BETTER ENFORCEMENT OF STANDARDS FOR SAFER TRADE IN LIVESTOCK AND LIVESTOCK PRODUCTS ACROSS THE RED SEA:

Feasibility study for a joint Horn of Africa-Arabian Peninsula initiative

Nadhem Mtimet, Delia Grace, Barbara Wieland, Theodore Knight-Jones, Francis Wanyoike, Karl Rich, Brian Perry, Henry Kiara, Festus Mutai and Peter Ballantyne

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CGIAR
RESEARCH PROGRAM ON Livestock

SYNTHESIS OF CORRECTIONS?

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ACRONYMS

AAHS	Aquatic Animal Health Services
AH	Animal Health
AHA	Animal Health Assistant
AH&EDC	General Administration of Animal Health and Epizootic Diseases Control
AHRI	Animal Health Research Institute
AI	Artificial Insemination
AMISOM	African Union Mission in Somalia
AMR	Antimicrobial Resistance
AP	Arabian Peninsula
APHRD	Animal and Plant Health Regulatory Directorate
ARIS	Animal Resources Information System
ASAL	Arid and Semi-Arid Lands
ASF	African Swine Fever
ASAP	Adaptation for Smallholder Agriculture Programme
AU-IBAR	African Union Inter-African Bureau for Animal Resources
AWS	Animal Wealth Sector
AWD	Animal Wealth Directorate
BESST	Better Enforcement of Standards for Safer Trade
BIP	Border Inspection Post
CA	Competent Authority
CAHWs	Community Animal Health Workers
CBPP	Contagious bovine pleuropneumonia
CBS	Central Bank of Sudan
CCPP	Contagious caprine pleuropneumonia
CC II-12	Critical Competency II-12
CGE	Computable general equilibrium
CE	Capacity Enhancement
CDVS	County Directorate of Veterinary Services
CMP	China Merchants Port Holdings
COMESA	Common Market for Eastern and Southern Africa
COOPI	Cooperazione Internazionale
CoP	Community of Practice
CP	Camel Pox
CVL	Central Veterinary Laboratory
CVO	Chief veterinary officer
DANIDA	Danish International Development Agency
DAR	Director of Animal Resources
DFZ	Disease Free Zone
DP World	Dubai Port World
DTC	Doraleh Container Terminal
DVS	Department of Veterinary Services
EAC	East African Community
ESCAS	Exporter Supply Chain Assurance Scheme
ELISA	Enzyme Linked Immunosorbent Assay
EU	European Union
ESOLT	Enhancing Somali Livestock Trade Project
FAO	Food and Agriculture Organization
FBD	Food borne Diseases
FMD	Foot and Mouth Disease
FMAR&F	Federal Ministry of Animal Resources and Fisheries
GASTAT	General Authority for Statistics
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GHOA	Greater Horn of Africa
GIS	Geographic Information System
GVS	Government Veterinary Services
GOVS	General Organization for Veterinary Services
HACCP	Hazard Analysis and Critical Control Point
HoA	Horn of Africa
HPAI	Highly Pathogenic Avian Influenza
HQ	Headquarter
HS	Harmonised System
ICPALD	IGAD Centre for Pastoral Areas and Livestock Development
ICPAC	IGAD Climate Prediction and Application Centre
ICT	Information and Communication Technology
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
IGAD	Intergovernmental Authority for Development
ISTVS	IGAD Sheikh Technical Veterinary School
JCoVS	Joint Committee of Veterinary Services
KEVEVAPI	Kenya Veterinary Vaccines Production Institute
KMC	Kenya Meat Commision
KLMC	Kenya Livestock Marketing Council
KSA	Kingdom of Saudi Arabia
LEISOM	Livestock Emergency Intervention to Mitigate Food Crisis in Somalia
LDCF	Least Developed Countries Fund
LIMS	Livestock Marketing Information System
LTMSK	Livestock Traders and Marketing Society of Kenya
LMRP	Livestock Marketing and Resilience Programme
LSD	Lumpy Skin Disease

LITS	Livestock Identification and Traceability System
MC	Movement Control
MCI	Ministry of Commerce and Investment
MERS-cov	Middle East Respiratory Syndrome corona virus
MoH	Ministry of Health
MSP	Multi-Stakeholder Platform
NAHDIC	National Animal Health Diagnosis and Investigation Center
NEALCO	North Eastern Africa Livestock Council
NEPDP	North Eastern Pastoral Development Programme
NIV	National Veterinary Institute
NPC	National Planning Commission
NZ	New Zealand
OSBP	One Stop Border Post Program
PPR	Peste des petits ruminants
SNDP	Somalia National Development Plan
SPS	Sanitary and Phytosanitary
SPS-LMM	Sanitary & Phyto-Sanitary Standards and Livestock & Meat Marketing
SSA	Sub-Saharan Africa
TAD	Transboundary Animal Disease
TB	Tuberculosis
TBC	Total Bacterial Count
TI	Technical Item
TRACES	Trade Control and Expert System
OH	One health
OIE	World Organization for Animal Health
PACE	Pan African Control of Epizootics
PACT	Pan African Control of Transboundary-disease
PANVAC	Pan African Veterinary Center of the African Union
PDVs	
P-IMA	Prioritizing SPS Investments for Market Access
PPP	Public-Private Partnership
PVS	Performance of Veterinary Services
QA	Quality Assurance
RAHN	Regional Animal Health Networks
RAHS	Reinforcing Animal Health Services in Somalia
RECs	Regional Economic Communities
RPLRP	Regional Pastoral Livelihoods Resilience Projec
RISP	Regional Integration Support programme
RVF	Rift Valley fever
SAM	Social Accounting Matrix
SD	System Dynamic
SLCCIA	Somaliland Chamber of Commerce Industry and Agriculture
SMPs	Standard Methods and Procedures
SGP	Sheep and Goat Pox
SOLICEP	Somalia Livestock Certification Project
SOP	Standard Operating Procedures
SSI	Semi-Structured Interviews
STDF	Standards and Trade Development Facility
STSD	Disease Surveillance in Support of Trade
TLU	Tropical Livestock Units
TVET	Technical and Vocational Education and Training
UAE	United Arab Emirates
UN	United Nations
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VC	Value Chain
VA	Veterinary Authority
VPH	Veterinary Public Health
VS	Veterinary Service
VSB	Veterinary Service Board
WAHIS	World Animal Health Information System
WHO	World Health Organization
WFP	World Food Program
WTO	World Trade Organization

INTRODUCTION

Trade in livestock and livestock products can bring great benefits but also substantial risks to animal and human health. The Horn of Africa region is rich in livestock, and livestock exports are one of its economic success stories. Annual exports from the Horn and neighbouring countries are estimated at close to USD 1 billion. The destination market is mainly the Arabian Peninsula and is heavily concentrated during the annual Haj season. The trade also contributes to a large import business as many export traders either sell foreign exchange to importers or themselves import food, clothes and other products through Somali and other ports. Expanding and safeguarding this trade is, hence, a development imperative.

In December 2019, Member States of the African Union, Regional Economic Communities, Experts, Implementing and Development Partners and Commodity Producer Associations, Representatives of Research and Training institutions and relevant industries came together in Accra, Ghana to accelerate animal trade within Africa and globally. They identified transboundary animal diseases and adhering to SPS and animal welfare standards as critical for vibrant trade and called for initiatives to safeguard and promote trade.

This feasibility study, commissioned by the World Organisation for Animal Health (OIE), answers that call and also aligns with important initiatives including the African Continental Free Trade Area (AfCFTA), Comprehensive African Agricultural Development Program (CAADP), the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, and the Livestock Development Strategy for Africa (LiDESA).

At its core is a proposal to transform approaches to trade, harnessing advances in communication and big data, novel technologies for disease reporting and management, public-private partnerships, and multi-stakeholder approaches to build trust in trade between countries the Horn of Africa and the Arabian Peninsula. The evidence-based feasibility study has been developed with and validated by a wide range of stakeholders through a series of meetings, missions, field visits and workshops.

It is located within the framework of the Agreement on the Application of SPS Measures (the «SPS Agreement») entered into force with the establishment of the World Trade Organization (WTO) on 1 January 1995. The SPS Agreement restricts members from the use of unjustified SPS measures but allows legitimate measures to reduce risk from importation. The World Animal Health Organisation (OIE) codes set out legitimate SPS measures and is recognised by the WTO as international reference point for standards related to animal health.

We believe the BESST (Better Enforcement of Standards for Safer Trade) initiative, based on innovation, evidence and participation, can contribute to the safe and sustainable transformation of trade in livestock and livestock products across the Red Sea.

Photo F. Flintan/ILRI

EXECUTIVE SUMMARY

Background

Countries in the Horn of Africa (HoA) have longstanding and important livestock and livestock product trading relationships with countries in the Arabian Peninsula (AP). While these relationships offer enormous opportunities to both regions, they are constrained by livestock disease threats, the variable regulatory capacities and performance of veterinary public health services as well as consumer concerns about the safety and quality of imported livestock and livestock products.

The proposed Better Enforcement of Standards for Safer Trade (BESST) initiative aims to strengthen veterinary public health services in OIE member countries of the HoA and AP by enhancing and investing in public-private partnerships (PPPs) that improve compliance with OIE international standards and facilitate safe trade in livestock and livestock products. More broadly, BESST will contribute to poverty reduction, improved food and nutrition security, better public health and regional stability.

To take the BESST concept forward, the *International Livestock Research Institute* (ILRI) was commissioned by the OIE to conduct a feasibility study to inform the design of BESST. The study comprises five workstreams:

- Workstream 1 focuses on the constraints hampering safe trade in livestock and livestock products and the application of OIE international standards
- Workstream 2 identifies priority activities to address the constraints
- Workstream 3 discusses the potential geographic scope for BESST
- Workstream 4 assesses the potential socio-economic impacts of BESST
- Workstream 5 sets out potential partners and stakeholders for BESST

The study and was developed with the following principles:

- Evidence and science-based: it was based on best current evidence, using multiple streams of evidence where possible.
- Inter-disciplinary: it was undertaken by a mixed team of veterinary epidemiologists and economists with inputs from other social and environmental scientists.
- Stakeholder involvement: it engaged a broad range of stakeholders from both regions.
- Collaboration: the team shared and received frequent and constructive feedback from OIE.

Constraints to safe trade and the application of OIE standards

This workstream comprised a literature review, a questionnaire for Veterinary Services; a review of Performance of Veterinary Services (PVS) evaluations of importing and exporting countries; several semi-structured interviews with key stakeholders; and information from three expert workshops.

Currently, millions of livestock are raised in the HoA, aggregated by middlemen, then kept for a quarantine period – mainly in AP-owned facilities with in-house laboratories and veterinary staff (private vets operate the facilities; government vets authorize activities and certify animals). Animals are observed, tested and vaccinated as needed, and receive health certificates. The animals are then shipped to quarantine sites in the importing countries. The much smaller but rapidly expanding trade in meat comes from AP-approved 'export abattoirs' in HoA countries with their own veterinary inspections. Meat is also inspected on arrival in importing countries. In addition to this formal trade, there is a huge informal trade within the HoA and to a lesser extent within the AP and between the HoA and AP across the Red Sea.

Overall, this livestock and livestock products trade is a success story. However, it has also been severely affected by disease-driven trade bans and concern of buyers and consumers in AP countries about the ability of HoA countries to export safe products. The 35 priority constraints identified in this feasibility study are grouped in four clusters, the most pressing being: 1) weak health system performance and SPS compliance in HoA countries, 2) inadequate governance, trust and poor communications, 3) knowledge/capacity and disease/trade information deficits, 4) sector weaknesses – disease prevalence, poor animal welfare and inadequate infrastructure.

The first three are ranked as the most important and capture many constraints that are well-suited to a BESST initiative with a focus on public-private partnerships, capacity development, compliance and trust-building. However, many sector weaknesses and governance gaps (e.g. widespread illegal trade and lack of rigorous systems) are deep-rooted and require larger-scale interventions over longer periods that a BESST initiative could contribute to, and advocate for as part of much wider investments and development programs.

An Abu Dhabi consultation with AP county representatives largely confirmed this assessment, highlighting three key issues: 1) a significant lack of trust among the various actors and regions, exacerbated and perhaps contributed to by inadequate communication and weak political will as well as absence of a shared vision to give these issues a high priority, 2) perceived weaknesses in HoA animal health systems, with gaps in technical knowledge and diagnostic capabilities, inadequate disease surveillance, absence of traceability systems, insufficient notification and information sharing and understaffed key veterinary public health officers, and 3) contributing to a growth in informal and high-risk trade.

From the specific constraints, those dominating the assessment are: 1) lack of traceability, 2) difficulties to implement equivalence and regionalization, 3) mistrust of quarantine duration, performance and transparency, and 4) lack of information sharing and participation of stakeholders.

Priority interventions

This workstream reviewed past and current projects as held key informant interviews and focus group discussions to identify workable solutions to address the prioritised constraints. The Prioritizing SPS Investments for Market Access (P-IMA) framework guided selection of proposed interventions. Expert opinion of a small team of experts helped classify interventions as 'essential' or 'desirable' for the BESST initiative, or better left for other projects.

Past projects mainly focused on capacity development for animal health personnel, harmonisation of SPS procedures, and market infrastructure development and coordination. Some successes have been documented, including significant private sector investments in slaughterhouses. However, some HoA countries are not yet meeting the potential for growth, their products are lower in quality and safety than those of some competitors, and they remain vulnerable to animal disease outbreaks.

Interventions are grouped into four clusters around: 1) trust, communications and governance, 2) knowledge and information, 3) veterinary system performance, and 4) sector weaknesses. Interventions were characterized and prioritised by cost of implementation, likelihood of success, urgency of the problem they address, impact on trade in the short and long term, potential domestic spillover (livestock productivity, public health), and wider social impact (employment, poverty reduction, food security).

The Abu Dhabi consultation with AP country representatives largely confirmed this assessment, identifying four priorities: 1) enhance trust among the different actor through communications, dialogue and confidence-building and build stronger political will for appropriate investments in both regions that recognizes the mutual benefits, 2) develop a communication platform between the 2 regions, acting as a space for dialogue and interactions, also as a network for information and knowhow exchange, 3) enhance confidence in ex-

porting HoA countries so they adopt and enforce agreed standards, respect vaccination, quarantine, health certification requirements/ durations, and introduce independent verification systems for animal health services, and prioritising these in capacity development and other investments, and, 4) enhance the capacities of exporting countries, by improving traceability, infrastructure, animal health and certification, performance of veterinary services, vaccine production, diagnostic facilities, etc.

A priority setting exercise was used to rank the interventions as essential, desirable or best implemented by others.

ESSENTIAL interventions for BESST are:
- BESST public-private multi-stakeholder platform
- Training platform addressing knowledge gaps
- Improved traceability systems
- Certification along trade routes, electronic certification
- Independent verification/audit system by partners

DESIRABLE interventions, and therefore highly recommended, for BESST are:
- Strengthen surveillance and better understanding of disease situation in HoA
- Share disease information (inter-regional)
- Strengthen institutions such as farmers' and producers' associations
- Develop a virtual marketplace to improve access to market information
- Facilitate formal trade to reduce informal trade
- Support countries to address PVS gaps

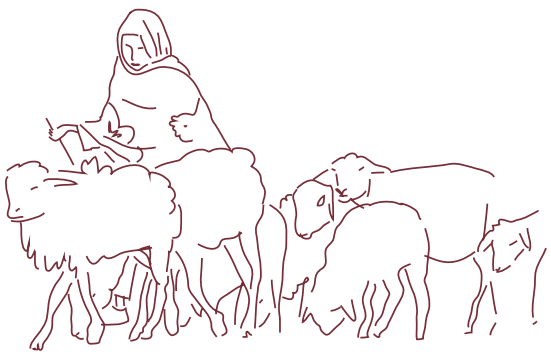
The following interventions were assessed as important but out of scope of a BESST initiative (but worthy of others taking them up):
- Invest in trade infrastructure at different levels (national and regional)
  · Transport
  · Quarantine stations
  · Laboratory infrastructure
- Organise trade fairs
- Special loans for livestock sector investment

Geographic scope

We expect that BESST could benefit the following countries: Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Somalia, Sudan, South Sudan, Uganda, Bahrain, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates (UAE) and Yemen. However, because borders can be porous and due to the huge informal trade, the opportunities and synergies that regional cooperation offers suggest that BESST should also work well at regional and trade route levels.

The study identifies target countries based on the importance of their livestock sector as well as volumes and trends in livestock trade. Currently, Saudi Arabia is the largest live animal importer in the AP, and it is one of the main meat importers in the region. Yemen (before the civil war) and Oman are also major live animal importers from the HoA (mainly cattle and camels). On the export side, Somalia (mainly Somaliland) and Sudan are the main livestock exporters. Around 40% of the livestock exported by Somaliland originates from Ethiopia. Djibouti and Eritrea are important transit countries. Trade in meat is much smaller but has potential for growth, partly because of its lower risk. Ethiopia, Sudan and Kenya are the main exporters with the UAE an important importer of meat. Private investment has also been active in this value chain. This suggests that BESST priority countries could be Saudi Arabia, Oman, UAE, Somalia, Sudan, Ethiopia, Djibouti and Kenya.

BESST should thus be a mix of activities at national (specific target countries) and trade route (specific trade routes) levels for more specific activities, and intra-regional and inter-regional levels for more global and consolidated activities.



Potential for impact and socio-economic analysis

Trade data from 2014-2017 show that the HoA is the main supplier of live cattle, sheep and goats to the AP – in net weight and value. There is however a high variation from year to year. Cattle have a higher share of volume than of value; sheep and goats are the opposite. The data shows a sharp rise, albeit from a low base and remaining at a low level, in imports of chilled and frozen beef from the HoA. This is in keeping with the overall trend for meat exports to increase relative to live animal exports driven by economic, environmental, health and animal welfare considerations.

The main constraint to this trade is livestock disease which leads to trade bans, rejection of entire consignments, or disposal of the affected products. All these mitigation measures disrupt trade and lead to extra costs and losses for the actors involved in the product value chain – in both importing and exporting countries. Livestock trade bans have the highest costs since they completely stop trade for periods varying from months to years.

To assess the impact of these bans, the study used System Dynamics Modelling to estimate the losses occasioned by the November 2016 Saudi Arabia ban on livestock imports from Somaliland. We considered two scenarios: if the ban is lifted during the Hajj season, losses are between US$174 million and US$265 million per year. When it is maintained year-round, annual losses are between US$222 million and US$476 million. Extrapolating to other exporting countries suggests losses of several billion USD from such bans. From literature, other socio-economic impacts associated with trade bans include greater migration, environmental degradation, depreciation of local currencies and costlier imports. More broadly, poorly controlled livestock disease and trade bans impair animal welfare and lower the efficiency of livestock production resulting in higher greenhouse gas per unit livestock product produced.

The study also explored the downstream impacts of a ban on the wider economy both in the short term (using a social accounting matrix; SAM) and in the longer term (using a GCE). This also showed high impacts. For example, in Ethiopia, a 50% reduction in exports causes losses in the live animal sector, the feed sector, and feed crops such as maize, sorghum, wheat, and barley, all of which fall by over 2%. Total economic output falls by 1.2% in such a scenario, while GDP at factor cost (value added) falls by 1.1%. The poorest income groups face the greatest losses in percentage terms, particularly those in rural areas.

Finally, the study estimated the costs and likelihood of success for the interventions identified as essential or desirable. Interventions to address trust, communication and governance would cost around US$18 million, interventions to improve knowledge and information around US$11 million, interventions to improve public and private animal health system performance around US$7.5 million and interventions to address sectoral weaknesses around US$23 million. Interventions in the first three SPS-related areas which have a high likelihood of success and relatively low cost are especially attractive for BESST. Overall, the four components of the BESST initiative will cost around US$62.2 million over 5 years which could save losses of at least US$1.1 billion for the Somali region alone, assuming that the current Saudi Arabia livestock ban (partial ban imposed on November 2016 and lifted during the Hajj season) persists for a total duration of 5 years.

Partners and stakeholders

Implementing a BESST initiative requires substantial financial support, and, importantly, technical backstopping accompanied by political engagement and stakeholder buy-in. Literature review and key informant discussions identified weak buy-in and ownership as key weaknesses in previous projects.

The primary focus of BESST is to enhance trade by strengthening veterinary public health services in the HoA and AP. In particular, the OIE delegates, national veterinary services and relevant policy makers are key for this, as they propose and decide the import/export sanitary conditions and when to impose or lift the bans. As such they should be central to the implementation of BESST. It is also important to facilitate interactions between them and the private sector. A unique feature of an OIE-led project would be its ability to build capacity, influence and leverage national veterinary services for better trade outcomes, which is not necessarily the case for previous and current livestock development and trade initiatives.

The most important categories of stakeholders to involve in BESST are:
- Coordination (OIE)
- Governments
- Private sector and civil society
- Intergovernmental organizations
- Knowledge organizations, research and academia
- Investors (donors, private sector)
- International Financial Development Institutions (loans, grants)

Private sector involvement is key to success. Private companies (importers, exporters), service and inputs providers, livestock traders and livestock producers are directly involved in livestock and meat trade and drive the whole process. The private sector may be engaged through associations or direct involvement. Lack of involvement of private sector has been one of the main stumbling stones of past projects.

Consumer demand is the ultimate driver of trade and retailers and consumers need to be involved through media, public health actions, and consumer associations.

Animal health system organisations are a special category as the main focus of BESST is to reduce disease risks associated with trade. Both public and private actors need to be engaged as well as civil society organisations interested in animal welfare and safe food.

Intergovernmental organisations provide critical political support and coordination. From the AP side, the Gulf Cooperation Council (GCC) is a key actor. From the HoA side, relevant partners include the Intergovernmental Authority on Development (IGAD) and its Centre For Pastoral Areas and Livestock Development (ICPALD). The Common Market for East and Southern Africa (COMESA) and the East African Community (EAC) should also be engaged. The Arab Organization for Agricultural Development (AOAD) has the advantage to encompass countries from both sides of the Red Sea.

Knowledge organisations generate evidence, propose innovations, provide advice to inform policy, and help with monitoring and evaluation. Key potential partners include ILRI, FAO, the African Union Inter-African Bureau for Animal Resources (AU-IBAR), national universities and national agricultural research systems.

OIE and 4-8 key partners could form a consortium whose role will be to liaise with investors and resource partners and raise funds for the BESST initiative, provide political and technical backstopping to the program and make sure that the activities are implemented as planned.

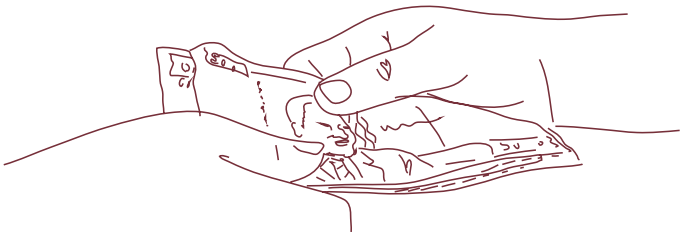


Photo K. Dhanji/ILRI

WORKSTREAM 1

CONSTRAINTS TO SAFER TRADE IN LIVESTOCK AND LIVESTOCK PRODUCTS ACROSS THE RED SEA

This section summarises the main constraints related to Sanitary and Phytosanitary Standards (SPS) identified from five bodies of evidence: a literature review, a questionnaire of Veterinary Services contributing to an OIE technical item; a review of the Performance of Veterinary Services (PVS) evaluations of importing and exporting countries; a series of semi-structured interviews with key stakeholders; and, information from four expert workshops.

Constraints are divided into two groups: those addressable by BESST (Table 1.1), and those which could be advocated for by BESST, but require multiple efforts by different actors (Table 1.2). Many of these constraints directly imply solutions: for example, lack of traceability can be addressed by better traceability.

Table 1.1. SYNTHESIS OF SPS-RELATED CONSTRAINTS THAT BESST COULD ADDRESS

Theme	Constraint
Governance, trust and communication	Lack of transparency and trust in the safety and quality of trade
	Lack of trust in quarantine duration, performance and transparency
	Lack of traceability
	Inadequate certification and fake certificates
	Lack of trust in and reliance on official declaration
	Lack of auditing and quality assurance from farm to fork
	Lack of confidence that controls will be sustained
	Inadequate use of dispute mediation mechanisms
	Significant informal trade, illegal animal movements
	Powerful groups preserving status quo and obstructing change
	Exclusion of the poor from more formal and rigorous systems
	High transaction costs and many informal payments (check points, local authorities)
	Lack of clear, direct incentives for behaviour change for all actors
Knowledge and information	Lack of SPS knowledge by public and private sectors
	Lack of information on diseases in Horn of Africa countries
	Lack of information sharing and weak participation of stakeholders
	Information asymmetries, pricing, market access,
	Transaction costs to find new trading partners
Veterinary performance and SPS	Lack of human, physical and financial resources
	Lack of capacity for risk analysis, setting import testing requirements and application of SPS principles (non-discrimination, equivalence, regionalisation…)
	Failure to maintain quarantine and border security
	Poor capacity to check slaughterhouses, testing for food-borne diseases
	Insufficient laboratory testing capacity in Arabian Peninsula countries
	Insufficient disease control (e.g. surveillance, detection, response)
	Insufficient welfare controls
	Insufficient provision for emergency funding
	Limited legislation and lack of participation in legislation
	Lack of centralization of disease control
	Inadequate contingency plans

Table 1.2. SYNTHESIS OF SPS-RELATED CONSTRAINTS THAT REQUIRE BROADER STAKEHOLDER ENGAGEMENT AND INVESTMENT TO ADDRESS

Theme	Constraint
Sector weaknesses	High level of diseases and poor animal welfare
	Sub-optimal transport (small boats, long trips)
	Capacity deficits at port and quarantine stations
	Trade infrastructure deficits in exporting countries
	Lack of access to financial instruments for livestock private sector
	Irregular supply of good quality animals (feed resources, genetics, husbandry)

As well as these SPS related constraints, a wide range of broader constraints were identified, including: low animal production and productivity; high production and transaction costs; lack of infrastructure; poorly performing markets; competition; insecurity; lack of a broad range of support services (e.g. financial); inadequate policy, governance and incentives; climate change; and lack of willingness of consumers to pay for quality meat.

The major constraints and how they were identified are summarised in **workstream 1 Annex 1**, according to the breakdown of the PVS Evaluations by *Fundamental Components*.

1.1 Introduction and methodology

This study used multiple strands of information to ensure that the interventions would be based on evidence and facts, rather than opinions. The identification of constraints and options draws on analysis of five bodies of work:

1. A review of the literature including a review of informal trade requested for a special issue of the *OIE Scientific and Technical Review*.
2. An OIE technical item on the implementation of the OIE standards for international trade, factors that limit implementation and recommendations to overcome these difficulties (Kahn, 2018). Responses, based on a questionnaire survey, were available from Djibouti, Eritrea, Kenya, Somalia, Sudan, Bahrain, Jordan, Kuwait, Saudi Arabia, and Yemen.
3. A series of OIE PVS Evaluations, focusing on the *Critical Competencies* (CC) related to trade. Evaluations were available for Kenya, Ethiopia, Egypt, Sudan, Uganda, Djibouti, Yemen, Jordan, Kuwait, and Qatar.
4. Interviews with a wide range of stakeholders conducted at different venues including: a mission to a major importing country, the OIE 2019 World Assembly, and during a COMESA conference.
5. Information from three expert workshops:
   - Information from a 2010 workshop for livestock stakeholders on animal health certification between Somalia and AP countries
   - A "best-worse" analysis conducted by the project team at a COMESA conference producing quantitative estimates of priority constraints
   - A BESST stakeholder workshop in Nairobi on 4 September 2019 which included experts from public and private sector as well as research and regional and international organisations.

Although this workstream did not focus on interventions, in some cases discussion or analysis of specific constraints resulted in recommendations to tackle these. We have included these recommendations as inputs and lead-in to the second workstream priority activities to be undertaken to address identified gaps.

We distinguish between SPS-related constraints which might be more easily addressed in the proposed initiative and non-SPS related constraints which might require longer-term, more systematic investments involving a wide range of partners (**Workstream 1 Annex 2**).

1.2 Literature review

A literature review was used to describe how the formal and informal livestock and meat export trade between HoA and AP countries happens and the constraints they experience. Much of the information is derived from grey literature including reports from projects that have supported this trade.

1.2.1 Formal trade

The role of sanitary standards in international trade of animals and animal products

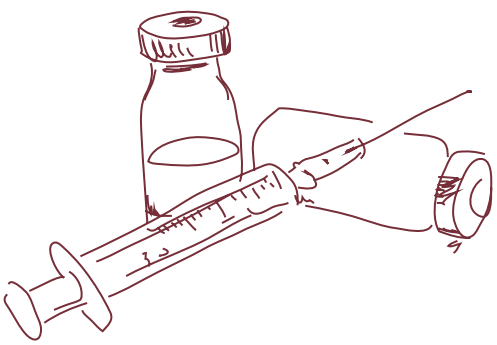
When traded, animals and their products may carry and spread diseases, of both animals and humans. Importing countries must be confident that these risks are controlled and require assurance of this by exporting authorities. This is typically done by confirming that the exporting country has adequate control of the animal production and the food chain, and that conditions have been met to control hazards of concern, such as notifiable pathogens or contaminants. Assurances may be required about many aspects of the food chain (traceability, status of holding of origin, cattle feeds, control of animal by-products, disease surveillance).

Agreed standards of control

However, the importing authority cannot arbitrarily dictate import standards that may unjustifiably restrict trade. These sanitary requirements should be developed in line with the WTO Agreement on the Application of *Sanitary and Phytosanitary* (SPS) Measures. Under this Agreement the *World Organisation for Animal Health* (OIE) sets international sanitary standards for the trade of animals and their primary products (e.g. fresh or chilled milk, meat, eggs, honey, skins and hides, feathers, semen, embryos, etc...). These standards define the export control measures required to ensure that particular animal commodity types will not transmit specific diseases if traded. OIE standards are based on science and are adopted with the approval of the member countries on a one member-one vote basis. Providing agreed, harmonised standards facilitates global market access and protects against unreasonable restrictions and protectionism.

Countries may apply controls that differ from OIE standards if risk assessment shows that these measures exert an equivalent level of control, furthermore, other countries should recognise these measures as equivalent when setting import requirements. Importing countries may also have a higher "appropriate level of protection" and require higher or additional control measures, but only if supported by risk assessment. Higher or alternative standards may also be required temporarily if there is significant uncertainty over the size of risk or for hazards for which there is no OIE standard (e.g. when faced with an emerging infectious disease). However, these controls must be non-discriminatory, so for example an importing country should not require a higher level of control for imported goods than the level of control achieved in the importing country. Thus, there should not be import controls for a disease present in the importing country, unless it is subject to an official control program. Furthermore, import controls should not be excessive, i.e. go beyond the level required to achieve the *appropriate level of protection* (ALOP).

If the sanitary situation changes in the importing or exporting country, then the export conditions may change (OIE member countries must report the presence of OIE listed diseases). For example, if there was an outbreak of foot-and-mouth disease (FMD) in the exporting country and the importing country felt that potentially infected products now posed an unacceptable risk they may apply trade restrictions. However, this should follow the principles of the SPS agreement. Restricting trade to control FMD would not be appropriate if FMD was uncontrolled in the importing country. Alternatively, if the importing country ceased to control a particular disease that is present, import controls for the disease may no longer be appropriate.



Developing an EHC or Veterinary Certificate for international trade

It is the job of the authorities of the importing and exporting countries to agree on the sanitary requirements for trade for a specific animal commodity (e.g. live sheep, fresh meat). The importing country may request information on disease control capacity in the exporting country, disease status or may want to assess the effectiveness of disease surveillance in the exporting country. Without effective surveillance, exporting authorities cannot demonstrate that their country is free of a disease. In line with the principles of the SPS Agreement, mentioned above, the importing country will then state if it will permit the export and propose the sanitary controls required and whether imported consignments require an import permit or licence. The exporting authorities will then develop an Export Health Certificate (EHC) reflecting the importing country's requirements that will be used by the appropriate exporting government official to certify that the exported commodity meets the required standards.

Types of sanitary requirement

To be able to certify the statements about a live animal listed in an EHC, an Official Veterinarian may need to make a physical examination to attest that an animal is healthy, sample the animal to test for the presence of a particular infection, test for antibodies reflecting recent or historic infection, or certify that a particular pathogen or disease is not present in its holding, country or zone of origin. To make statements about national disease status may require additional official statements from national authorities. The health certificate may require an animal to be vaccinated or treated against a disease, certify that it has been held in a quarantine that meets specified standards for a specified pre-export period or was born or spent a defined period of time in a particular country or disease control zone before export. Sometimes, for vector-borne diseases, there may also be vector-control measures required (insecticides, mosquito netting). These sorts of statements can be made on the basis of a reliable traceability system showing the animal's movement history or sometimes on the back of statements made by the owner, although the latter may involve a conflict of interest. Although not a sanitary standard, certification of welfare standards, particularly during transportation may be required, such as confirming the transporter is appropriately qualified and that the vehicle meets certain welfare standards. Animal products, such as milk may require statements that the authorities know the product was produced to required hygiene standards, with appropriate quality systems, usually based on periodic inspection and authorisation of the production facility.

Agreed EHCs may be developed by the veterinary services or the environmental health office, or aquatic health service for aquaculture, depending which is the delegated competent authority with appropriate powers over that commodity in a particular country. Consignments of products of animal origin are then typically inspected and certified for export by an Environmental Health Officer, Official Veterinarian or Fish Health inspector, depending on the delegated authority.

Trust

Items that do not meet the standards cannot be certified and cannot be legally exported. Hence, the professionalism and trustworthiness of the officials implementing and overseeing the certification process is paramount. Importing countries may visit and audit exporting countries, but a lot depends on trust and credibility.

The need for independence and avoiding conflicts of interest during this process are key reasons why it must be conducted by government officials. If the importing country does not have confidence in the exporting country's competence, independence and professionalism, then it cannot be confident that authorised exports actually meet the standards spelled out in the EHC. Likewise, exporting countries depend on the professionalism of the importing authorities when setting import restrictions, as well as post-import testing (see below).

Legal powers and oversight of farm to fork controls

The authority overseeing export certification also needs to have appropriate legal powers. It must be able to prevent export of products not complying with the certification requirements. If certification requires statements concerning national control and traceability programs, the authority will have to be able to show that they have the legal powers to implement these programs and prosecute those not in compliance. They will also need an auditable approach to monitor these programs to show proper implementation.

Applying standards and controls along the food chain requires organised value chains and effective authorities. Where this is not possible, commodities destined for export may only be certified based on standards that can be reliably assessed at the point of inspection, typically at the port of export or shortly before. However, recognising the need for farm to fork controls for many hazards, e.g. those derived on farm, such as via feeds, this approach offers a lower degree of assurance of sanitary status.

An alternative is to only implement and monitor value chain controls within a specified compartment, usually a defined sub-population where a better health status is maintained according to international standards by use of a single or uniform biosecurity management system. However, this comes with disease control and traceability challenges of showing that the export compartment is adequately separated from animals and pathogens outside the compartment, and being able to regulate different standards of production, inside and outside the compartment or zone.

Certification of quarantine facilities

A quarantine station is defined as "an establishment under the control of the Veterinary Authority where animals are maintained in isolation with no direct or indirect contact with other animals, to ensure that there is no transmission of specified pathogenic agents outside the establishment while the animals are undergoing observation for a specified length of time and, if appropriate, testing or treatment." (OIE, 2018).

Export health certification processes often require some level of quarantine or certified isolation whilst health status is being ascertained. There are many different types of pre-export isolation or quarantine facility depending upon the specific export process. Sometimes this is done at the animals' farm of origin if capable of meeting biosecurity requirements proscribed in the EHC. Sometimes it may require the animal to be kept at an officially approved pre-export quarantine facility. Such facilities need to apply to the appropriate national authorities and then be inspected and approved or licenced for this purpose, showing that it meets relevant biosecurity and quality standards. Once approved, periodic re-inspection and renewal of authorisation is typically required. The standards that need to be achieved may be from an international standard or regulation or those required by an importing country. The facility may then be audited by the authorities, including from the countries receiving animals they have exported.

Post-import requirements

Sometimes, importing countries apply additional tests and controls after import. This may be because they want to be sure that the commodity is safe above and beyond what the EHC requires, before releasing it into the country, including due to the risk of acquiring infection and disease during transport, i.e. after export certification. It could reflect a lack of confidence or trust in the exporting authorities, or perhaps the importing authority wishes to perform checks that go beyond WTO rules. This, however, should not create an additional barrier to trade and may still be inappropriate, even if not part of the EHC process. For livestock this would typically involve more disease testing, and could be done at point of import, or after arrival at the importing holding, provided this is reliably recorded with an effective post-import movement restriction in place. Additional testing, beyond what has been agreed in the Export Health Certificate, should not be used as an additional control intended to limit trade.

1.2.2 Application of SPS to formal exports from the Horn of Africa to the Arabian Peninsula

Regulated exports

Livestock and animal products have been exported from the Horn of Africa to the Arabian Peninsula for hundreds if not thousands of years. Today millions of livestock are exported each year mainly via approved Arabian Peninsula owned quarantine facilities with in-house laboratories and veterinary staff (Knight-Jones, Njeumi, Elsawalhy, Wabacha, and Rushton, 2014). Both private quarantine vets who operate the facilities and government vets, who authorize activities and certify animals, work at the quarantine stations.

Export procedures

Export health status is assessed at these quarantines based on observations and tests conducted at entry to and during this quarantine period (see Table 1.3 for 2010 test requirements). Animals are held in quarantine under observation for 7-30 days depending on import country requirements. Animals may be vaccinated, e.g. against FMD, Lumpy Skin Disease, RVF, etc..., or treated with insecticide during the quarantine period depending on the destination requirements (Knight-Jones and Yrjö-Koskinen, 2010a).

Figure 1.1. SHEEP AND GOATS AT PRE-QUARANTINE INSPECTION, DURING QUARANTINE AND AT POINT OF LOADING, FROM A SOMALI QUARANTINE 2010 (Source: A presentation by Gulf International Veterinary Quarantine Management Co to the SOLICEP workshop for livestock stakeholders in animal health certification, Dubai, 2-3 august 2010).

At point of export, EHCs are completed by the certifying veterinarian at the quarantine station, with requirements varying depending on the species and destination country. From **Table 1.3**, the variation in testing requirements can be seen. After certification animals are loaded for export on ships of varying sizes (up to 200,000 shoats or 10,000-20,000 cattle). The journey across the Red Sea may take half a day to over a week depending upon the destination.

Table 1.3. PRE-EXPORT SEROLOGICAL TESTS FOR DISEASES REPORTED AS PERFORMED BY THE LABORATORY MANAGER AT BOSASSO EXPORT QUARANTINE FACILITY (Source: FAO Somalia 2010. Tests performed: Brucella by Rose Bengal Plate Test, viral diseases by indirect and inhibition ELISA).

Destination	Saudi Arabia	Oman	UAE	Kuwait	Bahrain	Qatar
SHoAts	Brucella	RVF 5%	RVF FMD	RVF FMD	RVF FMD	PPR 5% Brucella 5%
Cattle	FMD Brucella	RVF 5% Brucella 50%	RVF 5% FMD 5%	RVF FMD	RVF FMD	FMD 5% Brucella 5%
Camel	Brucella	*No testing reported*	Blood parasites RVF	Blood parasites	Blood parasites	*No testing reported*

* This table only reports laboratory tests - not other export requirements, such as vaccination.

As serological tests, the tests in **Table 1.3** assess historical rather than current infection, and so healthy animals may be rejected. For example while FMD sero-prevalence rates of 90% have been reported for regions of Somalia, only a fraction of these animals would be carrying the FMD virus.

As relatively little is certified based on events and conditions prior to arrival at the port, this approach obviously contrasts to the farm to fork approach. However, efforts have been made to incorporate more upstream certification, such as only allowing health certified animals to be transported to the facility from inspection posts or approved feeding lots (e.g. SOLICEP) (Knight-Jones and Yrjö-Koskinen, 2010a).

The main pre-export quarantine facilities in the HoA are owned by Middle East based companies involved in the livestock trade and are staffed by both privately employed veterinarians and official veterinarians working for the exporting authorities (e.g. Bosasso port quarantine in Somaliland had 10 public veterinarians in the Port Veterinary Office and 30 private veterinarians in 2010). When official activities are conducted by private veterinarians it is imperative that this is demonstrably conducted under the control of the authorities, with measures in place to mitigate against potential conflicts of interest. The following weaknesses in the quarantine process were reported by a 2010 workshop of Somali veterinarians (Knight-Jones and Yrjö-Koskinen, 2010a).

1) Infected animals arriving at the quarantine are not well separated from other animals.
2) Given the large batches of animals isolated together, it was uncertain how cases of disease within a batch during quarantine were dealt with in terms of individual versus group rejection.
3) There is extensive unregulated/illegal trade in livestock.
4) The process of health inspection and certification before animals were sent to port (developed under SOLICEP) was not consistently applied, increasing the chance of unhealthy animals being transported to the port and being exported.

In 2010 it was recommended that exporting veterinary services better supervise and regulate private quarantine facilities (SOLICEP workshop for livestock stakeholders in animal health certification, Dubai, 2-3 August 2010).

Post-import

After arrival at the destination port, procedures will vary but for example UAE (2010) stated that a report is issued by the captain stating the mortality rate during the journey, that imported animals have not been in contact with infected animals and that they have not been unloaded or transited since leaving the export quarantine. Animals are then held in another quarantine facility where inspection, testing and a period of quarantine may be conducted (UAE Ministry of Environment and Water, 2010). Animals and even whole shipments may be rejected at this stage but apparently, they are then taken to a different destination and not returned to the Horn of Africa (Knight-Jones and Yrjö-Koskinen, 2010a).

1.2.3 Constraints to the application of SPS to safe-guard this trade

Overcoming constraints in the application of SPS principles could help to safeguard this trade from blanket trade bans and restrictions arising from shortcomings in export health certification standards and would increase confidence in health status and the certification process. In addition, better application of SPS measures would make trade fairer, bringing it in line with international requirements.

This would leverage greater investment, otherwise deterred by the threat of unpredictable trade restrictions. Furthermore, trade from the Horn of Africa needs to be able to compete with major livestock exporting countries such as Australia, who have an export health certification process for animals and their products that is globally recognised for its high standards.

Defining export requirements

There is limited consideration of which testing requirements will achieve the desired level of protection for the importing country.

- Harmonisation has been initiated but needs to be improved: Countries have had initiatives to harmonise requirements and seek to use OIE standards (except when there is good justified reason to exceed these standards, supported by risk assessment).
- Equivalence is little used: The principle of equivalence could be further considered in this trade. Exported animals may be able to meet the appropriate level of protection from disease incursion via approaches that differ from the proscribed health certificates.
- Risk assessment should be used to justify if exports are required to achieve a higher health standard than is in place in the destination country. There can be justifications for this as strain/serotype differences exist between the Horn of Africa and the Arabian Peninsula and if a disease is the subject of an official control programme.

Production - related requirements

- There is very limited traceability of animals from farm to export point: Options for creating traceable assured production are needed to enhance the level of assurance to compete with other livestock exporting nations.
- Importers have little information on how animals are produced: There is a need to see what level of auditable assurances of production standards can be achieved, even if in well-defined production systems or compartments.
- Disease surveillance is very weak in most HoA countries: There is a need to define export production systems with known disease status based on robust disease surveillance.

Mediation, knowledge sharing and communication

Inadequate dispute mediation can lead to unnecessary trade restrictions. A better platform is required to discuss, define and mediate SPS requirements as well as to identify and address gaps. This should be permanent and involve and be acknowledged by all importers and exporters. This would also provide a forum for communicating wider matters concerning the export of livestock and their products. It would also achieve and promote greater transparency and dialogue.

Such a body could also facilitate systems for regional communication of shipments and certification status, analogous to the EU TRACES system. It could also facilitate audit inspections and the development and harmonisation of standards.

Animal welfare

Transport and husbandry should meet international standards of animal welfare, verification of this could be incorporated in the certification process.

Auditing and enforcement

Internal, external and importing country audits are limited and there is sometimes a lack of trust in the results of audits. There is little involvement of third-party auditors who are trusted by all parties. Audits are essential if standards are to be maintained and a trustworthy certification process operated. Where standards are not met the exporting authorities must take action to ensure that substandard commodities are not certified and exported. This is essential for effectiveness and credibility.

The existence of unregulated and illegal exports undermines efforts to sustain this trade route, but doubtless provides valuable income to those participating. Thought needs to be given to how to include these producers and traders in the formal export process, whilst restricting and stopping illegal exports.

Financing

While improving sanitary standards, systems need to be developed in so they do not exclude smallholders from improved health assurance and export market access. This needs to be considered as part of the solution for preventing illegal exports. Additional certification comes at cost. How this is to be captured needs to be considered. Increased market access and resulting returns need to justify investments made.

1.2.4 Informal trade

Livestock trade represents an economic success story in the Horn of Africa. Annual exports from the HoA are estimated at close to USD 1 billion (Catley et al., 2013). Around 50-60% of livestock from northern Somalia (including Somaliland) are informally sourced from Ethiopia and they often follow trade corridors based on clan relations (Umar and Baluch, 2007).

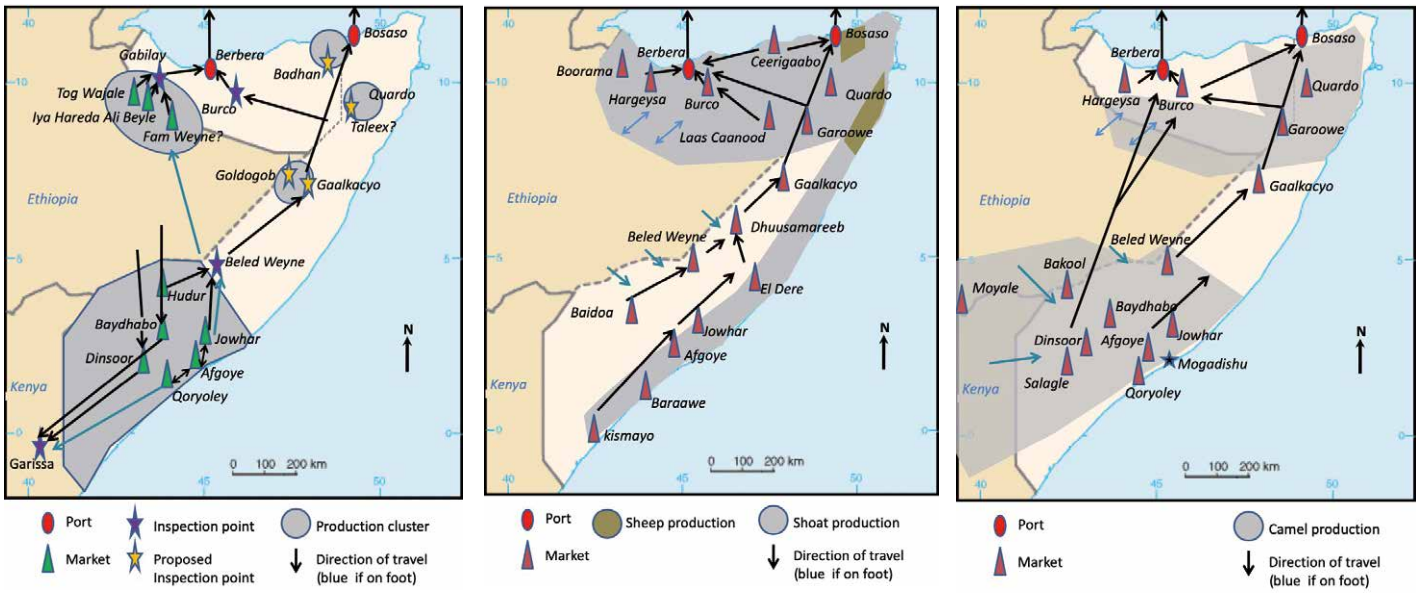
This informal cross-border trade is critical to the formal export business in Somalia where more than 4 million live animals are exported in some years (Little et al., 2015). The destination market is mainly the Arabian Peninsula countries and is heavily concentrated during the annual Haj season. The trade also contributes to a large HoA import business as many export traders either sell foreign exchange to importers or themselves import food, clothes and other products through Somali ports. Many of these products are then informally traded across the border to Ethiopia.

The loss of tax and market revenues to Ethiopia due to informal cross-border trade has been a strong point of contention both to the government and official livestock exporters. The latter group complains that they cannot compete with the informal market prices, have problems sourcing animals for their export abattoirs, and are unable to fill shipments because of informal market flows across borders. In an attempt to work with informal traders, the Ethiopian government has licensed and permitted some large wholesalers to bring in critical food products, such as wheat flour and cooking oil, at little or no tax and to allow licensed Ethiopian traders to sell a small number of livestock (equivalent of 60 small stock or 6 cattle per month) at border markets (Desta et al., 2011). Despite these efforts, the number of livestock allowed to be traded is very small and informal movements of large numbers of livestock continue. The Ethiopian government has resorted to harsher sanctions, such as large fines and arrests, to try and deter the informal livestock trade to Somalia.

Once in the Arabian Peninsula, animals apparently pass across borders into neighbouring countries, by-passing additional checks. When stricter trade restrictions or bans are in place affecting formal trade, more animals are exported illegally via unregulated routes. Furthermore, a proportion of livestock exported with formalised export checks via the quarantine stations will have originated in neighbouring countries in East Africa and enter the country from where they are exported without checks or traceability. Again, this contrasts with a farm to fork approach where the conditions and holding of production are also considered and certified. Such an approach is challenging in pastoral communities, widespread in East Africa, where geographically defined holdings are not registered. This is particularly challenging when animals migrate across international borders during the production phase, as part of the husbandry system (Knight-Jones and Yrjö-Koskinen, 2010b, 2010a).

This cross-border movement is illustrated in the outline of routes used for animals going for export from Somalia to the Arabian Peninsula shown in Figure 1.2.

Figure 1.2. CATTLE, SHEEP AND GOATS AND CAMEL TRADE ROUTES FOR EXPORT FROM SOMALIA, 2010
Reported by Somali veterinarians during a SOLICEP workshop. In 2010 the main markets for cattle were reported to be Yemen and Kenya then Egypt, for sheep and goats Saudi Arabia and then Yemen and Oman, and for camels Saudi Arabia, then Egypt (Knight-Jones and Yrjö-Koskinen, 2010a).



Standards of animal welfare were reportedly extremely low for unregulated exports, with animals allegedly sometimes having to swim to shore, having been offloaded at sea (Knight-Jones and Yrjö-Koskinen, 2010a, 2010b).

In recent years the export trade from the Horn of Africa, especially Somalia, has been strongly impacted by import bans due to animal diseases, especially Rift Valley Fever (RVF). This greatly affected the informal and formal trade in the 2000s, most recently during 2017-2018. Because of the lack of formal public veterinary institutions, the trade from Somalia was especially impacted by the bans.

The short-to-medium benefits of informal trade are significant in terms of greater food security, reduced food price instability, increased income, and employment opportunities. Many of the beneficiaries are from vulnerable groups such as women and pastoralists. In the long-term, however, informal trade has disadvantages. Informal trade reduces government revenue, obscures data helpful for economic and livestock sector development, escapes sanitary and phyto-sanitary (SPS) inspection and thus facilitates both entry of transboundary diseases (TADs) and products harmful to (public) health, and contribute to overall poor governance.

Informal livestock trade may be largely ignored by authorities, implicitly encouraged, made less attractive, forcibly suppressed, or actively engaged with in an attempt to mitigate its risks and enhance its benefits. In order to identify the optimal management approach, countries need to understand the importance and characteristics of informal trade, its benefits and risks and the feasibility and cost-effectiveness of different strategies to address it. Actions appropriate for a small, rich, island nation with good animal health status might be unsuitable for a large, poor country with a long porous border separating countries of similar low animal health status.

Attempts to curb informal trade through legislation and enforcement have had mixed success and have been plagued by unintended and undesirable consequences. For example, rapid reporting of livestock disease to authorities followed by rapid response is the most effective way of dealing with disease incursions (Grace, 2014). However, antagonistic relations between traders and officials will often discourage disease reporting.

Where cattle rustling is carried out by terrorist groups, it may be considered organised transnational crime requiring military intervention. When livestock move along age-old trade routes established before the borders themselves, a different response is required. Rather than use of force, there is increased interest in improving border security by performance management and reducing corruption. This can include training, use of technology, and attempts to change culture. The World Bank's Charter for Cross-Border Traders sets out a basic set of rights and obligations for traders and officials (Koroma, Nimarkoh, You, Ogalo, and Owino, 2017). It also includes a credible complaints mechanism for traders, where violations can be reported via toll-free hotlines (Soprano, 2014).

Many studies have concluded that, especially when countries lack the resources or motivation to impose punitive measures, it is better to make formalisation attractive to traders by way of incentives, rather than to use force to disrupt it. Providing market infrastructure in an attempt to encourage formal trade has been a popular intervention especially in East Africa. This has included installing weigh bridges and establishing holding and quarantine grounds. However, marketing infrastructure is rarely mentioned as a priority by farmers and traders and on the ground and studies find they are rarely used as intended or maintained (COMESA, 2019).

There has been more success in making compliance easier. COMESA is supporting a Simplified Trade Regime, reducing the cost of compliance for low-value transactions. It is also funding Trade Information Desks which assist traders in crossing borders.

In another example, traders from Kazakhstan are allowed visa-free entry for one day into China and do not have to pay duty on small amounts of goods. Better co-ordination of animal health requirements across borders can also facilitate formal trade as stakeholders are not required to meet different requirements or complete redundant forms.

Technologies can lower the cost of formalization. Market information can be made available by mobile phone. They can help improve accountability. For example, the digital platform https://www.tradebarriers.org allows stakeholders to report and monitor responses to problems they encounter while conducting regional trade.

Better disease control would reduce risk for the livestock trade and have many other benefits in improving productivity and supporting human health and nutrition. This can be supported by progressive control of transboundary disease. The eradication of rinderpest is a notable example but there are also initiatives to better manage foot-and-mouth disease and peste des petits ruminants.

Another strategy is for authorities to promote trade of less risky products. Informal export of frozen carcases is much less risky than informal export of live ducks (Meyer et al., 2017).
Likewise, the installation of quarantine stations in the 2000s, supported the re-establishment of trade between the Horn of Africa and the Arabian Peninsula.

1.3 Constraints to the implementation of OIE standards - Evidence from an OIE technical item

The second source of evidence was an OIE technical item. These are papers which the OIE commissions from leading experts on topics of importance to Veterinary Services. Some technical items involve sending a questionnaire to all OIE Members. Technical items are presented at the annual OIE General Session and reported the subsequent year.

The OIE technical item for 2018 addressed the implementation of the OIE standards for international trade to identify and analyse factors that limit implementation and make recommendations on how the OIE could help Member Countries to overcome these difficulties (Kahn, 2018). Relevant information from this survey was extracted and used.

This section covers:
- Challenges when setting import measures perceived by Member Countries in the Arabian Peninsula (AP) region
- Challenges to accessing export markets as perceived by Member Countries in the Horn of Africa (HoA), as well as suggestions for addressing these.
- Current status of implementation of standards by Member Countries in the AP and the HoA regions benchmarked with top exporters and implications for capacity development needs. The top exporters are the world's top four exporters of livestock products (Brazil, India, the United States of America and Australia).

1.3.1 Constraints reported by importing countries (Arabian Peninsula)

Technical capacity is a key constraint to setting import measures

As perceived by countries in the Arabian Peninsula, the main challenges to the use of OIE standards when setting sanitary measures for the import of commodities relate to human capacity. It is also interesting that other potentially important constraints such as lack of an appropriate legal framework or lack of awareness of OIE standards, guidelines and recommendations are not considered to be top constraints by any country.

Table 1.4. PROPORTION OF AP COUNTRIES CONSIDERING A CONSTRAINT TO BE AMONG THE TOP THREE IMPEDIMENTS TO USING OIE STANDARDS IN IMPORTATION

Constraint	%
Insufficient human resources, including their technical capacity and capability	80
Lack of expertise in risk assessments	80
Insufficient financial resources	60
Failure of exporting countries to implement OIE standards	40
Appropriate legal framework is not in place	0
Regulatory process is complex / lengthy	0
OIE standards and recommendations not well known / understood	0
Political or commercial considerations	0

A similar, but more specific question asked countries to identify the challenges their country faced when performing an import risk analysis intended to set sanitary measures for the import of commodities. Again, technical challenges related to lack of human capacity were most prominent.

Equivalence of sanitary measures and regionalisation

Equivalence is a key principle of the SPS Agreement: it means that, providing they attain an *appropriate level of protection* (ALOP), exporting countries can have different sanitary measures from those in place in importing countries. That is, if the outcome is the same, the means to get there may differ. While technical capacity still ranked in the top three constraints, the overall top constraint for countries in the Arabian Peninsula to accept equivalence with other countries was lack of transparency and communication from the exporting countries.

Table 1.5. PROPORTION OF AP COUNTRIES CONSIDERING A CONSTRAINT TO BE AMONG THE TOP THREE IMPEDIMENTS TO ACCEPTING EQUIVALENCE

Constraint	%
Exporting country is not sufficiently transparent / does not provide the information that is needed.	80
Inadequate human resources by importing countries, including their technical capacity and capability	60
Lack of guidance from the OIE	60
Inadequate financial resources of importing countries	20
National legislation does not allow for the recognition of equivalence (e.g. requires that exporting country is disease free)	20
Political or commercial considerations	0

Regionalisation (or zoning) is based on the principle that geographical sub-populations of animals may have a lower disease prevalence than the general population, and so can be safely imported even if there is disease of concern in a country. Arabian Peninsula countries also considered deficiencies by exporting countries to be a top constraint to using this mechanism. However, joint top was reluctance of decision makers to accept imports from infected countries and doubts regarding the transparency of the exporting country.

Table 1.6. PROPORTION OF AP COUNTRIES CONSIDERING A CONSTRAINT TO BE AMONG THE TOP THREE IMPEDIMENTS TO ACCEPTING REGIONALISATION

Constraint	%
Exporting country is not sufficiently transparent / does not provide the information that is needed	100
Reluctance of decision-makers to accept importation from infected countries despite scientific acceptance of the application of zoning or compartments*	100
Lack of guidance from the OIE	40
National legislation does not allow recognition of zoning/ compartmentalisation (e.g. requires that exporting country is disease free)	20
Political or commercial considerations	0

*zoning (or regionalisation) applies to an animal sub-population defined on a geographical basis; compartmentalisation applies to an animal sub-population defined by management practices relating to biosecurity

Lack of SPS capacity

Countries in the Arabian Peninsula also indicated the importance of training to better understand and implement OIE standards for trade. There was little difference in the importance allocated, although topics most directly related to the implementation of standards for import were uniformly considered of high importance (especially OIE standards, veterinary legislation, import risk analysis, and safe trade) (**Annex 3**).

1.3.2 Constraints reported by exporting countries (Horn of Africa)

Compared to the relatively narrow range of challenges perceived by importing countries, countries from the HoA perceived a broader and perhaps more difficult to address set of constraints to accessing export markets. The most important was lack of identification and traceability for animals and animal products. While insufficient financial resources are difficult to address in a resource-constrained context, lack of private sector capacity and deficiencies of veterinary legislation are more remediable.

Also, of interest, are those issues which no country from the AP considered in the top three priorities. These included animal welfare and failure of the importing countries to implement OIE standards.

Table 1.7. PROPORTION OF HOA COUNTRIES CONSIDERING A CONSTRAINT TO BE AMONG THE TOP THREE IMPEDIMENTS TO ACCESSING EXPORT MARKETS

Constraint	%
Inadequate systems for identification and traceability of animals	80
Insufficient financial resources for the delivery of governmental services	60
Lack of capacity of private sector to comply with importing country requirements	60
Lack of or outdated veterinary legislation	60
Insufficient human resources for the delivery of governmental services	40
Inadequate infrastructure for disease surveillance and diagnostics	40
Inadequate biosecurity measures	40
Difficulty to achieve and maintain disease free status because of inability to sanitary situation from neighbouring countries	40
Ineffectiveness of communication, in particular around disease outbreaks or failures of control systems	20
Lack of effective public- private partnerships	20
Difficulty to achieve and maintain disease free status because of wildlife sanitary situation	20
Inability to implement compartmentalisation	20
Veterinary Services / Aquatic Animal Health Services cannot fully enforce legislation	0
Inability to assure the delivery of veterinary certification (e.g. credibility or systems are lacking)	0
Inability to implement zoning	0
Inability to comply with animal welfare requirements of importing countries	0
Inability of the private sector to comply with private specifications of importing companies	0
Failure of importing countries to implement OIE standards	0

Lack of capacities

Countries in the Horn of Africa also indicated the importance of training in different areas in the context of better understanding and implementation of OIE standards. There was most interest in topics directly related to the implementation of standards for conventional export (e.g. as opposed to the more innovative mechanisms such as zoning or compartmentalisation).
Countries also indicated how useful they found current use of different media or modalities for conveying information on standards.

All considered that guidelines were very useful. In addition, a majority considered seminars for OIE focal points, seminars for OIE delegates, workshops and training activities to be very useful. OIE focal points are subject matter specialists (e.g. wildlife, aquatic diseases), working within or outside the Competent or Veterinary Authority, but interacting with the OIE under the authority of the OIE Delegate.

Countries report a high need for training across a broad range of subjects. However, training related to conventional trade is especially prioritized. A range of training modalities are found "very useful" by most countries including guidelines, seminars and workshops.

1.3.3 Situational analysis of implementation of standards in the Arabian Peninsula and the Horn of Africa countries

This section provides insight into perspectives of countries in the HoA (exporters) and AP (importers) on the implementation of OIE standards. In addition, we compare responses of these regions with those of the top four exporters of livestock products (Brazil, India, the United States and Australia), as a type of benchmarking (hereafter called "top exporters").

Consistency with Sanitary and Phyto Sanitary Agreement (SPS)

The SPS Agreement sets out detailed rules on how governments can apply least trade restricting measures related to animal health and food safety. When countries impose sanitary measures that are not consistent with SPS principles, there is a risk of trade disruption, which can lead to disputes between countries. While 50% of top exporters say staff responsible for setting sanitary measures receive training on SPS, only 20% of AP and 20% of HoA countries report that staff receive training.

Factors considered when setting sanitary standards for imports

Compared to top exporters, countries in the HoA and AP take more factors into consideration when setting health standards for imports. It is not clear what methods are being used and whether they can accurately estimate these factors. While it is important to consider a wide range of possible unwanted consequences of import, this may also lead to "paralysis by analysis."

Table 1.8. PROPORTION OF COUNTRIES CONSIDERING DIFFERENT FACTORS WHEN SETTING SANITARY STANDARDS FOR IMPORTS

	AP	HoA	Top exporters
Risk of introduction of OIE listed diseases	80	100	100
Risk of introduction of other diseases	20	80	100
Risk of food-borne hazards	80	100	100
Risk of entry of pest or disease that could affect the environment	60	80	75
Economic or commercial costs or benefits	60	60	50
Introduction of genetically modified organisms (GMO)	60	60	25
Effects on biodiversity	60	80	25
Animal welfare	60	60	0
Special arrangements for less developed countries	40	40	0

Photo K. Dhanji/ILRI

Trigger to initiate development of import sanitary requirements for a new commodity or a commodity from a new country

Compared to top exporters, there are fewer pathways to initiate development of sanitary requirements in countries in the AP and HoA. However, once initiated in these countries, new sanitary requirements (from a country already approved), took less than a year to set up which compares well with top exporters (one quarter of which took more than one year). In general, AP and HoA countries had less use of information resources in setting, or when developing, sanitary measures for imports than top exporters.

Use of equivalence by competent authorities

Equivalence is a key principle of the SPS Agreement: it implies that, providing they attain an appropriate level of protection, exporting countries can have measures of attaining this level of protection that differ from those used by importing countries. Overall, 75% of top exporters, 60% of AP countries but only 20% of HoA countries reported the Competent/Veterinary Authority has the mandate to use equivalence as the basis for setting import requirements.

Use of risk analysis in trade

Risk analysis is the gold standard method fundamental to trade. All countries use risk analysis, but top exporters were much more likely to report this was required by law or a legal instrument (75% versus 20% for AP and HoA countries). While half of the top exporters made their procedures for risk analysis publicly available, none of the countries in the AP or HoA did. They also had much less systematic consultation with private sector stakeholders and less opportunity for exporters or foreign governments to give inputs into setting standards.

Table 1.9. PROPORTION OF COUNTRIES OBTAINING INPUTS FROM OTHER STAKEHOLDERS WHEN SETTING SANITARY MEASURES

	AP	HoA	Top exporters
Systematic consultation with private sector	0	20	50
Inputs from exporters or foreign government	20	0	50

Photo K. Dhanji/ILRI

Official disease status, zoning and compartmentalisation

Zoning and compartmentalisation (regionalisation) are based on the principle that sub-populations of animals may have a lower disease prevalence (or outright disease-free status) than the general population, and so can be safely imported even if there is disease of concern in a country. Zones are usually defined according to geographical and physical features, while compartmentalisation depends on management controls. "Safe commodities" are those that can be considered to present negligible risk under certain conditions and hence trade in these is considered "safe trade."

Countries from the AP and HoA were more likely to accept OIE official disease status without doing additional checks than were top exporters. They were also more likely to authorize imports from disease free zones given that an exporting country applies OIE recommendations on zoning for diseases and they were also more likely to fully accept OIE recommendations on safe commodities (also referred to sometimes as *commodity-based trade*). They were, however, less likely to have protocols for the importation of commodities from a disease-free compartment.

In terms of facilitating market access, the most useful mechanism was official OIE disease status. Perhaps surprisingly, top exporters considered that having exporting countries self-declared disease-free status published by the OIE was less important. Top exporters were also less likely to consider *Performance of Veterinary Services* (PVS) reports when negotiating export access.

Table 1.10. PROPORTION OF COUNTRIES RECOGNISING DIFFERENT MECHANISMS INTENDED TO FACILITATE TRADE

	AP	HoA	Top exporters
Acceptance OIE diseases status without more checks	100	80	50
Acceptance of disease-free zones for all diseases	40	40	25
Fully consider OIE recommendations on safe commodities	80	80	50
Protocols for importation from compartments	20	20	50
Importer considers it is very important for exporting country to have an official OIE disease status	100	100	50
Importer considers it is very important for country to have self-declared diseases status published by OIE	80	80	25
PVS report always used when negotiating export access	20	20	0

Veterinary health certificates

Most importing countries require that the animal or animal product being imported is accompanied by an official health certificate from the competent authority (CA). It is interesting to note that top exporters are less restrictive compared to AP and HoA regions as regards who can sign official certificates. This may illustrate a general problem with trust or more hierarchical organisational structure and culture (or less developed private veterinary sector or reluctance to allow official procedures to be carried out by those other than government employees).

Table 1.11. PROPORTION OF COUNTRIES RECOGNISING DIFFERENT POTENTIAL AUTHORISING AGENTS FOR HEALTH CERTIFICATES WHICH ACCOMPANY ANIMALS OR ANIMAL PRODUCTS BEING EXPORTED

	AP	HoA	Top exporters
Only the Chief Veterinary Officer	0	60	0
A few specifically designated official veterinarians employed by the Veterinary Authority	80	60	50
A few specifically designated officials employed by the Aquatic Animal Health Services (AAHS)	60	40	0
All official veterinarians employed by the Veterinary Authority	0	0	50
Private veterinarians officially approved or accredited by the Veterinary Authority or AAHS	0	0	25

Transparency

Notification to the WTO when establishing sanitary measures is commonly practiced, but while all top exporters said they did this, a minority of countries from the AP and HoA said they did not know if they did this (possibly due to notifications being made by a different Ministry).

While half of the top exporters made approved import sanitary requirements and veterinary health certificates available to the public on an official website, none of the AP or HoA countries did this.

While three quarters of top exporters reported that they made sanitary conditions for access to export markets available to the public on a website, only one HoA country, and no AP country, did this. Rather conditions were available on request.

Dispute resolution

Countries used multiple mechanisms to resolve disputes with trading partners. Overall, bilateral processes were found to be the most useful. However, top exporters were more likely to find WTO processes very useful whereas countries in the HoA and AP were more likely to find OIE-mediated processes very useful than were top exporters. However, although AP and HoA countries reported the OIE informal dispute mediation procedure as useful, this procedure has not been used by countries in these regions, suggesting that the respondents see it as "potentially" very useful. OIE headquarters or regional representations have been involved in disputes involving countries from these regions.

Table 1.12. PROPORTION OF COUNTRIES FINDING DIFFERENT PROCESSES FOR TRADE DISPUTE RESOLUTION TO BE VERY USEFUL

	AP	HoA	Top exporters
Bilateral processes (technical, political, other)	60	100	100
Mediation procedure of a Regional Community e.g. under a regional trade agreement	20	0	25
Involvement of OIE headquarters or regional representations	40	40	0
OIE informal dispute mediation procedure (Code Article 5.3.8)	40	60	0
WTO SPS committee – specific trade concerns or informal bilateral consultations	0	20	50
WTO Dispute Settlement Procedure	0	20	50

In the case of the HoA countries, lack of use of WTO dispute mediation processes was largely driven by perceptions of cost and complexity; in the case of the AP countries it was mainly driven by lack of legal and scientific expertise. Countries also identified the specific constraints with trade dispute resolution (Annex 3).

1.4 PVS evaluation insight into trade constraints

The OIE has developed the Performance of Veterinary Services (PVS) Pathway as its flagship capacity building platform for the sustainable improvement of national veterinary services. Trained and certified PVS experts can carry out OIE PVS pathway missions. All experts use standard tools and manuals, prepared and published by the OIE Headquarters.

The PVS Tool describes 45 Critical Competencies of Veterinary Services, categorized into four Fundamental Components:

I. Human, physical and financial resources
II. Technical authority and capability
III. Interaction with stakeholders
IV. Access to markets

Since the inception of the PVS in 2007, experts have conducted more than 350 PVS missions. Some countries have had multiple assessments. Except if the country has wished otherwise, all PVS assessments are available to the public.

We identified 16 PVS mission reports from five importing countries (AP) and seven exporting countries (HoA). From these we extracted information relevant to countries ability to import and export. These are summarised below, and individual, anonymised reports are provided in **Annex 4**. The recommendations are used to infer the constraints they are dealing with and these are presented in the final section.

Table 1.13. SUMMARY OF THE KEY CONSTRAINTS FOR EXPORTERS AND IMPORTERS The table reports the number of countries receiving these recommendations in PVS reports.

Recommendation	HoA	AP
PVS Reports: Number of countries assessed	7	5
Financial and human resources		
An intensive planning exercise would be necessary to align operational needs with national policies for disease control and other national policies	2	0
Provision should be made within the annual budgets to earmark a dedicated amount for emergency funding or alternatively have a standing arrangement with national Treasury to have such funds be made available on emergency request	5	5
Develop a policy that mobilises the livestock disease surveillance and reporting potential of community based veterinary auxiliary personnel	2	3
Communication and stakeholder participation		
Develop and implement comprehensive annual communication plans to ensure that all stakeholders are kept informed of important events and programmes and that stakeholders are given the opportunity to become more involved with developing animal health, veterinary public health and animal welfare programmes	4	5
DVS should expand and regularly update the content on its website	2	1
Convene cross-border meetings	1	0
Technical authority and capability – infrastructure and operations		
Establish agreements with international laboratories for confirmation of clinically suspected diseases of national economic importance and new and emerging diseases in the region	2	2
Computerize, and link to a central database, the recording of samples, results of tests and reporting of findings	1	0
Develop contingency plans for priority animal diseases	2	5
International harmonisation and written agreements	5	5
Technical authority and capability - Regulation/legislation		
Institute an administrative control and verification system at province and district level regarding enforcement of veterinary legislation and compliance thereof	4	5
Centralisation of animal disease control (chain-of-command)	2	5
Accelerate the development of adequate procedures for the traceability of animals and animal products	4	3

1.5 Stakeholder consultations insights on constraints to trade

We interviewed key stakeholders including regulators, private sector, international governmental organisations and non-governmental organisations (see Annex 5). Some of these took place during the OIE General Session in Paris in May 2019, others during a mission to Oman in June, 2019, and still more in Kenya and Ethiopia in July and August 2019.

We have removed identifying information and summarise the findings in the three tables below. These capture the views of individual stakeholders, which are not always in agreement or aligned with the literature. In some cases, stakeholders did not provide full information (e.g. proposed a solution without necessarily identifying a constraint) and this is represented by empty cells.

The interviews with stakeholders revealed some common themes, some differences between stakeholders and areas of further investigation or clarification.

1.5.1 Consumer and demand issues

Donors and AP importers tended to emphasise consumers more, especially the demand for meat from the Horn. The major competitors of live animals from HoA were mentioned:

- Locally produced animals in the AP which are often preferred for cultural reasons as well as freshness and perceived quality and safety, but supply is limited
- The innovation of fresh vacuum-packed (long shelf-life) sheep, goat and bovine meat from New Zealand, Australia predominate in the high-end supermarkets. They have high traceability, perception of high quality and safety, and can be sold fresh.
- Frozen imported meat is available especially in lower-end supermarkets. It is sold in small amounts at a lower price than fresh meat and is not preferred
- Millions of expatriates from India, Bangladesh and Pakistan are fuelling the demand for "their country of origin meat" – often fresh vacuum packed
- Small amounts of fresh, not vacuum packed, short shelf-life meat is exported from east Africa

The major advantage of HoA live animals relative to competition were their freshness (because killed in AP); perceived natural, extensive rearing system; price attractive to lower middle class; trade was profitable to middlemen. The major disadvantages were concern over diseases in Africa; lack of traceability; perceived not as high quality or safe as premium products. Poor animal welfare was noted by several interviewees but not seen as major current concern of consumers.

1.5.2 Regulations, standards, enforcement issues

Several stakeholders (international organisations and private companies in HoA) identified lack of standards, lack of information about standards, and lack of harmonisation of standards as a problem. On the other hand, veterinary service stakeholders noted a commitment to OIE processes and that they were followed closely.

Moreover, several projects have addressed harmonisation. Other stakeholders mentioned "standards plus" that is, there is a core of harmonised standards, but importers can also add additional standards. It was also reported that while processes and standards around export of live animals were clear, there was less information and harmonisation for standards around food and for veterinary drug product registration.

There were some concerns about the implementation of standards and enforcement of regulations. For example, some stakeholders suggested that animals are not always kept for the full 21 days in quarantine in Somalia. It was known that animals were sometimes landed illegally from small boats. It was also known that there was much informal movement of animals in HoA and AP. There was also

some tension between public and private sector, with some private sector stakeholders and international organisations fearing that excessive, and poorly implemented regulations could hamper trade; that the public sector lacked capacity; and that there was undue influence by some powerful actors. On the other hand, the public sector was concerned that the private sector actors had incentives to cut corners. However, several public sector interviewees also recognised a lack of technical skills, training, laboratories, diagnostics and under-staffing were problems.

1.5.3 Market performance

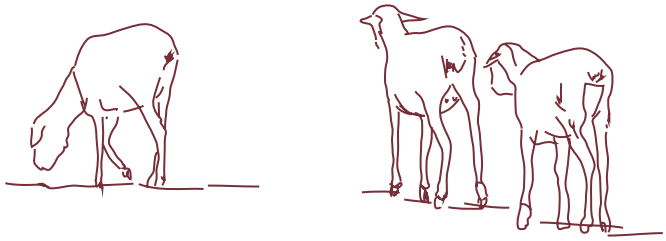
Many stakeholders pointed out challenges to market performance. Although there were some large and well performing quarantine stations, other quarantine stations and markets were inadequate.

Boats for animal transport were also often unsatisfactory and lack of deep harbours could lead to delays in unloading. There was also a lack of information on different markets, how to access them and costs and benefits of doing this. There was a perception that some parts of the markets were tightly controlled, and powerful actors did not allow entry. There was a lack of financial instruments to help markets function, such as loans and warranties.

1.5.4 Sector level

Many stakeholders pointed out that the high poverty and low development in the HoA presented broad challenges.

Many farmers were poor, not well organised, and lacked access to inputs needed for profitable farming including genetic resources; animal feed; health inputs; financial support and knowledge and information. High levels of disease were present, and control was inadequate. General infrastructure was limited especially in the HoA including roads, electricity, sanitation and communications.



1.6 Insights from workshops on constraints to trade

1.6.1 Summary of constraints from 2010 workshop for livestock stakeholders in animal health certification between Somalia and AP

As part of the SOLICEP project looking at Somali livestock export certification, AU-IBAR organized a workshop with key players from HoA and AP (2-3 August 2010, Dubai). This included Chief Veterinary Officers from AP countries (Saudi Arabia, UAE, Qatar, Kuwait, Yemen, Jordan, Egypt, Syria and Lebanon) and HoA countries (only Ethiopia and Somalia), veterinary officers from quarantine stations in AP and Somalia, traders from both HoA and AP, Somali business and investment councils, OIE, FAO, AU-IBAR, COMESA, USDA, Allana, Saudi-Emirates Quarantine and Djibouti quarantine. The workshop came up with recommendations still relevant today, these are shown in the table below with the associated constraints.

Table 1.14. RECOMMENDATIONS MADE DURING A WORKSHOP FOR LIVESTOCK STAKEHOLDERS IN ANIMAL HEALTH CERTIFICATION BETWEEN SOMALIA AND AP (2-3 AUGUST 2010, DUBAI)

Recommendation	Constraints
Enhance transparency, trust and accountability in animal health certification processes including identification of animals, disease reporting to AU-IBAR, FAO and OIE and information sharing with importing countries (veterinary authorities from exporting and importing countries)	Lack of transparency (HoA and AP)
	Lack of trust (HoA and AP)
	Lack of accountability (HoA)
	Inadequate certification (HoA)
	Inadequate identification and traceability (HoA)
	Inadequate disease reporting (HoA)
Transportation by road, sea and air for livestock, should observe international animal welfare standards and sanitation including disinfection and insecticide application (carrier)	Inadequate animal welfare (HoA)
	Inadequate application of sanitary standards, including control of vectors (HoA)
Importing countries have a right to inspect veterinary services of the exporting country and quarantine facilities in line with the OIE guidelines (exporting and importing countries)	Importing authorities cannot adequately inspect exporting authorities and quarantine process (HoA)
The Ministries responsible for veterinary services for the exporting countries should be strengthened to take the responsibility to supervise and regulate the quarantine operations and certification to ensure continuous upgrading and validation of the systems (veterinary authorities and development partners)	Weak veterinary services (HoA)
	Inadequate regulation of export quarantine processes and certification (HoA)
	There is a need for continuous improvements to meet increasing sanitary standards (HoA)
Continuous communication at all levels between the exporting and importing countries should be strengthened and sustained with the involvement of the stakeholders (importing and exporting countries and all stakeholders)	Need for better communication between importing and exporting countries (HoA and AP)
	Need for improved stakeholder engagement (HoA and AP)
Efforts to harmonise transboundary disease control at the regional level should be strengthened (veterinary authorities, regional and international organisations)	Lack of harmonisation of regional disease control policy (HoA and AP)
Need to develop a protocol to harmonise the pre, during and post importation systems pertaining to animal health and welfare between the exporting and importing countries (importing and exporting countries)	Lack of harmonisation of export health and welfare requirements between importing countries (AP)
The participants recommended to have such a meeting annually	Need for better communication between importing and exporting countries and stakeholders

1.6.2 Summary of constraints from a COMESA workshop

Team members were able to join the COMESA workshop on the "Participation of enterprises involved in live animal and meat trade in the regional and international markets" held in Addis Ababa in July 2019, administering a short questionnaire about the most critical constraints for livestock trade.

Some constraints were directly related to SPS, others were under the responsibility of veterinary services but required contributions from other actors for success, others were not under the control of state veterinary services but could affect their ability to support trade. The selection of the 13 attributes was based on findings from PVS assessments, interviews with key informants, and literature review. Respondents were presented with a set of 13 choice cards. Each card included a set of 4 attributes that was thought to constraint the exports of livestock trade. The respondents were requested to indicate in each case the most and least important attribute that influences the export of livestock. Further details are given in **Annex 6**.

The results of the Most-Least questions are summarized in **Table 1.15** The maximum number of times an attribute could be chosen as most important or as least important is 48 (12 x 4). The most important attributes affecting livestock exports were "identification and traceability" (ranked 1st), "Compliance with legislation and regulations" (2nd), and "animal disease" (3rd), and "Epidemiological surveillance" (4th).

Table 1.15. MOST-LEAST SCORES AND RANKING OF THE 13 ATTRIBUTES

Attribute	Most	Least	Ranking
Identification and traceability	16	1	1
Compliance with legislation and regulations	20	4	2
Animal disease	25	8	3
Epidemiological surveillance	12	4	4
Quarantine and border security	15	7	5
Participation of producers and other stakeholders	12	7	6
Lack of infrastructure (road, marketing, shipping)	13	12	7
Low quality/inefficiencies of vaccines and livestock drugs	9	13	8
Poor governance and poor performance by authorities involved in trade	6	14	9
Veterinary laboratory diagnosis	6	17	10
Lack of information related to marketing	6	17	10
Climate change	7	24	12
Communications	2	21	13

The least important attributes were "communications", "climate change", "veterinary laboratory diagnosis" and "lack of information related to marketing". The results indicate that for livestock exporting companies, SPS-related constraints are in general more important/constraining compared to marketing and other related factors including climate change.

1.6.3 Constraints to trade identified at a stakeholder workshop led by the project team

A stakeholder workshop with regional experts was held in Nairobi in September 2019 to, among other things, review and agree the critical constraints to safe trade in livestock and livestock products among OIE members in the Horn of Africa and the Arabian Peninsula. Participants brainstormed to identify the three main problems faced by four main groups of actors. These are shown in the table below.

Table 1.16. CONSTRAINTS TO TRADE IDENTIFIED IN A WORKSHOP IN NAIROBI

Actor group	Constraint
Consumers	Quality of products
	Pricing
	Food safety
	Origin (traceability)
Traders	Supply - quantity and quality
	Seasonality of demand
	More stringent SPS requirements
Producers	Weak extension / input services (feed, animal health, artificial insemination services)
	Weak market access (brokers) + market infrastructure
	Price fluctuations
	Increase the supply of good quality animals
Regulators	Illegal trade
	Non-compliance and awareness across the value chain*
	Diversity of import standards*
	Capacities of regulators*
	Lack of transparency (trade bans), disputes

*most fixable

In a second exercise, participants were asked about the 4 most critical challenges hampering safe trade and the application of OIE international standards. The challenges and some of their impacts were identified (see Table 1.17).

Table 1.17. PRIORITY CHALLENGES TO TRADE AND THEIR IMPACTS

Challenge	Impacts	
Lack of competitive supply of livestock in terms of quality and quantity	Competitors from other countries and regions dominate	
Lack of awareness of standards by actors	Rejection of shipments Bans	Loss of markets
Lack of capacity to implement standards	Bans Weak vet system (services) Lack of trust	Informal trade Poor animal welfare Disease burden
Outdated legislation in some countries	Weak enforcement High disease burden	Low level of trust Loss of markets
Magnitude of informal trade	Undermines formal sector Loss of revenue	Spread of disease Rejection of shipments
Information asymmetries between actors	Hampers transparency Allows exploitation of those less informed	Prices fluctuate
Weak technical capacity of veterinary services	Certification failure Poor disease control	Rejection of shipments
Not enough product and market diversification	Over-dependency on certain products sold to limited markets	
Lack of market-oriented production	Supply fluctuation Compromised standards	Poor compliance
Limited fragmented private sector	Poor service delivery	High level informal trade
Poor infrastructure	High transaction costs Illegal trade	Poor compliance
Weak veterinary governance	High disease	Limits market access
Increasing SPS requirements	Bans	Rejection of shipments
Climate change		

Photo K. Dhanji/ILRI

1.7 Conclusions

For this workstream, we synthesised the five streams of evidence to identify the major constraints and explore the perception of constraints between the different regions. The importance of a constraint is only one factor in prioritising an intervention, and workstream two builds on identified constraints to consider possible solutions. From the five streams of evidence, we identified 35 constraints clustered under four themes (Table 1.18). Many of these constraints directly imply solutions: for example, lack of traceability can be addressed by better traceability.

Table 1.18. SYNTHESIS OF CONSTRAINTS ACROSS FIVE STREAMS OF EVIDENCE

Theme	Constraint
Governance, trust and communication	Lack of transparency, trust in safety and quality of trade
	Lack of trust in quarantine duration, performance, transparency
	Lack of traceability
	Lack of certification, fake certificates
	Lack of trust in and non-reliance on official declaration
	Lack of auditing, quality assurance farm to fork
	Lack of confidence that controls will be sustained
	Inadequate use of dispute mediation mechanisms
	Significant informal trade, illegal animal movements
	Powerful groups preserving status quo and obstructing developments
	Exclusion of the poor from more formal and rigorous systems
	High transaction costs, informal payments (check points, local authorities)
	Lack of clear, direct incentives for behaviour change for all actors
Knowledge and information	Lack of SPS knowledge by public and private sector
	Lack of information on diseases in the HoA
	Lack of information sharing, participation of stakeholders
	Information asymmetries, pricing, market access
	High transaction costs to find new trading partners
Veterinary performance and SPS	Lack of human, physical and financial resources
	Lack of capacity for risk analysis, setting import testing requirements and application of SPS principles (non-discrimination, equivalence, regionalisation…)
	Failure to maintain quarantine and border security
	Poor capacity to check slaughterhouses, testing for food-borne diseases
	Insufficient laboratory testing capacity in AP countries
	Insufficient disease control (e.g. surveillance, detection, response)
	Insufficient welfare controls
	Insufficient provision for emergency funding
	Limited legislation and lack of participation in legislation
	Lack of centralization of disease control
	Inadequate contingency plans

Table 1.18. (CONT.) SYNTHESIS OF CONSTRAINTS ACROSS SIX STREAMS OF EVIDENCE

Theme	Constraint
Sector weaknesses	High level of diseases and poor animal welfare
	Sub-optimal transport (small boats, long trips)
	Capacity deficits of port and quarantine stations
	Trade infrastructure deficits in exporting countries
	Lack of access to financial instruments for livestock private sector
	Irregular supply of good quality animals (feed resources, genetics, husbandry)

Further analysis was constrained by the lack of a uniform methodology for identifying constraints, because some studies distinguished between constraints perceived by AP and HoA while other studies combined both, and because some studies focused on a subset of constraints (e.g. PVS and OIE technical item). Nonetheless, there was a broad agreement between studies. **Table 1.19** shows that studies which looked at just one region and studies which considered both came up with a similar prioritization: the most pressing constraints were improving veterinary performance and SPS implementation and increasing trust and communication. See **Annex 7** for details of approach and findings.

Table 1.19. SYNTHESIS OF CONSTRAINTS ACROSS FIVE STREAMS OF EVIDENCE. Table shows combined number of times a constraint was identified in the five evidence streams, grouped by constraint cluster and region.

	Total	AP	HoA	AP+HoA
VS performance and SPS compliance	43	10	15	18
Governance, trust and communications	48	9	15	24
Knowledge and information	15	3	5	7
Sector weaknesses	11	0	3	8

Photo K. Dhanji/ILRI

The Pareto Principle (sometimes known as the 80:20 law) holds that most of the effects are the result of a minority of causes. This implies that distinguishing between the "vital few" and the "trivial many" will allow better resource allocation. Our five studies identify just six constraints as being responsible for nearly 60% of the weights given to all 35 identified constraints (Table 1.20). Some of these constraints would be relatively simple and inexpensive to address (improving capacity for risk assessment or providing information for stakeholders). Others are much more complex.

Table 1.20. THE VITAL FEW CONSTRAINTS RESPONSIBLE FOR MOST OF THE BARRIERS TO TRADE

Constraint	Contribution to total weight of constraints
Lack of traceability	9 (8%)
Difficulty in implementing equivalence and/or regionalization	8 (7%)
Lack of trust in quarantine duration, performance, transparency	7 (6%)
Lack of information sharing, participation of stakeholders	7 (6%)
Lack of appropriate legislation and lack of participation in legislation	7 (6%)
Lack of transparency, trust in safety and quality of trade	6 (5%)
Lack of auditing, quality assurance farm to fork	6 (5%)
Lack of human, physical and financial resources including emergency funding	6 (5%)
Lack of trust in and reliance on official declaration	5 (4%)
Lack of capacity for risk analysis and setting testing requirements and application of SPS principles	5 (4%)

* The table shows the number of times a constraint was identified across the sources assessed (and as a percentage of all constraint identifications in brackets).

While this workstream focuses on constraints, it also captured suggestions to address constraints. In particular, the PVS reports are a rich resource based on in-depth country studies by experts. Moreover, the literature, OIE technical item and workshops also offer recommendations based on evidence and stakeholder insight. Some of these are captured in the appendices and they are addressed in workstream 2.

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WORKSTREAM 2

PRIORITISED INTERVENTIONS FOR SAFER TRADE IN LIVESTOCK AND LIVESTOCK PRODUCTS ACROSS THE RED SEA

The review of constraints under workstream 1 shows that safer trade in livestock and livestock products between the Horn of Africa (HoA) and the Arabian Peninsula (AP) requires that a range of inter-linked interventions is implemented. While deficits in infrastructure and capacities to implement SPS requirements were highlighted, the single most important constraint is the lack of trust between trade partners and across regions.

Photo K. Dhanji/ILRI

While various projects in the past have focused on capacity development, harmonisation of policies and targeted infrastructure investments at national level, often with promising short-term outcomes, they largely failed to change the trade patterns and the quality of livestock and meat traded in the long-term.

Some projects stand out as providing advancements towards formalised trade. These have been largely driven by private sector investment in meat processing, such as in Sudan and Ethiopia. If done well and supported by adequate structures to facilitate adherence to SPS requirements, they can be major game-changers. To achieve constant quality of their products, such initiatives aim for greater integration of the value chain, which improves traceability and requires better disease prevention to mitigate risks of outbreaks of transboundary animal diseases.

For this study, using the constraints analysis, a review of current and past research and development projects, and targeted stakeholder discussions, we used the "Prioritizing SPS Investments for Market Access (P-IMA)" multi-criteria decision analysis framework as a guide to compile evidence and arguments to characterise proposed interventions. Expert opinion was then used to classify potential interventions as 'essential' or 'desirable' for the BESST initiative, or better implemented by 'others'.

The identified interventions were grouped into four categories: 1) Governance, trust and communication; 2) Knowledge and information; 3) Veterinary service performance; and 4) Sector weaknesses. For each of these, a set of interventions is proposed and the interventions characterised using the P-IMA multi-criteria decision analysis framework.

The need for a platform or forum that brings together different stakeholders and facilitates interactions in the long-term clearly emerged from all interactions with private and public sector stakeholders. Another important aspect is to incentivise formal trade, requiring research to fully understand and address the drivers of informal trade. Other promising interventions would be investing in innovations that make compliance with certification and traceability easier for all involved and which improve transparency along the trade route. Thus, developing and testing novel digital tools is proposed as one of the BESST interventions.

Essential interventions for the BESST initiative are therefore: a) establishing an intersectoral and inter-regional multi-stakeholder platform or forum, b) piloting innovative digital-based tools to improve traceability and certification, c) launching independent audit systems, and d) establishing a BESST coordinated learning and training platform on trade-relevant topics.

2.1 Methodology for prioritisation

The constraints identified in workstream 1 were grouped into four categories:
- Governance, trust and communication
- Knowledge and information
- Veterinary service performance
- Sector weaknesses

For each constraint, or cluster of constraints identified in workstream 1, suitable interventions were identified. This was done through key informant interviews with representatives from the public and private sectors, focus group discussions and reviews of lessons from current and past projects.

For the prioritisation, different options of multi-criteria decision analysis tools and ranking approaches were explored. The P-IMA framework for prioritizing SPS investments for market access by STDF, proved to be a useful tool that has been validated and successfully used in several countries. It focusses on SPS weaknesses linked to export of agricultural products, including livestock and livestock products. The P-IMA framework advocates a structured approach with clear criteria and a transparent process to define which SPS capacity building needs should be addressed at national level. The advantage of P-IMA is this focus on investment in capacity development for trade and the recognition of private as well as public sector capacities. The P-IMA is built on a multi-criteria decision analysis and in its final steps applies an algorithm using weighting scores for different areas. For this study, given the widely different national contexts and perceptions of actors, we did not apply this last step of weighting different options. Instead, we adapted the qualitative aspects of P-IMA to fit the purpose of the BESST feasibility study, assessing each intervention by compiling evidence or views of stakeholders for the multiple criteria.

The criteria we used to assess interventions were:
- Urgency of the gap being addressed by the intervention
- Costs over 10 years (investment and running costs)
- Likelihood of success
- Impact on trade in the short term
- Impact on trade in the long term
- Domestic spillover effects (livestock productivity, public health)
- Wider social impact (employment, poverty reduction, food security)

2.2 Past and ongoing Horn of Africa projects

Current and past projects relevant to BESST were reviewed to identify their focus, results and lessons (see table in **Annex 8**).

2.2.1 Capacity development

Several projects addressed personnel gaps needed for livestock trade. There have been capacity development initiatives and skills development in fields considered important for trade. These included training in risk analysis, SPS requirements, negotiation skills, policy development and quarantine management. For instance, the IGAD Sheikh Technical Veterinary School (ISTVS) and Reference Centre in Somaliland was established to train Somali veterinary personnel in animal health, economics and range management for this purpose.

2.2.2 Harmonisation of procedures among member states

A great deal of effort has gone into harmonisation of trade regulations among IGAD member states. Issues such as the harmonisation of customs regulations and procedures, adoption and harmonisation of grades and standards, adoption and harmonisation of animal identification and traceability systems and standardization and exchange of market information that are required to enhance livestock trade among members have been tried. Other efforts have been in developing a framework for surveillance and control of trade-sensitive animal diseases, standardized laboratory test procedures for the priority diseases, standards for regional quarantine stations technical and coordination capacity of participating countries and institutions responsible for coordination such as IGAD have been enhanced.

2.2.3 Infrastructure development

Some projects have provided support for the development of infrastructure necessary for trade among member states and for export. Office space, computers, laboratory refurbishment and equipment supply, support for the National Veterinary Institute (Ethiopia) and Kenya Veterinary Vaccine Production Institute (Kenya) with materials and equipment to enhance quality and quantity of vaccine production have been provided in some projects.

2.2.4 Coordination and information sharing

Other projects have targeted strengthening national and regional institutions involved in coordination and implementation of regional integration activities in the HoA including IGAD, EAC and COMESA. Networks of various professionals in the region have been established to enhance information sharing and coordination of disease response among countries. Support activities to accelerate domestication and implementation of regional commitments as well as national consultations and consensus building took place. Where projects had identified gaps between national laws and regional commitments, new legislation was drafted to comply with regional decisions. Regional guidelines for animal identification and traceability have been validated.

2.2.5 Lessons learned

Most past projects concentrated on policy, regulations and capacity building, which are important for trade, but cross-border and export livestock trade in the HoA is not limited by policy issues alone, as there are also important livestock production system constraints. Livestock production is largely subsistence and not targeted towards trade in most HoA countries. The production system however, influences the quality of animals targeted for export. In general, the quality of the animals produced, and their numbers is a serious constraint. Also, the high prevalence of trade sensitive diseases is a serious threat to trade in the region. Livestock diseases affect the productivity of the production system and limit the compliance of livestock traders with SPS requirements. The pastoral and cross-border nature of the production, which on one hand is ideal for livestock production under harsh environment, is at the same time a hindrance to proper disease control.

The other major constraint which most projects have tried to address is livestock marketing . Trade is mostly informal from the producer to the primary market where some level of formalisation begins and continues to the secondary and tertiary markets. The lack of

institutional mechanisms such as cooperatives which have proved extremely successful in marketing other agricultural commodities from smallholder producers is a serious constraint. Other factors include poor support for livestock keepers, lack of effective market demand due to the remote nature of the area limiting the number of livestock traders, poor infrastructure (roads, telecommunication, holding grounds, veterinary services), lack of access to inputs and services and lack of market information.
Most of these efforts have been donor-led and financed. A lack of political commitment from governments is clear and most efforts come to a halt as projects end, with no sustainability and uptake by the government or the private sector. Some of the changes needed to address constraints such as poor infrastructure, low productivity, market systems can only be achieved with long-term government investments and public-private partnerships (PPP). One of the main handicaps to government investments could be that livestock, in some HoA countries, are not believed to contribute to the national economy by treasury officials. This is perhaps brought about by all livestock (cattle, sheep, goats, chickens, pigs, etc) being budgeted as a single commodity unlike crops which are disaggregated into several commodities, each attracting budgetary support. If livestock could be turned to an export commodity in some HoA countries (Kenya, Ethiopia), like coffee, tea or horticulture, perhaps governments would put more efforts in increasing investments in the sector. This to some extent is happening in Ethiopia with the implementation of the Livestock Master Plan which has helped to get the attention of investors and the government. It is also worth noting that livestock production often takes place in areas where the people have little political influence.

More recently, significant private sector investments in slaughterhouses, as in Sudan and Ethiopia, have helped to move towards a more formalised trade for meat. This is achieved through better integration along the value chain, mainly driven by the need for constant quality of meat to be exported and to mitigate risks of transboundary animal diseases. If these efforts would also facilitate smallholder producers to enter these value chains, such investments could strongly facilitate equitable and safer trade.

It is also interesting to note that most projects focusing on the Horn of Africa are supported or funded mainly by western donors. With some exceptions, there are very few projects supported by funders or investors of the Arabian Peninsula despite obvious benefits for both regions. A promising example is a new initiative (*Regional Program for the Control of Transboundary Animal Diseases In the Arab and African regions to improve the safety and stability of trade in live animals and animal products*) led by the Arab Organisation for Agricultural Development (AOAD) and jointly funded by the Kuwait Fund for Arab Economic Development, Arab Bank for Economic Development in Africa (BADEA), AOAD, and AU-IBAR.

In conclusion, based on the review of past projects, BESST should take forward the following points in each of the defined intervention categories:

GOVERNANCE, TRUST AND COMMUNICATION:
- Continued support and discussions around regulations and improved policies
- Development of clear political commitment coupled with investments in the livestock sector to promote long-term changes
- Stronger involvement of the private sector, which is considered the engine of livestock and meat products trade, from the beginning of the initiative
- Advocacy for jointly funded projects across the regions

KNOWLEDGE AND INFORMATION:
- Continued support and investment in capacity building with an assessment of what the impacts of past projects were

VETERINARY SERVICE PERFORMANCE:
Continued support to address important PVS gaps at national level and regional coordination of control programs

SECTOR WEAKNESSES:
- Strengthen institutional mechanisms such as cooperatives or producers' associations that help organise meat and livestock producers
- Improve access to markets and market information, including for informal primary markets

Photo K. Dhanji/ILRI

2.3 Proposed interventions

In this section we propose interventions at one or eventually multiple levels of implementation for each of the four groups of constraints in workstream 1.

2.3.1 Interventions to address governance, trust and communication constraints

Interventions proposed to address governance, trust and communication across stakeholders are either at regional, national, trade-route or inter-regional level. A key intervention is to establish a formal forum or multi-stakeholder platform which would be the key element of a BESST initiative and which should have a long-term perspective in order to bring stakeholder groups on board, especially the private sector representatives who are not interested in short them engagements. This would help to directly address the lack of trust between regions and trade partners and facilitate understanding of different perspectives and communication through different channels (meetings, working groups, website, community of practice, etc.). In order to have the necessary buy-in of stakeholders, this needs a strong communication strategy and leadership. Strong involvement of the private sector is essential for its success. Beside private and public sector partners, Regional Economic Communities (RECs) will also be important actors. It also needs to be recognized that trust will not develop overnight but requires a long-term perspective and thus the real impact on improving trade relations and having safer trade of meat and livestock will only materialize in the mid-term. The BESST Forum/Multi-Stakeholder Platform (MSP) would mainly operate at inter-regional level, but also has a role to play at regional level. For example, it could play an important role in facilitating harmonisation of trade requirements among Gulf Cooperation Council (GCC) countries, or in developing trials in the HoA to establish traceability systems or digital certification.

TABLE 2.1. INTERVENTIONS TO ADDRESS GOVERNANCE, TRUST AND COMMUNICATION CONSTRAINTS

Constraints	Interventions	Level of implementation
Poor coordination across sectors and regions, lack of transparency and information sharing, power imbalance between exporting and importing countries, lack of standing forum for dialogue, dispute mediation, cooperation and general support of trade	Forum/multi-stakeholder platform that will operate in the long term, with strong private sector involvement	Inter-regional, national
Lack of political commitment, most donor-supported efforts end with the projects, changing sanitary requirements (at times arbitrary)	Generation of evidence on importance of trade and the adequacy of systems to keep it safe	National
Mistrust in quarantine duration, transparency	Increasing transparency, should include a system for third party certification of export facilities (slaughterhouses, quarantine stations, transport facilities)	Inter-regional, national
Significant informal trade, illegal animal movements, powerful groups preserving status quo and obstructing newer developments in the livestock trade	Incentivise and facilitate formal trade (one-stop shop or "single window", less harassment, etc.), studies to better understand informal value chains, progressive formalisation of informal trade	Regional HoA, Inter-regional
Poor traceability of livestock and livestock products	Technological and institutional innovations around traceability; digital-based systems	Trade route (with regional involvment)
Lack of auditing, quality assurance from farm to fork, independent importer authority auditing of exporter, lack of credible certification, fake certificates	Testing/certification along trade route, traceability - including digital certification, third party certification	Trade route
Lack of trust in and reliance on official declaration	Independent verification system by trade partners and/or third parties (research)	Trade route, Inter-regional

The high proportion of informal markets, mainly as cross-border trade in the HoA and during ban periods, will be difficult to address as strong players with entrenched interests are likely to resist changing from informal to formal trade. This is also evident from the experience of past projects which have failed to achieve significant change. An important element is that the informal value chains are not well understood and need to be studied in more detail. Nevertheless, there are promising examples that show that with the right incentives, a move towards more formalised markets is possible. To achieve this, partnerships between local communities, public sector, private sector (e.g. Meat boards or councils and other similar institutions) and development agencies is needed. Strong involvement of RECs including technical agencies such as AU-IBAR, as well as Chambers of Commerce and Ministries of Trade would greatly help to move this agenda forward. The BESST initiative would contribute in the facilitation and coordination role as a trusted and neutral partner.

Another important gap that directly affects trust is the lack of reliable traceability systems. Safer trade will not be possible without tackling this challenge. If achieved, it may help open new markets, but most of all good traceability will shield economies from major market shocks, thus protecting export markets.

Constraints related to trust and communication are associated with fake certifications and lack of trust in auditing and declarations. Digital certificates would help increase transparency and would be more tamper proof compared to conventional stamped paper certificates. While technically relatively simple to set up, it would require investments along the trade-routes with linked-up systems.

An independent verification system run by trade partners could be set up relatively easily by having teams of auditors/inspectors from importing and exporting countries, together with external experts taking on these tasks, supported by BESST.

2.3.2 Interventions to address knowledge and information constraints

TABLE 2.2. INTERVENTIONS TO ADDRESS KNOWLEDGE AND INFORMATION CONSTRAINTS

Constraints	Interventions	Layer of implementation
Poor private sector capacity on trade regulations, poor understanding of SPS agreement, of the use of risk analysis, animal welfare, limited understanding and capacity for zoning and compartmentalization	Centralised training program based on modules for public and private sector partners (blended learning, on the job mentoring scheme), BESST to coordinate capacity development platform, advocate for curricula updates at veterinary schools towards OIE competencies of Day-1 graduates	Inter-regional
Data not integrated across sources	Harmonise data management, establish mechanisms to share current information within and between countries (web-based repository, CoP on animal disease situation)	Inter-regional, National
Private sector not well linked with markets	Set up trade fairs; promotion campaigns	Inter-regional, Regional
Market information asymmetry, lack of market information, pricing: lack of transparency and farmer participation – middle-men/brokers control transactions, high transaction costs to find new trading partners	Virtual marketplace to link producers, traders and buyers, with feedback feature on trade partners and information on market prices, demand and supply; this can be achieved through a novel digital market platform which should be run through the BESST initiative This would help to promote more integrated systems reducing high transaction costs, while at the same time not having to rely on integration through significant private sector investment, and thus likely be more equitable for small holder producers or small private enterprises	Inter-regional
Lack of knowledge of disease situation in the HoA (trade sensitive diseases)	Strengthen surveillance (i.e. village-based reporting, digital solutions)	National, Regional
Lack of institutions to link farmers to markets	Promote / strengthen farmer / producer associations / cooperatives	National, Regional
Informal payments (check points, local authorities)	Promote more integrated systems along the trade routes; use corruption reporting systems such as pioneered by COMESA	Trade route, National

Various knowledge and skill gaps related to SPS requirements are evident across stakeholders, but are often not very different between countries, thus providing an opportunity to develop training materials and modules that can be used by different stakeholders in different countries. This ideally could be facilitated through a capacity development platform that hosts a series of trade relevant trainings that can be done remotely through online courses. This could be self-learning or could be remotely delivered by experts. Good results have been achieved with blended learning which combines face-to-face with online/remote learning approaches. In addition, this platform will also advocate to update veterinary curricula to be in line with OIE Day-1 competencies for veterinary graduates and graduating veterinary paraprofessionals.

Information access and sharing could be enhanced through a mix of strategies/activities including trade-fairs, a novel virtual market place, data harmonisation and integration, the development and or strengthening of national and regional livestock producers/traders associations, etc. This would help to promote more integrated systems reducing high transaction costs, while at the same time not having to rely on integration through significant private sector investment, thus be more equitable for small holder producers or small private enterprises.

2.3.3 Interventions to address veterinary services performance constraints

A well performing veterinary system is needed to comply with SPS requirements and to improve the safety of meat and livestock trade. While private sector investments can help to establish systems that make compliance easier, the public sector will continue to play an important role. The veterinary services performance is a key area of interest for the OIE and well-defined assessment tools and procedures to advise countries on how to improve their veterinary services performance have been laid out. Thus, a recommendation is for all involved countries in BESST initiative to update their PVS assessment (Evaluation follow-up or Gap-analysis) and develop a national level action plan (or strategic plan), which ideally will include the private sector. The role of the BESST initiative in this will be to advocate for support for countries to implement their action plan, especially for those actions that are relevant for international trade relations and possibly to help with the monitoring of the implementation.

TABLE 2.3. INTERVENTIONS TO ADDRESS VETERINARY SERVICES PERFORMANCE CONSTRAINTS

Constraints	Interventions	Layer of implementation
PVS gaps, including inadequate veterinary legislation, non-involvement of stakeholders in policy development, lack of emergency funds, lack of contingency plans	National plans to address PVS gaps according to PVS reports, develop action plans for each country and advocate to get support for implementation	National *(Regional for issues related to transboundary animal diseases)*
Compliance with SPS requirements (high disease prevalence)	National level training courses (linked with the BESST knowledge platform mentioned above) and awareness creation on SPS requirements, across stakeholder groups	National
Capacity to check slaughterhouses, testing for food-borne diseases, laboratory testing capacity in exporting and importing countries	Improve capacity, training, mini-labs, pilot use of digital surveillance tools, tracking the duration animals are on premises, investments in laboratories, laboratory twinning projects	National
Lack of disease-free animals	Develop or update national disease control strategies for the main animal diseases Promote disease free zones/compartmentalization Promote use of high-quality vaccines (facilitate access to the OIE Vaccine Banks if needed)	National

Awareness creation and training on SPS requirements for target stakeholders is necessary to move towards compliance. BESST can support this by providing blended training approaches through its platform. Investments needed to improve infrastructure for laboratories will need to come from the public or private sector, or supported through infrastructure projects, but will not be the key area of intervention for the BESST initiative. BESST can help to set up laboratory twinning projects between laboratories in the HoA and the AP under the OIE Laboratory Twinning Program.

The BESST initiative can also play a role, alongside OIE, to promote disease free zones or compartmentalization, but such programs will have to be coupled with national government investments in livestock trade and in the context of addressing PVS gaps in the country.

Photo K. Dhanji/LRI

2.3.4 Interventions to address sector weaknesses

TABLE 2.4. INTERVENTIONS TO ADDRESS SECTOR WEAKNESSES

Interventions in this area are mainly related to capital investment needs, either from the public sector, the private sector or both. The role of the BESST initiative would be to provide evidence on what infrastructure is needed and to coordinate investments along the trade routes to ensure the weakest links in the value chain are covered as well.

Constraints	Interventions	Layer of implementation
Sub-optimal transport (small boats, long trips)	Investment in transport means	Inter-regional
Guarantee system for trade transactions	Set-up adequate payment/guarantee system	Inter-regional, National
Regular supply of good quality animals (feed resources, genetics, husbandry)	Improve animal husbandry overall, investments in feed resources	National, Trade route
Capacity of ports and quarantine stations in importing countriesa	Investment in infrastructure	Regional AP, National
Trade infrastructure in exporting countries (quarantine, holding grounds, laboratories, health posts, digital support at check points)	Investment in infrastructure	Regional HoA, National
Access to funding/loans for livestock private sector	Special loans for livestock sector investments	Trade-route National

An important constraint for small to mid-size private sector enterprises is access to finance for investment. The livestock and meat sectors are considered high risk, which hampers access to loans or complicates financial transactions. Guarantees by the public sectors, as part of investment into the livestock sector, or through a donor, could help and would foster private sector engagement.

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2.4 Prioritisation framework for interventions

The tables below summarise the scores for the different interventions based on stakeholder consultation. Since we identified interventions for the constraints identified in workstream 1, it is not surprising that most interventions are a 'priority' to be addressed through the BESST initiative. Nevertheless, the scores for the different criteria provide a good overview on why specific interventions are of importance.

To prioritise interventions to be included in the BESST initiative, interventions were categorised:

As ESSENTIAL for BESST:
- BESST Forum/MSP
- Traceability systems
- Certification along trade routes, electronic certification systems
- Independent verification/audit system by partners
- Training platform (blended learning) addressing different knowledge gaps

As DESIRABLE, and thus highly recommended, for BESST:
- Strengthening surveillance and better understanding of the disease situation in the HoA
- Sharing of disease information (inter-regional)
- Strengthening institutions such as farmers associations
- Virtual marketplace to improve access to market information
- Formalise trade
- Support countries in addressing PVS gaps (specifically contingency plans and emergency funding)

The following interventions, while considered important and needed to improve safer trade, were considered not to be in the scope of the BESST initiative. They should be addressed by others (private of public sector). If considered to be addressed through BESST, a BESST initiative could have both, an operational and an investment portfolio.
- Investment in trade infrastructure at different levels (national and regional)
  · Better transport means
  · Quarantine stations
  · Laboratory infrastructure
- Organising trade fairs
- Special loans for livestock sector investment

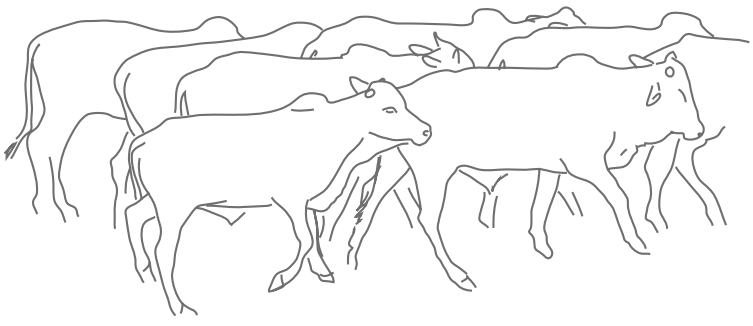


TABLE 2.5. INTERVENTIONS TO ADDRESS TRUST, COMMUNICATION AND GOVERNANCE ISSUES

Intervention	Level	Urgency of gap	Costs*	Likelihood of success	Short-term impact trade	Long-term impact trade	Domestic spillover	Social impact	Prioritised
Forum/multi-stakeholder platform, with strong private sector involvement	Inter-regional	High	*	Medium	Low	High	Low/medium	High	Yes
Incentivize formal trade	Regional HoA, inter-regional	High	***	Low/medium	Low	High	High	High	Yes
Technological and institutional innovations around traceability - digital systems part of this	Trade route	High	***	Medium	Medium	Medium	Medium	Medium	Yes
Testing/certification along trade route including digital certification	Trade route	High	**/***	Medium	Low	Medium	Medium	Medium	Yes
Independent verification system by trade partners	Trade route, inter-regional	High	**/***	High	Medium	High	Medium/high	Low, medium	Yes

*Cost = *<1 mio, ** 1-5 mio, *** > 5 mio)

TABLE 2.6. INTERVENTIONS TO ADDRESS KNOWLEDGE AND INFORMATION CONSTRAINTS

Intervention	Level	Urgency of gap	Costs*	Likelihood of success	Short impact trade	Long-term impact trade	Domestic spillover	Social impact	Prioritised
Centralised training based on modules for public and private sector partners (blended learning, on the job mentoring scheme), BESST to coordinate capacity development platform	Inter-regional	High	**	High	Medium	High	High	Medium	Yes
Harmonise data management, establish mechanisms to share current information between countries (web-based, CoP on animal disease situation)	Inter-regional	Medium	**	Medium	Low	Medium	Medium	Low	No
Trade fairs	Inter-regional	Medium	*	Medium	High	Medium	Medium	Low	No
Virtual marketplace to link producers, traders and buyers, with feedback feature on trade partners and information on market prices, demand and supply; this would help to promote more integrated systems reducing high transaction costs	Inter-regional	High	**	High	Medium	Medium	Medium	Medium	Yes
Strengthen surveillance (i.e. village based reporting, digital solutions)	National	High	*	High	Medium	Medium	Medium	Low	Yes
Promote farmer/producer associations/cooperatives	National	High	**	Medium	Medium	High	High	High	Yes

*Cost = *<1 mio, ** 1-5 mio, *** > 5 mio)

TABLE 2.7. INTERVENTIONS TO ADDRESS VETERINARY SYSTEM PERFORMANCE CONSTRAINTS

Intervention	Level	Urgency of gap	Costs*	Likelihood of success	Short impact trade	Long-term impact trade	Domestic spillover	Social impact	Prioritised
Improve capacity / trainings, mini-labs, e-two-way surveillance, investments in laboratories	National	High	**	High	Low	Medium	Medium	Low	Yes
Promote disease free zones, compartments	National	High	***	Medium	High	High	Low	Medium	Yes
National level trainings and awareness creation on SPS requirements	National	High	*	Medium	Medium	High	Medium	Medium	Yes
National plans to address PVS gaps	National	High	***	Medium	Medium	High	Medium	Medium	Yes

*Cost = *<1 mio, ** 1-5 mio, *** > 5 mio)

TABLE 2.8. INTERVENTIONS TO ADDRESS SECTOR WEAKNESSES

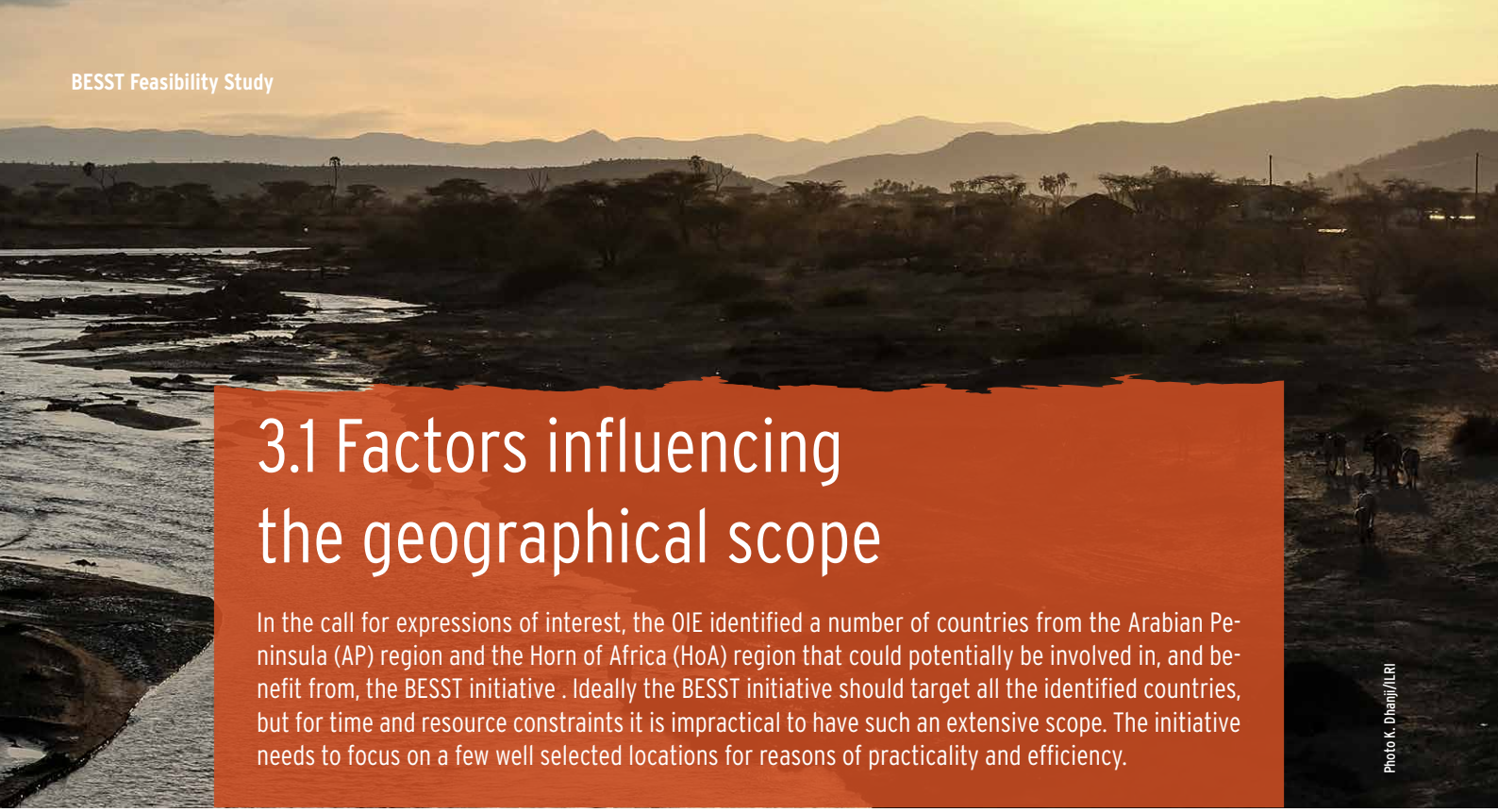
Intervention	Level	Urgency of gap	Costs*	Likelihood of success	Short impact trade	Long-term impact trade	Domestic spillover	Social impact	Prioritised
Investment in transport means	Inter-regional	High	***	Medium/high	Low	High	Medium	Medium	No
Set-up adequate payment/guarantee system	Inter-regional	Low	*	Medium	Medium	Medium	Low	Low	No
Improve animal husbandry overall, investments in feed resources	National	High	**	High	Low	Medium	High	High	Yes
Investment in infrastructure	National, regional AP	High	***	Medium	Low	Medium	Medium	Low	No
Investment in infrastructure	Regional HoA	High	***	Medium	Low	High	High	High	Yes
Special loans for livestock sector investments	Regional HoA	High	*	High	Medium	Medium/high	Medium/high	Medium/high	Yes

*Cost = *<1 mio, ** 1-5 mio, *** > 5 mio)

Photo B. Wieland/ILRI

WORKSTREAM 3

GEOGRAPHIC SCOPE AND LAYERS OF IMPLEMENTATION FOR AN INITIATIVE TO PROMOTE SAFER TRADE IN LIVESTOCK AND LIVESTOCK PRODUCTS ACROSS THE RED SEA



3.1 Factors influencing the geographical scope

In the call for expressions of interest, the OIE identified a number of countries from the Arabian Peninsula (AP) region and the Horn of Africa (HoA) region that could potentially be involved in, and benefit from, the BESST initiative . Ideally the BESST initiative should target all the identified countries, but for time and resource constraints it is impractical to have such an extensive scope. The initiative needs to focus on a few well selected locations for reasons of practicality and efficiency.

Photo K. Dhanji/ILRI

The geographic scope and level of implementation is based on a number of key factors/criteria, discussed below.

3.1.1 Volume of livestock and meat trade

The present volume and/or value of livestock and/or meat trade between the HoA region and the AP region varies between countries. On the import side, Saudi Arabia is the biggest live animal importer in the AP[2] (Table 3.1),), and it is also among the main meat importers in the region. Yemen (before the civil war) and Oman are also among the main live animal importers from the HoA (mainly cattle and camels). On the export side, Somalia (mainly Somaliland i.e. a semi-autonomous region in the north-west of Somalia) and Sudan are the main livestock exporters[3]. Around 40% of the livestock exported by Somaliland originates from the border regions of Ethiopia, a country which is also exporting meat to the AP countries. Some of the Somali exports of camels and sheep originate from Kenya (through informal cross-border trade).

Countries in the HoA that export meat include Ethiopia, Kenya and Sudan. The major meat exporting companies in Ethiopia are Frigorifico Boran Foods PLC and the Akseker Ethiopia Casing PLC. Frigorifico Boran Foods PLC is a state of art integrated abattoir subsidiary of Allana Group located in the Oromia Regional State. It is the first beef production factory outside India owned by the group. It started its activities in Ethiopia in April 2018 and has the capacity to slaughter approximately 2,000 head of cattle and 6,000 head of sheep and goats daily and to pack 75 tonnes of Halal meat products for daily export. The company exports to more than 10 countries (mainly Gulf countries: UAE, Saudi Arabia, Oman, Bahrein, Kuwait, Qatar) sheep and goat carcasss, fresh chilled and frozen beef/sheep/goat meat and offal, fresh chilled vacuum-packed beef/sheep/goat meat. The Akseker Ethiopia Casing PLC was bought by Allana Group from a Turkish company and the company has madee additional investments after acquiring this plant to comply with international standards. It is a modern abattoir offering the same service as Frigorifico Boran PLC but with a smaller capacity (2000 to 4000 sheep and goat slaughtered daily). For cattle the capacity is 40 to 100 head on request. In Kenya, companies that export meat include KMC, Farmers Choice and Quality Meat Packers and the export markets include the UAE, Qatar and Saudi Arabia.

In the live animal trade, Djibouti and Eritrea (through the port of Massawa) are considered to be transit countries. During the previous Saudi Arabia/GCC bans of livestock exports from Somalia (Berbera, Bosaso, etc.), livestock exports from the HoA have largely shifted to Djibouti with foreign investments being made in the quarantine stations there. With the recent improvement of the political relations between Ethiopia and Eritrea, the port of Massawa can also play an important role for Ethiopian (mainly the northern region of the country) livestock exports.

1 / From the Arabian Peninsula the identified countries are Bahrain, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, and Yemen. From the Horn of Africa, the identified countries are Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Somalia, Sudan, and Uganda.

2 / The official figures from Saudi municipalities about slaughtered imported livestock in 2018 were 2.6 million sheep (38% of total number of slaughters), 657 thousand goats (26%), 123 thousand cattle (50%) and 72 thousand camels (19%) (GASTAT, 2019). In 2016, the imports by Saudi Arabia of live animals and animal products were estimated at around USD 5.3 billion (MCI, 2017).

3 / Somaliland livestock exports in 2018 from the port of Berbera to the AP countries were estimated to 1.3 million head of sheep and goats, 104 thousand cattle and 787 camels (SLCCIA, 2019). Livestock exports from Sudan in 2016 (post-independence from South Sudan) were estimated at 1.37 million head of sheep, 175 thousand goats and 223 thousand camels (CBS, 2019).

Table 3.1. LIVESTOCK IMPORTS (NUMBER OF ANIMALS) IN THE COUNTRIES OF THE ARABIAN PENINSULA

Country	Cattle	Camels	Sheep	Goats
Saudi Arabia	43,165	107,694	7,171,647	1,781,279
Yemen	120,000	252	380,000	200,000
Oman	116,495		406,795	698,817
UAE	2,648	67,109	382,031	1,200,000
Kuwait	2,488	23,690	1,185,835	2,070
Bahrain	2,738		88,068	28,880
Qatar	7,124	33,544	533,517	136,260

Source: FAOSTAT 2016 data

Another consideration is the future potential for livestock and meat trade. Although more uncertain, there are some key trends and drivers: overall, upwards trends in livestock trade; growing potential for trade in meat relative to live animals; increasing demand driven by population growth, wealth and urbanization.

Potential target countries: From the information presented above and the criteria used, the main countries that could be considered for the BESST initiative are:
- HoA: Somalia, Sudan, Ethiopia and Kenya
- AP: Saudi Arabia, UAE, Oman, Kuwait and Yemen

3.1.2 National economic importance of the livestock sector

This criterion mainly applies to the livestock/meat exporting countries from the Horn of Africa. Livestock population size and structure varies widely between the countries. Ethiopia and Sudan have by far the highest numbers of livestock (Table 3.2); Ethiopia has the highest cattle population (with around 57 million), while Sudan has the highest number of sheep (around 40 million). Overall, Kenya ranks third with almost 30 million goats and 17 million head of cattle and sheep each.

Table 3.2. LIVESTOCK NUMBERS (IN THOUSANDS) IN THE COUNTRIES OF THE HORN OF AFRICA

Country	Cattle (.000)	Camels (.000)	Sheep (.000)	Goats (.000)
Djibouti	40	50	400	600
Eritrea	2,090		2,290	1,825
Ethiopia	56,706	2,500	29,332	29,113
Kenya	17,543	2,971	17,270	29,748
Somalia	5,300	6,200	12,470	16,165
South Sudan	11,817		16,750	13,550
Sudan	30,191	4,600	39,846	31,029

Source: OIE (2019) and other national statistics

For many countries from the Horn of Africa, the livestock subsector plays a critical socioeconomic role and represents the main source of income for a large proportion of the population. For instance, in Kenya, the livestock sector contributes about 42 percent to the agricultural GDP and 12 percent to the national GDP (Kenya Government, 2019). Eighty six percent (86%) of the meat produced in the country originates from pastoral production systems (I-DEV, 2014) located in the Arid and Semi-Arid Lands (ASALs); these represent 60% of the land mass and are home to approximately 30% of the human population whose main livelihood means is livestock production and marketing (Wanyoike et al., 2018). In Somaliland region, the livestock sector employs over 70% of the population, contributes to about 60% of the GDP and 85% of foreign export earnings (Wanyoike et al., 2015). The same pattern is observed in Somalia where livestock is the backbone of the economy and about 70% of the population in Somalia depend on livestock for their livelihoods. It provides food, employment and incomes and contributes 40% of the GDP and 80% of the foreign currency earnings, excluding cash remittances from Somalis in the diaspora (SNDP, 2016). In Ethiopia, the livestock subsector represents around 7.9% of the GDP and it is expected to bring about radical change in both sedentary agriculture and pastoral areas (NPC, 2016).

Potential target countries: From the information presented above and the criterion used, the main countries that could be considered for the BESST initiative are:
- HoA: Ethiopia, Sudan, Kenya and Somalia

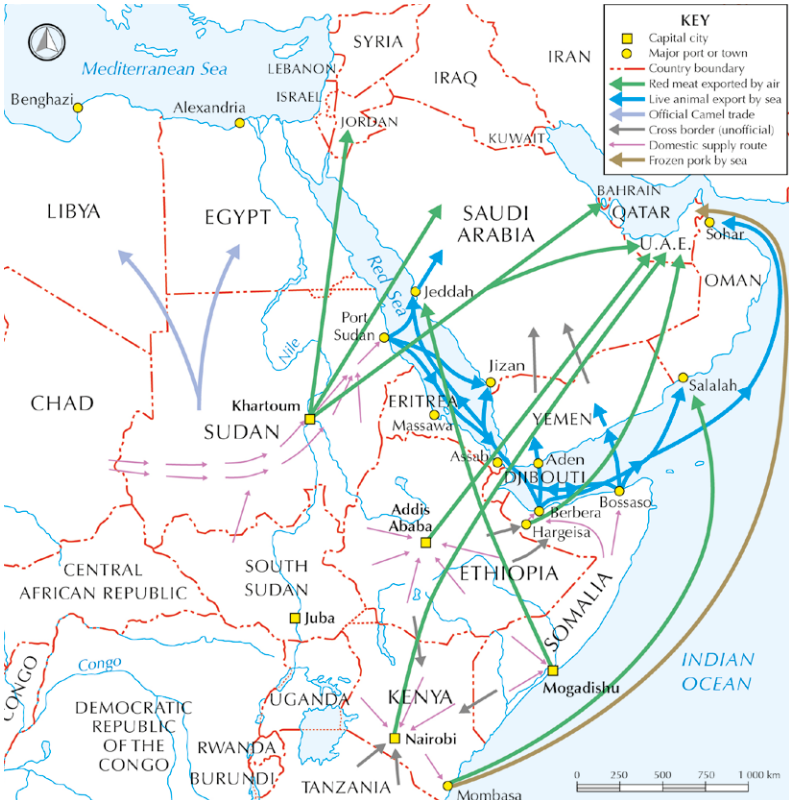
3.1.3 Livestock trade routes

A large proportion of livestock (cattle, camels, sheep and goats) exported from the seaports (Berbera, Bosaso, Mogadishu, Djibouti, Port Sudan, and Massawa, among others) located in the Horn of Africa originates from other neighbouring countries through historically established livestock trade routes. For instance, camels are exported/trekked (mainly informally) from Kenya to Somalia and then exported to the Middle East. At the same time, cattle originating from Somalia are sold on the Garissa market in Kenya. Livestock exports from Djibouti are mainly trekked from Somaliland (Northwestern Somalia) and trucked from Ethiopia (ICPALD, 2013). Recently (2018) the Kenya Government signed agreements with Djibouti for the export of livestock from Kenya to the Arabian Peninsula, transiting through the Damerjog quarantine station close to Djibouti port. Different studies (Majid, 2010; Little et al., 2015) indicate that approximately 50% of livestock exports (mainly sheep and goats) from Somalia (especially Somaliland) are informally sourced across Ethiopia's borders; Little et al. (2015) suggest that the proportion could be as high as 70%. In Ethiopia, Gebre-Mariam et al. (2013) have calculated that informal cross-border trade is about four times the volume of the formal exports. A large proportion of the cattle exported from Mombasa (Kenya) originates from cross-border imports from southern Somalia (Mahmoud, 2010).

Figure 3.1 shows[4] the livestock trade routes within the Horn of Africa region and the official export ports for live animals and cities for meat to the Middle East countries. Further details on livestock trade routes in the Horn of Africa are reported in ICPALD (2013).

From the other side of the Red Sea, there are also some established 'import' livestock trade routes. For instance, before the start of the civil war in Yemen, sheep and goat imports from Somaliland and Puntland were partially re-exported (either formally or informally) to Saudi Arabia (Costagli et al., 2017; USAID, 2013).

FIGURE 3.1. DOMESTIC, CROSS-BORDER AND OFFICIAL EXPORT TRADE ROUTES IN THE HORN OF AFRICA



Source: Adpated from ICPALD (2013)

Potential target countries: From the information presented above and the criterion used, the main countries that could be considered for the BESST initiative are:
- HoA: Kenya, Ethiopia, Somalia, Djibouti and Eritrea
- AP: Yemen, Saudi Arabia and Oman

4 / We will update and adapt this map to the current study, on the basis of information to be collected in the coming 2-3 months.

3.1.4 Countries with livestock export seaports/proximity to target markets

From the main livestock exporting countries in the HoA region, Ethiopia is the only one which is landlocked. For geographic reasons, Kenya's seaports cannot compete with the other countries because they are far from the Arabian Peninsula livestock seaports. Somalia, Djibouti, Eritrea and Sudan are strategically positioned to serve livestock markets in the Middle East. Port Sudan is the closest livestock export seaport (around 300km) to the Jeddah Islamic Port, which is the main livestock import port in the Arabian Peninsula. Eritrea has two seaports, Massawa and Assab. The latter is the closest seaport to export livestock to Mocha, Yemen. Somalia has three main livestock export seaports: Berbera and Bosaso (located in the northern region) and Mogadishu. The main livestock exports to Saudi Arabia originate from Berbera and Port Sudan. Bosaso is the closest port to Al Mukall in Yemen (the second most important livestock import port in the country), and also to Salalah in southern Oman. Djibouti is also strategically located close to Yemen and Jeddah seaports.

Recent years have witnessed huge investments, mainly from foreign private companies/investors, to develop and upgrade the ports in many Horn of Africa countries. For instance, the Dubai Port World company (DP World) is expanding and modernising Berbera Port in northern Somalia (Somaliland) and developing a duty-free zone to create a new regional trading hub (World Maritime News, 2018). Recently, an agreement was signed between the United Arab Emirates (UAE) government and the Somali (Somaliland) government to export livestock from Berbera Port to UAE (East African Business Week, 2019). In Djibouti, China Merchants Port Holdings (CMP) is constructing the Doraleh multi-purpose container terminal of the Port of Djibouti (New China, 2017) and starting construction of the Damerjog livestock seaport and quarantine station in 2014. With a US$ 70 million investment, the Damerjog Livestock port aims to receive ten million head of livestock annually and ultimately emerge as the leading port in the region's livestock trade (Muhumed and Yonis, 2018; Port De Djibouti, 2018).

Ports in the Horn of Africa represent a critical control point in the livestock supply chain to the Arabian Peninsula countries in terms of control of animal diseases and assurance that animals shipped are free from highly contagious diseases like foot-and-mouth disease and zoonotic diseases such as Rift Valley fever. Quarantine stations, veterinary services, and laboratories located around these areas should be of high quality and eventually upgraded to meet the required international standards. The BESST initiative should also include/target these locations/facilities.

Potential target countries: From the information presented above and the criterion used, the main countries that could be considered for the BESST initiative are:
- HoA: Sudan, Ethiopia, Kenya and Somalia
- AP: Saudi Arabia, UAE and Oman

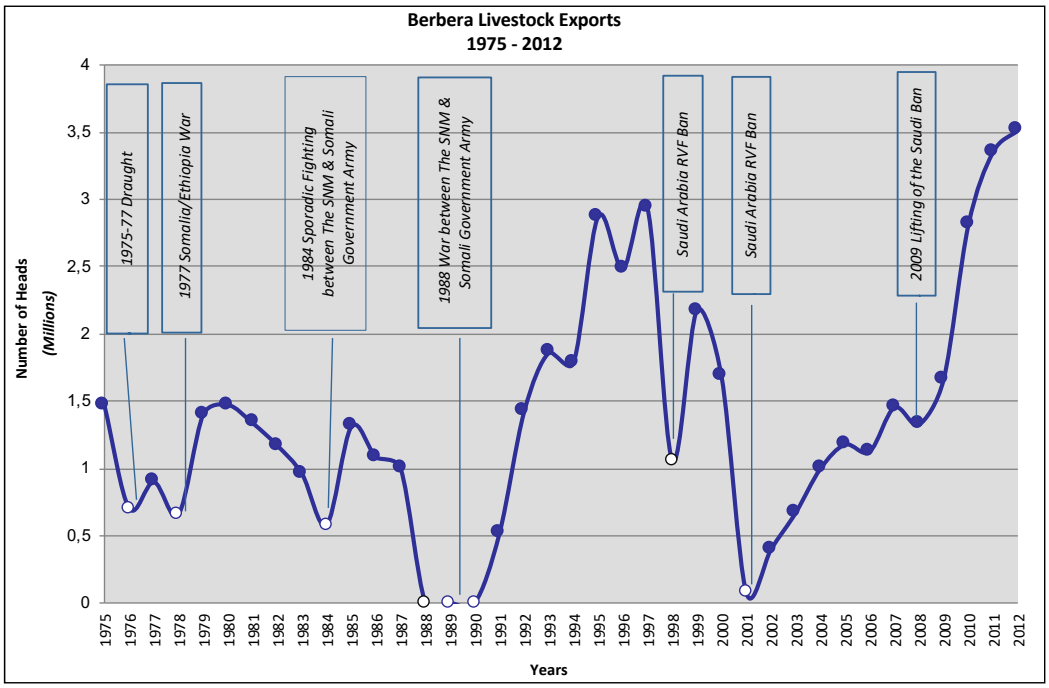
3.1.5 Recent and historical livestock/meat import bans

One of the most important objectives of the BESST initiative is to ensure safe and smooth livestock and meat trade between the HoA and the AP regions, resulting in reducing (and hopefully completely eliminating) livestock and/or meat import bans issued by the AP countries. Achieving this objective would protect the incomes and livelihoods of millions of smallholder livestock producers and pastoralists in the HoA from the shocks and economic losses that have resulted from such bans. As previously mentioned, livestock, meat and animal products imports to the Arabian Peninsula countries (except Yemen) are regulated by the 2001 GCC Veterinary Quarantine System Law in addition to each country's specific laws and rules.

Saudi Arabia, as the main livestock and meat importer in the AP countries, has historically been leading/deciding livestock bans from the HoA countries. Previous experiences of bans implemented by Saudi Arabia from February 1998 to May 1999; or from the Arabian Peninsula countries (Saudi Arabia, UAE, Yemen, Bahrain, Oman, Qatar) in 1999 for a period of 27 months on Somali livestock exports due to RVF outbreaks, had severe effects and almost reduced Somali livestock exports from the port of Berbera to zero (Figure 3.2).

Saudi Arabia imposed a third ban on Somaliland livestock import from December 2016 (Goobjoognews, 2016) when disease was spotted in livestock exported from Mogadishu. However, Saudi authorities temporarily suspended the third ban during the Hajj season to allow the supply of Somali livestock after the Islamic Development Bank in Jeddah awarded a contract to Saudi livestock traders who own quarantine facilities at Berbera. The effects of the ban were immediately felt: decrease in tax revenue for the government, depreciation of the Somaliland shilling, unemployment skyrocketed (Muhumed and Yonis, 2018). The 2017 and 2018 livestock exports data from the port of Berbera indicated an overall number of sheep and goats exported of 1.435 million and 1.390 million head respectively, which represent a decrease of 48.9% and 50.5% compared to small ruminant exports in 2016 (around 2.807 million head).

FIGURE 3.2. EFFECTS OF BANS AND WARS ON LIVESTOCK EXPORTS FROM BERBERA PORT



Source: USAID (2013)

Muhumed and Yonis (2018) argue that the Saudi ban on Somali livestock exports is in reality due to political tensions between Qatar and the other Gulf states, and the alignment of the Somali Federal Government with Qatar (with the influence of Turkey), which allegedly played a role in the longevity of Saudi Arabia's ban on Somali livestock imports.

Recently in October 2019, Saudi Arabia banned livestock imports from Sudan and Djibouti over RVF outbreaks. In September the same year, the government of Sudan informed OIE about RVF outbreaks in few regions. Collaboration between the Government of Sudan, Saudi Arabia and the Gulf Cooperation Council helped to control the disease (The Guardian, 2020). In the case of Djibouti, a sample from one livestock shipment arriving from Djibouti was positive and thus was not cleared (Arab News, 2019).

Potential target countries: From the information presented above and the criterion used, the main countries that could be considered for the BESST initiative are:
- HoA: Somalia, Sudan and Djibouti
- AP: Saudi Arabia, UAE and Oman

3.1.6 Presence, incidence and type of diseases present in the countries

Concern over the introduction and spread of human and livestock diseases is one of the greatest trade barriers between the HoA and AP. Importer country concerns are typically over the risk of importing diseases that could cause human mortality and morbidity, such as Rift Valley Fever, as well as diseases that could impact on livestock production and trade of livestock products, such as foot-and-mouth disease. Exotic diseases or strains are a particular concern as, if imported, they may be very difficult or even impossible to eradicate. Public concern over zoonotic diseases is often greatest when a new disease emerges with uncertain potential impact as seen with Highly Pathogenic Avian Influenza (HPAI) and the Middle East Respiratory Syndrome corona virus (MERS-cov).

Trade in live animals and their products can result in the spread of diseases of animal origin but effective methods exist to mitigate these risks. However, many diseases that are of international concern are present in the HoA, with variable levels of control. This is further exacerbated when there are concerns about the effectiveness of the exporting authorities to control these diseases and effectively guarantee the safety of exported livestock and products (e.g. through vaccination, vector control or serological [blood] testing).

Different diseases impact in different ways, for example, diseases with high mortality (PPR), rapid spread and high morbidity (Foot and Mouth Disease), ability to infect people (tuberculosis, brucellosis, Rift Valley fever,), or emergence (MERS-CoV, Escherichia coli 0157:H7). Sometimes importers are concerned about particular exotic strains which may be difficult to control.

The fact that many trade sensitive diseases are widely prevalent in many of the exporting countries at the same time as importers are concerned about the performance of exporting-country public veterinary services, has frequently led to draconian measures restricting imports. These concerns may also be used to protect domestic producers or be applied, sometimes irrationally, in response to public health scares. Bans become more likely when alternative markets exist with better sanitary status, such as Australia.

Countries relevant to this project fall under three ecosystems. These countries are:
• East Africa: Ethiopia, Kenya, Tanzania
• North and Central Africa: Djibouti; Somalia; Sudan; South Sudan; Egypt
• West Asia (Near East): Gulf States (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE)

An earlier analysis of diseases relevant to export to the Arabian Peninsula identified 85 priority diseases (FAO, 2007)[5]. Among the most important were brucellosis, foot and mouth disease, Rift Valley fever, Peste des petits ruminants and Q fever, this was again reflected in 2010 (Table 3.3). Although the diseases were identified as affecting live animal exports from Somalia all the other neighbouring and target countries for BESST (Ethiopia, Kenya, Djibouti and Sudan) are also often affected or at risk of these diseases (ICPAC and WFP, 2017).

TABLE 3.3. THE MAIN DISEASES AFFECTING LIVE ANIMAL EXPORTS FROM SOMALIA TO AP AT A 2010 WORKSHOP OF SOMALI VETERINARIANS INVOLVED IN THE AP EXPORT TRADE

Species	Diseases
Cattle	FMD, Brucellosis, CBPP, Lumpy skin disease, Trypanosomosis, Anthrax and RVF
Sheep and goats	Brucellosis, CCPP, PPR, RVF, Sheep pox and goat pox
Camels	Brucellosis, RVF, Camel pox, Trypanosomosis

Source: SOLICEP, Addis workshop 2010

Potential target countries: From the information presented above and the criterion used, the main countries that could be considered for the BESST initiative are:
- HoA: Kenya, Ethiopia, Somalia, Sudan, Djibouti

5 / http://www.fao.org/ag/againfo/commissions/docs/genses37/App11.pdf

3.1.7 Gap analysis and opportunities for strengthening the performance of veterinary services

The final issue for consideration is the performance of veterinary services and the potential to improve their capacities. The OIE PVS Gap Analysis and PVS assessments of national veterinary services identify areas that need strengthening in different countries. Many of these gaps directly or indirectly relate to international livestock and meat trade and thus are highly relevant for BESST. The extent and nature of gaps identified and interventions needed to address them may play a role in the definition of the geographic scope, but even more so will influence the level of investment needed from the BESST initiative (disease surveillance, animal welfare, early warning systems, etc.). To what extent these factors affect current trade and which interventions are most needed, including their investment needs and feasibility is set out in workstreams 1 and 2. Based on key informant interviews and other consultations, the role of this factor in defining the geographic scope of BESST will become clearer and considered accordingly.

The World Animal Health online database (http://www.oie.int/wahis_2/wah/health_v7_en.php), based on the OIE World Animal Health Information System (WAHIS), provides Member Country reported information on the following aspects:

- Diseases/infections present
- Diseases absent or never occurred
- Zoonoses present and absent by country/territory
- Zoonoses present by disease (all countries)
- Veterinary personnel
- National Reference Laboratories
- Vaccine production by country/territory
- Vaccine production by disease (all countries)

We summarize some of this key data in the table below using the last year for which data is available. Somalia and Eritrea have very high ratios of Tropical Livestock Units (TLU) to personnel which could negatively affect the attention and the quality of veterinary services provided.

TABLE 3.4. INDICATORS OF VETERINARY SERVICE PERFORMANCE, CAPACITY AND OPPORTUNITY

Country	TLU's of large and small ruminants	Personnel (2016)	Ratio of TLU's to personnel
Djibouti	178,000	161	1,106
Eritrea	1,874,500	372	5,039
Ethiopia	45,538,700	11,731	3,882
Kenya	19,952,900	6,728	2,966
Somalia	12,773,500	1,501	8,510
South Sudan	11,301,900		
Sudan	32,821,200	12,923	2,540

Source: WAHIS (2018) and FAOSTAT (2017)

A recent OIE "Technical Item" (presented by S. Khan at the 2018 OIE General Session) also considered the implementation by Member Countries of the OIE standards for international trade in live animals and animal products. The purpose of the study was to identify and analyze factors that limit implementation of the standards and make recommendations on how the OIE could help Member Countries to overcome these difficulties. Further analysis of this will give insights into country level constraints and opportunities to overcome them.

Potential target countries: From the information presented above and the criterion used, the main countries that could be considered for the BESST initiative are:

- HoA: Somalia, Eritrea, Ethiopia and Kenya
- AP: Oman

Tables 3.5 and 3.6 include some of the criteria previously discussed and indicate the appropriateness of each criterion for each country from both regions. From the HoA region, Ethiopia, Somalia, Sudan and Kenya emerge are the main target countries for the BESST initiative. From the AP, Oman, Saudi Arabia and UAE are the main targets.

TABLE 3.5. IDENTIFIED LIVESTOCK AND LIVESTOCK PRODUCT EXPORT COUNTRIES FOR IMPLEMENT OF BESST BASED ON DIFFERENT FACTORS

			Sudan	South Sudan	Ethiopia	Somalia	Eritrea	Djibouti	Kenya	Uganda	Egypt
Volume of livestock trade	Small ruminants		√		√	√					
	Cattle				√	√					√
	Camels		√			√		√			
Volume of meat trade			√		√				√		√
National economic importance of the livestock	Livestock numbers	Small ruminants	√	√	√	√			√		
		Cattle	√	√	√				√	√	
		Camels	√		√	√			√		
	Livestock sectors share of GDP		√	√	√	√			√		
Livestock trade routes					√	√	√	√	√		
Type of export product	Live animals		√		√	√		√			
	Meat		√		√				√		
Countries with livestock export seaports			√			√	√	√			
Recent and historical livestock/meat import bans (worst affected)			√			√		√			
Presence, level and type of diseases present in the countries			√	√	√	√	√	√	√	√	

TABLE 3.6. IDENTIFIED LIVESTOCK AND LIVESTOCK PRODUCT IMPORTING COUNTRIES FOR IMPLEMENT OF BESST BASED ON DIFFERENT FACTORS

			Saudi Arabia	UAE	Yemen	Bahrain	Oman	Qatar	Jordan	Kuwait
Volume of livestock trade	Small ruminants		√	√			√			√
	Cattle				√		√			
	Camels		√	√				√		
Volume of meat trade				√						
National economic importance of the livestock	Livestock numbers	Small ruminants								
		Cattle								
		Camels								
	Livestock sectors share of GDP									
Livestock trade routes			√	√	√		√			
Type of import product	Live animals		√				√			√
	Meat									√
Countries with livestock import seaports			√	√	√	√	√	√		
Recent and historical livestock/meat import bans			√	√			√			
Presence, level and type of diseases present in the countries										

3.1.8 Other factors

In addition to the previous criteria, the BESST initiative will need to be aware of other factors that could affect its implementation such as the current political climate and the priorities of regional organisations in both the HoA and AP regions. Box 3.1 provides more details about these issues.

BOX 3.1. THE POLITICAL CLIMATE AND REGIONAL ORGANIZATION PRIORITIES

The BESST initiative aims to be an inter- and intra-regional initiative, including both HoA and AP countries. The feasibility and implementation of such an initiative depends on the collaboration and relationships between countries at both ends of the value chains. The regional political and economic organisations such as IGAD (Intergovernmental Authority on Development), which includes all BESST initiative target countries in the HoA, and the Gulf Cooperation Council – GCC (renamed as Cooperation Council for the Arab States of the Gulf) which also includes almost all BESST target countries in the Arabian Peninsula (except Yemen and Jordan), could play pivotal roles the success of BESST. There are however several political tensions between countries from the same region (HoA or AP) that could potentially hinder implementation, while improvement in political relationships (such as the recent rapprochement between Ethiopia and Eritrea which might boost Ethiopian livestock exports through the Eritrean ports of Massawa and Assab) can also positively influence trading relationships directly and indirectly.

At the same time, the growing internal competition between the HoA countries to export livestock and meat products to the Arabian Peninsula is creating tensions between the countries, and BESST will need to take into account and carefully handle such issues. For instance, the improvements of Djibouti Port has and is still creating tensions between the Djibouti and the Somali (Somaliland) governments. There are also political tensions between Djibouti and United Arab Emirates related to the dispute between Dubai Port World (DP World) and the Djibouti government. The instability in Somalia and the presence of AMISOM troops also creates a degree of tension among countries in the region.

Photo K. Dhanji/ILRI

3.2 Geographic scope

As mentioned above, the target geography comprises both sides of the Red Sea with potential beneficiaries from the Horn of Africa: Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Somalia, Sudan, Uganda; and from the Arabian Peninsula: Bahrain, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, Yemen.

The original ToR from OIE identifies 4 potential levels of implementation for BESST:
- Activities implemented at national level (country-specific)
- Activities implemented at the regional level (Horn of Africa or Arabian Peninsula)
- Activities implemented at inter-regional level (Horn of Africa and Arabian Peninsula)
- Activities implemented at trade route level (countries involved in this specific route)

Before exploring the geographic scope further, it is important to consider the resources at the disposal of the BESST initiative.

The subsections below discuss the pros and cons of each geographic scope and layer of implementation for BESST. Table 3.7 summarizes these findings and provides a list of potential target countries for each level of implementation.

3.2.1 Activities implemented at the national level (country-specific)

At a first glance, this option seems to be the least relevant for BESST because it lacks the desired regional and inter-country dimensions and thus may yield low impacts at the regional level. Nor does this approach consider the reality on the ground, the regional/trade route dimension of livestock trade and exports in the HoA, and potential upstream animal health and disease issues originating in other countries. For landlocked countries like Ethiopia, which depend on seaports in neighbouring states, the activities will have limited/no effects on livestock exports, if eventually there are issues appearing downstream, e.g. at the export ports. In addition, the implementing country could be affected by livestock export bans targeting other countries from the region.

There are, however, number of advantages that make this layer of implementation attractive. The focus on specific countries which are the main livestock/meat exporters or the main livestock/meat importers does allow more efficient use of resources, and the success of the initiative could represent a good starting point for another phase of the program or another initiative. National level activities do not require a consensus between countries at the regional or trade route levels, avoiding potential geopolitical tensions as previously mentioned and may speed up implementation of the initiative. In particular, investments to strengthen veterinary services require interventions at national level. In addition, a country approach may also make it more attractive for some donors. This applies for both livestock (for coastal countries) and meat exports (for maritime, land and air transport).

From the previous sections and based on available data so far, for the activities that will be implemented at the country/national level, we recommend a focus on the main livestock export countries from the HoA: Somalia, Sudan and Ethiopia, in addition to Kenya as an emerging meat exporter and Djibouti as transit/seaport country. From the import side, the focus would be on the main and potential livestock/meat importers: Saudi Arabia, UAE, Oman and Yemen (for the latter, this depends on the security situation in the country as it evolves).

3.2.2 Activities implemented at the (intra) regional level (Horn of Africa or Arabian Peninsula)

This layer of implementation takes account of the regional approach of BESST initiative. If the Horn of Africa region is selected, the program will increase collaboration and could encourage harmonised standards and regulations between the countries of the region and bring solutions to the informal cross-border livestock trade. It will probably provide a better business climate in the region and change the current mindset of governments from competitors to partners with common goals and shared benefits. The socio-economic impacts should be relatively significant and would benefit all livestock/meat value chain actors including pastoralists and smallholder livestock producers. As previously mentioned, IGAD could play an important role in bringing together governments officials and aligning their interests. The control of transboundary diseases, which is a key SPS challenge, clearly would profit from a regional approach.

If the activities are implemented in the Arabian Peninsula region, the initiative will foster collaboration between the countries and could eventually achieve harmonised standards and requirements for livestock and meat imports. However, the socio-economic impacts on livestock producers and other value chain actors from the Horn of Africa region will be very limited.

On the other hand, the regional approach has some limitations. Not taking into account the requirements or issues of the countries from the other side affects the desired impacts of the initiative and the overall goal of smoother and safer trade. It is also very difficult to apply in the case of meat trade. A possible approach for BESST could be of a regional implementation in two phases of 5 years each, with a first phase focusing on one region and the second phase focusing on the other region, in addition to some country-specific and trade route implementation including countries from the two regions linked by a livestock trade route.

3.2.3 Activities implemented at inter-regional level (Horn of Africa and Arabian Peninsula)

This option considers both sides of the trade: supply/exporting and demand/importing regions/countries. It allows better understanding of the issues faced by and the requirements of each region/country and fosters dialogue and collaboration between the two blocks. From the Horn of Africa region, it also takes into account the regional and international market competitors, as well as the informal cross-border trade. The challenge here is that it is costly, it needs time to implement the activities and achieve agreements, and it requires reaching consensus within and between the regions which is not an easy task considering the political tensions currently existing between countries in both regions. There is therefore a risk of dispersed resources and efforts without achieving the objectives of the program. In addition, the regional approach is less fit for meat and livestock products trade since these products are generally exported directly by air or sea by the producing country to the importing country without transiting by any other country. In addition, when neglecting interventions at national level, the root causes jeopardizing inter-regional trade may not be addressed sufficiently (e.g. quality of veterinary services, disease and food safety control). There are however specific activities that need an inter-regional approach like for instance the implementation of an innovation and dialogue platform bringing together countries from the two regions, field/country visits and assessment of the human and technical capacities of the partners, trainings and capacity building on issues related to information sharing, negotiations and mutual agreements, SPS requirements, etc.

3.2.4 Activities implemented at the trade route level (countries involved in specific trade route initiatives and enterprises)

This option mirrors current trade patterns and thus seems to be the most realistic and appropriate to achieve the overall goals of BESST initiative. It considers the specificity of livestock export trade routes/corridors as outlined earlier. It explores the specifics associated with traceability in livestock commodity supply chains and identifies the "critical control points" for the delivery of safe live animals. From the Horn of Africa side, the approach will require collaboration between the different countries involved in the same livestock trade/export corridor. From the Arabian Peninsula side, it will also require collaboration between countries involved in the same livestock import trade route. As mentioned above, there are livestock import trade routes (either formal or informal) linking Yemen with Saudi Arabia, Yemen with Oman and Saudi Arabia with other AP countries. In the HoA region, these trade routes may involve Djibouti, Ethiopia, Kenya and Somalia.

This option also presents other issues that should be considered. For instance, it is marginally applicable for meat and other livestock products exports. It requires a high degree of collaboration and agreement between the countries involved in the same trade route. It also requires a change of the mindset of the governing authorities shifting from being competitors to becoming allies. One major challenge is that regional organisations, such as IGAD and GCC, have a mandate that goes beyond specific trade routes, which may weaken their possible influence – and interests – in the definition of workable solutions.

3.2.5 Which option to choose?

The question asked might not be the appropriate one. In fact, from the previous subsections, it is clear that all layers of implementations/options present advantages, constraints, and related risks (Table 3.7).

TABLE 3.7. MATRIX SUMMARIZING THE PROS AND CONS OF EACH REGION AND LAYER OF IMPLEMENTATION

Advantages	Disadvantages	Feasibility /Risks	Countries
NATIONAL LEVEL			
- Focusing on specific major import or export countries of livestock and/ or meat - Enough resources to implement activities instead of spreading them thinly - Good starting point and showcase for a possible first phase (5 years) of BESST initiative, followed by a second phase of 5 years targeting additional countries with regional focus - Does not need consensus between countries at regional or trade route level - Applies to both live animals and meat trade - Targeted interventions at country level	- May not take into account the regional/ trade route dimensions of livestock trade or the raw material (inputs-live animal) origin from other countries, thus "ignoring" potential upstream animal health and other issues - Loses the regional dimension and the intra-countries collaboration which is needed especially for the HoA countries - Less impact at a regional level - For landlocked countries like Ethiopia it is not feasible for direct live animal exports to AP - Could be affected by livestock import bans targeting whole regions - Does not consider informal cross-border trade	- Feasible with low risk of failure because of the country specific dimension of implementation - For exporting countries, disease outbreaks in other HoA countries might have huge negative impacts on its exports - Terrorism, insecurity and/or political instability in specific target country(ies) could highly affect implementation	- Somalia - Sudan - Ethiopia - Kenya - Djibouti - Eritrea - Oman - Saudi Arabia - UAE - Yemen
REGIONAL LEVEL (HOA OR AP / OR PARALLEL REGIONAL EFFORTS)			
- From the supply side (HoA) this will increase collaboration and harmonisation between the countries which many of them are involved in the trade route - From the demand side, this will also improve collaboration but will have relatively low impacts on livestock producers from the producing/ exporting countries - First phase (5 years) of BESST could focus in one region and the second phase (5 years) in another region - For the HoA countries, it will allow a one response/voice/solution to a regional ban for livestock products - Considers the informal cross-border trade - Matches scope of existing regional institutions	- The demand sidewill be missing which negatively affects the desired impacts of the initiative and a loss of its essence - Not applicable for meat trade - Somehow ignores the investments made by private companies from the non-focus region - Low level of collaboration and concertation between the two regions	- Political issues and tensions between countries from the same region would hinder the implementation of the activities - Competition between countries from the same region (mainly HoA) might impede smooth implementation - The proposed activities might be of low interest/impact on the other region and on the overall trade between the two regions	- Djibouti, Ethiopia, Eritrea, Kenya, Somalia, Sudan - Oman, Saudi Arabia, UAE, Yemen

TABLE 3.7. (CONT.) MATRIX SUMMARIZING THE PROS AND CONS OF EACH REGION AND LAYER OF IMPLEMENTATION

Advantages	Disadvantages	Feasibility /Risks	Countries
INTER-REGIONAL LEVEL (INTEGRATED HOA AND AP)			
- Takes account of both sides, exporting and importing regions - Foster collaboration between the countries in each region, and between the two blocs - Considers informal cross-border trade - Within scope of existing regional institutions	- Needs large resources - Needs time to build agreements, harmonisation and implementation - Needs consensus by all countries - Probably not applicable for meat trade	- Political issues and tensions between countries from the same region could hinder implementation - Competition between countries from the same region (mainly HoA) might impede smooth implementation - Low impacts/achievements because of time and resource pressures	- Somalia, Ethiopia, Sudan, Djibouti, Eritrea, Kenya, Egypt, Uganda, South-Sudan - Saudi Arabia, Oman, UAE, Yemen, Qatar, Kuwait, Bahrein
TRADE ROUTE LEVEL (COUNTRIES INVOLVED IN SPECIFIC ROUTE)			
- Considers the specificity of livestock trade in the region - Considers the specificity of livestock export routes like Ethiopia-Somalia, Kenya-Somalia, Ethiopia-Djibouti, Ethiopia-Sudan, Ethiopia-Eritrea, etc. - Considers the specificity of livestock import routes like Yemen-Saudi Arabia; Yemen-Oman - Considers informal cross-border trade	- Not applicable for meat trade - Needs collaboration and consensus between the trade route/corridor countries - Subject to the political climate of the involved countries - Competition between countries from the same region (mainly HoA) might impede smooth implementation - Limited influence/interest of regional institutions	- Feasible if the number of countries involved and trade routes are not too many (2 to 3 countries per trade route and around 2 to 3 trade routes) - Risk of failure if the political climate between the countries involved in the trade route is not favourable	- Kenya, Ethiopia, Somalia, Saudi Arabia - Ethiopia, Somalia, Oman - Ethiopia, Djibouti, Saudi Arabia - Ethiopia, Eritrea, Saudi Arabia - Somalia, Yemen, Saudi Arabia - Sudan, Yemen, Oman - Somalia, Yemen, Oman

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Photo Z. Sewunet/ILRI

WORKSTREAM 4

SOCIO-ECONOMIC ASSESSMENT OF TRADE IN LIVESTOCK AND LIVESTOCK PRODUCTS ACROSS THE RED SEA


Photo K. Dhanji/ILRI

This section provides an overview on the social and economic significance of the trade in livestock and livestock products between the HoA and the AP countries. It also summarises the main costs resulting from livestock trade bans and other livestock import rejections. Three case studies highlight the socio-economic impacts of the main impediments to trade in animals and animal products between the two regions. The section concludes with data and information about the costs of investments to implement the BESST initiative and the projected benefits.

4.1 Introduction

As previously mentioned, the livestock trade between the Horn of Africa (HoA) and the Arabian Peninsula (AP) goes back many centuries. However, in the last decades (mainly from the eighties of the twentieth century) the trade between the two regions has witnessed a number of livestock trade bans because of disease outbreaks in the producing countries.

Saudi Arabia, the biggest livestock importer in the region, was and still is the main initiator of these bans. The bans varied in their (a) durations between tens of months and years (the longest ban was the 2000-2009 ban imposed by Saudi Arabia and followed by the other GCC countries and Yemen), in their (b) degrees of restrictiveness (the current Saudi Arabia ban on Somali livestock which started in November 2016 is lifted during the Ramadan-Hajj season for around 2 to 3 months and then reinstalled again for the rest of the year), in the (c) number of affected/targeted countries (sometimes all HoA countries and sometimes specific countries like Somalia or Sudan), and in the (d) countries imposing the ban (sometimes all GCC countries and sometimes only specific countries like Saudi Arabia). Probably the unique common factor characterising these bans is that when imposed, they are applied to all livestock species (sheep and goats, cattle, camels, etc.).

In addition to the livestock import bans, there are also cases of occasional livestock consignment rejections at the port authorities in the importing countries which happen when some animals present visual cues of sickness or when laboratory tests indicate the (direct or indirect) presence of specific disease(s). In these cases, depending on the disease situation in the exporting country, either the whole consignment is rejected and the shipment returned (or is supposed to be returned), or the sick animals are disposed of and the others are confined and isolated in a quarantine station for monitoring and additional examination.

When instituting livestock import bans and when rejecting a specific consignment, the authorities of the importing countries do so with the aim of protecting their own livestock from contagious diseases and also to protect humans from zoonotic diseases. These trade restrictions (sometimes justifiable and based on genuine laboratory tests, and sometimes less justifiable) have negative impacts mainly on the livestock sector/value chain of the banned exporting countries. They often also impact negatively on other related sectors as well as the entire economy of the exporting countries.

Here, we will first highlight the importance of the livestock and livestock products trade for the HoA countries. We then provide examples and evidence of the costs of the main impediments to trade with emphasis on the socio-economic effects of livestock import bans experienced during the last decades. We will present the estimates of the costs of investments needed to overcome the main barriers to livestock trade between the HoA and the AP countries. These costs will represent the overall BESST budget. Finally, we present the socio-economic benefits of investing in animal health and veterinary services.

4.2 Data and methodology

4.2.1 Data

The data used in this section are mainly secondary data obtained from different official sources including the UN Comtrade database (https://comtrade.un.org/), FAOSTAT database (http://www.fao.org/faostat/en/#home), yearly reports on Livestock Marketing Information System (LIMS) of the Somaliland Chamber of Commerce, Industry and Agriculture (SLCCIA) (http://www.somalilandchamber.com/), and IFPRI Social Accounting Matrices, among others. We have also used ILRI secondary data collected from previous household and livestock sector surveys.

4.2.2 Methodology

A mix of different methods and tools were used to analyze the data, to describe the trade of live animals and animal products, and to assess the costs of the main impediments to trade, those of the investments needed and the socio-economic benefits of investing in animal health. These methods are summarized as follows:

Descriptive statistics and previous studies

We used descriptive statistics and also data and information from previous studies to develop and draw the trends of livestock exports from the HoA countries and also to provide estimates of the costs of interventions and those of the main impediments to trade in animals and animal products.

System dynamic modelling

We used the System Dynamic (SD) model to analyze the impacts of a livestock export ban, allowing for (i) simultaneous inclusion of the different factors that jointly determine the volume of trade; (ii) inclusion of the effect of bans on domestic prices which in turn affect the magnitude of revenue loss by value chain actors; and (iii) inclusion of the effect of the reduced animal offtakes on herd dynamics and hence productivity. In effect, using SD for the impact analysis makes it easier to estimate a good counterfactual, that is, performance of the (small) ruminant production and marketing system in the absence of the ban but in the presence of variation in other factors affecting it. The counterfactual can then be compared with actual situation in the case of a historical ban or projected situation from the model in the case of an ongoing or a hypothesized ban.

Use of system dynamic modeling is increasingly gaining popularity in analysis of agriculture and livestock production and marketing systems which are characterized by complexity including interdependence, mutual interaction, information feedback, and circular causality. The basic elements of a SD model include stocks, flows and feedback loops. Stocks are accumulations, for instance, stocks of animals at a given time. The stocks change through flows (both inflows and outflows) which are in turn modulated by feedback loops. The SD Model used in the current case was developed by a project funded by DANIDA and implemented by ILRI and Terra Nuova (2016 to 2018) in Somalia as part of the project's policy analysis component. The model has five modules including (i) pasture production and consumption module; (ii) small ruminants breeding and population dynamics modules; (iii) small ruminants export marketing module; and (iv) domestic marketing of small ruminants for slaughter module. Annex 9 (Figures A.9.5 to A.9.9) presents the structure of the different modules in the model which was constructed and run in a system dynamic modeling platform.

Social accounting matrices

A Social Accounting Matrix (SAM) denotes a type of economywide ledger of economic activities in an economy, where revenues earned, and expenditures incurred are recorded. These activities, referred to as accounts in the SAM, can be classified on the basis of specific economic sectors as well as factors of production (labour, capital, land) and household groups that earn and spend income from different economic sectors. As SAMs are a type of accounting ledger, they must follow the principle of double-entry accounting so that account's revenues must exactly equal its expenditures (Rich et al., 1997).

A SAM can be transformed into what is called a matrix of "multipliers". A multiplier reveals the amount by which a shocked sector (or total output or value-added) increases (or contracts) from a one-unit increase (decrease) in the value of final demand, defined as from government spending, investment, or exports. Sector multipliers highlight the importance of different sectors and how they might be affected by external shocks such as an export ban. In an animal health context, Roeder and Rich (2010) computed multipliers for a set of African and Asian economies to assess the importance of the livestock sector in the context of quantifying the impact of rinderpest eradication, while Jones et al. (2016) used a multiplier analysis to estimate the potential downstream benefits associated with PPR eradication.

SAMs can also be used as an input for a computable general equilibrium model, which is an economic model that can be used for simulating the effects of technologies or policies at economywide scale (Sadoulet and de Janvry 1995). While SAMs can also be used for scenario analysis using the matrix of multipliers, an important assumption in such applications is that the economy is demand-driven, meaning that prices do not change as a result of a shock. As a result, SAM multiplier analysis is more suited to providing a snapshot of short-run impacts. By contrast, CGE models can analyze price changes and a host of other second-round effects, although at the expense of much greater modelling complexity. As an example, Nin Pratt et al. (2005) previously used a CGE analysis to look at the impacts of trade bans caused by Rift Valley fever in the Somali region of Ethiopia. Their analysis revealed a nominal reduction of regional GDP of 36%, or US$135 million in nominal terms, in that part of Ethiopia[1].

4.3 Trade of live animals and animal products

In this section, we review trade trends for selected animal commodities from selected HoA countries (Djibouti, Ethiopia, Kenya, Somalia, and Sudan) and the AP for the most recent years available. We utilized the UN Comtrade database (http://comtrade.un.org) which provides Customs data organised under the harmonised System (HS) for reporting import and export data.

Our analysis focuses on six categories of products at four-digit HS level: two types of traded live animals (cattle and sheep/goats) and four categories of meat (chilled beef, frozen beef, sheep/goat meat, and beef offal). Minor offal products (found in HS 0210 and certain products in chapter 5 of the HS) and highly processed meat products (found in chapter 16 of the HS) were excluded from the analysis[2].

1 / Ethiopia never declared RVF on its territory, but it suffers the consequences of bans as much of its cattle transits through third countries affected by RVF.

2 / Trade in processed products in chapter 16 (which includes sausages and meat preparations) is less than US$1 million, and includes non-beef, non-sheep/goat products. Trade in pig meat (HS 0203), targeted at specific expatriate populations in the GCC, was less than US$1 million in the last three years (2016-2018) and mostly originating from Kenya.

UN Comtrade reports data from the standpoint of both exporters and importers, although there are often significant discrepancies in what a given country reports as exports and what a recipient country receives from an exporter as imports. In addition, a number of countries do not consistently report export data. As a result, a more pragmatic means of looking at trade volumes is from the standpoint of the importing country (in this case, those in the AP) from markets in the HoA. In Tables 4.1 to 4.6 below, we present trade flows for the most recent years available (2014-2017) for which we have a relatively complete dataset[3]. A full set of data for meat products exists up to 2016 for all GCC countries. In 2017, Qatar and Kuwait did not report import data (though Kuwait did for 2018). In 2016, live animal trade data from Saudi Arabia were inconsistently reported, the recorded trade volumes are therefore an underestimation.

Despite these caveats, a number of interesting trends emerge from the trade data. First, while data over the most recent years is incomplete, it appears that traded values of live animals, particularly cattle, have been declining. For the most recent years available where we have a full data series (2014-2016), the value of cattle imports fell from just over US$ 96 million in 2014 to just US$ 63 million in 2016. For sheep and goats, trade values peaked in 2015 at US$ 973 million before falling to US$ 808 million in 2016 (Tables 4.1 and 4.2). The market share of HoA countries has remained fairly stable for both products, between 71-79% for live cattle and 61-69% for live sheep and goats.

TABLE 4.1. GCC IMPORTS OF LIVE CATTLE FROM THE HORN OF AFRICA (2014-2017)

Source	2014		2015		2016*		2017**	
	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)
Djibouti	1,221.1	2,464.5	1,182.7	2,100.3	5471.2	9,854.6	940.1	1,714.6
Ethiopia	-	-	58.5	56.6	-	-	902.2	2,003.7
Kenya	-	-	-	-	-	-	-	-
Somalia	39,296.9	93,588.9	43,727.1	91,179.6	18,831.0	52,934.1	18,676.4	47,789.9
Sudan	-	-	55.0	149.1	-	250.9	358.5	819.2
TOTAL	**40,518.0**	**96,053.3**	**45,023.3**	**93,485.7**	**19,214.2**	**63,039.6**	**20,877.2**	**52,327.4**
HoA share	86%	78%	78%	71%	NA	79%	93%	90%

Source: UN Comtrade for HS 0102
*2016 volume data for Saudi Arabia is inconsistently reported and thus totals under-report traded volumes
**2017 data excludes imports from Qatar and Kuwait

TABLE 4.2. GCC IMPORTS OF LIVE SHEEP AND GOATS FROM THE HORN OF AFRICA (2014-2017)

Source	2014		2015		2016*		2017**	
	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)
Djibouti	11,715.0	21,915.0	8,418.2	16,088.3	1,330.7	6,488.3	15,187.3	30,516.3
Ethiopia	200.4	627.4	187.4	550.3	54.2	200.8	93.1	452.2
Kenya	-	-	-	-	-	-	-	-
Somalia	94,281.1	339,792.0	107,585.3	395,181.9	66,392.3	376,895.7	55,963.0	171,735.8
Sudan	138,900.4	484,656.9	162,048.1	561,469.7	144,358.8	424,352.0	152,150.1	526,340,0
TOTAL	**245,097.0**	**846,991.3**	**278,239.1**	**973,290.2**	**212,136.1**	**807,936.8**	**223,393.5**	**729,044.3**
HoA share	60%	61%	66%	69%	NA	69%	NA	86%

Source : UN Comtrade for HS 0104
*2016 volume data for Saudi Arabia is inconsistently reported and thus totals under-report traded volumes
**2017 data excludes imports from Qatar and Kuwait

3 / Data for Yemen in UN Comtrade are only available until 2015. Imports from the Horn of Africa are comprised only of live animals, not meat, and with the exception US$ 700 in trade in live cattle from Jordan in 2014, all live imports come from Djibouti, Ethiopia, or Somalia. In 2014, Yemen imported just over US$4 million of live cattle (almost all from Somalia) and US$ 13.7 million of live sheep, of which 98% came from Somalia and 2% from Ethiopia. In 2015, imports fell sharply to US$ 2.65 million of live cattle (82% from Somalia, 18% from Djibouti) and US$ 5.92 million of live sheep (99% from Somalia, and the remaining 1% shared between Djibouti and Ethiopia).

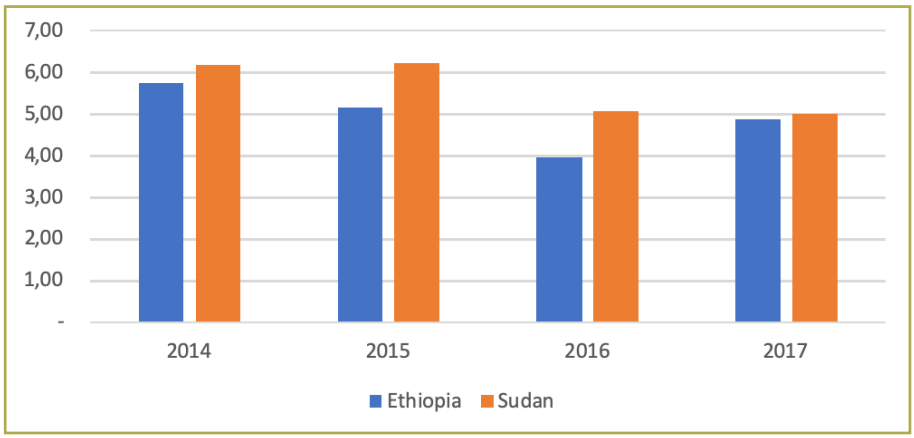
A second interesting trend from the import data is the sharp rise, albeit from a low base and remaining at low level, in imports of chilled beef by GCC countries originating from the HoA. In Table 4.3, despite the inconsistencies in the data for 2017 (lack of reporting by Qatar and Kuwait, the latter an important importer of chilled beef), we see a sharp rise in the value of chilled beef imports from US$ 1.6 million in 2014 to over US$ 15 million in 2017. This has been fueled by gains from both Ethiopia and Sudan. On the other hand, as shown in Figure 4.1, the average unit value of imports from these two countries has been falling over this same period. This might suggest a greater diversification of product lines to Middle Eastern markets, or potentially improved productivity/competitiveness, though these hypotheses would need further exploration. Market share has further increased to about 3% (from 0.3%) over 2014-2017.

TABLE 4.3. GCC IMPORTS OF CHILLED BEEF FROM THE HORN OF AFRICA (2014-2017)

Source	2014		2015		2016		2017*	
	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)
Djibouti	-	-	-	-	-	-	-	-
Ethiopia	16.4	94.3	187.3	963.8	792.9	3,138.4	1,429.3	6,970.2
Kenya	18.8	165.7	33.4	198.8	15.4	87.3	2.8	14.7
Somalia	1.0	6.5	-	-	27.0	102.2	40.1	209.3
Sudan	223.3	1,380.9	300.1	1,864.8	1,005.9	5,091.8	1,597.5	7,976.5
TOTAL	**259.5**	**1,647.4**	**520.9**	**3,027.4**	**1,841.2**	**8,419.6**	**3,069.7**	**15,170.8**
HoA share	0.28%	0.31%	0.53%	0.51%	1.87%	1.43%	3.49%	2.96%

Source: UN Comtrade for HS 0201
*2017 data excludes imports from Qatar and Kuwait

FIGURE 4.1. UNIT VALUES (US$) OF CHILLED BEEF FROM ETHIOPIA AND SUDAN TO THE GCC, 2014-2017



Source: Computed from UN Comtrade data

Trade in frozen beef has also accelerated, as noted in Table 4.4, although traded volumes are considerably lower than chilled beef imports. Imports have particularly risen from Sudan, with import levels reaching US$ 107,000 in 2016 and likely exceeding that in 2017 were a full set of data available to highlight such trends.

TABLE 4.4. GCC IMPORTS OF FROZEN BEEF FROM THE HORN OF AFRICA (2014-2017)

Source	2014		2015		2016		2017*	
	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)
Djibouti	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	17,731	32,066	60	190
Kenya	9	34	17,696	20,023	19,627	20,635	18,101	18,344
Somalia	-	-	22,439	118,370	13,475	20,442	-	-
Sudan	1,500	8,251	2,000	9,447	22,296	107,000	17,775	106,193
TOTAL	**1,509**	**8,285**	**42,135**	**147,840**	**73,129**	**180,143**	**35,936**	**124,727**
HoA share	0.00%	0.00%	0.02%	0.02%	0.05%	0.03%	0.02%	0.02%

Source: UN Comtrade for HS 0202. *2017 data excludes imports from Qatar and Kuwait

With the slow decline in the volume of live sheep imports has come a steady rise in imports of sheep and goat meat (Table 4.5), with the value of GCC imports from the HoA rising from US$ 115 million in 2014 to nearly US$ 148 million in 2017. Much of this increase has been fueled from imports from Kenya. Market share of HOA countries has likewise risen from 11% in value terms in 2014 to 16% in 2016, with incomplete data suggesting a market share of 20% in 2017. Average unit values calculated from the data in Table 4.5 also show an increase in the prices of products sold from the HoA, from US$/kg 5.60 in 2014 to US$/kg 5.82 in 2017.

TABLE 4.5. IMPORT OF SHEEP AND GOAT MEAT FROM THE HORN OF AFRICA (2014-2017)

Source	2014		2015		2016		2017*	
	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)
Djibouti	16.1	20.0	-	-	51.0	204.1	15.1	68.4
Ethiopia	15,236.9	84,829.1	17,489.6	99,275.8	17,003.3	95,028.9	16,374.0	95,850.9
Kenya	2,580.8	13,752.7	2,900.9	16,509.3	3,980.6	23,611.6	5,819.8	34,208.0
Somalia	507.7	2,687.5	1,740.5	9,482.9	772.0	3,056.9	833.9	3,343.0
Sudan	2,160.5	13,556.6	2,027.9	13,273.7	2,779.1	15,572.2	2,360.1	14,445.4
TOTAL	**20,502.0**	**114,845.9**	**24,158.9**	**138,541.8**	**24,586.0**	**137,473.8**	**25,403.0**	**147,915.7**
HoA share	12%	11%	13%	14%	15%	16%	19%	20%

Source: UN Comtrade for HS 0204. *2017 data excludes imports from Qatar and Kuwait

Finally, trade in beef offal has exhibited a modest increase over 2014-2016, rising in value terms from US$ 998,000 in 2014 to US$ 1.18 million in 2016 (Table 4.6). Trends for 2017 are difficult to discern – there was a sharp decline in offal imports by Saudi Arabia in 2014 than was later offset by a rise from countries like Qatar, but it is not clear as to whether Qatari imports in 2017 would have arrested the decline that the 2017 data provisionally highlight.

TABLE 4.6. GCC IMPORTS OF OFFAL FROM THE HORN OF AFRICA (2014-2017)

Source	2014		2015		2016		2017*	
	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)	Net weight (tonne)	Value (10^3US$)
Djibouti	-	-	-	-	-	-	-	-
Ethiopia	223,000	847,020	219,408	865,634	3,260	20,513	8,332	16,960
Kenya	34,190	150,480	41,832	206,171	66,605	231,670	36,732	79,954
Somalia	-	-	28,000	86,205	54,000	324,424	-	-
Sudan	-	-	38,000	10,426	135,380	599,333	700	3,900
TOTAL	**257,190**	**997,500**	**327,240**	**1,168,436**	**259,245**	**1,175,940**	**45,764**	**100,814**
HoA share	1.19%	2.18%	1.37%	2.44%	1.27%	2.92%	0.22%	0.28%

Source: UN Comtrade for HS 0206. *2017 data excludes imports from Qatar and Kuwait.

4.4 Costs of the main impediments to trade in livestock and livestock products

In this section, we used a mix of methods mainly exploiting results from ex-post assessments of livestock trade bans from previous studies found in the literature, in addition to case studies we developed using SD modelling and SAMs. But before moving to these reviews and assessment, it is important to clarify the different types of costs incurred when livestock bans are installed or when consignments are rejected.

The relative complexity of the value chain actors directly and indirectly affected by such restrictions as well as other indirect beneficiaries, justify some "simplifications" and a focus on the more substantial costs and sometimes assessable/measurable costs. For these reasons, the case studies developed, and the results found in the literature might probably not cover all the costs incurred, but only the most important ones.

4.4.1 Cost types associated with main constraints to the trade of livestock and livestock products

The main constraints to livestock and livestock products trade between the HoA and the AP countries are essentially related to the safety of the products traded which could result in some cases in either trade bans, rejection of whole consignments, or disposal of the affected products. All these protective measures disrupt trade and mainly result, at different degrees, in costs and losses for the actors involved in the value chain. The trade ban definitely has the highest cost since it completely stops trade between the involved countries for a period of time that could vary from months to years.

In this subsection we describe the different costs/losses incurred from such trade restrictions. The paragraphs below summarize the different costs that could be incurred.

a. Livestock ban due to suspected or confirmed disease outbreak:

- Losses related to the non-export of livestock. This is simply computed as the number of animals not exported due to the ban, times the price of the animal (computed for each livestock species separately). These losses mainly affect livestock producers, livestock traders, livestock exporters, agents of livestock importers, and eventually livestock importers.
- Losses of revenue incurred by the livestock exporting country. Generally, the export of livestock generates government revenues from the perception of taxes. For each livestock species, there is a fixed amount of tax per head of animal perceived. For instance, in Somaliland, the local government perceives export levies of US$ 3.5 per head of sheep or goat, US$ 12.5 per cattle and US$ 17.5 per camel (Holleman, 2002).
- Losses of revenues incurred by the port authorities of the exporting country due to the losses on port charges and commissions on export vessels. These fees on export vessels are related to pilotage fees, dockage fees, mooring charges, launch service fees, boarding and immigration fees, harbour and manifest fees (Holleman 2002). In the case of Berbera port, it also perceives commissions on the export of livestock estimated at US$ 0.065 per head of sheep or goat, US$ 0.263 per head of cattle, and US$ 0.526 per head of camel.
- Losses of port revenues and taxes perceived by governments in importing countries. These loses could be minimal/very low, since other livestock suppliers from other exporting countries will generally fill the livestock import demand gap.

- Losses in terms of foreign currency generated. For a country like Somalia, livestock exports represent a very important source of foreign/hard currency. The losses due to a livestock export ban would negatively affect the local currency through its devaluation resulting in inflation.
- (indirect) Losses for livestock producers, traders and brokers due to the decrease in livestock prices at local markets.
- Losses for service providers like export quarantine stations, feed and fodder producers and traders.
- Losses of jobs directly or indirectly associated with livestock exports and increase of migration to urban areas generating problems of urban poverty and unemployment.
- Increasing land and rangeland degradation because of low offtake of animals and resulting in over-grazing. Also, losses related to deforestation processes due to an increase in other income generating activities like wood-cutting and charcoal making.

b. Livestock ban due to confirmed zoonotic disease outbreak:

- In some cases, there are human health infections resulting from animal disease outbreaks and eventually losses in both producing and exporting countries. These infections and deaths incur losses that are in most cases not accounted for.
- Costs of livestock vaccinations and eventually those related to livestock deaths.

c. Consignment rejections:

Losses related to consignment rejections are relatively lower compared to those incurred due to livestock import bans. These losses encompass:

- If the animals are ceased/impounded and disposed of (killed because of the severity of the disease) the losses will be mainly at the expense of the livestock exporter (and in extenso also to the producers and traders) and will include:· Losses computed as the number of animals disposed/destroyed, times their market price (by species).
  · Costs of vessel transport, ports fees (in exporting and importing countries), quarantine fees (exporting country), governments (exporting and importing countries) taxes, etc.
  · Costs of the diagnostic analyses done and the disposal of the animals
- If the consignment is rejected and returned without ceasing the animals/impounding the cargo, the costs will be mainly those related to:
  · Costs of vessel transport (two-ways) and/or redirection to another country, ports fees (in exporting and importing countries), quarantine fees (exporting country), governments (exporting and importing countries) taxes
  · Costs of the diagnostic analyses done at the importing country

Photo Z. Sewunet/ILRI

4.4.2 Case study 1 - Macroeconomic assessment of selected Horn of Africa countries: What effects do SPS-related trade bans have on national economies?

Here, we provide some case studies to explore the impacts that trade bans from the AP could have on selected HoA economies to assess the magnitude of such types of "avoidable losses". We utilized social accounting matrix (SAM) to perform our analysis.

The analysis in this section provides some insights using a SAM multiplier analysis for Ethiopia and Sudan, based on SAMs developed by the International Food Policy Research Institute (IFPRI). The two SAMs are based on national accounts for 2011 Ethiopia (Ahmed et al., 2017) and 2012 Sudan (Siddig et al., 2018). While the data used to generate these SAMs are dated, the input-output coefficients that specify the interdependencies of economic activities are typically more stable in the short- to medium-term, so that the percentage changes reported from a SAM analysis can provide some credible insights on the magnitude of prospective impacts from different shocks.

In Table 4.7, we first report selected SAM multipliers for different livestock accounts in each country to assess their importance relative to other sectors. These multipliers can be interpreted as the impact of a one-unit increase in export demand. They are ranked on the basis of which sectors generate the highest amount of economic activity if export demand in that sector is increased. As noted in the table, an increase in livestock export demand generates stronger growth impulses in the economy in Ethiopia than in Sudan, with the livestock sector accounting for four of the top ten sectors in generating the most economic output from a rise in export demand for its products. By contrast, both the magnitude of multipliers and their rank are lower in Sudan, though multipliers for sheep and goats are ranked 11th and 9th, respectively.

The SAM multiplier matrix can also be used to assess the impacts of a simulated trade ban in the livestock sector in both countries. We consider a hypothetical reduction of 50% of livestock and meat exports in both countries to establish the impacts on specific economic sectors (including livestock), overall economic output, GDP, and differential effects of household livelihoods based on their socio-economic status. We report these reports in Tables 4.8 and 4.9 for Ethiopia and Sudan, respectively. In Ethiopia, a 50% reduction in exports causes sharp losses in the meat sector (a reduction of over 10% in economic output), but also causes losses in the live animal sector, the feed sector, and feed crops such as maize, sorghum, wheat, and barley, all of which fall by over 2%. Total economic output falls by 1.2% in such a scenario, while GDP at factor cost (value added before taxes) falls by 1.1%. The poorest income groups face the greatest losses in percentage terms, particularly those in rural areas, where the bottom two quintile see income losses of 1.3%.

TABLE 4.7. SELECTED SAM MULTIPLIERS FOR LIVESTOCK ACCOUNTS IN ETHIOPIA AND SUDAN

Country (year of SAM)	Sector	Output multiplier (rank)	Labour multiplier (rank)	Household income multiplier (rank)	Household income multiplier – poor farming households*
Ethiopia (2011)	Cattle	4.02 (3/71)	1.01 (16/71)	2.03 (22/71)	0.52 (22/71)
	Sheep	3.86 (5/71)	1.03 (15/71)	2.29 (12/71)	0.60 (14/71)
	Goats	3.77 (8/71)	1.08 (11/71)	2.37 (8/71)	0.62 (12/71)
	Meat	4.58 (1/71)	0.91 (24/71)	1.94 (24/71)	0.45 (25/71)
Sudan (2012)	Cattle	1.29 (46/57)	0.101 (47/57)	0.147 (46/57)	0.032 (42/57)
	Sheep	2.26 (11/57)	0.282 (39/57)	0.341 (34/57)	0.079 (26/57)
	Goats	2.30 (9/57)	0.350 (29/57)	0.433 (25/57)	0.0982 (18/57)

In Sudan, by contrast, losses are more modest than in Ethiopia. Only the sheep and goat sectors face losses over -1% (-4.5% for sheep and -1.7% for goats), while most sectors see losses of less than -0.1%. Exceptions as noted in Table 4.9 include feed (-0.51%), insurance (-0.41%), irrigation water (-0.39%), and a couple of transport sectors with losses between -0.1% and -0.2%. Economic output falls by -0.23%, while GDP falls by -0.17%. Income losses across household groups are quite modest, reflecting the reduced importance of livestock demand shocks on household incomes in Sudan relative to Ethiopia.

TABLE 4.8. IMPACTS OF A 50% REDUCTION IN EXPORTS DUE TO A SIMULATED TRADE BAN ON LIVE ANIMALS AND MEAT IN ETHIOPIA

Sector effects	Change in value
Maize	-2.1%
Sorghum	-2.5%
Wheat	-2.1%
Barley	-2.8%
Cattle	-6.2%
Sheep	-2.8%
Goats	-0.9%
Meat	-10.1%
Feed	-3.7%
Water	-2.0%

Total effects	Change in value
Total economic output reduction	-1.2%
Total reduction in GDP at factor cost	-1.1%

Household effects	Change in value
Rural farm - quintile 1	-1.3%
Rural farm - quintile 2	-1.3%
Rural farm - quintile 3	-1.2%
Rural farm - quintile 4	-1.1%
Rural farm - quintile 5	-0.9%
Rural nonfarm - quintile 1	-1.1%
Rural nonfarm - quintile 2	-0.9%
Rural nonfarm - quintile 3	-0.8%
Rural nonfarm - quintile 4	-0.7%
Rural nonfarm - quintile 5	-0.6%
Urban - quintile 1	-0.8%
Urban - quintile 2	-0.8%
Urban - quintile 3	-0.7%
Urban - quintile 4	-0.7%
Urban - quintile 5	-0.6%

Source: Results from the 2011 Ethiopia SAM

TABLE 4.9. IMPACTS OF A 50% REDUCTION IN EXPORTS DUE TO A SIMULATED TRADE BAN ON LIVE ANIMALS AND MEAT IN SUDAN

Sector effects	Change in value
Cattle	-0.17%
Sheep	-4.48%
Goats	-1.66%
Feed	-0.51%
Irrigation water	-0.39%
Trade	-0.19%
Water transport	-0.14%
Insurance	-0.41%

Total effects	Change in value
Total economic output reduction	-0.23%
Total reduction in GDP at factor cost	-0.17%

Household effects	Change in value
Rural - quintile 1	-0.08%
Rural - quintile 2	-0.07%
Rural - quintile 3	-0.08%
Rural - quintile 4	-0.07%
Rural - quintile 5	-0.06%
Urban - quintile 1	-0.05%
Urban - quintile 2	-0.05%
Urban - quintile 3	-0.05%
Urban - quintile 4	-0.04%
Urban - quintile 5	-0.03%

Source: Results from the 2012 Sudan SAM

4.4.3 Case study 2 – An SPS certification system for beef exports from Ethiopia[4]

Rich et al. (2009) conducted an analysis of a proposed two-stage system for ensuring compliance with SPS standards for beef exports from Ethiopia to the Middle East. This system, championed by the SPS-LMM program with funding from USAID and implemented by Texas AgriLife Research, aimed at enhancing the ability of Ethiopia to add value to its livestock exports through the sale of chilled beef cuts instead of relying on traditional sales of live animals where value added is captured by consuming countries. Indeed, the Ethiopian government had set an ambitious target of 30,000 tons of beef exports during the time of study, signaling the commitment of the public sector to generate greater value from cattle.

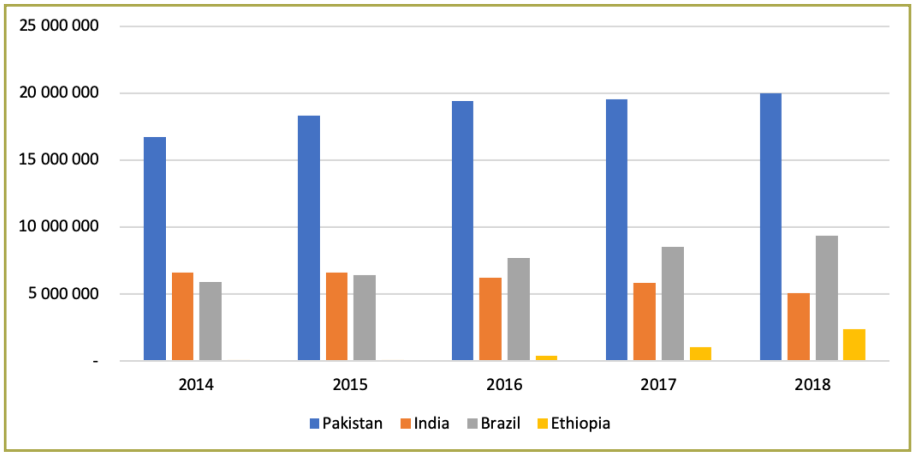
The two-stage system includes a first-stage process of rigorous selection, vaccination, and 21-day quarantine of purchased animals from local markets, followed by their movement to a feedlot in an all-in, all-out cohort system to bring animals to export weight (400 kg) over a 90-day period. The system thus aimed to both increase the quality of animals and to meet SPS standards of high-value markets in the Middle East and eventually to those in the developed world.

The analysis looked at whether this proposed system would impinge upon the competitiveness of Ethiopia's meat exports in target Middle Eastern markets. Using a system dynamics (SD) model to characterize the system and its cost drivers, it ran a variety of scenarios based on different feed rations, rejection rates due to disease, subsidies, margins, productivity levels, transportation costs, and other marketing parameters to ascertain the break-even price of beef produced under this protocol. This price was then compared to prevailing prices in major markets in the Middle East. The analysis provided some interesting, and somewhat unexpected, findings. On the one hand, the added costs from the system of the new SPS protocols themselves only added 4-5% to the final price of exported beef. On the other hand, meat generated from this protocol was generally not competitive in Middle Eastern markets, due to the high costs of feed to finish cattle on feedlots. These findings reflected the situation in 2008-2009 (during the study period) and the conditions have changed since then (production costs decreased).

The analysis was somewhat skeptical in the short-term on how Ethiopian meat could be positioned in global markets. Targeting Middle Eastern markets with a more expensive product to price-sensitive segments currently served by Brazil, India, and Pakistan would be a daunting proposition without greater efforts on marketing and branding Ethiopian products, or finding appropriate market segments (foodservice, hotels, restaurants) willing to pay a premium for Ethiopian beef with a relatively unknown reputation in the market.

Recent trends, as described in the first section, nonetheless show a sharp rise in the export of chilled beef from Ethiopia over the past few years. Data from UAE, the largest market for Ethiopian beef, highlight rising imports of chilled beef in general, but also a decline in the volumes imported from India, a traditionally large market for beef for expatriate populations from the Indian sub-continent. Such imports have fallen by over 1.5 million kgs since 2014, while imports from Ethiopia have increased from negligible amounts to over 2.3 million kg in 2018 (Figure 4.2). While further analysis is needed, Ethiopia has seemingly managed to reduce its export price to UAE by more than competitors over this period (Figure 4.3), which may partially explain these trends.

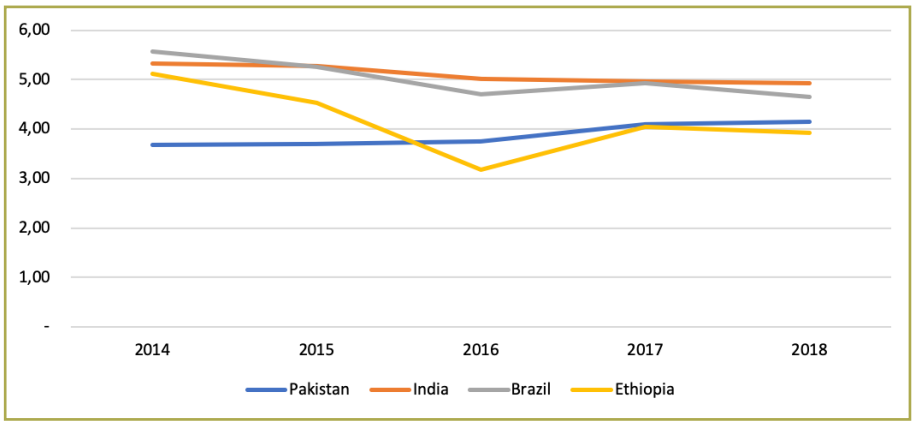
FIGURE 4.2. IMPORT VOLUMES (KG) OF CHILLED BEEF EXPORTS TO UAE FROM SELECTED MARKETS (2014-2018)



Source: UN Comtrade

4 / This is based on the study by Rich et al. (2009)

FIGURE 4.3. AVERAGE UNIT VALUE (US$/KG) OF CHILLED BEEF EXPORTS TO UAE FROM SELECTED MARKETS, 2014-2018



Source: UN Comtrade

4.4.4 Case study 3 - The impacts of the recent Saudi Arabia livestock import ban from Somaliland

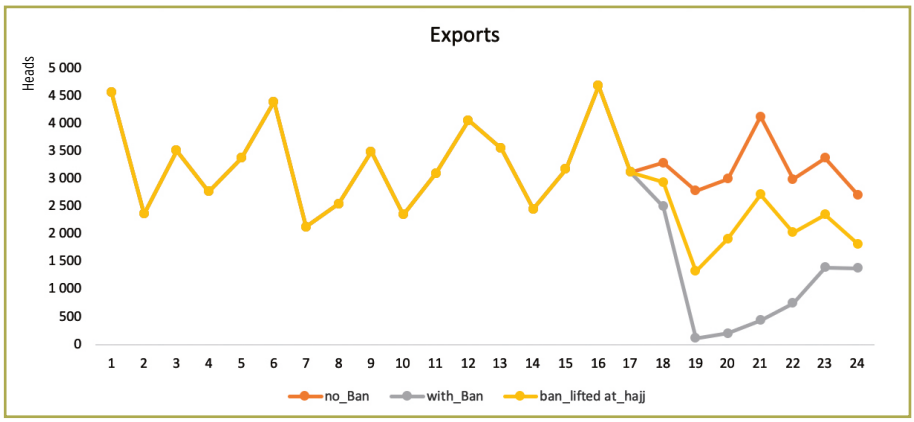
We used System Dynamics (SD) modelling to estimate the losses occasioned by the ban imposed by Saudi Arabia since November 2016 on livestock imports from Somaliland . A complex set of factors affect the volume of livestock exports from Somaliland including demand in the export countries, supply of export animals which is in turn influenced by feed availability and diseases among others. In a good impact assessment analysis, the effect of all these factors on the performance of the livestock trade should be filtered out before estimating the effect a livestock export ban.

In the past, countries in the AP and particularly Saudi Arabia have instituted numerous animal export bans against Somalia including the famous 2000-2009 ban and the ongoing ban instituted in 2016. The 2000-2009 ban was triggered by a fatal outbreak of Rift Valley Fever (RVF) in Saudi Arabia and Yemen in which 1,603 human cases were reported and 208 people died (WHO, 2018). The current ban was instituted after some animals in a consignment allegedly tested positive for RVF and Foot-and-mouth Disease (FMD) and has now lasted for more than 3 years. No outbreak of RVF had however been reported in Somalia at the time the ban was instituted. Unlike the 2000-2009 ban, the ongoing ban is temporarily lifted during the Hajj season to allow for imports of enough animals required for the religious rites performed during Hajj. This temporary lifting of the ban is perhaps because exports of live animals from Australia to Saudi Arabia is yet to resume since the introduction by the Australian government of the Exporter Supply Chain Assurance Scheme (ESCAS) in 2012. Under ESCAS, Australian livestock exporters may only export live animals to markets that meet specific animal welfare standards, with exporters allowed to retain control over the livestock to the point of slaughter to ensure the standards are met. If the exports from Australia were to resume, it may be reasonable to assume that the temporary lifting of the Somali ban may not be pursued. Thus, in this analysis, two scenarios are considered when trying to gauge the magnitude of the effect of the trade ban instituted by Saudi Arabia including (i) impact of a trade ban that persists during the Hajj season as was the case during the 2000-2009 ban and (ii) impact of a trade ban that is temporarily lifted during the Hajj season. For this analysis, the model is run for 216 months (18 years) to allow it to stabilize before the ban is instituted.

Consistent with available data from the SLCCIA, with no trade ban, the model output of number of small ruminants exported fluctuates at around 3 million head per year (Figure 4.4). The model estimates the number of animals exported when a trade ban is instituted in the 19th year closely mimicking the situation that unfolded both during the 2000 – 2009 Saudi ban and the current ban that started in late 2016. With no temporary lifting of the ban during the Hajj season, estimated volumes of animal exports fall to 4% of the projected potential of 2.8 million animals when the trade ban is instituted in the 19th year but then recovers gradually to about 1.4 million which is 75% of the projected potential by the 7th year of the ban. The growth in export volumes from the level immediately after the ban happens as value chain actors search and get into alternative but often less lucrative markets to mitigate their losses. In the second scenario where there is temporary lifting of the ban during the Hajj season, the projected volumes of animal exports are between 50% - 70% of the projected potential during the ban period (years 19th to 25th).

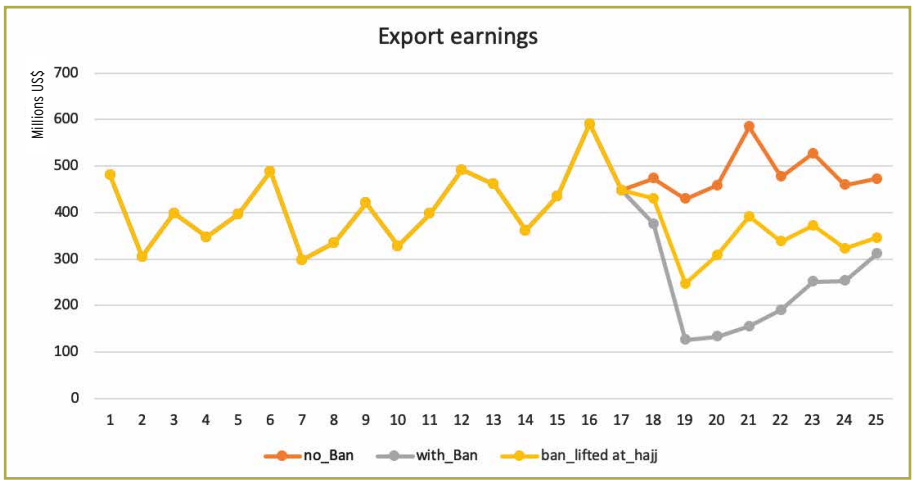
5 / The ban covers all livestock species from Somalia (including Somaliland) but because of the availability of precise data from Somaliland, through the Somaliland Chamber of Commerce, Industry and Agriculture (SLCCIA) website, we first studied the case of Somaliland and then in section 4.7 we made assumptions and generalized to the case of Somalia (entire country).

FIGURE 4.4. ESTIMATES OF TOTAL NUMBER OF SMALL RUMINANTS' EXPORTS FROM SOMALILAND WITH AND WITHOUT EXPORT BAN BY SAUDI ARABIA



The impact of an export ban on levels of income in the small ruminants' sector arises due to reduced sales coupled with effects on price due to increased supply in the local meat sector. Figure 4.5 shows the projected levels of income generated in small ruminants' industry with and without a trade ban. Without a ban, total revenue averages about US$ 0.43 billion per year. When an export ban that persists through the Hajj season is instituted, income falls to about 30% of the projected potential without the ban and stays at that level for 3 years before recovering by about 10% of the potential per annum to reach 70% of the projected potential in the 7th year. As expected, revenue drop associated with a ban that is temporarily lifted during the Hajj season is comparatively modest but still noticeable. In this second case, a revenue fall of 60% - 70% of the projected potential is predicted. Essentially, revenue losses associated with an export ban ranged between US$ 96.7 million - about US$ 430 million for a ban that persists through the Hajj season and US$ 43.2 million – US$ 193 million if there is temporary lifting of the ban during the Hajj season.

FIGURE 4.5. LEVEL OF INCOME (MILLION US$ PER YEAR) IN THE SMALL RUMINANTS' SECTOR IN SOMALILAND WITH AND WITHOUT EXPORT BAN BY SAUDI ARABIA



Other impacts

It should be noted that the analysis of the economic impact of livestock export trade bans in Somaliland using the SD model complement findings in the study by Holleman (2002). Other impacts in the case of the ban imposed by Saudi Arabia in 2000 included:

- a dramatic depreciation in the Somaliland shilling, and local-currency inflation of imported commodities. The dollar exchange rate of the Somaliland shilling dropped from SISh 3,487 at the time when the ban was imposed in September 2000 to SISh 6,200 in December 2002. The prices of imported goods such as petrol, rice, sugar, and wheat flour, while remaining steady in dollar terms, rose considerably in the local currency due to its depreciation, adversely affecting the purchasing power of Somaliland pastoralists.
- As a result of reduced revenue collection, the local government of Somaliland increased the rates of import duties to close the deficit in the total amount of revenue collected

- The ban forced some people to migrate into urban centers, increasing problems of urban poverty and unemployment.
- Environmental degradation due to extra animals left on the range and tendency of households to turn to wood-cutting and charcoal-making thus accelerating the deforestation process. As a result of increased grazing there was increased vulnerability to the impact of drought.

4.5 Costs of investments needed

The overall costs to implement the BESST initiative were assessed from the interventions previously identified. These costs were split into five main components. The first four components are those related to the four groups of interventions. The fifth component corresponds to project management needs.

These 5 components are as follow:

- Trust, communication and governance
- Knowledge and information
- Veterinary service performance
- Sector weaknesses
- Project management

The costs estimated are in some cases fully attributed to the BESST initiative, while in other cases we consider that BESST could provide seed funding to start/catalyze the intervention while additional funding should come from either the private sector, the public sector, or from both. The costs were assessed in US Dollars (US$), and in this initial stage because of the multiplicity of the potential beneficiary countries implying different currencies and different expected economic growth, we made the decision not to convert to local currencies. The costs were assessed for a period of 5 years which would correspond to the first phase of BESST. We expect that by the end of the first phase, project implementers, beneficiary countries, private sector and donors/project funders will review the achievements and outcomes of the first phase and will plan (if the first phase is judged successful) the development and implementation of the second phase.

The overall BESST initiative budget is around US$ 62.2 million (Table 4.10). The budget includes: the amount of funds that BESST should invest in specific activities identified as priority activities with urgent gaps to be addressed and with high likelihood of success, funds for activities of less priority but where BESST could play an important role, and finally funds called “seed funding” that BESST could provide to initiate or catalyze wider interventions outside of its direct control/remit. The latter interventions should also be funded by the beneficiary governments and private sector. The overall funds allocated for the interventions to address trust, communication and governance are around US$ 17.8 million representing 29% of the total budget. For the knowledge and information component, the overall budget is around US$ 11.2 million (18% of the total budget). The interventions to address veterinary services performance are costed at US$ 7.5 million (12% total budget), while interventions on sector weaknesses represent the highest share of the budget (37%) with an overall amount around US$ 23 million. Finally, the project management component budget is around US$ 2.4 million (4% of the total budget).

Photo K. Dhanaji / ILRI

TABLE 4.10. BESST PROJECT COST SUMMARY (US$'000)

	Cost including Contingencies	% of Total
A. Trust, communications and governance		
Multi-stakeholder platform	650.0	1.0
Formal trade	2,815.0	4.5
Technological and institutional innovations	13,655.3	22.0
Certification	208.0	0.3
Verification systems	504.0	0.8
Subtotal	**17,832.3**	**28.7**
B. Knowledge and information		
Capacity development platform	1,165.0	1.9
Data management	351.7	0.6
Trade fairs	200.0	0.3
Virtual marketplace	7,740.0	12.4
Surveillance	715.0	1.1
Producers' associations	1,000.0	1.6
Subtotal	**11,171.7**	**18.0**
C. Veterinary service performance		
Laboratories and capacities	5,162.5	8.3
Disease free zones	1,000.0	1.6
Training SPS	400.0	0.6
PVS gaps	1,000.0	1.6
Subtotal	**7,562.5**	**12.2**
D. Sector weaknesses		
Transport	500.0	0.8
Payment systems	100.0	0.2
Animal husbandry	8,000.0	12.9
Infrastructure AP region	2,200.0	3.5
Infrastructure HoA region	4,950.0	8.0
Loans	7,500.0	12.1
Subtotal	**23,250.0**	**37.4**
E. Project management	2,381.8	3.8
TOTAL PROJECT COSTS	**62,198.2**	**100.0**

Project costs by component and by year are summarized in Annex 10, Table A.10.1. As previously mentioned, the BESST project is scheduled for 5-year period.

Table A.10.2 in Annex 10 summarizes the costs by expenditure category. The "equipment and materials" category represents the highest share (31%) of the budget, followed by "goods services and inputs" (19%), then "works" and "salaries and allowances" with 14% of the total budget each.

4.5.1 Costs of interventions to address governance, trust and communication

For the "trust, communication and governance" component, the highest cost is assigned to interventions on technological and institutional innovations with the objective of tagging around 12.7 million sheep and goats and 120 thousand cattle in five countries (Djibouti, Ethiopia Kenya, Somalia, Sudan). Funds allocated to the intervention on formal trade are mainly directed to the construction/ rehabilitation of custom border offices and their equipment. The funds allocated for the multi-stakeholder platform will be mainly used to organise biannual meetings bringing together stakeholders from both regions (HoA and AP) to discuss issues related to the trade in livestock and livestock products. More details about the different costs are included in Annex 10, Tables A.10.3 to A.10.7.

4.5.2 Costs of interventions to address knowledge and information

The highest budget for this component is allocated to the intervention to establish a virtual marketplace to link the value chain actors and provide timely information on market prices, traded volumes, species, etc. This is basically developing a livestock market information system at the regional level (HoA) providing information from the main livestock markets in the exporting countries. In total, it would target 16 markets from 5 countries (Djibouti, Ethiopia, Kenya, Somalia, Sudan) and the costs are mainly covering the remuneration for the enumerators plus the development of a website. More than US$ 1 million are allocated for training and capacity building for both public and private sector partners. Capacity development is one of the key target activities for the BESST initiative. More details about the different costs on the interventions addressing constraints related to knowledge and information are included in Annex 10, Tables A.10.8 to A.10.13.

4.5.3 Costs of interventions to address veterinary service performance

The activities for this component were considered by the stakeholders to be high priority with probabilities of success ranging between medium to high. The activities around improving the capacities of, the infrastructure and equipping of central and regional laboratories were allocated around US$ 5 million. These funds will cover the costs for around 5 training activities per year and equipment for 9 laboratories. Around US$1 million is allocated as seed funds for the countries to undertake PVS assessments or to address urgent gaps identified through the PVS assessment process. More details about the different costs on the interventions addressing constraints related to veterinary services performance are included in Annex 10, Tables A.10.14 to A.10.17.

4.5.4 Costs of interventions to address sector weaknesses

These interventions require large amounts of funding to deal with issues related to infrastructure, transport and logistics. As expected, these interventions were not given, in most cases, high priority by the stakeholders we consulted. These interventions are supposed be funded by the private sector and governments. Within the BESST budget, improving animal husbandry and loans provisions for small and medium scale producers and entrepreneurs are the two activities receiving the highest share of the budget (US$ 8 million and US$ 7.5 million respectively). Loan provision is an essential component since access to loans for small scale entrepreneurs is very restricted in the HoA region. The funds allocated will be channeled through private banks/financial institutions as guarantee funds. At the end of the BESST project, the remaining funds could be invested in kits and equipment for the value chain actors. More details about the different costs on the interventions addressing constraints related to sector weaknesses are included in Annex 10, Tables A.10.18 to A.10.23.

4.5.5 Programme management

The BESST project will need strong coordination between the different stakeholders involved. Funds allocated to the program management will allow the lead organisation of the consortium to allocate the required human and logistical resources to manage the BESST initiative and its smooth implementation. Some resources are also allocated to engage the services of consultancy companies for specific tasks. Details about the funds allocated to program management are included in Annex 10, Table A.10.24.

4.5.6 Monitoring and evaluation

Separate funds for monitoring and evaluation are budgeted because of the need to monitor the implementation of the project at different phases of implementation and also to assess the impact of the BESST project (ex-post assessment) in order to inform project funders, beneficiary countries and other international organisations about the impact of the project and for the development and planning of the second phase. Details about the funds allocated to monitoring and evaluation are included in Annex 10, Table A.10.25.

4.6 Projected benefits of BESST in terms of live animal trade in the Horn of Africa

As already noted, livestock trade bans instituted by countries in the AP vary in terms of number of countries in the HoA affected and time period before lifting which may extend to several years.

Tables 4.13 and 4.14 show the estimated benefits from BESST due to avoided losses associated with animal export trade bans in different countries for a period of up to seven years. The estimated losses that would be avoided are based on live animal exports data by FAO and the SLCCIA together with simulations of impacts of animal export trade bans in Somaliland using the SD model. The level of avoided losses in Somalia is estimated by multiplying the SD derived estimate for Somaliland by a factor of 1.3.

This factor is the average ratio of the number of animal exports in Somalia to the number in Somaliland as reported in FAO Stat and by the SLCCIA for the period between 2009 to 2016. In turn, the value for Somaliland was calculated by multiplying the SD model-based estimate of the value for small ruminants by 1.54 as the value of small ruminants' exports account for 65% of the total value of animal exports in Somaliland. For the other HoA countries, the level of avoided losses is estimated as follows:

$$AL_i = \frac{S_i}{S_{Somalia}} \; x \; AL_{Somalia}$$

Where AL_i is the estimated level of avoided losses in country i; S_i is the annual average of the share of animal exports from country i relative to total exports from the HoA countries considered in the analysis; $S_{Somalia}$ is the annual average of the share of animal exports from Somalia relative to total exports from the HoA countries considered; and $AL_{Somalia}$ is the estimated level of avoided losses in Somalia.

Photo S. Mann/ILRI

The level of potential losses that would be avoided is highest in Somalia (US$321 – 859 million per year) and Sudan (US$293 -783 million per year) (Table 4.11) mainly because the countries account for the largest share of value of animal exports (48% and 44%, respectively). The sum of the avoided losses across the six proposed BESST HoA target countries ranges between US$668 – 1,786 million per year. The potential benefits fall slightly if the problem is related to trade bans that are temporarily lifted during Hajj. In this second type of situation, potential benefits in terms of avoided losses range from US$253 – 387 million per year in Somalia, US$248 - 352 million in Sudan and US$522 - 805 million across the proposed six program countries (Table 4.12).

TABLE 4.11. ESTIMATED BENEFITS (MILLION US$/YEAR) DUE TO AVOIDED LOSSES ASSOCIATED WITH A LIVE ANIMAL EXPORT TRADE BAN LASTING FOR UP TO SEVEN YEARS

Year	Somalia	Djibouti	Eritrea	Ethiopia	Kenya	Sudan	TOTAL
1	605.37	15.02	1.39	84.97	0.17	551.65	**1,258.56**
2	649.40	16.12	1.49	91.15	0.18	591.77	**1,350.11**
3	859.01	21.32	1.97	120.57	0.24	782.78	**1,785.88**
4	574.11	14.25	1.31	80.58	0.16	523.16	**1,193.59**
5	550.74	13.67	1.26	77.30	0.15	501.86	**1,144.99**
6	412.26	10.23	0.94	57.87	0.12	375.68	**857.10**
7	321.48	7.98	0.74	45.12	0.09	292.95	**668.35**

TABLE 4.12. ESTIMATED BENEFITS (MILLION US$/YEAR) DUE TO AVOIDED LOSSES ASSOCIATED WITH A LIVE ANIMAL EXPORT TRADE BANS THAT LASTING FOR UP TO SEVEN YEARS BUT IS TEMPORARILY LIFTED DURING HAJJ SEASON

Year	Somalia	Djibouti	Eritrea	Ethiopia	Kenya	Sudan	TOTAL
1	364.53	9.05	0.83	51.17	0.10	332.18	**757.85**
2	299.10	7.42	0.69	41.98	0.08	272.56	**621.83**
3	387.30	9.61	0.89	54.36	0.11	352.93	**805.19**
4	279.35	6.93	0.64	39.21	0.08	254.56	**580.77**
5	309.71	7.69	0.71	43.47	0.09	282.23	**643.89**
6	272.43	6.76	0.62	38.24	0.08	248.25	**566.38**
7	253.43	6.29	0.58	35.57	0.07	230.94	**526.89**

4.6.1 Potential costs of mitigating against livestock trade bans

In their analysis of benefits and costs of compliance of sanitary regulations in livestock markets in the small ruminants' export trade between the Somali region of Ethiopia versus Saudi Arabia and other Gulf countries, Nin Plat et al. (2004) estimated that a working certification scheme would translate to a cost of 5US$ per small ruminant exported. Starting 2009 when the 8-year old animal export ban by Saudi Arabia was lifted for Somalia, animals for export from all the HoA countries go through quarantine for around 30 days and are vaccinated against RVF before shipping. This implies that to a large extent the cost of compliance estimated by Nin Plat et al. (2004) is already being incurred and should therefore be excluded from the analysis to determine whether additional investments to enhance compliance would generate worthwhile benefits.

The proposed investments by BESST to minimize the losses caused by the trade bans in the HoA countries go beyond the ones proposed by Nin Plat et al. (2004), and is about US$ 62.2 million over a period of 5 years (Table 4.10). The investments mainly take the form of setting up and / or strengthening of relevant institutions at inter-regional, regional, national and value chain levels. While the estimated costs of investments proposed under BESST exclude complementary costs that would be borne by both the government and the private sector, the listed interventions suggest no major additional costs among the private sector actors in the region. While a classical benefit cost analysis for BESST is made difficult by uncertainty over the potential geographic and temporal coverage of future trade bans, the annual values of mitigated losses are many times higher (10 – 26 times for uninterrupted trade bans and 8 - 12 times higher for bans that are temporarily lifted during Hajj) than the estimated total cost of the BESST program over a 5 year period. More details about the estimated investments per component, activity and HoA country are reported in Annex 10 – Table A.10.26.

4.7 Conclusions

The trade in animal and animal products between the HoA and the AP countries is still mainly driven by the importance of livestock exports despite the gradual increase in exports of meat and other livestock products.

The main constraint to this trade is livestock disease which leads to trade bans, rejection of whole consignments, or disposal of the affected products. All these risk mitigation measures disrupt trade and lead to extra costs and losses for the actors involved in the product value chain – in both importing and exporting (most affected) countries.

The livestock trade ban has the highest costs, compared to consignments rejections or other restrictions, since it completely stops trade for period varying from months to years. Climate change, characterized by higher occurrence of severe droughts and floods, exacerbates the situation and increases livestock diseases outbreaks, which, combined with poor infrastructure in the HoA region, low capacity of animal health services, inexistent traceability system, lack of communication and trust in the certification system, result in more frequent livestock bans imposed by the importing countries in the AP.

As shown in this section, the costs occasioned by a livestock ban targeting the whole HoA region for a period of 7 years are estimated in billions of US Dollars. The BESST initiative, budgeted at around 62.2 million US$, which will be implemented over a period of 5 years in its first phase, and which includes different activities mainly targeting improving certification, traceability, animal health services, and increasing trust between the partners, will definitely decrease the frequency of the occurrence of livestock import bans as well as their duration in time, thus notably reducing the losses incurred by all value chain actors involved.


Photo Z. Sewunet/ILRI

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WORKSTREAM 5

PARTNERS, INVESTORS AND STAKEHOLDER ANALYSIS TO IMPLEMENT AN INITIATIVE TO PROMOTE SAFER TRADE IN LIVESTOCK AND LIVESTOCK PRODUCTS ACROSS THE RED SEA

Drawing on all the assessments and discussions, the team recommends that the BESST initiative be led and coordinated by OIE, with beneficiary country governments and stakeholders (AP and HoA) as key implementing partners. It should receive inter-governmental support from IGAD-ICPALD, GCC and AOAD. Technical partners would include ILRI, FAO and AU-IBAR among others.

Involvement of private sector companies and organisations (producers, traders, services and suppliers) in the steering and implementation of this public-private initiative is key. This would ideally include representation of smallholder producer and trader groups. Advisory bodies will need to be formed to support the planning and implementation of BESST activities, this would include a livestock commodity consumer board, with technical advisory bodies dealing with issues such as animal welfare, traceability and certification.

5.1 Introduction

The implementation of the BESST initiative requires substantial financial support, and, importantly, technical backstopping accompanied by political engagement and stakeholder buy-in. Building on past project experiences and exploiting the geographic scope and layers of implementation, it will need close collaboration and effective dialogue between the different stakeholders, countries and regions. Developing a stakeholder or similar public-private platform to fulfil this objective will be an important step, having first identified key partners and their roles in supporting the BESST initiative.

The main objective of this workstream is to identify the important partners and stakeholders that should be aware of and be part of the BESST initiative, the role(s) that could be played by each of them, and the type of engagement expected.

5.2 Partners identification and role

The list of potential partners identified during the current feasibility study will likely evolve during the lifespan of the initiative, where new partners might join the BESST initiative and others might choose to leave after the first phase of implementation. Although we assign a specific partner to only one stakeholder group, this is rather arbitrary and organisations could belong to more than one group.

5.2.1 Key implementing organisations

This group includes institutions that carry out the BESST initiative and which will be responsible for supervising, coordinating and executing the initiative and its activities. Among these partners, OIE is the prime candidate to lead the BESST initiative and be the overall coordinator. OIE roles could include:

- Lead the initiative and ensure that the different activities planned are realized within the program timeframe as specified in the Gantt chart.
- Provide technical backstopping and where possible capacity building for the activities related to the assessment of the veterinary services, labs and quarantine stations, training of public and private sector veterinarians, etc...
- Play an advisory and information dissemination role on issues related to SPS measures, animal health and welfare, livestock and meat trade procedures, etc...
- Assist and support member countries involved in the BESST initiative to harmonise legislation, policies and trade certification.
- Lead the public-private stakeholders' platform and convene six-monthly and annual meetings to discuss issues related to trade between the two regions and improve collaboration between the countries.
- Lead the coordination effort between the countries involved in the BESST initiative and ensure that activities at the trade route or regional levels are implemented by all beneficiary countries.
- Develop and disseminate briefs, information, technical and scientific reports related to the BESST initiative.
- Draft an annual technical and financial report including the activities and investments realized by OIE and compiling the same information from the BESST beneficiary countries.

The OIE currently has regional offices for the Africa region in Bamako and for the Middle East region in Beirut, and sub-regional offices based in Nairobi (HoA) and Abu Dhabi (AP). These two sub-regional offices will play an important role in supporting and coordinating regional activities. This regional presence, combined with its direct connection with national governments, enables OIE to effectively lead and coordinate the initiative. The OIE's expertise in public-private partnerships also offers significant opportunities to support the initiative's work in this area.

In addition to the OIE, the other key implementing partners are the beneficiary countries who could be grouped into the exporting countries from the HoA and the importing countries from the AP. Although the planned activities and investments will likely differ substantially between the two regions, it is still possible to provide a "generic" description of the role of each individual country involved in BESST, as:

- Implement and/or oversee, in collaboration with the designated ministry and veterinary directorate, the planned activities and investments at the country level and make sure that these activities/investments are realized within the project timeframe.
- Allocate financial and human resources, and offices, and to provide information/data as well as technical backstopping to the BESST activities in the country.
- Harmonise and create synergy between the BESST initiative and different livestock and meat projects in the country to avoid duplication of activities and optimise allocation of resources.
- Be an active member of the dialogue platform.

5.2.2 Intergovernmental organisations

Political backstopping and coordination, both within and between regions, are essential given that the BESST initiative involves various countries from two regions, and includes specific activities at the trade route level. Both regions, the HoA and the AP, have several intergovernmental organisations with distinct mandates and geographical boundaries. From the discussions held with OIE, OIE delegates and funding agencies, as well as ILRI's experiences in the region and the review of different project documents, several key partners seem indispensable for the success of BESST (IGAD/ICPALD and GCC).

From the AP side, the Gulf Cooperation Council[1] (GCC) is a political and economic alliance of six countries that includes: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. Apart from Yemen, the GCC therefore involves all countries from the Arabian Peninsula region. The GCC plays important political, economic, and social roles to achieve integration, and it deepens and strengthens relations between member states and their peoples. GCC roles could include:

- Provide political endorsement of the BESST initiative and backstop the designated ministries of the beneficiary member states.
- Overview and coordinate the different investments and activities implemented through the BESST initiative at the regional level (Arabian Peninsula).
- Unify and harmonise national regulations related to livestock and meat imports and make sure that the beneficiary member countries are applying the same procedures and standards such as the Veterinary Quarantine Act of the GCC issued in the year 2000.
- Be an active and convening member of the stakeholders' dialogue platform.

Covering AP and some HoA countries, The Arab Organisation for Agricultural Development (AOAD) is a specialised Arab organisation functioning under the umbrella of the League of Arab States. Djibouti, Egypt, Somali and Sudan from the HoA, and all BESST AP target countries are member countries of AOAD. The organisation could play important political, technical and resource partner roles for the initiative. AOAD is currently implementing the third phase of the Regional Program for the Control of Transboundary Animal Diseases in the Arab and African regions to improve the efficiency of trade in live animals and their products.

From the Horn of Africa region, two regional organisations emerge:
i. the Common Market for Eastern and Southern Africa (COMESA)
ii. the Intergovernmental Authority on Development (IGAD), more specifically represented by its livestock development Centre called IGAD Centre For Pastoral Areas and Livestock Development (ICPALD)

COMESA is an economic community including 21 member States[2] with the mission to achieve sustainable economic and social progress in all Member States through increased co-operation and integration in all fields of development particularly in trade, customs and monetary affairs, transport, communication and information technology, industry and energy, gender, agriculture, environment and natural resources (COMESA, 2018)[3]. COMESA includes all HoA countries targeted by BESST initiative. COMESA roles could include:

- Provide technical assistance to the BESST initiative and backstop the beneficiary member states
- Through its experience, help HoA countries in strengthening formal livestock trade in the region and with AP countries
- Coordinate collaboration between HoA countries especially in issues related to trade harmonisation, common tariff structure and re ving barriers to trade between the countries
- Eventually raise additional funding from other donors for the implementation of complementary activities to the BESST initiative.

IGAD includes 8 countries (the majority are part of the HoA region): Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda, which cover 5.2 million km^2, and which represent countries where livestock has immense socioeconomic importance. The main objectives of the establishment of ICPALD in 2012, were to "to promote and facilitate gender, conflict and environment responsive sustainable and equitable livestock and complementary livelihoods development in arid and semi-arid areas of the IGAD Region" (ICPALD, 2019). Since its creation ICPALD has been involved in leading several livestock projects[4] in the region with some of them having activities directly related to the BESST initiative. For instance, the IGAD-FAO Partnership Program (PP), funded by the Swiss Agency for Development and Cooperation (SDC) with a budget of USD 10 million over a 5 year period, targeting Ethiopia, Kenya and Somalia, with a focus that includes transboundary animal diseases, and cross-border marketing and trade. There was also the project on improving animal disease surveillance in support of trade in IGAD member states also known as *Surveillance of Trade-Sensitive Diseases* (STDS; a 3 year project) whose aim was to improve animal identification, traceability, health certification systems, surveillance and disease control. The project was implemented in collaboration with AU-IBAR.

1 / The current denomination is Cooperation Council for the Arab States of the Gulf (CCASG) but is still colloquially known/referred to as GCC.

2 / The COMESA Member States in the HoA are: Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Somalia, Sudan.

3 / COMESA, 2018. COMESA in Brief. Growing together for prosperity. https://www.comesa.int/wp-content/uploads/2019/02/COMESA-in-brief-FINAL-_web.pdf

Based on this, IGAD is seen as an important stakeholder for the BESST initiative and could be considered as both an intergovernmental partner (as IGAD) and an implementing partner (as ICPALD). IGAD's roles could include:
- Provide political endorsement to the BESST initiative and backstop the concerned ministries of the beneficiary member states
- Overview and coordinate the different investments and activities implemented through the BESST initiative at the regional level (Horn of Africa)
- Harmonise and create synergies between the BESST initiative and the different ongoing livestock and meat projects at the regional level in HoA to avoid duplication of activities and optimise allocation of resources
- Through ICPALD, provide technical expertise, capacity building and participate in the implementation of specific BESST activities
- Be an active and coordinating member of the stakeholders' dialogue platform.

5.2.3 Technical organisations and platforms

These are the stakeholders who will provide technical expertise throughout the lifespan of the BESST initiative. Their role could be limited to the implementation of specific activities of the project and they could also be part of an Advisory Committee. Due to their scientific and technical expertise in addition to their experience working in the region, these stakeholders will play an important role in backstopping the BESST initiative and providing tested, proven and scalable solutions. Some organisations previously mentioned like OIE and ICPALD could also be part of this group of technical partners. In addition, the most relevant ones are:

THE INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE (ILRI)

ILRI has worked in East Africa for the last 45 years. ILRI's research is directed at improving food and nutrition security through increased production and access to animal-source foods; stimulating economic development and poverty reduction through enhanced livestock value chains and increased productivity; improving human health through improved access to animal-source foods and a reduction in the burden of zoonotic and food-borne diseases; and managing the adaptation of livestock systems to climate change and mitigating the impact of livestock on the environment. ILRI's three strategic objectives are:
- with partners, to develop, test, adapt and promote science-based practices that—being sustainable and scalable—achieve better lives through livestock.
- with partners, to provide compelling scientific evidence in ways that persuade decision-makers—from farms to boardrooms and parliaments—that smarter policies and bigger livestock investments can deliver significant socio-economic, health and environmental dividends to both poor nations and households.
- with partners, to increase capacity among ILRI's key stakeholders to make better use of livestock science and investments for better lives through livestock.

4 / More details and information about the recent past and current ongoing livestock and/or meat products projects in both regions and implemented by different organizations/agencies/countries are summarized in Section 2 (prioritisation of interventions) - Table 2.1

Photo K. Dhamji/ILRI

ILRI with its presence in the region (two main campuses in Nairobi and Addis Ababa), human skills and infrastructure (high-tech labs), network of partners (NGOs, producers' organisations, universities and national research centres, etc...) and contacts with local governments, will be a key technical partner for BESST.

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)

FAO is a specialized agency of the United Nations that leads international efforts to defeat hunger. FAO has been involved in various livestock and/or meat products related projects in both regions. FAO has offices in many BESST beneficiary countries and two sub-regional offices: one in Abu Dhabi for the Gulf Cooperation Council States and Yemen, and one in Addis Ababa for Eastern Africa.

In the recent past, FAO has been involved in the HoA countries in projects related to livestock disease control, vaccination, capacity building, in collaboration with regional organisations like AU-IBAR and ICPALD. Like ILRI, FAO could be involved in specific activities in both regions. It also has strong connections and influence with national governments and could also bring additional funding through its network and linkages with multilateral agencies and donors.

AFRICAN UNION (AU) REPRESENTED BY THE INTER-AFRICAN BUREAU FOR ANIMAL RESOURCES (AU-IBAR)

The African Union (AU) provides political and technical backstopping to the HoA countries. All BESST beneficiary countries from the HoA region are part of the African Union. Through its Department of Rural Economy and Agriculture (DREA) and more specifically its specialized technical office African Union-InterAfrican Bureau for Animal Resources (AU-IBAR), the AU supports initiatives related to animal resources, breeds, animal nutrition and health, transboundary animal diseases and zoonoses control, and capacity building among others. AU/AU-IBAR roles could include:

- Provide political endorsement to the BESST initiative and backstop the beneficiary member states and regional organisations such as IGAD/ICPALD
- Coordination and harmonisation of BESST investments and activities with related continental projects for synergy and effectiveness in resource utilization though avoidance of duplication of efforts and activities
- Make available its pool of experts to provide technical assistance to the beneficiary member states and/or regional organisations such as IGAD/ICPALD

Eventually raise additional funding from other donors for the implementation of complementary activities to the BESST initiative.

5.2.4 Private sector

The private sector is key to the success of the BESST initiative. Private companies (importers, exporters), service and inputs providers, livestock traders and livestock producers are directly involved in livestock and meat trade and drive the whole process. Their participation in the BESST initiative is therefore essential for the success of the project. Private sector roles could include:

- Product providers (vaccines, drugs, feed and fodder, laboratory products, etc.) for specific BESST activities
- Service providers (veterinary services, laboratory diagnostics, certification, training, transport, etc.) for specific activities
- Recipients/beneficiaries of the BESST activities, with the possibility of also contributing to activities
- Be an active part of the dialogue platform and inform the project of the challenges facing this trade, and the viability of solutions.

This could include local (HoA and AP) and global/international companies, producer groups, representing both large scale and smallholder producers, and trader associations.

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5 / ILRI was established in 1994 through the merging of the International Livestock Center for Africa (ILCA) based in Ethiopia and the International Laboratory for Research on Animal Diseases (ILRAD) based in Kenya.

THE NORTH EASTERN AFRICA LIVESTOCK COUNCIL (NEALCO)

Established in 2012 by national livestock traders' associations during the Nile Basin initiative, NEALCO includes national apex organisations and relevant associations from 13 member countries including all BESST HoA beneficiary countries. The main objective of the Council is to promote, coordinate, share information and advocate for enhanced trade in livestock and livestock products within North and Eastern Africa and outside the region (NEALCO, 2019). NEALCO is currently receiving support and empowerment from ICPALD and AU-IBAR.

NEALCO could be the voice of the HoA livestock producers and traders, including ensuring buy in from these important stakeholders. It could also play an important role in capacity building for the local producers and traders' organisations as well as an important member of the dialogue platform. It could implement capacity building and advocacy activities. NEALCO could also be a recipient of specific training to strengthen its members' skills in management and trade coordination through a training of trainers' scheme. NEALCO could help its members to implement agreed standards through self-regulation and in the long-term could provide sustainable funding mechanisms.

At the national and regional levels, chambers of commerce, farmers and exporters associations and other relevant network groups should be identified and brought into the initiative as appropriate.

5.2.5 Civil society groups

CONSUMER GROUPS

As well as being represented by AP trading organisations and companies, AP consumer groups should also be identified to advise the activities of the initiative.

ANIMAL WELFARE ORGANISATIONS

The beneficiary countries under the coordination of the OIE should select an animal welfare advisory panel, this could for example include representatives of the veterinary services of the participating countries. This group would then guide the animal welfare policy and activities conducted under BESST, a possible purpose being to promote and implement international animal welfare standards within the meat and livestock trade.

OTHER ADVISORY GROUPS

Advisory groups, similar to the animal welfare group described above, could be set up for other key activities (such as identification and traceability, and certification). Again, this could consist of representatives of the beneficiary countries, coordinated by OIE, supported by external technical experts. Advice may also be sought from other OIE Member Countries to learn from their experiences.

5.2.6 Resource partners/Investors

These partners will provide the financial support needed for the implementation of the BESST initiative. Considering its regional scope (two regions in two different continents), the BESST initiative could benefit from various funding organisations in addition to financial and/or in-kind contributions from beneficiary countries. These resource partners could be grouped based on the target regions for BESST implementation and eventually on the type of activity targeted. The potential identified partners are:

BILL & MELINDA GATES FOUNDATION (BMGF)

The Foundation has historically funded projects in various areas, including smallholder livestock development, poverty reduction, human and animal health, and education, with the objective of improving the quality of life for the poorer sectors of society (BMGF, 2019). In the HoA region, BMGF has funded various livestock related activities (including this feasibility study) working with various technical partners such as ILRI, AU-IBAR and FAO. The BESST initiative aims to improve the trade in livestock and meat products between the HoA and AP countries, including improving the safety of these products. In so doing BESST will improve consumer health and the livelihoods of smallholder livestock producers and traders, who are the main source of the traded products, and are a BMGF focus. This places BMGF among the potential funders of the initiative when it comes to activities and/or investments implemented in the HoA region.

6 / www.nealcouncil.org

INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT (IFAD)

IFAD is a specialized agency of the United Nations with the objective of empowering rural people to increase their food security, improve the nutrition of their families and increase their incomes (IFAD, 2019). During recent decades IFAD funded, through grants, low-interest loans or both, various livestock related projects in the HoA region (e.g. Livestock Marketing and Resilience Programme in Sudan, or the Pastoral Community Development Project in Ethiopia with co-financing from IFAD and the World Bank). In addition to its involvement in the East African region, IFAD has also developed strong relationships with the GCC countries by signing in 2014 a Memorandum of Understanding (MoU) which laid the groundwork for collaboration in developing sustainable solutions to environmental challenges in GCC countries (IFAD, 2019). IFAD is therefore a likely potential funder of the BESST initiative for activities and investments in both regions HoA and AP.

EUROPEAN UNION (EU)

The EU, mainly through its Development Fund, has also been an important funder for livestock projects in the HoA region. The funds were either provided directly to the beneficiary countries to implement specific projects or channelled through regional institutions (e.g. AU-IBAR, IGAD), and international organisations (FAO, ILRI, etc.). We can cite as examples the "Improving animal disease surveillance in support of trade (STSD)" project with AU-IBAR and IGAD as implementing partners, and the "Somali Livestock Certification Project (SOLICEP)" with AU-IBAR, FAO and Terra Nuova as implementing partners. The OIE has a longstanding relationship with the European Commission (EC); the EC has formal observer status at the OIE and directly funds the OIE World Animal Health and Welfare Fund (WAHWF), both through contributions from the EC itself and from individual EC Member States. The EU is consequently considered among the potential funders of the BESST initiative especially for activities related to animal health, vaccination, and capacity building.

INTERNATIONAL FINANCIAL DEVELOPMENT INSTITUTIONS

This group includes the international financial development institutions that could provide loans, or sometimes grants for the beneficiary countries at relatively low interest rates. The funds allocated by the financial institutions could be used for specific "heavier investments" in infrastructure. The main institutions that could be interested in supporting the BESST initiative are:

African Development Bank (AfDB)

All HoA countries are members of the AfDB. In recent years the AfDB has been more interest in the agricultural sector, including the livestock subsector (feed Africa and improve the quality of life for the people of Africa are among the "Hi 5s" development priorities for the bank). In its Technologies for African Agricultural Transformation (TAAT) Program, the institution has commissioned ILRI to implement the livestock component. In collaboration with the Islamic Development Fund (IsDB), AfDB is also planning the implementation of regional livestock projects in East and in Southern Africa.

Islamic Development Bank (IsDB)

IsDB could play an important role in funding the BESST initiative for activities implemented in both regions. All AP countries are member of IsDB; while some of the HoA countries are members (Djibouti, Somalia, Sudan) others could also benefit having a sufficiently large proportion of Muslims in the population (Ethiopia and Kenya). Like other financial institutions, IsDB directly funds beneficiary countries through the provision of loans. Some capacity development activities could be funded through grants.

The Arab Organization for Agricultural Development (AOAD)

AOAD is one of the specialized Arab organizations, functioning under the umbrella of the League of Arab States. Djibouti, Egypt, Somali and Sudan from the HoA, and all BESST AP target countries are member countries of AOAD. The organization could play important political, technical and resource partner roles for the initiative. AOAD is currently implementing the third phase of the Regional Program for the Control of Transboundary Animal Diseases In the Arab and African regions to improve the efficiency of trade in live animals and their products.

World Bank (WB)

The WB has also funded various livestock projects, mainly in the HoA region, through loans allocated to the beneficiary countries, one of the most relevant in the HoA being the IGAD Regional Pastoral Livelihoods Resilience Project (RPLRP) ending in 2020. Currently in collaboration with the EU, the AfDB and WB member countries the WB is developing the "Horn of Africa" initiative which will include 3 pillars: 1) infrastructure, trade and economic integration, 2) human capital and 3) resilience.

INTERNATIONAL DEVELOPMENT AND COOPERATION AGENCIES (IDCAS)

There are a number of these agencies, those that have allocated large amounts of funds for the development of the livestock sector in the HoA region include the United States Agency for International Development (USAID), the Department for International Development (DFID) in the UK, the Danish International Development Agency (DANIDA), the Swedish International Development Cooperation Agency (Sida), the German Development Agency (GIZ). These organisations provide funding to implementing partners (nationals, regionals and internationals), generally on a competitive basis, to develop and execute specific projects. BESST through its potential collaborating partners could benefit from such funding opportunities.

Given the strategic nature of the initiative and its focus on critical food security challenges in the importing countries, government and other entities in the AP countries are likely themselves to be important sources of funding – as well as being beneficiaries.

5.3 Stakeholder engagement

During the development of the feasibility study and the different meetings held with the different partners and stakeholders it was possible to gauge the interest of the partners and their potential level of commitment to the BESST initiative.

Beneficiary, mainly HoA, countries with much to gain have expressed a very high interest in BESST (Kenya, Ethiopia, Somalia, Sudan, etc...). While several importing countries also expressed strong interest, it will be important to provide a strong value proposition that makes the case for them to engage and invest. The Abu Dhabi meeting began to surface some of the strong drivers for this buy-in including securing safe and reliable sources of food, neighbourhood stability, biosecurity, etc. The importance of private sector engagement has been mentioned already – here current OIE-supported work on public-private partnerships provides a robust base to build upon.

In terms of specific organisations, beyond OIE itself, several stand out as important to closely engage in BESST: IGAD/ICPALD and GCC as the regional organisations with political backstopping as well as FAO, ILRI and AU-IBAR as knowledge and technical partners with physical presence in the region(s) and long experience in livestock related projects. It may be appropriate to also engage the WTO-hosted Standards and Trade Development Facility (STDF) as a specialized SPS capacity development organisation.

OIE and these organisations could form a consortium whose role will be to liaise with donors and raise funds for the BESST initiative, provide political and technical backstopping to the initiative and make sure that the activities are implemented as planned.

ANNEXES

ANNEX 1.

Additional summary of constraints

The major constraints are summarised below, according to the breakdown of the PVS Evaluations by *Fundamental Components* (FC). The conclusion puts the constraints in a broader context, drawing together the five streams of evidence.

Sanitary and Phytosanitary Standards (SPS) constraints identified from five different bodies of evidence consulted: a literature review, a questionnaire of Veterinary Services contributing to an OIE Technical Item (OIE TI); a review of the Performance of Veterinary Services (PVS) evaluations of importing and exporting countries; a series of semi-structured interviews (SSI) with key stakeholders; and, information from three expert workshops.

Human, physical and financial resources:

- *Arabian Peninsula* (AP) countries consider lack of technical capacity by exporting countries a key constraint to their setting of import measures (OIE TI, SSI, workshop)
- AP and *Horn of Africa* (HoA) report insufficient provision for emergency funding (100% PVS noted)
- AP and to a slightly lesser extent HoA report inadequate policy to mobilise community based veterinary auxiliary personnel for disease surveillance and reporting (50% PVS noted)
- HoA consider operational needs are not aligned with national policies for disease control and other policies (20% PVS noted)

Technical authority and capability:

› BOTH REGIONS CONSIDER THAT:

· Traceability is a top constraint (70% PVS noted, OIE TI, SSI, workshop)
· Only a minority of staff responsible for setting sanitary measures for import and export in AP and HoA countries have received training on the *Sanitary and Phyto Sanitary* (SPS) Agreement (OIE, TI, SSI)
· Capacity is lacking in a range of subjects related to trade but with a focus on conventional trade (OIE TI, SSI, Workshop)
· Capacity is lacking on the systematic use of information sources, especially the OIE Handbook on Import Risk Analysis, use of questionnaires and risk analyses by other countries, as well as the concept of equivalence in certification (OIE TI)
· There is a lack of international harmonisation of export requirements (100% PVS noted, SSI)
· There is a lack a lack of enforcement of, and compliance with, veterinary legislation (90% PVS noted, SSI, Workshop)
· There is a lack of agreements with international laboratories for disease confirmation (40% PVS noted)
· There is extensive informal trade (review, SSI, Workshop)

› AP WERE MORE CONCERNED WITH THE FACT THAT:

· They have inadequate contingency plans for priority diseases (70% PVS noted)
· Disease control is insufficiently centralised (70% PVS noted)
· During quarantine, rules and regulations are not strictly applied resulting in loss of trust in certification (review, SSI, Workshop)
· There is inadequate disease surveillance in the HoA (review, workshop)
· There is lack of verification for animal welfare (review, SSI, workshop)
· There is inadequate audit and enforcement (review, workshop)
· There is a poor animal health situation in the HoA (SSI, workshop)

› HOA WERE MORE CONCERNED THAT:

· Export requirements are not sufficiently defined or justified (review, SSI, Workshop)
· Computerisation and connectedness (connectivity) of laboratories results is lacking (10% PVS noted)

Interaction with stakeholders:

› BOTH REGIONS CONSIDERED THAT:
· Risk analysis methods are not widely used or publicly available (OIE TI)
· There is insufficient information available online (OIE TI, SSI)
· Communication plans are not in place or not annually updated (90% PVS noted)

› AP CONSIDERED THAT:
· Efforts are needed to improve transparency and information provision by exporting countries (OIE TI, SSI, workshop)
· There is a lack of wide consultation with private sector stakeholders when developing sanitary measures (OIE TI)

› HOA WERE MORE LIKELY TO REPORT THAT:
· The Department of Veterinary Services (DVS) website (of the prospective importing country) is not comprehensive or updated (30% PVS noted)
· Lack of cross-border meetings (10% of PVS noted, SSI, workshop)
· Inadequate fora to discuss, define and mediate SPS (review, SSI, workshop)

Access to markets

› BOTH REGIONS CONSIDERED dispute mediation mechanisms to be inadequate especially with regard to WTO processes (OIE TI, SSI), furthermore communication and platforms for dialogue between exporting and importing countries are inadequate or absent (review, workshop)

› HOA EXPORTERS CONSIDERED THAT:
· The deficiencies that are easiest to tackle are lack of private sector capacity and inadequate or outdated veterinary legislation (OIE TI, SSI, workshop)
· Overdependency on a limited number of volatile export markets combined with growing competition for AP markets and increasing SPS requirements are a problem (workshop)

ANNEX 2.

SPS-related constraints (structured according to PVS format (fundamental components and critical competencies)

Table A.2.1. SPS-RELATED CONSTRAINTS

Area	Possible deficits
Human, physical and financial resources	Staffing levels
	Staff skills and experience
	Physical resources such as vehicles and offices
	Operational funding
	Emergency funding
Technical authority and capability	Veterinary laboratory diagnosis
	Quarantine and border security
	Early detection and emergency response
	Epidemiological surveillance
	Identification and traceability
	Risk analysis
Interaction with stakeholders	Communications
	Consultations
	Participation of producers and other stakeholders
Access to markets	Preparation of legislation and regulations
	Compliance with legislation and regulations
	International harmonisation
	Equivalence
	Zoning and Compartmentalisation

Table A.2.2. NON SPS CONSTRAINTS

Area	Possible deficits
Low production and productivity	Animal disease prevalence
	High cost of feed
	Poor genetics
	Poor herd management
	Lack of information related to marketing
	Lack of credit and financial services
	Poor quality of products
Lack of infrastructure and security	Watering points and stock routes
	Lack of infrastructure (road, marketing, shipping)
	Insecurity and theft
	Communication infrastructure
Policy, governance, incentives	Lack of supportive policy frameworks and policy incoherence and duplication
	Poor governance and poor performance by authorities involved in trade
	Powerful private sector cartels block things not in their interest
	Poor animal welfare standards (an issue but uncertain impact on trade)
Exogenous / context	Greater national or regional demand making other markets more attractive
	Other competitive suppliers (e.g. India)
	Language and cultural barriers
	Climate change

ANNEX 3.

Additional information from an OIE Technical Item for 2018 to identify and analyse factors that limit implementation of the OIE standards for international trade

Table A.3.1. PROPORTION OF AP COUNTRIES CONSIDERING A CONSTRAINT TO BE AMONG THE TOP THREE IMPEDIMENTS TO CONDUCTING AN IMPORT RISK ANALYSIS

Constraint	%
Insufficient human resources, including their technical capacity and capability	80
Difficulties in understanding principles of risk assessment and risk management	80
Insufficient financial resources	40
Lack of staff who are competent to carry out risk analysis	40
Political or commercial considerations	20

Table A.3.2. IMPORTANCE ALLOCATED TO DIFFERENT SUBJECTS BY COUNTRIES IN THE AP

	High	Medium	Low
OIE standards and the WTO SPS Agreement	100	0	0
Veterinary legislation	100	0	0
Import risk analysis	100	0	0
OIE recommendations on safe trade, including the definition of safe commodities	100	0	0
Disease surveillance and biosecurity - aquatic animals	100	0	0
Negotiating equivalence agreements	80	20	0
Zoning and compartmentalisation	80	20	0
Communication	80	20	0
Disease surveillance and biosecurity - terrestrial animals	80	20	0
On farm food safety	80	20	0
Animal welfare	80	20	0

Table A.3.3. IMPORTANCE ALLOCATED TO DIFFERENT SUBJECTS BY COUNTRIES IN THE HOA

	High	Medium	Low
Disease surveillance and biosecurity - terrestrial animals	80	0	0
Import risk analysis	80	20	0
On farm food safety	80	20	0
Animal welfare	60	40	0
Communication	60	40	0
Disease surveillance and biosecurity - aquatic animals	60	40	0
OIE recommendations on safe trade, including the definition of safe commodities	60	40	0
OIE standards and the WTO SPS Agreement	60	40	0
Veterinary legislation	60	40	0
Zoning and compartmentalisation	40	40	20
Negotiating equivalence agreements	20	20	60

Table A.3.4. PROPORTION OF COUNTRIES REPORTING DIFFERENT INITIATORS FOR DEVELOPING NEW SANITARY REQUIREMENTS

	AP	HoA	Top Exporters
Request from a government authority in another country	60	40	100
Request from a government authority in your country	40	80	100
Request from importer	100	80	100
Request from exporter	80	20	100
Request from stakeholders in your country (e.g. industry associations, consumer groups)	60	80	100

Table A.3.5. PROPORTION OF COUNTRIES SYSTEMATICALLY USING DIFFERENT INFORMATION RESOURCES WHEN DEVELOPING SANITARY MEASURES FOR IMPORTS

Systematic use of information	AP	HoA	Top Exporters
Terrestrial animal health code	60	40	100
Manual of diagnostic tests and vaccines	60	40	100
World Animal Health Information	80	80	100
OIE official disease status	80	100	100
Handbook on import risk analysis	20	20	75
Self-declaration published on OIE	60	40	75
Questionnaires answered by the exporting country	20	20	75
Visits to the exporting country	20	0	50
PVS pathway reports published on OIE website	60	20	50
PVS pathway reports requested from exporting country	20	20	25
Risk analysis by other importing countries	0	0	25

Table A.3.6. PROPORTION OF COUNTRIES IN THE AP WHO IDENTIFY SPECIFIC CONSTRAINTS WITH TRADE DISPUTE RESOLUTION PROCESSES

	Complex/ Slow	Cost	Scientific expertise	Legal expertise
Bilateral processes (technical, political, other)	40	0	40	20
Mediation procedure of a Regional Community e.g. under a regional trade agreement	80	0	40	0
Involvement of OIE headquarters or regional representations	60	0	40	20
OIE informal dispute mediation procedure (Code Article 5.3.8)	40	0	40	40
WTO SPS committee – specific trade concerns or informal bilateral consultations	40	0	40	20
WTO Dispute Settlement Procedure	40	0	40	20

Table A.3.7. PROPORTION OF COUNTRIES IN THE HOA WHO IDENTIFY SPECIFIC CONSTRAINTS WITH TRADE DISPUTE RESOLUTION PROCESSES

	Complex/ Slow	Cost	Scientific expertise	Legal expertise
Bilateral processes (technical, political, other)	0	60	20	0
Mediation procedure of a Regional Community e.g. under a regional trade agreement	40	20	0	20
Involvement of OIE headquarters or regional representations	20	20	20	0
OIE informal dispute mediation procedure (Code Article 5.3.8)	0	0	0	20
WTO SPS committee – specific trade concerns or informal bilateral consultations	60	40	0	20
WTO Dispute Settlement Procedure	60	40	0	20

ANNEX 4.

Details from PVS evaluations by country

Table A.4.1. EXPORTING COUNTRY 1

Critical competency	Level when last assessed:	2007	2011	2019
	HUMAN, PHYSICAL AND FINANCIAL RESOURCES			
Operational funding	2. Operational funding for the VS is clearly defined and regular but is inadequate for their required baseline operations (e.g. basic disease surveillance, disease control and/or veterinary public health).	2	2	2
Emergency funding	3. Emergency funding arrangements with limited resources have been established; additional resources may be approved but approval is through a political process.	2	2	3
	TECHNICAL AUTHORITY AND CAPABILITY			
Veterinary laboratory diagnosis	3. For animal diseases and zoonoses present in the country, and for animal feed safety and veterinary AMR surveillance, the VS have access to and use a laboratory to obtain a correct diagnosis	4	2	3
Quarantine and border security	2. The VS can establish and apply minimal quarantine and border security procedures, or the VS only apply quarantine and border security procedures effectively at some official entry points via border posts.	1	1	2
Early detection and emergency response	2. The VS have a field network and an established procedure to determine whether a sanitary emergency threat exists but lack the legal and financial support to respond effectively. The VS may have basic emergency management planning, but this usually targets one or a few diseases and may not reflect national Capacity to respond.	2	2	2
Epidemiological surveillance	2. The VS conduct active surveillance for one or a few diseases, infections or hazards (of economic or zoonotic importance), but the surveillance is not representative of the population and the surveillance methodology is not revised regularly. The results are reported with limited analysis.	4	2	2
Identification and traceability	2. The VS can identify and trace some products of animal origin, by coordination between Competent Authorities, to deal with a specific problem (e.g. high-risk products traced back to premises of origin).	2	1	2
	INTERACTION WITH STAKEHOLDERS			
Communications	4. The VS contact point or unit for communication provides up-to date information to most relevant stakeholders. This information is aligned with a well-developed communications plan, and accessible via the Internet and other appropriate channels targeted to the audience, and covers relevant events, activities and programmes, including during crises.	3	4	4
Consultations	4. The VS regularly hold workshops and meetings with nongovernment stakeholders, who are organised to have broad representation, such as through elected, self-financed industry groups or associations. Consultation outcomes are documented, and the views of stakeholders considered and occasionally incorporated.	3	4	4
Participation of producers and other stakeholders	2. Producers and other non-government stakeholders are informed of programmes by the VS and informally assist the VS in programme delivery in the field (e.g. industry groups helping to communicate the programme with their membership).	2	2	2

TABLE A.4.1. (CONT.) EXPORTING COUNTRY 1

Critical competency	Level when last assessed:	2007	2011	2019
	ACCESS TO MARKETS			
Preparation of legislation and regulations	3. Veterinary legislation and regulations cover most fields, including in collaboration with relevant Competent Authorities. The VS, working in formal partnership with legal professionals, have the authority and ability to develop or update national legislation and regulations, including via consultation with stakeholders, to ensure its legal quality and applicability	3	3	3
Compliance with legislation and regulations	2. The VS implement a programme or activities comprising inspection and verification of compliance with legislation and regulations and recording instances of non-compliance, but generally cannot or do not take further action in most relevant fields of activity.	2	2	2
International harmonisation	4. The VS harmonise their regulations and sanitary measures and can demonstrate a level of alignment with changing international standards. The VS also review and comment on the draft standards of relevant intergovernmental organisations, and work through regional organisations, where available, to ensure better harmonisation with international standards.	3	3	4
Equivalence	3. The VS have implemented equivalence and other types of sanitary agreements with trading partners on selected animals, animal products and processes.	3	3	3
Zoning	1. The VS do not have the authority or ability to initiate the establishment of disease-free zones.	2	2	1
Compartmentalisation	2. The VS can identify animal sub-populations as candidate establishments with a specific health status suitable for compartmentalisation, in partnership with interested stakeholders.	2	2	2

RECOMMENDATIONS

Operational funding

- Review the budget allocations at national and county levels to bring allocations in line with operational needs.
- for conducting operational activities as well as creating an enabling environment in terms of resources to do so - and to allow sustainability of these policies on national and county level.

Emergency funding

- Provision should be made within the annual budgets to earmark a dedicated amount for emergency funding or alternatively have a standing arrangement with national Treasury to have such funds be made available on emergency request. This provision should also be legalised within the revision of the Animal Diseases Act.

Veterinary laboratory diagnosis

- Allocate or identify funds and resources to further equip the laboratories and replace obsolete equipment.
- Consider requesting a specific OIE Laboratory PVS mission to give guidance on the adequate functioning of a national and regional laboratory network.

Quarantine and border security

- Establish quarantine facilities at selective OSBP's and other ports of entry.
- Do a review of the current allocation of staff vs the operational needs at al BIP's.
- Review the resources allocation to BIP's to enable them to adequately undertake their functions.

Epidemiological surveillance

- Review resource and funds allocation on national and County level to create an enabling environment to conduct active surveillance.

Early detection and emergency response

- Review resource and funds allocation on national and County level to create an enabling environment to respond effectively to animal diseases and zoonotic emergencies.

Identification and traceability

- There is a need to regulate and implement an identification and traceability system for products of animal origin.

Communication

- DVS and county veterinary authorities are recommended to develop and implement comprehensive annual communication plans to ensure that all stakeholders are kept informed of important events and programmes and that stakeholders are given the opportunity to become more involved with developing animal health, veterinary public health and animal welfare programmes.
- DVS should expand and regularly update the content on its website.
- DVS should encourage county governments to share information relating to disease outbreaks and disease control programmes, especially with neighbouring counties in order to ensure harmonisation of disease prevention and control efforts. This responsibility should be further strengthened at meetings of the JCoVS.

Consultations with stakeholders

- The VS is encouraged to establish more formal levels of consultation with partner government institutions as well as organisations representing all participants along the various livestock value chains to explore ways of improving the efficiency of livestock production and delivery of veterinary services.

Preparation of legislation and regulations

- Whilst the recently prepared draft policies and legislation have generally been well prepared, there is a need to subject the recently drafted legal texts to peer review to ensure compliance with OIE and other international standards.
- The VS is recommended to take into consideration the detailed analysis provided in the report of the OIE Veterinary Legislation Identification Mission conducted in 2015 as a guideline for the review and revision of the veterinary legislation in order to bring it in line with OIE and other international standards.

Participation of producers and other stakeholders in joint programmes

- The DVS is encouraged to explore opportunities to develop more formal arrangements with actors along the various livestock value chains to facilitate PPPs. The establishment of the export quarantine facility offers an opportunity to engage with cattle ranchers, feedlot owners and beef breeders to start to build up the beef cattle breeding stock with animals suitable to supply the export market demand.

Compliance with legislation and regulations

- Institute an administrative control and verification system at PDVs and DVO level regarding enforcement of veterinary legislation and compliance thereof by stakeholders, which would include records of legal action and prosecutions made.

International harmonisation

- The team of legislation experts within the DVS are recommended to make a critical review of their recently promulgated legislation and their recently developed draft Bills and Regulations and compare these with the OIE standards detailed in Chapter 3.4 of the Terrestrial Animal Health Code.
- Advance laboratory quality management and work towards test accreditation.

Equivalence

- Capacity building in establishing equivalence agreements is needed.
- Increase negotiations with neighbouring trade partners to establish equivalent-based agreements for trade.

Zoning

- To further develop the concepts established at the feedlot site to facilitate export trade of live animals and possible export of beef from the country.

Compartmentalisation

- Intensify efforts to engage with all relevant stakeholders including livestock keepers, County governments, transporters and other actors to develop backward linkages along the livestock value chains from export quarantine into markets and pastoralist production systems.
- Review and revise existing legislation and, where necessary develop new legislation to provide the DVS with the required authority and provisions for an animal identification system as well as to define biosecurity standards for accreditation of export premises as compartments based on OIE standards.
- Develop value chain-based risk-based sanitary assurance and biosecurity plans and procedures in response to target market requirements to guide development of quarantine stations.
- Develop capacity in DVS and CDVSs to provide services in support of export-oriented quarantine.

Table A.4.2. IMPORTING COUNTRY 1

Critical competency	Level when last assessed:	2007	2014
	HUMAN, PHYSICAL AND FINANCIAL RESOURCES		
Operational funding	2. Funding for the VS is clearly defined and regular, but is inadequate for their required base operations (i.e. disease surveillance, early detection and rapid response and veterinary public health)	2	2
Emergency funding	2. Funding arrangements with limited resources have been established, but these are inadequate for expected emergency situations (including emerging issues)	1	2
	TECHNICAL AUTHORITY AND CAPABILITY		
Veterinary laboratory diagnosis	1. Disease diagnosis is almost always conducted by clinical means only, with no access to and use of a laboratory to obtain a correct diagnosis	2	1
Quarantine and border security	2. The VS can establish and apply quarantine and border security procedures; however, these are generally based neither on international standards nor on a risk analysis	2	2
Early detection and emergency response	2. The VS have a field network and an established procedure to determine whether or not a sanitary emergency exists but lack the necessary legal and financial support to respond appropriately	2	2
Epidemiological surveillance	2. The VS conduct active surveillance for some relevant diseases (of economic and zoonotic importance) but apply it only in a part of susceptible populations and/or do not update it regularly	2	2
Identification and traceability	1. The VS do not have the authority or the capability to identify animals or control their movements		1
	INTERACTION WITH STAKEHOLDERS		
Communications	3. The VS maintain an official contact point for communication but it is not always up-to-date in providing information	2	3
Consultations	2. The VS maintain informal channels of consultation with interested parties	2	2
Participation of producers and other stakeholders	1. Producers and other interested parties only comply and do not actively participate in programmes	2	1
	ACCESS TO MARKETS		
Preparation of legislation and regulations	2. The VS have the authority and the capability to participate in the preparation of national legislation and regulations and can largely ensure their internal quality, but the legislation and regulations are often lacking in external quality	2	2
Compliance with legislation and regulations	1. The VS have no or very limited programmes or activities to ensure compliance with relevant legislation and regulations	2	1
International harmonisation	2. The VS are aware of gaps, inconsistencies or non-conformities in national legislation, regulations and sanitary measures as compared to international standards, but do not have the capability or authority to rectify the problems	2	3
Equivalence	2. The VS have the authority to negotiate and approve equivalence and other types of sanitary agreements with trading partners, but no such agreements have been implemented	2	2
Zoning	1. The VS cannot establish disease free zones.9	2	1
Compartmentalisation	2. As necessary, the VS can identify animal sub-populations with a distinct health status suitable for compartmentalisation	2	2

RECOMMENDATIONS

Operational funding

- Develop a Livestock Development Strategy and an implementation action plan with priorities and deliverables.
- Funding of VS should be based on a thorough review of animal health policies against a strategic plan with clearly identified objectives and programmes.
- The VA should adopt an innovative approach to publicize the importance of the veterinary services and lobby for the political and financial support they are providing.

Emergency Funding

- The veterinary services are strongly recommended to apply for a dedicated Emergency fund with clearly defined rules for easy access and to develop and agree with relevant institutions a mechanism to allow the VS to have access to contingency funds and their mobilization in the event of disease emergency situation.

Veterinary laboratory diagnosis

- Establish agreements with international laboratories for confirmation of clinically suspected diseases of national economic importance and new and emerging diseases in the region.
- Secure operational budget to ensure proper field investigation of disease outbreaks and sample submissions to laboratories for confirmation.
- Continue to upgrade regional laboratories and build new ones to establish a network and allow better access to laboratory diagnostic services.

Quarantine and border security

- Define sanitary measures to control the importation of animals and animal products either in accordance with the OIE standards or through the application of a risk analysis and based on scientific justification.
- Consider the need to introduce animal identification system for live imported animals in particular the ones to be exported to neighbouring countries. This AI could also be useful for traceability.
- Establish an appropriate quarantine station.
- Speed up the construction of quarantine and border inspection facilities and provide them with the necessary resources to ensure that quarantine and border inspection operations are properly conducted in line with international standards.
- Establish infrastructures for the quarantine of imported frozen or chilled meat and other animal products within the Controlled Customs Areas of the main ports of entry designated for such imports.

Epidemiological surveillance

- Secure operational funding to allow the substantial investments made in developing laboratory services to be utilised for both active and passive surveillance activities.
- Develop capacity within the Epidemiology Department to better utilise animal disease information.
- Analyse existing passive surveillance data to develop risk based active surveillance and control programmes.
- Consider establishing annual CE programmes to strengthen the capacity of the epidemiology directorate for data capture, analysis and dissemination; and for developing risk-based surveillance and control programmes.

Early detection and emergency response

- Consider revising the legislative framework and establish an emergency fund for emergency response.
- Consider establishing an annual CE programme to strengthen the capacity of the VS to respond rapidly to a sanitary emergency in the field. This CE programme should cover simulation exercises based on updated contingency plans.
- Review and revise contingency plans for exotic diseases at a biannual basis.

Identification and traceability

- The VS should consider conducting a feasibility study to find out whether or not it is necessary to begin to introduce Animal Identification/MC to support disease control, or export certification of live animals or animal products.
- As for CC II-12 A conduct a feasibility study to determine whether or not Traceability of animal products is appropriate at this stage in the development of the food processing industry.

Communication

- The VS should consider developing a communication plan (with communication professionals) to keep interested parties informed, in a transparent, effective and timely manner, of VS activities and programmes, and of developments in animal health and food safety.
- The VS should work toward securing adequate resources in the annual operational budget for effective implementation of a communication plan.

Consultations

- The VS should make more attempts to establish formal mechanisms through communications and organization of regular meetings for information and feedback on current animal health and food safety activities and any important policy decision in this regard.

Participation of producers and other stakeholders

- The VS should be more actively involved in promoting the formation of professional associations through workshops and awareness. The VS should set priorities and then engage other government agencies and the private sector through formal mechanisms in order to develop and implement joint programmes in various field activities in AH and FS.
- The deployment of CAHWs at the field level, if well be regulated, provides an opportunity for strengthening disease surveillance, early warning and outbreak response mechanisms. Such opportunities deserve to be fully exploited through a formal contracting mechanism.

Preparation of legislation and regulations

- Establish a Technical Working Group of experienced veterinarians to work alongside an international veterinary legislation specialist to review and revise the proposed draft law and by law.
- Engage international technical assistance to revise existing draft law and bylaw to bring them in line with international standards.
- Consider assistance from OIE to review the existing legislation and regulations through a Veterinary Legislation Identification mission.

Compliance with legislation and regulations

- The authority of the VS to regulate safety of animal products should be re-established.
- The VA should develop its capacity (training of staff and allocation of adequate resources) to implement and enforce regulations as appropriate.
- The VA is recommended to exercise its authority to regulate the sale and use of prescription only medicines.
- The VA should engage through use of media to create a greater awareness of the need for regulation of particularly food safety and veterinary drug quality and usage.

International harmonisation

- For the purpose of regulation of the import of animals and animal products, the VA should either apply the standards set by the OIE or undertake risk analysis and engage in discussion with trading partners to reach Equivalence Agreements.
- The imposition of sanitary measures on imported commodities should be regularly reviewed and revised to harmonise them with international standards.

Equivalence

- The VS should review and revise its regulatory framework for import and export of animals & animal products bringing them in line with international standards.
- On the basis of the revised legislation, the VS is recommended to actively engage in negotiation with trading partners in particular with neighbouring countries regarding the establishment of legal export trade and to reach Equivalence and other agreements taking into consideration stakeholders' interests.

Table A.4.3. EXPORTING COUNTRY 2

Critical competency	Level when last assessed:	2009
HUMAN, PHYSICAL AND FINANCIAL RESOURCES		
Operational funding	4. Funding for new or expanded operations is on a case-by-case basis	4
Emergency funding	3. Contingency and compensatory funding arrangements with limited resources have been established; additional resources for emergencies may be approved but approval is through a political process	3
TECHNICAL AUTHORITY AND CAPABILITY		
Veterinary laboratory diagnosis	3. In the case of new and emerging diseases in the region or world, the VS have access to and use a network of national or international reference laboratories (e.g. an OIE Reference Laboratory) to obtain a correct diagnosis	3
Quarantine and border security	4. The VS can establish and apply quarantine and border security procedures which systematically address legal pathways and illegal activities	4
Early detection and emergency response	4. The VS have an established procedure to make timely decisions on whether or not a sanitary emergency exists. The VS have the legal framework and financial support to respond rapidly to sanitary emergencies	4
Epidemiological surveillance	4. The VS conduct active surveillance for some relevant diseases, apply it to all susceptible populations, update it regularly and report the results systematically	4
Identification and traceability	1. The VS do not have the capability to identify animals or animal products	1
INTERACTION WITH STAKEHOLDERS		
Communications	3. The VS maintain an official contact point for communication but it is not always up-to-date in providing information	3
Consultations	2. The VS maintain informal channels of consultation with stakeholders	2
Participation of producers and other stakeholders	2. Producers and other stakeholders are informed of programmes and assist the VS to deliver the programme in the field	2
ACCESS TO MARKETS		
Preparation of legislation and regulations	3. The VS have the authority and the capability to participate in the preparation of national legislation and regulations, and to implement resultant regulations nationally	3
Compliance with legislation and regulations	3. If necessary, the VS impose appropriate penalties in instances of non-compliance	3
International harmonisation	5. The VS actively and regularly participate at the international level in the formulation, negotiation and adoption of international standards, and use the standards to harmonise national legislation, regulations and sanitary measures	5
Equivalence	2. The VS have the authority to negotiate and approve equivalence and other types of sanitary agreements with trading partners, but no such agreements have been implemented	2
Zoning	3. The VS have implemented biosecurity measures that enable it to establish and maintain disease free zones for selected animals and animal products, as necessary	3
Compartmentalisation	2. As necessary, the VS can identify animal sub-populations with a distinct health status suitable for compartmentalisation	2

RECOMMENDATIONS

Operational funding

- Develop systems of remuneration that act as a positive performance incentive. Consider adopting a more aggressive cost recovery policy.

Contingency and compensatory funding

- Contingency and compensatory funding for immediate emergency needs should be held at the relevant ministry with a clear channel by which additional funding can be accessed as required.

Veterinary laboratory diagnosis

- Computerise, and link to a central database, the recording of samples, results of tests and reporting of findings.
- The vaccine production facility should not be accessed by those who are carrying out different diagnostic tests to prevent any contamination and/or cross contamination.
- Consider the merits of operating the laboratories as a privatized entity [i.e. as a Veterinary Laboratory Agency] or the contracting out of certain diagnostic procedures [i.e. poultry disease diagnosis] to a specialist private laboratory.

Quarantine and border security

- As part of a TAD initiative, harmonisation of animal disease control measures, inclusive of a regional animal identification system, should be discussed and agreed.

Early detection and emergency response

- Review current policy towards CAHWs and develop a policy that sustainably employs them as key frontline staff in those livestock systems where community based veterinary auxiliary personnel can play an important role.
- Establish internet communication and a publicly available webpage to allow direct communications with field staff and to allow staff and other stakeholders access to current disease status reports.
- Proceed with all speed possible with the plans to establish an early warning unit at the relevant administration.

Epidemiological surveillance

- Develop a policy that mobilises the livestock disease surveillance and reporting potential of community based veterinary auxiliary personnel.
- Advocate for a successor to PACE with a focus on transboundary disease surveillance and control – [perhaps PACT – Pan African Control of Transboundary-disease] sustaining epidemio-surveillance networks.

Identification and traceability

- Put in place a livestock identification system linked to a national data base.
- A study tour to other livestock exporting countries in Africa to observe the livestock identification system and other controls on the export of livestock and livestock products.

Communications

- Develop strategies that exploit the full potential of present-day desktop and mobile Information Technology to enhance VS staff knowledge and skills.
- The website operated by the relevant ministry needs further support and technical input to communicate animal health status of the country and avail information concerning activities, reports and regulations in livestock sector.

Consultations

- Government support should be sought to enable the formation of regular meetings and broad ranging consultative agenda of a "National Livestock Development Board", representative of all stakeholders in the livestock sector.
- State Livestock Development Boards to be formed with one member represented on the National Board.

Participation of producers and other stakeholders

- Encourage and facilitate participation of producers and other stakeholders in joint programmes whenever possible.

Preparation of legislation and regulations, and implementation of regulations

- Review all acts and regulations and update where necessary publishing them.

Compliance with legislation and regulations

- Train and recruit more technical staff to occupy key supervisory positions.
- An assessment should be undertaken of the implementation of and compliance with existing regulations and address any weaknesses identified.

International harmonisation

- To protect valuable livestock export markets the VS should ensure that the sanitary measures adopted continue to take account of relevant international standards and are seen to be applied in a professional and transparent manner.

Table A.4.4. EXPORTING COUNTRY 3

Critical competency	Level when last assessed:	2011
HUMAN, PHYSICAL AND FINANCIAL RESOURCES		
Operational funding	1. Funding for the VS is neither stable nor clearly defined but depends on resources allocated irregularly.	1
Emergency funding	1. No contingency funding arrangements exist and there is no provision for emergency financial resources.	1
TECHNICAL AUTHORITY AND CAPABILITY		
Veterinary laboratory diagnosis	2. For disease of zoonotic or economic importance the VS can collect samples and ship them to a Laboratory which results in a correct diagnosis	2
Quarantine and border security	1. The VS cannot apply any type of quarantine or border security procedures for animals or animal products with their neighbouring countries or trading partners	1
Early detection and emergency response	2. The VS have a field network and an established procedure to determine whether or not a sanitary emergency exists, but lack the necessary legal and financial support to respond appropriately	2
Epidemiological surveillance	2. There is a formal surveillance programme implemented for at least one OIE listed disease	2
Identification and traceability	1. The VS do not have the capability to identify animals or animal products	1
INTERACTION WITH STAKEHOLDERS		
Communications	1. The VS have no mechanism in place to inform stakeholders of VS activities and programmes	1
Consultations	1. The VS have no mechanisms for consultation with stakeholders	1
Participation of producers and other stakeholders	1. Producers and other stakeholders only comply and do not actively participate in programmes	1
ACCESS TO MARKETS		
Preparation of legislation and regulations	2. The VS have the authority and the capability to participate in the preparation of national legislation and regulations, and to implement resultant regulations nationally	2
Compliance with legislation and regulations	1. The VS have no programme to ensure stakeholder compliance with relevant regulations.	1
International harmonisation	2. The VS are aware of gaps, inconsistencies or non-conformities in national legislation, regulations and sanitary measures as compared to international standards, but do not have the capability or authority to rectify the problems.	2
Equivalence	2. The VS have the authority to negotiate and approve equivalence and other types of sanitary agreements with trading partners, but no such agreements have been implemented.	2
Zoning	1. The VS cannot establish disease free zones	1
Compartmentalisation	N/A	1

KEY RECOMMENDATIONS

Human and financial resources

- There should be a master plan for funding proposed by the VS in which they can include all their needs based on a technical and socio-economical study, preferably to be conducted by specialized experts. This study should cover all aspects of the VS, particularly capacity building, training, communication and information technology, infrastructure and provision of transport facilities. However, the most urgent need is the provision of financial support for the VS to cover the immediate needs for emergency preparedness and contingency funds in monitoring and preventing any future disease outbreaks. The VS, assisted by other international and regional organisations, has already developed strategic plans in different areas relevant to disease control and animal health standards which should serve as a basis for such a master plan. The team strongly recommends that it should be considered as a major priority in future funding.
- VS should be exempted from the system of budgetary ceiling.

Technical authority and capability

- There should be a change in policy to restore animal health and disease control back to the central government as before. This to maintain chain of command and increase efficiency in containment of disease emergencies.
- Increase the frequency of harmonisation meeting between VS and Vs of neighbouring countries.
- Increase linkages with internationally recognized laboratories and collaborating centres with the objective of exchanging experiences and increasing training opportunities for lab staff
- VS should work closely with VS in neighbouring countries to harmonise the branding system for identification of animals.

Interaction with stakeholders

- An office to be attached to the DAR office and headed by a senior officer should be established to coordinate links and relationships with the private stakeholders. Since the departments and divisions in DAR usually deal with stakeholders from public sectors, the established office will only concentrate on private stakeholders. This will help the VS to work on joint programs for the benefit of its stakeholders.
- Consultation and dialogue with public stakeholders should be increased and started before drafting regulatory measures. This consultation should be based on transparency and scientific standards.
- Communication should be strengthened with a specific mandate and equipped and personnel and working facilities.
- The VS should work closely with other stakeholders to formulate a special organizational body including all the pastoralists in the country.

Access to Markets

- A veterinary expert specialized in legislation is needed to harmonise laws and regulations with international standards.
- Stakeholders should be consulted during the initial stages of drafting veterinary legislation.
- VS should work closely with VS in neighbouring countries to harmonise the branding system for identification of animals.
- The VS should be assisted by OIE experts to establish DFZ and Compartments through revising the already prepared document and harmonise it with OIE standards.

Table A.4.5. IMPORTING COUNTRY 2

Critical competency	Level when last assessed:	2008
HUMAN, PHYSICAL AND FINANCIAL RESOURCES		
Operational funding	3. Funding for the VS is clearly defined and regular, and is adequate for their base operations, but there is no provision for new or expanded operations.	3
Emergency funding	3. Contingency and compensatory funding arrangements with limited resources have been established; additional resources for emergencies may be approved but approval is through a political process.	3
TECHNICAL AUTHORITY AND CAPABILITY		
Veterinary laboratory diagnosis	2. For major zoonoses and diseases of national economic importance, the VS have access to and use a laboratory to obtain a correct diagnosis.	2
Quarantine and border security	3. The VS can establish and apply quarantine and border security procedures based on international standards, but the procedures do not systematically address illegal activities1 relating to the import of animals and animal products.	3
Early detection and emergency response	2. The VS have a field network and an established procedure to determine whether or not a sanitary emergency exists, but lack the necessary legal and financial support to respond appropriately	2
Epidemiological surveillance	2. The VS conduct active surveillance for some relevant diseases (of economic and zoonotic importance) but apply it only in a part of susceptible populations and/or do not update it regularly.	2
Identification and traceability	3. The VS have procedures in place to identify and trace selected animals and animal products as required for disease control and food safety purposes, in accordance with relevant international standards.	3
INTERACTION WITH STAKEHOLDERS		
Communications	2. The VS have informal communication mechanisms.	2
Consultations	2. The VS maintain informal channels of consultation with stakeholders.	2
Participation of producers and other stakeholders	2. Producers and other stakeholders are informed of programmes and assist the VS to deliver the programme in the field.	2
ACCESS TO MARKETS		
Preparation of legislation and regulations	3. The VS have the authority and the capability to participate in the preparation of national legislation and regulations, and to implement resultant regulations nationally	3
Compliance with legislation and regulations	3. If necessary, the VS impose appropriate penalties in instances of non-compliance	3
International harmonisation	3. The VS monitor the establishment of new and revised international standards, and periodically review national legislation, regulations and sanitary measures with the aim of harmonising them, as appropriate, with international standards, but do not actively comment on the draft standards of relevant intergovernmental organisations.	3
Equivalence	3. The VS have implemented equivalence and other types of sanitary agreements with trading partners on selected animals, animal products and processes.	3
Zoning	2. As necessary, the VS can identify animal sub-populations with distinct health status suitable for zoning.	2
Compartmentalisation	2. As necessary, the VS can identify animal sub-populations with a distinct health status suitable for compartmentalisation.	2

RECOMMENDATIONS

Operational funding

- Ensure recurrent funding is adequate for all necessary activities carried out by VS for example disease diagnosis, epidemiological surveillance, risk analysis and disease control programmes.
- Initiate a study to identify other sources of income, such as user fees, and how such funds could be used by VS with the necessary flexibility.

Contingency and compensatory funding

- Establish emergency funds specific for veterinary services, and a procedure for fast access to the funds.
- Introduce compensation policies with adequate funds for all important diseases to encourage notification.
- Establish regulations to use contingency and compensation funds.

Veterinary laboratory diagnosis

- Engage more qualified staff for diagnosis of endemic and exotic animal diseases.
- Introduce documented procedures for sample collection and shipment for notifiable diseases (including list of OIE notifiable diseases) to central lab and OIE References laboratories and encourage twinning with these laboratories.
- Introduce training programs on the field diagnosis of endemic and exotic diseases (including zoonotic diseases), and sample collection and submission, and the laboratory diagnosis of such diseases.
- Develop procedures for the authorisation/accreditation of laboratories.

Quarantine and border security

- Speed up the construction of quarantine stations.
- Reorganise the structure of VS to ensure direct control over animal health programs, quarantine, VPH and laboratory services.
- Recruit vets especially once news facilities are ready.
- Develop an intranet.

Early detection and emergency response

- Establish national contingency plans and documented procedures for all important diseases, in consultation with public and private sector stakeholders.
- Develop awareness programmes.
- Activate in the epidemiological unit.
- Develop better coordination with private sector.
- Organise CE on exotic diseases for relevant staff.

Epidemiological surveillance

- Develop relevant legislation.
- Establish a national disease surveillance network to collect samples, analyse and publish results.
- Establish a national active surveillance program for residues and pesticides.
- Develop a database by extending and adapting animal identification system to management of health programmes.
- Develop procedures for laboratory confirmation of suspicious cases of endemic notifiable diseases.

Identification and traceability

- Improve Identification system and extend it to all species and make it obligatory.

Communications

- Encourage the establishment of a veterinary association and stakeholders associations, to assist stakeholder identification and communication.
- Establish an official focal point for communications and stakeholder awareness.
- Establish a VSB.
- Document procedures for communicating issues to public and private sector stakeholders including identification of all channel that can be used.
- Establish a Web site for the VS to diffuse up to date information to stakeholders.

Consultation with stakeholders

- Establish a formal consultation mechanism with stakeholders.
- Promote the creation of VSB and stakeholders' association.

Preparation of legislation and regulations, and implementation of regulations

- Identify and address issues relating to lack of implementation of existing legislation.

Stakeholder compliance with legislation and regulations

- Consult stakeholders in development of legislation, policies and procedures.
- Establish VSB and stakeholder association.
- Create a unit in the DAR to coordinate veterinary inspection activities with other relevant institutions in the public sector.

International harmonisation

- Establish a dedicated unit to maintain awareness of international standards and to check conformities with these standards within national agencies e.g. meat inspection, animal and meat transportation, slaughterhouses.

Equivalence

- Promote creation of stakeholders association.

Zoning

- Develop appropriate legislation and document procedures for zoning for diseases other than AI.
- Establish database of national animal health status and implement control programmes for major animal diseases.

Compartmentalisation

- Discuss possible benefits with private sector.
- Develop a surveillance programme for major animal diseases.

Table A.4.6. IMPORTING COUNTRY 3

Critical competency	Level when last assessed:	2008
HUMAN, PHYSICAL AND FINANCIAL RESOURCES		
Operational funding	2. Funding for the VS is clearly defined and regular, but is inadequate for their required base operations (i.e. disease surveillance, early detection and rapid response and veterinary public health)	2
Emergency funding	2. Contingency and compensatory funding arrangements with limited resources have been established, but these are inadequate for expected emergency situations (including emerging issues)	2
TECHNICAL AUTHORITY AND CAPABILITY		
Veterinary laboratory diagnosis	2. For major zoonoses and diseases of national economic importance, the VS have access to and use a laboratory to obtain a correct diagnosis	2
Quarantine and border security	3. The VS can establish and apply quarantine and border security procedures based on international standards, but the procedures do not systematically address illegal activities 5 relating to the import of animals and animal products	3
Early detection and emergency response	2. The VS have a field network and an established procedure to determine whether or not a sanitary emergency exists but lack the necessary legal and financial support to respond appropriately	2
Epidemiological surveillance	2. The VS conduct active surveillance for some relevant diseases (of economic and zoonotic importance) but apply it only in a part of susceptible populations and/or do not update it regularly	2
Identification and traceability	2. The VS can document the history of some animals and animal products	2
INTERACTION WITH STAKEHOLDERS		
Communications	2. The VS have informal communication mechanisms	2
Consultations	2. The VS maintain informal channels of consultation with stakeholders	2
Participation of producers and other stakeholders	2. Producers and other stakeholders are informed of programmes and assist the VS to deliver the programme in the field	2
ACCESS TO MARKETS		
Preparation of legislation and regulations	3. The VS have the authority and the capability to participate in the preparation of national legislation and regulations, and to implement resultant regulations nationally	3
Compliance with legislation and regulations	3. If necessary, the VS impose appropriate penalties in instances of non-compliance	3
International harmonisation	3. The VS monitor the establishment of new and revised international standards, and periodically review national legislation, regulations and sanitary measures with the aim of harmonising them, as appropriate, with international standards, but do not actively comment on the draft standards of relevant intergovernmental organisations	3
Equivalence	3. The VS have implemented equivalence and other types of sanitary agreements with trading partners on selected animals, animal products and processes	3
Zoning	1. The VS cannot establish disease free zones	1
Compartmentalisation	1. The VS cannot establish disease free compartments	1

RECOMMENDATIONS

Operational funding

- Salaries of the VS personnel need to be strengthened. Funding for the VS should be clearly defined and regular, and it should be adequate for their base operations. Funding for all aspects of VS activities should be adequate. All funding provided should be under full transparency and allow for full technical independence. Creation of a financial unit within the veterinary services to improve and facilitate use of available budget.

Contingency and compensatory funding

- Special veterinary contingency funds should be created under the Ministry of Agriculture to allow direct access in order to respond to emergency situations. Regulations for the use of these funds should be established and fully documented and allow access to adequate resources. Stakeholders should be included in developing the legislation and regulations for the use of contingency funds.

Veterinary laboratory diagnosis

- Field Veterinary Services do not take full advantage of the existing diagnostic capacities due to needs of personnel training, insufficient reagents and diagnostics for field tests.
- In the case of new and emerging diseases, the VS should have access to a network of national or international reference laboratories and can collect and ship samples to an OIE Reference Laboratory which results in a correct diagnosis.
- The VS should also actively promote the implementation of quality assurance in their diagnostic systems and establish standard operating procedures for clinical diagnosis, the collection and shipment of samples, and laboratory diagnosis for both animal and public health.

Quarantine and border security

- Restore Veterinary Services authority over the inspection of all products of animal origin, either imported or locally manufactured for domestic consumption, (in particular meat and fish inspection and certification). Such inspections should be in cooperation with the Ministry of Health and other relevant authorities.
- Reinforce the Veterinary Services capacities by providing bio-security equipment and bio-secure facilities, as well as training to personnel to apply strict bio-security measures to the quarantine facilities.

Epidemiological surveillance

- The VS should conduct active surveillance for all relevant diseases and apply it to all susceptible populations.
- The VS should update active surveillance regularly and report the results systematically.
- The surveillance programmes should be evaluated and updated to meet the country's OIE obligations.

Early detection and emergency response

- Developing contingency plans for priority animal diseases, other than AI, which includes a mechanism to coordinate with/involve stakeholders
- Establish procedures to make timely decisions on whether or not a sanitary emergency exists
- Establish a contingency fund, to which AHA has direct access in emergency situation.
- The VS should establish procedures to make timely decisions on whether or not a sanitary emergency exists. The VS should have the legal framework and financial support to respond rapidly to sanitary emergencies through a chain of command. They should have national contingency plans for some exotic diseases.

Communications

- It is recommended to create, in the Veterinary Administration, an official focal point for communications in order to provide up-to-date information accessible via appropriate channels on activities and programs and to develop a communication plan in order to actively and regularly circulate information to stakeholders.

Consultation with stakeholders

- The VS should maintain a formal consultation mechanism with stakeholders. The VS should regularly hold workshops and meetings with stakeholders for feedback regarding current and future activities and programs.
- In long-term, the VS should actively consult with and solicit feedback from stakeholders regarding proposed and current activities and programmes, developments in animal health and food safety, interventions at the OIE, and ways to improve their activities.

Participation of producers and other stakeholders in joint programmes

- The VS should keep joint programs (including education/awareness programs) with public and private stakeholders up-to-date and participate in their complete implementation.

Preparation of legislation and regulations; and implementation of regulation

- Given their mandate and responsibilities, the VS should strengthen their leading role in the preparation and formulation of national legislation and regulations and should be granted the authority to implement them once promulgated. Such participation should include consultation and participation of stakeholders to meet national needs and to gain stakeholder support in the implementation of regulations, in order to meet international trade needs.

Stakeholders compliance with legislation and regulations

- The VS should carry out audits of their compliance programs to ensure that stakeholders are in compliance with animal health and food safety regulations under their mandate.

International harmonisation

- The VS should not only take into account relevant international standards, but they should periodically review national legislation, regulations and sanitary measures with the aim of harmonising them. They should as well comment on the draft standards of relevant intergovernmental organizations and actively participate in the formulation, negotiation and adoption of these standards.

Traceability

- It is important that the VS and their stakeholders coordinate national procedures that can identify and trace animals and animal products as required for disease control and food safety purposes. The VS, in cooperation with their stakeholders, should carry out audits of their traceability procedures.

Zoning

- The VS should implement bio-security measures that enable it to establish and maintain disease free zones for selected animals and animal products, as necessary.
- The VS should collaborate with their stakeholders to define responsibilities and execute actions that enable them to establish and maintain disease free zones for selected animals and animal products, as necessary.
- The VS should also demonstrate the scientific basis for any disease-free zones and in order to gain recognition by trading partners that they meet the criteria established by the OIE and the WTO.

Compartmentalization

- The VS should implement bio-security measures that enable it to establish and maintain disease free compartments for selected animals and animal products, as necessary.
- Although establishing compartmentalisation would be of little use at present and difficult to implement, the VS could work at identifying sub-populations, in particular in the poultry sector, to which specific bio-security measures could be applied in collaboration with stakeholders.
- When necessary, the VS can collaborate with their stakeholders to define responsibilities and execute actions that enable it to establish and maintain disease free compartments for selected animals and animal products. If also necessary, the VS can also demonstrate the scientific basis for any disease-free compartments and can gain recognition by other countries that they meet the criteria established by the OIE and the WTO.

Table A.4.7. IMPORTING COUNTRY 4

Critical competency	Level when last assessed:	2007
HUMAN, PHYSICAL AND FINANCIAL RESOURCES		
Operational funding	4. Funding for new or expanded operations is on a case-by-case basis.	4
Emergency funding	4. Contingency and compensatory funding arrangements with adequate resources have been established, but in an emergency situation, their operation must be agreed through a non-political process on a case-by-case basis.	4
TECHNICAL AUTHORITY AND CAPABILITY		
Veterinary laboratory diagnosis	4. For diseases of zoonotic or economic importance not present in the country, but known to exist in the region and/ or that could enter the country, the VS have access to and use a laboratory to obtain a correct diagnosis	4
Quarantine and border security	3. The VS can establish and apply quarantine and border security procedures based on international standards, but the procedures do not systematically address illegal activities relating to the import of animals and animal products.	3
Early detection and emergency response	3. The VS have the legal framework and financial support to respond rapidly to sanitary emergencies, but the response is not coordinated through a chain of command.	3
Epidemiological surveillance	3. The VS conduct active surveillance for some relevant diseases and apply it to all susceptible populations but do not update it regularly.	3
Identification and traceability	3. The VS have procedures in place to identify and trace selected animals and animal products as required for disease control and food safety purposes, in accordance with relevant international standards.	3
INTERACTION WITH STAKEHOLDERS		
Communications	3. The VS maintain an official contact point for communications but it is not always up-to-date in providing information.	3
Consultations	3. The VS maintain a formal consultation mechanism with stakeholders.	3
Participation of producers and other stakeholders	2. Producers and other stakeholders are informed of programmes and assist the VS to deliver the programme in the field.	2
ACCESS TO MARKETS		
Preparation of legislation and regulations	3. The VS have the authority and the capability to participate in the preparation of national legislation and regulations, and to implement resultant regulations nationally	3
Compliance with legislation and regulations	3. If necessary, the VS impose appropriate penalties in instances of non-compliance	3
International harmonisation	3. The VS monitor the establishment of new and revised international standards, and periodically review national legislation, regulations and sanitary measures with the aim of harmonising them, as appropriate, with international standards, but do not actively comment on the draft standards of relevant intergovernmental organisations.	3
Equivalence	3. The VS have implemented equivalence and other types of sanitary agreements with trading partners on selected animals, animal products and processes.	3
Zoning	2. As necessary, the VS can identify animal sub-populations with distinct health status suitable for zoning.	2
Compartmentalisation	2. As necessary, the VS can identify animal sub-populations with a distinct health status suitable for compartmentalisation.	2

RECOMMENDATIONS

Operational funding

- As evidenced by the existing financial resources made available, the VS are presently in a position to accomplish their mission according to the standards for VS as defined by the OIE. The financial resources should be made available from the AWS to AHS to support the country VS to allow them to accomplish their mission according to OIE requirements. Funding for the VS is adequate for their regular basic operations, however, the mission recommends having an investment budget to be determined on the basis of medium and longer term plans in order to improve and complement infrastructure. Funding also should be adequate for all aspects of VS and be provided under full transparency that allows for full technical independence.

Contingency and compensatory funding

- Special veterinary contingency funds should be provided to AHA to allow direct access in response to emergency situations. This fund should have adequate resources and established rules of operation documented and agreed with stakeholders.

Veterinary laboratory diagnosis

- Finalize the commissioning of the newly built CVL
- Develop coordination with fisheries and human health laboratories on food safety issues and testing of domestic and imported food products of animal origin

Quarantine and border security

- Support the VS to prevent the entry and spread of infectious diseases and other hazards of animal and animal products through the development of improved procedures for quarantine inspections and the improvement of staff capacity to meet international standards. More veterinarians should be recruited and receive increased training on clinical examination, proper sample collection, a database should be set up on imported consignments with the proper recording of documents and records.
- Restore the VS supervision over the inspection of all products of animal origin (in particular meat and fish inspection and certification).
- Reinforce the VS capacities to apply strict biosecurity measures to the quarantine facilities.

Early detection and emergency response

- Develop contingency plans for priority animal diseases other than AI which includes a mechanism to coordinate and involve stakeholders.
- Establish procedures to make timely decisions on whether or not a sanitary emergency exists.
- Elaborate contingency fund to which AHA has a direct access in case of emergency situation.
- Conduct simulation exercises to practice the emergency response.

Epidemiological surveillance

- Develop a national epidemio-surveillance network as an early warning system and involving all stakeholders on the basis of a clear legislative framework and established procedures.
- Assess the risks associated with emerging issues, implement appropriate prevention, surveillance or control actions and reinforce coordination with neighbouring countries and trading partners.
- Establish reliable electronic data gathering system supported by IT technicians.
- Establish a GIS mapping system and enhance the capability to conduct risk assessment considering the regional situation.
- Increase the surveillance at the country's slaughterhouses (currently this only targets food-borne diseases such as TB).
- The active surveillance programmes in animal populations for diseases of economic and zoonotic importance to the country should be conducted and results systematically reported in compliance with the OIE standards.

Communication

- It is recommended that an official focal point for communications is created within the VS to provide up-to-date information on activities and programmes and accessible via appropriate channels. A communication plan should be developed in order to actively and regularly circulate information to stakeholders.

Consultation with stakeholders

- The VS should develop and maintain appropriate consultation mechanisms with stakeholders through maintaining formal documented communication mechanisms with stakeholders, regular organization of workshops and meetings with stakeholders and consultation with and solicitation of stakeholders for feedback regarding current and future activities and programmes.

Preparation of legislation and regulations, and implementation of regulations

- Given their mandate and responsibilities, the VS should be assigned the full authority to prepare and formulate national legislation and regulations and they should also be granted the authority to implement the legislation once promulgated. This development should include the consultation and participation of stakeholders, such as MoH, to meet national needs and their support in the implementation of regulations in order to meet international trade needs.

Compliance with legislation and regulations

- The authority and capability of the VS to ensure that stakeholders are in compliance with animal health and food safety regulations under their mandate is essential. This requires that the VS have the authority over the inspection of all foods of animal origin, and that, the VS progressively impose appropriate penalties in cases of noncompliance. The VS must work in full transparency with the stakeholders to minimize cases of noncompliance, documenting evidence and carrying out audits of their compliance programmes.

International harmonisation

- The VS work with stakeholders to minimize instances of non-compliance with animal health and food safety regula-

tions under the VS mandate. Not only should the VS take into account relevant international standards, but they should periodically review national legislation, regulations and sanitary measures with the aim of harmonising them. They should also comment on the draft standards of relevant intergovernmental organizations and actively participate in the formulation, negotiation and adoption of these standards.

Equivalence

- It is recommended that the country VS actively pursue the development, implementation and maintenance of equivalence and other types of sanitary agreements with trading partners on all matters relevant to animals, animal products and processes under their mandate taking into account stakeholders' interests and developments in international standards.

Zoning

- The VS should collaborate with their stakeholders to define responsibilities and execute actions that enable them to establish and maintain disease free areas for selected animals and animal products, as necessary. The VS can also demonstrate the scientific basis for any diseasefree areas and can gain recognition by trading partners that they meet the criteria established by the OIE and the WTO.

Compartmentalization

- Although establishing compartmentalisation would be of little use at present and difficult to implement, the VS could work at identifying sub-populations, in particular in the poultry sector, to which specific biosecurity measures could be applied in collaboration with stakeholders.
- When necessary, the VS can collaborate with their stakeholders to define responsibilities and execute actions that enable it to establish and maintain disease free compartments for selected animals and animal products. If necessary, the VS can also demonstrate the scientific basis for any disease free compartments and can gain recognition by other countries that they meet the criteria established by the OIE and the WTO.

Table A.4.8. EXPORTING COUNTRY 4

Critical competency	Level when last assessed:	2009
HUMAN, PHYSICAL AND FINANCIAL RESOURCES		
Operational funding	4. Funding for new or expanded operations is on a case-by-case basis, not always based on risk analysis and/or cost benefit analysis.	4
Emergency funding	3. Contingency and compensatory funding arrangements with limited resources have been established; additional resources for emergencies may be approved but approval is through a political process.	3
TECHNICAL AUTHORITY AND CAPABILITY		
Veterinary laboratory diagnosis	4. For diseases of zoonotic or economic importance not present in the country, but known to exist in the region and/ or that could enter the country, the VS have access to and use a laboratory to obtain a correct diagnosis	4
Quarantine and border security	3. The VS can establish and apply quarantine and border security procedures based on international standards, but the procedures do not systematically address illegal activities relating to the import of animals and animal products	3
Early detection and emergency response	3. The VS have the legal framework and financial support to respond rapidly to sanitary emergencies, but the response is not coordinated through a chain of command	3
Epidemiological surveillance	4. The VS conduct active surveillance in compliance with scientific principles and OIE standards for some relevant diseases, apply it to all susceptible populations, update it regularly and report the results systematically	4
Identification and traceability	2. The VS can identify and trace some products of animal origin to deal with a specific problem (e.g. products originating from farms affected by a disease outbreak)	2
INTERACTION WITH STAKEHOLDERS		
Communications	3. The VS maintain an official contact point for communication but it is not always up-to-date in providing information	3
Consultations	2. The VS maintain informal channels of consultation with stakeholders	2
Participation of producers and other stakeholders	2. Producers and other stakeholders are informed of programmes and assist the VS to deliver the programme in the field	2
ACCESS TO MARKETS		
Preparation of legislation and regulations	3. The VS have the authority and the capability to participate in the preparation of national legislation and regulations, with adequate internal and external quality in some fields of activity, but lack formal methodology to develop adequate national legislation and regulations regularly in all domains.	3
Compliance with legislation and regulations	2. The VS implement a programme or activities comprising inspection and verification of compliance with legislation and regulations and recording instances of non-compliance, but generally cannot or do not take further action in most relevant fields of activity.	2
International harmonisation	4. The VS are active in reviewing and commenting on the draft standards of relevant intergovernmental organisations.	4
Equivalence	3. The VS have implemented equivalence and other types of sanitary agreements with trading partners on selected animals, animal products and processes.	3
Zoning	1. The VS cannot establish disease free zones.	1
Compartmentalisation	1. The VS cannot establish disease free compartments.	1

RECOMMENDATIONS

Operational funding

- Improve operational funding at Vet Faculties in line with increased demands on them for the quantity and quality of veterinary and veterinary paraprofessional teaching.
- Increase cost recovery where possible, such as for field services, in export quarantine or for the lab services.
- Utilise the PVS Pathway and strategic planning to advocate with decision makers for ongoing funding to improve the country VS, centred around an evidence based and costed plan.

Emergency funding

- Include emergency funding provisions within legislation.
- Consider closely the inclusion of compensation mechanisms for certain diseases where slaughter out may be necessary.

Veterinary laboratory diagnosis

- Funds for recurrent expenditure should be increased to support activities of the laboratories
- Build capacity of field staff to undertake disease investigations and sampling independent of regional laboratory staff (telephone support to be provided after initial training)
- Periodic refresher courses for sample collection and handling especially as it relates to emerging diseases
- Explore the possibility of cost recovery for some aspects of laboratory operations to be determined by the authorities

Quarantine and border security

- Expedite computerization of quarantine and border post activities to provide relevant data promptly for decision making.
- Cross border meetings should include more neighbouring countries.
- Border inspection and quarantine processes should not incorporate disincentives (e.g. fees) that would further discourage traders and nomadic pastoralists to utilise them.

Epidemiological surveillance

- In view of the food security and social implications of the effect of Newcastle disease outbreaks, active surveillance for Newcastle disease is recommended to underpin success or lack of success of vaccination programmes.
- Teach field staff how to take blood samples
- Regular refresher training for new techniques in active surveillance for TADs.
- Establish proper linkages with Disease Risk Analysis case team as regards determination of sampling frame and other epidemiologic indicators for surveillance.
- Undertake more vaccination sero-surveillance to measure vaccine effectiveness against key TADs.

Early detection and emergency response

- Hold periodical simulation exercises on the prevention and control of priority TADs
- Amend legislation to improve the VS chain of command during emergencies.

Identification and traceability

- Evaluate the feasibility of developing appropriate traceability systems for export as well as non-export abattoir products of animal origin that would permit traceback to markets or farms of origin.
- Livestock product traceability could be extended to other livestock products such as milk and eggs.

Communications

- The VS should pursue the establishment of communication structures in both Regional Bureaus and districts.
- Appoint a dedicated communications contact point within the relevant directorate.
- Facilitate establishment of stakeholder representation for farmers, and use them as mechanism to distribute communications/farmer awareness messages and materials.
- Develop an animal health communications strategy and/or action plan.

Consultation with stakeholders

- The National Livestock Working Group should be expanded to include a wider representation of the livestock sector to facilitate development of stakeholder supported strategic plans and exchange of key information.

Participation of producers and other stakeholders in joint programmes

- Communication and awareness campaigns should be increased to ensure farmers and farmer groups continued support and participation in future programmes (e.g surveillance and vaccination).
- A joint programme with pastoralists involving partially or fully privately funded FMD vaccination could be piloted in a specific region, such as through the Regional Laboratory. This would involve the government sourcing the vaccine (imported if it is not possible to produce locally) and undertaking extension activities with pastoralists in relation to an initially small-scale vaccination campaign.

Preparation of legislation and regulations

- The relevant directorate should lobby for the quick passage of these draft proclamations and regulations with the relevant authorities and institutions.
- The relevant directorate should allow external stakeholders (farmers groups, municipality slaughterhouse operators) a chance to comment on the new legislation to ensure it is relevant and feasible to them.
- The relevant directorate should assess implications of new legislation to existing or required legislation at regional and/or woreda level.

Compliance with legislation and regulations

- An implementation plan taking cognisance of the country's structure and incorporating stakeholders' awareness and participation should be prepared. The regulations salient features should be presented in an easily understood manner.

- An evaluation of legislative needs at regional and woreda levels, as a result of the new national veterinary legislation, should be undertaken immediately by a legal expert.

International harmonisation

- The country should continue its active participation and cooperation in regional organisations and with OIE.
- VS staff capacity building on OIE standards including commenting on contemporary OIE issues should be invigorated and pursued. The situation regarding continued use of outdated OIE List A and List B diseases should be clarified.
- The country should engage with the full OIE PVS Pathway by requesting an OIE PVS Gap Analysis in the near future as part of the next step.

Equivalence and other types of sanitary agreements

- Regular risk-based review of the certification system is necessary, given evolving disease and trading situations.
- Sanitary agreements could be further pursued to introduce an even strong risk based component to export certification e.g. do all cattle for all countries require all six vaccinations to be undertaken upon entering feedlots? Could the private owners undertake these vaccinations with the relevant directorate oversight (vaccination serosurveillance), rather than the relevant directorate having to undertake this massive task?
- Pursue a written agreement with transit countries that planned official quarantine of live animals in the country is acceptable and permits rapid, direct transit to seaports and out to importing countries.

Zoning

- Zoning is not recommended at this time due to likely unsuccessful implementation. However, the government may wish to undertake a comprehensive study on zoning in the near future to enable the country to retain and expand its current export markets.

Compartmentalisation

- Compartmentalisation is not recommended at this time due to a lack of fully integrated, intensive production systems. Studies on compartmentalisation may be worth undertaking if and when a large scale, commercial livestock sector develops.

Table A.4.9. EXPORTING COUNTRY 5

Critical competency	Level when last assessed:	2009	2007
HUMAN, PHYSICAL AND FINANCIAL RESOURCES			
Operational funding	2. Funding for the VS is clearly defined and regular, but is inadequate for their required base operations	2	2
Emergency funding	2. Contingency and compensatory funding arrangements with limited resources have been established, but these are inadequate for expected emergency situations (including emerging issues).	2	2
TECHNICAL AUTHORITY AND CAPABILITY			
Veterinary laboratory diagnosis	2. For major zoonoses and diseases of national economic importance, the VS have access to and use a laboratory to obtain a correct diagnosis	2	2
Quarantine and border security	2. The VS can establish and apply quarantine and border security procedures; however, these are generally based neither on international standards nor on a risk analysis	2	2
Early detection and emergency response	2. The VS have a field network and an established procedure to determine whether or not a sanitary emergency exists, but lack the necessary legal and financial support to respond appropriately	2	2
Epidemiological surveillance	3. The VS conduct active surveillance for some relevant diseases and apply it to all susceptible populations but do not update it	3	2
Identification and traceability	1. The VS do not have the capability to identify animals or animal products	1	1
INTERACTION WITH STAKEHOLDERS			
Communications	2. The VS have informal communication mechanisms	2	2
Consultations	2. The VS maintain informal channels of consultation with stakeholders.	2	2
Participation of producers and other stakeholders	2. Producers and other stakeholders are informed of programmes and assist the VS to deliver the programme in the field.	2	2
ACCESS TO MARKETS			
Preparation of legislation and regulations	2. The VS have the authority and the capability to participate in the preparation of national legislation and regulations but cannot implement resultant regulations nationally.	2	2
Compliance with legislation and regulations	2. The VS implement a programme consisting of inspection and verification of compliance with regulations relating to animals and animal products, report instances of non-compliance, but generally do not take further action	2	2
International harmonisation	2. The VS are aware of gaps, inconsistencies or nonconformities in national legislation, regulations and sanitary measures as compared to international standards, but do not have the capability or authority to rectify the problems	2	2
Equivalence	2. The VS have the authority to negotiate and approve equivalence and other types of sanitary agreements with trading partners, but no such agreements have been implemented	2	2
Zoning	1. The VS cannot establish disease free zones.	1	1
Compartmentalisation	1. The VS cannot establish disease free compartments.	1	1

RECOMMENDATIONS

Operational funding

- Commission workforce study to adjust the number of veterinarians to real needs and provide adequate compensations for professionals to match qualifications, duties and responsibilities.
- Engage an expert in budget development (budget proposal/elaboration) for VS programs to train appropriate staff members in budget development and to assist in establishing the procedures for developing and managing financial resources (including fee for services funds).
- Develop long term (3-5 years) budget projections. Establish and implement standard operating procedures for developing and managing financial resources (including fee for service funds), contracting budget expertise if necessary.
- Ensure that appropriate and regular operating budgets are made available on the basis of VS activities to improve the capability of the VS to carry out their duties with autonomy and free from commercial, financial, hierarchical and political influences.
- Create a unit which actively seeks international cooperation and to manage the resources allocated.
- Investment budgets should be determined on an annual basis to improve and complement infrastructure to establish an appropriate and reliable veterinary services network throughout the country.
- Adequately compensate the veterinary workforce (according to the nature of their positions) to guarantee full dedication to their missions.

Contingency and compensatory funding

- Engage in negotiations with appropriate authorities to establish emergency funds specific for veterinary services
- Establish procedures for easy access to these funds.

Veterinary Laboratory diagnosis

- Engage laboratory expert(s) recommended by OIE to evaluate and develop action plans to optimize the network of laboratories for disease diagnosis and food hygiene based on VS needs, according to the OIE standards.
- Develop and implement an efficient cost-recovery system to guarantee appropriate running budget for laboratory.
- Establish mechanisms and procedures for implementing multi-year development plans for investment in infrastructure (including equipment, maintenance, etc.) to guarantee OIE minimum requirements.
- Provide training to field VS in sample collection, recognition of endemic, zoonotic and transboundary animal diseases,
- Update veterinary legislation to establish mechanism for cost recovery and to define role, functions, and responsibilities of directorate laboratories.
- Formalize the relation between VS and the diagnostic laboratories of other departments.
- Formalise the links and reciprocal commitments of VS and the research institutions in a formal document (contract, memorandum of understanding), including financial recourses. This would address the support of the research institutions to VS for sampling collection, data collection, analysis, reporting, as for survey methodology, scientific basis, statistical analysis...
- Develop procedures for authorization/accreditation of laboratories.

Quarantine and border security

- Conduct an analysis to determine which quarantine facilities are essential to maintain.
- Engage expert(s) to evaluate and develop plans for bringing quarantine policies, guidelines, facilities and personnel competencies up to OIE standards.
- Update veterinary legislation, in consultation with stakeholders, to be in compliance with international standards.
- Commission a workforce study to adjust the number of veterinarians and support staff to real needs and provide adequate compensations for professionals to match qualifications, duties and responsibilities.

Active epidemiological surveillance

- Draw up the strategy regarding contagious animal diseases surveillance, in close link with the diseases control and eradication strategy [see II-7] and with the available or expected resources.
- Communicate within the VS about these strategies, so that everybody involved in the implementation of the programmes is aware of the underpinning strategy.
- Have the results of the surveys and data interpreted by a Scientific Committee, with the objective of updating the programmes as necessary. To regularly check the relevance and efficiency of the measures implemented according to the evolution of the epidemiological context.
- Organize coordination between the Departments and units in VS, so that data, competencies, knowledge of the field reality, etc. can be shared and effectively used. The Epidemiology Unit should work more closely with the Preventive Medicine Department and be associated to the conception of programmes and data collection (to conduct relevant epidemiology studies, data should be organised since the early beginning, taking into account the objectives and the statistical analysis that are to be carried out later on).

Early detection and emergency response

- Develop national contingency plans for emergency response following OIE & FAO guidelines 60) To develop competency in epidemiology through linkages with OIE epidemiology collaborating centres and develop appropriate legislation to support epidemiology activities and the infrastructure for efficiently running the epidemio-surveillance network.
- Reinforce the authority and capability of the VS to identify and record pathogenic agents, including those relevant to public health, that can affect animals and animal products (staff training, lab capacities, programs for disease detection, risk analysis, etc.).
- Develop national epidemio-surveillance network and an early warning system involving all stakeholders on the basis of a clear legislative framework and established procedures.
- National contingency plans must indicate documented lines of authority (chain of command) for emergency operations.

Communications
- Assign/create an official, and appropriately equipped, focal point for communications and public awareness activities.
- Identify all stakeholders and establish procedures for regular consultation on relevant matters. Initiate mechanisms for active dialogue with stakeholders and trading partners and audit such mechanisms
- Develop and maintain appropriate consultation mechanisms with stakeholders

Consultation with stakeholders
- Assign/create an official, and appropriately equipped, focal point for communication and public awareness activities.
- Identify all stakeholders and establish procedures for regular consultation on relevant matters. Initiate mechanisms for active dialogue with stakeholders and trading partners and audit such mechanisms

Participation of producers and other stakeholders in joint programmes
- Assign/create an official, and appropriately equipped, focal point for communication and public awareness activities.
- Identify all stakeholders and establish procedures for regular consultation on relevant matters. Initiate mechanisms for active dialogue with stakeholders and trading partners and audit such mechanisms
- Update veterinary legislation, in consultation with stakeholders, to be in compliance with international standards.

Preparation of legislation and regulations, and implementation of regulations
- Update veterinary legislation, in consultation with stakeholders, to be in compliance with international standards.
- Create and budget for unit dedicated to preparation, implementation, compliance and enforcement of veterinary regulatory legislation.
- Target key stakeholders to develop mechanisms of interactions to improve meat hygiene system (processing, transportation, slaughterhouses, and storehouses). Cooperate with interested groups (tourism board, animal welfare facilities, etc.)
- Develop and document procedures for auditing and updating of VS activities, including arrangements for consultations with stakeholders.
- Accelerate the development of procedures for the traceability of the animals and animal products and improvement of surveillance programs for better reporting of sanitary status and other relevant matters to the OIE.

Stakeholder compliance with legislation and regulations
- Create and budget for unit dedicated to preparation, implementation, compliance and enforcement of veterinary regulatory legislation.
- Target key stakeholders to develop mechanisms of interactions to improve meat hygiene system (processing, transportation, slaughterhouses, and storehouses). Partner with interested groups (tourism board, animal welfare facilities, etc.).
- Update veterinary legislation, in consultation with stakeholders, to be in compliance with international standards.
- Accelerate the development of procedures for the traceability of the animals and animal products and improvement of surveillance programs for better reporting of sanitary status and other relevant matters to the OIE.

International harmonisation
- Establish procedure for review and audit of programs on harmonisation of national legislation with international standards
- Target key stakeholders to develop mechanisms to incorporate international standards into veterinary programs (meat inspection, processing, transportation, slaughterhouses, and storehouses). Cooperate with interested groups (tourism board, animal welfare facilities, etc.).
- Develop and document procedures for auditing and updating of VS activities, including arrangements for consultations with stakeholders.
- Update veterinary legislation, in consultation with stakeholders, to be in compliance with international standards.
- Accelerate the development of procedures for the traceability of the animals and animal products and improvement of surveillance programs for better reporting of sanitary status and other relevant matters to the OIE.

Equivalence
- Document procedures for auditing and updating functions, including arrangements for consultation with stakeholders, as related to arrangements for negotiation for equivalence.
- Accelerate the development of adequate procedures for the traceability of the animals and animal products and improvement of surveillance programs for better reporting of sanitary status and other relevant matters to the OIE.
- Define and publish mission(s) and standard operating procedures (SOP) for each program and administrative unit of VS and ensure these are fully communicated to all members of VS.
- Identify potential stakeholders in equivalence/sanitary agreements and establish procedures for regular consultation on relevant matters. Initiate mechanisms for active dialogue with stakeholders and trading partners and audit such mechanisms.

Traceability
- Accelerate the development of adequate procedures for the traceability of animals and animal products.
- Identify all stakeholders and establish procedures for regular consultation on relevant matters. Initiate mechanisms for active dialogue with stakeholders and trading partners and audit such mechanisms.
- Define and publish mission and standard operating procedures (SOP) for the animal registration and identification program and ensure these are fully communicated to all members of VS and stakeholders in the pilot areas.
- Establish procedures for evaluation/monitoring of animal registration and identification program and revision of policies when appropriate.
- Create and budget for unit dedicated to preparation, implementation, compliance and enforcement of veterinary regulatory legislation related to the animal registration and identification program.
- Develop mechanisms to guarantee sustainability of the animal registration and identification program.

Zoning

- Development of procedures for future zoning possibilities
- Develop competency in epidemiology through linkages with OIE epidemiology collaborating centers and develop appropriate legislation to support epidemiology activities and the infrastructure for efficiently running the epidemio-surveillance network.
- Develop competence in risk analysis through training at OIE epi/risk assessment collaborating centers to implement risk analysis policy/procedures for VS following OIE guidelines.
- Update veterinary legislation, in consultation with stakeholders, to be in compliance with international standards for zoning.
- Accelerate the development of procedures for the traceability of the animals and animal products and improvement of surveillance programs for better reporting of sanitary status and other relevant matters to the OIE.

Compartmentalisation

- Develop competency in epidemiology through linkages with OIE epidemiology collaborating centers and develop appropriate legislation to support epidemiology activities and the infrastructure for efficiently running the epi-surveillance network.
- Develop competence in risk analysis through training at OIE epi/risk assessment collaborating centers to implement risk analysis policy/procedures for VS following OIE guidelines.
- Update veterinary legislation, in consultation with stakeholders, to be in compliance with international standards for compartmentalisation.
- Accelerate the development of procedures for the traceability of the animals and animal products and improvement of surveillance programs for better reporting of sanitary status and other relevant matters to the OIE.

Table A.4.10. EXPORTING COUNTRY 6

Critical competency	Level when last assessed:	2009
HUMAN, PHYSICAL AND FINANCIAL RESOURCES		
Operational funding	2. Funding for the VS is clearly defined and regular but is inadequate for their required base operations	2
Emergency funding	1. No contingency and compensatory funding arrangements exist and there is no provision for emergency financial resources	1
TECHNICAL AUTHORITY AND CAPABILITY		
Veterinary laboratory diagnosis	1. Disease diagnosis is almost always conducted by clinical means only, with laboratory diagnostic capability being generally unavailable	1
Quarantine and border security	2. The VS can establish and apply quarantine and border security procedures; however, these are generally based neither on international standards nor on a risk analysis	2
Early detection and emergency response	3. The VS have the legal framework and financial support to respond rapidly to sanitary emergencies, but the response is not coordinated through a chain of command	3
Epidemiological surveillance	1. The VS have no active surveillance programme	1
Identification and traceability	1. The VS do not have the capability to identify animals or animal products	1
INTERACTION WITH STAKEHOLDERS		
Communications	1. The VS have no mechanism in place to inform stakeholders of VS activities and programmes	1
Consultations	1. The VS have no mechanisms for consultation with stakeholders	1
Participation of producers and other stakeholders	1. Producers and other stakeholders only comply and do not actively participate in programmes	1
ACCESS TO MARKETS		
Preparation of legislation and regulations	1. The VS have neither the authority nor the capability to participate in the preparation of national legislation and regulations and implement resultant regulations	1
Compliance with legislation and regulations	1. The VS have no programme to ensure stakeholder compliance with relevant regulations	1
International harmonisation	1. National legislation, regulations and sanitary measures under the mandate of the VS do not take account of international standards	1
Equivalence	1. The VS have neither the authority nor the capability to negotiate or approve equivalence or other types of sanitary agreements with other countries	1
Zoning	1. The VS cannot establish disease free zones	1
Compartmentalisation	1. The VS cannot establish disease free compartments	1

Key recommendations

- Establishing a direct chain of command which includes a dedicated directorate of veterinary services within the respective government authority.
- Strengthening the technical independency of veterinary services.

Critical competences that need particular attention in the next 5 years:

- Ensure appropriate human resources are available, recommended are about 20 veterinarians being hired in 10 years and their continued professional development assured.
- Financial resource that ensure a sustained functioning of veterinary services, incl. access to emergency funds.
- Development and strict enforcement of veterinary legislation and standard operating procedures in line with international harmonisation.
- Urgent reinforcement of border control.
- Increase capacity of the existing veterinary diagnostic laboratory and of the planned food safety laboratory.
- Develop a communication plan for priority areas, incl. data management.
- Institutionalization of stakeholder consultation.

Table A.4.11. IMPORTING COUNTRY 5

Critical competency	Level when last assessed:	2009
HUMAN, PHYSICAL AND FINANCIAL RESOURCES		
Operational funding	2. Funding for the VS is clearly defined and regular, but is inadequate for their required base operations.	2
Emergency funding	1. No contingency and compensatory funding arrangements exist and there is no provision for emergency financial resources.	1
TECHNICAL AUTHORITY AND CAPABILITY		
Veterinary laboratory diagnosis	2. For major zoonoses and diseases of national economic importance, the VS have access to and use a laboratory to obtain a correct diagnosis.	2
Quarantine and border security	4. The VS can establish and apply quarantine and border security procedures which systematically address legal pathways and illegal activities.	4
Early detection and emergency response	1. The VS have no field network or established procedure to determine whether a sanitary emergency exists or the authority to declare such an emergency and respond appropriately.	1
Epidemiological surveillance	1. The VS have no active surveillance programme.	1
Identification and traceability	1. The VS do not have the capability to identify animals or animal products.	1
INTERACTION WITH STAKEHOLDERS		
Communications	2. The VS have informal communication mechanisms.	2
Consultations	3. The VS maintain a formal consultation mechanism with stakeholders.	3
Participation of producers and other stakeholders	2. Producers and other stakeholders are informed of programmes and assist the VS to deliver the programme in the field.	2
ACCESS TO MARKETS		
Preparation of legislation and regulations	2. The VS have the authority and the capability to participate in the preparation of national legislation and regulations, but cannot implement resultant regulations nationally.	2
Compliance with legislation and regulations	2. The VS implement a programme consisting of inspection and verification of compliance with regulations relating to animals and animal products, report instances of non-compliance, but generally do not take further action.	2
International harmonisation	3. The VS monitor the establishment of new and revised international standards, and periodically review national legislation, regulations and sanitary measures with the aim of harmonising them, as appropriate, with international standards, but do not actively comment on the draft standards of relevant intergovernmental organisations.	3
Equivalence	3. The VS have implemented equivalence and other types of sanitary agreements with trading partners on selected animals, animal products and processes.	3
Zoning	N/A	
Compartmentalisation	N/A	

RECOMMENDATIONS

Operational funding

- Funding of VS should be based on a thorough review of animal health policies against a strategic plan with clearly identified objectives and programmes.
- The VS should be provided with appropriate funding to allow them to accomplish their missions and responsibilities. Due consideration must be given to:
  · increasing operating budgets including travel costs, personnel allowances and provisions for repairs and maintenance as well as expanded and new operations as required; and
  · increasing funding to provide the capital necessary for longer term investment in facilities and equipment.

Contingency and compensatory funding

- Develop and agree with relevant institutions a mechanism to allow the VS access to contingency funds and their mobilization in the event of disease emergency situations.

Veterinary laboratory diagnosis

- Provide the laboratory with adequate resources to strengthen the required capability and capacity, including recruitment of specialised veterinary personnel and equipment with transport facilities and material necessary to support disease surveillance and field investigations.
- Develop coordination with public health laboratories of the MoH.

Quarantine and border security

- Provide the quarantine services with adequate resources to cope with the continuously increasing quarantine operations. There is need for:
  · Recruiting at least two more veterinarians and a few specialised technicians in quarantine operations;
  · Sufficient financial resources to ensure that quarantine operations are properly conducted and facilities are regularly maintained; and
- The VS should be given clear authority and mandate over the inspection and certification of all imported products of animal origin.

Epidemiological surveillance

- Increase the capacity of the VS for epidemiological surveillance and disease reporting through establishing within AWD of an epidemiology unit with capacity for data capture, analysis and dissemination.
- Establish a National risk-based surveillance programme including elaboration of procedures for active surveillance, to assess the endemic disease situation, early detect any introduction of diseases.
- Increase capacity for disease outbreak investigations through developing SOPs and provision of necessary equipment and material.

Early detection and emergency response

- Develop national contingency and response plans for diseases of concern and ensure that plans are validated by concerned authorities and regularly tested according to risk and disease situations both at regional and international levels.

Communications

- Assign within AWD an official focal point to regularly provide and circulate up-to-date information via appropriate channels.
- Develop with communications professionals a communication plan on animal health programmes and provide the VS with the adequate resources for its effective implementation.

Consultation with Stakeholders

- The VS should engage all relevant stakeholders and maintain appropriate consultation mechanisms with them through formal communications and organisation of regular workshops and meetings for information and feedback regarding current activities and programmes.

Participation of producers and other stakeholders

- As part of the strategic review of animal health policy in the country, the animal health directorate should set priorities and then engage other government agencies and the private sector through formal mechanisms in order to develop and implement joint programmes in various field activity such disease surveillance, residues monitoring, food safety and control and surveillance of zoonotic diseases and wildlife surveillance.

Preparation of legislation and regulations and implementation of regulations

- Develop and draft a national animal health law with regulations, rules and policies to manage animal health programmes in the country, in conformity with the GCC veterinary obligations and requirements.
- To support the national animal health policy and the national veterinary legislation there is an urgent for finalizing review and promulgation of the proposed Acts and Regulations.

Stakeholder compliance with legislation and regulations

- Effective legislation is introduced providing a clear mandate and authority to the animal health directorate to enforce animal health control measures and impose appropriate penalties in case of non-compliance.

International harmonisation

- Develop and draft a national animal health law with regulations, rules and policies to manage animal health programmes in the country, in conformity with the GCC veterinary obligations and requirements.
- Support the national animal health policy and the national veterinary legislation there is an urgent for finalizing review and promulgation of the proposed Acts and Regulations.
- Effective legislation is introduced providing a clear mandate and authority to the animal health directorate to enforce animal health control measures and impose appropriate penalties in case of non-compliance.

Equivalence

- The VS should work actively with all concerned stakeholders in pursuing the trade negotiations with GCC countries and trading partners to implement equivalence and other types of sanitary agreements taking account of developments in international standards.

Traceability

- Develop a sustainable system with adequate procedures for identification and traceability of animals and animal products and create a central database for animal farms and livestock owners in the country. A process for regular updating of this database should be put in place.

Table A.4.12. IMPORTING COUNTRY 6

Critical competency	Level when last assessed:	2009
HUMAN, PHYSICAL AND FINANCIAL RESOURCES		
Operational funding	3. Funding for the VS is clearly defined and regular, and is adequate for their base operations, but there is no provision for new or expanded operations	3
Emergency funding	2. Contingency and compensatory funding arrangements with limited resources have been established, but these are inadequate for expected emergency situations (including emerging issues)	2
TECHNICAL AUTHORITY AND CAPABILITY		
Veterinary laboratory diagnosis	3. For other zoonoses and diseases present in the country, the VS have access to and use a laboratory to obtain a correct diagnosis	3
Quarantine and border security	2. The VS can establish and apply quarantine and border security procedures; however, these are generally based neither on international standards nor on a risk analysis	2
Early detection and emergency response	2. The VS have a field network and an established procedure to determine whether or not a sanitary emergency exists but lack the necessary legal and financial support to respond appropriately	2
Epidemiological surveillance	2. The VS conduct active surveillance for some relevant diseases (of economic and zoonotic importance) but apply it only in a part of susceptible populations and/or do not update it regularly	2
Identification and traceability	1. The VS do not have the capability to identify animals or animal products	3
INTERACTION WITH STAKEHOLDERS		
Communications	2. The VS have informal communication mechanisms	2
Consultations	2. The VS maintain informal channels of consultation with stakeholders	2
Participation of producers and other stakeholders	2. Producers and other stakeholders are informed of programmes and assist the VS to deliver the programme in the field	2
ACCESS TO MARKETS		
Preparation of legislation and regulations	2. The VS have the authority and the capability to participate in the preparation of national legislation and regulations, but cannot implement resultant regulations nationally	2
Compliance with legislation and regulations	1. The VS have no programme to ensure stakeholder compliance with relevant regulations	1
International harmonisation	3. The VS monitor the establishment of new and revised international standards, and periodically review national legislation, regulations and sanitary measures with the aim of harmonising them, as appropriate, with international standards, but do not actively comment on the draft standards of relevant intergovernmental organisations	2
Equivalence	3. The VS have implemented equivalence and other types of sanitary agreements with trading partners on selected animals, animal products and processes	3
Zoning	1. The VS cannot establish disease free zones	1
Compartmentalisation	1. The VS cannot establish disease free compartments	1

ANNEX 5.

Summaries of interviews with stakeholders

Table A.5.1. INTERVIEWS DURING OIE GENERAL SESSION IN PARIS

Stakeholder	Constraint	Recommendations
Vet Services Importer (AP)	Horn of Africa source perceived as too risky Consumers do not want meat from Africa	More information Independent risk assessment
Vet services Importer (AP)	Poor health situation in Horn of Africa Challenges with quarantine	A Gulf state platform to discuss important issues Independent expert assessments of risk
Vet services Importer (AP)	Animals testing + for FMD/RVF Possible infection during transport Problems with official document Poor animal welfare	Ensure consistent supply of livestock Build trust Facilitate infrastructure
Vet services exporter (HOA)		Facilitate dialogue Develop facilities
International organisation	Public sector can hamper private sector performance Private sector more flexible and nimbler but doesn't always follow rules	Regional advocacy function Address broad development issues
International organisation	Lack of capacity Lack of investment Lack of data Lack of govt. commitment Dependency syndrome	Address vet drugs and feed Address AMR
International organisation	Implementation of regulations is a bottle neck	
International organisation		Private sector involvement important
Regional organisation	Informal traders	E-certification
Regional organisation	Public institutions remain weak Private sector takes shortcuts without supervision	Coordinate public and private sector investment Address capacity gaps Link with IGAD, AU-IBAR, GCC
Donor	Lack of willingness of consumer to pay for high quality	Promote quality assurance Traceability Address broad development issues
Food industry	Lack of harmonisation across certification authorities	Address food safety & risk Vertical integration Build trust- paper not enough, direct inspection useful
Drug company	Registration of veterinary drugs is difficult Affordability Time to sell longer than shelf live Lack of harmonised requirements for import	One Health/more holistic perspective Address feed supply Multi-stakeholder approach Technology to track animals in quarantine Neutral institute to investigate vaccination under field conditions Monitoring of vaccines

A.5.1. Interviews during mission to Oman

Main trade routes discussed

- Live shoats from Somalia (predominantly goats, and many originating Somalia and Ethiopia), Sudan, Ethiopia: most important route, most goes to low and middle income consumers; managed in Oman by a series of meat purchase and market facilitation middlemen
- Fresh vacuum-packed (long shelf-life) shoat and bovine meat from NZ, Australia, India – these predominate meat selections in hypermarkets
- Fresh meat from Kenya, Ethiopia (short shelf-life)
- Frozen meat from Pakistan, Kenya
- Oman as a platform for re-export
- Various other small and emerging trade routes: Kazakhstan, Tanzania

Table A.5.2. INTERVIEWS DURING A MISSION TO OMAN

Advantages	Constraints
STAKEHOLDERS	
- Price was affordable to the different strata of markets - Animals believed healthy - Substantial supply and trade network - Profitable trade - Relatively short distance - Animals reared extensively in pastoral systems of the Horn - Vet import services responsive - Network of 70 public vet clinics and around 40 private clinics - Make very few rejections of meat products (test for salmonella, TBC) - Maintain a cold chain from abattoir to retail - Good labelling and high diversity of meats in market	- Delays in getting animals off ships (essentially in Salalah port) - Difficulty making payments in Somalia - Boats small and not suited for transport of livestock - Concern that animals not always kept for full 21 days in quarantine in Somalia - Lack of traceability of products derived from Somali region - Weak veterinary system in Somalia/Somali region of Ethiopia - Lack of knowledge of disease situation in both countries - Understaffed at port and vet HQ - Lack of common vision between VS and customs - Capacity of Salalah port and quarantine station in peak season inadequate - Omani (sometimes GCC country) Embassy responsible for checking abattoirs but lacks capacity - Not testing for important FBD (Campylobacter) - Not able to travel to some HoA countries because of security issues
WE (ILRI MISSION) OBSERVE	
- Infrastructure modern, of good quality, well-maintained (lab, abattoir, quarantine) - Three ports: Salalah, Muscat, Sohar - Personnel well-trained, enthusiastic, helpful - Good technical training of Vet Services staff - Commitment to OIE processes and follow them closely - Good communications between GCC but every country decides what to do - Strong zoonotic disease working group with multi-stakeholders - The population in Oman is around 5 million with around 2 million expatriates (40%) who are mainly from India, Bangladesh and Pakistan and who are fuelling the demand for "their country of origin meat"	- Limited ability to assure food safety in butchers - Many animal diseases not well investigated in Oman and exporters - Lab facilities new and good, but some inadequacies in protocols and QA - Over-reliance on "letters" as a way of communication - Virtually no culture of animal welfare - Data not being well-integrated across different sources - No vet school (school starting in private university) - Epidemiology unit in Vet Services not working well - Little communication or face-to-face visits with Horn countries - Little management/leadership training

Potential approaches to address constraints and build on advantages

1. BASIC: addressing specific constraints identified. For example, concern animals are not kept 21 days in quarantine could be addressed by innovative systems whereby unique muzzle photos are taken when they enter and made immediately available to importers

2. STRATEGIC: improving systems: Investments across key areas: infrastructure, capacity-building, optimising processes and communication
· Infrastructure: boats, ports, holding grounds
· Transparency: ICT, visits, verification
· Just in time delivery systems: reducing delays
· Capacity-building: management training, building technical skills, new diagnostics

3. RADICAL: transformation of Somali production: Traceability, transparency, quality, consistency through innovations production, transportation, slaughter and retail
· Traceability: farm to fork from Somalia
· Vacuum-packed meat in the Horn

A.5.2. Additional interviews conducted in Kenya and Ethiopia

Table A.5.3. CONSTRAINTS TO TRADE IDENTIFIED THROUGH STAKEHOLDERS MEETINGS

Stakeholder	Constraint	Recommendations
International organisation	Lack of standardisation, issues around livestock are sensitive, product needs to be safe, this is not harmonised in the region, not stressed enough. Some success stories and they have managed to penetrate international markets: standards, quality control. The way we are organized, still around subsistence level, makes systems inefficient and erases competitivity, costs need to come down Marketing centralized, information asymmetries lack of definition of tradeable items, competition does not state the real amount of trade Connectivity is the major issue, lack of track record, no well-established channels Lack of standardized documents/contracts Lack of supporting agencies, businesses (e.g. insurance) like other trade commodities have	
Meat producer co-operative-exporting country (HoA)	Foot and mouth disease Lack of export information, everybody says there is market, but no information of who is buying Standards, what are the levels required Politics, protectionism from big countries Capacity limited, difficult to organize farmers High production and transaction costs High cargo costs	Reduce cost FMD vaccination Ensure sustainability Build trust Improve communication Better define animal ownership Government help and collaboration
Vet services exporter (HoA)	Human capacity: training in meat technology, focus only on carcass, need to focus on special cuts, corned beef, vacuum packed, offal can also be exported -> overall more value addition needs to happen Vet services and TAD Infrastructure: diagnostics reagents, Enforcement of regulations: ongoing to strengthen, submitted to parliament, empower of vet service Power disparities Lack of transparency	Scale up existing exporting abattoirs to industrial level, to allow value addition Common forum between traders and regulatory bodies to speak common language, increase transparency

ANNEX 6.

Results of the Most-Least survey of the COMESA Workshop

Introduction

During the COMESA workshop on the "Participation of enterprises involved in live animal and meat trade in the regional and international markets" held in Addis Ababa – Ethiopia on 22 and 23 July 2019, two members of the ILRI team involved in the BESST feasibility study participated to the workshop and realized face-to-face interviews with the participants and administered a short questionnaire about the most critical constraints for livestock trade exports.

Data collection

A short questionnaire was developed and administered to collect data on an array of factors including the critical constraints to livestock trade exports. The constraints could be mainly grouped in two types/groups: Sanitary and Phyto-Sanitary (SPS) constraints and other types of constraints. Embedded in the short questionnaire was a section where respondents were presented with a set of 13 choice cards. Each card included a set of 4 attributes that was thought to constraint the exports of livestock trade. The respondents were requested to indicate in each case the most and least important attribute that influences the export of livestock. **Table A.6.1** summarizes the 13 attributes used and **Figure A.6.1** shows an example of a choice card. The selection of the 13 attributes was based on findings from PVS assessments, interviews with key informants, and literature review.

Table A.6.1. ATTRIBUTES USED IN THE CHOICE CARDS

Attributes
1. Veterinary laboratory diagnosis
2. Quarantine and border security
3. Epidemiological surveillance
4. Identification and traceability
5. Communications
6. Participation of producers and other stakeholders
7. Compliance with legislation and regulations
8. Animal disease
9. Lack of information related to marketing
10. Lack of infrastructure (road, marketing, shipping)
11. Poor governance and poor performance by authorities involved in trade
12. Climate change
13. Low quality/inefficiencies of vaccines and livestock drugs

Figure A.6.1. AN EXAMPLE OF A CHOICE CARD

Q. Please indicate the most important/critical constraint/competency and the least important/critical constraint/competency related to livestock export (import for the importing countries). (Tick only one case as most important and one case as least important)

Most important	Card 1	Least important
☐	Veterinary laboratory diagnosis	☐
☐	Climate change	☐
☐	Lack of information related to marketing	☐
☐	Animal disease	☐

Box A.6.1 shows the individual standardized Most-Least scores calculated from the Best-Worst experiment. In total 12 private company representatives participated in the survey (the number was slightly higher but some cards were not fully completed).

Box A.6.1. BEST-WORST/ MOST-LEAST SCORES

For the choice experiment data Standardized Most-Least scores (generally known as Best-Worst scores) were calculated to assess respondents' stated importance of the various attributes, and the importance of their respective levels. The standardized scores are calculated as follows:

Standardized Most – Least Score = (No.Most – No.Least)/ (m . n)

No.Most: number of times the attribute was chosen as most important
No.Least: number of times the attribute was chosen as least important
m: number of respondents = 12
n: number of times the attribute was presented to each respondent = 4

Positive values of Most minus Least mean that the given attribute was chosen more frequently as "Most" than "Least" and negative scores mean the opposite.

Results

The results of the Most-Least questions are summarized in Table A.6.2. The maximum number of times an attribute could be chosen as most important or as least important is 48 (12 x 4). The most important attributes affecting livestock exports were "identification and traceability" (ranked 1st), "Compliance with legislation and regulations" (2nd), and "animal disease" (3rd), and "Epidemiological surveillance" (4th).

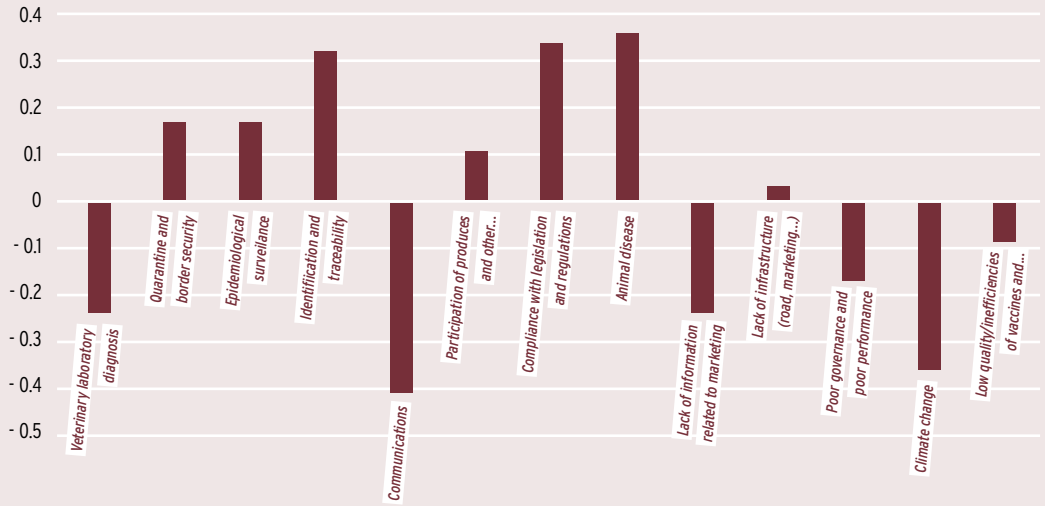
TABLE A.6.2. STANDARDIZED BEST-WORST SCORES OF THE ATTRIBUTES

Attribute	Most	Least	Score	Sqrt (B/W)	Standardized ratio scale	Rel. Imp. weights	Ranking
Veterinary laboratory diagnosis	6	17	-0.2292	0.5941	14.85	3.5%	10
Quarantine and border security	15	7	0.1667	1.4638	36.60	8.6%	5
Epidemiological surveillance	12	4	0.1667	1.7321	43.30	10.1%	4
Identification and traceability	16	1	0.3125	4.0000	100	23.4%	1
Communications	2	21	-0.3958	0.3086	7.71	1.8%	13
Participation of producers and other stakeholders	12	7	0.1042	1.3093	32.73	7.7%	6
Compliance with legislation and regulations	20	4	0.3333	2.2361	55.90	13.1%	2
Animal disease	25	8	0.3542	1.7678	44.19	10.4%	3
Lack of information related to marketing	6	17	-0.2292	0.5941	14.85	3.5%	10
Lack of infrastructure (road, marketing, shipping)	13	12	0.0208	1.0408	26.02	6.1%	7
Poor governance and poor performance by authorities involved in trade	6	14	-0.1667	0.6546	16.37	3.8%	9
Climate change	7	24	-0.3542	0.5401	13.50	3.2%	12
Low quality/inefficiencies of vaccines and livestock drugs	9	13	-0.0833	0.8321	20.80	4.9%	8

The least important attributes were "communications", "climate change", "veterinary laboratory diagnosis" and "lack of information related to marketing". The results indicate that for livestock exporting companies, SPS-related constraints are in general more important/constraining compared to marketing and other related factors including climate change. These results were somehow expected since historically livestock bans from Saudi Arabia and other Arabian Peninsula (AP) countries due to livestock diseases have notably affected trade between the Horn of Africa (HoA) and the AP countries.

Figure A.6.2 shows the non-standardized Best-Worst scores. Except for the three first attributes where "animal disease" is ranked first followed by "compliance with legislation and regulations" and then "identification and traceability", the rest of the results are similar to the standardized scores. The standardized scores are preferred to the non-standardized scores because they take into account the heterogeneity of the responses (standard deviations). With small sample size, like in this case (12 observations) it is more frequent to find these differences. With bigger sample size, the difference is reduced, and the scores are very close.

Figure A.6.2. NON STANDARDIZED BEST-WORST SCORES



ANNEX 7.

Synthesis of the six evidence themes

We combined the five evidence streams as follows:

1. LITERATURE REVIEW
· Constraints identified in the Literature Review which did not distinguish between AP and HoA

2. OIE TECHNICAL ITEM
· Constraints identified in the OIE technical item by AP
· Constraints identified in the OIE technical item by HoA

3. PVS REPORTS
· Recommendations addressing constrains in the PVS for the AP
· Recommendations addressing constrains in the PVS for the AP

4. SEMI-STRUCTURED INTERVIEWS
· Constraints identified in interviews – a mixture of AP and HOA

5. WORKSHOPS
· Constraints for AP from 2010 workshop (WS 1) for livestock stakeholders in animal health certification between Somalia and AP
· Constraints for HoA from 2010 workshop for livestock stakeholders in animal health certification between Somalia and AP
· Constraints from 2019 workshop by ILRI for BESST project (BESST)
· Constraints from Worst-Best study conducted by ILRI at a COMESA workshop with HoA participants

If a constraint was mentioned it scored 1. If an issue was said not to be a constraint it scored 0. If an issue was not mentioned it was left blank. For the OIE Technical item if more than 40% of respondents considered it an issue it scored 1. For the PVS. If more than 50% of studies considered it an issue it scored 1

TABLE A.7.1. CONSTRAINTS SCORING MATRIX. See above for explanation of column categories.

Constraint	Lit Rev	OIE AP	OIE HoA	PVS AP	PVS HoA	Intervs.	WS 1 AP	WS 1 HoA	BESST	COMESA HOA	All	AP	HoA
Lack of transparency, trust in safety and quality of trade	1	1	1			1	1	1			6	2	2
Mistrust in quarantine duration, performance, transparency	1	1	1			1		1	1	1	7	1	3
Lack of traceability	1	1	1	1	1	1		1	1	1	9	2	4
Lack of certification, fake certificates						1		1	1		3	0	1
Lack of trust in and reliance on official declaration	1					1	1	1	1		5	1	1
Lack of auditing, quality assurance farm to fork	1	1	1			1		1	1		6	1	2
Lack of confidence activities will continue after the project						1					1	0	1
Lack of SPS knowledge by public and private sector		0				1					1	0	0
Lack of information on diseases in the Horn	1					1	1	1			4	1	0
Lack of information sharing, participation of stakeholders		1	1	1	1	1		1		1	7	2	4
Information asymmetries, pricing, market access			0			1			1		2	0	1
Transaction costs to find new trading partners						1					1	0	0
Lack of human, physical and financial resources including emergency	1	1	1			1		1	1		6	1	1
Lack of capacity for risk analysis, setting testing requirements and discrimination	1	1				1	1		1		5	2	1
Failure to maintain quarantine and boarder security	1		0			1			1	1	4	0	1
Poor capacity to check slaughterhouses, testing for food-borne diseases						1					1	0	0
Insufficient laboratory testing capacity in AP countries						1					1	0	0
Surveillance, detection, response				1	1	1		1		1	5	1	2
Insufficient provision for emergency funding				1	1	1					3	1	2
Appppropriate legistlation and lack of participation in legislation		0	1	1	1	1	1	1	1		7	2	2
Difficulty in implementing equivalence and/or regionalization	1	1	1	1	1	1	1	1			8	3	3
Centralisation of disease control				0	1						1	0	2
Inadequate contingency plans				0	1	1					2	0	1
High level of diseases and poor animal welfare	1					1		1	1	1	5	0	1
Sub-optimal transport (small boats, long trips)						1					1	0	1
Capacity deficits of port and quarantine stations						1					1	0	0
Trade infrastructure deficits in exporting countries						1				1	2	0	1
Lack of access to financial instruments for livestock private sector						1					1	0	0
Irregular supply of good quality animals (feed resources, genetics, husbandry)						1					1	0	0
Inadequate dispute mediation mechanisms	1	1	1								3	1	1
Significant informal trade, illegal animal movements	1					1			1		3	0	0
Powerful groups preserving status quo and obstructing developments		0				1					1	0	0
Risk of exclusion of the poor from more formal and rigorous systems	1					1					2	0	0
High transaction costs, informal payments (check points, local authorities)						1					1	0	0
Lack of clear, direct incentives for behaviour change for all actors	1										1	0	0
Total	**15**	**9**	**9**	**6**	**8**	**32**	**6**	**13**	**12**	**7**	**117**	**21**	**38**

ANNEX 8.

Overview of past projects in the regions

TABLE A.8.1. OVERVIEW OF PAST PROJECTS IN THE REGIONS

Project title	Donor(s)	Amount	Duration	Partners	Country/Region	Main activities related to BESST	Main achievements
SOMALI LIVESTOCK CERTIFICATION PROJECT (SOLICEP)	EU	Euros 3.11 million	2008-2010	AU-IBAR, FAO, Terra Nuova	Somalia, Somalia ecosystem	• Define and test animal health certification model that promotes the OIE/WTO/SPS Standards for live animals and is acceptable to both importing and exporting countries. • Enhance capacity of Somali public and private institutions to improve access to international livestock markets. • Enhance linkages among relevant Somali institutions and livestock trading partners.	• Somali personnel trained on risk analysis. • Personnel trained on SPS and negotiation principles. • Personnel trained on animal health information management. • Infrastructure-offices, computers, website Cross border trade routes. • Establishment of Somali livestock stakeholder and coordination advisory. • Linkages between the HoA and AP livestock stakeholders on live animal health certification and trade. • Most effective testing model identified.
IGAD-FAO PARTNERSHIP IN DROUGHT RESILIENCE	Swiss Agency for Development and Cooperation	USD 10 million	2016-2021	IGAD	Kenya-Ethiopia-Somalia border areas	• Cross border community investments • Strengthened policy and institutional framework • Evidence based analysis for investment decision • Strengthened IGAD specialized institutions	
IGAD SHEIKH TECHNICAL VETERINARY AND REFERENCE CENTRE *https://icpald.org/projects-programs/igad-istvs/*	Terra Nuova, European Commission, the Italian Government and the Danish Government	Euros 6.5 million	Since 2002, 3 phases	University of Nairobi, Makerere University, Mekelle University, IGAD, AU-IBAR, Terra Nuova EC DANIDA Italian Agency for Development cooperation	Somalia Somaliland	• Capacity building. - Bachelor of science in dryland economics and ecosystem management. - Diploma in livestock health sciences. - Diploma in livestock product development and entrepreneurship.	• Recruitment and training of tutors; PhD: 3; MSc.: 8; B Sc: 4; Diploma: 4 • Development and continuous review of 3-year curriculum in Livestock Health Sciences and Livestock Products Safety and Quality Control using a student-centred methodology. • Constructed and equipped training facilities including laboratories and student hostels. • A total of 35 students have graduated with various Diplomas in Livestock Health Sciences and, Livestock Product Safety and Quality Control. There are 68 on-going students (14 being girls). • Eighty-two (82) participants have attended various short-term training courses.

TABLE A.8.1. (CONT.) OVERVIEW OF PAST PROJECTS IN THE REGIONS

Project title	Donor(s)	Amount	Duration	Partners	Country/Region	Main activities related to BESST	Main achievements
REGIONAL INTEGRATION SUPPORT PROGRAMME (RISP) *https://icpald.org/projects-programs/risp-iii/*	EU	Euros 55 million	Since 2005	IGAD	IGAD member states	• Support activities to accelerate domestication and implementation of regional commitments. • National consultations and consensus building. • Background analytical work, reviews to identify gaps between current national laws and regional commitments. • Drafting of new legislation to comply with regional decisions. • Strengthening national and regional institutions involved in coordination and implementation of regional integration activities.	• Documented policy lessons. • Training on development of policy tools for member states. • Cross border trade routes established. • TADs and zoonoses identified.
STANDARD METHODS AND PROCEDURES IN ANIMAL HEALTH *https://icpald.org/projects-programs/smp-ah/*	USAID	USD 7.75 million	2012-2016	AU-IBAR, IGAD	Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan, Tanzania and Uganda	• Support for countries in the greater Horn of Africa to harmonise animal health regulations through the development and implementation of the Standard Methods and Procedures (SMPs). • Framework for surveillance and control of trade-related animal diseases established. • Laboratory support and testing procedures for the priority diseases harmonised in the region. • Standards for regional quarantine stations established. • Technical and coordination capacity of participating countries and IGAD enhanced.	• SMPs for TADs (PPR, FMD, CBPP, CCPP, LSD, SGP, CP, RVF Brucellosis). • SMP for Export Quarantine. • Piloted initiatives LITS. • Trained veterinarians on risk analysis. • Trained 114 ARIS II administrators and users. • Trained 24 veterinary staff from HoA on Management Skills Development. • Trained 28 veterinarians from HoA on epidemiology and surveillance. • Trained 22 quarantine stakeholders from the HoA. • Trained 24 veterinary staff from HoA in laboratory technique. • Supported National Veterinary Institute and KEVEVAPI with materials and equipment to enhance quality and quality of vaccine production. • Supported the North Eastern Africa Livestock Council (NEALCO).
IMPROVING ANIMAL DISEASE SURVEILLANCE IN SUPPORT OF TRADE (STSD) *https://icpald.org/projects-programs/stsd/*	EU	Euros 6 million	2013-2016	AU-IBAR, IGAD	All IGAD member states	• Develop LITS. • Improve Health certification systems. • Improve Surveillance and Disease Control strategies.	• Developed and validated with MS the regional Guidelines for Animal Identification, Traceability (LITs). • Developed and validated Animal Health Certification Systems. • Developed and validated with MS a regional framework for progressive control and eradication of PPR. • Ongoing activities to enhance surveillance and disease reporting capacity of MS.

TABLE A.8.1. (CONT.) OVERVIEW OF PAST PROJECTS IN THE REGIONS

Project title	Donor(s)	Amount	Duration	Partners	Country/Region	Main activities related to BESST	Main achievements
REGIONAL PASTORAL LIVELIHOODS RESILIENCE PROJECT (RPLRP) *https://icpald.org/projects-programs/world-bank/*	World Bank Kenya, Uganda, Ethiopia	Kenya USD 77 million; Uganda USD 40 million; Ethiopia USD 75 million; IGAD USD 5 million	2015-2020	IGAD, MS	Kenya, Uganda, Ethiopia	• Natural resource management- services-development of water resources, rehabilitation of degraded rangelands, develop management capacity of local communities, create enabling legal environment. • Market access and trade-develop a market information system, integrate small livestock producers into producer organis ations, coordination of regulatory and institutional reforms that enhance trade within IGAD MS, support national veterinary services, harmonisation of SPS standards, develop a regionally recognized LITS. • Livelihood support-improve animal health, improve breeding practices, develop drought tolerant crops. • Pastoral risk management-Develop an early warning system.	
EAST AFRICA REGIONAL ANIMAL HEALTH NETWORKS (RAHN) *https://icpald.org/projects-programs/rahn/*	Member countries		2008	IGAD/ICPALD, EAC, AU-IBAR, PANVAC, ILRI, OIE, FAO	Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Somalia, Sudan, Tanzania, Uganda	• CVOs Network, East Africa Epidemiologist Network and East Africa laboratory Network. • To increase coordination between CVOs and epidemiologists and laboratory networks. • Regional network for sharing human and information on issues related to Transboundary diseases and zoonoses. • Platform for scientific and technical subnetworks for information sharing.	• Targeting information sharing on TADS and Zoonoses, strengthen coordination and collaboration on the TADS and zoonoses. Current targeted diseases are RVF, PPR, FMD and ASF.

TABLE A.8.1. (CONT.) OVERVIEW OF PAST PROJECTS IN THE REGIONS

Project title	Donor(s)	Amount	Duration	Partners	Country/Region	Main activities related to BESST	Main achievements
ENHANCING SOMALI LIVESTOCK TRADE (ESOLT) PROJECT *http://www.fao.org/emergencies/fao-in-action/projects/detail/en/c/1170803/*	EU	Euros 3 million	2015-2018	AU-IBAR, FAO	Somalia	• Enhance competitiveness of Somali livestock in international markets. • Improve compliance to market requirements for trade in livestock commodities. • Improve governance of Somali livestock value chains.	• Upscaled livestock marketing information systems. • Raised value chain actors' awareness of quality standards and developed beneficiaries' capacity to meet them. • Promoted Somali livestock and livestock products in local, regional and international markets. • Piloted grading and branding of Somali livestock commodities for local, regional and international markets. • Constructed or rehabilitated marketing and animal handling infrastructure. • Promoted value-addition in Somali livestock commodities. • Developed capacity for compliance with sanitary and phytosanitary measures, welfare, food safety and quality standards. • Strengthened the veterinary service's regulatory capacity to supervise and regulate quarantine operations. • Coordinated the functions of Somali livestock value chain actors. • Facilitated coordination mechanisms for Somali institutions and counterparts with importing countries. • Developed strategies for improved marketing of Somali livestock and livestock products.
REINFORCING ANIMAL HEALTH SERVICES IN SOMALIA (RAHS) *http://www.au-ibar.org/rahs*	EU		2013-2016	AU-IBAR, COOPI, Terra Nuova	Somalia	• Enhance the quality, access and sustainability of animal health services in Somalia.	• Capacity of public institutions to deliver and regulate animal health services strengthened. • Public, private and community partnerships in animal health services delivery strengthened. • Surveillance and control systems for trade sensitive diseases strengthened.

TABLE A.8.1. (CONT.) OVERVIEW OF PAST PROJECTS IN THE REGIONS

Project title	Donor(s)	Amount	Duration	Partners	Country/Region	Main activities related to BESST	Main achievements
SUSTAINABLE DEVELOPMENT OF LIVESTOCK FOR LIVELIHOODS IN AFRICA (LIVE2AFRICA) *https://www.africa-eu-partnership.org/sites/default/files/live2africa_factsheet.pdf*	EU	Euros 20 million	2017-2021	AU-IBAR	Africa	• Continental level/inter-regional/cross-border coordination (e.g. setting up of the technical working groups of the Engagement Platform). • Knowledge Management (e.g. indicating areas of achievement, challenges, emerging insights, and dissemination of best practices and lessons learnt to stakeholders). • Policy guidance (e.g. dissemination of policy briefs to decision makers, policy briefings during stakeholder meetings). • Facilitation of common positions (e.g. facilitating relevant technical experts in formulating common positions). • Monitoring and Evaluation, quality control, capacity building through trainings on specific technical matters, institutional reforms and transformation (e.g. review and enhancement of policies and legislation).	
REINFORCING OF VETERINARY GOVERNANCE IN AFRICA (VET-GOV) *https://icpald.org/projects-programs/vet-gov/*	EU, African, Caribbean and Pacific (ACP) Secretariat	Euros 31.2 million	2012 -2017	AU-IBAR, FAO, OIE	Sub-Saharan Africa (SSA)	• Establishment of adequate and affordable veterinary services on the national level. • Strengthening regional institutions to play their coordinating, harmonising, supporting and integration roles between their member states in line with the one health (OH) concept.	• Knowledge and awareness for institutional strengthening enhanced. • Institutional capacity for livestock policy formulation, animal health strategies and legislation enhanced. • Institutional capacity for the implementation of policies strengthened.
LIVESTOCK MARKETING AND RESILIENCE PROGRAMME (LMRP) *https://operations.ifad.org/documents/654016/dd9d0aa7-80b5-4159-a31f-0067aa1fe585*	IFAD, Sudan, Private sector	USD 119.2 million		Government of Federal Republic of Sudan, Least Developed Countries Fund (GEF LDCF), Adaptation for Smallholder Agriculture Programme (ASAP), Central Bank of Sudan (CBS),	Sudan	• Community Livestock Productivity and Marketing. • Livestock Value Chain Expansion. • Climate Change Preparedness and Policy Facilitation. • Sustainable Access to External Finance.	• Enhanced efficiency and inclusiveness of value chains from primary producers to final customers of live animals, meat, and hides and skins. • Response systems and innovative solutions for climate risk mitigation. • Access to sustainable formal financial services by target group.

TABLE A.8.1. (CONT.) OVERVIEW OF PAST PROJECTS IN THE REGIONS

Project title	Donor(s)	Amount	Duration	Partners	Country/Region	Main activities related to BESST	Main achievements
LIVESTOCK EMERGENCY INTERVENTION TO MITIGATE FOOD CRISIS IN SOMALIA (LEISOM) *http://www.au-ibar.org/component/jdownloads/finish/28/729*	EU	Euros 4 million	2009-2011	AU-IBAR	Somalia	• Enhanced livestock health by vaccination of sheep and goats against PPR, CCPP and sheep and goat pox. Treatment of livestock for endemic diseases that affect production. • Support for rehabilitation of livestock marketing infrastructure and improvement of their management systems to enhance livestock trade	• Productivity of small ruminants increased through enhanced animal health status in the pastoral production systems in Somalia • Performance of livestock marketing system improved through rehabilitation of infrastructures and improvement of their management systems.
NORTH EASTERN PASTORAL DEVELOPMENT PROGRAMME (NEPDP) *http://www.au-ibar.org/nep*	USAID	USD 2 million	2005-2010	Kenya Livestock Marketing Council (KLMC), Livestock Traders and Marketing Society of Kenya (LTMSK), Government of Kenya	Kenya	• Strengthening livestock marketing and animal health care.	• Training of District Livestock Marketing Councils and LTMSK at the grassroots. • Development of 5-year business plans each for KLMC and LTMSK and a detailed documentation of the pastoral livestock value chain. • Improved advocacy ability of KLMC and LTMSK in changing policies constraining to both private sector and pastoral production. • Establishment of a pastoral micro-finance scheme to support small-scale livestock traders and producers to improve their enterprises. • Improved disease surveillance and animal health service delivery through provision of mobile veterinary laboratories and allied equipment.
IMPROVING SUPPLY OF SAFE QUALITY LIVESTOCK AND MEAT EXPORTED FROM THE HORN OF AFRICA TO THE MIDDLE EAST AND GULF COUNTRIES *http://www.celep.info/wp-content/uploads/2016/08/GCP-RAF-490-ITA-Newsletter-No.1.pdf*	Italian Government	Euros 2.35 million	2015-2019	FAO, IGAD	IGAD member states (Djibouti, Ethiopia, Kenya, Somalia, South Sudan, Sudan, and Uganda)	• Training, awareness and capacity-building. Project intends to give stakeholders the capacities to supply safe and quality livestock and meat in conformity with the requirements of importing countries. • Establish IGAD regional Livestock market information Network Forum. • Support business relations between HoA countries and Gulf countries.	

TABLE A.8.1. (CONT.) OVERVIEW OF PAST PROJECTS IN THE REGIONS

Project title	Donor(s)	Amount	Duration	Partners	Country/Region	Main activities related to BESST	Main achievements
SUPPORT TO LIVESTOCK EXPORTS FROM THE HORN OF AFRICA (EXCELEX) PROJECT	Italian Government	USD 1.698 million	2003-2005	FAO, Governments of Djibouti, Ethiopia and Somalia	Ethiopia, Djibouti, Somalia	• The development of uniform animal health certificates for export animals, accepted by the participating government authorities. • The development of an export livestock certification database with trace-back capability; • The completion of an epidemiological survey of Rift Valley fever (RVF). • The establishment of serum banks in Somaliland and in the Somali Regional State of Ethiopia. • The preparation of risk analysis for trade related diseases.	• The first legal export of cattle from the Somali National Region State (SNRS) of Ethiopia, which, in 2004 to mid-2005, generated US$ 4.27 million in retained foreign exchange earnings. • Training of more than 60 veterinary staff in Ethiopia, Somaliland and Puntland in the inspection and certification of animals for trade related diseases. • Development of uniform animal health certificates for export animals, accepted by the participating government authorities. • The development of an export livestock certification database with trace-back capability.
REGIONAL PROGRAMME FOR THE CONTROL OF TRANSBOUNDARY ANIMAL DISEASES IN THE ARAB AND AFRICAN REGIONS TO IMPROVE THE SAFETY AND STABILITY OF TRADE IN LIVE ANIMALS AND ANIMAL PRODUCTS	Kuwait Fund for Arab Economic Development, Arab Bank for Economic Development in Africa (BADEA), AOAD, and AU-IBAR	USD 8 million (secured USD 4 million)	2020 onwards	AOAD	All AOAD Arab recognised member countries (Algeria, Bahrein, Comoros, Djibouti, EAU, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, Yemen) + 15 additional African countries (Burkina Faso, Cameroon, Chad, CAR, Ethiopia, Kenya, Mali, Niger, Nigeria, Tanzania, South Africa, Uganda, Eritrea, Senegal, Southern Sudan)	· Strengthening of disease surveillance systems for TADs and zoonoses · Strengthening the capacity of veterinary quarantines at border points and customs outlets · Rehabilitation of veterinary laboratories and strengthening of laboratory networks · Capacity building and skills development · Raising awareness among key stakeholders along the value chain in African and Arab countries	

ANNEX 9.

Figure A.9.1. STOCKING CAPACITY VERSUS STOCKING RATE IN SOMALILAND

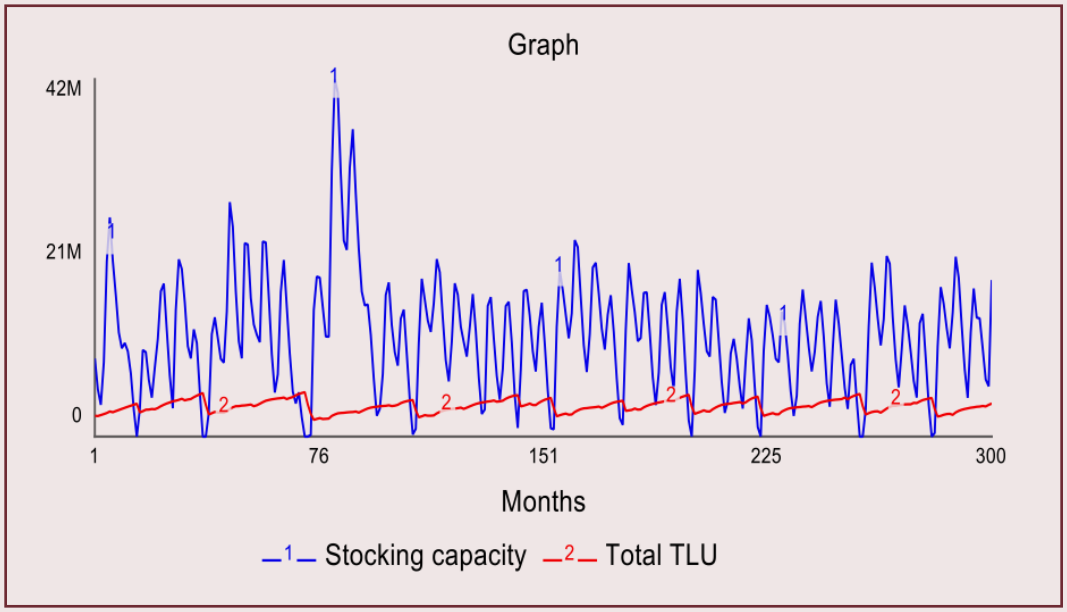


Figure A.9.2. PROJECTED QUALITY OF RANGE LAND IN SOMALILAND UNDER BASELINE CONDITIONS

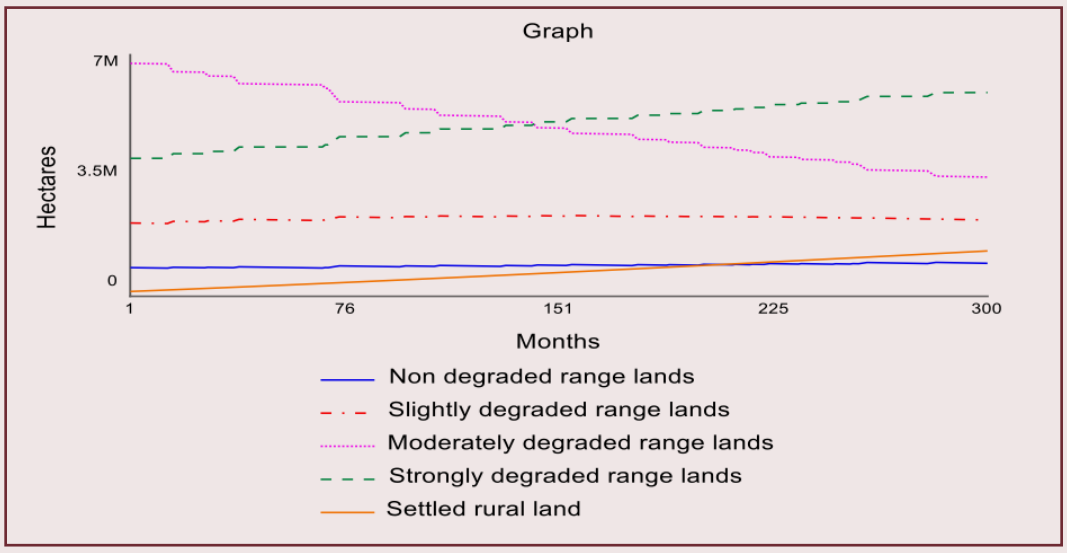


Figure A.9.3. PROJECTED LEVEL OF SMALL RUMINANTS' EXPORTS UNDER BASELINE CONDITIONS

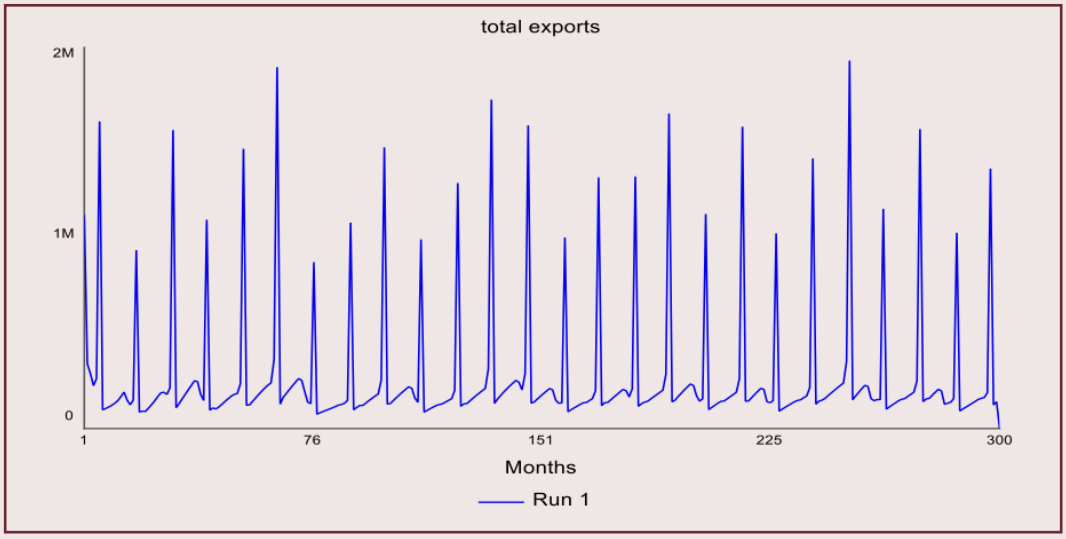


Figure A.9.4. PROJECTED PRICE OF SMALL RUMINANTS' MEAT IN SOMALILAND CONDITIONS UNDER BASELINE CONDITIONS

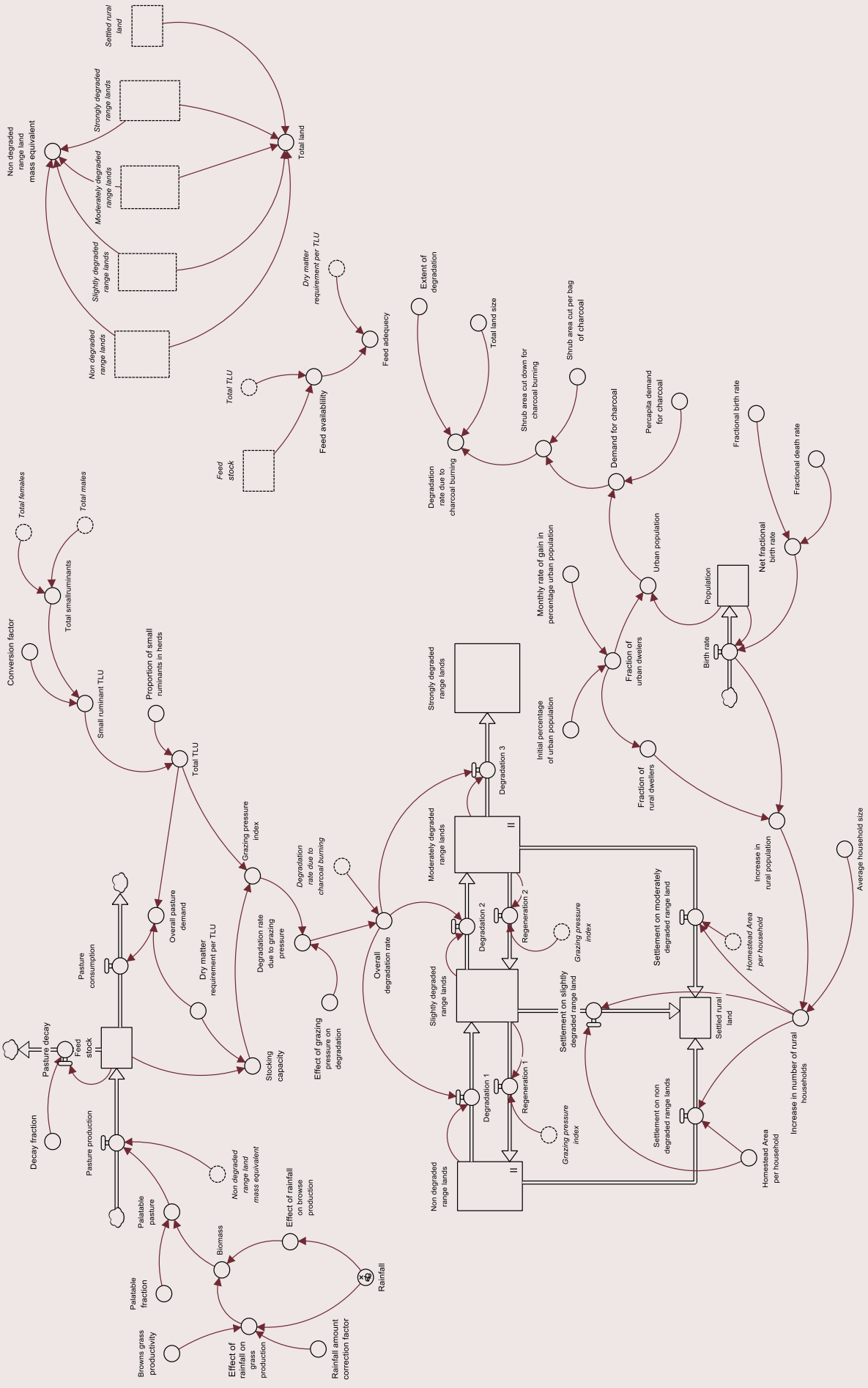
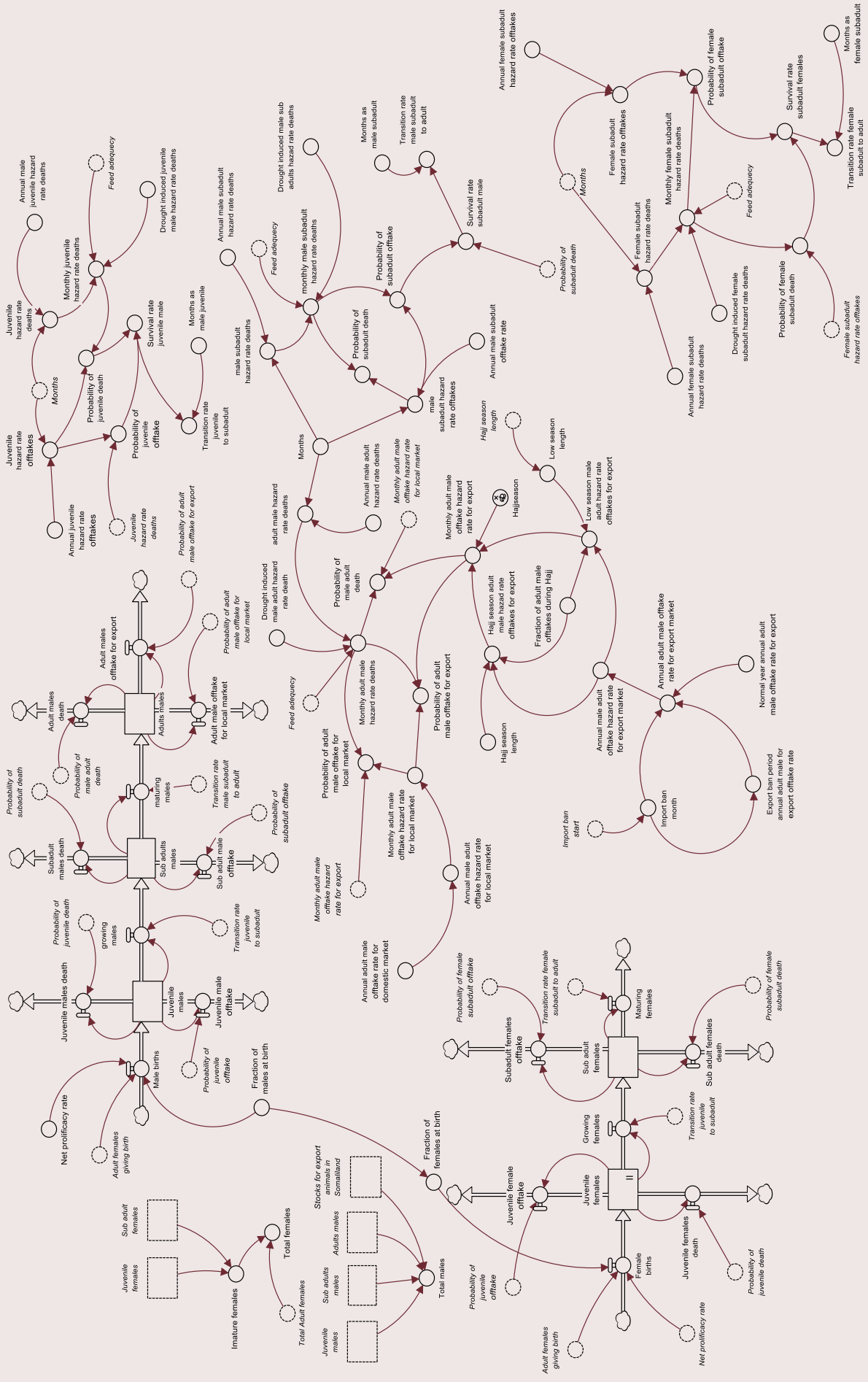


Figure A.9.5. PASTURE PRODUCTION AND CONSUMPTION MODULE

Figure A.9.6. LIVESTOCK POPULATION DYNAMICS MODULE



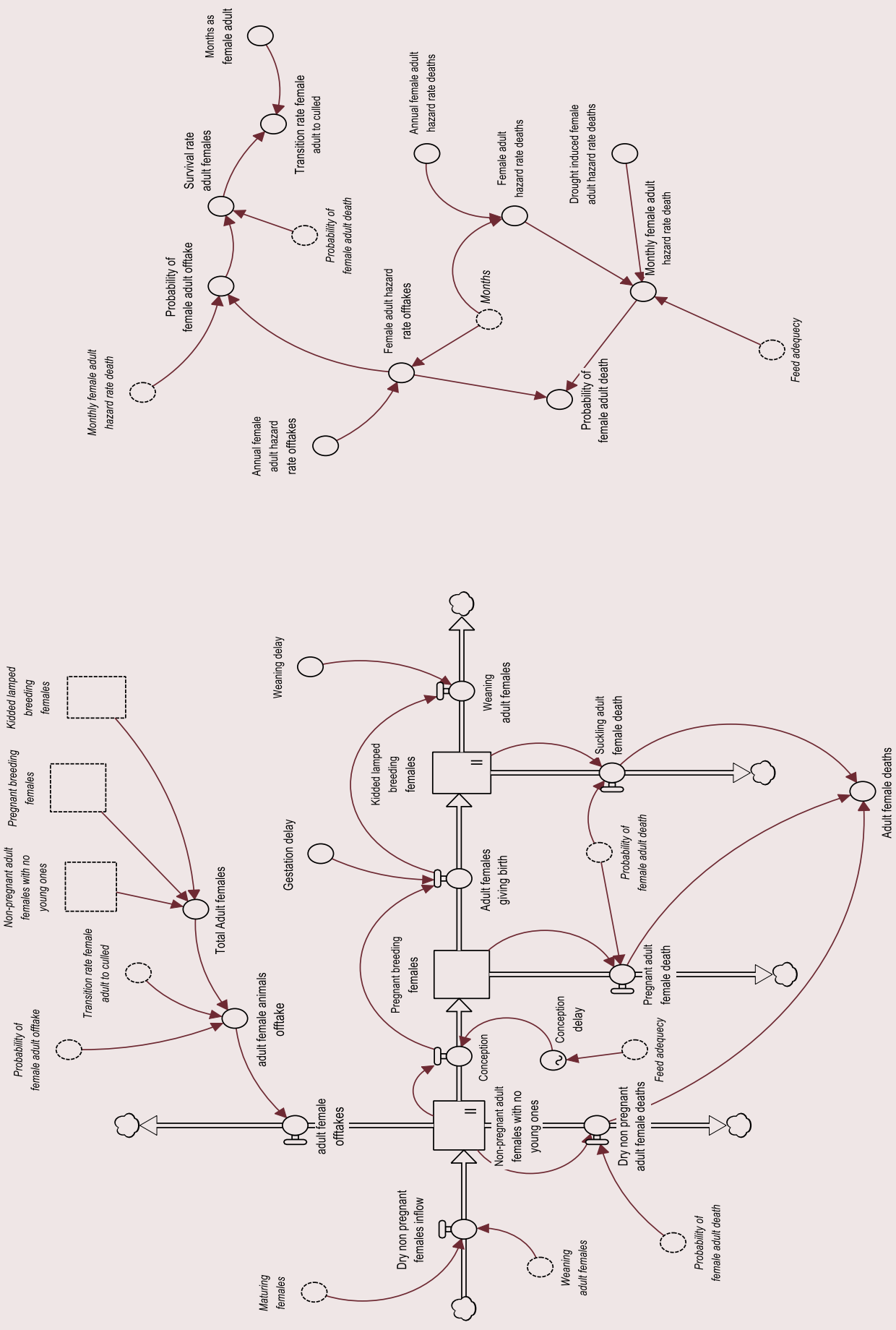
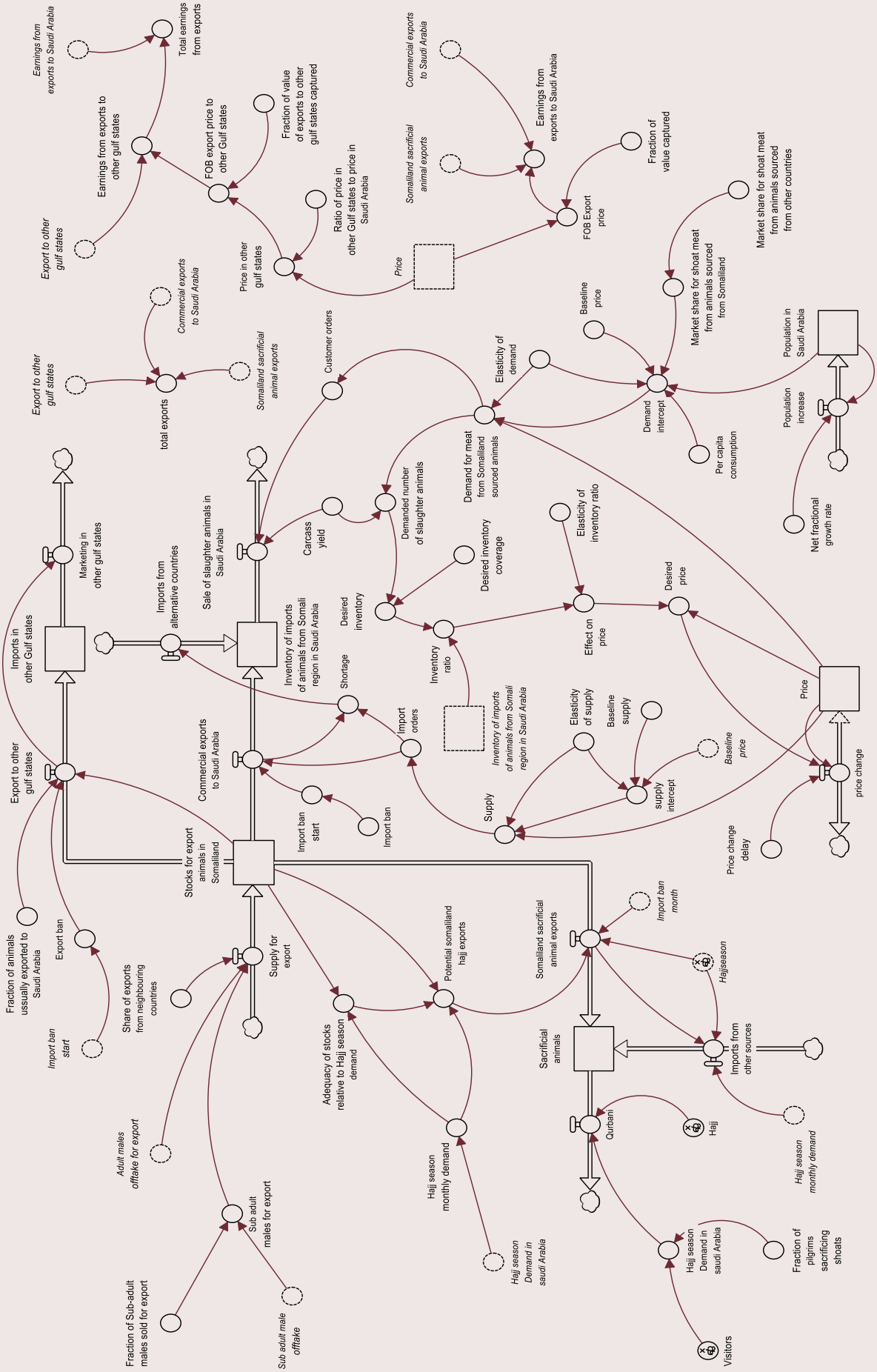


Figure A.9.7. LIVESTOCK BREEDING MODULE

Figure A.9.8. EXPORT MARKETING OF SLAUGHTER ANIMALS' MODULE



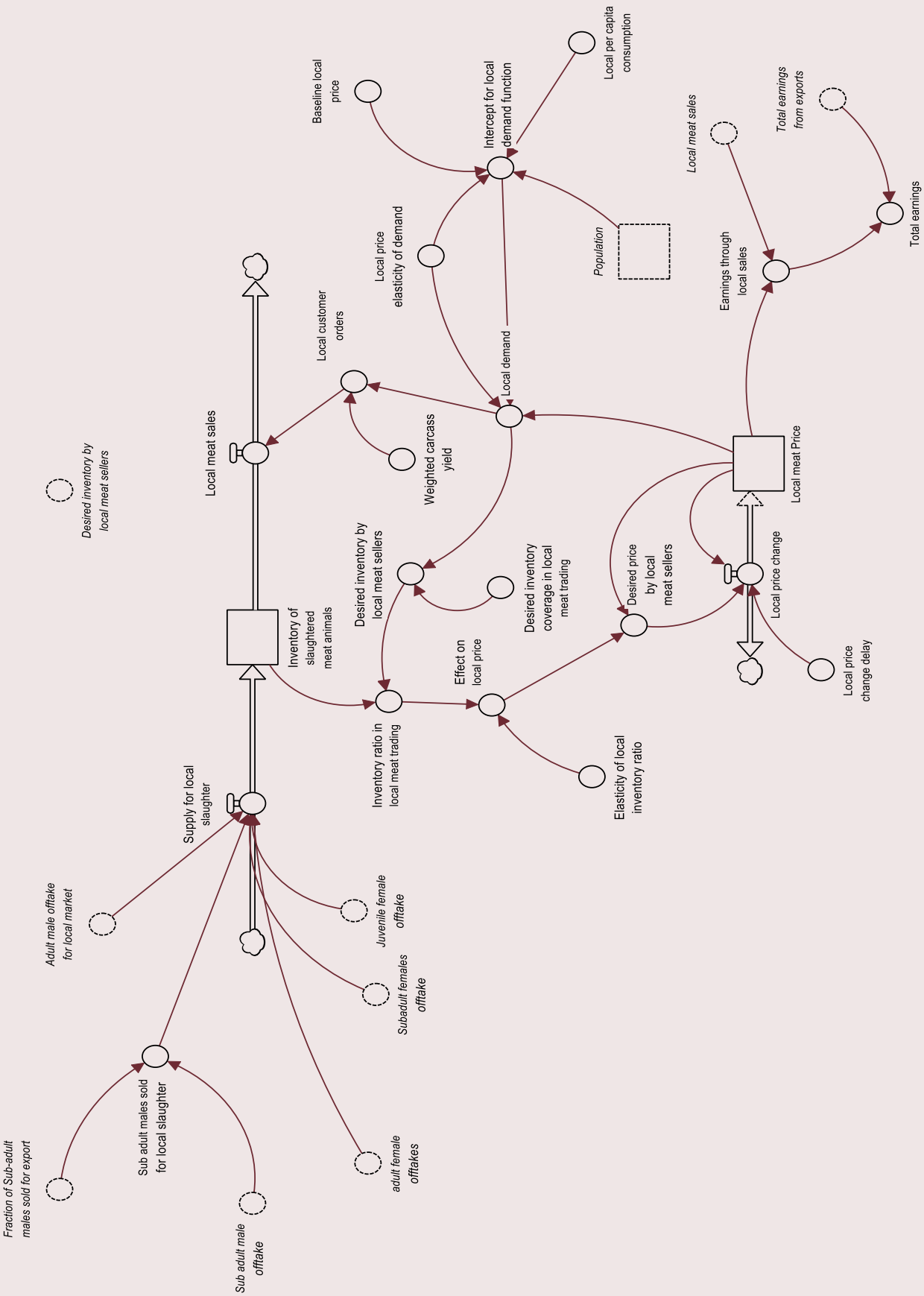


Figure A.9.9. MARKETING OF DOMESTIC SLAUGHTER ANIMALS MODULE

ANNEX 10.

Detailed cost tables

TABLE A.10.1. PROJECT COMPONENTS BY YEAR - TOTALS INCLUDING CONTINGENCIES (US$'000)

	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
A. Trust, communications and governance						
Trust, communications and governance	130.0	130.0	130.0	130.0	130.0	650.0
Formal Trade	702.5	1,305.0	755.0	52.5	-	2,815.0
Technological & Institutional Innovations	2,731.1	2,731.1	2,731.1	2,731.1	2,731.1	13,655.3
Certification	40.0	84.0	84.0	-	-	208.0
Verification System	144.0	216.0	144.0	-	-	504.0
Subtotal	**3,747.6**	**4,466.1**	**3,844.1**	**2,913.6**	**2,861.1**	**17,832.3**
B. Knowledge and information						
Training capacity development platform	233.0	233.0	233.0	233.0	233.0	1,165.0
Data management	-	121.9	81.9	81.9	66.1	351.7
Trade fairs	-	100.0	-	100.0	-	200.0
Virtual marketplace	1,536.0	1,596.0	1,536.0	1,536.0	1,536.0	7,740.0
Surveillance	-	178.8	178.8	178.8	178.8	715.0
Producers' associations	200.0	200.0	200.0	200.0	200.0	1,000.0
Subtotal	**1,969.0**	**2,429.6**	**2,229.6**	**2,329.6**	**2,213.9**	**11,171.7**
C. Veterinary system performance						
Laboratories and capacities	1,032.5	1,032.5	1,032.5	1,032.5	1,032.5	5,162.5
Disease-free zones	-	250.0	500.0	250.0	-	1,000.0
Training SPS	80.0	80.0	80.0	80.0	80.0	400.0
PVS gaps	250.0	250.0	250.0	250.0	-	1,000.0
Subtotal	**1,362.5**	**1,612.5**	**1,862.5**	**1,612.5**	**1,112.5**	**7,562.5**
D. Sector weaknesses						
Transport	125.0	125.0	125.0	125.0	-	500.0
Payment systems	-	-	100.0	-	-	100.0
Animal husbandry	2,000.0	2,000.0	2,000.0	2,000.0	-	8,000.0
Infrastructure AP region	-	550.0	550.0	550.0	550.0	2,200.0
Infrastructure HoA region	1,650.0	1,650.0	1,650.0	-	-	4,950.0
Loans	-	1,875.0	1,875.0	1,875.0	1,875.0	7,500.0
Subtotal	**3,775.0**	**6,200.0**	**6,300.0**	**4,550.0**	**2,425.0**	**23,250.0**
E. Project management	503.5	528.3	460.0	460.0	430.0	2,381.8
TOTAL PROJECT COSTS	**11,357.6**	**15,236.4**	**14,696.2**	**11,865.7**	**9,042.4**	**62,198.2**

TABLE A.10.2. DETAILED COST ESTIMATE BY EXPENDITURE CATEGORY

	(US$'000) Foreign	% Total Base Costs
A. Investment costs		
1. Works	8,500.0	14
2. Equipment and materials	18,725.0	31
3. Consultancies	2,030.0	3
4. Goods, services and inputs	11,300.0	19
5. Credit	7,500.0	12
6. Workshops and meetings	650.0	1
7.Training and capacity development	2,876.9	5
Total investment costs	**51,581.9**	**85**
B. Recurrent costs		
1. Salaries and allowances	8,430.0	14
2. Operating costs	400.0	1
Total Recurrent costs	**8,830.0**	**15**
TOTAL BASELINE COSTS	**60,411.9**	**100**
Physical contingencies	1,786.3	3
Price contingencies	-	-
TOTAL PROJECT COSTS	**62,198.2**	**103**

Table A.10.3. MULTI-STAKEHOLDER PLATFORMS

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Meetings	Amount	130.0	130.0	130.0	130.0	130.0	650.0	0.0	100.0	0.0	MULTI_PLATF	WORK_MEET
Total		**130.0**	**130.0**	**130.0**	**130.0**	**130.0**	**650.0**					

Table A.10.4. FORMAL TRADE

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Construction/rehabilitation new/old offices		550.0	1,100.0	550.0	-	-	2,200.0	10.0	100.0	0.0	FORM_TRADE	WORKS
B. Buy new equipments	Amount	52.5	105.0	105.0	52.5	-	315.0	5.0	100.0	0.0	FORM_TRADE	EQUIP_&_MAT
C. Studies to better understand informal trade		100.0	100.0	100.0	-	-	300.0	0.0	100.0	0.0	FORM_TRADE	CONSULTANCIES
Total		**702.5**	**1,305.0**	**755.0**	**52.5**	**-**	**2,815.0**					

Table A.10.5. TECHNOLOGICAL AND INSTITUTIONAL INNOVATIONS

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Tagging	Amount	2,731.1	2,731.1	2,731.1	2,731.1	2,731.1	13,655.3	5.0	100.0	0.0	TECH&INST_INNOV	EQUIP_&_MAT
Total		**2,731.1**	**2,731.1**	**2,731.1**	**2,731.1**	**2,731.1**	**13,655.3**					

Table A.10.6. CERTIFICATION

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Electronic certification software	Amount	40.0	-	-	-	-	40.0	0.0	100.0	0.0	CERTIFICATION	CONSULTANCIES
B. Laptops and office equipements	Amount	-	84.0	84.0	-	-	168.0	5.0	100.0	0.0	CERTIFICATION	EQUIP_&_MAT
Total		**40.0**	**84.0**	**84.0**	**-**	**-**	**208.0**					

Table A.10.7. VERIFICATION SYSTEMS

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Training selected companies	Amount	60.0	90.0	60.0	-	-	210.0	0.0	100.0	0.0	VER_SYS	TRAIN_&_CAP_BUI
B. Equipements for the companies	Amount	84.0	126.0	84.0	-	-	294.0	5.0	100.0	0.0	VER_SYS	EQUIP_&_MAT
Total		**144.0**	**216.0**	**144.0**	**-**	**-**	**504.0**					

Table A.10.8. TRAINING CAPACITY DEVELOPMENT PLATFORM

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Training for public and private sector	Amount	233.0	233.0	233.0	233.0	233.0	1,165.0	0.0	100.0	0.0	TRAIN_CAPDEV_PLATF	TRAIN_&_CAP_BUI
Total		**233.0**	**233.0**	**233.0**	**233.0**	**233.0**	**1,165.0**					

Table A.10.9. DATA MANAGEMENT

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Software for data sharing		-	40.0	-	-	-	40.0	0.0	100.0	0.0	DATA_MANAG	GOOD_SERV_INP
B. Training for the use of the software	Amount	-	66.1	66.1	66.1	66.1	264.4	0.0	100.0	0.0	DATA_MANAG	TRAIN_&_CAP_BUI
C. Purchase of laptops		-	15.8	15.8	15.8	-	47.3	5.0	100.0	0.0	DATA_MANAG	EQUIP_&_MAT
Total		**-**	**121.9**	**81.9**	**81.9**	**66.1**	**351.7**					

Table A.10.10. TRADE FAIRS

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Seed Funding	Amount	-	100.0	-	100.0	-	200.0	0.0	100.0	0.0	TRADE_FAIRS	GOOD_SERV_INP
Total		**-**	**100.0**	**-**	**100.0**	**-**	**200.0**					

Table A.10.11. VIRTUAL MARKETPLACE

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Web based system	Amount	-	60.0	-	-	-	60.0	0.0	100.0	0.0	VIRT_MARKET_PLACE	GOOD_SERV_INP
Total Investment Costs		**-**	**60.0**	**-**	**-**	**-**	**60.0**					
II. Recurrent Costs												
A. Payment for enumerators /a	Amount	1,536.0	1,536.0	1,536.0	1,536.0	1,536.0	7,680.0	0.0	100.0	0.0	VIRT_MARKET_PLACE	SAL_ALLOW
Total		**1,536.0**	**1,536.0**	**1,536.0**	**1,536.0**	**1,536.0**	**7,740.0**					

\a Payment for enumerators to collect market data

Table A.10.12. SURVEILLANCE

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Purchase of Tablets	Amount	-	78.8	78.8	78.8	78.8	315.0	5.0	100.0	0.0	SURVEILLANCE	EQUIP_&_MAT
B. Training at village level	Amount	-	100.0	100.0	100.0	100.0	400.0	0.0	100.0	0.0	SURVEILLANCE	TRAIN_&_CAP_BUI
Total		**-**	**178.8**	**178.8**	**178.8**	**178.8**	**715.0**					

Table A.10.13. PRODUCERS' ASSOCIATIONS

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Seed funding for producers/traders associations	Amount	200.0	200.0	200.0	200.0	200.0	1,000.0	0.0	100.0	0.0	PROM_PROD_ASSOCIA	GOOD_SERV_INP
Total		**200.0**	**200.0**	**200.0**	**200.0**	**200.0**	**1,000.0**					

Table A.10.14. LABORATORIES AND CAPACITIES

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Laboratory Equipment	Amount	945.0	945.0	945.0	945.0	945.0	4,725.0	5.0	100.0	0.0	LABS_CAP	EQUIP_&_MAT
B. Trainings for labs and quarantine stations	Amount	87.5	87.5	87.5	87.5	87.5	437.5	0.0	100.0	0.0	LABS_CAP	TRAIN_&_CAP_BUI
Total		**1,032.5**	**1,032.5**	**1,032.5**	**1,032.5**	**1,032.5**	**5,162.5**					

Table A.10.15. DISEASE FREE ZONES

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Seed funding	Amount	-	250.0	500.0	250.0	-	1,000.0	0.0	100.0	0.0	DIS_FREE_ZONE	GOOD_SERV_INP
Total		**-**	**250.0**	**500.0**	**250.0**	**-**	**1,000.0**					

Table A.10.16. TRAINING SPS

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Training on SPS requirements	Amount	80.0	80.0	80.0	80.0	80.0	400.0	0.0	100.0	0.0	TRAINING_SPS	TRAIN_&_CAP_BUI
Total		**80.0**	**80.0**	**80.0**	**80.0**	**80.0**	**400.0**					

Table A.10.17. PVS GAPS

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Seed funding for PVS assessment /a	Amount	250.0	250.0	250.0	250.0	-	1,000.0	0.0	100.0	0.0	PVS_GAPS	GOOD_SERV_INP
Total		**250.0**	**250.0**	**250.0**	**250.0**	**-**	**1,000.0**					

\a Seed funding. Additional funding should come from the beneficiary governments

Table A.10.18. TRANSPORT

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Study on conformity of vessels /a	Amount	125.0	125.0	125.0	125.0	-	500.0	0.0	100.0	0.0	TRANSPORT	CONSULTANCIES
Total		**125.0**	**125.0**	**125.0**	**125.0**	**-**	**500.0**					

\a Most other investments should come from private sector

Table A.10.19. PAYMENT SYSTEMS

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Study on payment system issues in Somalia	Amount	-	-	100.0	-	-	100.0	0.0	100.0	0.0	PAY_SYS	CONSULTANCIES
Total		**-**	**-**	**100.0**	**-**	**-**	**100.0**					

Table A.10.20. ANIMAL HUSBANDRY

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Seed funding /a	Amount	2,000.0	2,000.0	2,000.0	2,000.0	-	8,000.0	0.0	100.0	0.0	ANIMAL_HUSBANDRY	GOOD_SERV_INP
Total		**2,000.0**	**2,000.0**	**2,000.0**	**2,000.0**	**-**	**8,000.0**					

\a Core funding should come from beneficiary countries

Table A.10.21. INFRASTRUCTURE AP REGION

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Seed funding for port & quarantine	Amount	-	550.0	550.0	550.0	550.0	2,200.0	10.0	100.0	0.0	INFRAS_AP	WORKS
Total		**-**	**550.0**	**550.0**	**550.0**	**550.0**	**2,200.0**					

Table A.10.22. INFRASTRUCTURE HoA REGION

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Seed funding for port and quarantine	Amount	1,650.0	1,650.0	1,650.0	-	-	4,950.0	10.0	100.0	0.0	INFRAS_HOA	WORKS
Total		**1,650.0**	**1,650.0**	**1,650.0**	**-**	**-**	**4,950.0**					

Table A.10.23. LOANS

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
A. Loans for medium and small scale entrepreneurs	Amount	-	1,875.0	1,875.0	1,875.0	1,875.0	7,500.0	0.0	100.0	0.0	LOANS	CREDIT
Total		**-**	**1,875.0**	**1,875.0**	**1,875.0**	**1,875.0**	**7,500.0**					

Table A.10.24. PROGRAM MANAGEMENT

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
Equipment for Project Team	Amount	21.0	15.8	-	-	-	36.8	5.0	100.0	0.0	PROJ_MANAG	EQUIP_&_MAT
Consultancies for specific tasks	Amount	-	30.0	30.0	30.0	-	90.0	0.0	100.0	0.0	PROJ_MANAG	CONSULTANCIES
Total Investment Costs		**21.0**	**45.8**	**30.0**	**30.0**	**-**	**126.8**					
II. Recurrent Costs												
Salaries for recruited staff	Amount	150.0	150.0	150.0	150.0	150.0	750.0	0.0	100.0	0.0	PROJ_MANAG	SAL_ALLOW
Operating costs for project management	Amount	50.0	50.0	50.0	50.0	50.0	250.0	0.0	100.0	0.0	PROJ_MANAG	OP_COSTS
Total Recurrent Costs		**200.0**	**200.0**	**200.0**	**200.0**	**200.0**	**1,000.0**					
Total		221.0	245.8	230.0	230.0	200.0	1,126.8					

Table A.10.25. MONITORING AND EVALUATION

		Economic Costs (US$ '000)						Parameters (in %)			Summary Divisions	
	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
I. Investment Costs												
Equipements for M&E	Amount	52.5	52.5	-	-	-	105.0	5.0	100.0	0.0	PROJ_MANAG	EQUIP_&_MAT
Funds for consultancy	Amount	200.0	200.0	200.0	200.0	200.0	1,000.0	0.0	100.0	0.0	PROJ_MANAG	CONSULTANCIES
Total Investment Costs		**252.5**	**252.5**	**200.0**	**200.0**	**200.0**	**1,105.5**					
II. Recurrent Costs												
M&E Operating Costs	Amount	30.0	30.0	30.0	30.0	30.0	150.0	0.0	100.0	0.0	PROJ_MANAG	OP_COSTS
Total Recurrent Costs		**30.0**	**30.0**	**30.0**	**30.0**	**30.0**	**150.0**					
Total		282.5	282.5	230.0	230.0	230.0	1,255.0					

TABLE A.10.26. BESST INVESTMENTS IN HORN OF AFRICA COUNTRIES (US$)

Component	Activity	Somalia	Djibouti	Eritrea	Ethiopia	Kenya	Sudan	TOTAL
Trust, communication and governance	Multi-stakeholder platforms	72,222	72,222	72,222	72,222	72,222	72,222	**433,333**
	Formal trade	938,333	0	0	938,333	938,333	0	**2,815,000**
	Technological and institutional innovations	3,582,202	922,595	0	16,415	0	9,134,088	**13,655,300**
	Certification	41,600	41,600	0	41,600	41,600	41,600	**208,000**
	Verification systems	216,000	72,000	0	0	0	216,000	**504,000**
Knowledge and information	Training capacity development platform	116,500	116,500	116,500	116,500	116,500	116,500	**699,000**
	Data management	39,078	39,078	0	39,078	39,078	39,078	**195,390**
	Trade fairs	20,000	20,000	20,000	20,000	20,000	20,000	**120,000**
	Virtual marketplace	1,548,000	1,548,000	0	1,548,000	1,548,000	1,548,000	**7,740,000**
	Surveillance	178,750	0	0	178,750	178,750	178,750	**715,000**
	Producers' associations	250,000	0	0	250,000	250,000	250,000	**1,000,000**
Veterinary services performance	Laboratories and capacities	1,032,500	1,032,500	1,032,500	0	0	1,032,500	**4,130,000**
	Disease free zones	0	0	0	500,000	500,000	0	**1,000,000**
	Trainings SPS	40,000	40,000	0	40,000	40,000	40,000	**200,000**
	PVS gaps	90,909	90,909	90,909	90,909	90,909	90,909	**545,454**
Sector weaknesses	Payment systems	100,000	0	0	0	0	0	**100,000**
	Animal husbandry	2,000,000	0	0	2,000,000	2,000,000	2,000,000	**8,000,000**
	Infrastructure HoA region	1,650,000	1,650,000	0	0	0	1,650,000	**4,950,000**
	Loans	1,500,000	0	0	1,500,000	1,500,000	1,500,000	**6,000,000**
TOTAL		**13,416,095**	**5,645,404**	**1,332,131**	**7,351,808**	**7,335,393**	**17,929,647**	**53,010,477**

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