



**New Partnership for  
Africa's Development (NEPAD)  
Comprehensive Africa Agriculture  
Development Programme (CAADP)**



**Food and Agriculture Organization  
of the United Nations  
Investment Centre Division**

## **GOVERNMENT OF THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA**

### **SUPPORT TO NEPAD–CAADP IMPLEMENTATION**

**TCP/ETH/2908 (I)  
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**Volume V of VI**

### **BANKABLE INVESTMENT PROJECT PROFILE**

**Live Animal and Meat Export**  
*(Preliminary Options Outline)*

*January 2005*



## **ETHIOPIA: Support to NEPAD–CAADP Implementation**

**Volume I: National Medium–Term Investment Programme (NMTIP)**

*Bankable Investment Project Profiles (BIPPs)*

**Volume II: Water Harvesting and Small–Scale Irrigation**

**Volume III: Human Resource Development for Agricultural Extension**

**Volume IV: Client–oriented Agricultural Research for Development**

**Volume V: Live Animal and Meat Export**

**Volume VI: Agricultural Marketing Improvement Programme 2 (AMIP 2)**



**NEPAD–CAADP BANKABLE INVESTMENT PROJECT PROFILE:**  
***PRELIMINARY OPTIONS OUTLINE***<sup>(\*)</sup>

<b>Country:</b>	Ethiopia
<b>Sector of Activities:</b>	Livestock
<b>Proposed Project Name:</b>	<b>Live Animal and Meat Export</b>
<b>Project Location:</b>	<i>to be determined</i>
<b>Duration of Project:</b>	<i>to be determined</i>
<b>Estimated Cost:</b>	<i>to be determined</i>
<b>Suggested Financing:</b>	<i>to be determined</i>

(\*) MoARD is currently reviewing technical options aimed at enabling export of live animals and meat from Ethiopia. A preferred approach has yet to be selected and feasibility analysis is still underway. Thus, *it is not yet possible to formulate a profile for a 'bankable' investment project*. However, given the importance of livestock in the national economy and the damaging effects on the rural economy of the livestock ban and other animal health related constraints on exports, MoARD wishes to proceed swiftly with implementation of the chosen solution when selected. For this reason, *outline profiles setting out the various technical options and initial estimates of cost* have been formulated and are presented here, with the purpose of providing a sound basis for preparation of projects/programs in live animal and meat export as identified and specified by MoARD and agreed as being priorities in the framework of the NMTIP.



**ETHIOPIA:**  
**NEPAD–CAADP Bankable Investment Project Profile**  
**Preliminary Options Outline**

*“Live Animal and Meat Export”*

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### Abbreviations

ADLI	Agriculture Development–Led Industrialization
AGOA	African Growth and Opportunity Act
AHA	Animal Health Assistants
AHS	African Horse Sickness
AHT	Animal Health Technicians
ANRS	Afar National Regional State
ALOP	Appropriate Level of Protection
AU	African Union
AU/IBAR	African Union – Interafrican Bureau for Animal Resources
BIPP	Bankable Investment Project Profile
BSE	Bovine Spongiform Encephalitis ( <i>Mad Cow Disease</i> )
CAADP	Comprehensive Africa Agriculture Development Programme
CAHW	Community Animal Health Worker
CAPE	Community–based Animal Health and Epidemiology [Unit]
CBPP	Contagious Bovine Pleuropneumonia
CSA	Central Statistics Authority
DFZs	Disease–Free Zones
DRC	Democratic Republic of Congo
EBAS	European Business Assistance Scheme
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases
ESAE	Ethiopian Agricultural Sample Enumeration
EXCELEX	Examination and Certification of Livestock for Export
FAO	Food and Agricultural Organization of the United Nations
FMD	Foot–and–mouth Disease
FOB	Free on Board
FVM	Faculty of Veterinary Medicine
GDP	Gross Domestic Product
GoE	Government of Ethiopia
IFPRI	International Food Policy Research Institute
KSA	Kingdom of Saudi Arabia
LC	Letter of Credit
LLP	Livestock and livestock products
LMA	Livestock Marketing Authority
LSD	Lumpy Skin Disease
MoA	Ministry of Agriculture
MoARD	Ministry of Agriculture and Rural Development <i>[formerly, MoA, Ministry of Agriculture]</i>
MoU	Memorandum of Understanding
NCD	Newcastle Disease
NDVI	Normalized Difference Vegetation Index
NEPAD	New Partnership for Africa’s Development
NLDP	National Livestock Development Project
NMTIP	National Medium–Term Investment Programme
OIE	<i>Office internationale des épizooties</i>
PPR	<i>Peste des petits ruminants</i>
RVF	Rift Valley Fever
SNRS	Somali National Regional State

SPS	Sanitary and Phytosanitary [Agreement]
SSA	Sub-Saharan Africa
SST	Sea Surface Temperature
SOI	Southern Oscillation Index
TADs	Trans-boundary Animal Diseases
UAE	United Arab Emirates
WTO	World Trade Organization

## I. BACKGROUND

### A. Identification of Sector Investment Options

I.1. A *National Medium–Term Investment Programme* (NMTIP) and *Bankable Investment Project Profiles* (BIPPs) were prepared with FAO support as part of the assistance to Ethiopia to implement the *New Partnership for Africa’s Development* (NEPAD) *Comprehensive Africa Agriculture Development Programme* (CAADP). The objective of the CAADP is to mobilize resources for agricultural and rural development in light of the pledge made by African Heads of State and Governments in 2003 to commit at least 10 percent of budgetary resources in support of agriculture and rural development (referred to as *Maputo Commitment*). The tasks comprised preparation, in conjunction with the *Ministry of Agriculture and Rural Development* (MoARD) and other stakeholders, of NMTIP and BIPPs. The executing agency on behalf of the Government of Ethiopia (GoE) is MoARD.

I.2. One of the proposed priorities for sector investment in Ethiopia, as confirmed by MoARD, is the *establishment of disease-free zones (DFZs) for livestock export*. The need to meet importers’ requirements with respect to animal health is a key factor affecting live animal and meat exports from Ethiopia. The ban on live animal exports imposed by Saudi Arabia has a particular damaging effect and, because of the prevalence of animal diseases in Ethiopia, overall meat and livestock exports are seriously constrained. A number of solutions are under discussion and investigation (in some cases with support from FAO). These *suggested options* comprise:

- *Establishment of DFZs*, which involves defining and managing geographically isolated or fenced areas free from some or all of the diseases of trade importance;
- *Establishment of Export Zones*, which involves animals being brought into holding areas, observed for disease symptoms, then released into a quarantine area, prior to being certified and exported; and
- *Introduction of a system for Examination and Certification of Livestock for Export* (also referred to as EXCELEX). This approach involves examination of export animals near their point of sale, a second inspection near a laboratory facility and secondary market (where they are brought by large traders), and a final inspection at the port of embarkation.

I.3. Feasibility analyses of these options are currently underway and consequently *MoARD has not decided which of the approaches will be adopted*. In view of this, it is currently premature to formulate a finalized profile for a bankable investment project or programme for one of the options. However, it is clear that, once feasibility analyses have been completed and one of the approaches chosen, MoARD will view obtaining financing for initiatives in this area as a priority. It was thus agreed that *shortened version of draft bankable investment project profiles would be prepared*, setting outline details of the technical options, preparatory to MoARD drafting a full project proposal once the approach has been decided.

## **B. The Livestock Sector**

### **(i) General Information**

I.4. The latest animal population census (CSA, 2004) shows that Ethiopia has 44.32 million cattle, 23.62 million sheep, 23.33 million goats, 2.31 million camels and over 42 million poultry (excluding agro–pastoral and pastoral areas). The figure, thus, indicated the presence of more cattle, goats and camels than what has been previously reported. Livestock in Ethiopia provides draught power, income to farming communities, means of investment and important source of foreign exchange earning to the nation. On the basis of statistics acquired from different sources, livestock provides 16 percent of the total GDP (equivalent to 30 percent of the agricultural GDP) and generates 14 percent of the country’s foreign exchange earning. The function and purposes for which livestock are reared varies considerably across the two major socio–economic and production system settings in the country.

I.5. **The Highland Crop–Livestock Mixed Farming System.** This part encompasses nearly 40 percent of the country’s land surface and is located above 1,500 m a.s.l. It is featured by a mixed farming system where crop cultivation and livestock production are undertaken side–by–side complementing each other. From the total national livestock holdings, about 80 percent of cattle, 75 percent of sheep and 25 percent of goats are found in this production system. Livestock plays a pivotal role in the highland settings through provision of draught power for crop production, manure for soil fertility and fuel, and serves as source of supplementary family diet and source of cash–income (that is from sale of livestock and livestock products) particularly when markets for crops are not favourable.

I.6. **The Lowland Pastoral and Agro–pastoral Production System.** The lowlands in Ethiopia cover about 60 percent of the country’s land area and are situated at below 1,500 m a.s.l. The lowlands are situated in the Eastern, Southern, and Western part of the Central highlands (Afar, Somali, Borena, South Omo, some part of Gambela and Beneshangul). The sector is characterized by pastoral and agro–pastoral production systems where about 20 percent of cattle, 25 percent of sheep and 75 percent of goats of the total national livestock population are found. Livestock are the principal source of subsistence providing milk and cash income to cover family expenses for food grains and other essential household requirements (mostly consumer goods). The pastoral areas have been the traditional source of export animals. Some scholars also indicated that, to a certain extent, Middle East importing countries have preference to the local breeds/types/strains of livestock raised in these areas. However, considering the 10 percent and 6 percent off–take rates from pastoral and highland areas, respectively, and recent massive flow of livestock from the later to the neighbouring countries (e.g. Sudan) for eventual export to the Gulf States, strongly suggest that the total volume of export from the highlands exceeds that from the pastoral areas, hence the above assertion regarding preference remains questionable.

### **(ii) Veterinary Services**

I.7. **Current Status.** The main constraints to livestock development in Ethiopia are: diseases, nutrition, traditional husbandry and market. The main objectives of the veterinary services are to ensure animal health and welfare; protect human health and ensure the provision of healthy hygienic animal products. Organizational set up of the veterinary services in Ethiopia mainly consist of Federal and regional entities, where the federal veterinary services is governed under the jurisdiction of the MoARD and the regional components are run under regional agricultural bureaus of the respective regional states.

I.8. The major duties of the federal veterinary services include formulation of policies and strategies; serves as centre for animal health information, conduct disease surveys and investigations; involve in formulation of national projects; control major diseases; enforce regulations and certifications; prepare work plan and budget; and provide technical inputs. The duties of the regional Veterinary services consists of provision of preventive and clinical services; annual vaccinations, meat inspection, collection of data, infrastructure development, training of AHT and CAHWs, conduct diagnostic activities, procurement of drugs, biologicals and other veterinary products; and licensing private practices.

I.9. **Endemic TADs.** Of the 15 OIE List A diseases, 7–8 are reported to be endemic in Ethiopia. These are: CBPP, LSD, FMD, NCD, PPR, Capri Pox (sheep and goat pox) and AHS. The occurrence of RVF in Ethiopia has not officially been reported. Other major diseases occurring in the country include: CCPP, trypanosomosis, anthrax, black leg, haemorrhagic septicaemia, brucellosis; and internal and external parasitosis. These diseases cause huge mortality and morbidity. Arthropods and arthropod–borne disease significantly affect the qualities of hides and skins, which is the source of major foreign currency earning for the country. Prevalent diseases invariably affect the survival and productivity of exotic animals. The presence of these diseases makes it difficult for the country to access international livestock markets. An estimated 1.5–2.5 billion Birr is annually lost from animal diseases.

I.10. **Staff and Institutions.** The current manpower profile and key institutions involved in animal health services delivery, product supply and training are summarised in Table 2 (see Appendix 1) (Sileshi Zewdie, 2004).

### (iii) Infrastructure and Facilities

I.11. **Export Abattoirs and Processing Plants.** From 1998–2002, there were 6–40 meat and livestock exporters with the average number of 19 firms per year (data from National Bank of Ethiopia). However, only five were licensed. These five export slaughterhouses have a capacity to handle 7,600 shoats and 200 cattle/day. There are also five meat–processing plants (all belong to ELFORA) located in different regions in the country that have considerable processing capacity, but are not fully operational due to high packing costs and lack of markets for the products.

I.12. **Quarantine Holding Grounds, Ranches and Feedlots.** Available information on the existing infrastructure, particularly on quarantine station, holding grounds, ranches and feedlots are summarized in Table 4. Other quarantine stations and check–posts will be established in the near future, under the *National Livestock Development Project* (NLDP) in different regions (Afar, Dire Dawa, Oromia, Somali, Tigray) of the country.

### (iv) Strategic and Normative Framework

I.13. The Ethiopian government has designed an export development strategy mainly focusing on creation of favourable conditions to improve competitiveness of the economy in the world market and generate foreign exchange. This export–led industrialization strategy (2002) gives particular attention to the promotion of labour–intensive agriculture–based production, processing and export sectors. The priority export commodities included in the strategy include livestock, hides and skins, meat and leather products. GoE is, therefore, committed to develop 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 other measures.

I.14. ***Proclamations, regulations and guidelines:***

- ***Proclamations:***
  - Animal disease control No 267/2002. Refers to prevention and control of diseases; outbreak notification authority, provisions, declarations and measures and powers; establishment of quarantine stations; entrance and exit ports for export of LLP, international animal health sanitary certification, animal movement permit.
  - Meat inspection No 274/1970. Gives power to MoA to control and regulate lawfully establishment of foreign and domestic markets to ensure wholesomeness of foreign and domestic markets dealing with LLP handling and processing
  - Meat inspection amendment No 81/1976. Gives power to MoA to issue regulations and establish criteria useful to determine LLP as fit for human consumption, classification and inspection of LLP, processing plants and database management.
- ***Regulations:***
  - Meat inspection No 428/1972. Sets regulations for abattoirs and commercial establishments dealing with slaughtering, preparation and processing of LLP for export from or import into Ethiopia.
  - (Draft) Animal diseases prevention and control regulation. Aims at enhancing the disease reporting, investigation and surveillance mechanisms at federal and regional levels. It also sets modus operandi for intervention and control of disease outbreaks.
  - (Draft) Regulation to control movement of animal and transportation of animal products & by-products. Sets mechanisms to prevent spread of infectious diseases out of the foci of occurrence and increase confidence of recipient/importing countries.
  - (Draft) Regulations to provide for the registration and licensing of animal health professionals. Issues regulations governing the registration of animal health professionals, delivery of services and other miscellaneous provisions
- ***Guidelines:***
  - Meat inspection, hygiene and construction of export abattoir, 2000. Adopt standards for good practice to ensure bio-safety measures and reinforcement mechanisms.
  - Operational procedures of export abattoir. Routine procedures pertaining to details of examination of animals destined for slaughter, decisions on ill-health findings, sanitary precautions and measures in abattoir environments, etc.

I.15. ***Bilateral Agreements and Importers Requirements.*** The current meat and live animals exporters from Ethiopia is summarised in Table 2. The existing legal basis (bilateral agreements) for legal trade of meat and live animals with neighbouring and Gulf States are the following:

- ***Sudan:*** *Ethio-Sudanese Joint Border Development Commission Meeting, MoU between the Ministry of Agriculture of the FDRE and the Ministry of Animal Resource of the Republic of Sudan in the field of Animal Health and Veterinary Service (Khartoum, 11 May 2002).*

- **Djibouti:** Agreed minutes of the third high level meeting between the Federal Democratic Republic of Ethiopia and the Republic of Djibouti (March 17–21, 2003)
- **United Arab Emirates:** Statement No. AAB/98 dated 22/9/2003 concerning permission to export meat from Ethiopia to UAE from the following export abattoirs: Luna, Mwashe (Matahari), Modjo, Helmex and Elfora.
- **Egypt:** MoU concerning import and export of LLP, implementation authorities, information exchange on TADs, and cooperation in veterinary field.

I.16. The federal veterinary department was supposed to act and implement the above indicated and other policy provisions. However, due to manpower shortage and structural limitations, this unit was often seen to lack the capacity to discharge these vital responsibilities. However, in recognition of the crucial importance of livestock sector in general and the animal health services in particular, the GoE has recently giving more emphasis and reconsidering means of empowering the *Animal Health Department* of MoARD.

### C. The Export Market for Livestock and Meat

#### (i) Overview

I.17. Marketing livestock and livestock products is different from other agricultural commodities. Transporting live animals to markets and other final destinations is delicate and expensive. Animals could lose weight in transit or suffer injuries due to unstable 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.

I.18. Generally, East African livestock trade is characterized by illicit (informal) trade between neighbouring countries and the inflow stocks are used either for domestic consumption (Kenya and Uganda), or for re-export and domestic consumption (Somalia) or re-export alone (Djibouti). Illicit (informal) trade seriously affects Ethiopia. A large number of livestock and livestock products valued at 917 billion Birr annually lost via the flow into the neighbouring countries. Data from LMA (2001) revealed that an estimated 325,800 cattle, 1,150,000 shoats, 300,000 skins and 150,000 hides outflow every year from Ethiopia through illicit cross-border trade.

I.19. African markets are characterised by tariff and non-tariff barriers; Illicit (informal) cross-border trade; reluctance by traders to formalize dealings; use of convertible currencies and preference for low-cost frozen beef and offal in central and western Africa. Considering population sizes, purchasing power and level of meat imports, Algeria, Angola, Benin, Cote d’Ivoire, the DRC, Egypt, Gabon, Mauritius and South Africa are considered potential markets (Belachew and Hargreaves, 2003). These countries imported, annually, an average of 527,000 tons of meat (1997–2001), accounting for 82 percent of the total meat imported to the continent.

I.20. The Middle East market refers to the Gulf States (comprising Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE) and other countries including Iran, Iraq, Syria and Yemen. Because of its large population size and being a centre of Islamic pilgrimage, Saudi Arabia is the largest market for livestock and meat accounting for 42 percent of the shoats, 96 percent of camels and 42 percent the meat import to the region. However, the market access is unpredictable because of stringent health requirements, frequent import bans or rejections at the port of delivery. Currently, except in Sudan, livestock and beef import from East Africa to Saudi Arabia is banned. According to Belachew and Hargreaves (2003), the market in the Middle East, in general, has the following features:



- Buyer’s markets that are dominated by influential personalities;
- Personal friendships 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 to letter of credit (LC) or advance payment as a mode of transaction;
- Preference to Black Head Ogaden and Adal breeds of sheep;
- Preference for 8–12 kg sheep and 5–7.5 kg goat carcasses.

I.21. In addition to the other constraints, lack of efficient air transport limits Ethiopia’s export of fresh and chilled small stock meat to these markets.

*(ii) Potential, Demand and Actual Level of Export*

I.22. The *Livestock Marketing Authority* (LMA, 2004) estimated the annual potential for export at 72,000 metric tons meat equivalent valued at US\$136m. Over the last few years, in response to the available potential for meat export and the liberalization policy, the number of export standard abattoirs has increased to five. Their annual slaughter capacity is 2.45 million shoats with a possibility of expansion to attain a maximum capacity of 4.5 million. However, only a small amount of their existing capacity (13 to 17 percent) over the last three years) is used (Jemberu Eshetu, 2004).

I.23. Given the less stringent sanitary requirement and the advantageous proximity, the African and the Middle East countries are accessible markets for Ethiopia’s livestock and meat.

- The Middle East countries which are considered important for the country’s export in livestock and livestock products (LLP) are: Saudi Arabia, Egypt, United Arab Emirates, Bahrain, Yemen, Jordan, Kuwait, Oman, Qatar, Iran and Syria. Their annual export demand is estimated at US\$1.1 billion consisting of 206,846 tons of meat and 12 million heads of live animals (cattle and shoats).
- Most African countries import meat and meat by products from abroad. Their annual import demand is estimated at US\$572.3m consisting of 86,043 tons of meat and 3.2 million heads of cattle and shoats. Major importing African countries include: Libya, Tunisia, Algeria, Morocco; Cote d’Ivoire, Ghana, Benin, Gabon, DRC, Angola, and South Africa

I.24. Available data indicates that Ethiopia’s LLP export is very minimal as compared with the national potential. From 1987 to 2003 (16 years), exports of livestock and meat varied from as low as 124 metric tons to 14,873 tons and meat export from 3 to 2,078 tons. The total export earning from export of livestock and meat over these years, thus, varied from US\$56,000 to 5.3m at the current exchange rate in nominal terms (Table 1). The highest export earning was attained in 1999/2000 and the lowest in 1991/92 (i.e. during the transition period). The annual average over the whole period is US\$2.5m, where as the average for the last five years is US\$3.4m, which is equivalent to 2.8 percent of the indicated potential (Table 1, Jemberu Alemu, 2004).



(iii) *Constraints and Requirements*

I.25. Despite the substantial demand for live animals from Gulf States, export to those markets often face impediments as a result of stringent animal health requirements and repeated bans on import of livestock. Among the eastern African countries, in recent years, Sudan is the leading exporter of sheep, Somalia in goats and camels and Djibouti in cattle (computed from FAOSTAT Database). 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 industry. Unfortunately, international standards governing trade in animals and animal products continue to rise due to consumer demands, mainly in developed countries. The demands are becoming increasingly difficult for developing countries to meet and innovative approaches to address these problems are required urgently (Belachew and Hargreaves, 2003).

• *Internal Constraints:*

- Disease prevalence. There are different endemic diseases causing frequent losses through mortalities and reduced productivity. Further, outbreak of some of the diseases in the region is one of the major obstacles in export market development resulting in frequent bans from importing countries.
- Feed and water shortage. The natural grazing land is gradually contracting due to expansion of farm area, and annual yield is highly variable depending on rainfall patterns. Feed production covers requirements only in exceptional good years. A deficit of 35 percent in normal years and 70 percent in bad years is observed. The problem of feed and water is much more pronounced during drought crises, which is a recurrent phenomenon in pastoral ecosystems. Availing feed and water in holding grounds, quarantine stations, along export trade routes and at the embankment port is increasingly becoming a serious challenge to livestock export trade.
- Market intelligence. Planned livestock production, in terms of time, type and quality of supply, is limited due to lack of market awareness. The producers are scattered over large expanse of semi arid areas. There is no systematically developed marketing system that can serve the interests of exporters. The traditional multi-tier livestock markets are scattered and are characterized by too small throughput for efficient marketing on the part of exporters. Thus exporters must be able to collect over large area and elongated time to get sufficient number for export. In general, the internal markets are not strategically located to foster efficient marketing through sufficient throughput, suitable stock routes and accompanying services. In addition, absence of precise information on livestock number, annual off-take and productivity creates problems in planning and designing of policies useful for the development of the sector.
- Illicit export. The annual outflow of livestock from Ethiopia through illicit (informal) is very huge. The immediate destination of this illicit export are Djibouti, Somalia and Kenya. The livestock are further re-exported after meeting domestic demands to the Middle East countries. The legal export is thus constrained due to shortage created by the illicit export.
- Inadequate private sector involvement. The number of export abattoirs, which are all privately owned, is currently five. Considering the potential for export and GoE’s

desire to develop the sector, massive investment is required in development of facilities. This in turn requires the involvement of both the private and public sectors.

- Institutional problems are mainly associated with regulatory constraints. The present export regulatory system is characterized by cumbersome documentation requirements and high costs of service by different institutions. Livestock and meat exporters are required to produce documents from 8–10 institutions at different locations and at high cost.
- Inadequate infrastructure. Quarantine facilities, holding grounds, abattoirs, etc. The existing limited number of export abattoirs and processing plants operate far below (13–17 percent) their capacities. Obsolescence of facilities machineries is also another hindrance. The involvement of the private sector in domestic trade to channel livestock to the abattoirs is limited. air transport costs, and veterinary infrastructure are all inadequate both in quantity and in quality. For instance, considering the transport constraints alone, though the country has advantageous proximity to recipient countries, the cost of airfreight is high. Quoted freight rates are US\$300 to Yemen, US\$600 to Arab Emirates and US\$1,200 to West Africa. This is equivalent to 15–35 percent of the FOB value of meat.
- External Constraints:
  - Competition. The main competition for the Middle East export markets comes from Somalia, Sudan, South America, Oceania, Eastern Europe and the European Union. The disease free status of most of these countries (except Sudan and Somalia) and the more efficient production and marketing system attained, have affected Ethiopia’s competitiveness.
  - Port problems. Djibouti is the only port for livestock export from Ethiopia. However, there is no livestock holding or resting area at the port. The previous holding site is now demolished and livestock exporters are obliged to directly load their animals from truck to ship.
  - Banking procedure in Ethiopia. Requirement to operate through LC is not acceptable to importers in the Middle East countries.
- Requirements:
  - Competitiveness of a commodity in the international market is determined by factors that are key to the performance of the export markets (Belachew and Hargreaves, 2003). These are: (i) Presence of comparative advantage – The domestic market often fail to absorb livestock and livestock products from pastoral areas due to personal preferences (except cattle) and prices (higher export prices than domestic market prices); (ii) Presence of surplus production – The pastoral production system is the main source of livestock and livestock products, but it is poorly linked with other production systems including the national terminal markets; (iii) Demand for the commodities – Availability of substitute household products.
  - Sustainable and competitive trade in livestock, as stated by Belachew and Hargreaves (2003) 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 market system; market–oriented production systems;

efficient inland and sea transport; and well-equipped port facilities. The procedure also demands government’s commitment to develop market infrastructure; provide animal and public health and quality control services; and provide efficient export services. Return on investment in the livestock industry is long-term due mainly to the long production cycle. Development of this sub-sector, thus, largely depends on the willingness and ability of the private sector to meet participate in the industry, meet requirements of importers, maintain sustainable and reliable supply, and supply quality products at competitive prices.

#### **D. The International Environment**

I.26. **Trade Barriers.** Export of livestock commodities is currently inadequate to support rural development required in sub-Saharan Africa. The underlying reasons are many and complex, but the major ones are trade barriers. These may be either tariff barriers or non-tariff barriers:

- Tariff barriers include customs duty or tax imposed on the value of an imported commodity, increasing its price in the internal market.
- Non-tariff barriers to trade in livestock commodities include import quotas, embargoes, variable levies and standards. The best known and possibly most important non-tariff barrier for livestock commodities is animal diseases, especially epizootic diseases e.g. FMD, rinderpest, RVF. Of the OIE’s List A diseases, 12/15 are endemic to Africa and many occur nowhere else. Developed countries are terrified of importing these diseases and therefore disinclined to trade with African countries.

I.27. **Regulation of Trade in Livestock Commodities.** The issue for importing countries involved in international trade is the risk of importation of dangerous human or animal pathogens. Demands for zero risk are now recognized as unrealistic so the issue is “*maximum acceptable risk*” associated with importation or in OIE language, the “*appropriate level of protection*” (ALOP).

I.28. Trade in agricultural commodities is regulated by the “*Sanitary and Phytosanitary Agreement*” (SPS Agreement) of the *World Trade Organization* (WTO). Setting of norms for the WTO has been devolved to the *Office international des épizooties* (OIE), the world organization for animal health based in Paris. So the rules and recommendations of the OIE have the backing of the WTO. OIE recommendations mainly rely on a country being able to prove freedom from disease of the country or zone (defined area of a country). This is a misnomer—it is the infection level that is important. The requirement for “disease freedom” has forced many countries in SSA to attempt to establish disease-free zones. WTO/SPS Agreement stipulates the following:

- Member countries have the right to establish the level of health protection that deem necessary;
- The measures imposed are scientifically justifiable and are applied only to the extent necessary to protect human and 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 measures are not based on international standards, they should be established on the results of a scientific analysis.
- The process should be transparent.
- Exporting countries should provide importing countries with equivalent measures of safety if they cannot fulfil the importing countries exact conditions of import.

## II. SCOPE AND OBJECTIVES OF THE PRESENT DOCUMENT

II.1. In recent years, exports of LLP from Ethiopia have been constrained due to tariff and non-tariff related barriers imposed by importing countries. The Kingdom of Saudi Arabia (KSA), for example, imposed ban on live animal export from Ethiopia because of fears about the occurrence of RVF in East Africa (so far the occurrence of RFV in Ethiopia is neither confirmed nor officially reported).

II.2. MoARD is currently reviewing technical options aimed at enabling export of live animals and meat from Ethiopia. As indicated above, a preferred approach has yet to be selected and feasibility analysis is still underway. Thus, *it is not yet possible to formulate a profile for a ‘bankable’ investment project*. However, given the importance of livestock in the national economy and the damaging effects on the rural economy of the livestock ban and other animal health related constraints on exports, MoARD wishes to proceed swiftly with implementation of the chosen solution when selected. For this reason, *outline profiles setting out the various technical options and initial estimates of cost* have been formulated and are presented here, with the following purposes:

- To provide a sound basis for preparation of projects/programs in live animal and meat export as identified and specified by MoARD and agreed as being priorities in the framework of the NMTIP, the key areas under consideration at present being:
  - Establishment of disease free zones (DFZs),
  - Establishment of export zones, and
  - Examination and certification of livestock for export (EXCELEX);
- To provide strengths and weaknesses for each of the projects/programs, with a view to facilitating discussion on comparative advantages and feasibility of these options amongst professionals and concerned stakeholders;
- To draw initial indicative costs for each of the projects/programs.

## III. BASIC CONCEPT, STRENGTHS AND WEAKNESSES OF THE IDENTIFIED OPTIONS

III.1. Animal health is the biggest constraint on trade of LLP in Ethiopia. As indicated earlier, there are about 7–8 OIE List A diseases of trade and economic significance and other animal diseases of zoonotic importance in the country. Food safety is of increasing importance worldwide, especially in developed countries. Certification for freedom from additional health hazards, such as 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. Various alternative options are either proposed or initiated by different actors (private sector, governments and international

organizations). These initiatives are often regional encompassing more than one country in East Africa and attempt to find sound solutions to overcome barriers to trade so that Ethiopia and other countries could effectively use their rich livestock resources for the improvement of the livelihood of their populations.

III.2. In the subsequent sections of this report, attempts were made to outline *strengths and weaknesses* that may be general or *crosscutting* and refer mainly to the production systems and not to a particular option. Examples of these factors are:

- **Strengths:**
  - Developed organic livestock farming traditions with a reasonable off-take rate that can satisfy the country’s export needs;
  - Presence of government initiation/desire to establish quarantine, holding grounds and other required facilities will be considered as fertile grounds for its implementation. There are also few private and public infrastructures in close proximity to the concerned pastoral areas (may requires renovation and expansion);
  - Existence of interest on the part of the private-sector players, some having ranches, holding grounds, quarantine stations and abattoirs in close proximity to these areas.
- **Weaknesses:**
  - High prevalence of trade sensitive diseases continues to be a challenge and poses variable levels of risk to the sustainability of the suggested options and credibility of the system by the recipients/ trading partners.
  - The specific factors (strengths and weaknesses) are those referring to a particular option and are described below and anticipated to help understand the feasibility, competitiveness and sustainability of each of the options in a given production system.

### **Option 1: Establishment of Disease-free Zones (DFZs)**

#### ***(i) Background and Rationale***

III.3. The OIE *Terrestrial Animal Health Code* specifies the guidelines for safe animal and animal product trade. These guidelines specify that LLP must originate from countries or specified geographical areas of a country (zone) that are free from major animal diseases, capable of causing economic losses or human diseases. Like other developing countries, constrained by these international regulations Ethiopia is considering the establishment of DFZs in Borena, Ogaden and Afar areas in order to maximise profits from the huge livestock resource in these parts of the country (MoA, 2002). The document highlights accounts on livestock resource potential, profiles of each of these areas, descriptions of project components and expected outputs along with the various phases of the implementation process. In addition, it also provides details on organization and management needs, monitoring and evaluation mechanisms and capacity (manpower, facility) requirements for the implementation of the project.<sup>1</sup>

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<sup>1</sup> From the discussions held with concerned authorities in MoARD (Ato Belachew Hurissa, Head of Livestock Marketing Department; and Dr Sileshi Zewdie, Head of Animal Health Department) information was acquired on a previous proposal by GoE to the former USSR for assistance to establish DFZs in the above-

**(ii) General Requirements of a DFZ**

III.4. According to OIE, a zone developed as free for a particular disease, must meet the following requirements:

- The zone must be demarcated from the rest of the country by appropriate natural, artificial or legal barriers;
- Livestock inhabiting in the zone must be permanently 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 be holding unvaccinated livestock that are susceptible to the specific disease, except in the case of FMD (vaccination possible);
- There must be adequate livestock movement controls into the zone to prevent introduction of disease (may necessitate the establishment of breeding stocks within the designated DFZ);
- The integrity of the zone must be ensured through appropriate legislation;
- Transparency in reporting any changes to the disease situation or integrity of the zone (to be verified through a credible audit system) is necessary.

**(iii) DFZ in Pastoral Settings**

III.5. In the context of the suggested establishment of DFZs to be located in Afar, Ogaden and Borena areas of Ethiopia (MoA, 2002), the following strengths and weaknesses are identified basically on feasibility, competitiveness and sustainability grounds.

III.6. **Strengths.** With the establishment of DFZs, there will be increased animal value in the zone, which will be beneficial for both farmers and traders.

III.7. **Weaknesses.** The following main factors will pose considerable and negative influence on the competitiveness and sustainability of DFZs in pastoral areas of Ethiopia: (i) fulfilling all WTO/SPS regulations and OIE requirements for DFZ will be very difficult; (ii) huge investment over a long period of time is required irrespective of the stated impediments. Details of weaknesses of establishing DFZs in pastoral setting in Ethiopia may be conventionally classified into two major categories: *Veterinary and Husbandry Practices*; and *Socio-economic, Cultural and Geographic Factors*, as illustrated below:

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specified localities in the country. The proposal, however, was not finally accepted by the USSR because of concerns on the feasibility of the project.



(iv) ***Veterinary and Husbandry Practices***

III.8. ***Diseases:***

- High prevalence of trade sensitive diseases (OIE List A diseases) in the pastoral eco-systems will continue to pose serious challenges for the very success of the envisaged DFZs;
- Presence of wild animals often sharing the same grazing grounds with domestic stocks, will and serve as reservoirs of infection to the latter;
- Poor (critically inadequate) veterinary services in most pastoral localities will cause obvious and serious difficulties in eradicating these disease and sustenance of DFZs.

III.9. ***Feed and Water.*** Crucial shortage of feed and water for livestock in these areas for most parts of the year. This, coupled with recurrent drought scenarios, will cause a continuous challenge to maintain adequate number of export and breeding stocks within defined DFZs, warranting for a need to develop suitable strategies and costly investments that guarantee regular and adequate provision of livestock feed and water.

III.10. ***Herd registration.*** Implementation of herd registration (recording), is a also a pre-requisite for establishment of DFZs, Adequate numbers of breeding commercial ranches within the designated DFZs are needed to ensure continuous supply of livestock for export and for the production of breeding replacements. These are currently lacking and difficult to implement in the pastoral setting due to social, cultural and economic reasons. Robust national policies and associated regulations for herd registration; animal movement and certification as well as the capacity to reinforce it are required.

(v) ***Socio-economic, Cultural and Geographic Factors***

III.11. ***Control of animal movements.*** The pastoral areas are generally features by the presence of established trans-humans tradition (movement of both people and livestock). On the other hand, control of animal movements is one of the fundamental basis and pre-requisites for DFZ establishment. Restrictions of movements of people and animals within DFZs will make it difficult for both the pastoralists inside and outside the zone. Control of prevailing TADs through rigorous control of animal movements is thus difficult to attain, as it is perceived to stand against the existing cultural set-up and social practices of pastoral communities. On the other hand, increased animal value within the DFZs will creates net inward movement of livestock from buffer and other areas. Establishing and maintaining DFZ boundaries will undoubtedly be a serious challenge in these environments.

III.12. ***Recurrent social and political conflicts,*** a constant feature of pastoralist communities in East Africa, will have serious consequences on long-term development objectives in general and sustainability of DFZs in these localities in particular.

III.13. ***Border effects.*** The designated areas for the establishment of DFZs in the pastoral areas, are located bordering three different countries (Djibouti, Somalia, Kenya). The areas are located in the lowland parts of the country where the profile of landscape is marked by presence of vast planes and virtual absence of geographic or natural barriers. Therefore, demarcation of designated DFZ from the surrounding environment must be done by artificial fencing, which makes the initial expenditure (investment) very expensive.

III.14. Cross-border trades, often illicit, are long-standing features. In addition, harmonizing of livestock trade has so far been difficult due to lack of interest, on the part of the neighbouring countries. Promoters (individuals/group, organized or otherwise) of Illicit (informal) trades have vested interests. Enhanced livestock development projects such as DFZs may bring about outcomes that basically contradict to their interests. These individuals/groups, as it is generally the case for other issues, may pose physical threats and render sustainability of DFZs questionable.

III.15. **Indicative costs.** The various indicative cost components required for the establishment of DFZs in Ogaden, Afar and Borena areas of Ethiopia over an estimated five years of duration are presented in Table 6.

III.16. **Institutional arrangements.** The MoARD, principally two of its core units (namely *Livestock Marketing* and *Animal Health* Departments) is the owner of the project, hence, will be the major implementing institutions. Various national (research, universities, regional states and their agriculture and rural development bureaux), international institutions (AU/IBAR, FAO, etc.), relevant private and public sectors; and donor agencies will play their respective roles.

### **Option 2: Establishment of Export Zones – Production Export Systems – Market Export Systems – Commodity-based Trade**

III.17. These initiatives are considered by this consultant as mutually inclusive and will be treated as an entity in the subsequent discussions. In this context and for the purpose of simplistic presentation, all these initiatives will be collectively designated as one and referred to as Export Zone Systems and must be understood as Export Zones that promote the principle and values of commodity-based trades. For the sake of greater clarity, however, a concise description of the basis of each of these still evolving concepts will be presented as follows:

#### **(i) Background and Rationale**

III.18. Reference is made to the available documents (MoA 2004; Belachew and Hargreaves, 2003; Thompson, Tambi, Hargreaves and Leyland, 2003). The premises for the development of the concept are described as follows. The African continent has 12 out of the total OIE List A diseases, that inhibited the ability of these countries to export livestock and their products. Africa is currently approaching these diseases one-at-a-time beginning with rinderpest. The time-scale is very long and trade-sensitive diseases have not been a priority (e.g. FMD). International importers have requirements other than freedom of imported livestock and livestock products from disease-causing agents.

III.19. Other regions of the developing world are making faster progress in eradicating diseases that have high impact on trade (e.g. FMD in South America and South East Asia). Therefore, a more focused and imaginative approach in Africa is needed. A number of initiatives exist but none so far has concentrated on scientifically-based standards to reduce disease-transmission on a commodity basis. The concepts of zonation and compartmentalization have been established by developed countries to overcome their problems in trading in regions where particular trans-boundary diseases are problems (e.g. NCD). These avenues are, therefore, open to developing countries too. To some extent this has been exploited by southern African countries but so far not elsewhere in Africa. The time has come to investigate where and how this could be done in Eastern, Central and Western Africa. Dr G. Thomson, AU/IBAR in April 2003, proposed the initial concept of developing ‘*Export Zones*’ (Fig. 1.). The premises is that absolute country or zone freedom from OIE List A diseases is difficult to achieve in most countries in Africa, thus, export zones have been promoted as the



alternative for promoting safer trade in livestock and livestock products. In addition, accessibility to export markets depends on bilateral agreements (protocols made in terms of WHO/SPS agreement) that are supported by availability of suitable products for trade. Mutual recognition of standards between trading countries is the driving force for free flow of livestock and livestock products.

(ii) *Basic Concepts*

III.20. An *export zone* 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 exporting country as a whole. The objective is to ensure supply of commodities of pre-determined quality while concomitantly reducing the risk of importation of human and animal pathogens to an agreed level. Export Zones differ from DFZs, as defined by the OIE’s *Terrestrial Animal Health Code*, in two respects. DFZs, as defined by the code, apply to individual diseases while the concept of ‘Export Zone’ covers all major animal diseases that have an impact on trade within a particular zone. It would not be essential that the zone (Export Zone) itself be free of trade-sensitive diseases, rather that 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.

III.21. 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 (Fig. 2). 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 the product.

III.22. Belachew and Hargreaves (2003), in their study addressing the issue of Livestock Export Zone, recommended that a holistic approach is 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, trade and processing organization. In addition, the scholars 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.

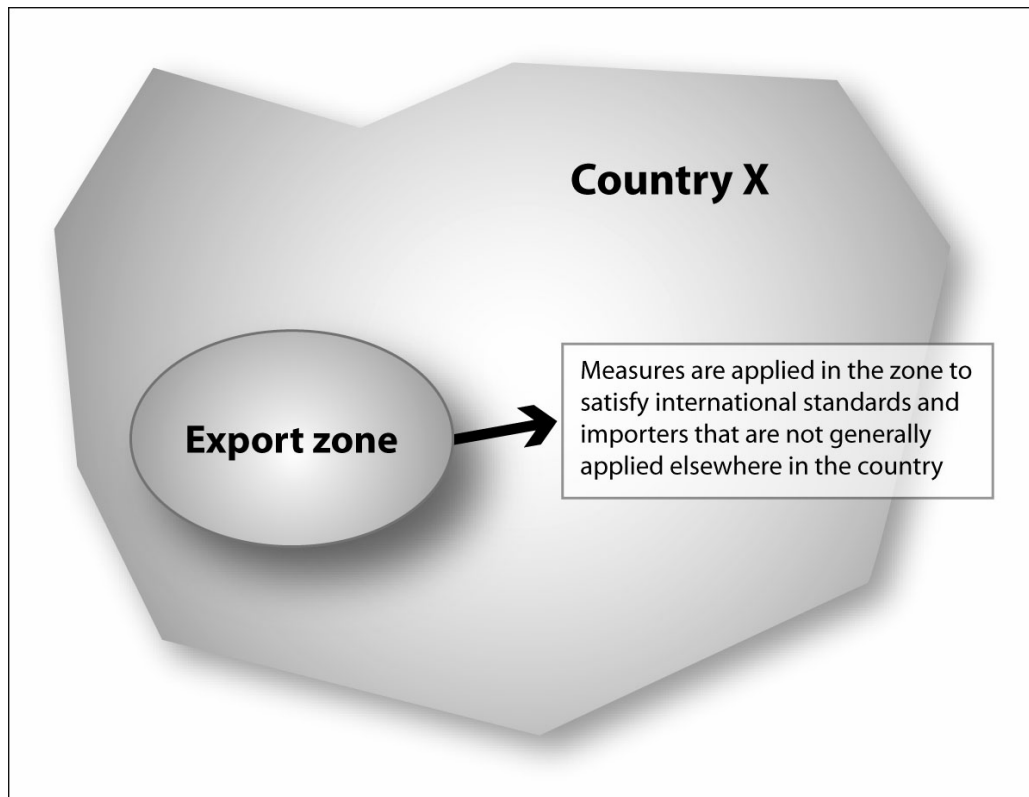


Fig. 1: Diagrammatic Representation of an Export Zone (from Thompson, *et al.*, 2003)

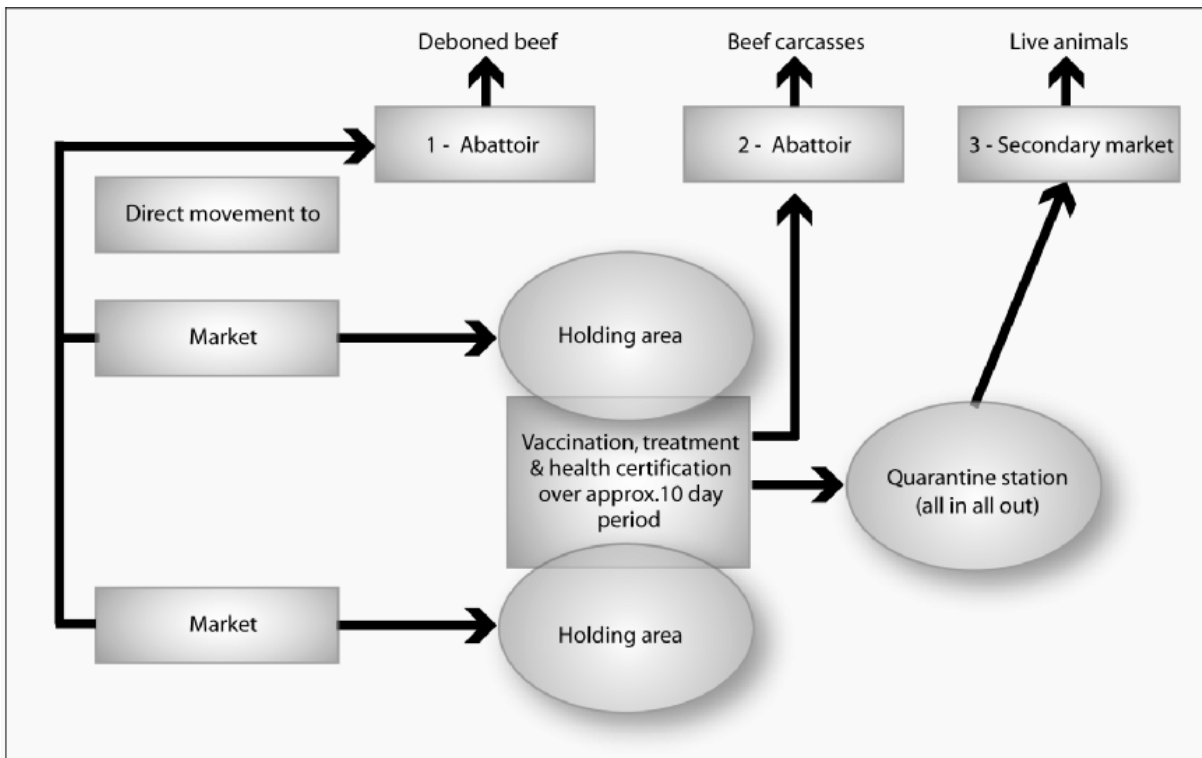


Fig. 2: Diagrammatic Representation of Different Processes Required to Effectively Reduce the Risk of Spreading TADs by Three Different Commodities Derived from Cattle (from Thompson, *et al.*, 2003)

**(iii) Requirements**

III.23. The requirements are not restricted to measures aimed at ensuring absence of trade-sensitive animal diseases (e.g. FMD & RVF). They also relate to regulations on human food safety (e.g. general hygiene, zoonoses such as BSE and biologically active residues of drugs and pesticides). There may be other requirements to ensure acceptability of export products to external markets, e.g. environmentally sustainable production methods and internationally acceptable labour practices. All these prescriptions need to be complied with simultaneously. The technical implementation processes include:

- Isolation of animals within the zone from contact with those outside the zone
- Prevention of entry of potentially contaminated products (e.g. animal feeds), vehicles and fomites across the border of the export zone.
- Identification of animals within the export zone and maintenance of an adequate data base with information on the origins and life history of the animal population in the export zone
- Regular application of animal health control measures such as vaccination against identified infections (e.g. RVF & FMD)
- Maintenance of export standards at the abattoir(s)
- Measures to ensure isolation of the products from the export zone from contamination when they are moved through the rest of the country to the point of export
- There may be other measures required by importers that need to be specifically satisfied to ensure access to particular markets

**(iv) Strengths and Weaknesses**

III.24. **Strengths:**

- These new concepts have scientific basis to suit and be guided by international norms (WTO, SPS Agreement and OIE Recommendations).
- Export zone systems enable exports from a portion of a country in which, generally, there are insufficient resources or infrastructure to fulfil all the export requirements for establishment and sustenance of DFZs.
- It allows to concentrate the resources necessary to establish or initiate exports in a relatively small area and so render the process affordable in countries where financial resources are limited.
- Avoid having to institute stringent export-related requirements (e.g. livestock movement control) in parts of the country that are not involved in exports and which will not benefit directly from those exports.

III.25. **Weaknesses:**

- The technical requirements for such zones with respect to infrastructure, animal health requirements, legislation and regulation described for establishment of DFZs will also

hold true here. The export zone systems must not be considered as a cheapest option. These options are expensive and logistically difficult to implement. Huge investment, both by the public and private sectors is vital from the start. The difference in investment between DFZs and Export Zones is a matter of magnitude/scale.

- Other area-specific constraints described for DFZs (Animal Health; Feed and Water Constraints; Socio-economic, Cultural and Border effects) will, to a lesser extent also hold true for Export Zone systems and may exert challenges to the competitiveness and sustainability of the system.

(v) *Indicative Costs*

III.26. Indicative cost components required for the establishment of commodity-based Export Zones (system) in pastoral areas (to be designated in the future) of Ethiopia is presented in Table 6. For the purpose of this computation, the specific three localities indicated for establishment of DFZs are also considered here and implementation is assumed to take 5 years of duration.

(vi) *Institutional Arrangements*

III.27. A functional system of linkages fostering proper information flow amongst the various players in the livestock industry for export including pastoralists, farmers, traders, processors, associations, cooperatives, unions, federations is a requirement for the success. In addition, a strong central (public) veterinary service that operates in partnerships the private sector, national, regional and continental empowerment commercialisation is needed.

III.28. OIE, WTO/SPS, Codex, AU/IBAR, OIE Regional Commission for Africa will be major stakeholders to promote the concept of Export Zones — effective lobby for change — to assist with trade protocols based on science and establish audit capacity to fulfil vision of free trade with Gulf Countries and within Africa.

III.29. The need to gain support from AU, philanthropic donors and International Financing Institutions, is crucial in view of the benefits the envisaged system bestows to resource-poor livestock keepers and the national economy in developing countries, and to the importing countries as the proposed export system will minimize disease risks and provide safer trade of animals and animal products.

**Option 3: Introduction of a System for Examination and Certification of Livestock for Export (EXCELEX)<sup>2</sup>**

(i) *Background and Rationale*

III.30. In February 1997, the KSA, following an outbreak of RVF in East Africa, imposed a ban on livestock imports from all African countries with the aim to prevent the disease from reaching the Arabian Peninsula. This ban was lifted after 15 months. The ban was re-imposed in September of 2000 because of human deaths and animal disease as a result of RVF occurring in south western parts of KSA and in north western Yemen. This ban is currently in force resulting in serious economic deprivation to the people residing in the Horn of Africa. Livestock exports to the KSA and other

<sup>2</sup> The following section on the premises, justification, goal and budget of the EXCELEX project is taken from various project documents and a workshop presentation by EXCELEX staff.

countries on the Arabian Peninsula are the primary source of hard currency, financing the importation of the majority of essential goods and providing tax revenues to the governments of the Horn of Africa.

III.31. The project will modify the existing system of veterinary inspection and livestock export certification, bringing it up to a standard acceptable to specific importing countries. Furthermore, the project will harmonize the livestock export certification system between the various countries and regions of the Horn of Africa. The EXCELEX system to be created, through a participatory approach between the governments involved and relevant stakeholders, will aim at being verifiable in its outcome and open to inspection and audit by importing country authorities. The project will also assist the participating governments and stakeholders in establishing communication links between veterinary authorities in the Horn of Africa and veterinary authorities in the importing countries. Finally, the project will advocate on behalf of, and assist the governments and stakeholders to modernize and improve the livestock marketing system and infrastructure. The main goal of the EXCELEX project is to support the livestock exports from the Horn of Africa. The project is implemented by FAO with a US\$1.78m grant of the Government of Italy. The project at the beginning of its implementation phase in the target zones in three countries in East Africa, namely Ethiopia (Somali region), Djibouti and Somalia (Somaliland and Puntland) and has a life span of 2 years.

**(ii) Goal and Target Beneficiaries**

III.32. The project will attempt to establish a protocol, with the acronym EXCELEX, for orderly livestock marketing through an examination and certification process for animals destined for export from Horn of Africa countries. This orderly livestock marketing protocol is expected to minimize the risk of exporting human and animal diseases and has the intention of regaining acceptance of livestock exports in the markets of the Arabian Peninsula from which they are currently banned. The project intends to initially establish the EXCELEX system in one zone of the project area and initiate the first consignment of certified export livestock to the Arabian Peninsula by month six. The objective will be to develop management structures and human resources within the government livestock services in each of the zones in which it operates in order to strengthen these institutions and their capacity to continue to manage the system with efficient quality control and assurance when the project is complete. The specific objective of the EXCELEX project is, therefore, to help resume exports of healthy livestock to the Arabian Peninsula and improve the veterinary services and infrastructure necessary to maintain a safe and robust trade.

III.33. It is expected that the resumption of a sustainable livestock trade resulting from the project activities will directly benefit most inhabitants of the Horn of Africa.

**(iii) Protocol for Examination and Certification of Livestock for Export**

III.34. The EXCELEX system to be recommended by the project will build upon traditional livestock exporting practices. Initial health inspection will be extended closer to the areas where the livestock originate. At that point they will be individually identified and certified. If necessary, vaccinations will also be given. After a period of no less than 14 days, they will receive a second inspection and their serum will be tested for brucellosis, a current requirement imposed by importing countries in the Arabian Peninsula. Some of the sera taken will be reserved for further testing. Based on these further tests and the animal individual identification, it will be possible to determine if the animals are carrying any of the targeted diseases, where these animals originated, and who was involved in the inspection and movement of those animals. After this second inspection, livestock will be cleared to proceed to the embarkation phase of the export process, which should not be less than 21

days from the date of the first inspection. At the port, the Port Veterinary Officer will inspect the animals for the third time and make the final determination of whether the animals are suitable for export.

**(iv) Institutional Arrangements Envisaged**

III.35. The project will operate in northeast Somalia (Puntland); northwest Somalia (Somaliland); the Somali National Regional State (SNRS) of Ethiopia; the Afar National Regional State (ANRS) of Ethiopia; and Djibouti. The primary goal of the project is to initiate livestock exports and establish an internationally acceptable EXCELEX system in each of these countries and regions within countries. The project document specifies that the project will work closely with staff of government institutions and train them in monitoring and evaluation procedures to enable sustainable quality control and quality assurance of the EXCELEX process. Where government structures need reinforcement, the project will work towards assisting the institutional development needs of that government so that at the end of the project they also will have government personnel able to monitor EXCELEX. However, the primary goal of the project is to initialise livestock exports and establish an internationally acceptable EXCELEX system. In addition, EXCELEX project envisaged to develop capability of forecasting epidemics of RVF is increasing through use of environmental parameters such as *Normalized Difference Vegetation Index* (NDVI) data and El Niño indicators (*Sea Surface Temperature*, SST; and *Southern Oscillation Index*, SOI). It is anticipated that liaison with and assistance from PACE and other programmes such as EMPRES will give the EXCELEX project early warning of RVF outbreaks.

**(v) Strengths and weaknesses of the EXCELEX Project**

III.36. In the context of the Ethiopian situation, the following factors could be cited as inherent strengths and weaknesses of the EXCELEX system if it has to be considered as one of the investment priorities for fostering livestock trade. It has to be emphasized that the EXCELEX project is at its initial level of implementation.

III.37. **Strengths:**

- The notion of improving the livelihood of pastoral communities through resumption of livestock export is theoretically commendable and innovative;
- The EXCELEX system will help understand the features and patterns of livestock movements in the project localities;
- Animals could be traced as to where it originates and in some instances; the system may allow in providing clues and help to indicate where in the trade route infections might have been acquired;
- It also lays grounds for sound animal movement control in the future;
- The project attempts to liaison with importers and exporters. Apart from fostering information exchange, it will serve as a mechanism of filling market intelligence gaps;
- The EXCELEX project is a relatively small one, in terms of its budget, and with relatively short span of life. It attempts to address specific issues related to livestock ban in the specified areas in three neighbouring countries. The principles and implementation procedures of the project, as far as Ethiopia is concerned, could be considered as



complementary components to the larger and long-term options such as Export zone systems or DFZs.

III.38. **Weaknesses.** The following factors could be considered, from the outset, as critically hampering the credibility of the system and the long-term sustainability of the project.

- The project intends to operate in three different countries with considerable difference in their capacities to provide animal health services. Harmonization and sustenance of these various arrangements is difficult;
- All the project areas have been undergoing various levels internal conflicts. In some instances (e.g. Somalia), this has resulted in a disruption of government services and a destruction of infrastructure. This will render uncertain the implementation, success and sustainability of the project;
- Livestock trade in the project areas is featured with illicit (informal) trade. The outflow of livestock from Ethiopia makes the country in an absolute disadvantaged position. The EXCELEX system attempts to address this issue through dictating the routes to channel livestock from quarantine stations in Ethiopia to a designated port, by penalizing illicit (informal) traders and through instituting of common certification systems between countries. It is understandable that the issue of livestock exports from these environments is a cross border matter that cannot be addressed by any one of the countries in isolation. However, none of the involved countries have so far showed interest or willingness to formalize trade with Ethiopia. Given the fact on the ground and absence of any credible government in Somalia, the EXCELEX system doesn't provide any tangible guarantee of overcoming the chronic and damaging effect of illicit (informal) livestock trade on the Ethiopian economy;
- The official acceptance of the EXCELEX system by the importing Middle East countries is so far unchecked. In addition, it is not also clear on whether or not the system will be accepted by some or all the countries where the project will be implemented, or the different players (traders, pastoralists, etc) in these countries will buy into it;
- The certification process for credible livestock export system should be handled by authorized public veterinary services administration;
- The EXCELEX system does not allow isolation of animals. In addition, because of cost and logistic difficulties, vaccination of livestock is not encouraged by the system. Due to this, the probability of occurrence of disease outbreak or exporting of infected subjects will relatively be high and these risks render the system unsustainable;
- Project operation targets areas where political instability and conflict is a common phenomenon, and this may result in disruption in project implementation in one or more localities in the concerned countries;
- This idea of setting an early warning system for RVF is indicated in the project document. Experts can develop prediction models that may be suitable for the project environment. However, it will be logistically difficult to sustain such a system.

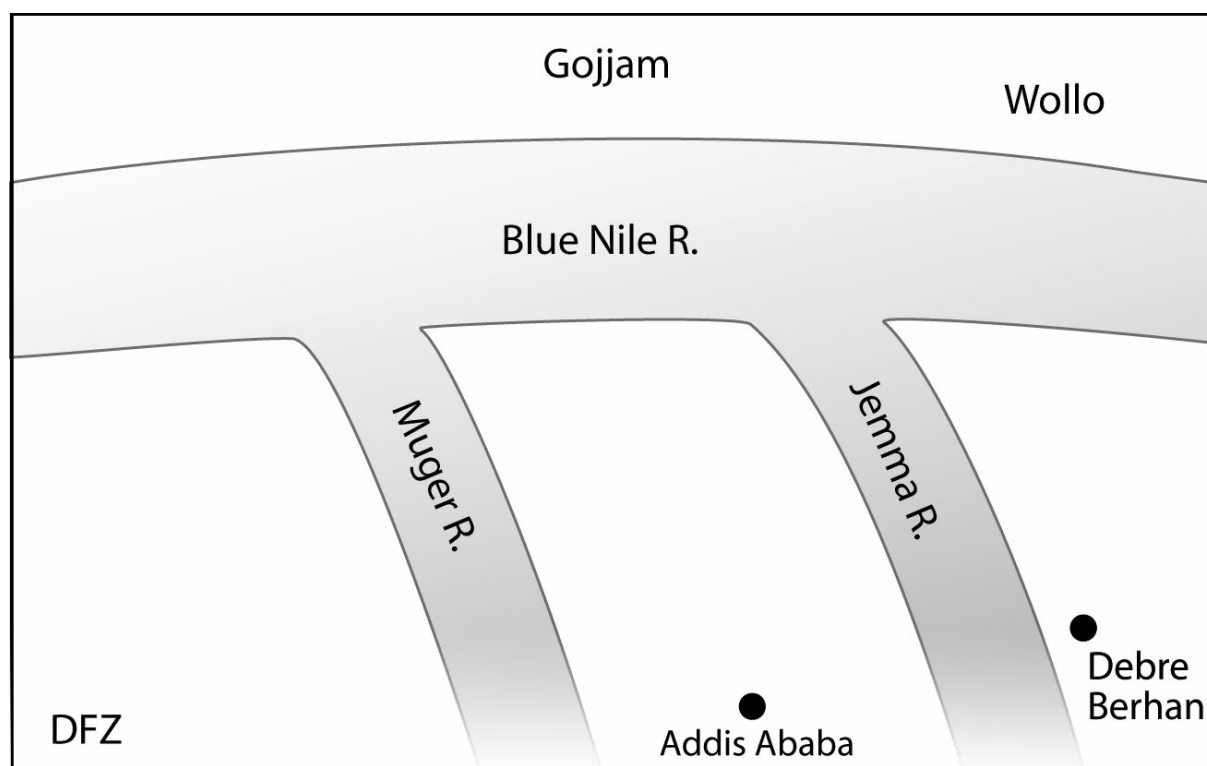


Fig. 3. Schematic map of a designated hypothetical DFZ in North Shoa Zone

(vi) *Indicative Cost*

III.39. The indicative cost shown in Table 7 is extracted from The EXCELEX project document<sup>3</sup> and highlights the contributions of the concerned governments and the donors.

**Specific Options in Highland Production Settings**

III.40. So far, considerations of options for LLP export from Ethiopia were all focused in the pastoral settings. In order to help substantiate the argument for also considering one or all these options, it would be wise to set a hypothetical but typical highland locality in North Shoa. This area is surrounded by major rivers such as Nile, Jemma, Muger (Fig. 3). It is bounded with major gorges that physically separate the zone from its environs. The altitude in the highland plateau varies from 2,000–3,000 m a.s.l. The livestock resource is considerable.

III.41. *Comparative advantages prevailing in the highland settings:*

- Low disease prevalence and risk. The major livestock health concerns are helminth parasites. These diseases are not trade sensitive and could be addressed with relative ease. None of the OIE List A diseases (except FMD) are present. According to the OIE guidelines, vaccination against FMD is possible;

<sup>3</sup> Support to Livestock Exports from the Horn of Africa – The ‘EXCELEX’ Project (GCP/INT/811/ITA).



- Presence of geographic barriers and suitable climate favouring livestock production (but not the propagation of trade sensitive diseases) is a natural advantage worth exploiting. There are several localities in Ethiopia that resemble the chosen hypothetical area — hence high level of success by extrapolation (multiplier effect);
- Existence of longstanding tradition of organic livestock production;
- Presence of high preference by domestic markets for highland livestock will enhance competitiveness and serves as contingency option when external markets are not favourable or denied;
- Rich feed resource base and availability of water;
- Low risk disease from wild animal reservoirs;
- Absence of conflicts and political instability;
- Communities tradition to respect rules and regulations, relatively conducive to reinforce policies;
- Distance from borders – no influence from neighbouring countries;
- Virtual absence of illicit (informal) trade;
- Relatively better animal health services provision;
- Sedentary communities easing control of animal movements and TADs;
- Proximity to air transport for export of meat and other products.

III.42. **Options.** Because of the above-specified comparative advantages, practically all the specified options could be implemented in the highland settings with relatively high degree of success. It has to be emphasised, however, that the existing mixed crop–livestock farming system must be transformed to modern livestock industry. This is in line with the GoE’s *Agriculture Development–Led Industrialization* (ADLI) strategy. Establishment of Community–based ranches will foster the transformation process and enhance the participation of the farmers as well as sustenance of the chosen option. The institutional arrangements, cost requirements for establishment of the preferred option will almost be similar to the ones described for pastoral settings.

### Conclusions

III.43. The core issues that need to be considered in prioritisation of future initiatives in support of livestock and meat export of Ethiopia are cost–benefit analysis of the investment, sustainability, acceptability to all concerned partners, the scientific basis of the project and anticipated risks that may lead to failure.

III.44. Lessons learned from previous projects in Ethiopia strongly suggest that the focus must not only be targeting the rich resources of a given locality (e.g. livestock in pastoral areas) but also the people (communities) in the project environment. Such projects must, therefore, be linked with poverty reduction and livelihood improvement strategies of the country. This will undoubtedly and significantly contribute, among other things, to the sustainability of the chosen priority investments.

III.45. In order to improve the marketing efficiency along the cascade from the farmers to the slaughterhouse and to sustain the operation of the system there are important functions that need to be addressed (assembly, transport, feeding, holding, veterinary services, etc.).

III.46. In the context of establishing appropriate investments in the pastoral production system in Ethiopia, establishment of Livestock Export Zone systems suiting commodity-based trade appears to be the most suitable option. A holistic approach is required to minimize disease risks based on scientifically based approaches and establish the confidence of importing countries. Livestock Export Zone systems involve greater investment into the livestock sector, especially in marketing infrastructure, strengthening of national veterinary services and the private sector through producer, trade and processing organization. These public and private investments are believed to bring about considerable benefits to all players in general and improve the livelihood of the affected pastoral communities in particular.

III.47. In the context of the highland production setting, establishment Export Zone that promotes commodity-based trade could be regarded as a process, not an end by itself, to serve as stepping stone towards the establishment of disease-free zones. Owing to the inherent comparative advantages of the highlands, creation of export zone systems will holistically address the complex and chronic constraints of Ethiopia's LLP trade. It is required to set good practices of a learning institution so that the transformation to wards establishment of full-fledged DFZs will take shorter courses and foster multiplier effects.

III.48. Establishment of Export Zone systems must be considered as part of the *National Medium-Term Investment Programme* (NMTIP) and deserve priority consideration for the formulation of *Bankable Investment Project Profiles* (BIPP) in the context of the NEPAD-CAADP.

III.49. MoARD (specifically *Livestock Marketing Department* and *Animal Health Department*) must take the necessary measures and initiate the process towards detailed feasibility study, accounting for specific financial and technical needs, etc, for the establishment of livestock Export Zone systems suiting commodity-based LLP export trade from pastoral localities in Ethiopia.

III.50. As indicated earlier, establishment of livestock Export Zone systems suiting commodity-based trade is a costly development undertaking. The involvement of the private, public and donor agencies is crucial. FAO has to play its due role, facilitate the process and resource mobilization efforts.

III.51. It is 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.

III.52. The EXCELEX system could be considered as complementary to the Export Zone system through application of principles and procedures in buffer zones.

### Appendix 1: Tables

Year	Live Animals	Meat	Total
1987/88	3,651,034	602,644	4,253,678
88/89	2,700,575	237,701	2,938,276
89/90	1,219,655	132,299	1,351,954
90/91	594,138	116,667	710,805
91/92	53,678	2,069	55,747
92/93	151,954	48,046	200,000
93/94	1,236,437	77,241	1,313,678
94/95	879,885	698,046	1,577,931
95/96	88,506	1,398,736	1,487,241
96/97	1,287,471	2,778,736	4,066,207
97/98	1,214,023	3,372,414	4,586,437
98/99	657,931	3,637,241	4,295,172
99/200	1,624,943	3,759,540	5,384,483
2000/01	172,759	1,651,264	1,824,023
2001/02	819,770	1,083,103	1,902,874
2002/03	606,437	2,896,782	3,503,218

Source: Computed based on data obtained from National Bank of Ethiopia, annual report 2001/02, and Ethiopian Export Promotion Authority annual publications.

Staff			Infrastructure		
Description	Public sector	Private sector	Description	Public sector	Private sector
Veterinarians	478	57	Clinics	937	64
AHA	800	58	Health posts	650	21
AHT	3,000	102	Drug shop		164
			Clinic and drug shop		70
			Laboratories	10	
			Research/referral Centre	1	
			Vaccine Production Centre	1	
			NTTIC	1	
			Importers		127
			Training Centres (FVMs)	6	

Source: Sileshi Zewdie (2004)

Country	Meat	Live Animals
Yemen	Mutton, Veal, Beef, Goat	Sheep, Goats, Cattle
United Arab Emirates	Mutton, Veal, Goat	Sheep, Goats
Saudi Arabia	Mutton, Goat, Camel	–
Sudan	–	Cattle
Egypt	–	Camels

Table 4: Details on Livestock Facilities and Locations

Name	Area (ha)	Location	Purpose
1. Wonji	28	Oromia	Feedlot
2. Kuriftu	28	Oromia	Feedlot
3. Nettle	1,080	Oromia	Holding area
4. Ali Dege	2,000	Afar	Holding area
5. Melka Sadi	200	Afar	Holding area
6. Modjo Feed Processing Plant	37,000 m <sup>2</sup>	Oromia	Holding area
7. Koqa	10	Oromia	Holding area
8. Jijiga	2,500	Somali	Holding area
9. Haree	9,000	Somali	Ranch
10. Digras	1,0000	Somali	Ranch
11. Qorabee	1,0000	Somali	Ranch
12. Shifesa	1,0000	Somali	Ranch
13. Shallo	3,200	SNNP	Ranch/QtS
14. Medicho	720	Oromia	Ranch
15. Didiban	4,000	Oromia	Ranch
16. Supura	4,000	Oromia	Ranch
17. Saaritee	17,000	Oromia	Ranch/B
18. Dembel Waacho	10,000	Oromia	Ranch/B
19. Wolenso	20,000	Oromia	Ranch/B
20. Tisyo	2,000	SNNP	Ranch
21. Rate	2,000	SNNP	Ranch

Table 5: Indicative Costs for the Establishment of DFZs in Three Selected Sites in Pastoral Areas of Ethiopia

Description	Major activities	Cost (1 US\$ = 8.64 Birr)	
		Birr	Birr
Implementation of initial requirements for the establishment of DFZs	Major advocacy (awareness creation) at all levels (communities, professionals, private sector players, policy-makers, relevant institutions)	100,000	11,574
	Rigorous feasibility study	1,000,000	115,741
	Conduct preliminary disease surveillance	1,500,000	173,611
	Undertake restructuring of the veterinary services as suited to the designated tasks required in DFZ	750,000	86,806
Establishment of DFZs	Delineation of disease controlled areas (fencing, guard posts, check points, establishments)	50,000,000	5,787,037
	Rangeland and water development	40,000,000	4,629,630
	Establishment of commercial farms	35,000,000	4,050,926
	Establishment of markets, stock routes and stock route facilities	20,000,000	2,314,815
	Other major veterinary and export infrastructure developments		
	<i>Export abattoirs with processing plants at strategic location (2)</i>	80,000,000	9,259,259
	<i>Quarantine stations (2)</i>	15,000,000	1,736,111
	<i>Holding area near port</i>	10,000,000	1,157,407
	<i>Rehabilitation existing and construction new clinics and health posts</i>	15,000,000	1,736,111
		120,000,000	13,888,889
	Disease surveillance and control, mobile veterinary clinics, mobile laboratories, transport facilities, diagnostic/clinic gadgets, kits, biologicals and consumables)	35,000,000	4,050,926
	Administrative processes (cross border harmonization, legislative enforcement, foreign consultancies, etc)	15,000,000	1,736,111
	Capacity building and institutional support	10,000,000	1,157,407
Sub-total		328,350,000	38,003,472
Contingencies (10%)		32,835,000	3,800,347
Grand Total		361,185,000	41,803,819

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Table 6: Indicative Costs for the Establishment of Livestock Export Zones in Three Selected Sites in Pastoral Areas of Ethiopia		
Description	Major activities	Cost in US\$
Preparation	Advocacy	10,000
	Feasibility study	75,000
	Preliminary disease surveillance	100,000
	Undertake restructuring of the veterinary services as suited to the designated tasks required in DFZ	85,000
Establishment of Export Zones	Delineation of disease controlled areas (fencing, guard posts, check points, establishments)	2,000,000
	Rangeland and water development	4,500,000
	Establishment of commercial farms	4,000,000
	Establishment of markets, stock routes and stock route facilities	2,500,000
	<i>Other major veterinary and export infrastructure developments</i>	
	<i>Export abattoirs with processing plants at strategic location (2)</i>	10,000,000
	<i>Quarantine stations (2)</i>	1,700,000
	<i>Holding area near port</i>	1,000,000
	<i>Rehabilitation existing and construction new clinics and health posts</i>	1,000,000
		13,700,000
	Disease surveillance and control, mobile veterinary clinics, mobile laboratories, transport facilities, diagnostic/clinic gadgets, kits, biologicals and consumables)	2,700,000
	Administrative processes (cross border harmonization, legislative enforcement, foreign consultancies, etc)	1,500,000
	Capacity building and institutional support	1,000,000
Sub-total		32,070,000
Contingencies (10%)		3,207,000
Grand Total		US\$32,835,000 (Birr 223,694,440)

Table 7: Indicative Costs for Implementation of the EXCELEX System			
Description	Cost (US\$)		
	1 <sup>st</sup> year	2 <sup>nd</sup> year	Total
<b>A. Government contributions (countries involved in the Project)</b>			
Personnel	37,960	37,960	75,920
Travel	6,860	6,860	13,720
Miscellaneous/General operating expenses	11,000	11,000	22,000
Premises	2,400	2,400	4,800
<b>Sub-total Governments' contribution</b>	<b>58,220</b>	<b>58,220</b>	<b>116,440</b>
<b>B. Donor Contribution – EXCELEX System</b>			
Staff costs			
Professional	364,000	312,000	676,000
General Service	92,000	92,000	184,000
Overtime	8,000	8,000	16,000
<i>Sub-total staff costs</i>			<i>876,000</i>
Other costs			
Consultants	15,000	15,000	30,000
Contracts	113,800	113,800	227,600
Travel	83,400	83,400	166,800
Training	20,000	20,000	40,000
Equipment			
Expendable	25,000	25,000	50,000
Non-Expendable	90,000		90,000
<i>Sub-total other costs</i>			<i>604,400</i>
General Operating Expenses	24,000	24,000	48,000
Charge outs	22,500	22,500	45,000
Project Costs less Support Costs			1,573,400
Support Costs (13%)			204,500
<b>Sub-total Donor Contribution</b>			<b>1,777,900</b>
<b>Grand Total</b>			<b>1,894,340</b>

## Appendix 2: References

1. **AU/IBAR.** 2003. Proceedings of the workshop on ‘Livestock Export Systems’. 23–24, September, 2003, Addis Ababa, Ethiopia
2. **Belachew, H. and Hargreaves, S.K.** 2003. Consultancy report on livestock export zones. FAO Project GCP/RAF/365/EC.
3. **CSA.** 2004. The 2001/02 Ethiopian Agricultural Sample Enumeration (ESAE), Executive Summary, May 2004, Addis Ababa, Ethiopia.
4. **Hadrill, David.** 2004. The ‘EXCELEX’ Project – Support to Livestock Exports from the Horn of Africa, Project GCP/INT/811/ITA. *In* Proceedings of a national workshop on managing animal health constraints to export marketing of meat and livestock, MoARD–FAO, 27–28 April, 2004, Addis Ababa, Ethiopia.
5. **FAO.** 2004. Ethiopia: TCP/ETH/2908 (I): Assistance in the preparation of a national Medium–Term Investment Programme and the formulation of bankable projects in support to the NEPAD–CAADP Implementation. Draft National Medium–Term Investment Programme (NMTIP).
6. **FAOSTAT** database <http://www.apps.org/default.htm>
7. **IFPRI.** 1999. *Livestock to 2020. The next food revolution.* 2020 Vision Discussion Paper 28. International Food Policy Research Institute, Washington D.C. USA.
8. **Jemberu Eshetu.** 2004. Overview of the potentials and constraints on export of meat and livestock. *In* Proceedings of a national workshop on managing animal health constraints to export marketing of meat and livestock, MoARD–FAO, 27–28 April, 2004, Addis Ababa, Ethiopia.
10. **LMA.** 2004. *Meat exports market study*, MoARD, Addis Ababa, Ethiopia.
11. **LMA.** 2001. *Market surveillance report of North, Northwest, West and Eastern African countries*, Addis Ababa, Ethiopia.
12. **LMA.** 2001. *Study on causes of cross–border illegal trades in South, Southwest and Eastern Ethiopia*, Market Research and Promotion Department, Addis Ababa, Ethiopia.
13. **LMA** 2003. Market surveillance report of Central African countries. Addis Ababa, Ethiopia.
14. **MoA.** 2002. Draft document on the Establishment of Disease–free Zones, Ministry of Agriculture, Ethiopia, pp.23.
15. **MoARD.** 2004. Proceedings of a National Workshop on Managing Animal Health Constraints to Export Marketing of Meat and Livestock – TCP/ETH/2907 – Rehabilitating and safeguarding livestock trade through establishing disease–free zones, 27 and 28 April 2004, Addis Ababa, Ethiopia, pp 42.
16. **OIE.** 2003. *The Terrestrial Animal Health Code.* Office international des épizooties, Paris, France.
17. **Sileshi Zewdie.** 2004. Current Status of Veterinary services in Ethiopia. *In* Proceedings of a national workshop on managing animal health constraints to export marketing of meat and livestock, MoARD–FAO, 27–28 April, 2004, Addis Ababa, Ethiopia.
18. **Thompson, D.; Muriel, P. et al.** 2002. Economic costs of the foot and mouth disease outbreak in the United Kingdom in 2001. *Review Sci. Tech. Off. Int. Epiz.*, 21, 675–687.
19. **Thompson, G.R.; Tambi, E.N.; Hargreaves, S.K. and Leyland, T.J.** 2003. *Gaining access to international commodity markets for African livestock commodities.*