources;
- > material and financial resources;
- > functional capabilities and legislative support;
- > animal health and veterinary public health controls;
- > formal quality systems including quality policy;
- > performance assessment and audit programmes; and
- > participation in OIE activities and compliance with OIE member countries' obligations.

Veterinary structures in some eastern Africa countries are inappropriate having been established by previous unsuitable economic structural adjustment programmes. The Federal Veterinary Service in Ethiopia, for example, was found to be weak and required strengthening to ensure safe exports of livestock and livestock products. A functional analysis of the veterinary services is required before further restructuring is undertaken. This process could be enhanced by participation of stakeholders and appropriate study tours to countries with successful livestock industries. Veterinary services need to identify their core functions and develop clear mission statements and annual work plans, established with stakeholder participation, to prioritize and improve coordination of activities.

Emergency Prevention Systems (EMPRES) should be established to reduce the risk of disease transmission into export systems and to increase livestock production.

To operate efficiently and fulfill their core mandates, it is imperative that veterinary services are supported by appropriate legislation. This legislation requires periodic review to empower the veterinary services to efficiently regulate the livestock industry so that notifiable diseases are controlled. Livestock movement control, livestock identification and border controls should be improved if disease risks

through trade in livestock and livestock products are to be minimized.

12.9. Veterinary Statutory Body

There was no veterinary statutory body in Ethiopia or Uganda to monitor and ensure that the professional integrity, professional judgement, independence and impartiality of veterinary and para-veterinary staff were maintained to an adequate international standard to facilitate trade. These attributes are essential for any veterinary service if they are to gain the confidence of trading partners and ensure the integrity of their certification.

Veterinary statutory bodies would also ensure that the minimum standard required for registration of veterinary degrees and qualifications for other veterinary para-professionals are enforced. These statutory bodies could assist in harmonizing veterinary medicine degrees and veterinary para-professional qualifications in the region to facilitate intra-regional trade.

Veterinary statutory bodies could also ensure that veterinary certification of livestock and livestock products for trade is undertaken professionally and according to international standards.

12.10. Harmonization of Veterinary Degrees

During the visit to the Faculty of Veterinary Medicine of the Makerere University in Uganda, it became evident veterinary degrees in the region were not coordinated. Deans of faculties of veterinary medicine from the various universities need to harmonize the training curricula and standard of qualifications that would assist in intra-regional trade in livestock and livestock products. Formal reciprocity for recognition of veterinary degrees from the various universities, within the region, should be encouraged.

12.11. Operational Budgets for Veterinary Services

The grossly inadequate annual operational budgets were found to be a major constraint to the efficient functioning of the veterinary services in eastern Africa. This has been the most significant factor in limiting effective disease surveillance, diagnostics and control that are all necessary for safe trade in livestock and livestock products.

In the two countries studied, Ethiopia and Uganda, agriculture contributed to some 42% of the national Gross Domestic Product (GDP). Of this amount, livestock production contributed 33% of the agricultural production in Ethiopia and 17% of the agricultural contribution in Uganda. However, agriculture received approximately 2% of the national recurrent budget allocation. Of the 2% allocated to agriculture, approximately 5% from it was allocated to livestock and of this 5% allocated to livestock approximately 50% was allocated to animal health. Veterinary services thus received approximately 0.1% of the national recurrent budgets.

Unfortunately, most of the funding allocated to veterinary services is assigned to salaries leaving limited funds for administrative activities. In several other countries within the region, agriculture received less than 1% of the national recurrent budget and only a fraction of this was allocated to the livestock sector.

This state of affairs occurs in the budget allocations of every country in the East African region, in spite of the importance of livestock and supposed strong political support for the livestock sector.

It is said that agriculture is the backbone of African economies, but owing to the importance of draught power in the continent, livestock can be said to be the backbone of agriculture.

The livestock sector in general, and the veterinary services in particular, must receive a greater share of recurrent budg-

ets if growing domestic demands for meat and milk are to be met, and production of livestock and livestock products increased for the export markets. Livestock requires an equitable budgetary investment by governments based on its value and contribution to the national economy.

Greater efforts should be made by the entire livestock sector in lobbying politicians to gain the necessary political support that will ensure greater financial allocations for livestock.

12.12. Control of Veterinary Drugs and Chemicals

Many importers are now demanding that livestock products are free of drug and chemical residues. This may require investing in expensive residue testing equipment. However, of prime importance is the need to establish appropriate national drug control authorities that will ensure that all drugs and chemicals used in the country are registered and conform to minimum required international standards. The drug control authorities need to have the capacity and legal authority to carry out audits to ensure appropriate standards are achieved and that there is compliance with the legislation.

Reduction in costs of establishing national drug control authorities could be achieved if such institutions are developed regionally and audited by AU/IBAR.

12.13. Strengthening of the Private Livestock Sector

The private livestock sector also requires massive strengthening through the development of improved organizations and structures for the producers, processors and traders if the livestock sector is to reach its full potential and create greater export opportunities.

Livestock producers, processors and traders should be organized into associations, cooperatives and unions or federations to become empowered. In Ethiopia, out of a total of 7300 cooperatives, 3481 were involved in agricultural

production. Of these, only 32 are involved in livestock of which 27 are in milk production. There are over three million farmers in Uganda but only 162 000 are members of the Ugandan Farmers' Federation. Likewise, there are only eight members of the Ethiopian Exporters' Association. Thus, there is need to improve the organization of the private livestock sector and strengthen linkages, form partnerships and improve information flow. Livestock keepers need to be converted into livestock farmers and encouraged to increase production and create surplus for the market and safeguard national food security.

The recurrent and capital development budgets of veterinary administrations are generally inadequate and the private sector is expected to provide the major financial inputs for the development of export systems.

12.14. Strengthening of AU/IBAR

If AU/IBAR received legal, financial and human resource capacity, it could play an important and central role in promoting the trade in animals and animal products within and from Africa. Africa needs to standardize and harmonize disease surveillance methods, diagnostics and reporting to facilitate trade between AU member countries. Setting animal health and veterinary public health standards could best be achieved by evaluating veterinary services as recommended in the OIE Terrestrial Animal Health Code. This evaluation could be carried out by specialist staff within AU/IBAR and would assist countries in identifying any deficiency in their veterinary service. Regular audits after such evaluations, annually or every second year as is done by the Food and Veterinary Office of the European Union (FVO) would enable freer trade in livestock and livestock products within the European Member States.

Africa is vast and auditing and coordinating livestock activities could be enhanced if AU/IBAR is decentralized to the regions or works through existing regional structures, such as the Southern Africa Development Community (SADC), East African Community (EAC), Inter-Govern-

mental Authority on Development (IGAD) and the Economic Community of West African States (ECOWAS).

AU/IBAR needs to expand its technical skills base to assist AU member countries in establishing appropriate protocols for the trade in livestock and livestock products.

Risk analysis techniques are becoming increasingly important, assisting in the safe trade of livestock and livestock products when international standards are not followed. Some AU/IBAR staff should have risk analysis skills.

Progress cannot be achieved without political support. AU/IBAR must continue to lobby the AU to emphasize the importance of livestock in Africa for the sector to receive appropriate resources, including finance.

12.15 Investments for Increased Export

Public and private sector investment in the livestock industry should increase. Communication networks, such as roads, rail and telephone services should be improved. Veterinary and market infrastructure, including livestock markets, water points, loading and handling facilities and power supplies need to be developed. Export abattoirs and livestock products processing plants, livestock holding compartments and quarantine areas and should be improved.

Livestock breeding programmes should also be expanded to ensure sustainable supply of products that will meet consumer demand. The growing of improved pastures and various stock feeds will also assist in producing good quality animals for export.

13. General Veterinary Observations on Exports Systems

region and Africa in general, must establish scientifically sound export standards as recommended by the OIE, to protect the exporting and the importing countries.

Export systems will provide for safer trade in animals and animal products to specific markets with resultant benefits to the livestock industry and national economies.

Export systems should protect the importing and exporting country because livestock production is long term and export infrastructure costly. Export markets need safeguards to ensure long term trade.

Existing export systems should be improved and modified to minimize disease transmission risks and ensure safety in trade in livestock and livestock products.

The treatment, vaccination, testing, holding and quarantine period or processing procedures for animals, to minimize risks of spreading disease will be influenced by the commodity to be exported. Measures to make the commodity safe for trade should be based on accepted scientific principals and this requires further study.

There is urgent need to establish sound science-based animal health and veterinary public health trade protocols with trading partners to ensure safe trade in animal and animal products, within and out of Africa. These trade protocols must be established within the terms of the World Trade Organisation/ Sanitary and Phytosanitary Agreement (WTO/SPS). It was noted that the specimen copies of the animal and veterinary public health import conditions for the Middle East did not comply with the terms of the WTO/SPS Agreement.

It is essential that individual countries, the East African

14. Holistic Approach

The following issues that influence the export of livestock and livestock products should be considered when developing export systems:

- > evaluation of the veterinary services as specified in the OIE Code, organization and development of the private livestock sector;
- > establishment of continental trade standards for livestock and livestock products;
- > creation of export audit strategies;
- > investment in livestock and related infrastructure;
- > establishment of an inventory of animal health, animal production and livestock infrastructure in individual countries; and
- > assessment of the comparative advantage for livestock production and potential in the various regions of Africa.

Some of these factors may be more critical than other, depending on the particular country of export or import. Solutions to resolve each issue is beyond the scope of this study and further work is required in these areas as indicated in Point 16, The Way Forward.

To achieve free trade of livestock and livestock products in Africa as is the vision of AU/IBAR, an evaluation of veterinary services must be conducted to initiate the standardization and harmonization of animal health controls.

15. General Recommendations

Governments, the private sector operators and other stakeholders should encourage and implement the following recommendations to improve trade in livestock and livestock products in eastern Africa by:

- > ensuring availability of product - Africa is a net importer of meat and milk;
- > developing viable sustainable export markets that have confidence in the product;
- > initiating public and private investment in market and livestock infrastructure, such as cold chain, export abattoirs and processing plants, livestock handling facilities, loading areas, sale pens, specialized livestock transport and water points;
- > developing general infrastructure, such as roads, power supply and communication linkages;
- > strengthening and developing export quarantine stations and holding compartments, demarcated by appropriate barriers including livestock proof fencing;
- > improving livestock identification system for export, for example, ear tags, branding and microchips;
- > improving and developing export livestock movement controls and check illegal cross border movement by introducing control measures, such as official veterinary movements permits and port health authorities (border check points);
- > improving inspection methods of livestock for OIE List A Diseases at critical points (markets-holding compartments -quarantine stations-abattoirs);
- > developing appropriate processing plants to render commodities safe for trade and to add value;
- > developing good record keeping and documentation of all activities and interventions in export chain of operations;
- > improving national veterinary drug registration and control;

- enforcing the requirement for regular audit of export establishments and procedures by the veterinary administration;
- maintaining official control of product to point of export; and
- establishing veterinary statutory bodies to entrench and maintain veterinary professional and para-professional standards.
- Veterinary services, such as adequate budgets and resources for improved disease surveillance and diagnostics that are fundamental to safe trade in livestock and livestock products should be strengthened. All the OIE guidelines for the evaluation of veterinary services as specified in the OIE Terrestrial Animal Health Code should be taken into account. Credibility of certification for trade is based on competent veterinary services. A functional analysis of veterinary services should be implemented before restructuring. Private good activities need to be privatized for veterinary administrations to focus on regulatory activities.
- National animal health legislation required to empower veterinary services to conduct core regulatory activities should be updated. Enforcement and implementation of regulations requires appropriate political support.
- The livestock industry in all sectors requires support; producer, trader, and processor organizations need to be strengthened and organized. National livestock strategic plans must be developed, and public and private partnerships encouraged.
- AU/IBAR should initiate harmonization and standardization of disease surveillance and diagnostics in the regions (assessment of veterinary services).
- AU/IBAR's central office should be strengthened to fulfill its mandate and to cater for increasing demands for its services.
- AU/IBAR needs to decentralize to regions to more effectively serve the continent or to improve linkages with regional organizations, such as EAC, ECOWAS, IGAD and SADC.
- AU/IBAR should incorporate the OIE Regional Office for Africa to improve coordination and cooperation between countries in the continent.
- AU/IBAR needs to strengthen its technical expertise to assist AU member countries in developing trade protocols that are based on scientific principals. AU/IBAR should urgently initiate negotiations between the OIE Regional Commission for the Middle East and the OIE Regional Commission for Africa, to establish trade protocols that are based on science and comply with the terms of the WTO/SPS Agreement.
- AU/IBAR needs to develop the skills to conduct risk analysis studies and to capacitate countries with this knowledge and promote safe trade in livestock and live stock products.
- AU/IBAR needs to establish the capacity to audit veterinary services within Africa. This will strengthen veterinary services and help in achieving the vision of free trade in livestock and livestock products in Africa.
- AU/IBAR should continue to lobby the AU and donor organizations to stress the importance of live stock, so that the sector and veterinary services can receive support and funding.
- AU/IBAR needs to continue lobbying the AU for the livestock sector to receive appropriate political support.
- The OIE Scientific Commission should further investigate the level of safety resulting from the various processing measures.

16. *The Way Forward*

To advance in implementing systems that will minimize risks of animal disease transmission, through the trade in livestock and livestock products, the following actions are required:

- a) An inventory of the capacities and capabilities of AU member countries on the level of development of the livestock sector in relation to export and animal health should be conducted. Member countries completing a suitably designed survey checklist could initiate the inventory that would provide a basic indicator to assist governments in identifying areas that require development and possible donor support.
- b) Regional economic groupings should identify pilot projects that would initiate the creation of export systems. AU/IBAR, in collaboration with the OIE, could approach international donors for funds to engage consultants to assist .
- c) AU/IBAR and governments should consider the General Recommendations (Section 15), especially implementing those relating to international standards, and trade in livestock and livestock products. They should also deliberate on establishing audit techniques to ensure such standards are instituted and maintained.
- d) The OIE should give priority to the various measures that will make different livestock commodities safe for trade rather than emphasizing the need for national or zonal freedom from any particular disease.

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Annexes

ANNEX 1: PEOPLE INTERVIEWED

African Union/ Interafrican Bureau for Animal Resources (AU/IBAR)

Dr J T Musiime - Director AU/IBAR

Dr R Bessin - Pan-African program for the Control of Epizootics (PACE) Co-ordinator

Dr G Thomson - Main Epidemiologist

Dr B Kebkiba - Counterpart Epidemiologist

Dr F Inganji - Communications Expert

Dr B Bauer - Technical Assistant

Dr F P Oloo - Liaison Officer

Dr C Stem - Pastoral Livelihoods Program Unit Head

Dr T Leyland - Head, Community Based Animal Health and Participatory Epidemiology (CAPE) Unit, Institutional and Policy Support Team.

Dr A Catley - Policy and Technical Adviser, CAPE Unit, Institutional and Policy Support Team

Dr D Bourzat - PACE, Main Technical Assistant

Dr S Haile Mariam - Chief Livestock Projects Officer

Dr E Fermet-Quinet - Veterinarian

Mr E Tambi - Senior Economist

Mr O Maina - Economist

Dr H Rojahn - Regional Coordinator, Farming in Tsetse Controlled Areas (FITCA), Project

Dr R Kock - Wildlife Technical Assistant

Dr B Bedane - Data Management Officer

Dr G Van't Klooster - Epidemiologist

KENYA

Dr C Stem - Ag. Secretary General, Red Sea Livestock Trade Commission

Dr S J M Munyua - Pastoral Policy Specialist of the Pastoral Livelihoods Programme

Mr E Tambi - Principal Economist for AU/IBAR

Dr J O Kanisio - Directorate of Livestock Development and Marketing for the Secretariat of Agricultural and Animal Resources, Southern Sudan

UGANDA

Ministry of Agriculture, Animal Industry and Fisheries

Mr Kisamba-Mugerwa – Minister

Mr O David – Permanent Secretary

Mr W Olaho-Mukani - Director Animal Resources

Dr J P Saamanya - Commissioner

Dr N Nantima – Epidemiologist / Livestock Economist

Dr C S Rutebarika – PACE Coordinator

Ministry of Finance, Planning and Economic Development

Dr P K Ngategize - National Coordinator

Ministry of Tourism, Trade and Industry

T K Sabakaki - Commissioner

Uganda National Farmers Federation

Captain T R Esau - National Publicity Secretary

Mr N Mwesigwa - Senior Policy Advisor – Institutional Building

Mr J P Moto - Director, Credit and Marketing

Uganda Investment Authority

Dr M Kigozi - Executive Director

Mr L Byensi - Acting Director, Investment Facilitation Division

ETHIOPIA

His Excellency Mr H Gebre, Commissioner, Federal Cooperative Promotion Commission

His Excellency Mr G Medhin - Manager, Livestock Marketing Authority

Honourable Mr A A Guleid - Member of Parliament - Chairman, Pastoralists' Affairs Standing Committee, Ethiopian Federal Parliament

Dr B Admasu - Country Representative, CAPE Unit

Dr A Demissie - Senior Expert, Animal Health, Livestock Marketing Authority

Dr S Zewdie - Chief Veterinary Officer, Ethiopia

Mr B Mosissa - Head of Department, Livestock Marketing Authority

Dr T Ephrem - Senior Expert, Meat Inspection and Quarantine

Dr B T M Taha - Director General and PACE National Coordinator, Federal Ministry of Animal Resources and Fisheries

Mr H N Jiru - Group Managing Director, Group Industries

Engineer A H Al-Hassan - General Manager, Red Star International Company

Mr A Wosenyeleh - President, Live Animals and Meat Exporters Association

Mr H Ali - Head of Livestock, Fishery and Feed Development and Regulatory Team

Mr A Abdella - Manager, Metahara Abattoir

Mr T Hagos - Marketing Manager, Luna Abattoir

ELFORA - Agro Industries Private Limited Company

Mr G Hago - General Manager

Dr Z Dagnatchew - Quality and Veterinary Services Senior Manager

Dr K. Lemma - Veterinary Services Manager

Mr A Woku - Senior Manager, Live Animal Operation

Mr G Serbesa - Animal Health Assistant, Kuriftu Feedlot

Mr K Hailu - Manager, Debre Zeit Abattoir

Mr Kasahun - Attendant, Ali Dege Holding Area

OTHERS

Professor E Katunguka-Rwakishaya - Dean, Makerere University

Mz S W Bingi - Director, Trade Promotion and Publicity, Uganda Export Promotion Board

Mr M Clements - Regional Manager, East Africa, DAS Air Cargo

Mr B Farmer - Team Leader, Southern Sudan Agricultural Revitalization Program, Catholic Relief Services (CRS)

Mr B Jafari - Manager, Basajjabalaba Hides and Skins Limited

Mr B Hathorn - General Manager, Ziwa Ranchers Limited

ANNEX 2: OIE List A Diseases

- > foot and mouth disease (FMD)
- > vesicular stomatitis
- > swine vesicular disease
- > rinderpest
- > peste des petits ruminants
- > contagious bovine pleuropneumonia
- > lumpy skin disease
- > Rift Valley fever
- > bluetongue
- > sheep and goat pox
- > African swine fever
- > African horse sickness
- > classical swine fever
- > highly pathogenic avian influenza
- > Newcastle disease

ANNEX 3: SWOT Analysis

Ugandan Workshop

SWOT Analysis for the Establishment of Export Systems

Two Systems were identified:

- > Production Export System
- > Market Export System

Production Export System

Strengths

- > diseases are controlled and monitored
- > animals are identified
- > animals are vaccinated
- > improved surveillance

- reliable data
- controlled breeding
- quality production
- concentration of resources
- strong national veterinary service required
- infrastructural development
- technical services established
- improved ability to market
- higher prices and benefits
- traceability of animals and their products
- easier enforcement of legislation

Weaknesses

- uneven development of the industry
- high cost of infrastructural development
- fencing (barriers preventing transhumance)
- animal identification costs
- wildlife movement control difficulties
- long term financial investment required
- substantial losses as a result of disease outbreaks

Market Export System

Strengths

- beneficial to people and various sectors of the industry
- even development of the industry
- lower cost
- quicker returns

Weaknesses

- high risk to disease
- difficult to control and regulate owing to the various components of the system
- high transport costs of animals to the various compartments

Opportunities

- improved market access
- higher prices
- government / private sector investment
- development of infrastructure
- livestock numbers increase
- potential for development of natural pastures
- reduction in civil strife

- market fluctuations are reduced
- greater control of drugs and chemicals

Threats

- uncontrolled wildlife movement and disease
- diseases
- water and drought
- uncontrolled livestock movement
- uncontrolled movement of people, for example, refugees
- cattle rustling
- transhumance

- civil strife
- uncontrolled drugs and chemicals
- market fluctuations

Ethiopian Workshop

SWOT Analysis of Generic Export Systems

Strengths

- improved disease control
- improved food safety
- improved market access
- step towards zonal disease freedom
- improved disease information
- higher price for producers, traders and or exporters
- leads to improved veterinary service delivery – recognition for increased resources
- focused disease surveillance
- product preference for Ethiopian commodities
- proximity to Middle East markets

Weakness

- high development infrastructure costs, such as fencing, water and roads
- cost of inputs, for example, vaccines, drugs, dip chemicals and stock feed
- availability of stock feed
- expertise required for record keeping
- availability of vaccines
- identification systems are expensive
- movement controls
- costs of inspections / audits
- risk of market changes
- high transport costs
- lack of appropriate legislation
- lack of access to finance for livestock development projects

Opportunities

- wider export market
- increased foreign exchange
- expansion of export areas
- improved disease surveillance / diagnostics
- increased rural development
- government commitment
- banking - access to finance
- improved transparency
- leads to market oriented production - commercialization
- increased livestock population

Threats

- disease outbreaks
- increasing demands of higher standards from importers
- competition from other countries
- increasing local demands for meat
- viability and sustainability

ANNEX 4: Consultants' Terms of Reference

The Veterinary Specialist would provide the following:

- A comprehensive report detailing the concept of export zones, generic requirements for such zones and the infrastructural, organizational and legal elements that they will require to function effectively. The potential for exploiting concepts such as compartmentalization and equivalence will also be addressed. Ideally, alternative approaches

will be identified and include differentiation between options available to trade in animal products as well as live animals.

- A detailed analysis of the feasibility, including strengths and weaknesses, of at least two of the “disease-free zones” already projected by countries in eastern Africa will be included in the above report. The advisability of following the approach taken by southern African countries (Namibia and Botswana especially) should be included in the analysis for comparative purposes.
- Recommendations on implementation that will be reached through a workshop held with stakeholders and the PACE common service units. The role of the private sector in the recommended process will be an important additional requirement and, therefore, consultation with appropriate private sector players will be necessary.
- The documents produced should take into account international trends in regulations governing trade in livestock and livestock products (those of the Office International des Epizooties in particular), as well as the requirements of potential importers, with an emphasis on the Middle East, developing markets in Africa and Asia and the European Union.

The Economics / Marketing Expert would provide the following:

- An economic assessment of the feasibility of establishing export zones in the East Africa (including Ethiopia and Uganda). Taking into account factors, such as the willingness and ability of the commercial sector to invest in their establishment, market trends and potential markets, predicted changes to European markets with respect to subsidy reductions and commitments to free trade by 2008, compartmentalization and equivalence as described by the OIE.
- A cost benefit analysis of at least two of the ‘disease-free zones’ already projected by countries in Eastern Africa. This analysis will not only look at the possible benefits to investors in a disease-free zone but also predict or discuss the knock-on effects of a successful disease-free zone to neighboring areas. It will take account of the possible need to invest in veterinary service delivery in neighboring areas in order to make the disease free zone viable.
- Recommendations on implementation, reached through three workshops held with stakeholders (including the private sector) and the PACE common service units.

The documents produced should take into account international trends in regulations for trade in livestock and livestock products (those of the Office International des Epizooties in particular) as well as the requirements of potential importers.